

ADRA/SUDAN
UM JAWASIR COMMUNITY DEVELOPMENT PROJECT

Final Evaluation Report

By

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ACRONYMS

ADRA	Adventist Development & Relief Agency
ENVC	Environment Committee
FC	Farmers' Committee
Feddán	A Feddan is a land measure equal to 4200 square meter
ha	Hectare is a land measure equal to 10,000 meter
LEG	Local Extension lead Group
NGOs	Non-Governmental Organizations
NORAD	Norwegian Agency for Development Cooperation
PRE	Participatory Research and Extension
SDG	Sudanese Pound
SWOT	Strengths, Weaknesses, Opportunities and Threats
UJ	Um Jawasir
UJADHS	Um Jawasir Association for Development of Health Services
UJCDP	Um Jawasir Community Development Project
UJDC	Um Jawasir Development Committee
UJMPC	Um Jawasir Multi-Purpose Cooperative
UVO	Proposed Um Jawasir Voluntary Organization
WDC	Women Development Committee
YC	Youth Committee

Executive Summary

Introduction:

Um Jawasir Community Development Project (UJCDP) of ADRA/SUDAN is to be regarded as a long term experiment on ways for achieving sustainable livelihoods for vulnerable population groups impacted by severe environmental conditions in the drylands. The project has evolved, over the spell of close to 25 years, from a food distribution relief operation to engagement in exploratory desert farming experimentation, to a phased establishment of a desert farming irrigation project for settling a group of drought-affected nomads, and eventually to an integrated rural community development project in which formidable efforts were exerted to build the capacities of largely illiterate community groups and prepare them for shouldering the responsibilities for the administrative and technical works needed for sustaining the development activities independently with greater self-reliance. It was a challenging engagement for ADRA-Sudan, and its donor agencies, that deserves to be viewed as a model of how to prepare nomads for sustaining desert farming as a means for securing sustainable livelihoods under harsh environmental conditions. A model that demonstrates how disadvantaged and largely illiterate people can be assisted to develop the capabilities needed for managing demand-driven community development initiatives.

The final evaluation work by the consultant accessed information from diverse sources pointing to the fact that Um Jawasir desert farming and community development model has been emulated in the establishment of similar projects for securing the livelihoods of populations in drought-affected areas in Sudan. Notable are the irrigation projects that have been established in Khartoum State with support from the Food Security Bureau of the state's Ministry of Agriculture, Animal Resources and Irrigation. Development activities, along Um Jawasir model were implemented in eleven village irrigation projects for settlement of nomads and other drought affected groups of farmers in Khartoum State. The success of the irrigation activities of UJCDP has also encouraged investment planners to market larger irrigation projects using underground water and modern farming technology to be positioned in the cultivable areas of the Bayouda desert in the Northern state.

As revealed in Um Jawasir project documents, desert farming started in the area in 1989 with a piloting phase (Phase Zero). The main objective during that earlier phase was to discover the possibilities of growing different crops by irrigation utilizing the underground water of the Nubian basin. The project started with four bore holes (using solar pumps, but later replaced with turbine pumps and diesel engines due to low water output) to irrigate an area of 38 ha cropped by 45 families (each family was allotted a 0.84 ha (2-feddan) unit). Production effectively started in the winter season of 1991/2; and was reported as successful.

Phase I of UJCDP started in 1995 with 6 bore holes to irrigate 130 ha that benefited 73 families, each with 1.68 ha (4-feddan unit). The objectives of Phase I were to ensure food security in the area, to rehabilitate the environment through relieving the pressure on the grazing lands in the semi desert area of Wadi Al Mugadam, and to resettle the environmentally displaced Hawawir nomads. New activities other than farming were incorporated, namely the introduction of

improved goats and sheep, women empowerment activities, health and primary education support, and environmental protection.

Phase II started in 2000 with 6 boreholes and 151 ha of land (divided into 4-feddan units) was brought under cultivation for realizing objectives similar to those of Phase I. Direct beneficiaries were 90 families including 15 female-headed households. Toward the end of the phase a Youth Development Committee were established as a means for building the capacities of local youth and channelling their energy towards greater participation in community affairs.

The third and last phase (Phase III) of UJCDP started in 2005 and continued till the end of December 2009. Priorities in this final phase were given to ensuring the sustainability of the project under community management through focusing more on capacity building work, and on broadening the internal and external impacts of UJCDP. The specific objectives included improvement of livelihood security, strengthening of local organizations, ensuring sustainability, and broadening the impact of the lessons learned from UJCDP experience.

Purpose of the final evaluation of UJCDP

As guided by the terms of reference, the objectives of the final evaluation were:

1. To determine whether the objectives of the different components of UJCDP (and their outcomes and impact) as stated in the logical framework were achieved; to identify lessons learned; and to provide recommendations for future operations to be financed by NORAD or any other donor in similar projects.
2. To assess ADRA's role and performance as an implementing agency.

The evaluation was conducted with a prime focus on assessment of the UJCDP activities in terms of *relevance*, *effectiveness*, *efficiency*, and *sustainability* with respect to its different components, and the *lessons learned*. Specifically, the evaluation examined UJCDP with a focus on its principal components, namely the farming system and local organizations, and made assessments relating to them concerning:

Methodology:

The final evaluation methodology involved use of both secondary and primary data. The collection of primary data involved a 4-day visit to the project site and use of structured as well as semi-structured interview schedules. Data collection, analysis and interpretation were guided by the final evaluation objective of assessing the relevance, effectiveness, efficiency, and sustainability of the different components of UJCDP, and identifying the lessons learned. SWOT analysis was conducted for the different project activities to reveal their strengths, weaknesses, and available opportunities, and perceived threats for their sustainability. A participatory approach to collection and interpretation of relevant information was employed. The strategy involved:

- Obtaining quantitative and qualitative information from both primary and secondary sources.

- Conducting individual and group interviews with ordinary beneficiaries (males and females), members of the farmers, women and youth development committees, and with project staff.
- Visits to different sites of the project in Um Jawasir (farm and home visits).
- Use of structured interview schedules in data collection, as well as informal methods of information gathering.
- Informal one-to-one discussions with project staff and direct and indirect beneficiaries of UJCDP
- Focus group discussion with key local informants.
- Focus group discussion with ADRA Administration staff, Um Jawasir field staff, local organizations representatives, a representative of the Northern state's Ministry of Agriculture (a staff member assigned to the project by the Food Security Bureau).
- Public meeting with women. (In two different locations).
- Participant observation

Main evaluation findings

The project's design and the progressive development of its objectives were evaluated positively by the beneficiaries who regard the project to have been successful in addressing their food security problems and income development needs. The project has also brought about positive behavioral and cultural change, and has improved the quality of life for a significant portion of its beneficiaries. The money spent by ADRA-Sudan and NORAD in the different phases of the project was invested effectively and efficiently in the building of the project's infrastructure, in the development of local institutions as vehicles for sustaining the project's activities, and in transforming the once vulnerable drought-affected nomads subsisting on animal raising into members of a settled agro-nomadic community enjoying food security, greater income development capacities, and expanding social services. The project constitute a model on how nomads can be prepared for sustaining desert farming under harsh conditions and managing demand-driven development initiatives for securing their livelihoods and improving their living conditions.

Significant progress was found to have been made by ADRA-Sudan in institutional support and capacity building work in UJCDP, especially over the past 5 years. However, it was found that local organizations are still in need for dependable sources of support to be enabled, as community representatives, to handle the project responsibilities in a sustainable manner following the withdrawal of ADRA-Sudan from the project area.

Agriculture was found during the final evaluation to be suffering from a sharp drop in the area under cultivation, mainly due to breakdown of pumps and encroachment by moving sands. Budget limitations have prevented the project from expanding its environment protection operations. Other factors that have led to reduction of areas under cultivation include the frequent breakage of irrigation units (pumps and engines), and farmer's uncertainty about the economic viability of their farming operations, particularly because of the project administration's shift from providing direct support and subsidies to farmers to complete withdrawal of farm support services.

The newly established Um Jawasir Multi-Purpose Cooperative (UJMPC), which was registered in 2007, was able to get in-kind loans from the Agricultural Bank of Sudan and the State Ministry of Agriculture/Foreign Aid Food Security Projects for the agricultural operations for seasons 2007/2008 and 2008/2009. But for budgeting difficulties, the Bank failed to offer loans for the 2009/2010 season, and that created a problem for a considerable number of the project's beneficiaries. The relatively high cost of production, attributed mainly to high costs of irrigation, and sand movement into farmland have dwindled the returns from crop production. The small marginal profits will make it impossible for the cooperative to accumulate enough operating capital, even if it succeeds to obtain bank loans at the current high costs. It is a challenge for the cooperative to secure subsidized gasoline every season, which might not be granted despite the government policy which provides for supplying farmers with subsidized fuel. Hence, support of the cooperative and UJDC from humanitarian and donor agencies for 1 to 3 more years is deemed necessary. This support should be based on clear calculated productivity and profit margins and strict transparency by the committees in conducting all of their affairs. By the end, the committees would have accumulated enough working capital to sustain project activities through greater self-reliance. The operation of the cooperative during the proposed extra support period may be supervised by a technical manager, and one or two assistants, to be recruited from ADRA's field staff. Alternatively, staff members from the Northern State's Ministry of Agriculture could be recruited to assist UJCDP with administrative matters and the channeling of technical support. This would be facilitated by the Northern State's Ministry of Agriculture which has plans to seek support to UJCDP from the Food and Agriculture Organization of the United Nations as part of the National Food Security Programme which is supervised by Sudan's Federal Ministry of Agriculture and Forestry.

The long term sustainability of the project's community development activities would be better facilitated by the establishment of a local voluntary organization at Um Jawasir that can serve as a vehicle for obtaining sustainable support from national and international humanitarian and development organizations. ADRA-Sudan and NORAD, as mother organizations, can play a crucial facilitative role, especially in the formative stage of the proposed Um Jawasir Voluntary Organization (UVO) which is here recommended as a means for augmenting the sustainability of UJCDP.

To conclude, UJCDP can be rated as a most successful model for settlement of nomads. The lessons learned from the experiences relating to its different components were identified by the consultant and listed as a final segment of this final evaluation report. These lessons represent recommendations for future operations to be financed by NORAD or any other donor in similar development projects.

1.0 INTRODUCTION

Um Jawasir Community Development Project (UJCDP) is located at about 200 kilometers north of the city of Omdurman in an area which constitutes part of the clay flood plains of Wadi Al Mugadam (a dry tributary of the River Nile) in the Bayoda Desert of Northern Sudan. The project took its name from Um-Jawasir, the main village of the area which is situated about 7 Km to the west El Shirian, a neighbouring community situated along the asphalt road that links Omdurman with the Northern State. The project area is part of Meroe Locality of the Northern State.

