

Awareness Raising Workshop on the Implementation of the United Nations Convention to Combat Desertification

Workshop organized by the Drylands Coordination Group Sudan
for Parliamentarians and other Stakeholders
December 28th and 29th 2005 in the Green Hall of Sudan's Parliament, Omdurman,
Sudan

By Dr. Abdelrahim A. Belal and Fatima Shoeib Hussein

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The Drylands Coordination Group (DCG) is an NGO-driven forum for exchange of practical experiences and knowledge on food security and natural resource management in the drylands of Africa. DCG facilitates this exchange of experiences between NGOs and research and policy-making institutions. The DCG activities, which are carried out by DCG members in Ethiopia, Eritrea, Mali and Sudan, aim to contribute to improved food security of vulnerable households and sustainable natural resource management in the drylands of Africa.

The founding DCG members consist of ADRA Norway, CARE Norway, Norwegian Church Aid, Norwegian People's Aid, The Strømme Foundation and The Development Fund. The secretariat of DCG is located at the Environmental House (Miljøhuset G9) in Oslo and acts as a facilitating and implementing body for the DCG. The DCG's activities are funded by NORAD (the Norwegian Agency for Development Cooperation).

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ACKNOWLEDGEMENT

The finalization process of Sudan's National Action Programme (NAP) on desertification has passed through a stagnant period since 2002. Accordingly since June 2005, the Drylands Coordination Group (DCG) Sudan with support from DCG Norway has intervened to facilitate the finalization and endorsement of the United Nations Convention to Combat Desertification (UNCCD)/NAP in Sudan. The two day awareness raising workshop for the parliamentarians of Sudan which took place on December 28th and 29th 2005 was considered an outstanding event whereby the highest legislative body of the country together with institutional decision makers and civil society came together to discuss desertification as the number one problem in Sudan and to plan the way forward for finding a solution. This great work could not be achieved without the help that we received from the Committee of Agriculture and Animal Affairs of the National Assembly/Sudan Parliament (CAAA). DCG Sudan is indebted to the CAAA for their adoption and hosting of the workshop and further endorsement from all institutions in charge.

Thanks are also due to the UNCCD focal point that facilitated all correspondence between the Ministry of Agriculture and Forests and the Sudan national Assembly.

DCG Sudan also highly appreciates the commitment and the enthusiasm showed by all honourable excellences members of parliament, government officials and civil society representatives (see list of participants in annex 2) for their valuable interventions which helped in editing the final version of the NAP.

We would like to take this opportunity to thank the presenters of the papers; without their excellent presentation the participants could not have reached a common understanding of the status-quo of desertification in Sudan and the UNCCD/NAP.

Special thanks should go to the facilitator of the workshop, Dr. Abdelrahim A. Belal, who with his experience fulfilled the objectives of the workshop.

Our special gratitude goes to DCG Norway for their support from the conceptualization of the idea to its implementation

Fadul Beshir Alhag, Chairman of DCG Sudan
Fatima Shoeib Hussein, Coordinator of DCG Sudan

LIST OF ABBREVIATIONS AND ACRONYMS

ADRA	Adventist Development and Relief Agency
CAAA	Committee of Agriculture and Animal Affairs, Sudan National Assembly
CBOs	Community Based Organizations
COP	Conference of the Parties
CPA	Comprehensive Peace Agreement
CRIC	Committee for the Review of the Implementation of the Convention
CST	Committee on Science and Technology
DCG	Drylands Coordination Group
FNC	Forests National Corporation
GIS	Geographical Information System
GM	Global Mechanism
IPRSP	Interim Poverty Reduction Strategy Paper
IYDD	International Year of Deserts and Desertification
MDGs	Millennium Development Goals
NA	National Assembly
NAP	National Action Programme
NBSAP	National Biodiversity Strategy Action Plan
NCC	National Coordinating Council
NCCD	NGOs Coordination Committee on Desertification
NCCCD	National Coordination Council for Combating Desertification
NDF	National Desertification Fund
NDDCU	National Desertification and Drought Control and Monitoring Unit, the Ministry of Agriculture and Forests
NGOs	Non Governmental Organizations
NNGO	National Non Governmental Organizations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change

EXECUTIVE SUMMARY

These proceedings present in detail the implementation of the UNCCD workshop which was initiated by DCG in partnership with the CAAA of the National Assembly and the Ministry of Agriculture and Forests. The workshop was conducted in the Green Hall at the National Assembly on December 28th and 29th 2005.

