Extension Communication for Sustainable Rural Development
[A Case Study of Um Jawasir Development Project, Northern State Sudan]

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Abstract

The Um Jawasir Development Project was established by the Adventist Development and Relief Agency (ADRA) in the Northern State of Sudan, the project was established in 1991 to improve the livelihood conditions of the Hawawir people who were affected by the 1980s drought. The project adopted the participatory approach by the use of extension communication in the study area.

This study was conducted to investigate to what extent that the Um Jawasir Development Project has succeeded to attain its prescribed objectives.

The study findings indicate that, the project has introduced relevant local institutions (i.e. farmers committee, women committee, youth committee) which assisted in promoting sustainable rural development in the area. It is worth mentioning, that, the extension communication means (i.e. training, workshops, seminar, home to home visit, and group discussion) succeed in mobilizing the beneficiaries to join and participate effectively in the process of development of their communities. In the same respect, the
agricultural activities (i.e. land preparation, seeding, weeding, and irrigation, use of fertilizers, tractor operation, farm management, and environmental awareness, animal breeding and laon), and other social services (i.e. provision of clean water, cooking, training of women, and youth, establishment of schools and health unit) introduced by the project create considerable socio-economic transformation in the study area.

The study proposed some recommendation including that, emphasis should be laid on social development due to lack of social services in the project area which resulted to cause great instability for the local community, especially families with children at school age. Also lack of health centers which forced the population to move long distance looking for treatment or use local medicines. Thus the community based organization (CBOs) need more support to participate effectively in provision of services and running of schools and health units and other social service. Moreover, the area need the construction of more shelter belt, more supply of improved breeds, involvement of more women, expansion of the project activities and
services to cover all the population in the Wadi el Mugaddam. (In the Northern State and North Kordofan State).
الخلاصة

تم تأسيس مشروع تنمية أم جواسي في عام 1992م بواسطة الوكالات النرويجية للعون والتنمية (أدرا) لتحسين حالة المعيشة لشعب الهوارير بالولاية الشمالية الذين تأثروا بكراروート الجاف عام 1985م.

تبنى المشروع نهج المشاركة باستخدام الاتصال الاجتماعي لإنتاج تنمية ريفية مستدامه في المنطقة.

أجريت هذه الدراسة للتعرف على مدى نجاح مشروع تنمية أم جواسي في تحقيق الأهداف المطلوبة.

تشير نتائج البحث إلى أن المشروع قد أنشأ مؤسسات مناسبة كلجان الزراعين، النساء، الشباب وغيرها من اللجان التي ساعدت في حفز المجموعات المستهدفة للمشاركة في عملية التنمية بصورة مستدامة، كما ان وسائل الاتصال الاجتماعي التي تبناها المشروع (التدريب، ورش العمل، المنارات، الزوار المنزلي، نقاش المجموعات وغيرها) نجحت في تعين جمهور المستهدفين للمشارك بفاعلية في تنمية مجتمعاتهم.

كذلك فإن النشاطات الزراعية مثل تجهيز الأراضي، نظافة الأراضي، التبدير، استخدام السماد، تشغيل الجرارات، إدارة المزارع وبعض الخدمات الاجتماعية التي قدمها المشروع قد أحدثت تحول اجتماعي واقتصادي وبيئي كبير في منطقة الدراسة.

وتوصلت الدراسة لبعض التوصيات تتضمن ضرورة الاهتمام بالتنمية الاجتماعية ودعم المنظمات القاعديه القائمة لتشكل بفاعلية أكثر في تقديم الخدمات والمشاريع في إدارة وتشغيل المدارس والمراكز الصحية. أوصت الدراسة كذلك بضرورة إنشاء مساعدات تواجهية إضافية وإدخال عينات من الحيوانات المحليات (الأغنام) لزيادة إنتاجية الألبان بمنطقة الدراسة أو من الدراسة كذلك على زيادة عدد النساء في المشروع من حيث العمالات والمحترمات بالأضافة إلى توسيع نشاطات وخدمات المشروع لتغطي كل المواطنين في منطقة وادي المقدم (بالولاية الشمالية وولاية شمال كردفان).
Abbreviations

ADRA Adventist Development and Relief Agency
ADPs Agricultural Development Programmes
BNPs Basic Needs Programmes
CDPs Community Development Programmes
CBOs Community Based Organizations
Etc. and so forth
Et. al and others
Ed. edition
FAO Food and Agricultural Organization of the United Nations
i.e. that is
ICT Information and Communication Technology
IRDPs Integrated Rural Development Programmes
IA Improvement Approach
Ibid Some Reference
LDCs Least Developed Countries
NGOs Non-Governmental Organizations
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<td>Participatory Approach</td>
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<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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<td>Television</td>
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<td>U. of K.</td>
<td>University of Khartoum</td>
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<td>WSDC</td>
<td>Western Savannah Development Cooperation</td>
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Chapter One

Background Information

The world has never seen a time when the role of communication has been important as it is today. This is because the world has never seen a time when there was so much to know, so much people need to know quickly.

In rural development process, transfer of useful ideas, practice and services from one person to another is more important. In this process of communication, millions of village people in developing countries could be enabled to overcome ignorance, poverty and disease and attain sustainable development. This is mainly because communication is a process by which two or more people exchange ideas, facts, and feelings in a way that each gain a common understanding of the meaning intent, and use of the message to achieve useful results. Thus, it is argued that good communication is the essence of good extension, because, the social human world would not exist if it were not a world able to communicate. Without communications, human knowledge could not be propagated (Steward. L. and Sylvia M. 1991).
Generally speaking, extension is a non-formal education that applies to any institution that disseminate information and advise with intention of promoting knowledge, attitude, skills and aspirations. It is a potential and organizational instrument utilized to serve development process. Thus, it combines educational methodologies and communication to promote adoption of innovation in agricultural and rural development. That is because, strategies for agricultural and sustainable rural development require both, situational analysis and need assessment covering both agricultural and non-agricultural extension involving different agencies to serve the target group (i.e. farmers, peasants, pastorals, landless and others).

Rural extension, usually could promote rural communication through the appropriate media devices (i.e. radio, video, tape recorder, computer and the internet), which may not yet be accessible to traditional communities. They serve as communication intermediaries in the developing countries for the development agents (i.e. agricultural extensionist) and others who provide information and services to the rural population where they are.
Therefore, information and communication technology (ICT) proved to be important for development officers who work with the poor rural people (i.e. peasants, pastoralists and others) in the remote rural areas. ICT also could serve non-farming rural people and others with information and advice regarding business opportunities relating to food processing, wholesale and income generating activities.

The experience of Um Jawasir Rural Development Project, which was developed and introduced by the Adventist Development and Relief Agency (ADRA) in the Northern State of Sudan, shows that various media are valuable for assisting agricultural producers, pastoralists and other rural workers with information and advise as to agricultural innovations, market prices, pest infestation and weather alert.

ADRA has been working in different parts of Sudan since 1989, in addition to its development project in Um Jawasir area. The project was established in 1994, to improve the livelihood condition of the Hawawir people who were affected by the 1984 drought. It is based
on participatory approach by the use of extension communication aiming to achieve sustainable rural development in the area.

1.7  **Problem Statement**

It is argued that the Um Jawasir Project has succeeded to generate considerable socio-economic transformation in the study area. Hence, promoted sustainable rural development in the area.

This study was conducted to investigate to what extend that the project has succeeded to attain its prescribed objectives and promote sustainable development in the area.

1.7  **The Research Objectives**

The main objectives of this study are:

- To investigate the agricultural activities and the other social services introduced by the project in the study area.
- To assess the socio-economic and environmental impacts of the project on the people and the study area.
- To investigate the role of the local institutions established during project life cycle.
To find out to what extent that the approach adopted by the project, through the use of extension communication have succeed to promote community participation and foster sustainable rural development in Um Jawasir area.

Research Hypotheses

The following hypotheses were put to be examined:

1. The agricultural activities and other social services introduced by the Um Jawasir project succeeded to create considerable socio-economic transformation in the study area.

2. The extension communication means and participatory approach adopted by the project succeed in mobilizing the beneficiaries to join and participate efficiently in the development of their communities.

3. The Project has introduced relevant local institutions which assisted in promoting sustainable rural development in the study area.
1.0 Methodology

1.0.1 Research Methods

The research methods adopted in this study include the descriptive, historical and statistical methods.

1.0.2 Instruments of Data Collection

The study is based on primary and secondary data. Secondary data were obtained from the official reports, project documents, publications, theses, papers and other relevant sources.

Primary data were collected through a field survey by using questionnaires as the main tool or instrument for data collection in addition to observation, group discussion and interview with the project officials, community leaders and non-participants.

1.0.3 Sample Design

The study used simple random sampling procedures to select 25 households as sub-group, representing 111 households who are the
direct beneficiaries of the three phases of the project being implemented since ١٩٩٢ up to December ٢٠٠٤.

The use of the simple random sample is justified by the fact that the respondents are homogenous in their socio-economic characteristics and the project provided the same activities and services to the different groups in the study area.