The beneficiaries of UJCDP belong to the Hawawir people who regard Wadi Al Mugadam as the heart of their tribal homeland. They are Arabic speaking Muslim people of a Semitic origin and consider themselves as Arabs. Their society is composed of clans sharing a common ancestor. With the passage of time, the Hawawir multiplied in number and gradually evolved into a distinct tribe headed by an officially recognized *Nazir* (a chief leader with customary jurisdictional powers). They have recognized tribal lands and customary natural resource use rights in four states, but most of them live in Wadi Al Mugadam and elsewhere in the Northern State, where they constitute about 20 percent of the resident population.

Environmentally, Wadi Al Mugadam lies in an arid zone that receives scanty amounts of summer rainfall that only occasionally exceed the reported 50 mm annual average. The average evaporation rate is high, and the daily temperatures range on the average between a minimum of 21° and a maximum of about 37° Celsius.

Before the inception of UJCDP, the Hawawir people of Um Jawasir led a pastoralist nomadic way of life involving constant movement of household members in search of natural pastures for rearing their herds of livestock (mainly camels, sheep and goats). In good rainy seasons they managed to produce quick maturing crop varieties, mainly sorghum, for subsistence purposes. Pastoralism was for them a way of life and a cultural heritage.

The onset of a prolonged drought in the 1980s forced most of the Hawawir of Wadi Al Mugadam to migrate to Khartoum State, and to towns located along the banks of the River Nile in the Northern State. Smaller numbers remained in Um Jawasir area and persevered under life-threatening drought conditions. Those eventually constituted the core of UJCDP beneficiaries. They belong to three main clans of the Hawawir tribe, namely *Awlad Haidoub*, *Awlad El Beih* and *Awlad Algubouli* (as revealed to the consultant by the project beneficiaries during the field interviews that were conducted for the purposes of this final evaluation of the project).

1.1 History of the establishment of UJCDP:

The initial intervention by ADRA-Sudan in Um Jawasir area was in the form of a food distribution relief operation which was conducted in response to the famine-like situation that resulted from the severe drought of 1984. During the relief operations, ADRA-Sudan concluded that a shift from relief operations to support of local food production was needed as a mechanism for sustaining food security and livelihoods in the targeted area through self-reliance which was viewed as the ultimate goal. The shift in strategy was influenced by request from Sudan Government and petitions from the drought affected Hawawir People. ADRA Norway and NORAD

responded by securing the funds needed for establishing a pilot desert farming project in Um Jawasir area. That involved, among the provision of other infrastructural services, the drilling of wells and supply of pumps and engines for irrigation purposes.

1.1.1 Phase 0 (1992-1994):

The precursor of UJCDP, a desert farming piloting project (which subsequently became known as Phase 0) was established for achieving the following set of goals:

1. Ensuring food security for the stock-raising community through production of wheat and sorghum as starchy staple food crops.
2. Introduction of income-generating farming activities involving production of cash crops.
3. Motivating the livestock owners to conserve the area's natural resources, and to produce fodder crops in order to reduce their dependence on the natural grazing lands of Wadi Al Mugadam.
4. Partial satisfaction of energy needs through tree planting in the irrigated area.

The planning for implementation of the piloting desert farming project (Phase Zero) started in 1986, but only by May 1990 that 4 wells fitted with solar pumps were installed. The low water yield (45 M³/day) of the solar technology, as well as other problems, led to the eventual replacement of all solar units by diesel pumps in 1992 irrigating 44 two-feddan plots (a total of 88 feddans). Each of the farming plots was allotted to a family, to be operated by a designated family member. Phase 0, in effect started in 1992 (under direct involvement of project staff), and the responsibility for its 44 farms was eventually entrusted to the farmers in December 1994. Farmers for each well were selected from amongst members of the same clan of the Hawawir tribe. The grouping of farmers by clan in the wells was meant to facilitate cooperation, continued use of the land, and the reduction of potential conflicts that may arise from the strong clan-oriented social organization of the inhabitants of the area.

1.1.2 Phase I (1995-1999):

A new phase (Phase I) was established to extend the services of ADRA-Sudan in the area. That phase involved the drilling of 6 wells with larger output pumps than those of the desert farming pilot phase. A total area of 292 feddans (divided into 73 four-feddan farms) was allotted to 73 new beneficiaries. That was in response to the recommendations of the project review of 1995 which concluded that the project was technically progressing well, and that it contributed positively to land rehabilitation and food security. It was recommended by the reviewers, among other things, the establishment of (i) a "technical" monitoring program for ground water levels, soil salinity levels, climate data, cropping patterns, irrigation management, fuel and water consumption, and crop fields; (ii) the establishment of windbreaks; (iii), the building up of a revolving fund; iv) a marketing strategy; and (v) a strategy for women's involvement.

Thus, following the desert farming piloting phase, the intervention of ADRA-Sudan in Um Jawasir gradually took the shape of a community development project involving, in addition to

farming, a progressively increasing number programs, including literacy and environmental education, women training in health, nutrition and home-based income generating activities. That change of emphasis resulted from the recommendation made in the 1995 review report in which it was observed that the project had a strong male bias (employees as well as farmers were all men). In that report, as indicated earlier, it was recommended that a strategy for women's involvement in the project activities should be worked out. As a result a women development program was initiated in 1996. Two women were appointed by ADRA on a temporary part-time basis initially because of budget limitations. Later on, the financial means were secured for recruiting full-time female staff (women extension agents), and the women's program was included as a line item in the project budget in the fiscal year 1998.

1.1.3 Phase II (2000-2004)

That constituted the second expansion phase of the project, and its implementation required the establishment of 6 more wells to extend the benefits from the project to a new group of 90 Hawawir families.

Phase II experienced a major transformation in the project activities, benefiting from the evaluation recommendations and the experience acquired during the previous phases. At the farm level, the project represents a real achievement in the arid zone. The resultant benefits were apparent in the improved livelihoods of the beneficiaries, the observed signs of permanent settlement in the project area, and the return of many Hawawir migrants.

The most noticeable features of Phase II were (1) the organization of the community (as opposed to farmers previously), (2) more emphasis on integration of women in the program, through strengthening of the gender development component, aiming at empowering women and enhancing their participation in the project activities, (3) initiation of youth development activities, and (4) capacity building training for community groups to equip them with necessary skills..

1.1.4 Phase III (2005-2009):

This is the current phase of the project which is implemented mainly for consolidation work involving further capacity development of community organizations in preparation for their full takeover of the project's administration by the end of 2009. Neither investments in the establishment of new wells nor provision of subsidized inputs are involved. Rather, this final phase is intended for localization of the administration and technical supervision of the farming system and community development services, and linking the local organizations with relevant institutions at state and national level that would provide support for sustaining agricultural production and community development activities during the phase, and also afterwards following the withdrawal of ADRA-Sudan from the project area. The stated objectives of this phase of UJCDP, as reported in the terms of reference are to:

1. Improve livelihood security,
2. Strengthening community organizations and good governance, and

3. Ensure sustainability and broaden the impacts of lessons learnt and capacities

1.1.5 Change in ADRA-Sudan's administration of UJCDP:

The involvement of ADRA-Sudan field staff in direct supervision of the project operations in UJCDP was strategically planned to diminish over time to gradually making room for greater involvement of the beneficiaries' local organizations to take over the administrative and technical duties relating to the different activities as a means for ensuring the sustainability of project operations under community management.

The ADRA-Sudan organizational setup for the project that was in place in 2007 involved a full-time project manager, together with the project's accountant / logistics officer both of whom were stationed in Khartoum. The resident field staff was headed by a field coordinator. The staff included males and females (two field extension officers, three women extension officers, and two community development officers). The subordinate technical staff included a workshop mechanic / pump operator, a truck driver, two tractor operators and two support labourers. In 2008 new roles were assigned to the truck driver as a mechanic trainer and to one tractor driver as vehicle driver to facilitate staff movement in and outside the project area. The roles of staff evolved over time from close top-down supervision and monitoring, coupled with the delivery of extension, input supply, and farm operation services (including machine, pump equipment and land preparation services) to capacity development functions and a participatory approach to administrative and technical work, and more lately to consolidation work geared toward preparing local organizations to assume full responsibility for sustaining the project's activities as ADRA pulls out by end of 2009.

The local organizations were already in full charge of the project's operations in December 2009 when the field work for this final evaluation was conducted in the project site.

1.1.6 The current local organizational setup of UJCDP

Attempts to establish local organizations to undertake the responsibility of the project in the future have been made since the project inception and continued throughout its lifetime. These efforts resulted in the establishment of a number of local organizations that practically cover the domains of all project interventions. Initially, in Phase I (1995-1999), a Farmers Committee (Agriculture Committee) was established to share with the project's administration managerial efforts and to be handed over all responsibilities of managing the farms by the end of the phase. The Agricultural Committee is composed of members representing the farmer sub-communities of all operating production units (wells). The members of the farmer sub-community in each well nominate one the 3 members of the Well Committee to represent them in the Agricultural Community of the project at large. The main officers of the Agricultural Committee are the Chairperson, the Deputy Chairperson, the Secretary and the Treasurer. The number of elected members to the Agricultural Committee was not constant as it changed from one phase of the project to another depending on the number of Production Units (wells) in operation. The main functions of the Agricultural Committee had been the delivery of inputs and other services (financed from a revolving supervised by ADRA field staff, and recently by UJDC). A Women

Development Committee was established in 1996 and represented in the Agricultural Committee by 2 members. In Phase II (2000-2004), a Youth Committee was established in 2003 (and later became formally registered during Phase III as a youth organization in 2006). Phase III (2005-2009) witnessed the establishment of Um Jawasir Development Committee (UJDC) and its sub community service organizations, and a Multi-Purpose Cooperative.