The report presents the workshop programme, objectives and methodology. A summary of the four papers presented and the ensuing discussion by the participants are also included. In addition to this, the report elucidates the recommendations of the four working groups and includes a full list of the participants.

Overall, the workshop is considered a breakthrough as it was the first time that legislative and political back up was enlisted to support the efforts for combating desertification in the Sudan. The workshop strongly recommended the finalization of the NAP to combat desertification and the creation of an enabling environment for its implementation and follow-up through strong political and financial support. Moreover, the workshop emphasized the critical roles of all the stakeholders, in particular the Civil Society Organizations and the local communities, in implementing the NAP through partnerships and the crucial need for raising awareness at all levels about the UNCCD and the NAP.

The high level of participation of the representatives of all the stakeholders, particularly the parliamentarians, in addition to the participation of representatives of some states, has enriched the deliberations and ensured a high degree of commitment and understanding of the impacts of desertification which is considered the number one environmental problem in the Sudan.

1. THE WORKSHOP PROCEEDINGS

Day One: December 28th 2005

1.1 OPENING SESSION

The following is a summary of the speeches presented in the opening session.

Mr. Fadul Beshir Elhaj – Chairman of DCG Sudan:

The present workshop allows for consultation with the legislative body and other stakeholders. The impacts of drought and desertification have led the UN to prepare a special convention, the UNCCD, to tackle the problem. The burden of implementing this Convention should be shouldered by all the stakeholders. The representatives of Sudan to COP6 in Havana, Cuba, have discussed the ways and means of finalizing the NAP for Sudan and implementing the UNCCD.

The objectives of the present workshop are:

1. To raise the awareness of the parliamentarians on the UNCCD;
2. To establish a partnership between all the stakeholders;
3. To generate a common understanding of the desertification problem;
4. To finalize the NAP;
5. To mainstream the NAP into the development strategies;
6. To establish a follow up and monitoring mechanism.

DCG is planning two major studies in 2006; the first one will deal with a review of literature on food security and natural resource management in Sudan, while the second one will deal with the issue of eco-farming where three locations will be selected to implement the study; two in the rainfed sector and one in the irrigated sector.

Mr. Abdel Rahim A. Hamad – State Minister, Federal Ministry of Agriculture and Forests (on behalf of the Federal Minister of Agriculture and Forests):

This workshop aims at paving the way for the adoption of the NAP and the determination of the roles and responsibilities of all the stakeholders in the implementation of the UNCCD. One of the expected outputs is the unification of understanding and efforts to combat desertification and curtail its present and future negative impact. Desertification has economic and social impacts as reflected in migration, displacement, unemployment in addition to its impacts on society, resulting in numerous conflicts.

Combating desertification is one of the priorities of the Ministry of Agriculture and Forests and we recognize that desertification is the major environmental problem facing the country. We also aim at putting desertification within the national development strategies.

We endeavour to achieve integrated sustainable agricultural development to attain food security. Sudan has participated in COP7 and we affirm our commitment to provide the means for combating desertification and our commitment towards the COP7 decision of designating the coming year 2006 as the International Year of Deserts and Desertification (IYDD).

As the NAP covered 13 affected states, it can form a good basis for the development of these states which basically rely on natural resources and agriculture.

We have to raise the awareness about desertification at all levels to mobilize the efforts of the governmental institutions, the NGOs and the individuals.

Prof. El Amin Dafalla – Chair person, the Committee of Agricultural and Animal Affairs (CAAA), the National Assembly (NA):

It is very opportune that the CAAA should inaugurate its work with this workshop which falls within the mandate of the committee.