١،٥٫٤ Analysis Techniques

The study requires various analytical techniques, tabular analysis as well as descriptive statistic were used. Thus computer programme of Statistical Package for Social Sciences (SPSS) was used for data management and analysis.

١،٦ Organization of the Study

This study is organized in five chapters. Chapter one is an introduction chapter providing background information, problem statement, research objectives, research hypotheses, methodology and organization of the study.
Chapter two, is the literature review, it is carried out in two sections. Section one covers the communicator, message, communication channel, recipients, development communication theoretical approaches, consequences and innovations, adoption process, diffusion process and some basic assumptions about information role. Section two covers, some definitions, and concept of development, rural development concepts, and definitions, development objectives and programmes. This section also covered some development approaches and principles of rural development, agricultural and sustainable rural development, sustainability and level of action and some new vision of food security and rural development.

Chapter three consists of two sections. Section one is concerned with the socio-economic and environment settings of the study area. Section two provides information about the Um Jawasir Development project background, objectives, activities implementation and achievements.
Chapter four, provides analysis and presentation of data and results obtained. Chapter five is summary conclusions and the proposed recommendations.
Chapter Two
Literature Review

1. Extension Communication, Adoption and Diffusion

1.1 Some Concepts and Definitions

The problem facing the developing world today is not the lack of technologies and scientific discoveries needed for economic growth and rural transformation, but that of converting them into production accomplishments and then using them as instruments of economic growth and social transformation. Generally, there is no single accepted definition of extension, and as indicated by Swanson B. E. and Claar (1989, extension is defined as:

"An on-going process of getting useful information to people (the communication dimension) and then in assisting those people to acquire the necessary knowledge, skills, and attitude to utilize effectively this information or technology." (In Swanson 1989, 1).

This definition indicates that the goal of extension process is to enable people to acquire skills, knowledge and information to improve and build better life for themselves, their families and their communities. In this respect, van dan and Hawkin, (1985), comments that, extension involves the conscious use of
communication of information to support the people with sound opinion and information that enabled them make good decision. Moreover, as stated by FAO (٣٠٠٢), extension is:

“A non-formal function that applied to any institution that disseminate information and advise with the intention of promoting knowledge, attitude, skills and aspirations” (FAO, ٣٠٠٣:٧).

The important of this definition is that, extension is a non-formal education that can be practiced by any organization that spread relevant information and recommendation with the aim of advancing awareness, feeling, abilities and desires.

Furthermore, according to Bruce and Shar (٠٨٩١), communication may be defined as:

“A process through which ideas, innovation or message are transferred from the source to ultimate users for modifying the behaviour of receivers in the desired direction”.

This definition indicates that, the process of communication is continuous and has distinct elements, (i.e. communicator, message, channel and the recipient) which can be discussed as follows:
The Communicator

Generally, the communicator is usually acting as a source of information and/or the transmitter. In this respect Roger’s and Showmaker, (1971), defined the communicator as: “The person who starts the process in operation. He may be an extension worker, information officer and village leader”.

Therefore, the communicator is in need to know the cultural context in which he communicate (i.e. the belief, traditions and values) that are dominant in the community. That is mainly to achieve positive results and because it is a fact that most rural communities are heterogeneous in nature and the problem of each major client group must be solved.

Moreover, Foster (1967), and Roger’s (1966) have reported that, the wide cultural differences between communicator and farmers act to improve effective communication. Therefore, the message prepared by an extension workers or information officer must be clear as its purpose, objectives must be specific, the content must be relevant to the audience and directly linked to the intent of the communication.
Furthermore, Rogers and Shoemaker (1971), indicated that, one of the most important and difficult role for communicator is diagnosing client needs and that development not based on client felt needs often go astray or produced unexpected consequences. Thus, they concluded that, the communicator success is positively related to the degree to which programmes or project is compatible with client needs.

### Message (Innovation)

Generally speaking, message (innovation) is a communication in writing, in speech, by signal. It is the introduction of something new, a new idea, method or device. Therefore, the skilled communicator has to design his message to capture and maintain attention for the duration of his message. As indicated by R. Bruce and Shar Kariah, (1991), a message is: "The information is a communicator wishes his audience to receive, understand, accept and act upon"

This definition indicate that, the message must be clear and relevant to the audience. In this respect, Adams, (1983) defined innovation as: "An idea, method, or object which regarded as new by an individual"
This definition indicates that, innovations or message may be classified into technical and social. Agricultural innovations usually fall under the former category. Therefore, some innovation or message catch on foster than others those which are relatively simple and compatible with provision experience adopted more quickly than complicated innovations.

Communication Channel

Generally, communication channel is a path along which data, message or innovations passes or the means expression and communication.

According to Bruce (1981), communication channels are the means by which a message gets from source to receiver. Therefore, communication channel are either interpersonal or mass media in nature as originating from either localities or cosmopolite source.

Moreover, the mass media channels are all those means of transmitting messages that involve a mass medium (i.e. radio,
television, film, newspapers, fair and the like). Interpersonal channels are those that involve a face-to-face exchange between two or more individuals. This indicates that, the sender and the receiver of a message must be connected to each other and channel of communication serve as physical bridge between them.

Recipients
The recipients are those who receive the message and user of technology. Therefore, the success in communication depends on what the recipient does in response to the message received. In this respect, Swanson, (1984), indicated that, there are several items which describe the desired impact of message on a receiver, they can be thought of as stages in the process of adoption (i.e. knowledge, persuasion, decision, implementation and confirmation), and when receiver responds to message, this is feedback (Swanson, 1984: 9).

Development Communication Theoretical Approaches
Development communication theorist have often assumed that communication and information are independent variables in
development process. They indicated that, what is needed is to change the attitude, values and aspiration for the individual in the population from that would result the benefit of the modernization and that, the problem lay in the individual who was ignorant and traditional. More recently, a number of writers have tried to right the balance, by placing more emphasis of structure and that, social and institutional structure have been ignored in promoting development. Thus in recent years, the assumption of the earlier development communication theory have been subject of criticism and reformation. This is mainly because, the criticism seek to set communication within larger context and attempt to place communication in rural areas within larger social structure by examining the relationship between socio-economic factors and use of mass media in rural areas (in McAnany E. ٨٩٠٩٩ - ٧٠).

٨,١,٣ Consequences of Innovation

Changing people customs is requiring more careful handling responsibility than operation (i.e. the work done by a Surgeon). “According to Rogers (٩٩٩), consequences of innovation are defined
as: “The Change occur to an individual or a social system as a result of the adoption or rejection of an innovation”

This definition indicates that, consequences of innovation is the transformation that occur to an individual or interrelated units, as a result of making full use of or rejection of an innovation.

Moreover, to Roger’s (٥٩٩٥) innovation has form, function and meaning. By form, he means the direct observable physical appearance and substance of an innovation. By function, he means the contribution made by an innovation to the way of life of members of the social system. By meaning, he means the subjective and frequently unconscious perception of an innovation by members of the social system.

Furthermore, as he indicated (Ibid, ١٩٩٥) the role of change that will allow a system to achieve the benefits of an innovation and yet not produce dis-equilibrium in the social system, by presenting three types of equilibrium as follows:
Stable equilibrium, which occurs when there is almost no change in the structure or function of social systems.

Dynamic equilibrium, it occurs when the rate of change in a social system is commensurate with the system ability to cope with it.

Dis-equilibrium, which occurs when the rate of change is rapid to permit social system to adjust. Thus the most long-range goal of most change agents is to produce a condition of dynamic equilibrium in a client system.

Adoption Process: Concepts and Definitions

Generally, speaking, adoption of innovation means the process by which the farmers or other people are expected to consider and finally accept or reject a particular innovation. In this respect, Rogers (1990), defined adoption as:

“A decision to make full use of an innovation as the best course of action available or to rejection of an innovation”. (Rogers, 1990:77).

However, the adoption process as have been elaborated by him, have the following stages:
Knowledge: when an individual learn of the existence of the innovation and gain some understanding of its function.

Persuasion: when the individual forms a favourable or unfavourable opinion of the innovation.

Decision: when the individual engage in activities which lead to a choice between adoption and rejection.

Implementation: initial trial period for new technology.

Confirmation: when the individual make a final decision to accept or abandon the innovation.

In the same context, Rogers classified adopters within five categories:

i) Innovator tend to be venturesome, cosmopolite, have available financial resources, understand complex technical knowledge, and able to cope with uncertainty.

ii) Early adopters are respected and more local than innovators, but skeptical to recognize good innovations.

iii) Early majority, tend to interact frequently with pears, seldom hold position of opinion leadership, but have strong interconnectness within the system, interpersonal
network and tend to have a long period of deliberation before making an adoption decision.

iv) Late majority, tend to adopt from economic/social necessity due to diffusion effect they are skeptical and courteous.

v) Laggard, are they most localize suspicious of change agents and innovations and have few sources to risk (Ibid, ١٩٩١).