At the end of 2009, during the final evaluation field visit, the local organizations in charge of the development activities of UJCDP were found to include:

- (1) Um Jawasir Multi-Purpose Cooperative (UJMPC). This is latest local organization to be established in Um Jawasir (it was officially registered in 2007). UJMPC is intended to serve as a legally protected entity capable of obtaining institutional support from various sources for sustaining the project's agricultural and community development services in the project area. At present, UJMPC is informally linked with Um Jawasir Development Committee (UJDC) through common executive committee memberships. Most of the members of its executive committee are also members of the executive committee of UJDC. At present the cooperative is dealing mainly with support services for the agricultural production operations.
- (2) UJDC is the umbrella organization. The ground work for its establishment started in 2005. Election of the first executive committee of UJDC took place in July 2006 and involved representation of farmers, women and youth groups. UJDC was put in place to serve as a top level local organization entrusted with support, supervision, and coordination of the works of the already existing Farmers' (Well) Committees (FC), the Women Development Committee (WDC) and the Youth Committee (YC), and the overseeing of other community development activities in the project area. More local organizations were established in later dates and came under supervision of UJDC. The specialized committees that were found to be overseen by UJDC during the final evaluation included:
 - (3) The Local Extension Group (LEG),
 - (4) The Women Development Committee (WDC),
 - (5) Youth committee (YC) which was initiated in 2003 and was formally registered as a youth organization in 2006
 - (6) The Environment Committee (ENVC) which was established in 2007, and
 - (7) The Um Jawasir Association for Development of Health Services (UJADHS), which was established in 2007.

A concept paper calling for the establishment of a local voluntary organization in Um Jawasir (UVO) was discussed during the field work for the final evaluation and was judged to be a potentially viable means for getting donor support and a vehicle that can serve the goal of long-term sustainability of community development activities in the project area.

2.0 PURPOSE OF THE FINAL EVALUATION OF UJCDP

As guided by the terms of reference, the objectives of the final evaluation were:

1. To determine whether the objectives of the different components of UJCDP (and their outcomes and impact) as stated in the logical framework were achieved; to identify lessons learned; and to provide recommendations for future operations to be financed by NORAD or any other donor in similar projects.
2. To assess ADRA's role and performance as an implementing agency.

The evaluation was conducted with a prime focus on assessment of the UJCDP activities in terms of *relevance*, *effectiveness*, *efficiency*, and *sustainability* with respect to its different components, and the *lessons learned*. Specifically, the evaluation examined UJCDP with a focus on its principal components, namely the farming system and local organizations, and made assessments relating to them concerning:

1. relevance:
 - a) Assessment of the appropriateness of the project design and objectives in addressing adequately the problem(s) at hand
 - b) Assessment of the internal and external factors which influenced the ability of the beneficiary groups and ADRA-Sudan, as an implementing agency, to meet the projected targets.
 - c) Presenting a brief overview of the policy environment and the economic conditions that have had an impact on the project during the program implementation period.
 - d) Determining to what extent the project's priorities, strategies and objectives were relevant to local community's social and development needs and priorities, and to National, State, locality and ADRA Sudan strategies and plans.
2. Effectiveness (in terms of output achieved):
 - a) Determining to extent the project's objectives and outputs have been achieved so far,
 - b) Determining whether the expected overall results/outcome (at project conclusion) has been realized.
 - c) Assessing the value accruing from the money spent
 - d) Determining whether the project indicators of output and outcomes wer specific, measurable and realistic within the time frame and available budget.
 - e) To explore whether the service delivered to the target beneficiary was satisfactorily and up to the expectations.
3. Effectiveness (in terms of outcome/impact):
 - a) Assessment of the project's impacts and how has the program contributed towards project's goal and capacity of the beneficiary groups.
4. Efficiency:
 - a) Assessing the performance of the project with respect to the agreed indicators and responsibilities stated in the action plans.

- b) Providing a cost/benefit analysis of the delivery of services to reflect the value for money.
5. Sustainability:
- a) Assessment of the level of preparedness of beneficiaries and the likelihood of a continuation in the stream of benefits provided by the project after the NORAD funds have completely been expended.
 - b) Effectiveness of the cost-recovery mechanisms that have been established to ensure the sustainability of the project.
 - c) Assessment of the ability and willingness of the local organizations to go on with the project activities after ADRA pulls out.
6. Lessons learned:
- a) Recommendations concerning the economic/political/financial conditions that should exist, qualifications of the executing agency, required stakeholder participation, and other factors that should be in place for the purpose of informing the design of future operations.
7. Impact:
- a) Identification of the achievements (tangible and non-tangible benefits) and their long term effects on people's life.
8. **Ownership** (The ownership of the community through its local organizations over the technical support provided)
- a) Assessing the capacity development/building programs provided by the project and whether they were provided within a demand-driven context.
 - b) Assessing the level of community participation and coordination, and accountability.

3.0 METHODOLOGY OF FINAL EVALUATION

The final evaluation methodology involved use of structured and semi-structured interview schedules for getting responses to questions guided by the objective of assessing the relevance, effectiveness, efficiency, and sustainability of the different components of the project, and identifying the lessons learned. Another interview schedule was used for SWOT analysis of the project activities to reveal their strengths, weaknesses, and available opportunities, and perceived threats for their sustainability. A participatory approach to collection and interpretation of relevant information was employed. The strategy involved:

- Obtaining quantitative and qualitative information from both primary and secondary sources.
- Conducting individual and group interviews with ordinary beneficiaries (males and females), members of the farmers, women and youth development committees, and with project staff.
- Visits to different sites of the project in Um Jawasir (farm and home visits).

- Use of structured interview schedules in data collection, as well as informal methods of information gathering.
- Informal one-to-one discussions with project staff and direct and indirect beneficiaries of UJCDP
- Focus group discussion with key local informants.
- Focus group discussion with ADRA field staff, local organizations representatives, a representative of the Northern state's Ministry of Agriculture (a staff member assigned to the project by the Food Security Bureau).
- Public meeting with women. (In two different locations).
- Participant observation

4.0 EVALUATION OF THE AGRICULTURAL COMPONENT OF UJCDP

Given below are brief descriptions and evaluation of the strengths and weaknesses, and the opportunities and threats that are facing the sustainability of the different components of the farming system of UJCDP.

4.1 Evaluation of land tenure arrangements

Sudan Government approved of the establishment of Um Jawasir desert farming project by ADRA-Sudan on land conceived to be a government property (an area of 1000 feddans was demarcated and approved by the government for the purposes of the project). That approval stemmed from recognition of the usufruct land use rights that the Hawawir people had enjoyed in the area for decades. Land is regarded as communal property under customary law by all members of the tribe.

The problem which is currently facing UJCDP beneficiaries, which has implications for the sustainability of the project activities in the future, is that no attempt was made in the past by the Hawawir tribe to get their pasture and farmland in Wadi Al Mugadam officially registered. The *Unregistered Land Act* of 1970 applies to the territory occupied by the Hawawir people, and in accordance with that statutory land law, all of the land commanded by Um Jawasir project is officially regarded as government property. The official establishment and registration of Um Jawasir Multi-purpose Cooperative will safeguard, at least for the immediate future, the needed security of access to land for sustaining UJCDP activities.

4.2 Evaluation of irrigation system

The principal components of the irrigation system in Um Jawasir Project are the sixteen boreholes that were drilled to provide for pumping underground water from the rich Nubian sandstone aquifer to irrigate the surrounding farming units. Initially four boreholes (130-150 meters deep) were drilled in Phase Zero. Six more boreholes were drilled in Phase I, followed by the drilling of another set of six boreholes in Phase II. The depth of the wells in Phase I and Phase II ranges between 149 and 180 meters.

The establishment of an irrigation system involving wells equipped with irrigation pumps is to be

regarded one of the chief strengths of the farming system of UJCDP that will provide for the sustainability of the farming operations. However, by the end of 2009 (during field work for the final evaluation), only 9 of the sixteen wells were found to be operating, and the beneficiaries complained of lack of timely supply of irrigation water. The other seven are completely out of work for different reasons, including sand encroachments and breakdown of engines and pumping equipment. Only 50 (or about 25%) of the farm plots were found to be under irrigation, and the majority of farms were abandoned mainly because of irrigation difficulties resulting from lack of adequate supplies of fuel and spare parts. An opportunity for improving irrigation services that was mentioned frequently by the interviewed beneficiaries is supply of electricity from the Meroe Dam and replacement of the existing pumps by electrically operated pumps. The problem to be faced, however, is the need for replacement of pumps which would be very expensive.

Structurally, the land commanded by each of the operating wells is divided into sub-plots (farms) of standard size let to farmers. Irrigation water from the wells is directed to the fields by long irrigation canals. These are of two types, namely long main canal and shorter minor canals taking water to the individual sub-plots. Most of the main canals in the operating wells are either traditional (unlined) or lined with stones and cement.

The main problems that are facing the irrigation system in UJCDP are (1) sand creep which has affected some of the wells, some of the main canals and large farmland parcels, (2) the substantial loss of irrigation water resulting from high rates of seepage, especially in soils possessing a higher percentage sand, and from the running of water into cracks in canals constructed in land with high clay content, (3) the weeds that also block the flow of irrigation water, (4) the breakdown of engines and pumping equipment, and (5) lack of adequate and subsidized supplies of petroleum products. All these are seen by the beneficiaries as threats to sustainability of irrigation services.

Um Jawasir project was implemented in an area prone to sand movement and hence it needs protection. It seems that the trends of sand movement in the area were not adequately taken into consideration in the initial planning stage of the project. More work is needed to conserve farm land in the project area. Shifting and blowing sands are causing great damage to farmland, buildings and other utilities all around. Farming in the lands of Phase Zero (the experimental phase) has already been abandoned, as well as in parts of the lands of Phase I, and the situation is worsening to an alarming extent in other locations. Within the farms, the normal protection practice used by the farmers is the planting of strips of crop in the direction of the sand to trap the airborne sand particles, before they sow their major crop, or dig furrows in order to trap the sand for a while before it finds time to move into the cultivated area. These micro-strategies seem not to be as effective as were hoped for. Thus, lack of adequate measures for checking sand encroachments into farmland constitutes the most serious threat to sustainability of the farming operations in UJCDP area..

4.3 Evaluation of land preparation activities

UJDC took over the responsibility for management of farm machinery and equipment which were handed to it by ADRA-Sudan in 2006. Now the Cooperative is in charge of the machinery

and provision of land preparation services to those who make advanced cash payments for the services to be received. The main items of the machinery and equipment in the project include tractors, ploughs and levelers (two of each). Farming equipment maintenance services also became the responsibility of UJDC.

The beneficiaries regard the local availability of land preparation machinery and equipment as a point of strength, and also the availability, for repair work, of local mechanics who were trained by ADRA-Sudan staff at Um Jawasir. The weaknesses of the land preparation services of UJCDP, as identified by the beneficiaries, are the small number of available tractors and their frequent breakages and high repair costs, and the absence of major maintenance operations. Another weakness of the land preparation services relate to the performance of tractor operators. The unsalaried persons who operate the tractors get 25% of the fees paid for land preparation services by the beneficiaries, but they often relax in their work because their remuneration used to be paid at the end of the season. The beneficiaries attribute the relaxation of tractor operators in their work to weaknesses in the administrative capabilities of the committees in charge. Lately, the cooperative decided to pay tractor operators immediately following the completion of their daily assignments to motivate them to do a better job. But not many farmers can pay in advance for the services to be received, and some of them were forced to plant some of their crops on uncultivated plots.

