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Farming in the Desert.
Institutions and Mechanisms That Make Agriculture as a livelihood Possible for Hawawir Pastoralists in Northern Sudan

Norwegian University of Life Sciences
Farming in the Desert: Institutions and Mechanisms that make agriculture as a livelihood possible for the Hawawir pastoralists in Northern Sudan.

by

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A Thesis Submitted in Partial Fulfillment of the Degree of Master of Science in Management of Natural Resources and Sustainable Development.

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Declaration

I, Tyseer Elhadi Omer, hereby declare that this is my original findings of field work. The thesis has not been published before to any academic institution for a degree. Information that I have used from other resources is duly acknowledged.

Tyseer Elhadi Omer
Ås, 16 of May 2004
Dedication

To my father’s soul…..
To my beloved mother ..... 
To my dearest sisters and brother.....
To you all............... 
I dedicate my first.
Abstract
The Hawawir are a nomadic group living in the Bayoda desert of Northern Sudan. This pastoral community is one of the communities that was hard hit by droughts in the Sahel of Africa during the 1980s. The drought drastically changed the livelihood of the Hawawir through the loss of pastures and livestock. To address this problem, a number of development programmes have been organised and implemented to secure the livelihoods of the Hawawir. Recently, an irrigated development project was established for the Hawawir living in Wadi al Mugaddam. The focus of this thesis is to look at the mechanisms by which the Hawawir are conceptualising the ongoing transformation from pastoral to agro pastoral as a result of introducing the irrigated development project in the area.

The objectives of the study are in four folds. First, to identify the local institutions of the Hawawir community those have affected the farming systems brought by the project, as well as, the effect of the organisations created by the project in the farming system. And second to explore the management of the crops at the farm level. Third, to examine how Hawawir perceive the uncertainties that have resulted from the establishment of the project, and finally to identify how the Hawawir perceive the sustainability of their institutions and organisations in managing the project activities.

To address the foregoing research objectives, data were collected using both qualitative and quantitative research approaches over a period of two months in Um jawasir. Specifically, research techniques including focus group discussions, observations, continuous discussions and key informant interviews were used to elicit information from farmers, local leaders and the development project staff. In all forty questionnaires were administered on some of the Hawawir farmers compromising thirteen women and twenty-seven men. In order to ascertain the well being of the Hawawir as well as understand their natural setting, wealth ranking and resource mapping were carried out.

The study revealed that the Hawawir had internalised their customary laws in dealing with the farming systems introduced by the project. The tribal membership was seen as playing a vital role in establishing both farmers’ and women’s committees in the project. It was also found that women were much involved in processing okra and beans than men. Eventhough, women
were effectively involved in the development process in Um jwasir, their strategic gender needs were still not met. Hawawir traders brought farm produce from farmers and then sold them outside Um jawaisir. Farm produce from Um jawaisir were of low quality and thus attracted relatively low prices compared to those from other areas. To cope with uncertainties, farmers depended very much on the local experiences and knowledge they had gathered over the years. Reduction of farm sizes and crops planted as well as the use of simple technologies for irrigation were viewed as coping mechanisms for market failure by farmers. Indeed, farmers had their own perceptions on uncertainty in their lives. It is also worth noting that the introduction of a systemised agriculture in the Hawawir caused restrictions in the flexibilities of their customary law.
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Chapter 1: Introduction

1.1 Problem statement
Pastoral systems in dry lands are known to be accustomed to climatic stresses and unpredictability of natural settings (Bovin and Manger, 1990). Pastorals were able to cope with these ecological stresses by different strategies within their social networks, for example long-distance migrations, diversification of activities, dispersion of animal and human groups, forms of redistribution and reciprocity (Bonte, 1975). However, states’ policies towards pastorals in the last decades have shifted to more market oriented relations by the commodification of livestock production. These changes have disturbed the flexibility and resilience of pastoral systems (ibid).

State policies as well as non-governmental organisations programmes also aim at settling nomads. For instance, the Sudanese government and many non-governmental organisations designed and implemented programmes to settle nomads and thus exposed them to urban centres, where they could be involved in exchange market. (Larsen, 2005). By this policy, nomads were forced to change their livestock keeping from sheer subsistence to exchange mode of production (Babikr, 2002). As a result, nomads became more vulnerable to the dictates of the market environment.

This study is looking at the mechanisms by which, the Hawawir pastoral community has conceptualised the interventions brought by a non-governmental organisation, through the establishment of a food security and environmental rehabilitation project. The Hawawir pastorals, were among the people, who were severely affected by the drought during the 1980s in the Um jawasir area, within Wadi al Mugaddam, Northern Sudan.

The aim of the project is to provide a viable livelihood for Hawawir. The project supplies the participants with agricultural inputs and extensional services to cultivate crops such as, wheat, sorghum, okra and bean. Fodder and alfalfa are also planted to secure livestock of Hawawir. Eucalyptus trees were grown to serve as shelter belts for the farms as well as a source of income.
The transformation from pastoral to agro-pastoral livelihood in the Hawawir setting presents an interesting case to study. Hence I explored this case by looking at the institutions and mechanisms in the Hawawir community that make the ongoing transformation possible. And I as a student of resources management would like to address this issue by focusing on farming system of cash crops within the project. I am focusing on okra and bean because they are becoming cash crops and causing changes in the social dynamics within the Hawawir community.

1.2 Objectives and research questions

- Identify institutions and organisations, which are involved in farming systems within the Hawawir community.
- To know the how the existing institutions and organisations affect farming systems brought by the project.
- How women in Hawawir community became involved in the development project.
- How Hawawir farmers practised processing and marketing of cash crops introduced by the development project.
- How Hawawir perceive uncertainties regarding their management of cropping activities. For the Hawawir nomadic pastoralists living in dry lands, uncertainty affect their every day life and planning.
- How Hawawir perceive the sustainability of their institutions and organisation in managing the development project.

1.3 Rationale

Pastoral communities all over the world depend on certain forms of institutions that organise and facilitate their societies. For example, customary laws are defined between nomadic groups in grazing certain pastures in nomadic societies. Thus the introduction of systemised agriculture might bring many changes into the institutional setup of pastoralists’ communities. The case of Hawawir pastoralists of Northern Sudan is a typical example of such changes.

In particular, Hawawir women were involved in the project, it is very interesting to explore mechanisms, by which women were introduced to the project.
Knowing the mechanisms, by which the Hawawir institutions have adapted to the ongoing transformation, could be of great importance in designing future interventions in similar contexts both in Sudan and in any other developing countries.

Different agricultural crops have been introduced by the project. By focusing on cash crops that is (okra and bean). I can specifically see how the different institutions of the Hawawir are conceptualising the management of these crops.

Nomad’s livelihood generally, is exposed to many uncertainties, as they depend highly on natural resources. For example the vegetation cover of pastures in non equilibrium contexts like African dry lands, depends on the variations of the rain falls and other climatic factors. (Scoones,1994). Accordingly, the nomads react to these uncertain situations by employing different mechanisms. It is thus interesting to explore how Hawawir deal with risks and vulnerabilities created by the project as one of the recent livelihood outcomes in the area.

In this context the question of sustainability becomes crucial. However, the sustainability of a development project initiated by outsiders depends on various social, economic, and political factors at both local and global levels. Thus it is crucial to explore and understand how the Hawawir perceive the future functioning of their institutions in managing the project.
2.1 Physical characteristics of Wadi al Mugaddam

Wadi al Mugaddam is a seasonal valley falls within Bayoda desert in Northern Sudan. Bayoda desert is a very arid zone of the Sudan with high temperature levels in the summer (average maximum 39°C). and level of daily temperature is (21-39°C). The area is also exposed to the strong dry winds from the North-East, caused by the Inter Tropical Convergence Zone (Johnsen et al., 2000).

The Nubian sandstone aquifer is providing underground water for the desert. This water source is used to irrigate the farms of Um Jawasir Project. The aquifer is fed and recharged from River Nile and seasonal Wadis, like wadi al Mugaddam. The volume of the underground water is estimated to be $2 \times 10^{11} \text{ m}^3$. Review team in 1997 found that the aquifer would theoretically have enough water for 125,000 years$. It is also shown that estimates of it is use do not indicate an alarming rate (Johnson and Larsen, 1997).

The soil in the Wadi is loamy clay with low nitrogen and organic matter contents. Soil compaction and salinity are also some of the characteristics of the soil in the area. However it is anticipated that the salinity of the farm plots could be reduced by leaching of the irrigation water. Nitrogen and organic matter can also be improved by the use of Nitrogen fertilizer, and green manure crops like alfalfa and bean (Johnsen, et al., 2000).

2.2 Who are the Hawawir

The Hawawir are a “Muslim Arabic speaking pastoral nomadic group, who have lived in Wadi al Mugaddam in the Bayoda desert prior to the eighteenth century” (Larsen, 2001). Hawawir see themselves as Arabs, but the term in Sudan is used to oppose nomadic pastoral peoples to sedentary agricultural peoples (Delmet, 1989 and Casciarri, 1995 in Larsen, 2001).

According to Larsen (2001) the Hawawir perceive themselves as “a group of agnatic kin descended from the eponymous ancestor Malik.” The group form a tribe or “gabila”, and

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1 The potential recharge of water resources is estimated at 60,000 m$^3$or 75,000 m$^3$ per day. (Awasco 1994 p.15) The annual water consumption by the project is estimated at 1,6000,000 (Nielsen1996p.11), this estimates gives about 4,400m3 on average per day, which is 6-7% of the recharge capacity. (review report, 1997)
share rights for watering and grazing within a defined territory. The Hawawir are divided into nine patrilineal lineages known as sub tribes, that is Robab, Habbasab, Hararin, Salhab, Fazarab, Khamaseen, Tamastih, Mawalkab, and Guetab (Larsen, 2001). The sub tribes are divided into sub clans or what is known in Arabic as (khashom-al bait). The Hawawir mainly depend on livestock keeping and rain fed farming in good rainy seasons. (Abdel-Ati, 2003)

2.3 Hawawir prior to the development project
In the 1980s the Hawawir in wadi al Mugaddam suffered a severe drought that resulted in extensive loss of livestock for most households. The drought also led to the displacement of Hawawir people. Surveys have estimated that about 20,000 households of the Hawawir tribe have moved eastwards towards the Nile area (Johnsen and Larsen, 1997).

In the Nile Area the Hawawir lived at the outskirts of towns, where they depended on relief supplies and worked as casual labourers (Larsen, 2001; Larsen and Hassan, 2001, 1999; Hassan, 2002). Only 6,000 households remained in the Wadi. High malnutrition rates among nomads’ children were reported. Thus non governmental organisations including the Adventist Development and Relief Agency, were distributing relief to the nomads at the Wadi and those at the Nile Area. In 1986, the relief operations phased out and the Sudan government together with Hawawir sub tribes’ leaders reached the Agency to continue rehabilitation efforts within the area. Upon this demand, the Agency continued its support for the Hawawir who moved to the Nile Area in form of health care and small enterprises development (Johnsen and Larsen, 1997).

2.4 How Um jawasir project came into reality
Among other conferences, the first African Ministerial conference on the environment, recommended and called for the initiation of pilot projects in semi-arid stock raising zones. The idea was to assist nomads to contribute to national and regional sufficiency in food and energy production and to improve conditions in resident areas, or villages to reduce rural – urban migration (end line survey, 1999).

In this regard the Institute of Environmental Studies of University of Khartoum, was contacted by the United Nation Environmental Programme, to carry out a feasibility study,
and prepare draft proposal for the development of the stock raisers in semi arid lands of the Sudan. Wadi al Mugaddam was selected and studied by a multi disciplinary team.

The study recommended that the Sudan, should be assisted to “initiate a programme to restore the ecological balance in Wadi al Mugaddam through improvement of grazing resources, sound environmental management and to secure enough food supplies to the local inhabitant” (end line survey,1999).

Local inhabitants have to be organised in manner along with the traditional system, to ensure their maximum participation in the implementation and management of the proposed project (end line survey,1999).

Based on the feasibility studies, both national and international organisations, namely the Islamic Bank, the European Community, Norwegian Agency for Cooperation and Development, Adventist and Development Agency jointly financed the development activities in Um jawasir area within Wadi al Mugaddam (end line survey,1999).

Personnel from the Ministry of Agriculture were appointed to be the project administrators The cooperation of the mentioned donors resulted in the establishment of phase zero of the Umjawasir irrigated project in 1990. Following this a proposal for the extention of the project was submitted to Norwegian Agency for Cooperation and Development in December 1994. The proposal was accepted and a three- phase programme was initiated from 1995 to 2009. As part of the programme a revolving fund was established based on the contribution of farmers as an investment to finance further expansions of the project (johnsen et al., 1996).

The land in Wadi al Mugaddam is a state owned land but communally held and managed by the Hawaweer², according to their customary law “Al urf” (Ministry of Agriculture Sudan and Andrews University 1995 ; Larsen, 2005). The land for farm plots within Um jawasir was the grazing area for one of the sub tribes called Robab. Through negotiations between Hawawir leaders and the project administrators, it was agreed to have that grazing area as the farms site of the project (Larsen, 2005).

² When it comes to land ownership in Sudan, there is private land ownership, which means the land is owned and protected by individuals. This type applies in River Nile region. In other areas the land is communal held by people. And subject to their usufruct rights as well as regulated by their customary laws. (Awad 1971, Manger 2001, in Larsen 2005).
2.5 Phases of Um jawasir Project

2.5.1 Phase zero 1990-1994
This phase was a pilot phase that installed four solar pumps to pump ground water for irrigation. However, the solar cells did not yield enough water for irrigation. As a result they were replaced by diesel pumps diameter (4 inches with motors 18 horse) to irrigate an area of 40 hectare divided in to 0.8 hectare for each farmer, (i.e 10 households per well\(^3\)) totalling 40 households. The first crop, wheat was produced in the winter season of 1992 while sorghum was produced in the summer. Date palm was also planted with the assumption that it will be an important cash crop in future. (Johnsen and Larsen, 1997). The project was handed to the local community in 1994\(^4\).

In 1997 a review team of phase zero indicated that the farming of phase zero area was less, because 25% percent of the farm plots under the phase were covered by sand. At present time 100 % of these farm plots are covered by sand and not accessible to farming.

2.5.2 Phase one 1995-1999
In phase one six diesel pumps of larger capacity (pumps of 6 inches and motors of 53, 5 horse) were used to pump irrigation water. The total farming area was also increased from 40 to 150 hectare and divided into 1.6 hectare per farmer. Covering a total of 73 households (12 farmer per one well). Increase of number of beneficiaries was mainly due to the fact that some of Hawawir who migrated to the Nile area stared to return to the Um jawsir area, and got access to user rights for farms land. (Larsen, 2005). I will explore this issue further in chapter four.

In this phase, new crops such as Alfalfa, beans and onions were introduced to the farmers, and various vegetable crops such as okra and onions, were grown in small spaces within the farms for home consumption (Johnsen and Larsen, 1997). According to the project manager the wheat (planted in 0.8 hectare will produce around 1080 kg) was planted because it is a staple food for farmers for the whole year while bean (planted in 0.4 hectare producing 540 kg) could be a cash crop for farmers. Alfalfa (planted in 0.2 hectare) is a fodder crop for animals.

\(^3\) Well is a term used by farmers and extensionists to mean farm plots irrigated by one diesel pump?
\(^4\) I will discuss the local organisations, which had the responsibility to run the project after the donors pull out in another part of the study.
Farmers would consume vegetables, and would sell their surplus of their produce. However, in phase two the okra became the main cash crop.

As measurements to reduce sand creeping, an earth embankment and shelter belt of Eucalyptus trees were planted to protect the farms. Pigeon pea was planted in each farm to serve as wind breaks.

Women development program activities were introduced to the community in this phase of the project through the establishment of a women’s development centre. Women were trained in farming activities using small plots within men’s farm lands. The phase was handed to the local community in December 1999.