Diffusion Process

Diffusion is a special type of communication concerned with the spread of message that are perceived as new ideas. In this respect diffusion process is defined by Rogers (١٩٩١), as: “A process whereby an innovation is communicated through certain channel, overtime, within a social system”

Thus he indicated that, there are models of mass communication flows. These models are:
i) Hypodermic needle model: this model postulated that, mass media had direct, immediate and powerful effect on mass audience.

ii) Two-step flow model: it focuses attention upon the interface between mass media channels and interpersonal communication channels. It implied that the mass media were not so powerful nor so direct.

iii) Homophily communication: is the degree to which a pair of individual who communicate are similar, the similarity may be in certain attribute such as beliefs, education, social status and the life. Homophily communication is more effective when source and receiver are homophilous.

iv) Heterophilous communication: it occur among dissimilar individual. It is important in carrying information about innovation. (Rogers, 1990:482).

Some Basic Assumptions about Communication

Role

Given the new focus upon the poor majority in the rural areas in developing countries, information and communication roles had to be
re-examined in term of equity (i.e. who benefit from the information) and productivity (i.e. what impacts information has an agricultural productivity, health, and income as well as on knowledge, attitude and behaviour of rural people).

According to, McAnany (1981), there are key areas where improvement would impact on productivity and income of farmers. These are, agricultural extension, local farmers participation, credit, marketing, social services, project administration and training. This is not mean that extension communication can be a total substitute, but only that, a better mix of materials and information resource can achieve a better result, leading to sustainable rural development. But information role need careful examination to avoid danger of misleading people with promise of benefit as stated by McAnany E. (1980:4).
Section Two: Development in the Third World

Some Definitions and Concepts of Development

The term development is difficult to define precisely, because it is used by many scholars, writers, researchers and decision makers to mean different things to different people.

It focuses on people well being, freedom and transformation of institutional and social economic structures to positive forms.

According to Todaro, development should be perceived as:

“A multi-dimensional process, involving major change in social structures, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty. Development in its essence must represent the whole gamut of change by which an entire social system tuned to the diverse basic needs and desires of individual and social group within that system, move away from a condition of life widely perceived as unsatisfactory and towards a situation or conditions of life regarded as materially and spiritually better” (Todaro M., 1999).

Thus, the term is more closely associated with some forms of action and interventions to influence the entire process of social and economic transformation. It is a dynamic concept which suggests
positive change in a movement away from previous and present situation.

Moreover, the term development is difficult to articulate. According to the African Development Group (\textsuperscript{8791}), development is defined as: “A process in which man is liberated from the realm of freedom, to create, to produce, to enjoy and to consume”.

This definition indicates that, it is the freedom of people in development process to enable them to chose and to be creative and participate in their development process and to be agent for change and transformation.

Moreover, to Dixon, (\textsuperscript{8791}), development is a broader concept include progressive reduction and eventual elimination of malnutrition, disease, illiteracy, unemployment and inequality. In the some context a more comprehensive definition of development was provided by Kocker, (\textsuperscript{3791}), who defined development as: “A general improvement in the level of living, together with decreasing
inequality of income distribution and capacity to sustain continuous improvement overtime”. *(in: Dixon, R. ’14Vʌ)*

To measure these development components, tailored to local conditions and general improvement in living standard, include not only the reduction of malnutrition, disease, illiteracy and unemployment, but also need increase in quality amount and purchasing power of income in kind or in cash, in land ownership or ability to obtain or freedom to make use of the land.

Furthermore, Chairman *(’14Vʌ)*, indicated that development is: “A process of enabling people to accomplish things that they could not do before, that is to learn and apply information, attitude, values and skills previously unavailable to them”. *(In: Khair, M. ’12:12)*.

With respect to this definition, it is clear that chairman focused his views on that, development is a general change and progress, that, provides people by the means and opportunities (i.e. training people to earn living), to bring about and do things that they could not do
before, that is to gain knowledge and put to use information, attitude, value and skills previously unavailable to them.

Furthermore, various studies conducted on the experience of the Third World indicated that, process of development could take different forms and objectives. Thus, accordingly Okley, (٣٨٩١), these forms of development include:

i) Introduction of new ideas in the social system in order to produce a higher per capita income and improve levels of living through modern production methods and to promote change.

ii) Implies total transformation of traditional or pre-modern society to type of technology and associated social organization of advanced stable nations of the western world.

iii) Building up people, it is an experience of freedom in deciding and choosing.
In this respect, Bello, (٨٩٩١) indicated that, by the late ٨٩٠٠s, planners, scholars and decision makers recognized the facts that to foster development in the LDCs, introduction of new models of development was needed. Such approaches should aim at provision of basic needs for the majority of the population residing in the traditional sector and making the process of their development self-sustained. To achieve these objectives the international agencies and NGOs in collaboration with national Government in LDCs, should tackle the task of launching rural development projects for the transformation of the traditional sector. He concluded that, development have become a growing concern for many governments in the Third World as well as for the International Aid Organizations since the United Nations Second Development Decade of the ٨٩٠٠s (Bello, ٨٩٩١).

Rural Development

Some Concepts, Definitions and Arguments

Rural Development (RD), is a process of transformation. It involves application of policies, strategies and practices by Government, NGOs and international agencies which are directed to the rural population
in order to alleviate poverty and hence to improve their standard of living.

In this respect, Bello (1991), indicated that:

“The concept of rural development may be viewed as application of policies, approaches and practices by national government and NGOs as well as the international agencies in the traditional societies. It is therefore aimed at improving the standard of living of mass population residing in rural areas. Thus, it is associated with introduction of different projects and activities. Such attempts usually focus on poverty alleviation and inequality”. (Bello A., 1994)

Generally, the concept of rural development has been identified variously by many scholars, writers and institutions. As indicated by the World Bank, rural development is:

“A strategies designed to improve the economic and social life of specific group of people of rural poor, it involves extending the benefits of development to poorest among those who seek a livelihood in rural areas. The group include small scale farmers, tenant and landless”. (In:Chamber, 1984:14).

This definition considered rural development as strategy to help the rural people of different classes, sexes, ages and group to meet their needs.
According to Lele, U. (1979), the concept of rural development is defined as:

“Improving living standard of mass of low income population residing in rural areas and making the process of their development self-sustaining” (Lele, U., 1979:52).

Three important features of rural development can be drawn from this definitions as indicated by Bello, A. (1998). Firstly, improving the standard of living through mobilization and allocation of resources, so as to reach a desirable balance overtime, between the welfare and productive services available to sustain rural development projects.

Secondly, the participation of rural population in the development process in designing, implementing, monitoring and evaluating the development activities.

Lastly, is making the process self-sustaining or that rural development projects or programmes should be built in sustainable manner and self-reliance through enabling rural people to have more contribution in the process of development.
Rural Development Aims and Objectives

As indicated before, rural development aimed to improve the standard of living of the mass population residing in the rural areas. Thus, it is associated with the introduction of different projects activities focusing on poverty alleviation and income redistribution.

According to Postach (1981), Adam (1994), Bello, (1998) and FAO (2002), the rural development objectives are:

i) Improving and provision of social services such as (education, health, housing, nutrition, environmental hygiene and water, ... etc.).

ii) Providing a better socio-economic condition through introducing of relevant income generating activities along with appropriate technology.

iii) Mobilizing rural communities on their potential as well as activating it by training and learning.

iv) Change and improvement of people attitude towards adoption of new technologies.
**Principles of Rural Development Programmes**

As indicated by Okley (1981), there are six principles that should be considered in rural development programmes, these are:

1. **Sustainability.** Programmes, plans and solutions should be related to local economic and local administration situation through long-term programmes.
2. **Access.** Programmes and benefits should be related to those who are in need.
3. **Dependences.** The development programmes should be designed to help and support the rural people, but they do not make them or their livelihood depend upon the programme.
4. **Participation.** Rural people should be fully involved in rural development programmes through participation or data collection, project design, implementation, monitoring and evaluation.
5. **Effectiveness.** Rural development programmes should be based on effective use of land, resources and not necessarily of their most efficient use.
vi) Going forward. Technical aspect of rural development programmes should help rural people to take the next step in their development and not demand on take huge technological leaps.

Some Examples of Rural Development Programmes

As indicated by Suleiman (2002), rural development programmes are always adopted in different environment for different target groups to achieve different aims and objectives. Here are some examples of rural development programmes:

Agricultural Development Programmes (ADPs)

ADPs, always are designed to increase agricultural production. This is to be achieved through introduction of technical agricultural services and inputs (i.e. extension system, insecticides, pesticides, fertilizers, marketing and credit). Also such programmes provide social services to farmers and other rural groups (i.e. nomads, agricultural workers and others), in the project area.
Examples of agricultural development programmes in the Sudan are the Gezira Scheme, Rahad Agricultural Scheme and Kenana Sugar Scheme.

Integrated Rural Development Programmes (IRDPs)

As indicated by Swanson (1981), IRDPs are comprehensive strategies of action, provide complete coverage of target areas and sections, including both social and economics as well as environmental aspects. Such attempts deal with provision of social services and creates better employment opportunities for the rural people.