UJCDP used to provide services to the beneficiaries on credit from a revolving fund. But, because some of the farmers who requested land preparation services failed to cultivate their land or repay their loans, UJDC decided in season 2009 that payment for the services to be received by the beneficiaries should be made in advance, and that discouraged some farmers because of their lack of adequate operating capital. Hence, lack of agricultural credit poses a serious threat to sustainability of the farming operations in the project area.

4.4 Evaluation of input supply activities

Strengths:

1. The availability of a local committee for supply of agricultural production inputs is seen by the beneficiaries of UJCDP as a point of strength that would continue to assist the sustainability of crop production operations.
2. The full supply of agricultural production inputs by ADRA-Sudan during the earlier phases of the project (Phase I and Phase II) was seen as a point of strength that facilitated the sustainability of crop production operations by the beneficiaries.
3. Farmers training in ways of producing improved seeds on the farm are also seen as a point of strength.

Weaknesses:

1. Lack of adequate agricultural finance for obtaining improved agricultural production inputs, and lack of subsidized services during the final phase of the project are regarded as both a weakness of the current input supply system of UJCDP and a

threat to sustainability of the farming operations.

2. Delays in the supply of agricultural inputs by UJDC during Phase III of the project have resulted into reduction of agricultural output.
3. Occasional lack of local supplies of certain agricultural production inputs (improved alfalfa seeds were cited as an example).
4. Defective storage of agricultural inputs during most of the agricultural seasons of Phase III constituted a serious weakness that was lately redressed by the building of adequate stores with support from ADRA-Sudan toward the end of the phase.
5. Lack of adequate supplies of pesticides.

Opportunities for sustaining access to production inputs:

1. The beneficiaries see an opportunity for the agricultural cooperative to strengthen its role in the area of agricultural finance through getting government support for a larger revolving fund. They also see a possibility for the cooperative to provide adequate marketing services in the future.
2. Developing the beneficiaries' ability to produce improved seeds locally.

Threats for sustaining access to production inputs:

1. Lack of adequate agricultural finance for obtaining improved agricultural production inputs.
2. High cost of input supply services.
3. Low farm income.
4. Lack of adequate marketing services results in low farm income and this, in turn, reduces the farmer's incentive for purchasing inputs and increasing farm output.

4.5 Evaluation of extension activities

Strengths:

1. Close supervision of farmers by local extension workers and project staff in the early phases of the project.
2. Training of the local extension group by the project
3. Availability of local extension at well level.
4. Introduction of new crop varieties
5. Spreading awareness about the usefulness of crop rotation

6. Farmers training in nursery management
7. Spreading awareness about the importance of the different cultural practices.
8. Training of farmers in compost making.
9. The establishment of a local extension centre.
10. Involvement of local women in extension work. Twenty five percent of the positions in the Local Extension Group are occupied by women.
11. Involvement of farmers in on-farm trials. More than 10 on-farm trials were done on wells 1, 2, 6, 10 and 11.
12. Involvement of farmers in field experimentation through Farmer Field Schools.
13. Use of farmer-to-farmer extension which proved successful as a means for continuous training and follow up.
14. Adequate training of members of the Local Extension Group which is reflected by farmers' adoption of improved agricultural practices. Two LEG members received one-month training in Meroe in crop protection and fruit seedlings production.
15. Training of local extension workers in communication skills. Two workshops in communication skills were conducted in Um Jawasir by a professional consultant.

Weaknesses:

1. Lack of transport services for local extension workers.
2. Low level of education of local extension workers.

Opportunities:

1. Providing local extension workers with means of transport (CARE-International provided local extension workers in En Nahud Smallholder Agriculture Project in western Sudan with donkeys in the 1990s to facilitate their movement).
2. Linking the local extension workers officially with the Technology Transfer and Extension Administration of the Ministry of Agriculture of the Northern State.
3. Getting support from governmental and non-governmental organizations.
4. Provision of incentives for local extension workers.
5. Developing the capabilities of Um Jawasir multipurpose cooperative.

Threats:

1. Lack of incentives for members of the local extension group.
2. Withdrawal of ADRA-Sudan from support of extension work in the project area.
3. Small number of local extension workers.
4. Lack of commitment to work assignments by committee members.
5. Lack of ability of committee members to participate in advanced training.

4.6 Evaluation of environment conservation activities

Strengths:

1. Establishment of a protection fence in the northern side of the project area.
2. Establishment of a shelter belt.
3. Establishment of tree seedlings nursery.
4. Training in nursery management.
5. The spreading of environmental awareness.
6. Introduction of improved stoves which reduced fuel wood consumption.

Weaknesses:

1. Inadequate irrigation of the trees of the shelterbelt.
2. Lack of community involvement in environment protection activities.
3. Lack of adequate fencing of the project area.
4. Lack of adequate financing for environment protection activities.

Opportunities:

1. Protection of the natural vegetation from excessive cutting by granting tribal administration judiciary powers.
2. Involving Um Jawasir Cooperative in environment protection work through the establishment of links with concerned non-governmental organizations and governmental departments (such as the National Forestry Corporation).
3. Spreading use of improved stoves.

Threats:

1. Lack of commitment of local organizations to environment protection work.
2. Lack of adequate financing of environmental protection programmes.
3. Lack of adequate resources among farmers for erecting fences to protect the farming units from trespassing animals.
4. Lack of popular commitment to environment protection.

4.7 Evaluation of animal production activities

Originally, the beneficiaries of UJCDP project depended for their livelihoods on transhumant animal production activities. Engagement in animal production, however, was drastically reduced by the shocks and vulnerabilities that stemmed from the drought and desertification of the area. Most of their original animal herds were lost, and for that reason they were compensated by settlement in the project for achieving food securing.

Because of the beneficiaries' background, ADRA-Sudan conceived Um Jawasir desert farming experiment from the start as a mixed farming pilot project. Provisions were made by ADRA-Sudan for the settled nomads to grow crops and to raise herds of small animals. Part of the farm land was designated for production of fodder crops, and goats of an improved breed (Saaneen) were imported and distributed to ensure that the farm families can get enough milk to supplement their diet, with the possibility of producing a surplus for sale in the local community. Many of the farmers in the project possess small animals and feed them from the fodder crops which they produce in their irrigated plots. During the rainy season, those possessing larger herds move out with their animals to natural pastures lands in nearby locations.

Evaluation of the project's contribution to animal production activities, as a component of the livelihoods development strategy, was positive. Farmers are looking forward for more support to their animal production activities in the future through their newly established cooperative. While many of the beneficiaries of UJCDP see themselves as farmers, some of them still believe of themselves as primarily animal herders. However, the presence of animals in the project area is seen by many as a farm protection problem, especially with regards to stray animals that pose a serious threat to farm crops and hedge plants. Most of the farmers cannot afford to erect durable fences to protect their crops from damage by animals. In each well, one farmer is entrusted with the function of guarding against damage to the crops by trespassing animals, but it is conceivable that no one can stay guarding all the time, and it is inevitable that damage to crops can result from careless management of the animal herds by their owners. Many farmers failed to plant woody shrubs to protect their farms from invading animals, and most of them suggested that ADRA-Sudan or a relevant government institution (Such as the Pastures Administration) should assist UJCDC to erect adequate fences along the east, south and west sides of the project area. ADRA-Sudan had erected one fence on the northern side of the project primarily to protect the shelterbelt. Protection services in the project are rated as deficient by most of the beneficiaries.

4.8 Potential for sustaining crop production activities

Farming in Um Jawasir is conducted in two seasons, namely the winter and the summer seasons. Winter is regarded as the principal season in which farming operations are more intensive.

The main crops produced by the operating farmers during the final evaluation were found to include mainly fenugreek (a newly emerging principal cash crop locally known as *Hilba*), okra, wheat, alfalfa and sorghum (produced mainly as a fodder crop). Broad beans lost its popularity because of marketing difficulties stemming from the poor quality of the produce; and production of other crops, especially tomatoes became minimal (see Table 1).

Farmers in the summer season tend to grow fewer crops and cultivate relatively smaller areas due to the high production costs, as the crops demand more frequent irrigations because of the high atmospheric temperatures that prevail during the growing season. The pumping of more water for irrigation means more pump operation costs.

In Phase III, ADRA-Sudan made a shift from hardware support of farming operations to software support focusing on building the capacities of local organizations for ensuring the sustainability of the project in the future under community management.

Significant progress was made in institutional support and capacity building work over the past 5 years, but my judgment is that still needed are dependable sources for enabling community representatives to handle the project responsibilities in a sustainable manner following the withdrawal of ADRA-Sudan from the project area, especially with respect to the farming operations.

Agriculture is suffering from a sharp drop in the area under cultivation, due to breakage of irrigation units (pumps and engines) and farmer's uncertainty about the economic viability of crop production because of high production costs, particularly because of the project administration's shift from providing direct support and subsidies to farmers to almost complete withdrawal from farm support services. The Cooperative was able to get in-kind loans from the Agricultural Bank of Sudan and the State Ministry of Agriculture for the agricultural operations of seasons 2007/2008 and 2008/2009. However, the Bank failed to offer loans to the cooperative for the 2009/2010 season because of budgeting reasons, and that created a problem for a considerable number of the project's beneficiaries. The cooperative demanded in advance cash payments for the services to be received.

Nevertheless, farming remains the most important livelihood support activity for the settled population in Um Jawasir project area, providing food for household consumption and income from sale of cash crops. The project has achieved substantial improvement in farmers' understanding of improved farming techniques through farmer-to-farmer participatory research and extension (PRE), but the achievement of the objectives of securing local availability of farm supplies and equipment, and improvements in farmland utilization, still needs much effort. Hopefully, in-kind support will be secured (even if in sporadic manner) from international and local donors and technical support agencies to help sustain the farming operations in the project area.

The positive impact of participatory extension is indicated by a substantial increase in agriculture productivity per unit area that was achieved by some progressive farmers.¹ However, problems are manifested in an overall drop in agricultural output due to decrease in area under cultivation and a drop in the number of operating farmers. These problems render sustainability uncertain, especially because of shortages of farm supplies and equipment, the frequent irrigation and environmental protection problems, and lack of adequate credit supply and marketing services.