2.5.3 Phase two 2000-2004
In this phase, women were given user rights to farms land in the project. The total numbers of farmers was 90 (75 men and 15 women.). Total area of the farms was 144 hectare, divided into 1.6 hectare for each farmer producing the same crops as in phase one. It is worth mentioning that in this phase, okra and beans became the main cash crops for the farmers. Eucalyptus trees were planted as wind breaks in every farm, instead of having one shelter belt. The Project was handed to the community in December 2004.

2.5.4 Phase three 2005-2009
In March 2005, the fund for establishing phase three of Um jawasir project was approved by the Norwegian Agency for Development Cooperation. Ideas on how the third phase should be run will be discussed in the ensuing chapters. Figure 1 shows the lay out of Um jawasir farm.
2.6 Um jawasir Irrigated Project as a Common Pool Recourse management

In the long run we can think of Um jawasir Project as a common pool resource situation. To discuss this, I have to give the definition of terms related to common pool resources. Common pool resources are “the natural or man made systems, where it is costly (but not impossible) to exclude potential beneficiaries to obtain benefits from” (Ostrom, 1990). To understand the process of organizing the common pool resources, we need to differentiate
between the resource systems and the flow of the resource units. The former refer to the “stocks variables that are capable under favourable conditions to produce a maximum quantity of a flow of variables without harming the stock it self” (Ostrom, 1990). In this light the resource systems can be under ground water basins, irrigation canals, fisheries and grazing areas. The flow of resource units are what individual use or extract from the resource system.

Thus the resource units are, tons of fish caught from a fishing ground and cubic metre of water withdrawn from a ground water basin. Access to common pool resources can be possible for single individual or multiple individuals or firms. The process of drawing resource units from resource system is known as appropriation. Individuals who draw the units are appropriators. In many situations of common pool resources, the appropriators can consume the resource units they produce, or use the resource units as inputs to production processes or transfer the ownership of resource units to others (Ostrom, 1990).

Providers and producers are also common terms in common pool resources, providers are the ones who arrange for the provision of the common pool resource, producers are the ones who construct repairs or take action to guarantee the long term sustenance of the resource system. Both providers and producers can be the same individuals but they don’t have to (Ostrom, 1990).

I consider the irrigated project of Um jawasir as a man made common pool resource, with a resource system of ground water tapped by pumps for irrigating farm plots. The resource units, is the irrigation water used to irrigate the fields. The farmers in Hawawir community are the appropriators, who use the resource units as inputs into production process to produce crops for their own consumption and for sale in the market. The Hawawir community are the potential beneficiaries of the project, who consider the project as property in their own land. So exclusion of some of the Hawawir by external factors or even internal from benefiting from that project might lead to many conflicting situations.

The provider of the irrigating system for the time being is the non governmental organisation. But in the long run, the Hawawir community will be the providers and the producers of the irrigating system.
Accordingly, we can assume that managerial problems faced by the Hawawir farmers, would be similar to the problems and uncertainties faced by the appropriators of common pool resources. Ostrom (1990) argues that in such cases appropriators would rationally organise themselves in a collective action\(^5\) to deal with such situations.

Sources of uncertainties could be external like climatic factors and failure of market and internal uncertainties within the common pool resource itself and the appropriators using it. A major source of uncertainty could be lack of knowledge about the characteristic of the system itself. For example, the Hawawir limited technical knowledge of operating the water pumps make them unsure about their future ability to continue managing the project.

However, uncertainty that results from lack of knowledge can be reduced through time by “skilful pooling of scientific knowledge and local time- and place knowledge” as well as engagement in serious of trial and error learning processes (Ostrom, 1990). So the logic of collective action could be relevant to the case of Hawawir community, as it is relevant to many settings all over the world. Moreover, I don not argue here to use it as a model of policy implications to the Hawawir community(cf. Ostrom, 1990). This is because I think one problem of this logic that it sees the communities as homogeneous groups, and factors of class relationship, ethnicity, cast, gender and power sharing are ignored. ( Cooke and Kothari,2001). To argue for that I will need to define a community.

To some development theorists and practitioners the term community contains different meanings and explanations (Kepe, 1998). The community, is viewed as “a spatial unit; as an economic unit; and as a unit consisting of a web of kinship, social and cultural relations” (Dikeni, 1996 in Kepe,1998).

In my view, the Hawawir can be seen as a group of people who are related to each other through kinship relations and thus have common cultural perceptions, though they live in different geographical areas. (Larsen,2001). The development project is creating an additional economic opportunity for the Hawawir within the area of Um jawasir (Larsen, 2005).

\(^5\) Olson( 1965), summarises the idea of collective action as “the members of some group have a common interest or object, and if they would be better off if that objective were achieve, it has been thought to follow logically that the individuals in that group would, if they were rational and self- interested, act to achieve that objective”
Larsen (2005), further argues that the establishment of the irrigated project has created disagreements and conflicting interests between the Hawawir, who never left the Wadi and the ones who migrated to the Nile area, and later came back to share part in the project. Hawawir expressed those conflicting ideas at the level of “settlement, life style, mobility, education and gender relations” (Larsen, 2005). Given that conflicting views the Hawawir might not act according to the logic of collective action as Olson (1965) argues “unless the number of individuals is quite small, or unless there is coercion or some other special devise to make individuals act in their common interests, rational self–interested individuals will not act to achieve their common or group interests” (Olson, 1965, in Ostrom, 1990).

The logic of collective action could be possible for the individuals within the organisations and institutions in Hawawir community to function in the future. That is why it was very useful for me to relate Um jawasir farm to the common pool resources situation and hence to the logic of collective action.

2.7 Institutions and organisations
As a point of departure, I have to define what is livelihood without going in to details of the concept. The reason for this limitations is that from the beginning I did not design my study to use livelihood frame work as analytical tool to answer my research questions, though many of the data I collected are relevant to the information provided by the frame.

Ellis (2000) define livelihood as “the assets, the activities and the access that determine the living gained by the individual or household”. In my work, I see institutions and organisations as mediating process (Ellis 2000), which facilitate the interventions brought by the outsiders, namely the irrigated project that was implemented by the Adventist and Development Relief Agency in Hawawir pastoral society.

Anthropologists and sociologists define institutions as “regularised practises or patterns of behaviour structured by rules and norms of society which have persistent and wide spread use” (Giddens, 1979). This definition is becoming more clear and specified by North (1990) who explained institutions as “the formal rules, conventions and informal code of behaviour,

6 livelihood frame work is an approach used by researchers to discuss assets of rural poor( known as natural capital, financial capital, physical capital, human capital and social capital),mediating process that influencing the access to the assets and strategies adopted by poor people (Ellis,2000).
that comprise constraints on human interactions”. In North’s view, institutions are meant to reduce uncertainty in humans live by establishing a certain structure of human interaction. (North in Ellis 2000).

According to Ellis (2000) examples of institutions could be the laws such as criminal laws, and land tenure arrangement or property rights. And market considered as institution when we see the ways market work in practise.

However, Scoones (1998) argues that institution could be both formal and informal, they are ambiguous, fluid and can be interpreted differently by outsiders. Moreover institutions are dynamics and can be changed over times. In another hand North (1990) describes the change of the institutions as slowly even during social upheavals.

Scoones (1998) continues arguing that institutions are part of a process of social negotiation and not fixed objects by these argument institutions are seen different from organisations. Organisations are defined as “groups of individuals bound by some common purpose to achieve objectives” (North, 1990). Examples of organisations are government agencies, ministry of agriculture, local governments, nongovernmental organisations, associations like farmers associations and private companies (Ellis 2000).

I tend to differentiate between institutions and organisations in the area where I did my field work. Because the organisations there, had been introduced due to the implementation of the development project. In contracts to the institutions, that already existed in the community.

It is important to know about institutions and organisations in theory because I wanted to see how institutions and organisations in Hawawir community had worked in practise in regard to the newly established development project. In other words, how these organisations and institutions had affected the running of the project. Moreover I wanted to know what modifications or adjustment had taken place to the existing institutions in the area due to the change in the resource management through the establishment of the project.

2.8 Gender
I would prefer to use the anthropological definition of gender as put by Eriksen (1995,2001). According to him “gender can best be studied as relationship- men are defined to the relation
of women and vice versa- and this relationship is of conceived of differently in different societies”. I preferred this one because the anthropologists differentiate between the biological differences between men and women. For example, women have different genital organs that function differently from the men’s. In this case, we think about men and women as different sexes, but gender differences in their views is conceptualised and institutionalised differently in different places. In other words, the nature of the relationship between man and woman is “worked out differently”. This difference is due to the different norms, values, traditions, customs and religion that give different identities to societies all over the world (Eriksen, 1995, 2001).

In this study, I am focusing on how women of the Hawawir community became involved in the project activities. In order to highlight the various approaches used in the development of women, as well as, explain how scholars perceived women involvement in farming activities, especially in Africa sub Sahara.

2.8.1 Concepts in gender
We cannot talk about women development if we do not mention the Social Welfare approach, which was introduced in colonial times, and used by post colonial development agencies until the 1970s. The approach focused on involving women in development as good mothers by improving women education, in health issues, illiteracy and home economics. The approach is still used in many countries (Moser, 1989).

In the mid of 1970s, the development of women shifted to different concerns exactly after the women years in Mexico and the United Nations decades for women (1976-1985). The donor agencies became involved in activities aimed to gain social justice and equity for women or what is known as the women in development. The origins of this movement is coming from the lobbying of women circles in the United states based on the evidences presented by the Washington –based network of female development professionals (Tinker, 1990 in Ravazi and Miller, 1995).

The lobbying group argued that development activities in overseas is suppressing and deteriorating women’s positions (Ravazi and Miller, 1995). As a result, of the United Nation

7 Bibliography is in the original report which is shelved at UNRISD (isn 143079). (Ravazi and Miller, 1995)
declaration decade emerged the equity approach. The idea of the approach is reducing inequality with men, by which women, would gain a strategic gender needs through state top – down interventions (Moser, 1989).

The movement of Women In Development also witnessed researchers work like Boserup, who argued that the poverty of women is a result of under development and not subordination, so there is a need to increase women productivity (Ravazi and Miller, 1995). Down in the field practitioners worked with the Anti Poverty approach, to meet practical gender needs as women gain more income for example in small scale projects (Moser, 1989).

Deterioration of world economics and the emergence of economic stabilization policy in the 1980s led to the efficiency approach, which combines women economic participation and women equity, as a guarantee for more efficient development (Mozer, 1989).

I argue together with Ravazi and Miller (1995) that Women In Development approach is a complete result of women movement in the North especially the United States.

Ravazi and Miller (1995) further argue that focusing on the third world women’s productive roles was part of a policy aimed at “reformulating women identity for development agency”. In contrast with pre-colonial authorities and post development agencies policies, they worked on improving women’s social welfare concerns (nutritional, education and home economics).

Generally we can conclude that according to the women in development approach, women were seen as productive members in the societies, as well as, active contributors to the economics rather than passive beneficiaries.

2.8.2 From Women in Development to Gender and Development

Gender and development is an approach that was evolved in the late 1970s, by feminists who criticized the Women In Development Approach. (cf. Ravazi and Miller, 1995). The critics summed up that the subordination of women in the third world was a result of women isolation from the access of economic resources. It was argued that the approach focused on women alone as isolated objects without considering factors of power relations, conflicts and gender relations that constrain women from achieving an equal access to, and control of
resources. However the two approaches are agreeing on the fact that there is a gender-
disaggregated access and control over resources, but they disagree on the (gender analysis)\(^8\) that goes beyond the sphere of production (Ravazi and Miller, 1995).

Planners, who are in favour of Gender and Development Approach, are using certain analytical frameworks to investigate gender inequity in the field. One framework is the gender roles framework, which was developed by researchers at the Harvard Institute of International Development and Women in Development Office of USAID. The framework, stems from the idea that the household is not a unit where people pool their benefits from resources. It identifies the gender-based divisions in productive and reproductive roles (Ravazi and Miller, 1995). However the frame neglects the social connectedness of the different activities performed by men and women. For example, empirical studies have proved that women tend to use their income to pay for food items, while men pay school fees. This form of distributions cannot be investigated by the gender roles framework. Moreover, the frame does not ask why the resources are not equally distributed between men and women (Ravazi and Miller, 1995).

An alternative framework for the gender analysis framework can be the social relation analysis. The core point of the framework is that reallocating economic resources alone would not end up the subordination of women, unless power relations are questioned and redistributed. Thus development agencies are challenged to take more Gender-aware approach to development; hence there are no quick solutions for gender inequality (Ravazi and Miller, 1995).

It is important to know the differences between the two approaches; women in development and women and development, to see how development of women evolved through time from dealing with women as productive agents in isolation from the social and cultural factors that hinder their efficient and equitable involvement in the development.

\(^8\) Gender analysis is known as a diagnostic tool to overcome insufficient allocation of resources.(Overholt et al., 1985; Sims Feldstein and Poats, 1989 in Ravazi and Miller, 1995)
2.8.3 Women Empowerment
This approach emerged through the work of development agencies at the grass root level, as well as, by the critics of third world women’s feminisms writers (Moser, 1989). The approach perceives that women subordination is not caused only by men but also by colonial and neo-colonial policies. The approach is aiming to achieve women empowerment through greater self reliance (Moser, 1990). However, the approach is avoided by many governmental and non-governmental agencies as it is believed that the approach is shopping western feminist critics (Moser, 1989).

It is very interesting to explore the policies used to approach women in the third world to involve them in the development process because I want to relate the methods that the development project used to approach Hawawir women to the policies towards women development as general.

2.8.4 Gender and agriculture
Participation of women in agriculture has been recognised by the work of Boserup (1970). She divided farming systems according to women participation in farm work into high female participation combined with low technology in sub-Saharan Africa and low female participation associated with animal draft technology. In this case, women work as hired labour and usually there is “a cultural prescription on women work outside the home.”, and sharing of farm work between men and women with intensive cultivation, land scarcity and small farm size. (Boserup, 1970 in Ellis, 2000).

Ellis (2000) argues that women role in agriculture cannot be only classified in this way. It is more heterogeneous and differs according to ethnicity, wealth and level of income. Also role of women in farming can change over time when new opportunities are created in community.

He further argues that gender inequalities are clear in farming systems, for example in Africa sub-Sahara the high involvement of women in cultivation and harvesting is not compensated by control over resource use or decision making, which are dominated by men. So simply targeting of increasing production of women alone, is much more complicated than just
focusing the extension services for women more than men. There is a need for a framework, which tries to answer challenges of inequity between women and men in control over resources.

Another form of dividing women tasks in the farms, in Africa sub Sahara is the gender specific division of labour where the whole farm work starting from land clearing, sowing, weeding and harvesting is done by women. In some cases, post harvest sales and the income are obtained by women. Labour time in men’s field is known to be gender sequential division of labour, which is also familiar in another area rather than sub Saharan (Whitehead, 1985 and Ellis, 2000).

The fact that the development project assisted women in Hawawir community to get user rights to farm land is a kind of unique approach for women involvement in farm work in sub Sahara Africa. So it is of great interest to compare the case in question to what is found in theory about women engagement in farm work in sub Sahara Africa

2.9 Perceptions of uncertainty
In economics, uncertainty is perceived as one of the fundamental facts of life that occur in business decisions as well as in other fields of activities (Knight, 1971).

Economists argue that the decision, which is usually taken by a rational society, is to reduce uncertainties in life by increasing knowledge about the future. This is to be achieved through scientific research and collection of helpful data that can assist us to understand the unknown situations that societies might be exposed to. This implies that the hazards in our lives are statistically grouped and later treated to give an acceptable level of certainty (Knight, 1971). As a result of this scientific knowledge, societies will increase their control over future. However, these measurements are very costly in terms of resources used. It is also argued that the process of reducing uncertainty is an uncertain situation as well (Knight, 1971). Also we can reduce the uncertainties in our lives by minimising the level of the activities we are involved in (Knight, 1971). Another way of reducing uncertainty is by modelling (clubbing) the uncertainties in a frame that involves large scale organization of various factors that are helpful to reduce the uncertainties (Knight, 1971).
At the individual level, reducing uncertainty would be by distributing the burden of uncertainty over the different activities the one is performing. Whether the distribution is equal or not it depends on the personal attitude towards uncertainties. As a rational behaviour most human beings would tend to avoid risks as much as they can, but this logic might not hold truth for everyone in every context (Knight, 1971).