The IRDPs usually aim to increase participation of beneficiaries in planning, implementation, and evaluation of the programmes activities. These efforts are oriented to enable the rural people to strengthen their relevant institutions established during the project life (i.e. village committees, farmers committee, women development committees, youth committees, etc.). An example of the integrated rural development programme in the Sudan is the Western Savannah Development Corporation (WSDC) in south Darfur state which was
established in ٨٧٩١ as integrated rural development project aiming to improve standard of living of the rural people there.

Moreover, according to Bello, (٨٩٩١), the IRDPs usually aim to offer better employment opportunities and equitable income distribution among target people and communities. Thus, such programmes usually attempt to provide the majority of the poor with accessibility to development activities. This will be achieved through the utilization of the local resources (both human and non-human), supported by appropriate technology and scientific research application.

٣٫٤٫٢٫٢٫٢ Community Development Programmes (CDPs)

CDPs are designed and oriented to both urban and rural people, but differ in objectives and strategies. Such types of development programmes are conceded with provision of social services as well as income generating activities. It is an improvement approach process to enable people become more competent to control aspects of economic and social transformation, through the utilization and improvement of local skills and abilities to encourage the local people
to take part and shoulder some responsibilities in the process of their development. In this respect, Holdcraft, (\textsuperscript{1981}), indicated that, the community development strategy is:

“A process method of programme which involve people participation to community basis in the solution of their common problems. It teaches and insist upon the use of democratic process in the join solution of community problems and activities that facilitate the transfer of technology to people and foster development process”. \textit{(In Adam, M. \textsuperscript{1991}:53).}

Moreover, according to Augstin, (\textsuperscript{1989}), community development programmes usually aim at:

“Implementing a variety programmes to improve infrastructural, economic, hygiene, education and social aspects such as drinking water, health, nutrition to weaken section of society”. \textit{(Augstin, \textsuperscript{1991}:37).}

This arguments indicate that, community development programmes usually targeted all communities and covers all aspects of life. However, such programmes mostly depend on participatory approach to attain their objectives.
The Basic Needs Programmes (BNPs)

The basic needs are the minimum requirements that maintain people. They include food security, water, health, education, shelter, clothing and sanitation.

As indicated by Bello, A. (1991), the BNP assumed that a certain minimum level of personal consumption and access to public services can be regarded as essential needs at standard levels. When the basic needs are met, self-reliance will be accessible through bottom-up approach, which enable beneficiaries to better identify the needs and means of their satisfaction more better.

According to Webster, A. (1974), the idea of basic need programme was developed and promoted from the basic needs strategy which seek to do two things, these are:

i) To relieve as quickly as is possible absolute poverty through intensive direct assistance to those in desperate circumstances.

ii) To meet the basic needs of all in terms of material wants such as food, clothing, shelter, fuel and social needs as
education, human rights and what is called participation in social life through employment and political involvement. (Webster, A. 1981: 43).

Some Rural Development Approaches

Many rural development approaches have been developed and adopted to improve the situation of different rural communities and to promote development in developing countries include:

Transformation Approach (TA)

TA focuses on creation of radical change in the production and social system of target communities.

Long, N. (1981), indicated that, the TA usually attempts to establish new forms of agricultural and social organization, which make a radical break in term of scale of operation, production techniques and socio-economic structure. Examples of projects based on TA include the resettlements projects, land reform programmes, cooperative farming system and establishment of plantation or capitalist farming system (i.e. the Rahad Scheme, New Halfa Scheme and Kenana Sugar
Another example of TA is the Ujama Policy of Tanzania, which aim at establishing socialist forms of production (i.e. cooperatization of agriculture or cooperative farms and land reform).

This approach implies a total transformation of the existing production system of the rural community into new forms of relation of production. Thus it create a complete change on the traditional pattern of labour organization and ownership and resources utilization, through establishment of plantation and land reform programmes as mentioned above.

**Improvement Approach (IA)**

This approach aims to encourage agricultural development within the existed socio-economic and relation of production system. The approach attempts to foster rural development through mobilization of both human and non-human resources and promote popular participation, which is necessary for successful rural development programmes. In this respect, the World Bank described the improvement approach as:
“A programme aiming at the progressive improvement in peasant methods of crop and animal husbandry, by working on the peasant on both the psychological and technical plans to induce an increase in his productivity without any radical change in traditional, social and legal system”. (In: Long, N., 1977, 149).

This approach allows continuity of existing social institutions and land tenure arrangement.

However, as indicated by Bello (1993), this approach usually take the existing social and economic structure and used to pin change through diffusion of green revolution techniques (i.e. seeds, fertilizers, extension and other inputs) to small farmers. However, it covers different aspects of rural society such as education, health, clean water, income generating activities and capacity building.

**Participatory Approach (PA)**

The participatory approach is a bottom-up approach. It aims at promoting popular participation of the target population in all stage of development projects (i.e. planning, implementation, monitoring and evaluation) through the establishment of relevant institutions (i.e. village committees, women committees, farmers committees,
etc.). to enable the beneficiaries to participate effectively in their development process. As indicated by Okley (1984), there are various forms of grass-root participation, and considered as pre-requisite for development process and the concept of popular participation has proceed effectiveness achieving sustainable development. Thus participation must be seen as exercise of gaining the rural poor the mean to have direct involvement in development project and as important activity in itself which result in improving the rural poor.

Moreover, according to Gorge, (1987), participation include the following levels:

i) Information sharing, which enable beneficiary community to have a good and proper involvement in development activities.

ii) Consultation make crisis, risk and obstacles problem available.

iii) Decision making, which is visible in project design and implementation, monitoring, evaluation and the whole management by beneficiaries.
iv) Initiating action, one of the result of participation is that community is organized in their own way rather than just responding to out intervention.

**Sustainable Rural Development**

**Sustainable Agriculture and Rural Development (SARD), Concepts and Arguments**

The concept of sustainable agriculture and rural development means the positive and planned socio-economic changes, improvement and promotions of beneficiaries to participate in the process of their development. As indicated by FAO, (1991) sustainable agriculture and rural development is defined as:

“The management and conservation of natural resources base and the orientation of technological and institutional change in such a manner so as to ensure the attainment and continued satisfaction of human needs for present and future generations, conserve land, water, plant and animal genetic resources. It is also environmentally non-degrading, technically appropriate, economically viable and socially acceptable”. *(FAO, 1991:14).*

This definition revealed that sustainability usually is concerned with four aspects, management of resources, the efficient and appropriate
technology, the effective institutions building and the satisfaction of basic needs.

Moreover, according to Allen (٠٨٩١), sustainable development is:

“A development which likely to achieve lasting satisfaction for human needs which are different and they vary among the same community according to education level, culture and social status to meet the aspiration for present and future generation”. 
Chapter Three
The Study Area (Um Jawasir)

Introduction
This chapter consists of two sections, section one is concerned with the socio-economic setting and environment of the study area. Section two provides information about the Um Jawasir Development Project background, objectives, activities, implementation, achievement and status today.

Geographical Location of the Study Area
Um Jawasir is located in the Northern State, along Wadi Al Mugaddam flood plain, (a dry tributary of the River Nile), about km., north west of Khartoum. UM Jawasir is the main village along the Wadi about km to the west of the main road linking Khartoum to Dongola. The capital of the Northern state.

Climate
Climatically, Um Jawasir village fall within the arid zone of Sudan, in the middle of the Bayoda Desert, with few summer rainfall, of about
mm average year and actual minimum and maximum temperature are $21.1^\circ$ and $26.8^\circ$C respectively.

### Population

Wadi Al Mugaddam area is the traditional homeland of the Hawawir Nomadic tribe. The total population of the area is about 300000 families live in the area about 15% of them within the project area. In response to 1981s drought many of the tribe members migrated eastward toward the River Nile.

According to the 1981 census, the area population is 14811. The average family size is 8 persons, dependency is moderate about 5 persons. The total population engaged in project different phases are 16888accounting to 14.3% of the population, illiteracy rate is 73%.

### Economy of the Hawawir

Traditionally the Hawari are pastoralist, keeping camels, cheep and goats. They also practice a limited agricultural activity in selected places in Wad Al Mugaddam, where soil receives additional moisture
from surface run-off. Such farming activities are only practiced in good rainy seasons.

The pastoral economy is undergoing a stage of drastic transformation resulted from the ecological change leading to grave migration and displacement in their homeland. A small portion still practicing nomadic movements particularly in Northern Kordofan State, while the majority may be described as agro-pastoralist.

The small goat population supplemented by outside labour, has succeeded in maintaining an economic base of living for people in the Wadi and maintained their stay in areas considered as their homeland (Johnsen and Larsen, 1991).

Social Services

Health services are available through urban hospital of the Northern State in Merowe and health centres in the study area.