Table 1, which is prepared by the consultant during the final evaluation field visit, shows the distribution of the 50 farmers who stayed to produce winter crops in 2009, and the areas cultivated with the different crops. These current primary data on crop production for the 2009 winter agricultural season, which were compiled and analyzed by the consultant, are rather alarming concerning the potential for sustaining the project under community management. Out of the 16 Farming Units of the project (Wells), only 9 (56%) were found to be in operation. From a total of 121 farmers possessing farms in the operating well units, only 50 produced crops. A high level of absentees (58.68%) in the operating units alone was, thus, noted. This has been attributed to irrigation difficulties, high operation costs and marketing problems. For the project as a whole, the total number of the beneficiaries who were forced to abandon their farms is much greater, as 7 irrigation wells remained completely out of work for different reasons, mainly because of desert creep and the frequent breakdowns of engines and pumping equipment.

Table 1: Crop production data on areas under crops in UJCDP in winter season 2009

Name of Crop	Farmers producing the crop in 2009		Crop Area Cultivated	
	Number	% N = 50	Area under crop (Feddans)	% of total area under crops
Wheat	27	44	37.50	23.33
Hilba (Fenugreek)	28	56	62.50	38.88
Okra	33	66	44.50	27.68
Alfalfa	13	26	12.00	7.47
Sorghum	3	6	2.75	1.71
Onkoleeb (Sweet Sorghum)	2	4	0.50	.31
Broad Beans	2	4	0.50	.31
Tomato	1	2	0.50	.31

Source: Primary data collected and computed in by the consultant, December 2009

¹ A farmer's success story is placed in the Appendix.

The considerable difficulties that are often faced by farmers in transporting their crops to major markets and the high costs incurred constitute a major handicap that forces farmers to dispose of their crops locally at lower prices.

Alfalfa is marketed locally, while Fenugreek produce is marketed in Omdurman and towns in the Northern State, mainly in Korti, Gurair and Ganatti. The same is true for okra which is sold as a processed (dried) product. Wheat is produced mainly for household consumption and the surplus is marketed either locally or in distant markets. Sorghum is produced mainly as a fodder crop, and grain sorghum is used to meet household consumption needs, and the surplus is marketed mainly to consumers in the local community.

Tables 2, 3, 4, 5 and 6 in the appendix show the cost-benefit analysis that was conducted by the consultant for Um Jawasir crop production in the 2008/2009 agricultural season.

5.0 EVALUATION OF UJ LOCAL ORGANIZATIONS' PERFORMANCE

The formation of local organizations in UJCDP was initiated towards the middle of phase II of the project, as a result of the regular revision of the project objectives that took place at end of each phase to match the community emerging development needs. The initial stages of formation of the different local organizations were faced with a number of challenges and difficulties associated with the community's poor understanding of the nature of organized voluntary work and the incapability of some of the committees members, whose selection was based on clan affiliations and traditional power centers rather than on ability and volunteerism motives, Hence, individualism, conflicts, lack of commitment and absence of general welfare dominated the performance of the local organizations for quite long period.

The project has responded to the challenges facing community organization by starting with simple structures to carryout specific tasks and learning from the realities before proceeding to a higher level of organization. Hence, the establishment of the Framers Committee demarcated the onset of community organizing, where 2 farmers were selected from each well to represent the famers in the farmers committee. The beginning of the work of the Farmers Committee was focused primarily on agriculture to match the project food security objective. The work of the farmers committee was characterized by lack of institutionalization, due to weak exposure to organized work and poor awareness among farmers. However, this has changed over time, when the community capacity development component was introduced and a community development officer was recruited. This resulted into placing concerted emphasis by the project on farmers training in many fields, including subjects in office management, tour visits and community development training, in addition to literacy.

With the passage of time, a state of awareness among community members started to emerge, which encouraged the project to undertake a further step towards restructuring of farmers committee and its replacement with the Um Jawasir Development Committee, to act as an umbrella organization to oversee farmers' committee activities that were expanded to include, besides farming activities, community development as a whole, including health and education. At the same time women development committee and youth committee were established to

organize women and youth activities and mainstream them into an integrated community development effort.

During Phase III of the project, the farmers' cooperative society was established to assist in securing finance for agricultural operations and farm inputs. Below is a description of the operating local organizations.

5.1 Evaluation of UJDC performance

The committee which was established in 2004 included in its executive office some of the project consultants and community celebrities and leaders from outside the area to advice and gives support to the committee to carryout its functions. As previously mentioned, the committee went over a number of stages of transformation from farmers committee and change of members before it took its current shape. At the beginning in 2004, when the committee was established, its operation was faced with a number of obstacles that rendered it ineffective. The constraints were mainly expressed in the competition over the available resources expressed in the irrigated farms and machinery, which were under the control of the farmers committee, which, due to lack of trust, refused to hand over the available resources to the UJDC.

This had a significant negative impact on the ability of UJDC to provide required finance necessary for the committee work, and accordingly, the UJDC was unable to offer much to the beneficiaries at the early times of its establishment.

In 2005/6, UJDC succeeded in securing subsidized gasoline (which represents the most expensive farm cost item, due to the high cost of irrigation) from the state authority. But, the UJDC had failed to employ this support in a manner that satisfies the farmers.

In the following season, UJDC was able to obtain in-kind support in the form of seeds and fertilizer, which the committee distributed as advance loans to the farmers. The season was successful, but the committee failed to collect a big portion of loans.

The UJDC continued to operate in a state of severe lack of adequate finance to an extent that made its presence meaningless to the farmers. However, by the end of 2005 the UJDC was able to reach an agreement with farmers committee, upon which, the farmers committee was dissolved and UJDC was restructured to include some of the farmers committee members in its executive board. The agreement allowed UJDC to have control on farms and machinery, and to become responsible of community development activities, including agricultural services that formerly were under the control of the farmers committee. UJDC become active as representative of farmers and succeeded again in obtaining subsidized gasoline and seeds from the state government. Unfortunately, the distribution of these inputs lacked transparency, which encouraged the farmers to exert enough pressure to dismantle the committee and new members were elected to form a new committee in 2007. This latter committee, which formation was led by the farmers, brought new blood and more dedicated members, and one of its achievements was the formation and registration of UJ farmers cooperative. But, some of the influential members of the dissolved UJDC took the chance of the state of reorganizing necessitated by the establishment of the cooperative, to lead a pressure campaign that resulted in dismantling of the committee and reinstatement their re-election as members of the executive office of UJDC.

UJDC has an adequate well furnished office building besides a well-equipped extension office. The extension office is manned by well trained extension farmers who work with the farmers during the agricultural season. The UJDC also supervises the health work where 11 of the community members have received primary health and environment hygiene training. The health office had organized a health environment campaign and participated in digging of latrines. Also, the UJDC has allocated a piece of land for construction of a clinic and has ongoing negotiation with the state health authority to provide necessary health cadres. The committee also supervises the income generating activities finance by the project and implemented by women and youth committees.

Through many years of success and failure the members of the committee were able to acquire adequate relevant skills. Particularly in agricultural planning and budgeting, irrigation pumps spare parts procurement and maintenance, as well as in communication and negotiation of farmers' needs at project and state levels. The committee meets regularly once every Saturday to carryout its duties. Meetings are minuted, and internal regulations for control of members' attendance were developed and applied. In general, the committee's financial capacity is very much limited and it depends on the percentage they get from the profits of the income-generating activities and the annual payment received from the cooperative as rental for use of the machinery owned by the committee. The financial credibility of the committee is lacking, and financial documentation is not satisfactory. Further efforts need to be exerted to ensure adherence of the committee to sound financial procedures:

The committee members have clear vision of the needed future activities, which include:

- Completion of fencing of the project to prevent damage to the farms by animals.
- Completion of the shelter belt to protect farms from moving sands.
- The committee is also considering the establishment of a branch office in the capital of the state to facilitate easy and prompt communication with the state's authorities.

5.2 Evaluation of Um Jawasir cooperative performance

The project assisted in the establishment of cooperative in Um Jawasir, on the basis of the recommendations of the farming systems and the community organization consultancies that suggested options under which the community may be organized. The project had facilitated the organization of a workshop on the options available for Um Jawasir community organizing and to discuss the feasibility of establishment of a farmers' cooperative. The state cooperative office official participated in the workshop who explained to the farmers the advantages and disadvantages of cooperatives and the required procedures. Following the workshop, the participating farmers agreed and decided to form a multi-purpose cooperative part of the functions of which is to provide agricultural services to the famers locally.

The UJDC undertook all necessary actions at the project and state levels required for legal establishment of the cooperative, this included deciding on and collection of fees from members (95 farmers), depositing shares at state cooperative office, and registration of the cooperative in 2007.

The UJDC has then handed over, on a rental basis, the agricultural machinery and tools to the cooperative to be responsible of its operation and provision of services to the farmers. The handed over machinery include: two tractors equipped with necessary land preparation tools, a planter and two harvesters. Most of these equipments are operating, though some maintenance may be needed, particularly for one of the tractors, and which are considered enough to meet the requirements of the annually cultivated area. However, the ownership of the irrigation system components and farmland is still not secured for the cooperative. ADRA had formerly handed over the wells and project equipment to the Agricultural Committee which no longer exists. Ownership of the wells and equipment was not afterwards formally transferred to either the UJDC or the Um Jawasir Multi-Purpose Cooperative. This issue needs to be resolved. The cooperative should seek to get formal possession of all assets of the project to assume full responsibility for the agricultural and community service activities in the project area, because it is an organization with a legal status.

The cooperative executive office is composed of 11 members, including one woman, and the members were democratically selected in a general assembly attended by the state cooperatives registrar. Though, it worth noting that most of the members selected are the same members of UJDC office. This has pros and cons at the sometime. On the pros side, the members of the UJDC and by the fact of their long experience, has acquired management skills that can be useful for the cooperative. Besides, it facilitates the cooperation between the cooperative and UJDC. On the cons side, it has led to domination of community work by few influential members.

The cooperative is running its activities through three offices with clear responsibilities, namely:

- (1) Machinery and Tools Office, which is responsible for preparing plans for land preparation according to farmers' requests. It operates and maintains the machinery, which is completely done by the farmers who relying on their own skills and resources in spite of the fact that some of the community's well-trained mechanics are recruited by the *Shrian* adjacent project.
- (2) Administration Office which meets once every Tuesday to monitor and carryout routine activities and take necessary decisions to fulfill its duties represented in provision of inputs, marketing and collection of loans.
- (3) Stores Office which is responsible for proper keeping and release of inputs and farmers produce.