This argument indicates that hazards and uncertainties can be analysed in a different way rather than using statistical models. A typical example is the approach used by Bruijn and Dijk in Fulbe society in Central Mali where they studied the role of hazards in farming and herding practices in that society. They focused on “what people really do, when calamities occur, rather than playing uncertainties in a model (Bruijn and Dijk, 1995). Their problems with the statistical treatments were that the hazards exposed by every individual farmer “at the local level”, is excluded from the model, or reduced to “a stochastic occurrence” so the behaviour of one individual farmer cannot be predicted within the model (Bruijin and Dijk, 1995).

The same can be said about year to year conditions, in statistical models where “effect relationship” remains the same from one season to another. In realities of dry lands that does not happen. (Bruijn and Dijk, 1995).

Moreover, Bruijin and Dijk (1995) noted that it was hardly possible to detect a set of routine procedures in the models for dealing with uncontrollable events seems to be more characteristic for the system than the system itself”.

It was crucial to give a general view on how the perception of uncertainties is understood and conceptualised in different fields, however I did not develop a statistical model to study uncertainties in Um jawasir farm. Instead I tried to look into how Hawawir dealt with every day hazards in the farm. Thus the concept used by Bruijin and Dijk (looking in to what people really do), would be more applicable to the questions I raised on uncertainties at Um jawasir farm.

2.10 Why sustainability of Institutions
The word sustainable originated from the Latin word sustenere, which means to uphold
(Dixon and Fallon, 1989; Redclift, 1993 in Lafferty, 1999). In the eighteenth and the eighteenth centuries the German foresters used the term to mean the long – term perspective of forest management (Stenseth, 1992a; Jacobs, 1995 ). Then the notion sustainable development came about since the 1980s in the World Convention Strategy, as well as, in some published materials (Lafferty, 1999). Since then, the usage and meaning of sustainable development have evolved to mean; “purely physical concept for a single resource, which means the usage of a resource is sustainable if the extraction of a resource “logging of trees in a forest” is replaced. It is also used as “a physical concept of group of resources or an ecosystem. The exploitation of one forest would affect other plants and animal species in that forest. We notice here the forest is no more regarded as a single one but as a part of an ecosystem. A third usage for sustainable development took a broader “social context” when it was used to mean “ social- physical- economic concept related to the level of social and individual welfare that is to be maintained and developed” (Dixon and Fallon, 1989). Based on this idea, the definition of sustainable development in Brundtland Report was evolved (Larfferty, 1999). She defines the sustainable development as the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Lafferty,1999).Thus the concept is based on maintaining human needs, and does not view the environment as an isolated object( Adams,1990). However, the definition has been widely criticised, one of these criticisms is that definition does not give solutions to the “value conflicts”, which might arise among generations. (Lafferty, 1999). Those conflicts could be conflicts over resource management and control among the same generation at local, national and global levels or between present generations and future generations. These critics gave rise to the importance of mechanisms adopted at the grass root level to mediate environmental, social and economical change. I am keen here not to use the term development because change can be regarded as both positive and negative ( Lafferty,1999). The mediating processes adopted by the community members of the Umjawsir area within Wadi al Mugaddam, has recently been studied (see adaptability, identity and conflict mediation among the Hawaweer in Northern Sudan. Kjersti Larsen, 2005) The author is concluding that the management system of natural resources related to that community is characterised by flexibility and willingness to negotiate, however the extensive changes in resource management, basically she refers to the development project which was initiated in the Umjawsir area, may in the long run cause limitations to the flexibility of the resource management practises as a whole in the area. (Larsen, 2005).
Due to the fact that the notion of sustainable development is very broad, so in practise I can not apply the notion in my investigations on the sustainability of Um jawasir project, however, the critics on sustainable development (regarding values conflicts among generations and between generations at various level) is useful to justify my focus on sustainability of local institutions and organisations at Hawawir community.
Chapter 3  Methodology

3.1 Choosing the study area
The Hawawir have lived as nomadic pastoralists since almost 300 hundreds years ago in Wadi al Mugaddam. Moreover, they are among the nomads in the Sudan who recently experienced an agrarian intervention. Thus Um jawasir is an interesting area in the Sudan to question how nomadic pastoralists can be adjusted to a systemised agricultural intervention since the mid1990s.

I came to know the Hawawir through my work as an assistant woman extensionist in the project area from 2002-2003. Working with farmers in the fields and socialising with the Hawawir while performing my work developed my interests to study and question the transformation from pastoral to agro pastoral in the Hawawir community.

3.2 Institutional Affiliation
This study has been conducted in cooperation with the Um jawasir development project, which is one of the programmes run by Adventist Development and relief Agency- Sudan.

ADRA Sudan is a branch of ADRA international, which is a humanitarian agency assisting people in disasters and work at the level of grass root to develop and sustain the natural resources in many developing countries( www.adra.org).Um jawasir project had provided me with the logistic assistance which helped me to carry out my research promptly. Being a former staff member in the project also enabled me to communicate easily with the project personnel.

3.3 Data collection
Prior to going to the field I contacted Khalid Salih who is an agriculturist and used to work for ADRA Um jawasir to be my research assistant. Together with Khalid Salih, I collected both qualitative and quantitative data.
Quantitative data were needed to quantify processes of harvesting, consumption, and marketing of the two cash crops that is okra and bean at the household level. Hence, every household might have its own management of the above procedures. Quantitative data could be helpful to verify and compare the different managements of different households.

Qualitative data were collected through different methods, such as group discussions, resource mapping, wealth ranking, observation and continuous discussion with informants. It is essential to use qualitative methods, because it helps to understand how the respondents perceive their realities (Bryman, 2001).

I used group discussions to explore decision making regarding allocation of resources, such as natural, economic and human resources, both within the household, and at the community level. I used the focus groups approach because "the focus groups offers the researcher a possibility to study the ways in which individuals collectively makes sense of a phenomenon and construct meanings around it" (Bryman, 2001). But in reality, I found that statement is very contextual. During the focus groups, it was very difficult to draw the interest of the respondents to express their ideas in a group setting.

Resource mapping and wealth ranking, which are forms of participatory rural appraisals, were conducted with community leaders and individuals. The reason behind choosing these two techniques is that as an outsider I wanted to understand the natural setting of Um jawasir area, hills, rivers, fields and vegetation (Kumar, 2002). It was equally important to know how Hawawir are grouped according to wealth, income and other perceivable well being (Kumar, 2002). These two techniques were done before starting household surveys and group discussions.

I tried to do gender analysis. Since I am concerned with women involvement in the project, it would be interesting to know who do what and when in the Hawawir community. By doing so, I would be able to see how women adjusted their daily duties to the newly introduced farming activities.

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9 Human resources, with regard to training and education
I considered the project staff as key informants to investigate on the extensional approaches used by the extensionists to approach the farmers as well as to know the staff opinions on how the project should be run by the Hawawir. Observations and socialising with Hawawir were backing up my data collection.

3.4 Resource mapping
Firstly, three sub tribes’ leaders agreed to conduct the resource mapping with me. When I approached the question that I would like them to draw the geographical boarders of the area, they responded to my question giving an oral description for the area. It became clear to me that they did not understand the idea of the resource mapping. I thanked them for their cooperation and told them that the information they gave was of great value. I promised them that I would return later for more information.

Next time we provided the respondents who were one leader and three to four of his relatives with white board and chalks to draw the map. The leader with comments from the relatives drew the boarder of Um jawasir area from North, South West and East. Beside mentioning the bordering tribes, he showed us the distribution of the traditional wells they sunk for watering. Also he highlighted the distribution of livestock in their area according to the types of vegetations. For example the eastern part of the Wadi (valley) is known to have vegetation favoured by camels so that the eastern part of the Wadi is preferable for Camels’ grazing. He also showed us the direction of movements of the Hawawir according to the rainy season as well as the movement of trading in terms of what goods they sell and buy, at different times of the year.

We probed questions on when and how the first school, mosque and clinic in the area were established. The reason why we asked these questions was that we wanted to know how the Hawawir are related to other political contexts in the country. The resource mapping was not only helpful to understand the natural settings, but it was important to notice the changes that had taken place in the area over time.

3.5 Wealth ranking
I did wealth ranking with different socio economic groups of Hawawir. In many cases, it was difficult for me to ask how they differentiate or categorise the rich, moderate and poor
families. I felt this question was imposing both to ask and to answer. Thus I would go around
the issue and ask why there are some families are popular and known almost by every one,
while others are not.

The answer to the questions also depended on whom I was talking to. For example one leader
answered the question directly and gave me the reasons why X was rich and Y was poor.
Finally and to my surprise in other informal discussions, respondents were much opened to
tell me how and in which cases X of persons were considered rich or poor.

3.6 Households Surveys
I did household surveys to collect data on harvesting, processing, consumption and marketing
of the two crops in the project that is okra and bean. The farmers consider these two crops as
cash crops. They mainly use wheat and sorghum for household consumption and tend to
partly consume and partly sell okra and bean. I also investigated on both gender specific and
gender sequential farm work (Whitehead in Ellis, 2000), by asking who did what in
harvesting and processing. For marketing I asked about market possibilities of the crops.

I questioned the integration of different properties to farming activities, such as livestock and
gold. Finally, I asked if there was any percentage taken from the crops to pay the revolving
fund, and who decides when to pay and how much. The Revolving fund is a capital collected
from farmers to finance an increasing share of investment over time, that is to say in future if
farmers wanted to establish a fourth phase it should be financed from the revolving fund
collected from farmers (Johnsen et al., 1996). According to the project manager the revolving
fund is decided according to the production cost.

3.7 Sampling
To select my sample for household surveys, the farmers in the project were distributed among
six wells according to the different clans they belonged to. Every well had fifteen farmers,
which made a total of ninety farmers. Women farmers were distributed between five wells
from the six wells in numbers of three women farmers per well which made them fifteen
women farmers.
3.8 Selection of male farmers
I did stratified random sampling to conduct the individual interviews with men farmers. I randomly chose four men from five wells. And I picked five men from one well. However, I faced the problem of absentees’ farmers, so we were going farm by farm and asking if the farmer was available or not and then we interviewed him.

3.9 Selection of female farmers
I conveniently selected all women who had farms, but only thirteen were present in the area during the field work. I replaced the missing two women by the responsible farmers who work for them. The reason why I did convenient sampling for women is that I was interested in interviewing all women who got farms in the project.

The total number of my sample was forty. Twenty five randomly selected men farmers and fifteen conveniently selected women and men farmers.

3.10 Group Discussions
I started data collection during Ramadan, the fasting month of Muslims. Practically, I decided to work on the groups during evenings after farmers finish the fasting of the day. I also considered the locations of farmer’s residences surrounding the farms. Most of the farmers who owned farms were living mainly in Al garia (the model village) and in Al Wadi. Accordingly the discussions were held in these two places including one discussion in the Women Centre. In all, I did five group discussions.

Initially, I had planned to conduct the interviews with men and women separately. But in the first group, the number of men who agreed to attend the discussion was only four, so the farmers as well as my research assistant suggested including women farmers as well. Some of the women who attended the interviews were together with the husbands while praying at the village school, which they used as a mosque during the evenings in Ramadan. In the second case, the group was in al Wadi at one of the sub clan leader’s house. He asked two women farmers to join in the discussion.

The third was a group of women at the Women Centre. Only three from six wanted to join because another activity was taking place at the women centre, which they preferred to attend.
I could not consider the information I got from the interview as a complete results, but I can use the information as guidelines to certain tentative conclusions.

The fourth discussion was conducted at the Youth Club which is constructed by the project in al garia. Most attendance of the interview were youth aged between 15 and 35 with the exception of a sixty year old man who tried to dominate the discussion.

The fifth group discussion was difficult to handle, because some farmers dominated the discussion. Mainly they were criticising the performance of the project administrators During group discussions, we were flexible and including those who had an interest in joining in addition to the farmers in the sample.

3.11 Gender Analysis
I planned to conduct gender analysis in the form of group discussions. But this did not work out because farmers found it silly to gather people and ask them to explain what they are doing.

One exception was one group that consisted only of members from one household explaining their daily duties. They brought in a sense of humour when they threw jokes and funny comments on what women think men are doing and what men think women are doing. I have mainly depended on secondary data on gender analysis.

3.12 Observations and continuous discussion with informants
I used observations and continuous discussion to back up my data collection and cross check some of the information from the interviews and the group discussions. For example, to investigate market possibilities in more depth, I had discussions with other farmers especially the ones who have shops or were involved in trading.

To have more understanding on how the farmers are marketing their crops, I visited one of the markets in northern state, which is one of the main sale points where farmers of the project used to market their crops.
I considered the possibility as the project was phasing out to discuss with farmers about how they were planning to run the project after the donors pulled out. For example, questions relating to how the farmers who were trained in diesel pumps maintenance, were going to cooperate with each other were asked.

I discussed with different farmers, whether they were going to keep the same crops, which were decided by the project or not. Also, how they were going to finance the farms inputs was found out. Furthermore it was found whether inputs for the wells will be financed individually or collectively. I asked what farmers thought about the ability of the farmers’ committee to manage the project.

Due to the fact that I used to work in the project before coming back as a researcher, it was very challenging for me to put off the cap of extensionist and talk to the farmers as a researcher. Also the farmers assumed I should have already known most of the issues brought up in the discussions.

3.13 Data on institutions
To collect data on institutions and organisations, I used group discussions, continuous discussions with informants and key informant interviews with Hawawir leaders and the project staff. Moreover, I made use of the observations I had during my working in the project as an extensionist to monitor and follow the discussions with the informants.

3.14 Statistical Methods
I used the Statistical Package for the Social Science (SPSS) to analyse data collected through household surveys. This program was useful to me because I was mainly concerned to present percentages on processing and marketing of the crops.
Chapter 4  Results and discussion

4.1 Results from Resource Mapping and wealth ranking
Together with some of the community leaders in Um jawasir we drew the map of the area.
The map shows the following:

4.2 Location of Um jawasir area within Wadi al Mugaddam
Wadi al Mugaddam runs from south west to the north direction till it reaches the Nile in a city
called Korti in the Northern State. Um jawasir area falls in the west side of the Wadi, at a
distance of 278 kilometres, north of Khartoum. The map also shows the smaller valleys,
which run from both, western and eastern sides to Wadi al Mugaddam.

4.3 Tarmac road and the resident areas
The map also showed the tarmac road, which is connecting Khartoum State with the Northern
State going parallel to Um jawasir area. However, at a certain point the road crosses the valley
in it is way to the north, not far from Um jawasir.

A look at the map shows the nomad constructed their resident areas closer to the wells.
Among the main resident areas are the Um remila well, and the Abd Alrahim well where
some of the farmers of the project live.

4.4 Location of the Project and the Model Village
The project is located in Um jawasir area, within a common land owned by the Hawawir. To
the eastern side of the Wadi there is the Model Village, or what is called in Arabic al gharia.
Al gharia was constructed by the Government of the Northern State when the local people
together with the project administrators sought permission for the establishment of the village.
This demand was a result of the fact that many Hawawir returned back to Um jawasir and
joined the project. The development project played a key role in the establishment of the
school and the youth club of the village.
4.5 Discussion of the Resource Mapping

4.5.1 Vegetation cover
The local leader mentioned the different local names of grasses, shrubs and trees, which were common in the area of Um jawsir. The leader said that local people can identify different grasses, which are favoured by different animals. Grasses are also important for people because they use some for food and others for healing. However, most of the grasses and the shrubs of Um jawsir were lost during the heavy draughts with the exception of trees like Acacia sp.

4.5.2 Livestock
The most common livestock in Um jawsir area is the camel, followed by goats, sheep and donkeys. The leader mentioned that 60 years ago, the Hawawir used to have cows as livestock but not any more now. Donkeys are used to carry water, fuel wood and for moving within the area.

4.5.3 Wildlife in the area
Deers, ostriches, fox and wolves were the wild animals found in Um jawsir before the draughts. Now only remains the deers are found in the eastern and western areas of Um jawsir. Deers are hunted by the local people even though there are laws against their hunting. It is also speculated that outsiders carry out the hunting of the deers in the area.