The situation of health services in the Wadi Al Mugaddam in general and in Um Jawasir area in particular is very poor and in most cases
people depend on traditional medicine. Illiteracy rate is high and three primarily and one secondary school exist in the area. Moreover, transportation means are very poor, water is available from well, but collected from long distance by the use of camels and donkeys.

Section Two: The Um Jawasir Development Project

Background

The Um Jawasir Project is located in Merowe Governorate in the Northern State, along Wadi Al Mugaddam. (See Map). For the few nomads who remained on the land after the '80s, drought, high malnutrition rate among the nomadic children were reported, for which NGOs and particularly Advantist Development and Relief Agency (ADRA) supplied food aid in response to and as the relief operation ended in '87, ADRA was requested by the Government of Sudan and the Hawawir people to take up rehabilitation efforts in the area.

ADRA assistance to this group continued in form of health care and small enterprise development. The endeavour to develop the home
area of the Hawawir attracted ADRA to focus on the area of Um Jawasir and in turn established the Um Jawasir Development Project in 1991 and was carried out in three phases as follows:

iii) Phase II [2000 – 2004].

٣.٣.٣ Um Jawasir Project Activities and Development

The aims and objectives of the project as indicated in the project proposal as follows:

i) Ensuring food security for stack raising communities, through growing of wheat and sorghum as staple food.

ii) Introduction of income generating activities by growing cash crops.

iii) Motivating the livestock owners to conserve and sustainable use of natural resources and reducing the pressure on the grazing land in the desert of Wadi Al Mugaddam.

iv) Pastoral satisfaction of energy need through tree planting.
To achieve these objectives community participation of different level was promoted to enable the beneficiaries to participate in all the stages of the project cycle. However, the management structure was created to large extend from tribal structure with some modification to suit the cultural setting of a nomadic community. Hence farmers, were selected according to clan, in order to represent the different clans living in the area. Thus, the leaders of the selected farmers were organized into committee to shoulder specific responsibilities and ensure effective linkage with project management.

As noted earlier, the main objectives of Um Jawasir project is to improve the standard of living of the disadvantage Hawawir through introducing different activities that lead to food security and environmental rehabilitation. Hence the activities implemented are chosen in a manner including the economy and the local society, bearing in mind the cultural set-up of a nomadic society in transitional stage and the suffering of the drought years. Below are the activities and development of the project.
a) Phase Zero of the Project (1947–1948)

The planning of phase zero of the project started in 1978, but only by 1990 that four wells with solar pumps were constructed. The failure of the solar technology as reported by George (1997) and its low water yield (45 m³/day) as well as other problems (Johnson and Larsen 1997) led to the eventual replacement of all units by diesel pumps in 1992 to provide drinking water and irrigation of crop.

The first crop was produced in the winter season 1992/93 with the four installed pumps irrigating 69 feddans allocated to 84 families each with 7 feddans. As stipulated in the plan of the project. Farmers grow winter crops such as wheat, beans, legumes and vegetables and summer crops such as sorghums and grain and they are able to grow fodder nearly year round. The responsibility for phase zero farms was turned over to the farmers in December 1994.

b) Phase One of the Project (1949–1944)

Phase one involved the drilling of 6 wells with pumps having larger output than those installed in the pilot phase. A total area of 292 feddans was cultivated, 37 farms each of 4 feddans.
The first crop was cultivated during the winter of ١٩٩٠/١٩٩١ (wheat, beans and onion) and sorghum was grown during summer (for both grain and fodder) other subsistence crop include alfalfa, Okra, beans, onion and vegetables were grown for home consumption and a few date plans were planted.

Project review was made in November ١٩٩٠ and the review team found that the project was technically progressing well, and that it contributed positively to land rehabilitation and food security and the team suggested a maintaining programme including ground water level, soil salinity level, climate data, cropping patterns, irrigation management, fuel and water consumption and yield estimate. Accordingly, the report suggested the establishment of wind breaks and emphasized the build-up of a revolving fund and working out marketing strategy for women involvement in the project (Ibid, ١٩٩١).

The project review conducted later by MORAGRI (Agricultural University of Norway) in June ١٩٩١ focused on two main aspects:
i) Project progress and impact including the gender aspect, environmental impact and impact on food security.

ii) The sustainability of the project, including economic, ecological and institutional sustainability (Ibid, ٨٩٩).

The report listed the achievement and as indicated by MORAGRI as follows:

i) The successful completion of the physical infrastructure of the project (installation of engine and water pumps and cultivation of ٨٤٧ feddan and planting of shelter belt).

ii) Formation of farmers committee, training of farmers in agricultural and related activities and maintaining a revolving fund.

iii) There was a continuous monitoring of basic climate and environmental data (including soil and water and other economic information as sustainability of various crops for different seasons to make necessary adjustment and to improve procedures and implementation techniques).

iv) Availing food (including fodders) more secure for the displaced Hawawir who have joined the project.
In response to the 1995 review that the project ‘has a strong male bias’. (Johnsen, et. al., 1997) in both employee and beneficiaries and its recommendations for a strategy for women involvement in the project activities (Ibid, 1997:15) a women programme was initiated in June 1996. Thus, women training center was established and activities were started through home visit by project employee, to women in their shelters, where they initiated various activities in nutrition, health and cooking.

By the end of phase I some sewing machines and other training materials were provided by the projects as well as the initiation of collective farms for the women greater interest in the women programme was expressed by both women and men.

c) **Phase Two of the Project (1996 – 2004)**

Phase II was started in the 1996, 2600 feddans were brought under cultivation allotted to 91 farmers/households 10% for the females. The 2600 feddans were irrigated by six diesel pumps. This phase made great use of lessons learned from the previous phases.
Achievements in Phase II

During Phase II the number of activities implemented by the project raised to five activities, which can be illustrated as follows:

Agriculture

The total area added in this phase was 63 feddans for 9 households, each with four feddans bringing the total farming area to 847 feddans, irrigated by 1 pumps with total capacity of 33 m³/h (table 1). Farms are divided for households and operated by family labour. During this phase and as a result of women performance in their households, there was a noticeable increase in number of women farmers. The principles crops cultivated are, wheat in winter and sorghum in summer season. During winter season upon which farmer are heavily dependent and the main crops cultivated as wheat, the main stable crop and broad beans as cash crop. However, during the last three years, okra became the most important cash crop that is easy to cultivate and can be harvested several times, the cash crops and vegetables are also grown by farmers including alfalfa, cucumber species pulses, ....... etc.
Table ١.٣ shows agricultural land brought under cultivation in feddan, the numbers of farmers households in each phase, number of pumps and their capacities, number of women farmers and duration of each phase.

Comparing productivity and output in phase zero and phase II, it is found that there is positive increase overtime (table ٢.٤). This is due to improvement in the soil conditions as the nitrogen and phosphorus contents increase with irrigation crop rotation and cropping and the application of fertilizers as well as improvement in farmers skills.

Vegetables are being consumed by household, thus contributed to improve nutritional status and general health.
Table 7.1


<table>
<thead>
<tr>
<th>Phase</th>
<th>No. of Pumps</th>
<th>Pump Capacity</th>
<th>Land Area in Feddans</th>
<th>No. of Farmers Household in each phase</th>
<th>No. of Women Farms</th>
<th>Duration of Phase in Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot (Zero)</td>
<td>4</td>
<td>50 m³/h</td>
<td>96</td>
<td>48</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Phase I</td>
<td>6</td>
<td>100 m³/h</td>
<td>372</td>
<td>73</td>
<td>22</td>
<td>5</td>
</tr>
<tr>
<td>Phase II</td>
<td>6</td>
<td>180 m³/h</td>
<td>360</td>
<td>90</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>360 m³/h</td>
<td>748</td>
<td>72</td>
<td>52</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Um Jawasir Project Documents

* U.J.
Table ١, ١

Winter Season Crop Production and Productivity in the three phases from the Year (١٠٠٢ – ١٠٠٣) to help in comparing productivity and output in phase zero and phase II

<table>
<thead>
<tr>
<th>Phase</th>
<th>Crop</th>
<th>١٠٠٢ – ١٠٠٣</th>
<th>١٠٠٣ – ١٠٠٢</th>
<th>١٠٠٤ – ١٠٠٣</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total output</td>
<td>Productivity per Feddan</td>
<td>Total output</td>
</tr>
<tr>
<td>phase zero</td>
<td>Wheat</td>
<td>٥٥</td>
<td>٧١٫٣</td>
<td>٨٠٫٠</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>٧٣٫٥</td>
<td>٠٧٫٥</td>
<td>٣٤٨٫٨</td>
</tr>
<tr>
<td>Phase I</td>
<td>Wheat</td>
<td>٥٤٧٫٧</td>
<td>٦٦٫٧</td>
<td>٢١٧٫٧</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>١٨٠٫٨</td>
<td>٢٥٫٢</td>
<td>٠٩٠٫٨</td>
</tr>
<tr>
<td>Phase II</td>
<td>Wheat</td>
<td>٤٥٩٫٧</td>
<td>٠٣٨</td>
<td>٢٢٨٫٩</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>-</td>
<td>-</td>
<td>٣٠٫١</td>
</tr>
<tr>
<td>Total</td>
<td>Wheat</td>
<td>١١٢١٧٫٨</td>
<td>٧٢٣</td>
<td>٧٨٠٫٤</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>٣٧٤٫٠</td>
<td>٠٧٠</td>
<td>٣٧٨٫٣</td>
</tr>
</tbody>
</table>

Source: Um Jawasir Project Document

٢, ٢, ٢ Animal Husbandry
The Um Jawasir project contributed to the rehabilitation of livestock production in the area by introducing improved animal breeds. It is distributed to the farmers (i.e. improved goat bread, Sa’aneen) also the project availed fodders and generate cash out of agriculture moreover, the project enhanced people capacity to purchase and raise animals.