The members of the cooperative committee demonstrated adequate knowledge and skills that will enable them to keep office and farms records facilitated by the accumulating experience and the training provided by the project in various fields that included communication, agricultural planning and bookkeeping. The cooperative has a bank account and cheques are signed by any two of the three executive officers. But, financial documents and receipts are not yet used appropriately.

In the first year of operation, the cooperative succeeded in obtaining a bank loan in the form of gasoline and inputs, valued at SDG 80,000, to finance farmers for season 2008. The season was successful and the committee was able to finance 67 farmers to cultivate an area of 300 feddans with wheat and Hilba. The cooperative has also succeeded in repaying the loan fully to the bank,

after collecting loans from farmers. It is to be mentioned, however, that the cooperative paid back the full loan in spite of the fact that some of the financed farmers haven't repaid their loans yet and the default that amounted to about SDG 20,000 is incurred by the cooperative.

The defaults didn't encourage the cooperative to seek further loans from banks, fearing that they may fail to repay the loan. Currently the committee is considering provision of the services adopting in advance payment by the farmers as a policy. Though, this might be safer for the cooperative, but many farmers will not be able to pay for services in advance and before harvest of their crops. This may lead to decrease of output and lead to other negative consequences.

5.3 Evaluation of the youth development component

The youth committee was established towards the middle of Phase II of the project in 2003, as a result of the recommendations of the workshop organized by the project in collaboration with its partners and national experts to enhance project impacts, but mainly as a result of the continuous revision of the project objectives which took place at the end of each phase and resulted in the introduction of the community development and capacity building component. That necessitated the formation of local organizations to lead and organize community development interventions.

A youth development centre was established largely by self-help assisted by support from a prominent community member and ADRA-Sudan. The idea of establishing the centre was initially resisted by the elderly, but the benefits that resulted from youth activities became apparent and the centre gained community approval and support. Because of the prevailing conservative cultural norms, member of the youth development centre were found to be all males.

The youth committee is well established and was registered in 2006 at the Ministry of Youth, Culture and Sports, with a membership of 54. The fact that youth were able to persuade some of the elders to join and take positions in the executive committee reflects appreciable degree of awareness among youth that such involvement of community leaders and elders will enhanced community participation in youth committee activities at wider community levels, linkages with other local organizations, and coordination as well as facilitation of Cooperative Committee support of youth activities.

The youth committee is run by an executive office composed of 11 members who carry out daily activities on voluntary basis. The committee is represented in all local organizations, and youth have succeeded in convincing community with the vital roles they can play through their representation and participation in the boards of the local organizations. Two of the youth executive committee members are primary school teachers, 5 members have completed some primary school education and are literate. Only 4 of the 11 members are illiterate. Naturally, literacy levels among the youth are much higher. That facilitated youth training by ADRA-Sudan in bookkeeping (7 members), mechanical repair works (5 members), and welding (5 members). These trained members are depended upon for repair of irrigation pumps and engines in UJCDP and are also engaged in commercial production of metal works. However, lack of capital and marketing services has greatly limited their potential to benefit fully from their training and work experience. They have identified lack of adequate financing as a factor limiting their aspiration

for greater involvement in development activities. The workshop of UJCDP was not formally allocated to be operated by the youth committee (it is still in the hands of UJDC). Employment opportunities in Um Jawasir are limited, and for that reason some of the trained youth have left the area for work opportunities elsewhere. This is perceived as a threat to sustainability of youth development programmes. Work with groups engaged in search for gold in the Northern state (gold mining using metal detectors) has attracted young people from Um Jawasir. Nevertheless, the youth had actively participated in fencing of the shelter belt, the organization of health campaigns, the construction of one of the classes in the school, in addition to maintenance of the well pumps. Some of the educated members have enabled UJDC to keep records of executive committee meetings that take place regularly twice a month, as well as making use of the vocational skills gained in manufacturing of the office furniture. They have introduced gas cylinders distribution and refilling services to Um Jawasir and neighboring communities, and by so doing have contributed to conservation of the natural vegetation of the area.

The youth made significant contributions that enabled them, with the assistance of the project, to have their own building (the youth development centre) that accommodates the committee activities. The committee has adequate office space as well as entertainment and sports equipment. Daily activities are financed from members' contributions, fees for attending the committee's cultural and entertainment programs, and the income earned from the gas cylinders distribution and refilling service, besides revenues from renting a tent which they possess to community members for hosting social ceremonies. Their operating budget at the time of the final evaluation, as revealed by the committee during the field interviews, was in the region of 3000 SDGs.

The activities of the youth development centre transcended the project area to neighboring communities in that it has assisted in the establishment of a similar center in Al Shirian (a community also known as Al Tamtam which is located to the north east of Um Jawasir along the main asphalt road connecting the Northern State with Khartoum). This represents one of the positive impacts of UJCDP.

Future projects for engaging the youth in Um Jawasir, that may need external support, were identified during the final evaluation field interviews to include:

- 1) Independent agricultural production activities to be run by the youth within UJCDP area.
- 2) A commercial project in the form of shop for sale of consumer goods (a cooperative shop).
- 3) An animal production project.

Projects for motivating young people to stay in Um Jawasir are crucial for achieving effective long-term sustainability of UJCDP.

5.4 Evaluation of the women development component

The main objective of UJCDP is to improve food security through desert farming. In phase II, the project targeted female farmers and involved them in improving food security in the area. 15 female farmers were allotted land to grow a variety of crops.

Women development activities have been handed over to women after the completion of each of the three phases of the project. Therefore, women are independently responsible for their project activities. Three women centers encourage women to perform their different activities in collective ways

Economically, there are many interventions which led to the promotion in the capacities of women producers in UJCDP:

1. The project is food security based aiming at securing food for small producers (women and men) to reduce their vulnerability, to improve their livelihoods.
2. Women are represented in the Agricultural Committee by 2 members.
3. Food security has improved due to introduce new varieties of food (Vegetables and legumes)

Socially, the women development activities have resulted into:

1. The strengthening of cooperative spirit among member.
2. A remarkable positive change in people's attitudes towards women.
3. General awareness among both men and women in project area about their roles in the organizations and in the community.
4. Improvement in women position and the concept of voluntary work
5. Improvements in Women's living conditions.
6. The economic role of women has become socially valued.
7. Reduction of the culture of silence.
8. Women have acquired the right to take decisions in the education of their children and in other family affairs.
9. Women for the first time acquired the right of access to land.

SWOT analysis revealed the following strengths, weaknesses, opportunities and threats for women's agricultural activities:

Strengths:

1. Availability of water for irrigation from wells

2. Availability of tractor services for land preparation.
3. Participatory research and extension approach (Farmer-to-farmer research and extension) has addressed the needs of female farmers.
4. Women acquired principal skills of farm management.
5. Technology has increased area under cultivation, thereby providing more food at the household level.

Weaknesses:

1. Women are not represented in wells committees.
2. Minor canals are regularly blocked by sand
3. Lack of money to finance irrigation and inputs.
4. Interference of male family members in management of the farm.

Opportunities:

1. Female farmers can work collectively to improve their agricultural activities.
2. Saving group can be established to sustain the supply of agricultural inputs.
3. Women can be trained by extension to improve their skills in farm management.
4. Women can be more involved in work addressing the problems of food security.

Threats:

1. Female farmers are vulnerable to lack of adequate finance for agricultural inputs.
2. Breakdown of pumping equipment in many of wells.
3. Damage of irrigation canals.
4. Environmental degradation of farmland.

SWOT analysis was also applied to gender issues in UJCDP to identify:

1. *strengths*: internal features of a project that have proved effective in addressing gender issues (e.g. project components, methods and techniques for implementation, monitoring and evaluation techniques, project staff and management);
2. *Weaknesses*: internal features of a project that have not proved effective in addressing gender issues;
3. *Opportunities*: external factors that may assist in overcoming the weaknesses and building on the strengths; and
4. *Threats*: external constraints that restrict the range of opportunities for change.

These were revealed to be as follows:

Strengths:

1. Development of greater self-reliance among women
2. Enhancement of the productive role of women
3. Emergence of women in leadership positions in the community.
4. Women's access to farmland of their own.
5. Women's access to training

Weaknesses:

1. Girls are not involved in the project activities.
2. Weak impact on the project in the business skills of women.
3. Gender unawareness/blindness at the beginning of the project.
4. Inadequate credit and input supply services.
5. Lack of adequate marketing services for women.

Opportunities:

1. Potential for enhancing women's income generation activities through micro-finance involving a larger revolving fund.
2. Potential for encouraging women groups in larger income generating projects
3. Potential for getting funds for more focused training of women.
4. Potential for allocation of more farmland to women.
5. Potential for linking women's development activities with national programmes.

Threats:

1. High rates of illiteracy among women.
2. Desert sand encroachment on farmland.
3. Domination of women development activities by few powerful female figures.
4. Input supply and marketing difficulties
5. Lack of adequate financing for women's income generating activities.

6.0 COST-BENEFIT ANALYSIS

Cost-benefit analysis was conducted on the basis of the budget data provided by ADRA-Sudan for purposes of the final evaluation. From examination of the project's expenses for the last two years (2008 and 2009) it became clear that the project operation costs have dropped relative to those of the previous phases of project which involved high cost new infrastructural establishments. About 30% of total budget for the final two years were used for meeting indirect operation costs, including support staff and logistics. The direct cost amounted to 70% of the total budget. Some 50% of the money was used to meet the costs of the implementation staff. The remaining 20% were spent on financing of services directly targeting the beneficiaries. The portion of the budget allocated for direct activities during Phase III was made deliberately small to match the facilitative strategy that was adopted in the project by ADRA-Sudan for phasing out. More capacity development input was required from the staff during the final years of the project, and that justified the relatively higher field staff support costs.

A sizable portion of the expenditure on agriculture was spent on the establishment of a permanent farmers' Extension Center, on training of extension lead farmers, and on purchase of essential spare parts for maintaining the irrigation system. The extension office was built from permanent materials, adequately furnished and equipped with necessary tools and equipment, and the farmers in charge acquired more advanced extension skills. The services of the extension office (which operates under supervision of UJDC) are much appreciated and valued by the farmers, as they have significantly contributed to dissemination of improved farming practices, and have resulted into increased farm output. That reflected positively on farmers' economic and social wellbeing. The remaining expenses on the agricultural component were spent on provision of technical assistance and follow up capacity development work involving meetings and workshops, which were carried out mostly by the project's field staff. The capacity development budget was rather small and somehow provided for meeting the running expenses of the organized activities. Success in the achievement of the planned capacity development objectives in the final years of the project reflects the resource-use efficiency of the field staff and their ability to sustain work on a least-cost basis, without jeopardizing the quality of implemented activities.