The political environment in the Sudan is favourable for achieving sustainable development following the signature of the Comprehensive Peace Agreement (CPA). We thank the leaders of the NA for their kind support to this workshop and we also thank the scientists who prepared the papers.

The mandate of the NA includes the activation of the international environmental conventions to protect our terrestrial and marine environments in the Sudan as a lot of pressure and damage have been exerted on our natural resources.

We have to enact suitable legislation to reverse this process in order to conserve the natural resources and uphold the rights of the citizens.

The NA will also supervise and follow up the implementation of these conventions including the UNCCD.

The committee affirms its commitment to provide unlimited support to the NAP, as we recognize the impacts of desertification and drought on agricultural production, the environment and biodiversity in addition to the socio-economic impacts.

It is really unfortunate that although Sudan has signed and ratified this convention since 1994, we have not submitted our NAP to the UNCCD secretariat yet knowing that there is a deadline set up, and that almost all the other affected countries have completed this process.

We assure you that we appreciate the efforts carried out so far which culminated in the present workshop, and we assure you also that the NA in close collaboration with the Ministry of Agriculture will ensure the finalization of the NAP and its submission to the UNCCD secretariat.

Mr. Atim Garang – Vice president of the National Assembly:

I want to point to the fact that desertification is not confined only to the 13 states; even in the South there is desertification. Desertification has negative impacts on our national economy and it results in conflicts. We tend to ignore the environmental impacts of our economic activities in spite of the environmental protection law. There is an increase in the population and the livestock while our natural resources are limited.

I appreciate the support we receive from the UN and the other international donors. I urge the concerned bodies to accelerate the process of finalization of the NAP and its submission to the UNCCD secretariat so that it will attract international support for this programme.

1.2 OVERVIEW OF THE WORKSHOP

Dr. Abdelrahim A. Belal (facilitator) presented the programme (see annex 1), objectives, methodologies and the expected outputs of the workshop.

Overall Objective:

To facilitate the finalization and implementation of the National Action Programme for combating desertification in the Sudan

Specific Objectives:

1. To raise awareness about the UNCCD among the parliamentarians and the representatives of the other stakeholders.
2. To discuss the roles and responsibilities of all the stakeholders with regard to the implementation of the UNCCD.
3. To create a partnership mechanism that encompasses all the stakeholders in order to lobby for the implementation of the UNCCD processes.

1.3 PRESENTATION OF PAPERS AND DISCUSSIONS

1.3.1 First Paper: Desertification: The Number One Environmental Problem in Sudan (see annex 3), by Dr. Ahmed S. El Wakeel

The paper presented the history, concept, definition and global extent of desertification as follows: The term 'desertification' emerged in the 1920s/30s to express a concern that the Sahara might be advancing southwards, swallowing Sub-Saharan Africa in its wake (Aubréville 1949; Stebbing 1938). However, the notion of 'advancing deserts' or 'creeping deserts' faded in the absence of convincing data; attention shifted towards human actions that were clearly degrading lands, such as deforestation, over-cultivation, overgrazing, and salinity-inducing irrigation practices which frequently aggravated by droughts.

The UNCCD defines desertification as “land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities”. Land degradation, which includes both desertification and deforestation, is occurring worldwide, with the most severe impact on the poorest rural communities. Land degradation is closely linked to poverty in developing countries. Poverty is both a consequence of land degradation and one of its causes. Poor people with no resources to fall back on are forced to put immediate needs before the long-term quality of the land.

The most commonly cited forms of unsustainable land use are over-cultivation, overgrazing, deforestation, and ill-considered irrigation practices. There are many factors that trigger desertification, including the unpredictable effects of drought, fragile soils and geological erosion, livestock pressure, nutrient mining, growing populations, inadequate/ambiguous property and land tenure rights, landlessness and an inequitable distribution of assets, poor infrastructure and market access, neglect by policy makers and agricultural and environmental research systems, and the failure of markets to reward the supply of environmental services. Given this complexity of causal factors, an integrated approach including broad stakeholder participation is essential if peoples' livelihoods and security needs are to be improved.