4.5.4 Movement of nomads for grazing
There were three kinds of movements in grazing. In winter, nomads occupied different pastures within the area. We notice here the road of movements was designed by the customary laws of the tribe. In average autumn, nomads move from north to south-west till they reach the territory of Kababish. Then they come back to the north after the autumn season (October\November). In good autumn, nomads remain in their pastures.

Traditions and customs and daily live movements are formalised around livestock. For example nomads in the evenings on return from pasture, gather to sing and dance. In case of watering the animals from the well, people helped each other.
4.5.5 Rain fed farming

Hawawir used to practise rain fed farming when rain was affluent. Everyone had a land to farm. For example, I clean apiece of land, demarcate it with stones, use it, and it becomes mine and my children will inherit. If someone has no land he can approach the one who has land and ask if he can use part of the land but he cannot own it. So farming is a factor that determines the ownership of the land. You can graze on a land and build a house on it but when it comes to farming you cannot farm on a land which is not yours.

The leader says “In the past the land belonged to the tribe of the Hawawir. However, the Hawawir increased in number and instead of being only one tribe, they formed sub tribes and accordingly the land now belongs to the sub tribes”.

It is interesting to note the leader refer to the increase of population as a reason for change in the ownership of land.

4.5.6 Formal education in the area

The leader mentioned that the Hawawir did not know any kind of formal education. However, Koran schools or (khalwas) were the main source of education. Hawawir leaders would establish Khalwas and encourage families to send their boys to learn Qu`ran Sura’s besides learning basics of writing and readings.

The government established schools during autumn season to teach children of nomads in different nomadic societies. In Um jawasir, the first school was established in an area called Gimbir (the western area of Um jawasir). The leader mentioned that the sheikh of Hawawir in the sixties used to take boys of different families to join that school. The leader told us when the sheikh of Hawawir died people did not continue sending their boys to that school.

Local leaders applied to the government of the Northern State to establish the first formal school in 1994. The school was built in Gibisha resident area, (North-west of Um jawsir). Families only sent boys to join the school and the cafes at the road were used as hostels for the students. A primary school was established in the model village with the assistance of the Northern state government. Leaders agreed to move the students in Gibisha School to the new
school in the village. The government was responsible for funding of infrastructures and teachers salaries. Local people were involved in building of the school. Moreover, farmers donate some of their produce to pay for extra services needed by the school. The school right know, has the capacity to teach up to the fifth grade (the basic education level in Sudan, which is equal to the primary level, consisting of eight grades).

The government of the Northern State is running a scheme of constructing Model villages to settle nomads along the road from Khartoum State up to the Northern State. The scheme is working on establishing health units, schools, water pumps, mosques and planting of forests. One of those settlement areas is called Sherian town, which is 13 kilometres north-east of Um jwasir. In 1997, a boarding school was established in Sherian town. Some nomads moved their children from al garia School to finish the primary level at the Sherian school, and others directly sent their children to start at the boarding school of the Sherian.

In contrast to the previous school, girls are joining both schools and not only boys. There could be many reasons for this change, for example, in the case of the village school, building the school closer to the houses encouraged families to bring their daughters. Also, the appointment of female teachers beside male teachers might be a reason for the enrolment of girls in the schools (Larsen, 2001). Also females’ education awareness might have increased among the nomads themselves (Larsen, 2001). From the above I conclude that formal education in Um jwasir area, and the surrounding though it started late, but it, is going on well. However, we need to consider the fact that the nomads in the area might not settle all the time. If rain fall increases, nomads might go back on their normal movement. In that case, the formal education might not be the right solution for nomads’ education.

4.5.7 Health services in the area
Hawawir have their local knowledge, which they used over ages to cure both humans and animals. The leader said we only knew Alhakim in the 1980s, before the government provided the area with health facilities in the area. Alhakim is the Arabic word for the health assistance. In the 1990s the development project established a clinic in the project site, and health assistance from the Northern state was appointed by the government. However, the Sherian town was established, the health assistance was asked to move to the place where the
government had established another clinic. Now the Hawawir get their health services from Sherian town.

Also, it is very important to mention midwives if we are speaking of health services in the area. Hawawir had traditional midwives all the time. Today some of those traditional midwives are still working at places where there is no source of help.

The development project sent some women of Hawawir to the Northern State to be trained, during the first phase and the second phase of the project to upgrade their knowledge on health care services.

The Hawawir considered training of midwives as a valid issue in their lives (Larsen, 2001). I followed the procedures for sending two women to the Northern State to get education in midwifery, and discovered some families negotiated a lot before having women sent to the training.

4.6 Wealth Ranking

For wealth ranking I got different responses to the questions depending on the person I spoke to. For example, women emphasised the differences in materials used for building houses as an indicator for richness and poverty. Some men mentioned financial capital, number of livestock, cars as indicators for identifying people’s wealth. However both men and women agreed on the fact that personal behaviour of being generous and assisting other people is the most appreciated behaviour of considering someone as being rich. On the other hand they would not phrase X is a poor, but they would rather say X is asking help from some on else or Muhtag.

One respondent said “In the older days, it was known that there were generous people who had “10Ragig” that were responsible for preparing the food for the guests, who visited and then continued with their travelling”.

Reciprocal claims between people in grazing of livestock were mentioned as a way of categorising people as well. Because this relation indicates that there would be two kinds of people with different amount of resources, that exchanged resources.

10 Ragig is the Arabic term for slaves, Hawaweer and other tribes, used to raid other nomadic tribes of African origins in Northern and Western Sudan, where they stole livestock, kidnapped people and kept them as slaves. (Beck, 1996:38)
If someone considered he was in need of help, he would bring his goat, sheep to graze with a person who has more livestock. Sometimes the one who had more livestock, would ask his relative to come and graze with him. Then he would pay him goat, sheep, or would give him dura. (sorghum). The respondent continued by mentioning, “There are some people who are content with what they have. They don’t ask help from someone and if someone asked them for help they would not answer his/her request.” He considers those as moderate people in term of wealth.

After the heavy drought in the 1980s, some people sold their livestock, especially camels. They bought cars and opened cafes at the main road to the Northern State. This action could be considered as a strategy to cope with the drought. Most of the people, who did that, were considered the wealthy people in the area. So our respondent says, “People do not help each other in grazing, as they used to before the droughts. Rather they offer labour in the cafes. Those who joined the project provide labour on farms for others.” He continued, “You would find some people who can do their work in the farm without hiring labour from others”. Those are moderate people in terms of wealth.

The respondent mentioned how the Hawawir would help the one who is in need at the present time. “At harvest season, some people would come and gather in the farms. You would give them from your harvest. We call them friends of the harvester.”

Other forms of assistance in Hawawir society is giving the zakat to people who are in need of help. Farmers, normally help such people by giving them part of their farm produce. During data collection, one of the farmers was willing to plant, but he had no money to contribute to the revolving fund to the farmers’ committee. To assist him to farm, the farmers in his well collected one sack of bean and donated to enable him to continue farming.

4.6.1 Women perceptions about wealth
I asked 3 women of different ages on their perceptions about wealth. They all agreed that rich people in the past, would have their houses built from both camel and sheep hair and poor people would only use goat and sheep hair. They indicated that now days, some people do not have enough live stock to build the house from their hair. Instead they build their houses from mud. Nomads became familiar with mud houses, when they travelled out side their area. Also
one woman mentioned that being generous and willing to help others, is the main thing that makes you consider someone as rich or poor. For example, she said that “people who come at the harvest time to get wheat from farmers, they do not go to any one but they ask certain people from certain families.”

From the above, the woman agreed with the male respondents on the issue of wealth. This gives me an impression that the rich people in the Hawawir community are the generous ones who help others. On the other hand, the ones who are not willing to give assistance to others are not, highly recognised or respected in the community.

From the statements given by the respondents, I think that the means of helping others, changed according to the changes in the quantity and the quality of the resources. For example, the respondents started their statements by saying, in the older days zaman and now a days hassa.a. Then in the formal case, they would refer to assistance in grazing or hosting travelling people. In the second one, they mean offering labour opportunities in cafes, shops and in the farms.

In other words, we can say that Hawawir internalised the changes in their socio economic situations into their norms and values of everyday living.

In a discussion with one community leader, he roughly classified the wealth of people based on their livestock ownership into poor, medium and rich families. For example the poor person would have a number of camel (0-5), sheep (0-5) and goat (0-5). The medium person would have a maximum of 10 camel or 10 sheep and a maximum of of 20 goats. The rich one would have a maximum of 20 camels, 20 sheep and a maximum of 50 goats. This is presented in table 1.
Table 1: Live stock ranking according to the wealth being

<table>
<thead>
<tr>
<th></th>
<th>number of camels</th>
<th>Number of sheep</th>
<th>Number of goat</th>
</tr>
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<tr>
<td>Poor</td>
<td>0-5</td>
<td>0-5</td>
<td>5-10</td>
</tr>
<tr>
<td>medium</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Rich</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;50</td>
</tr>
</tbody>
</table>

I used the terms poor, medium and rich, to help me to categorise different people according to their live stock numbers. The figures in the table could be helpful to have a general idea on how people in the area might vary on the numbers of live stock they have. However, I am reserved in considering them as concrete results on judging the wealthbeing of the Hawawir people.
Figure 2: Resource Map of the study area (Um jawasir)

4.7 Institutions in Umjwasir Farm
4.7.1 The development of the local institutions in Umjwasir area
I will give a brief background on Hawawir tribe, before discussing their local institutions.
Larsen (2001) describe the Hawawir as “a Muslim Arabic speaking, pastoral nomadic group, who lived in Wadi al Mugaddam in the Bayoda desert, since prior to the eighteen century.” Hawawir see themselves as Arab, but the term in Sudan is used to oppose nomadic pastoral peoples to sedentary agricultural peoples (delmet,1989 and Casciarri,1995 in Larsen, 2001) Larsen (2001) continues by adding, the Hawawir perceive themselves as “a group of agnatic kin descended from the eponymous ancestor Malik.” The group form a tribe or “gabila”, shares rights for watering and grazing within a defined territory. The Hawawir are divided into nine patrilineal lineages known as sub tribes, that is Robab, Habbasab, Hararin,Salhab, Fazarab,Khamaseen,Tamasih, Mawalkab, and Guetab.(Larsen , 2001). The sub tribes are divided into sub clans or what is known in Arabic as (khashom- al bait). The Hawawir settled and moved within various pastures in their territory starting from the Northern state where they are bordered with Nile valley, and to the south east and south west closer to the territories of both Griat and Kababish. They reach the Hasania borders eastward (Larsen, 2001).

4.7.2 Administration system of Hawaweer
Hawawir and other nomadic groups in Sudan were administered through the system of Native Administration, which was introduced by the colonial regime in 1926( Asad,1970). Prior to that time, the Hawawir and other tribes did not have a clear administrative system. Moreover they were involved in many raiding and counter raiding with others tribes (Beck,1996:38). The first raiding recorded in the memory book of European traveller called Colston, was in October 1901, when a raiding party of Zyaiaiat met by Mawualka Hawawir in Wadi el Milk they attacked each other and the Hawawir group withdrew to the west after heavy losses (Beck, 1996 :38). The Native Administration applied that there should be one leader of the tribe known as “Nazir”. The Nazir of the Hawawir is settled in Northern Kurdufan in an area called Abu-rug (Larsen, 2001). The Nazir is followed by many Omdas responsible for the sub tribe. Finally there are many sheikhs at the clan level (Abdel Ati,2003; Larsen,2001). An important institution initiated by the British for the nomadic groups including the Hawawir, were the Native Courts. The courts supported the nomadic Nazirs with judicial authorities to follow collection of herds’ taxes, keep security and organise natural resource use.
(Asad, 1970; Abdel Ati, 2003). See page 65 of the study. I conclude that the system of Native administration (Nazir, Omdas, sheikhs, enacted with the Native court authority) had administered all the Hawawir in their different territories. (Abdel Ati, 2003). I think this administrative system, enabled the Hawawir to institutionalize their by laws (customary law or al urf)\(^\text{11}\), for organizing their lives on issues related to the utilization of natural resources, and the settlement of personal disputes and tribal conflicts (Larsen, 2005).

In 1977 the Native Administration was abolished. Shazali and Ahmed (1999) arguing “with abolition of native administration, an administrative ensued, and to date, no alternative institution capable of regulating grazing activities or even collecting herd tax has been established.” This situation led to an open access to pastures in many nomadic areas in the Sudan as many nomadic groups struggled to gain control over the grazing areas (Faddallah, 1996).

The abolition of the Native administration weakened the institutional bodies of the Hawawir. However the different Omdas and sheikhs acted in place of the Native administration where they were involved in settling disputes at the local level. On a state level, they remain more as symbols representing the Hawawir tribe whenever needed (Abdel Ati, 2003). Meantime the Hawawir native court remains a legitimate administrative body in the Hawawir society.

Also the dissolution of the Native administration led to a gap between the leaders and their followers. Moreover, the drought of the 1980s worsened the situation because the tribe split up into three groups one remained in the Kurdufan state, while the other group remained in the area of Um jawasir. The third group were the displaced Hawawir who moved to the Nile area and Omdurman city (Abdel Ati, 2003).

The group, who remained in Um jawasir preferred to belong to the Northern State Administration because it was easier to get support from the Nile area during the drought than from the leader (Nazir) in the Kurdufan state. As explained earlier, during the drought

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\(^{11}\) Larsen (2005). Describe the customary law of Hawaweer as a non scriptural knowledge that is orally transferred and negotiated among some of Hawaweer elders and sheikhs” she further argues, “the customary law of Hawaweer had been a part of Hawaweer moral system, which secure equal rights to water, land and pasture. The customary law emphasis, negotiations, compensation and agreement rather than verdicts, prosecution and punishment.
government organisations and non governmental organisations such as the Islamic Bank and Adventist Development and Relief Agency, were involved in supplying relief to the Hawawir. From the above we can explain that the local sheikhs were experiencing some adjustments to their responsibilities, for example, they were involved with the agencies in distributing the relief. This continued until the development project was established in 1992. During the same period in the 1990s the military regime of al-Engaz established what is known as the Popular Salvation Committees in all towns and Villages as a legal popular organisation to represent the government authority and to provide needed services to citizens (Abdel Ati, 2003).

In the case of Um jawasir, some of the sub tribes’ leaders (sheikhs) were elected to be the representatives of the popular Salvation Committee of Um jawasir area. However, the lack of necessary resources in many areas of the Sudan, privatization policy and economic crises turned these committees into non-functioning political bodies (Abdel Ati, 2003). From the resource mapping we knew that the system of public committees was recently changed to the system of local councils. This revealed that the Um jawasir area was divided into six geographical councils, with each council having its own representative.

I have been discussing the evolution of the local institutions in Hawawir community in general. In the foregoing section I will discuss now, the institutions and organisations that have been effectively involved in the Um jawasir project. The institutions which are involved in the management of the project are Hawawir native court and Agawid groups while the organisations are farmers and women committees.

I would start discussing the farmers’ and women’s committees and then discuss the local institutions. I decided to do this to see how the new organisations have coexisted with the traditional institutions.

**4.7.3 The Farmers’ committee of Um jawasir Project**
The idea behind establishing the farmers’ committee by the project administration was to involve the local people in the management of the project activities at the times the project is on-going and after the donors have pulled out. The establishment of this committee has gone through many stages and taken several forms. To talk about the present farmers’ committee in
Um jawasir farm, I have to mention about the previous committees that had been established, in the previous phases (zero and one).