During the last two years, the project has placed emphasis on improvement of the community health situation. In this regard, the project has succeeded to create health awareness among community members through organization of primary health courses and environment hygiene symposiums. A health committee comprising 12 active trained youth was established and is currently leading the community health activities. The efforts of the committee are evident in the digging of latrines in the model village and other populated areas, as well as the staging of periodic environment hygiene campaigns.

Justifiable expenditures were spent by the project staff on coaching and training of the local organizations leaders who received appropriate technical support and mentoring training, including literacy sessions and payment of incentives for literacy facilitators. Also, the project facilitated cross visits and accomplished local organizations legal structures. The local organizations are currently undertaking the responsibility for management of community affairs, and have demonstrated commitment to community organization work and responsiveness in addressing community needs. All this is to be viewed indications of successful achievement of the stated goals of UJCDP.

7.0 SOCIO- ECONOMIC IMPACTS OF UJCDP

The evaluation team was able to see and record many phenomena that indicate the positive impacts of UJCDP which facilitated the transformation of the nomadic and largely illiterate *Hawawir* people of Um Jawasir area into a settled enlightened community enjoying food security and better social organization and services. Settlement in the project area was indicated by the beneficiaries' permanent mud houses that replaced the straw and wool houses of the past, the clean and tidy people whom we met and their concern and willingness to attend meetings with the evaluation team, and the level of awareness they expressed during discussions about their community affairs.

When asked to compare their lives before and after the project, the beneficiaries (including ordinary members, community leaders and key informants) cited significant social, cultural and economic impacts, which were evident to the evaluation team. These include:

1. Settled life and greater aspirations. Most of the farmers consider their families as settled. Family needs and aspirations have grown substantially because of the awareness and enlightenment that resulted from association with UJCDP, especially among women, and that is a source of motivation for the heads of the households to seek to acquire more earnings.
2. The adoption of multiple livelihood strategies by families in the community.
3. The acquiring of managerial and technical abilities by community members.
4. Achievement food security and improvements in health and nutrition conditions.
5. Health awareness and improved sanitation – use of pit latrines.
6. Self hygiene has improved. At present, older people now take showers day after day, and the youth take showers daily.
7. Availability of fodder and improvement of animal breeds.
8. Reduced dependence on fuel wood.
9. Reduced work loads for women.
10. Women empowerment through increased awareness, involvement in income-generating activities and opportunities for participation in decision making at household and community levels.
11. Education for children, especially girls. A change of attitude toward education has resulted from settlement in the project area. The establishments of a primary school in the near-by model village with assistance from UJCDP, and the influence of project staff have encouraged the beneficiaries to send their children to school, particularly girls. This is to be considered as a significant achievement when considering the fact that, during their days as nomads, the beneficiaries used to scare their children by telling them they

will be sent to schools if they do not take good care of the animals. For nomads' children, going to school means walking on foot for long distances daily and remaining hungry during parts of the day.

12. Improved social organization.
13. Conflict reduction. The tension and the conflicts, which were recurrent among clan members of the Hawawir tribe, have diminished among the project's beneficiaries due to the increased awareness, better organization and improved livelihoods. Social relations among the settled community members have weakened the formerly prevalent inter-and intra-tribal conflicts.
14. Greater contact with urban centers. Engagement of the beneficiaries of UJCDP in commercial farming and income generating activities has created a need for frequent visits to market towns. Previously, as nomads they used to remain in one place for the whole season, and travel once or twice every year to sell few animals to get money for purchase of modest household supplies.
15. Opportunities for increasing households' income. Income sources, which were livestock and occasional engagement in seasonal rainfed farming, have been diversified in Um Jawasir because of the opportunities that were made available to them by UJCDP.
16. Dependence on milk as a sole food item has been abolished; food security has improved due to introduction of new food items including vegetables.
17. Many social norms and bad habits have changed because of the enlightening impact of UJCDP. People no more idle for several days in weddings and funeral gatherings. People have abandoned the showing of grief for death of close relatives by sleeping on sands, not shaving, not cleaning their clothes, and riding camels with no saddles on them as used to be the cultural norms in the old days. Largely abolished also are the formerly prevalent tribal habit of marking children's faces by deep cuts on the cheeks, and the whipping of each other that was practiced by men as a show of carriage during weddings, and female genital mutilation.
18. Adoption of attitudes against early marriage.
19. Adoption of attitudes against polygamous marriage.
20. Improvement of men's and women's wear. Changed is the wearing of a *galabia* without sleeves and must be plain in color. Men and women in Um Jawasir are now better dressed.
21. The social tradition that required young people (under 30 years of age) not to sit with elders, and to eat only after the elders finish eating, is no longer observed.
22. Increased knowledge and socio-political awareness. Their knowledge in the past was in the realm of the homestead and the animals, knowing nothing about government policies. In the past tribal information used to be relayed by camel riders and its spreading used to

take days; but now the communication between tribal members has improved and became more intensive and because of possession of mobile telephones.

23. More productive social engagements and involvement in community decision making, as reflected by the following statement which was made to the evaluation team leader by one of the interviewees: "In the early days we used to meet only when there was a big event, but nowadays we meet regularly to look after our affairs."
24. The establishment of sustainable community organizations.

8.0 LESSONS LEARNED

The lessons learned were extracted by the final evaluation consultant from the experiences of the staff and the beneficiaries, from review of information on specific topics in progress reports, studies, evaluation reports and other project documents. The following are the main lessons learned from the experiences of UJCDP:

1. Vulnerable and mostly illiterate nomads in drought-affected areas can be prepared to sustain irrigated desert farming and engaged in demand-driven local development initiatives.
2. Development interventions in drought affected areas should have a major environmental conservation component as a means for ensuring sustainable use of natural resources, especially in areas prone to desert creep.
3. A comprehensive study of the dynamics of climate and other components of the environment of a given geographical area should be made prior to positioning of a desert farming project in order to protect it from environmental hazards.
4. Much reliance on project-positioning-related information provided by the indigenous people should be avoided, because such information is sometimes misleading.
5. The selection of beneficiaries for development interventions in clan oriented communities should be based on the criteria of keen interest and commitment to effective participation, with due regard to tribal considerations that serve the goal of reducing conflicts.
6. The integration and coordination of agricultural production, poverty alleviation, environmental conservation, gender mainstreaming and youth development interventions are crucial for achieving greater impact and effectiveness of development programmes for agro-pastoralists.
7. The integration of all segments in the community in development activities should be planned from the onset, with special consideration to the gender prospective.
8. Community involvement should be secured from the very beginning as a basis for ensuring sustainability of development activities.
9. Local organizations should be established and strengthened in the earliest possible time and should be trained continuously and coached to develop their capacities for playing active roles in planning, implementation and monitoring of development activities as means for ensuring their sustainability.
10. In the course of formation of local organizations, one must bear in mind the importance of dealing with the traditional leadership with respect while avoiding to be totally indulged in their personal interests.

11. In nomadic communities, with a high illiteracy rate, the formation of effective local organizations requires more time than would normally be anticipated by development practitioners.
12. Illiteracy is a constraint for the empowerment of both men and women. In communities with high rates of illiteracy, development programmes should include, from an early stage, a literacy and continuing education component as a means for facilitating capacity development efforts.
13. The changing of traditional community values and norms needs time and considerable effort before it could be eventually achieved.
14. Nomads can be trained to manage community-based research and extension work on a sustainable manner as settled farmers when they are provided with ample chances for training and institutional support.
15. Training plans should be flexible in order to accommodate emerging interests among the targeted beneficiaries.
16. The creation of linkages with government and other relevant national institutions should be attempted in community development programmes from the very beginning as a means for ensuring sustainability, especially in the case of projects financed by foreign donors.
17. The securing of land tenure rights for nomads participating in desert farming projects is crucial for encouraging sustainable land use.
18. The usage of tribal lineage criteria in the distribution of agricultural land does not in most cases lead to sustainable use of land resources.
19. In irrigated farming projects for low-income nomads in dryland areas, arrangements are needed to help the beneficiaries gain access to financial resources needed for the maintenance and modernization of the irrigation equipment.
20. In food security and income development projects, the profitability aspect of the recommended crop and animal production operations should be carefully examined to ensure sustainability.
21. Income development projects for nomads and other disadvantaged groups need to include sustainable credit and marketing components to encourage continuous engagement in farming and other income-generating activities.
22. Participation of beneficiaries in project selection, execution, supervision and financing generates commitment and promotes sustainability.
23. Capacity development empowers people to realize their potential and to better utilize their capabilities, and assures ownership and sustainability of the development process.
24. Gender equality and women's empowerment requires strategic intervention at all level of project to encourage women's participation and to narrow potential gender disparities/gaps.
25. Illiterate rural women can be assisted to engage in small-scale economic activities that are effective in absorbing the female workforce in the community. The income women generate from their operation may be small, but it plays significant role in meeting family needs.
26. Awareness raising and education aimed at attitudinal change is effective in bringing about desirable behavioral changes relating to environment, natural resource use and social relationships.

9.0 CONCLUSION

The facilitative approach that has been adopted by UJCDP to organize and prepare Um Jawasir community for shouldering the responsibilities for sustaining the project's development activities proved to be fairly successful. The performance of local organizations clearly reflects the positive impact of the different training packages that have assisted the community leaders to acquire the necessary administrative and vocational skills. The money spent in capacity building activities have resulted into apparent progress and greater inclination towards self reliance.

The local organizations committees, in their current status, will be able to sustain the benefits gained and to address the constraints that might emerge. The project's objective pertaining to community capacity building has been achieved to a great extent. However, lack of adequate finance would be a threat to sustainability in the future following the withdrawal of ADRA-Sudan from project support.

The lack of transparency and the consequent lack of trust would deprive the committees from valuable resources that farmers may be willing to trust to them. Therefore, more efforts will be needed to equip farmers with the tools and mechanisms they can use to enforce transparency of their committees, as well as methods the committees members can use to express transparency to the farmers.

The relatively high cost of production, attributed mainly to high costs of irrigation, and the dry weather condition and sand movement threaten the sustainability of project activities. The small marginal profits will make it impossible for the cooperative to accumulate enough operating capital, even when it succeeds to obtain bank loans. It is a challenge for the cooperative to secure subsidized gasoline every season, which might not be granted, even with the government policy to provide farmers with subsidized fuel. Hence, support of the cooperative and UJDC for 1 to 3 years is deemed necessary. This support should be based on clear calculated productivity and profit margins and strict transparency by the committees in conducting all of their affairs. By the end, the committees would have accumulated enough working capital to sustain project activities through self reliance. The operation of the cooperative during this support period may be supervised by a technical manager, who might be one of the staff members of the Northern State's Ministry of Agriculture who are currently affiliated with the project, with a suitable topping of his salary from the project. This would be facilitated by the Northern State's Ministry of Agriculture which has plans to seek support to UJCDP from the Food and Agriculture Organization of the United Nations as part of the National Food Security Programme which is supervised by Sudan's Federal Ministry of Agriculture and Forestry.