Table ٣.٣ shows livestock ownership in Um Jawasir Development Project by phases. It indicates that livestock population is increasing rapidly in the project area.

*Table ٣.٣*

*Livestock Ownership in Um Jawasir Project by Phase*

<table>
<thead>
<tr>
<th>Types</th>
<th>Phase O</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals</td>
<td>٣٢٠</td>
<td>٣٦٠٧</td>
<td>٣٦٦</td>
<td>١٤٣٦</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S’aneen</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep</td>
<td>٣٢٠</td>
<td>٣٦٥</td>
<td>١٩٦</td>
<td>٨٨١</td>
</tr>
<tr>
<td>Camels</td>
<td>٣١٥</td>
<td>١٣٠</td>
<td>٦٤</td>
<td>٤٤٣</td>
</tr>
<tr>
<td>Donkeys</td>
<td>٥٦</td>
<td>٨٤</td>
<td>٧٣</td>
<td>٢١٣</td>
</tr>
</tbody>
</table>

*Source: Um Jawasir Project Document Field Survey, April ٢٠٠١.*

٣.٣.٣ *Women Activities*
From gender point of view, the project passed through two stages of development. Initially, the whole Hawawir community was treated as homo-group of people without considering the specific needs of women on the status of gender relations within the household. Therefore, land and other production input were allocated to men with the assumption that wives and other family members will benefit from these after provided that women were expected to assist men in the farm, which is supposed to be managed by family members.

Women programme was introduced in the project in 1991 where the programme was formally started with the construction of a small women center for training activities focusing on basic health (i.e. household hygiene, child care and food cooking) and basic training in agricultural operations especially vegetable production.

After the completion of the center, the project began to improve women nutrition status and how to earn an income. By 2003, and upon an initiation from the community, two new centers were established at Amasheen and Um Remeila. Activities in the centers
include literacy classes tailoring, soap making, general health and hygiene programmes.

Community Development

The project attention to community development come a bit late. During phase I (١٩٩٢ – ١٩٩٣), the project contributed to the establishment of one school and a health unit in the area in response to the community initiative. Though it was not fully equipped but in all cases it represents a step towards improving social conditions in the area and generated interest in children education.

It is Worth-mentioning that, the project has also stimulated community initiatives and collective work spirit as indicated by participation in the canalization, planting, watering of shelter belt as well as the construction of a school and health units.

As indicated before, literacy programme particularly for women was started in phase II and more efforts was put in community organization and capacity building of community members through formal training and awareness raising workshops and training on first
aid. Moreover, youth were organized and supported to construct a meeting place (club) provided with T.V. set as a first step to develop a youth programme in the future and engage them in project activities.

Environmental Rehabilitation

During phase one of the project, two shelter belts north and south of the farms have been constructed as well as earth embankment, with substantial contribution from the local community in manual labour.

In order to achieve full local participation without disturbing the traditional set-up of the targeted group, the project administration combined the tribal structure in the newly created institutions.

The traditional tribal administration is responsible for application of customary rules regarding grazing, solving disputes on agricultural land and prohibit tree cutting as well as general resource use and management.
Revolving Fund

The idea of the revolving fund is developed and introduced by the project as a process of slowly transferring the financial responsibilities to the farmers to be managed by trained committee.

Usually each farmer take cash as loan from the revolving fund for land preparation and purchase of agricultural inputs (i.e. seeds, fuel, fertilizers, etc.), loan would be repaid in kind or cash after the harvest.

In order to comply with such set-up, the farmers committee passed regulations and by laws in this manner, the native court give power to the decision of farmers committee (ADRA Proposal, *ADRA* Proposal).

Marketing

As indicated by Johnsen, (Johnsen), there were only two petty traders during the implementation phase zero and first year of phase I. Farmers used to sell the produce to those petty traders at fair price. These traders take the risk of collecting the product and sell it to other merchants who visit the project area from time to time.
As the number of merchants, increased farmers began selling their products directly to those merchants and sometimes take the risk themselves and transport their products to Omdurman or to other towns along the Nile Valley.

Currently, retailer shops increased and the new center (town) Tam Tam at the main Tarmac road connecting Khartoum with Northern state, provided a good marketing center for the project products.

\section{Project Management Structure}

ADRA/Sudan is headed by the Country Director and his deputy is responsible for the running of activities, these are project committee to which programme director is subject to reporting. In the case of Um Jawasir Development Project under the programme director are the field manager and the farmer’s committee. They work hand in hand and in harmony in identifying the community problems and the management structure is with strong local participation, and problems are collectively discussed at the lower levels and passed up to the administrative leader till the programme director.
Generally, ADRA uses a decentralized administrative method of decision making at all levels. Below is decision making level in UM Jawasir, Figure 1.1

![Organizational Structure of Um Jawasir Project](image)


The project management frequently calls for monitoring the project so as to respond to any change that may happen during the different stage of the project implementation.

Figure 2.3 shows the organizational structure, of the projected it indicates, that ADRA uses decentralized administrative method.
Figure 2.3 The Organizational Structure for Um Jawasir Development Project

Country Director

ADRA Administrative Committee (ADCOM) — Director of Finance

Project Committee

Programme Director

Farmers Committee — Field Manager

Pump Operation Manager — Marketing Manager

Tractor Driver — Assistant Field Extensionist Officer

Truck Driver

Guards

Labourer

Women Extension — Assistant Women Extension

Women Beneficiaries

Source: Um Jawasir Development Project Document
Chapter Four
Data Analysis and Discussion

1.4 Basic Socio-Economic Characteristics of Respondents

1.4.1 Sex

Table (1.4) shows the Frequency distribution of respondents by sex. It indicates that 3.29% of the respondents are male and 7.7% are females. This result reflect and support what was stated in review that the project has a strong male bias in both employee and beneficiaries.

Table 1.4

Frequency Distribution of Respondents by Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>84</td>
<td>96.3</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
<td>7.7</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field Survey, June 2002

1.4.2 Age
Table (4.7) shows the frequency distribution of respondents by age group. It indicates that 6.7% of the respondents are economically active and fall in the age category of 12 – 50 years. This result may indicate that the project contributed positively in the resettlement in the project area and people from different age groups are participating in the project activities.

Table 4.7

*Frequency Distribution of Respondents by Age Group*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 – 30</td>
<td>3</td>
<td>0.7</td>
</tr>
<tr>
<td>31 – 40</td>
<td>14</td>
<td>26.9</td>
</tr>
<tr>
<td>41 – 50</td>
<td>13</td>
<td>26.0</td>
</tr>
<tr>
<td>51 – 60</td>
<td>10</td>
<td>19.3</td>
</tr>
<tr>
<td>61 – 70</td>
<td>11</td>
<td>21.2</td>
</tr>
<tr>
<td>71 – 80</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Source: Field Survey, June 2002*

### Marital Status
Table (٣,٤) shows the respondents marital status. It indicates that ٪٢٫٦٩ of the respondents are married, while the widowed and single respondent, amount to ٪٨٫٣، where as no case of divorced is reported. This result may indicate that families in the project area live in harmony, stability and peace.

\textit{Table ٤,٥}

\textit{Frequency Distribution of Respondents by Marital Status}

<table>
<thead>
<tr>
<th>Status</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>١</td>
<td>١٫٩</td>
</tr>
<tr>
<td>Married</td>
<td>٠٥</td>
<td>٩٦٫٢</td>
</tr>
<tr>
<td>Widowed</td>
<td>١</td>
<td>١٫٩</td>
</tr>
<tr>
<td>Total</td>
<td>٠٥٢</td>
<td>١٠٠٪</td>
</tr>
</tbody>
</table>

\textit{Source: Field Survey, June ٢٠٠٣}

\textit{٤,٤ Educational Level}

Table (٤,٤) shows the educational level of the respondents. It indicates that most of the respondent were illiterate, amount to ٥٠٪، while adult education and Khalwa amount to ٩٫٨٪، primary education is ١٣٫٥٪ and those who studied secondary level of education are ١٫٩٪. This result confirm what is mentioned in previous chapters, that the
illiteracy rate is very high ٤٣% and the project responses to build schools come a bit later during (١٩٩٦ – ١٩٩٧).