4.7.4 Farmers’ Committee of Phase Zero
The Hawawir, who stayed in the area during the drought were mainly the people who benefited from the project in this phase. The project administrators involved the sub tribes’ leaders (sheikhs) in the distribution of the farms for the beneficiaries. Larsen (2005) mentioned that the Agawid groups were also involved. So in the process, leaders allocated farms for themselves as well. When the extensionists of the project started working with farmers in the fields, they saw it necessary to select some farmers to be trained on the technical and administrative supervision of the project. As a result, the project administration selected the sub tribes’ leaders for the training. Later those leaders formed the farmers committees for phase zero. So, we can say that the agricultural committee was appointed by the project administration. It was very naturally at that time to appoint the leaders in the area because they were the ones who were respected by the people. Also they were the ones who could influence on decisions taken by others. Another reason was that the tribes’ leaders were mostly the ones, who had some form of education (Larsen, 2005). So it was easier for the project administration to involve people who could easier grasp the knowledge brought by outsiders. This shows that project staff had a good understanding of the social structure of the Hawawir community.

From discussions with the staff members, they indicated that sub tribes’ leaders served as facilitators anytime they held meetings with the communities. The committee was responsible for the maintenance of the pump for irrigation. They were also responsible for the collection of the revolving fund from the farmers for the payment of cost of fuel, fertilizer and seeds. However, many factors hindered the running of phase zero and later the functioning of the farmers’ committee. Firstly, according to the project administrators, the local people had the idea that the project was a relief from the khawaja (the Arabic term of white man), so they did not agree to the idea of paying the cost of the inputs. I think the situation before the project, had helped them to believe so, as the Hawawir in the area were receiving relief from agencies. So I think it was difficult for them to differentiate between the aim of the relief agencies and the development project.
Secondly, sand creeping was considered as one of the reasons that caused farmers to quit farming. The sand buried many of the canals, the water pumps and the fields of phase zero. One of the farmers who had a farm in phase zero, had this to say “I wanted to continue in farming though many farmers in the well had left, but the sand had buried my farm”. Another one told me, “I had a good farm in that phase, but when I knew that the project will no longer finance the inputs, and we would have to pay the costs ourselves, I decided to leave the farm”. Also, some farmers mentioned “because others left the farms, the one who stayed could not pay the costs of the inputs.” So we can say the reasons for abandonment of phase zero, seemed to be social, economic and environmental.

4.7.5 Farmers’ committee of phase one 1994-1999
The transfer of information among the Hawawir usually take place through people who travel. For example, people who travel in the wadi will bring the news of how good the grass is in a certain place. So, when phase zero was established, the news reached the Hawawir who moved to other areas. They decided to come and take part in the other phases. The administrators of the project used to contact the leader of the Hawawir tribe in Abou-orug, which is the area, where the leader of the tribe resides. The leader advised that the priority of the farm distribution had to be for the people who stayed in the area but the leaders of the sub tribes in Um jawasir intervened. They decided that the people who left to the River Nile area and to Omdurman, should have farms as well because they originated from Um jawasir and had inherited land within the area. So in phase one, new sub tribes were benefiting from the project besides the clans who benefited from phase zero. According to the customary law of Hawawir, sub tribes’ leaders wanted to give equal share for the Hawawir from different sub tribes (Larsen, 2005). The committee in phase one was established by direct election. Every sub tribe elected two persons from every well to represent the sub tribe in the committee. Accordingly, two sub tribes’ leaders who used to be members in the farmer committee of phase zero, were also members in the committee of phase one including representatives of the sub tribes who joined the project from other areas.

New training components, were given to the committee in phase one. First, since the pumps in phase one were changed to higher capacity ones, the project administrators had to retrain the committee in well maintenance. Also the members were trained in secretariat and book
keeping. The responsibilities of the committee in phase one were the same as in phase zero. But again, the committee faced many challenges in running the phase

To start with, off season cultivation that occurred after the project was handed over to the committee. The rain season was relatively good in that autumn so some farmers left the project and took their livestock to graze outside the area, while others stayed. Obviously, some farmers did not want to cultivate in that season. But the project administrators intervened and advised the committee to ask farmers to plant for winter season. When the farmers planted, it was already off season for winter crops to grow. The farmers had to pay the cost for the inputs they used but instead, the farmers were given the inputs by the committees on credit. The reason for this was that the farmers claimed they did not have the money to pay for the inputs. When the farmers harvested their produce, they got low output and it was difficult for them to pay the costs of the inputs.

Another factor was a technical problem with one of the wells. To maintain the well, the committee had to spend money from the revolving fund. This increased the overall expenditure of running the project activities.

From the interviews with farmers, I gathered that the committee members favoured community leaders who had farms in terms of agricultural inputs more than the rest of the farmers. This action led to a belief among the farmers that the committee members were biased in their dealings with some farmers. From a discussion with a farmer, he said that “hypocrisy, is not something brought by the project but it is a custom, which is deep in our tribe. If someone someone did something against you, the elders would ask you to forgive him rather than to punish him”.

Most farmers, who came from the River Nile area or Omdurman, left their farms and went back to where they came from. Others are still staying at the project area working on the farms of the phase two as labourers for the people who got farms. Hence for the second time, we find farmers quitting from the project.

Furthermore, the farmers’ committee involved the Hawawir mobile court to trial farmers who had not paid their debts. Hawawir mobile court is a native court elected by the Hawawir people. The court uses the customary law or “al urf” to adjudicate issues of the Hawawir. It also has the authority to fine and imprison offenders (Asad, 1970). Hawawir define Alaurf as
(the law which people know and agreed upon) (Larsen, 2001). At the present time, there are only three farmers who are farming on the phase one farm plots. Those farmers are the leaders of the clans in the area. The question is how and why those farmers are still farming while others could not. One possible answer is that those farmers could finance their farming activities from their own resources.

4.7.6 Farmers’ Committee of Phase Two: 2000-2004
In the first two years of this phase, farmers refused the idea of having one farmers committee to supervise the activities. Instead, they came out with the idea of wells’ committees. Therefore, instead of having one committee supervising the whole project, the farmers elected three persons from each well to be the representatives of the well in terms of receiving the agricultural inputs, and meeting with project extensionists whenever needed. Women were represented in those committees because some women were given user rights to farm lands in this phase. We will discuss women committees and women involvement in the project later in this chapter. The project administrators agreed to the farmers idea but at the same time, talked with the farmers on the importance of having one committee to run the project. Farmers from their experience in the previous phases refused to have one committee.

The Project extensionists mentioned that it was very difficult to follow the project activities by supervising different committees in the different wells. Moreover some representatives were not attending the meetings. So they continued encouraging the farmers to have one committee. They implored farmers to meet and select their committee but they were not responding. The situation continued like that until the project organised a training course on the role of local institutions in regulating use and conflict management. The course was a part of the activities organised by the Dry Land Coordinating Group “a forum driven by various non governmental organisations on developing issues in the dry land areas of Africa.”(Larsen, 2001). Farmers, local leaders and women participated in the training. One of the recommendations was the revision and training of various farmers’ committees in Um jawasir project. This recommendation clearly pressed farmers to reconsider the establishment of farmers’ committee in phase two.

For the establishment of the committee, farmers agreed to select members of the committee from the representatives of the wells. The responsibilities of the committee were the
collection of the revolving fund and the monitoring of watering intervals between the farmers. No training was conducted for the committee.

The project administration was not happy about the performance of the committee. The reason was that there were some trouble makers within the committee. In particular, they referred to a farmer who refused to collect the revolving fund from farmers in his well because the average production of that well was less than the other wells. It was counter argued by the project extensionists that the farmers would have had a fair production if they had managed the irrigation sequences properly in order to pay the revolving fund. One member in the committee indicated that the other members of the committee were not in support of that member who refused to collect the revolving fund. But from interviews with other farmers, they said that “the farmers’ committee can only follow the activities of collecting the revolving fund or monitoring the water intervals between the farmers. However, it is not capable of running the activities, when the project pulls out. We have to have members who are experienced and have worked before in the farmers’ committees. We need leaders like X because he knows what to do if there is a problem with the pumps”

This is an example of some of the views of the farmers about the committee. Others thought having representatives from each well was better than to have some of the leaders who were involved in the committees before because they wasted the monies that were being paid. For instance, many farmers thought that the committee of phase one had stolen the revolving fund. Reacting to this issue, a farmer who was once the treasurer of the committee said, “it is the habit that our people to accuse every one who was in charge of being a thief. I was the treasurer of the committee of phase one, and I am keeping all the receipts. I used to transfer the money collected from farmers to the office of the project in Khartoum”. From this, it can be said that there are many contradictory views among the farmers themselves concerning those who are suitable to join the agriculture committee. At the same time there were contradictory views between the project administrative and the farmers.

To solve the above problem, the project administration together with the leader of the tribe, intervened and organised a re-election of new members to the farmers’ committee. During the election each well had to present not less than 6 farmers (every well has 15 farmers). However, only three members took part in the elections for one of the wells. The election started, and farmers were asked who is going to be the chairperson. Farmers elected one of
the leaders who was a member of the committees for the last two phases. The elected secretary was also one of the leaders of the former committees. The treasurer and the rest of the members were not members of the former committees. Therefore, the new committee consisted of a chair person, secretary and treasurer with seven supporting farmers. Later the project together with the farmers’ committee assigned members from the committee to various tasks including the collection of the revolving fund, marketing of crops and maintenance of the wells and the tractor.

The member who was considered as a trouble wanted to join the Committee but a farmer from his well strongly objected that saying, “*this man was not chosen by any one in the well. He is nominating himself*”.

We find that the election of the chair person was according to the tribal representative who belongs to the main sub tribe in the area. The secretary, who used to be the secretary for the committee in the phase one, did not have a farm in phase two but later he bought a farm from a cousin thus becoming a representative of the well.

Women were also elected to join the committee but in a different way. First the sheikh of the main sub tribe came and told the women extensionist and even me that he was appointing x & z to be the representatives of the women. We tried to explain to him the choice should be made by the women themselves. When the women gathered and started discussing who was to join, the brother\(^\text{12}\) of the leader of the tribe went to the place where the women were gathered and told them to select two women to be the representatives of women farmers in the farmers committee. This shows variations in the appointments by the sheikh and the tribe leader. It also indicates these leaders invariably influence the election of members to the committee.

### 4.7.7 Concluding Points on the Farmers’ Committees

The leaders of the sub tribes in the first phase were the ones who were members of the committees. Those leaders were also representing the government institutions in the area (Salvation committees). In phase one, though the election of the committee was democratic,

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\(^{12}\) He is actually the brother of the tribe leader and in strong contact with the project administration. He usually visits the project are and the Hawawir consider him as the Al- Nazir even though he is not.
the farmers elected leaders of the sub tribes as members to the committee. In phase two, a different criteria (selection of representatives from every well) was used by the farmers to select the committee members. The well representative did not necessarily have to be a leader but could be a respected and hardworking person.

However, the interference of the project administrators and the Hawawir leadership in the election procedure forced the farmers to accept the new committee. Moreover the general view of many farmers was that the elected committee would not be able to manage the project activities properly. I will explore this when I talk about how the Hawawir perceive the sustainability of their institutions in managing the project.

**4.7.8 Women development centre committee**

To talk about women development committee in Um jawasir, I have to talk first about Women situation on Hawawir society. Hawawir society is a sex-segregated and male dominated society (Larsen, 1997). Men are the household heads and the decision makers (Larsen, 2001). Thus, in the implementation of phase zero of the project, farms were allocated to the households’ heads, and eventually women were not involved in the initial planning of the project.

The extensionists working for the project told me “*in the beginning women were only seen collecting fodder from the farms*”. Because of the passive involvement of women, the vegetables produced in the project could not be utilised by the women as they did not know how to cook it. A review team in 1995 reported that the project had a strong male bias and recommended that a strategy for women’s involvement in the project activities should be worked out (Johnsen and Larsen, 1997).

**4.7.9 How the Project Reached Women of Um jawasir**

The project administrators employed three women extensionists to involve women in the development activities of the program.

To approach women in the area, women extensionists visited women in their houses. They trained them on how to cook the vegetables that were planted in the farms and gave them sessions on maternal care and hygiene. These home visits enabled the women extensionists to
build a rapport with the women. In the process, they also gained respect and trust from the men (Larsen, 1997). The extensionists initiated new activities such as food and soap manufacturing and sewing. With these new activities, the Women Development Centre was established to train the women. However, gathering women at the Centre meant that women mobility in the area would change, and more duties would be added to their daily activities (preparing breakfast, taking care of the children and shelter, fetching water, fetching fuel wood, preparing the evening meal and feeding of animals) (Larsen and Hassan, 1997). By establishing the project, women who used to work on farms had to spend most of the day time in farms picking okra, collecting fodder for animals among other things. Women who later got user rights to farms land had to follow watering of the crops. According to the women extensionist of the project, some of house duties like preparing breakfast and taking care of small children were taken over by young girls and daughters in the family.

Women extensionists had to discuss with the sub tribes and clan leaders to convince them about the necessity of letting women to participate in the proposed activities. Most of the leaders in the area agreed to the women joining the activities in the centre. However, one of the main sub tribes in the area did not allow their women to join the activities. The argument they put forward was that the women were occupied by their daily duties and did not have time to go to the centre. This reluctance caused some sort of conflict between the group that joined and the one that did not. Each of them would undermine the other, for the decision taken towards joining or not joining the activities in the centre.

4.7.10 How the women committee were established
The woman who was among the pioneers to join the program mentioned that when the Hawawir from Nile area came to join the program, their women joined the activities in the centre as well. According to the woman, the staff members told them to form a committee to organise their work. Accordingly, a committee comprising five women from five sub tribes was formed. The extensionists continued on activities of soap making, food manufacturing besides starting illiteracy class for the women. The project administrators also came out with the idea of establishing Sandoug (a revolving fund modality; an indigenous modality that has been adopted by the project staff to instigate economic empowerment mechanism towards the sustainability of the activities) (Johnsen et al., 2000). Simply, the idea of the Sandoug was for the program to support the inputs for the women to process the nodules,
biscuits and soap, sell them within the area, take the profit for themselves and return back the costs of the inputs. My information on how that revolving fund was managed is not sufficient. Besides, the members of the committee were reluctant towards discussing the issue. But I talked to other women who joined the activities in the centre at that time to know their views about the performance of the Sandoug activities. One woman said, “I stopped joining the activities in the centre because when we worked in the past I could not get my money from the activities of the revolving fund because I did not get any benefit. I will not join again because if anything happens, they would tell me the money was gathered to pay for expenses to receive guests.”

Another form of revolving fund involved women collecting equal share of money to buy stuffs like oil, tea, sugar, which they sell to other women in the area and later shared profit. I had a group discussion with some women who joined this activity and one woman replied “the committee collected money from us to buy sugar, tea and oil to sell for profit. However, when the time came to pay us they did not.” From discussions with some women it seems that the centre activities were not benefiting all women who joined. This point indicates that decisions concerning the activities of the centre were dominated by the women committee. So this was the situation of the women committee who managed the activities in the centre during phase one and partially in phase two. In the proceeding part, I will discuss how the women development committee, had been evolved.

I mentioned before that there was a training course for the development of local authority in the area. Three women from different sub tribes were invited to represent women in the area. This was possible because the project administrators contacted the leaders of the three sub tribes. Participants were given incentives in terms of money when the training course finished. Other members of women program from other sub tribes wanted to join the course as well, because they knew that the women who participated where given money. They thought it was not fair because they were isolated from some of the project activities, beside the fact that one of the recommendations of the training course was revising of the existing committees (Abdel Ati, 2003).

So those women were encouraged to hold a meeting in one of the farms (they were 24 women from different sub tribes and clans). The women decided to dissolve the committee women centre and elect another committee, mainly consisting of the women who did not join
the training. So accordingly the chairperson of the women committee who was among the three women who joined the training was replaced. In an interview with the disposed chairperson about the change, she replied, “I did not know that the women were planning a meeting to dissolve the committee, until a boy came and told me that women are meeting in a farm. I decided to go and see what they were doing. When I reached there, they told me, they want to dissolve the committee. They indicated they had appointed other women as executive committee and that I was an ordinary member and no longer a chair person of the committee. I did not like that decision and since that day I lost interest in joining the activities of the centre”.

So in that way a new committee was established. The committee continued running the activities of the centre, with a change that the centre became more accessible for some women who did not join the activities regularly. From a group discussion with four women (from one sub tribe) on what they thought about the new committee they said, “when the new women committee were selected the women of the old committee refused to join activities in the centre till X of women quit the activities in the centre. But the new chair person in the centre is a very loyal woman, and trustworthy. She did not waste the money of the revolving fund. Yet, some women did not like her.”