The long term sustainability of the project's community development activities would be facilitated by the establishment of a local voluntary organization that can serve as a vehicle for receiving support from national and international organizations.

APPENDIX

ADRA/SUDAN

UM Jawasir Community Development Project

A FARMER SUCCESS STORY

(Documented during field work for the final evaluation)

I was borne in North Kordofan, where my family still lives, making our living as nomads by raising animals. I was different from my family, as I did not put emphasis on rearing of animals as a single livelihood option. In 1971, the area was subjected to severe drought and we lost a big number of our animals, so I traveled to the capital where I worked in a diary factory milking cows, a job which is not new to me. After 3 months I was able to save some money to send to my family and buy a ticket to travel to the Northern state. I had chosen the Northern state because it was our home land and I have some relatives living there who would help me. There, with the help of my relatives, I started to search for work and got a job as a truck driver for 9 months, after which I returned to see my family in Kordofan. I asked my father to sell what remained from the animals, as I wasn't expecting much from the animals, and use the money in trade, but they refused my offer. I was ambitious and have little faith in animals, so I returned to the North, where I worked as a waged labourer in a farm getting one fourth of the produce that hardly covered my family basic needs.

From my work as a truck driver and farm labourer working with water pumps, I learnt some mechanic skills and worked as a mechanic for 18 years, but still not satisfied with the income I get. So, when I heard about Um Jawasir project from my relatives, I came to the project in 2001 and was given an irrigated farm in the project area. By the end of the first season I had enough money, so I went back and brought my family to live with me.

Since then we are together for the first time. I am regularly cultivating my farm and the project made use of my mechanic experience, trained me further and now I can maintain the water pumps in the project, an occupation which gave me additional income, though I do it for free most of the time to help the other farmers.

In have built a permanent house, sent my children to the school and brought an electric generator and will buy a television soon. Also, to tell you the truth, I bought some animals and have 6 camels and more than 20 sheep, I know I can feed the animals and I don't depend on them completely.

I still remember the hardship days, when I was a driver and a wage labourer working for others and compare it with my current life working for myself. I always thank god and Um Jawasir project for the opportunity they gave me to settle and earn my living depending on myself.

Table 2
 Simple Cost Benefit Analysis of Okra Production in UJCDP
 (Computed Per One Feddan for 2008/2009 Season)

Cost Items	Description	Total Cost (SDG)
Tillage operation	Plowing, leveling and ridge	75.00
Seeds	1.5 kg/fed.	40.00
Fertilizer (urea)	50 kg/fed.	65.00
Fuel oil (29 irrigation)	29 irrigations (118 gal.)	509.00
Labour (final seed bed preparation,)	3,500 x 1 fed.	50.00
Lubricant and oil, spare parts	29 irrigations x 0.038 gal. = 1.102 gal.	28.00
Empty sacks	20 sacks	60.00
Transportation	20 sacks	100.00
Total Production Cost		1008.00
Gross income		6900.00
Profit		5892.00

Source of Data: Interview with UJCDP Field Coordinator by the main consultant

Table 3
 Simple Cost Benefit Analysis of Alfalfa Production in UJCDP
 (Computed Per One Feddan for 2008/2009 Season)

Cost Items	Description	Total Cost(SDG)
Tillage operation	Double Plowing, leveling,	120.00
Seeds	20kg/fed.	448.00
Fuel (irrigation)	33 irrigations /year	1320.00
Labour (final seed bed preparation, watering)	88 mini plots (6m x 7m)	150.00
Lubricant and oil	33 irrigations x 0.036gal = 1.19gal x 25	30.00
Total Production Cost		2068.00
Gross income		5280.00
Profit		3212.00

Source of Data: Interview with UJCDP Field Coordinator by the main consultant

Table 4
 Simple Cost Benefit Analysis of Hilba Production in UJCDP
 (Computed Per One Feddan for 2008/2009 Season)

Cost Items	Description	Total Cost(SDG)
Tillage operation	Plowing, leveling,	50.00
Seed	20kg/fed.	32.00
Mechanical threshing, sacks		128.00
Fuel(irrigation)	5 irrigations /year	200.00
Labour (final seed bed preparation, watering)	88 mini plots (6m x 7m)	50.00
Lubricant and oil, spare parts	5 irrigations x 0.036gal = 0.18gal x 25	4.50
Total Production Cost		464.50
Gross income		1500.00
Profit		1036.50

Source of Data: Interview with UJCDP Field Coordinator by the main consultant

Table 5
 Simple Cost Benefit Analysis of Wheat Production in UJCDP
 (Computed Per One Feddan for 2008/2009 Season)

Cost Items	Description	Total Cost(SDG)
Tillage operation	Plowing, leveling,	75.00
Seed	20kg/fed.	100.00
Fertilizer		130.00
Fuel (irrigation)	8 irrigations /year	320.00
Labour (final seed bed preparation, watering)	88 mini plots (6m x 7m)	50.00
Mechanical threshing		100.00
Lubricant and oil	8 irrigations x 0. 036gal = 0.29gal x 25	7.25
Total Production Cost		782.25
Gross income		1100.00
Profit		317.75

B

Source of Data: Interview with UJCDP Field Coordinator by the main consultant

Table 6
 Simple Cost Benefit Analysis of Foder Sorghum Production in UJCDP
 (Computed Per One Feddan for 2008/2009 Season)

Cost Items	Description	Total Cost(SDG)
Tillage operation	Plowing, leveling,	25.00
Seed	20kg/fed.	30.00
Fertilizer		65.00
Fuel(irrigation)	6 irrigations /year	240.00
Labour (final seed bed preparation, watering)		50.00
Lubricant and oil	6 irrigations x 0.036gal = 0.216 gal x 25	5.40
Total Production Cost		465.40
Gross income		800.00
Profit		334.60

Source of Data: Interview with UJCDP Field Coordinator by the main consultant

**Schedule for Final Evaluation Field Work at Um Jawasir Community Development Project
(UJCDP) Field Site**

27 – 30 December 2009

Sunday 27 Dec.

Departure from Khartoum to UJCDP’s Site 12:00 Noon
 Preliminary discussion with the Project’s Staff 8:30 – 10:30 PM

Monday 28 Dec.

Meeting with the Project’s Field Technical Staff and the President of Um Jawasir Community Development Committee (UJCDC)

Field Interviews with the Project’s Beneficiaries 12:00 Noon – 7:00 PM

Serial No.	Target	Location	Time
	Interview with Project’s Staff, President of UJCDC and a Staff member from Northern State Ministry of Agriculture	Project’s Field Office	9:00 – 10:30 AM
1	Individual Interviews with Beneficiaries (Male and Female Farmers)	Well Sites (Farming Units)	12:00 Noon – 7:00 PM
2	Interview with Youth Development Committee	Youth Development Centre	8:30 - 10:30 PM

Tuesday 29 Dec.

Interviews with Beneficiaries Committees and Key Informants

Serial No.	Target	Location	Time
1	Key Informants (Focused Group Discussion)	UJCDC's Head Office	9:00 - 11:00 AM
2	Interview with the Executive Committee of Um Jawasir Cooperative	UJCDC's Head Office	12:00 Noon – 2:00 PM
3	Interview with Women Development Committee	Women Development Centre	12:00 Noon – 2:00 PM
4	Individual interviews with Project beneficiaries (farmers and other community residents)	Well Sites (Farming Units)	3:00 – 7:00 PM

Wednesday 30 Dec.

Further Interviewing with Project Staff and Projects Field Extension Group members_

Serial No.	Target	Location	Time
1	Interview with Project's Technical Staff	Project's Field Office	9:00 - 11:30 AM
2	Interview with Members of Project's Field Extension Group	Project's Field Office	12:30 – 2:30 PM

Departure for Khartoum

4:30 PM

Professor Awadalla Mohamed Saeed

Final Evaluation Consultant/Evaluation Team Leader

26 Dec. 2009

FINAL EVALUATION TEAM COMPOSITION

1. **Prof. Dr. Awadalla Mohamed Saeed** **Main Consultant / Team Leader**

B.Sc. (Honours), M.Sc. Agriculture (The University of Khartoum, Sudan), Certificate, M.Sc. (Agricultural Extension and Rural Development (The University of Reading, UK), Certificate of Achievement in Extension Education in Agriculture, Rural Youth and Home Economics (The University of Wisconsin-Madison, USA), Ph.D. (Cornell University with a Major in Extension, Adult and Continuing Education, and Minors in Development Sociology, Development Economics and Research methods and Statistics.

Formerly, Head of the Department of Rural Economy and Head of the Extension and Training Unit, Faculty of Agriculture, University of Khartoum, Sudan.

Presently, Professor at the School of Rural Extension Education and Development, Ahfad University for Women, Omdurman, Sudan.

Served as consultant for governmental and non-governmental organizations, including among others the FAO, CARE-Sudan, CONCERN-Sudan, ADRA, Sudan

2. **Dr. Shadia Abdelrahim Mohamed** **Team Member**

Diploma in Family Science (Ahfad University College), Post Graduate Diploma and MA in Rural Social Development (The University of Reading, UK), Ph.D. Agriculture (The University of Khartoum).

Formerly, Dean of the School of Rural Extension Education and Development, Ahfad University for Women, Omdurman, Sudan.

Presently, Associate Professor, the School of Rural Extension Education and Development, Ahfad University for Women, Omdurman, Sudan.

3. **Dr. Elsamaual Khalil Mekki** **Associated Team Member**

B.Sc. Agriculture (The University of Cairo, Egypt), M.Sc. Ph. D. Agriculture in the field of Agricultural Engineering (The University of Khartoum).

Presently, Associate Professor, School of Rural Extension Education and Development, Ahfad University for Women, Omdurman, Sudan.

4. **Mr. Ali Abdelkarim** **Team Member**

B.Sc. Agriculture (Honours) (The University of Khartoum, Post Graduate Diploma in Management (Trinity College), M.Sc. Operations Research (Politechnic University, USA).

Served frequently as National Consultant for ADRA-Sudan.

Presently Head of a consultancy firm, Khartoum, Sudan.