Table ٤،٤

Frequency Distribution of the Respondents by Educational Level

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>٣٩</td>
<td>٧٥</td>
</tr>
<tr>
<td>Adult and Khalwa</td>
<td>٠</td>
<td>٩،٦</td>
</tr>
<tr>
<td>Primary</td>
<td>٧</td>
<td>١٣،٥</td>
</tr>
<tr>
<td>Above</td>
<td>١</td>
<td>١،٩</td>
</tr>
<tr>
<td>Total</td>
<td>٥٢</td>
<td>١٠٠،٠٠٠</td>
</tr>
</tbody>
</table>

Source: Field Survey, June ٢٠٠٣

٤،٤٥ Area of Origin

Table (٤،٥) shows the respondents area of origin. It indicates that all respondents were from Wadi Al Mugaddam, which is the traditional homeland of the Hawawir nomadic tribe. This result indicates that the project addressed the displaced nomads of the Hawawir and that the ethnic composition of the respondents is from the Hawawir tribe including all its clans.
### Table 4.5

**Frequency Distribution of Respondents by Origin**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wadi Al Mugaddam</td>
<td>25</td>
<td>100.00%</td>
</tr>
<tr>
<td>Other Areas</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

*Source: Field Survey, June 2002*

### Occupation

#### Occupation in the Past and at Present

Table (4.6) shows a frequency distribution of the respondents by occupation before and after benefiting from the project activities and services. It indicates that, majority of the respondents in the past were nomad, they amount to 5.68%, while 6.9% were farmers, while others (i.e. labourer, Kraftsmen ....etc.), amount to 8.3%, moreover it indicates that, the main economic activity of the beneficiaries after benefiting from the project activities and services is agriculture.
This result may indicate that the extension communication means and the participatory approach adopted by the project, in the delivery, transfer and dissemination of the innovations and practice have succeeded in mobilizing the target groups and promoted considerable socio-economic transformation and promote sustainable rural development in the area.

*Table 4, 7*

*Frequency Distribution of Respondents by Occupation Before and at Present*

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Before</th>
<th>At Present</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td></td>
<td>y</td>
<td>e</td>
</tr>
<tr>
<td>Nomad</td>
<td>50</td>
<td>86.5</td>
</tr>
<tr>
<td>Farmers</td>
<td>5</td>
<td>9.6</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>100</td>
</tr>
</tbody>
</table>

*Source: Field Survey, June 2000*

*4, 1, V Family Size*
Table (4,7) shows respondents family size. It indicates that family size of 3 – 5 persons amount to 1,92%, family size of 6 – 8 amount of 13,46%, family sized of 9 – 11 amount to 21,15%, family size of 12 – 14 persons amount to 40,35%, family size of 15 – 17 person amount to 21,15% and family size of 18 – 20 amount to 1,92%. This indicates that the average number of family sizes in the project area is 9 persons. This result may indicates that the birth rate is in increase and there is improvement in the nutritional and living standard of the target groups. Moreover it may indicates that the project contributed to positive resettlement in the area.

This result support the 1993 census, that the average family size is 8 persons and that dependency rate is moderate about 5 persons.
Table 4.7

Frequency Distribution of Respondents by Family Size

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 5</td>
<td>1</td>
<td>1.992</td>
</tr>
<tr>
<td>6 – 8</td>
<td>7</td>
<td>13.46</td>
</tr>
<tr>
<td>9 – 11</td>
<td>11</td>
<td>21.15</td>
</tr>
<tr>
<td>12 – 14</td>
<td>21</td>
<td>40.35</td>
</tr>
<tr>
<td>15 – 17</td>
<td>11</td>
<td>21.15</td>
</tr>
<tr>
<td>18 – 20</td>
<td>1</td>
<td>1.992</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Field Survey, June 2002

4.7 The Socio-Economic and Environmental Impact of the Project

4.7.1 Economic Impact

4.7.1.1 Delivery of Agricultural Activities and Services

It is observed that all respondents received agricultural activities and services delivered by the project. These activities and services include land preparations, seeding, weeding, irrigation, use of fertilizers,
tractors operation, farm management, environmental awareness, animal breeding and loan.

It is worthmentioning that, all the above activities and other social and environmental services are delivered by the use of different means and method of extensions communication.

In the same respect, it is observed that the respondents adopted all the new innovations and practice and that is reflected in the improvement of respondents income generated from agricultural products and livestock, this is reflected by the increase in numbers of permanent settlements and settled families, increase in number of shops in the area and increase of number of animals.

This result is supported by ADRA proposal document (٤٠٢) which indicated that the food gap that used to be bridged through migration and manual labour in the River Nile area in the post is currently covered by agricultural products or animal products sales and that prime objective of the project of food security and sustainable rural development has largely been achieved by:
Increase in agricultural productivity, farmers knowledge and improved agricultural practice.

Improvement in number and quality of animals.

Training of women and improvement in quality of food and water.

Increase in supply of green vegetable and improvement in general living standard and the area become main supplier for green and dry Okra that has attracted traders as far as from Omdurman, in Khartoum State.

Livestock Ownership

Table (4,8) shows the frequency distribution of respondents according to livestock ownership. It indicates that 81.1% of the respondents keep animals (i.e. camel, goat, donkey, and poultry). This result indicates that the project increases the population knowledge of livestock and animal production and other agricultural products as source of investment and income generation.
Table 4.4

Frequency Distribution of Respondents According to Animal Ownership

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have animals</td>
<td>15</td>
<td>1.89</td>
</tr>
<tr>
<td>Have no animals</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>100.00</td>
</tr>
</tbody>
</table>

*Source: Field Survey, June 2005*

Table (4.4) shows the level of animal increase in the respondents group. It indicates that those who have increase in all types of animals amount to 4.4%, and those who have increase in some of animals amount to 3.8%, while those with no increase amount to 1.9%. This increase in number of animals may be due to the improvement of their income resulted from improvement of agricultural production and availability of fodder production all over the year.
Table 4.9

Frequency Distribution of Respondents According to Animal Increase

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in all</td>
<td>32</td>
<td>44.2</td>
</tr>
<tr>
<td>Increase in some</td>
<td>28</td>
<td>53.9</td>
</tr>
<tr>
<td>No increase</td>
<td>1</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field Survey, June ٢٠٠٣

١٥٠٣٠٣٠١٩, "The Revolving Fund"

Table (١٥٠٣٠١٩) shows that ٩٦.٢٪ of the respondents are contributing in the revolving fund, where as ٣.٨٪ are not contributing to it. This result indicates that the ideal of the revolving fund introduced by the project is adopted and used successfully by the most of the beneficiaries.
Table 4.10

Frequency Distribution of Respondents According to Contribution in the Revolving Fund

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributing</td>
<td>0.0</td>
<td>96.2%</td>
</tr>
<tr>
<td>Not contributing</td>
<td>2</td>
<td>3.8%</td>
</tr>
<tr>
<td>Total</td>
<td>0.2</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Field Survey, June 2000

Table (4.11) indicate that 96.2% of the respondents are benefiting from the revolving fund in term of fuel, seed, fertilizers and other agricultural inputs.
Moreover, table (4,11) shows that 96.2\% of the respondents are receiving loans for their agricultural activities, while 3.8\% of the respondents get nothing. This result indicate that the revolving fund is supporting the beneficiaries in their agricultural activities and can be repaid in kind on cash after harvest.
### Table 7.1

**Frequency Distribution of Respondents by Loan, Received for Agricultural Activities**

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan for Farm Activities</td>
<td>0.0</td>
<td>96.2</td>
</tr>
<tr>
<td>Non</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>0.2</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Source: Field Survey, June 2000*

**Social Impact**

**Community Based Organizations (CBO)**

To deliver its activities and services on sustainable manner, the project established some relevant CBOs to enable the target group to participate in the process of their development. These institutions include the popular committees, farmers committees women and youth committee.

It is observed that these committees shoulder specific responsibilities (i.e. planning, implementation, monitoring and evaluation). This confirm the argument of Um Jawasir Development Project
Document, ١٩٩٦ technical Report that, the project has introduced relevant institutions which assisted in promoting sustainable rural development in the study area.

Table (٣,٤) shows that ٨٠.٨٪ of the respondents comment that they are members in the CBOs, while ٢.٩٪ are not members.

\[\text{Table ٣,٤} \]

\textit{Frequency Distribution of Respondents According to their Membership in CBOs}

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member in committee</td>
<td>٤٢</td>
<td>٨٠.٨</td>
</tr>
<tr>
<td>Not member</td>
<td>١٠</td>
<td>٢.٩</td>
</tr>
<tr>
<td>Total</td>
<td>٥٢</td>
<td>١٠٠.٠</td>
</tr>
</tbody>
</table>

\textit{Source: Field Survey, June ٢٠٠٥}

It is observed that the committee members perform their duties and work in harmony with the project management. This result support the argument that the project adopted participatory approach and
used extension communication means and method in the delivery of services and activities to the target groups in the project area.