But after a while, four men from 4 sub tribes in the area decided to change the committee again because they thought the chair woman who belonged to a different sub tribe other than theirs, was managing the centre activities according to the views of her husband and men from her clan. The chair belonged to a sub tribe that migrated to the Nile Area during the drought, so they are perceived by the people who stayed in the area to be non settlers of the area because one day, they would move again out side Um jawasir. So 26 women held a meeting in Algaria where they decided to have 6 women representing the whole sub tribes in the area instead of 12 women. From this, I realised that women activities were directed by the desire of the men in the area and as one man mentioned “what women do should come from us”. So we notice here, men have the authority and women influence the decision made by men.
4.7.11 Concluding Points on Women Development Committee

The establishment of the women development committee was also on the base of sub tribe membership. The pioneer women who joined the program, appointed themselves as the women centre committee according to tribal representations. Activities of the women centre were not beneficial to all the women who joined as they mentioned “we did not find our share”.

From an interview with the farm manager, the project administrator kept the women committee working for almost five years without any initiative to change it. This was because they wanted the program to continue as they thought the withdrawal of the pioneer women would put off the other women from joining the centre. Thus it can be said that the committee was kept as a safety net for the continuation of the program activities. The exclusion of some members of women program from the training course, led them dissolve the committee.

The performance of the chairperson of the second committee was understood as the political influence of her sub tribe in the area. This situation explains the conflicting views between the Hawawir who stayed in the Wadi during droughts and those who moved outside the area (Larsen, 2005).

The women extensionists in the program thought that because of these changes in the women committee, she would consider the latest 6 women, as a contact group of women to supervise the women program activities, but not as a committee.

The approach, which used to involve women in the project was, women in development approach, which advocates on economic and social returns as means to enhance women productivity (Ravazi and Miller, 1995). Firstly, the extensionists worked on issues of welfare and anti poverty by conducting activities of health education and income generating activities. Secondly the project worked on equity issues, when women were allocated farms in the project. I will elaborate further on this point, when I discuss Hawawir women as farmers.

4.7.12 Hawawir women as farmers

One of the components of women program was training of women in vegetable farming. So women were trained in the Women Centre by women extensionists. After their training, the
women were allocated plots (nurseries), within men farms in phase one. One of the women commented that; “we have been trained to plant jwismallow, onions and other crops by women extensionists who used to work at that time. We learned that vegetables are planted in small basins in the farm where it had to be well protected from heavy water and animals.”

The women produced bean, wheat, and vegetables including okra. We notice the okra in phase one was considered as vegetable for household consumption and not as a cash crop.

Women who were trained on farming demanded the project and sub tribes’ leaders to give them farms registered in their own names. This was particularly the case for those whose husbands were not farmers as well as divorced and widowed women (Johnson and Larsen, 1997). According to the evaluation of phase one, it was recommended that 20% of the farms should be allocated to. By this recommendation, 15 women were selected by their sub tribes to be given farms.

According to the sub tribe leaders decisions, some of the women, who were trained in farming got farms (73% of the 15 women). Beside, other women who were not trained(27%), were given farms also.

From an interview with one of the project extensionists, he told me that the decision of farm land distributions was left to the Hawawir. However, the project administrators only explained to the farmers the technical issues that the Hawawir should take into account. For example, the project recommended that the location of women farms should always be closer to the pumps, where the water is tapped and distributed to the canals. All women farmers had men to assist them with physical work on the farms. Those assistants were sons, husbands or labourers. Women were able to market their product within the project area and outside. I will discuss that on the part of marketing in this chapter.

4.7.13 Selection of women farmers in the Farmers’ Committee
Women farmers were selected in well committees and were also selected in the final committee of phase two. I discussed how and to what extent women representatives were involved in the farmers’ committees. For example how often do they attend the meetings, how do they know about the meetings, were they able to say their views. One woman, who joined two meetings with the first committee in phase two said “X was one of the representatives of
women farmers in the committee, she asked me to join the meetings. The issues were discussed at the meeting were payment of the revolving fund, and selection of volunteers to join the training. The ones who were discussing were the men. They did not ask us or include us in the discussion, and the women did not participate in the discussion either’.

So as we notice here, there were no regulations or rules restricting the membership in the committee. Moreover, it is clear that women were not actively involved in the meetings though they were equally involved in the development process. Thus we can say that the strategic gender needs (Razavi and Miller, 1995) of the women in the area were not fully met.

4.7.14 Hawawir Native court

As I have mentioned earlier the Native Administration has played an important role in Hawawir community. In this section, I will discuss how the court as an institution existed in the Hawawir community, and how later, it was involved in the project.

The existence of the court is traced back to the colonial time when the British people introduced the system of native administration (Asad, 1970). The idea behind the system was to empower the tribe leaders in the Sudan with the judicial authority to fine and imprison law perpetrators as well as collect of herd taxes and maintain of public properties. Followed from this, the leaders of the tribes formed Native Courts that consisted of the leader of the tribe (Nazir) and other assistants mostly the tribe’s elders (Asad, 1970). In the case of the Hawawir tribe the leader of the tribe was the president of Hawawir Native Court. (Asad, 1970). The scheme of Native Administration went through some levels before it took its final shape. This development was meant to transfer power to the leaders gradually. First, in 1922 the “Powers of Nomadic Sheikhs ordinance” was passed to regularise the de facto exercise of minor judicial powers by various nomadic sheikhs. In 1928 it developed into the “powers of sheikhs ordinance”, at that level sheikhs were given the power to imprison. However serious thefts, slavery, murder and providing trading licence were the responsibility of the government district commissioner (Asad, 1970).

The system of the native administration was abolished in 1977 (Shazali & Ahmed, 1999), but The Hawawir kept on their native court. The court is nominated by the tribe leader and
approved by the authorities. The responsibility of Hawawir court is to solve personal disputes as well as conflict over resources ownership and utilization. (Abdel Ati, 2003).

4.7.15 How the Hawawir court became involved in the project

Farmers’ committee in phase one involved the Hawawir court to judge on the farmers who did not pay the revolving fund. I think the committee had to involve the court because firstly, the court is a known institution in Hawawir society; the hawawir would not object or suspect the involvement of the court. Secondly, the native court is the legitimate source of constitution for the Hawawir to follow and obey. Farmers, who didn’t pay all or part of the revolving fund, are brought to the court. The court members would listen to his argument, why he did not pay the money. Then he would be given a period of time to pay the money. If he did not, the court would impose a punishment on him. (imprisonment not exceeding six months, beating not exceeding 50 and fining not exceeding 50,000L. equal to 20 US).

The court members are not living within the project area, but they stay in the Nile River Area, so when the court is needed to judge in the project farmers disputes, the project will provide a vehicle to transport the court members. Hawawir make use of the presence of the court in the area and would bring their personal disputes to the court for arbitration.

The court would also be involved in the project issues, in the absence of the farmers’ committee that happened, when the farmers decided to have representatives of wells instead of one committee, two farmers had problems in the farm, one of the farmers brought the issue to the court, and the court judged on it.

Generally, we can say that the way the problems are solved within the Um jawasir farm is like the following diagram.

Figure 3: Diagram showing the flow of problems solution within Um jawasir farm

Farm problems → Wells representatives → Farmers committee → Hawawir Native Court. (brought from the Nile area).
4.7.16 Agawid groups
They are the elder people in the sub tribes and the clan level who are known as being wise and respected by everybody. These people are informally involved in solving personal or general disputes that might arise at the sub tribes and clans level, before the disputes worsen and reach the level of reporting them to the court. So we can say that many initial conflicts had been resolved by the elders. Figure 3 shows how daily disputes are resolved.

Figure 4: Diagram showing the flow of disputes solution within Hawawir community

Disputes within households or clan level→ Agawid groups→ The Native court.

At the project level agawid are also involved in solving problems because some of them could be among the farmers who got user rights to farm land and became members in the farmers committee. Moreover they can be involved also without being members in the committee as long as they had farms and were aware of the issues going on between farmers. They also attended meetings and discussions between farmers at the farm level.

4.8 Management of cash crops
Before discussing the crop management at the farm level, it is worthy to give a background about farms operation in the project. Firstly, the numbers of farmers are 90 comprising 15 women and 75 men.

The project administrators are responsible for providing seeds, fertilizers and fuel. Also, they are responsible for ploughing the farms by tractor. Farmers are responsible for preparing the seed beds, watering the crops, sowing of seeds, applying the fertilisers and processing of the crops.

The project management and the farmers committee are responsible for collecting the revolving fund from farmers. It is agreeable that after winter season farmers are asked to hand some of their wheat produce that is equal to the revolving fund for that season.
The extensionists explained that the extensional approach they used was based on farm visits. They are supposed to visit the farmer on his farm and explain to him what he is supposed to do and how he is to do it. Extensionists mentioned that they faced difficulties in the beginning such as, free riding on farmers’ side as they did not get used to being in farms for longer times to monitor watering of the crops. For example, in some cases farmers particularly those that had migrated to the Nile Area were given the opportunity to replicate some management they learned in the Nile Area. In case such management systems did not work, they then introduced to new management systems. Farmers in each well agreed to the water intervals to water farms according to the technical advices they received from the project administrators. However, some farmers did not follow these intervals. These farmers are subject to the interference of the well representatives or /and the farmers committee. From group discussions, farmers were hesitant to talk about the problems of watering these farms but at individual interviews some farmers mentioned that there are many cases when farmers would quarrel with each other because each farmer would claim it is his turn to water his field first. Women farmers are also exposed to such kind of problems as two women farmers mentioned that many times, men farmers would overtake their turn in watering. So those are some of the things I wanted to present before going on to the interpretation of the quantitative data

4.8.1 Sewing of crops

Though sowing of seeds in the project is done mainly by a machine, extensionists advice farmers to do manual sowing for the seeds either by broad casting for small seeds like, wheat, and sorghum seeds, also they advice farmers to sow beans and okra by digging holes.

From the quantitative data, I wanted to see how many of the farmers preferred to sow the seeds manually instead of depending on the machinery. Sowing of crops manually would mean avoiding the costs of machine in the future. It is also known that frequent exposure to machine would result in reducing soil moisture and destruction of useful organisms in the soils. The results showed that only 10.3 percent of farmers are sowing beans manually while 87.5 percent are depending on the tractor provided by the project. Such a decision could be due to the fact that farmers preferred to save time and the cost of labour.
Regarding okra the project is not providing services in sowing of okra so farmers are doing it themselves. About 82.5 percent of the farmers preferred to broadcast the seeds, they mentioned that they preferred broadcasting because it is easier and does not take a long time and the seeds. Besides getting of seeds from the project farmers generate seeds by themselves and some farmers sell seeds to other farmers. About 12.5 percent of farmers are sowing their seeds in holes they chose so because they noticed the plant grows well and give better production. In addition they save time.

I also investigated those who prepared their land and watered the crops. I found out that 45.0 percent of informants did not hire labour, and 32.5 hire labour while 22.5 percent use family labours including sons, husbands, brothers and fathers.

### 4.8.2 Processing of okra

I tried to look at gender division of labour in processing of the crops okra and beans. I found that 92.3 percent of the women were involved in picking okra from the farms, while only 2.6 percent of men were involved. Children were also involved in both chopping and picking of okra. Men and women together are involved in chopping of okra in 32.5 percent of the cases (Table 2).

<table>
<thead>
<tr>
<th></th>
<th>Women</th>
<th>Men</th>
<th>Women\men</th>
<th>Women\children</th>
<th>Men\children</th>
<th>children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pick okra</td>
<td>92.3</td>
<td>2.6</td>
<td>2.6</td>
<td>2.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chop okra</td>
<td>56.4</td>
<td>2.6</td>
<td>32.5</td>
<td>5.1</td>
<td>2.6</td>
<td>-</td>
</tr>
</tbody>
</table>

Source field work December 2004.
Figure 5: Process of chopping okra

4.8.3 Processing of bean
In the processing of bean 17.9 percent of those one who cut the bean are women while 66.7 percent are men. This could be due to the fact that the cutting of bean requires more physical work. However, 59.0 percent of the children are involved in very minor cases and men and women jointly cut bean in 10.3 cases.

But women are mostly involved in the threshing of beans. In 12.8 cases farmers used animal power to thresh bean they mentioned that they have seen this management in The Nile area (see Table 3).

Generally we can conclude that women are the most involved in processing of okra and bean in Um jawasir farm. This supports similar findings in sub Sahara Africa (Ellis, 2000)

| Table 3 : Processing of bean by different gender |
|---------------------------------|-----|-----|----|----|-----|-----|-----|
|                                | women | men | Women\Children | children | Using donkeys | Using tractor | Women\men |
| Thresh of bean                  | 59.0  | 12.8| 5.1        | 2.6      | 12.8      | 7.7      | -       |
| Cut of bean                    | 17.9  | 66.7| 2.6        | 2.6      | -         | -        | 10.3     |

Source field work December 2004.
4.8.4 Benefit from processing of bean (threshing)
The benefit given to labourers in threshing varied from 0 kg to 9 kg of bean. The most common pay in kind given to labourer is 6 kg. Farmers said they observed this management in the Nile Area.

I interviewed one of the women who threshed bean in one well she said “in this well men use tractor to do part of the threshing and women do the rest. We get 3 kg here but in another well a woman can get 6 kg. The difference is the usage of tractor in the first case. Table 4 shows the benefits in kind from threshing bean.

<table>
<thead>
<tr>
<th>Amount in kg</th>
<th>Percent of farmers paying</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 kg</td>
<td>27.5</td>
</tr>
<tr>
<td>3 kg</td>
<td>5.1</td>
</tr>
<tr>
<td>6 kg</td>
<td>40.0</td>
</tr>
<tr>
<td>9 kg</td>
<td>2.5</td>
</tr>
<tr>
<td>15 kg</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Source field work December 2004.

4.8.5 Benefit from okra (picking and chopping)
The pay in kind or benefit got from picking and cutting okra varied from 0 kg to 6 kg with the most common payment in kind being 3 kg . I interviewed some of the women who were picking okra in farms to know how they made use of the income they got from picking okra in farms.

One woman mentioned “last year, I picked from 3 farms and made 3 sacks by the end of the season. I bought my self ring and clothes for myself and daughter. I went to a wedding and paid 500 Sudanese Dinnars. The money I get from okra picking is mine “.

Another woman she said, “I worked in three farms together and I could make 6 sacks, bought livestock and clothes for my children.” A third one mentioned she picked okra and sold it to buy sugar, tea, oil and paid her debt. A fourth woman mentioned the income she got from okra, besides buying, sugar, and oil saved part of the money to buy clothes and for purposes of transportation.

From the information mentioned we find that picking of okra enabled women to fulfil their own interest within the needs and interests of the household’s members ( Larsen,2005). This finding is different from what is most common in gender sequential division of labour in sub Sahara Africa, where women do most of the work in the farm, but due to gender inequity
women do not get income of their own. (Ellis, 2000). Table 5 shows the benefits in kind from processing okra.

Table 5: Table benefit in kind from processing of okra

<table>
<thead>
<tr>
<th>Amount in kg</th>
<th>Percent of farmers paying</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 kg</td>
<td>27.5</td>
</tr>
<tr>
<td>3 kg</td>
<td>55.0</td>
</tr>
<tr>
<td>6 kg</td>
<td>17.5</td>
</tr>
</tbody>
</table>

Source field work December 2004.

4.8.6 Consumption of okra

Okra is consumed by farmers but 95.0 percent of farmers did not know the amount of okra they consumed. Estimates of the consumption of okra per year are depicted in Table 6.

Table 6: Consumption of okra per year

<table>
<thead>
<tr>
<th>Amount of okra consumed per year in kg</th>
<th>Percent of households consume</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.16 kg</td>
<td>2.5</td>
</tr>
<tr>
<td>7.2 kg</td>
<td>2.5</td>
</tr>
<tr>
<td>Uncounted kg</td>
<td>95.0</td>
</tr>
</tbody>
</table>

Source field work December 2004.