The paper further elucidates the current status of desertification in the Sudan in addition to its magnitude pointing to the fact that the data on desertification are scanty in spite of the efforts of the NDDCU to establish a database in the 1990s¹. The impacts of desertification on food security, biodiversity components and ecosystems were enumerated. The paper forwarded the following strategies, mechanisms and recommendations to mitigate the impacts of desertification:

At the national level, what is first and foremost needed is to identify and develop a central coordinating agency responsible for providing guidance and directing work in drylands. The philosophy and mandate of this body or agency will include both research and development components.

The programs and actions recommended to be undertaken by this agency can be summarized as such:

- Determine by ranking on basis of magnitude, the current dryland locations impacted by desertification through the use of precise high technology techniques such as mapping by aerial photography, remote sensing and Geographical Information Systems (GIS), and closely monitor the desert encroachment on potentially productive dry lands.
- Adopt an ecosystems research approach in solving problems of desertification while linking the implementation of the conventions on Biodiversity and on Climate change to Desertification (CBD, UNFCCC and UNCCD respectively).
- Strengthen the role of NGOs and their cooperation with governmental institutions.
- Raise awareness among and involve communities at all levels of decision making.
- Practice *in-situ* conservation of genetic resources through the conservation of wild relatives of cultivated plants in their natural habitats. This gives them the chance to evolve while being confronted by soil and climate changes as well as pests and diseases. Their seeds may be collected and preserved in gene banks (*ex-situ* conservation), even though they stop evolving this way. Also, discourage the use of improved varieties at the expense of indigenous species whenever possible.
- Develop legislation and enforce laws that prohibit over exploitation of natural resources and encourage the protection and preservation of terrestrial ecosystems at levels of habitats, species and genetic resources.
- Promote demonstration projects using a holistic approach of natural resources management that concentrates on decentralized, participatory and multi-sector interventions. The field strategy of these projects must be developed by local communities with the assistance of a multidisciplinary team able to link biodiversity conservation and development including the economic and social aspects of the ecosystems.
- Encourage and promote popular participation and environmental education, focusing on desertification control and management effects of drought and public awareness using an approach based on cost-benefit for the conservation of biological diversity. Strengthen the knowledge base and develop information and monitoring systems for regions prone to desertification and drought, including the economic and social aspects of these ecosystems.

Discussion of the first paper:

The facilitator organised the discussion in away that it was democratic and that decision maker's e.g. Ministers and top executives, parliamentarians, representatives of civil society organizations and experts in each round of the discussion had the opportunity to intervene.

¹ The NDDCU established a geo-information system in 1993 that contained 7 layers of themes: Rainfall (1960-1990), soil, land use, vegetation cover, population, and hydrology and vegetation indices. These data were aggregated to classify the soils according to their degree of desertification in the areas lying between Lat. 10° and 18° N.

Prof. Mohamed A. Albasir – Africa International University:

Sudan is endowed with a lot of rain and surface water; there should not be any desertification. There is shortage of public awareness about desertification. The Government should give desertification top priority.

Prof. Mirghani Tag Elseed – Institute of Environmental Studies, U. of K.:

Other main environmental problems connected to desertification are poverty and ignorance. The petroleum industries have to be subjected to environmental impact assessments otherwise they will act as displacement and desertification agents. The federal system of governance has had negative repercussions on the natural resources in the poorer states.

Dr. Nawal Khidir Nasir – Sudan University for Science and Technology:

The paper lacks precise data and statistical analysis. National indicators have to be identified to quantify the degrees of desertification and its causes in every state.

Omer A. Elwasila – FNC:

Africover² has provided recent data. The National Desertification Fund (NDF) has to be established.

Haju Saad – Elghars Eltayyib Society for Combating Desertification, South Kordofan:

The signing of the CPA has generated a war over natural resources in South Kordofan. There are links between poverty, ignorance and desertification.