4,4,7,7 Types of Social Services

It is observed that the project used to deliver different social services to the beneficiaries and the communities at large, through women centers, health centers, youth centers, schools, etc. This service includes public health education, adult education, child care, mother care, water service and gender.

Moreover, it is observed that the delivery of this service are by different extension communication means and method (i.e. group training, home to home visits, seminars, workshops, T.V., etc) or non-formal education. In the same respect, it is observed that there are health center, schools, women centers, youth centers and court in the area.

4,4,7 Environmental Impact

As stated earlier, the project delivered remarkable efforts to raise the environmental awareness of the target group in the project area, and
this was observed in the two shelter belt and earth embankment. The drop in temperature levels and the use of renewable crop residues from the project farms used as an alternative to fuel wood and construction to planting, watering and protecting the shelter belt and decrease tree clearance within and around the projects and sand movement is reduced.

Table (41.4) shows respondents participation in the shelter belt activities. It indicates that 2.69% participate effectively, while 8.3% failed to participate for unknown reasons. This result indicates that the project delivered remarkable effort to raise environmental awareness of the target group and this was proved by their participation in the activities.
Table 4.14

Frequency Distribution of the Respondents Participation in Shelter Belt Programme

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating</td>
<td>25</td>
<td>96.2%</td>
</tr>
<tr>
<td>Not participating</td>
<td>2</td>
<td>8.3%</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Field Survey, June 2002

Table (4.15) shows that 86.0% of the respondents comments that all environmental activities and services have positive impact, while 13.0% of the respondents, concluded that there are some positive impact, but no indications of negative impact. This result indicates that the respondents adopted the environmental innovations and practices.
Table 4.10

*Frequency Distribution of Respondents According to their Perceived Environmental Impact*

<table>
<thead>
<tr>
<th>Comments</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>All positive</td>
<td>54</td>
<td>86.5%</td>
</tr>
<tr>
<td>some</td>
<td>7</td>
<td>13.5%</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table (4.16) shows the respondents participation in environmental activities in the area. It indicates that 21.4% of the respondents always participate in the activities and 26.9% often, while 1.9% did not participate. This activities as indicated before include shelter belt, earth embankment, tree planting, watering, prohibiting of tree clearance in the area. Moreover, this result indicate that respondents environment awareness have been raised and they adopted the new innovation and information transferred and disseminated to them by the project.
Table 4.12

Frequency Distribution of Respondents According to the Participation in Environmental Activities

<table>
<thead>
<tr>
<th>Comments</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>73</td>
<td>2.17%</td>
</tr>
<tr>
<td>Often</td>
<td>41</td>
<td>9.62%</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>1.9%</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Source: Field Survey, June 2003

4.3 Non Participant Opinion about the Project

Table (4.17) shows the non participant respondents opinion about the project. It indicates that all the non participant agreed that the project have benefit, and these benefit include:

i) Environmental Rehabilitation

a) Some areas have been reclaimed and the soil improved.

b) The shelter belt and earth embankment have reduced sand movement.

c) Drop in temperature level.
d) Water potential has been utilized in a compatible way with its re-change rate.

e) Recovery of animal stock.

f) Renewable crop residue from project farm provide alternative fuel wood

g) Level of environment awareness has been raised.

i) **Social Benefit which include:**

a) The project has helped the Hawawir to regain their identify, get organized and stick to the land as indicated by the growing numbers of returnees and settlement within and around the project area.

b) Improvement of hygiene and nutritional status of the household level.

c) Women were given visibility by sharing in production decision and contributing to household income generation.

d) Improvement in mother and child health.

e) Establishment of CBOs and the new spirit of belonging and solidarity the target groups participate in the
construction of schools, health units, youth and women centers.

\(f\) The Hawawir have acquired farming skills.

\(iii\) **Economic Benefits, which include:**

\(a\) Farmers annual income increased to the level of \(٠٠٠،٥٧١\) Sudanese Dinars generated from animals and agricultural products sales.

\(b\) Increase in community wealth as indicated by increase of permanent settlements, increase in number of shops and private cares in the area.

\(c\) The project becomes a market source for green vegetables.

\(d\) Pastoralist not directly living in the area benefit from fodder production.

\(e\) The project gives the viability of farming in desert environment where there is an adequate underground water supply.

In addition to the above benefit the non-participant comments that the means and methods adopted by the project succeeded in mobilizing the beneficiaries to join efficiently in the development of
their communities and because of the clear indicators of sustainability the non participant concluded that they have interest to participate in the project activities. This confirm that the project have socio-economic and environmental benefit.

Table ٤,١٧

Frequency Distribution of Respondents by their Opinion on Project Activities

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have benefit</td>
<td>٢٥</td>
<td>١٠٠%</td>
</tr>
<tr>
<td>Have no benefit</td>
<td>٠</td>
<td>٠%</td>
</tr>
<tr>
<td>I don’t know</td>
<td>٠</td>
<td>٠%</td>
</tr>
<tr>
<td>Total</td>
<td>٢٥</td>
<td>١٠٠%</td>
</tr>
</tbody>
</table>

Source: Field Survey, June ٢٠٠٢

Table (٤,١٨) shows the non-participant respondents reasons of interest to participate in the project activities. it indicate that, ٩٦.٩% of the non-participant indicate that, ٩٦.٩% of the non-participant comment that they have interest in the project activities to raise their income, ١.٩% indicated that they have interest to gain new skills, while
١٩٪ indicated that they have interest to participate in the development of their area.

Table ٤,١٨

*Frequency Distribution of Respondents According to their Interest in the Project*

<table>
<thead>
<tr>
<th>Responses</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>To raise income</td>
<td>٠٥</td>
<td>٩٦,٢</td>
</tr>
<tr>
<td>To gain skills</td>
<td>١</td>
<td>٩,١</td>
</tr>
<tr>
<td>To participate in development</td>
<td>١</td>
<td>٩,١</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>٢٥</strong></td>
<td><strong>٠٠,٠٠١</strong></td>
</tr>
</tbody>
</table>

*Source: Field Survey, June ٢٠٠٣*
Chapter Five
Summary Conclusion and Recommendations

1.1 Summary Conclusion

The Um Jawasir Development Project was developed and introduced by the Adventist Development and Relief Agency (ADRA) in the Northern State of Sudan. It was established in 1991 to improve the livelihood conditions of the Hawawir people who were affected by the 1981’s drought. ADRA has been working in different parts of the Sudan since 1981 in addition to its development project in Um Jawasir area.

The project adopted the participatory approach by the use of extension communication, to achieve sustainable rural development in the study area. This research work was conducted to investigate and assess, the socio-economic and environmental impact of the project on the people and the study area, to investigate the role of local institutions established during project life cycle and to find out to what extent that the approach adopted by the project through the use of extension communication have succeed to promote community
participation and foster sustainable rural development in Um Jawasir area.

The research method adopted include the descriptive, historical and statistical methods. The study is based on both primary and secondary data, collected through a field survey by using questionnaires, in addition to observation, group discussion and interview with the project officials, community leaders and non-participants. The secondary data, were obtained from official reports, project documents, publication, theses papers and other relevant sources. The study used simple random sampling procedures to select 25 households as sub-group representing 112 households, who are the direct beneficiaries of the three phases of the project. The work is organized in five chapters, chapter one is the introduction chapter providing background information, problem statement, research objectives, research hypothesis, methodology and organization of the study. Chapter two is the literature review it is carried out in two sections, section one is concerned with socio-economic and environment settings of the study area. Section two provides information about UM Jawasir Development Project,
background, objectives, activities, implementation and achievement. Chapter five is the summary conclusion and the proposed recommendations. The results of the study revealed that, the project has introduced relevant local institutions (i.e. farmers committee, women committee, youth committee, etc.) which assisted in promoting sustainable rural development in the study area. It is worth mentioning that the extension communication means (i.e. training, workshop, seminars, home to home visit, group discussion, etc) and the participatory approach adopted by the project success effectively in the process of development of their communities. However, the agricultural activities, and other social service introduced by the project succeeded to create considerable socio-economic transformation in the study area.

1.7 **Recommendations**

Based on the study findings the following recommendations are proposed:

1) Emphasis should be laid on social development, due to lack of social service which used to cause great instability for the local community, especially the splitting of families
who had children at school age and had to send them away to have access to school in addition lack of health units, which sometimes forced the population to depend on traditional medicines.

7) The community based organizations CBOs need more support to participate effectively in provision of services and running of schools, health units and other social activities.

7) Construction of more shelter belt, for the strengthening and expanding the existing shelter belt.

7) More supply of improved breed, due to its high milk yield which can contribute in households’ income generation.

7) Involvement of more women in the project because the project has a strong male bias in both employee and beneficiaries.

7) Provision of more extension communication means and methods to the project officials and community based organizations.

7) Expansion of the project activities to cover all the population in the Wadi (Wadi Al Mugaddam).
More specialized staff is needed in the project area (i.e. community development officers, forestry officers and women animators).
Bibliography


Jones E. and Mourice J. Role (٣٨٩١). Progress in Rural Extension and Community Development.