4.8.7 Consumption of bean

Farmers usually do not consume bean they produce and only 5 percent answered they consumed bean. This consumption of bean is shown in Table 7.

Table 7: Table consumption of bean per year

<table>
<thead>
<tr>
<th>Consumption of bean per year in kg</th>
<th>Percent of households consume</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 kg</td>
<td>95.0</td>
</tr>
<tr>
<td>0.78 kg</td>
<td>2.5</td>
</tr>
<tr>
<td>1.2 kg</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Source field work December 2004.

4.8.8 Crops used to pay the revolving fund

I tried to know how many sacks of farm produce were used to pay the revolving fund, I found 45 percent of farmers sell from 1-6 sacks of bean to pay the revolving fund. Only 20 percent...
of farmers used 1-5 sacks of okra to pay revolving fund. Therefore bean is more important to pay the revolving fund than okra. (see Table 8).

Table 8: Amount and bean used to pay revolving fund

<table>
<thead>
<tr>
<th>Amount of sacks</th>
<th>Bean</th>
<th>Okra</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 sack</td>
<td>55.0</td>
<td>80.0</td>
</tr>
<tr>
<td>1 sack</td>
<td>17.5</td>
<td>7.5</td>
</tr>
<tr>
<td>2 sacks</td>
<td>17.5</td>
<td>5.0</td>
</tr>
<tr>
<td>3 sacks</td>
<td>7.5</td>
<td>5.0</td>
</tr>
<tr>
<td>5 sacks</td>
<td>0.0</td>
<td>2.5</td>
</tr>
<tr>
<td>6 sacks</td>
<td>2.5</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Source field work December 2004.

- 1 sack bean equal to 90 kg, 1 sack of okra equal to 45 kg.

4.8.9 Who decides paying of revolving fund using okra and bean

I wanted to see who decides, the amount taken from okra or bean to pay the revolving fund. I found in the case of both crops that men were the ones who decided in 40 percents of cases when 1-6 sacks of bean and 1-5 sacks of okra were taken to pay the revolving fund.

Table 9: Amount of bean and okra used for revolving fund and who decides

<table>
<thead>
<tr>
<th>Who decides</th>
<th>Amount of bean sacks</th>
<th>Amount of okra sacks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-6</td>
<td>1-5</td>
</tr>
<tr>
<td>men</td>
<td>40.0%</td>
<td>40.0%</td>
</tr>
<tr>
<td>women</td>
<td>10.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>together</td>
<td>7.5%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Female households</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

Source field work December 2004

I found that 52.5 percent of farmers sell live stock plus, okra, bean, fodder, alfalfa to pay the revolving fund while 47.5 percent decided to sell some of their product of wheat to the project, as payment for the revolving fund. I also found that the sources from which farmers paid their

4.8.10 Income distributed from selling okra

About 42.5 percent of informants use income from okra to buy food products like sugar, tea and oil while 7.5 percent use income from okra to pay school fees and clothing. Comparing men and women farmers, men are more interested in paying school fees and clothing than women who mostly use their income from okra to pay for food products, which is similar to
the situation in Africa sub Sahara (Ellis, 2000). Also 17.5 percent of informants use income from okra to buy livestock. I notice here that interest among women farmers and men farmers with regards to buying livestock is similar. It is also worthy to note that 17.5 percent of informants used income from okra for paying debts, trading. However, 15 percent did not respond to this question.

4.8.11 Income distributed from selling bean
About 18.9 percent of respondents use bean to buy food products while 10.8 percent use bean to pay school fees. Almost the same trend in okra can be found in bean with one difference that only 2.7 percent of informants used bean to buy livestock. So it seems that bean is less important than okra in buying livestock. This could be due to the fact that farmers usually sell bean immediately after harvest and then use it to pay the revolving fund but okra is usually stored and so they get more time to save money and then sell.

4.9 Marketing of cash crops
Before discussing marketing of okra and beans in Um jawasir area, I would like to give a back ground on trading in Hawawir community

4.9.1 Trading in Hawawir community
Market is one of the institutions that exist in Hawawir community and the establishment of the development project has influenced this institution. To explore this, I will give a back ground on how the Hawawir relate to market in their lives. In the resource mapping the leader told us that the Hawawir travel two times in the year to buy their items from two famous markets in, Tangasi and al Dabba in the River Nile Area and Souque Omdurman in Omdurman city. They travel in winter to buy sorghum and dates. They buy sorghum to fill in the shortage food that occurs in winter. The leader commented that when someone return from Mecca it is very common to present dates to the guests.

In summer they would buy tea, sugar, clothes, and perfumes. In order to pay for the food products, the Hawawir would sell livestock in those two markets. He also expressed that buying food products did not mean that you buy to feed your household members, but also you buy to suffice your guests. During dry years, Hawawir would buy sorghum to feed their
live stock. This was most common among wealthy nomads, who kept more livestock than the others.

The leader mentioned that in the sixties, some Hawawir opened cafes along the road toward the north, where they sold coffee, tea and meals to travellers. Some Hawawir believed opening of cafes at that time and even after wards, was a way to cope with the droughts. People sold some of their live stock and started cafes or in some cases bought cars. This was how the Hawawir in Um jwawsir exchanged goods and got involved in the market place, before they started farming.

4.9.2 Market place in Hawawir society
Within the project area, there are two markets or *souques* for the Hawawir to buy and sell goods. The first *souque* is found closer to the farms of phase one. Before the building of this souque, the sellers, (including farmers and some clan leaders) were having dispersed small shops within the area of the project. Extensionists and especially they refer to one women extensionist, who encouraged them to have their shops closer rather than dispersed. By this idea, farmers were encouraged to have one *souque*. The shops in the *souque* are seven shops built from mud, one bakery shop to bake bread mainly for the staff members who work for the project, one Grind miller and butchery, one café owned by the sheikh of the main sub tribe in Um jawasir. It was found that accordingly we find that sellers in this market mainly belong to the main sub tribe in the area.

Three shops selling daily households items like biscuits, soap, powder milk, dried okra torches, sugar, tea and oil. Farmers, mainly women often exchange okra for sugar, tea, oil and onions with the shops keepers. So there is no exchange of cash here.

The Women Centre is located closer to this market. When women come for meeting they came and meet would also buy their things from the market. Another market was built within the area of farms of phase two. The distance between the two markets is around 2 kilometres. This new market has been established by another sub tribe called Habasab. It is one of the sub tribes that stayed in the area during the droughts.
People who have cars in the area, mainly the traders, would transport goats, sheep and crops to the Nile area and Omdurman for sale and then buy goods to sell in their shops. I interviewed one of the traders in the area on how he markets his goods and he said “I buy okra from farmers, store it, and then sell in the Nile area or in Omdurman”. This merchant brings back with him food items. He commented that the most needed food products here are oil, tea and sugar. Clothes are only needed during feasts and people like to buy from Omdurman once a year. According to the information given by this merchant together with the questions I asked the farmers on how do they distribute their income from the selling the okra, I found that 42.5% of the respondents distribute their income in buying, sugar, tea, oil and onions. It is also worth mentioning that Hawawir drink tea during day very frequently, so this explains why they use most of their income from okra to buy sugar and tea and oil and onions for cooking.

I also interviewed one of the merchants about, how he gets information on the prices of the crops. He mentioned that “according to the news brought by people, we know which places to go and sell, for example with bean, we know that the bean which we produce in Um jawasir is not of a good quality, people in Nile area told us it takes along time to cook.”

From the information above, we gather that merchants in Um jwasir area are involved in marketing of the crops produced in the farm, by taking the produce to markets for sale and bringing back the items needed in the area. Also merchants are aware of information related to their goods, prices and the procedures that their goods might go through until it reaches the consumers. However, we noticed here there are now middle men involved in trading between the sellers (mainly producers) and the buyers. The middle men offer services like bagging which can improve the quality of the goods and thus increase the price.

In the following part I will discuss how the individual farmers market their farm produce with reference to the marketing of okra and beans
4.9.3 How individual farmers market okra and beans
Farmers in Um jawsir farms, market their produce in three markets, Omdurman city, Nile Area, or in Um jawsir. I will discuss why farmers choose different places to sell their produce.

We notice Um jawsir is becoming a local market where most farmers sell their produce. For example okra is sold to local traders where they take it to the Nile Area, or Khartoum to sell. Most of those traders have cars so they have the means to transport the produce. Okra is also sold per kilograms in shops of Um jawsir to cover daily expenses of food items. Women expressed that when they do not have cash, they sell their produce to the shops owners, and then take what they need. But as we can see from table 10 farmers tend to sell okra in Nile Area than in Khartoum. Farmers expressed that, when they go to the Nile Area to visit relatives or attend funeral, they sell their crops there also. Regarding the selling of bean, some farmers mentioned that to avoid transport cost, they prefer to sell bean in Um jawsir to local traders.

4.10 Women of Um jawsir and marketing

4.10.1 Marketing of okra
Most women prefer to sell okra to the local traders within Um jawsir area. The traders would take the products to the Nile area or to Omdurman. They also sell to the traders who visit Um jawsir from Nile to buy okra from farmers and then sell it back in the Nile Area. The Women complained that those traders buy okra at low price. So the women do not prefer selling their produce to them.

Sometimes the women join the local traders who have cars to sell their produce in Omdurman as one woman mentioned “I travelled to Omdurman with Sheikh Abd Alrahim to attend a funeral, so I took with me one sack of okra and sold it there”.

When it comes to marketing in the Nile area, women send their produce with relatives or merchants who are travelling to River Nile. Also women travel usually with men (brother or husband) they take their produce with them to sell. We also found from the interview men would say that they were not basically travelling to sell their produce but visiting a relative or attending a ceremony.
4.10.2 Marketing of beans
Women would also market their produce from bean the same way they do with the okra.

So we can conclude that women became involved in marketing within the extents that the norms and customs would allow. So the project had efficiently involved women in the development processes, but fundamental issues related to the social structure of Hawawir community were not questioned.

Table 10: Marketing of okra and bean

<table>
<thead>
<tr>
<th></th>
<th>Bean sold in Khartoum</th>
<th>Bean sold in Nile area</th>
<th>Bean sold in Um jawasir</th>
<th>Okra sold in Khartoum</th>
<th>Okra sold in North area</th>
<th>Okra sold in Um jawasir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>22.2</td>
<td>30.5</td>
<td>27.7</td>
<td>22.58</td>
<td>29.03</td>
<td>41.93</td>
</tr>
<tr>
<td>Women</td>
<td>8.33</td>
<td>13.88</td>
<td>5.5</td>
<td>9.67</td>
<td>9.67</td>
<td>22.58</td>
</tr>
</tbody>
</table>

Source field work, December 2004

4.11 Involvement of farmers committee in Marketing of cash crops
In this part I am going to discuss the extent to which the farmers’ committee is involved in marketing of cash crops.

From the individual interviews I found that 93.3 percent mentioned that the farmers committee did not help them to market okra and beans. Farmers sold these crops themselves. They also said that farmers’ committee only helped them to market the crops, which they usually use to pay the revolving fund. For example, farmers mainly used wheat and sorghum to pay the revolving fund. During the harvest season, the farmers committee collect some of the produce from farmers which, is equivalent to the money the farmers should pay. The committee would keep the harvest in the stores built by the project. And the farmers within one year have to pay cash to return their harvest, or the committee would sell the harvest. Of course farmers can decide whether to include okra and beans, or use other alternative to pay the revolving fund. This is what I tried to know from quantitative data.

Two farmers positively commented that the okra and beans are crops meant to be for the benefit of the farmer. Farmers are free to market okra and bean by themselves. The rest of the farmers are of the view that the farmers committee should be involved in marketing of the cash crops. However, they did not give any suggestion as to how this involvement should be. More over, one farmer commented that the farmers’ committee was the reason for her to loose
the opportunity to sell one sack of bean (equal to 90 kg), which she stored in the farms store to pay the revolving fund but the committee did not sell and neither did they help her to sell. Also from the interviews, two farmers who were members of the farming committee approached the question differently. One of them mentioned that the farmers’ committee was not involved in marketing of okra and beans in the previous years, but now the committee is establishing a marketing committee which is going to be responsible for the marketing of the produce from the farms (I attended the meeting when this committee was suggested and the idea of this committee came from the project staff who were attending the meeting as facilitators). The second farmer said that “I mentioned to the rest of the members in the farmers’ committee that we need to market the produce of okra for and farmers they told me, farmers usually market the okra the selves, and that is not easy to market the okra for farmers. Since then, I have not mentioned the issue again.” About 6.7 percent farmers did not respond to this question.

I interviewed the chair person of the farmer committee on why the farmers’ committee is not involved in the marketing of okra and bean. He said, “There is no unity of production for okra in Um jawsir farm. If the committee asked the farmers to prepare100 sacks of okra at one time, so we can sell all of them together, we will not be able to find this number of sacks on time. This is because farmers do not produce this quantity at the same time. Every farmer has his own decision on when and how to sell his produce.”

The leader also thinks okra produced in Um jawsir is lower in quality than the okra sold in Omdurman. This is due to the fact that farmers in Um jawsir pick okra in different growing stages, which means the okra produced in Um jawsir have different tastes and different sizes, but the consumers prefer certain taste and size of okra. He indicated that is why their lower prices than the okra produced in the River Nile area or in Omdurman. He thinks if farmers were told to process their okra in consumer’s preferences, they would get more returns from okra, because the committee can make group marketing for farmers. By this he means the farmers’ committee could collect okra from farmers and sell in the markets.

From further interviews with farmers an in Um jawsir, it was found that they were a ware that they needed to harvest okra, when it reaches a certain stage and size. But they did not because they don not like to keep themselves busy in doing very demanding things.
I visited one market in the River Nile area, called souque Ganetti, where the Hawawir sell live stocks and produce from farms. I interviewed okra sellers in the market. I found the okra produced in the area, were of better quality than the okra brought from Um jawasir. Also the traders who brought okra from Um jawasir directly sold the okra to the traders in that market, which meant there was no market services in between. This will lead to the buyers proposing and the seller forced to take. So introduction of market service is an important issue which is missing in the marketing of Um jawasir produce. Traders in souque Gentti mentioned that the quality of the bean produced in Um jwasir is not good in cooking. Buyers in Genetti use it as seedlings.

This means that even if the farmers’ committee was to be involved in the marketing of bean, they would not sell for good price.

So we conclude that there are no proper marketing channels for producers in Um jawasir farm to market their products, though they are aware of out side news, when it comes to marketing issues. Farmers’ committee in the future can establish group marketing for farm products if the farmers could follow the requirements of the markets and consumers’ preferences.

The integration of outsiders’ knowledge in the farming system of the Um jawasir is thus important if farmers are to get better prices for their produces. However we do not know if farmers would find these techniques useful to follow.

4.12 How Hawawir Perceives the Sustainability of their Institutions to manage the project

4.12.1 Farmers’ Committee

From the view of the farmers, they think the sub tribe membership guarantee the sub tribe to have a say and power inside the committee. This factor is important to consider, in any future kind of community development work in the Hawawir community.

However empowering sub tribes’ leaders only can lead to the empowerment of who is already empowered because communities are not homogeneous groups who have common interests and needs. Factors like age, class, ethnicity, gender and religion, would influence power relations and decision making between community members ( Cooke and Kothari, 2001).
The way the committee members are elected determined the management of the revolving fund. For example, every well would have someone responsible for collecting the revolving fund from farmers of the well and depositing the money in the project office in Khartoum. The treasurer would supervise these steps. Moreover people who collect the revolving fund are also responsible to buy inputs needed for farming such as fertilizers and seeds.

I asked the treasurer on what he thought about the performance of the work that way, he said "it is a big responsibility, and when the project is handed over, it would be easier for me to collect the revolving fund of my own well".

We notice that the way the project administers designed the responsibilities of the farmers committee, would enable the farmers to act according to the theory of collective action, when multiple appropriators (the farmers) depend on a common pool resource (the irrigated project) as a source of economic activity, as a rational behaviour they need to coordinate their efforts in order to maximise their benefit from the resource (Ostrom, 1990). At the same time, she argues that interdependence of common pool resource users does not mean creating an organisation of a (resource system) users, because organising is a process, through which the organisation is formulated (Ostrom, 1990).

However, farmers right now do not trust the elected committee on managing the project based on the previous experience in phase one. Moreover, some members of farmers’ committee are not sure of their ability to manage the committee. From the interview with one member in the committee he said, “I am illiterate, and I think the rest of the committee and even some farmers who had been trained in pumps maintenance, are not capable enough to follow the management of the project.” So farmers are uncertain about the ability of the farmers’ committee to manage the project. However, through engagement in a series of (trial and errors), as well as combining local knowledge “al urf” and scientific knowledge (technical know how, national laws on systemised agriculture), farmers can gain more understanding of the “physical world surrounding them”, and can also grasp the behaviour of each others. (Ostrom, 1990).

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13 Six farmers were selected by the farmers committee to be trained by the project management on pumps maintenance and tractor driving. Selection of those trainees was according to interests and ability of the trainee to work in pump maintenance.
4.12.2 Women committee
Regarding the women committee, sub tribe membership was also an important issue. The difference is the dynamics inside women committee cannot be seen without the influence of men’s decisions. This was clear in the stages which the committee had passed through. Also it was manifested in the actions of one of the main sub tribe leaders who refused to let women join the activities in the women centre. Lately, the same leaders of this clan agreed to have a training centre for the women to belong to the sub tribe in a place called Bir abrahrahim, where they mainly reside.

Influence of men decision on women issues related to the project was also clear in a discussion with the chair person on how women farmers can get for example, credits in future to continue farming. The chair person pointed that women have been given farms in the project but they are not able to plant themselves because they needed men to assist them. Therefore when it comes to credit, men would be the ones who do this for women. I tried to ask the women themselves on what they thought about credits. They indicated that they will ask shops and cars owners when they need credit. This suggestion by women can be related to the fact that the wealthy people in Hawawir community are the helpful and trustable ones.

Sustainability of women farmers cannot be discussed alone since it is apart of the sustainability of the project as a whole.

4.12.3 Hawawir Native Court
From interview with some farmers in the community, they thought that the native court should be resident within the project area. Others expressed that they need a police officer resident at the project sight. The existence of a legitimate authority in the area would facilitate the punishment of those who violate the agreed management of the farms. Moreover they thought that people would not try to break the laws, which farmers agreed upon in following the farms activities. We can articulate this situation to the principle of collective – arrangements, because farmers are suggesting a kind of graduated sanctions. If the problems were not controlled or solved by the mechanisms used by the farmers committee, breakers or offenders can be punished by another legitimate authority.
(Ostrom, 1990). However, I have to be careful here because in Hawawir society, the mechanisms of solving problems, or what is known as “al urf” usually tend more to find solution to the problem and to reduce the punishment from the offender as much as possible (Larsen, 2001). But then, we can argue that introducing a systemised utilization of a common pool resource (the irrigated project), is forcing a new and different restrictions to the community of the Hawawir.

### 4.13 Uncertainties in Um jawasir farm

The way I approached uncertainties in Um jawasir farm, is to look into the hazards and insecurity in day–to-day life rather than downplay the uncertainties in a statistical model (Bruijin& Dijk, 1995). I prefer to take this position because the Hawawir are living in an unpredictable environment of dry land that affect their every day lives. So it would not be wise to squeeze those uncertain situations in a model where day to day conditions are supposed to be symmetrical. Therefore every day hazards, which individuals are exposed to, are excluded out or reduced to “stochastic occurrence” (Bruijin and Dijk, 1995).

The same can be said about year to year conditions because effect relationship in models remains the same from one season to another (Bruijin and Dijk, 1995). So for the reasons mentioned I chose to see what the farmers perceive as uncertain situations in performing their farming activities.

I noticed that farmers would have different conceptualization for what is an uncertainty in their lives. For example, farmers thought the fact that they did not have title deeds to prove their ownership for their farms land, was an uncertain situation. They thought the government might come one day and would take the land (the land in Wadi al Mugaddam belong to the state but regulated by customary law of Hawawir ( Ministry of Agriculture, Sudan and Andrews university 1995). However, some of them thought that the government might be the solution, if they failed to finance the inputs for the farming in the long run. The government would be the owner of the project and the Hawawir would be labourers instead. However, the project manager indicated that the commitment signed between the Sudanese government and the Norwegian agency for development co operation, does not make this possible.

Farmers also believed that the machines used in farming like the tractors and the pumps are complex and they might not be able to manage them in the future. Some of them suggest the
use of simple technologies like simple water pumps. Farmers were also aware of the possibilities of market failure in future. They mentioned reducing the farms sizes as a solution to avoid high cost of production. Others mentioned they would prefer to combine fodder production with fattening of livestock to contain failure in the markets by producing okra and alfalfa. This idea could be useful for some one who has relatively more livestock. Others thought of quitting farming, if they were not able to cover their production cost.

We tried to stimulate farmers’ thoughts about problems like, pests and sand creeping in the project. The invasion of farms by pests in Um jawasir project was differently interpreted between farmers. We observed abandonment of different species of grasses in all the farms. The weeds from a crop science perspective are seen as competitors of nutrients and water with the cultivated crops, which can lead to low production. However, Hawawir see the weeds as a source of fodder for the livestock especially at times of fodder shortage. In group discussions, farmers replied that they leave the weeds at the surrounding edges of the farms purposely for animals to graze but it grows towards inside the farms. At that point they clear it manually and give to the livestock.

Weeding is one of the farming activities that apply a reciprocal relation in the area. When I was working as extensionist in the project, it was very common to see women especially the land less asking owners for permission to clear weeds from farms to feed their livestock. We asked farmers how they thought about insects, rats and birds that were found in the fields. Firstly, farmers could not tell the names of all the insects they see on their farms. Instead they gave adscription of the insects. Farmers mentioned that they found worms in fruits and leaves of okra. They added that they talk to the extensionists to spray them with chemicals. But from the view of the extortionists, the level of infection is usually at the normal level, which means the infection could naturally be reduced. The farmers could not explain this reasoning and thought the extensionists were reluctant to spray the insects. Farmers also noticed Aphid fly, called as “Alasala” in alfalfa. They thought it was not serious because it disappeared after a short time.

Farmers did not notice an invasion of locust. When we asked them, what they would do if they experienced any locust invasion they replied that the government of northern state should help them if the farms were attacked by locusts.
The chair person of the farmers’ committee thought the newly established Union of Um jawasir Farmers would be the responsible actor to contact government in the northern state. I think the arrangement of linking Um jawasir farm with the institutional setting in the northern state would be a suitable way to deal with future risks such as insects.

Farmers locally fight birds by making (wooden man shape) they noticed when they delay the sowing date of sorghum the loss of the crop would be less.

**4.13.1 Sand creeping**

Also sand creeping is one of the uncertainties that the project is exposed to. The burying of phase zero with sand is a practical confirmation of this fact. The project management planted Eucalyptus shelter belts to protect the farms as well as establishment of earth embankment at the North direction.

In phase one, there was one shelter belt planted along the farms parallel to the earth embankment. The irrigation of the shelter was collectively managed by the farmers in the phase. Accordingly when most farmers left the farms, the shelter was not irrigated and the sand buried the canals.

In phase two, the management of the project was to plant shelter belts per individual farms instead of one main shelter belt. The project also introduced pigeon pea as wind break. The purpose was to guarantee individual management of the shelter belt instead of the collective one. From the individual interviews with farmers we gathered that farmers had tried different plants than the ones introduced by the project. One farmer mentioned that the okra failed to grow in his farm because some parts of the farm were buried by the sand. The next season he planted millet as a shelter belt for his field, and the okra could grow. Other farmers also planted Sesabania sp as shelter belt.

Some farmers believed that, the massive sand that buried the phase zero will move to another area one day and they would be able to plant the farms again. Other scholars think natural population increase, and migrations are uncertainties facing the project. Also the draught would lead nomads from outside the project to come and feed their animals with the fodder produced by the project. In this case, I think social ties and exchange of benefits, local
institutions and to some extent government institutions can help to solve such situations. I mean here that negotiations between sub tribes (who are already related people through kinship relations) would puffer tenses between farmers due to overlapping of grazing interests and farming interests. Moreover through usage of customary law the Hawawir would be able solve those kind of conflicts. Finally the people in Um jawasir are suggesting having a kind of formal authority to assist in the running of the project activities. These formal authorities might be useful to resolve initial conflicts that might arise in future due to population increase in the area of Um jawasir.
4.14 Concluding remarks

Local institutions in the Hawawir community, which form part of the farming system that has been brought by the development project in Um jawsir area, are the Agawid groups and the Hawawir court. Institutions in Hawawir community are based in the customary law (al urf) and regulate access and control to the natural resources in the area. Furthermore, it is customary law which regulates how people may deal with disputes in their society.

Organisations attached to the Um jawsir farms are the farmers committees and women committees. Though extensional packages in managing farm activities have been introduced by the project administers, both institutions and organisations in Um jawsir had also internalised their customary law with regard to managing project activities, especially when it comes to the distribution of land plots as well as solving managerial problems at the farm level.

Sub-tribe membership was an important factor in selecting members to the farmer committee; age and knowledge were also considered by the Hawawir as a necessity to join the committee. Accordingly sub-tribe leaders were the main members of the committee. However, the empowerment of leaders in a community such as the Hawawir community, would lead to a mainstreaming as if the communities consisted of homogenous groups. This was not the case; the leaders might seek their own interests and not the interests of the community. Moreover, other people who might seem to be powerless would be in opposition and cause non-avoidable effects or troubles.

Women were reached and involved in the project after project staff had contacted the tribe’s leaders. Later the pioneer women, who joined the program, dominated the activities and others gradually withdrew from the program activities. We can say that the involvement of Hawawir women in the development of the area can only be understood in the light of decisions made by the men. Generally, we may conclude that the program activities are aimed at enhancing the well-fare of Hawawir women. Still, women were only at a later stage, equally involved in the development process in Hawawir community. However, despite of the involvement of women, the gender strategic needs of Hawawir women are not yet achieved.
The Um Jawasir development committee and Um Jawasir farmers union are recent organisations established in the Um jawasir area. These organisations are consisting of Hawawir farmers and leaders from the area as well as other Hawawir leaders who like in areas of the Hawawir homeland (dar). Furthermore, some academicians and development workers persons for part of these organisations. The idea behind these organisations is to sustain the activities of the development project by linking Um Jawasir institutions and organisation with development institutions, both in the private and government sector. However, these organisations are new and consist of members who do not form part of the Hawawir community. This implies that institutional sustainability of these organisations is not yet to be foreseen.

With regard to women’s and men’s involvement in agricultural production, women, in the processing of okra, are the one who pick okra fruits in 92.3 percent of the cases and men represent only 2.9 percent. Women are the one who do chopping of okra in 56.4 percent and men together with women do the chopping in 32.5 of cases. So the involvement of women in the labour work of okra is more than that of men.

In the cutting or harvesting of beans men are the one who harvest in 66.7 percent of the cases and women only do 17.9 percent. The reason for this could be due to the physical work required for the cutting of beans. However, in threshing of the beans women are the ones who do perform this work in 59.0 percent of the cases. So, generally we can conclude that women are more involved in the processing of cash crops in the Um jawasir farms, than men. Some farmers use animal power or tractor to thresh beans and the farmers declared that they witnessed this technology in the Northern state Shimalia. From this we can conclude that farmers in Um Jawasir also have learned and accepted the use technologies from outside their area when dealing with systemised agricultural activities.

This conclusion also holds truth for the system of paying in kind for labour work in the processing of okra and bean. Women who got benefit from processing use their income for their own benefits. The situation is different than what is most common in gender sequential division of labour in Sub-Sahara Africa.

Okra is introduced to the diet of Hawawir in the Um Jawasir area, although bean is not. When it comes to paying the revolving fund using cash crops, payment in bean is more
significant than payment in okra. In contrast, okra is mostly used to pay daily expenses such as, sugar, oil and tea. I found that livestock is also used to pay the revolving fund. In comparing men farmers and women farmers I found that men are the ones who decided in 40 percent of the cases to pay the revolving fund with cash crops, while women farmers only decided in 15 percent of the cases. Women and men pooled their decisions in 7.5 percents of the cases. So I might be able to conclude that men tend to be the ones who take the important decisions in Um jawasir farm, that is, how to manage the household economy, rather than women.

Local traders within the Um jawasir area, have cars, shops or both and most of them are perceived as the wealthy people in the area. The local traders would buy the okra and beans from farmers then sell it in the Shimalia or in Omdurman. Individual farmers are marketing their crops alone when they need to and when the travel to either Omdurman or Shimalia to visit their relatives or attend a ceremony. Women can only market their products themselves, when they travel or move with a relative. From this we can conclude that the most fundamental issues related to the gender relations in the Hawawir community, have not been addressed by the development project. Group marketing of crops, would be possible in future, only if farmers unite their production in terms of the quality of processing and timing of marketing. This leads me to the conclusion that market services such as middlemen, backing and handling of the products is needed in Um jawasir farm.

Farmers are aware of the possibilities of market a failure in the future. They are dealing with this situation by either reducing their farm size or planning a combination of livestock and fodder production instead of depending only on the producing cash-crops. Other farmers thought the technology used right now in the project is too complicated and that they would not be able to work with it in future. As a solution, some of them mentioned the possibility to use simple technologies like the simple pumps that were used in phase zero. Farmers thought that if the farms got attacked by locust in the future, the farmers union would be the responsible institutions to assist the farmers with this problem.

Regarding sand creeping some farmers believed that the sand which had buried phase zero farms would move to another place one day and that they would then manage to farm. However the cost of repairing the water pumps in this area would be very high. Population increase of both animals and humans is an uncertainty, which might lead to some conflicting
situations similar to conflicts between herders and farmers elsewhere. However, social relations and local institutions and to some extend governmental institutions, could be able to solve such conflicts. I mean here, negotiations between sub tribe (who are already related people through kinship relations) would puffer such conflicts. And by usage of customary law Hawawir would be able solve those kind of conflicts. Finally and at a later stage as Hawawir are suggesting having a kind of formal authority to assist in running project activities, those formal authorities might be useful to regulate initial conflicts that might arise in future due to population increase in the area of Um jawasir.

The farmers are expecting that the skills and abilities held by the farmers committee would be sufficient in order to manage the project in future. But through an engagement in a continuous trial and error learning process, and pooling of local knowledge and scientific knowledge the farmers gain an increased understanding of the technology used in the project. Farmers thought that they should have a legitimate authority within the area. This could means that they, for instance, established a police station in order to punish those who created obstacles for farming activities. This point brought up by the farmers themselves lead me to conclude that the introduction of a systemised agriculture in the Hawawir community, is forcing restrictions on the previous flexibility characterising the customary law that has until now been practised by the Hawawir – a law and a practice that has served the Hawawir for a long time and through periods of prosperity as well as difficulties.
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Appendices

Appendix 1

Household Interview

Processing, Marketing of Cash Crops (okra, beans)

1. Serial Number…….. 2. Age……….. 3. Gender…….. 

4. Family Size? …. 
5- Who work in the farm (water the crop, prepare seed bed) 
6- How do you sow okra\ bean.

A. Processing of the crops (chopping of okra, threshing of beans)

1-Who pick okra and cut bean...2- Who chop okra and thresh bean...

3-Are there any benefits shared in crops processing? …….. 

4-if yes how much benefit?...

5-How much do you allocate for: consumption of okra\ bean

B- Marketing of the crops (okra, beans)

6-Where are the crops sold? ……….. 

7-Who sells the crops? ……….. 

8-To whom the crops are sold? ……….. 

9-Who has physical access to the market? ……….. 

10–Are the farmers’ committee involved in marketing? ……. If yes to what extent? 

11-Are there brokers involved in marketing? ……….. What roles they play? ……….. 

12-Is there any percentage taken from the crops kind or cash to pay for the revolving fund? …… If yes how much? ………..
13- If you pay the Rv.F from the cash who decides what to be taken?

14-If crop sold how do you use the revenue? ………

15-Do you sell other properties to pay for the revolving fund?