Abdalla Nasser – Farmers' Union:

The role of Civil Society Organizations in advocacy campaigns for the UNCCD and its implementation is important since the efforts exerted by the government agencies are not sufficient. Our national resources have to be mobilized. The Farmers' Union is committed to supporting the NAP.

Gebril A. Ahmed – Minister of Agriculture, Animal Wealth and Irrigation, River Nile State:

What about the detailed projects in the states with regard to desertification, are they included in the NAP? The centralized national budget lines should include projects for combating desertification as the budgets of the states cannot cope with this problem. Incentives have to be provided for the public to plant trees. Utmost care should be taken when introducing new tree (e. g. the Mesquite *Prosopis chilensis* spp.).

Dr. Ann Ito – State Minister, Ministry of Agriculture and Forests:

Desertification is threatening even Khartoum. We admit that some of the agricultural policies led to desertification, especially in the mechanized rainfed agriculture. The impacts of desertification go beyond threats to food security; desertification triggers ethnic conflicts which can escalate into national conflicts. Current agricultural policies should be critically reviewed and environmentally sound agricultural policies should be adopted. We have to re-examine our priorities as regards fund allocation. One example is the livestock production sector which brings a considerable amount of hard currency through exports, but we hardly provide this sector with any funds or services. As the CPA stressed decentralization we have to develop strategies to assist the states in minimizing their reliance on natural resources for the generation of financial resources. Likewise, we have to allocate adequate funds for research to quantify the desertification problem. I call upon the entire nation to collaborate in combating desertification.

² Africover is initiated by FAO to supply African countries with up to date information through satellite images. The FNC receives and interprets this information.. The information includes forest cover, rangelands, areas covered with cultivation, hydrology and drainage systems, etc.

1.3.2 Second Paper: The United Nations Convention to Combat Desertification (see annex 4), by: Ms. Fathia S. Musa and Ms. Fatima S. Hussein

This paper described the history of the UNCCD, its objectives, principles and importance. The UNCCD entails the following principles to achieve the objectives of the Convention and to implement its provisions:

- The Parties should ensure that decisions on the design and implementation of programmes to combat desertification and/or mitigate the effects of drought are taken with the participation of local communities and that an enabling environment is created at higher levels to facilitate actions at national and local levels;
- The Parties should, in the spirit of international solidarity and partnership, improve cooperation and coordination at sub-regional, regional and international levels, and better focus financial, human organizational and technical resources where they are needed.
- The Parties should develop a spirit of partnership, cooperation among all levels of government, communities, non-governmental organizations, farmers and pastoralists to establish a better understanding of the nature and value of land and scarce water resources in affected areas and to work towards their sustainable use.
- The Parties should take into full consideration the special need and circumstances of affected developing country Parties, particularly the least developed among them. The paper stressed the need for holistic and integrated approaches in combating desertification. The paper went on to depict the structure of the UNCCD; the Conference of the Parties (COP), the Secretariat, the Global Mechanism (GM) and their functions.

The paper also mentioned the two subsidiary bodies; the Committee on Science and Technology (CST) and the Committee for the Review of the Implementation of the Convention (CRIC). The roles of the stakeholders were elaborated (Government, parliamentarians, the civil society organizations and the external donors). The paper described the role played by the Sudanese NGOs in the desertification process as related to the UNCCD. The paper described the Sudan National Action Programme (NAP) and its contents in detail: The NAP for Sudan includes several interdisciplinary multi-sectoral integrated components for each State. Some of these components are general and some are specific. The general components are:

- Public awareness raising;
- Training and human resource development according to ecosystem/s of the State;
- Institutional capacity building;
- Policies, legislations and land tenure community services;
- Technical service units;
- Survey of natural resources;
- Popular participation mechanism;
- Follow up, monitoring, evaluation and documentation;
- Improvement of food productivity;
- Research and technology transfer unit.

Discussion of the second paper:

Michael Madot – NA:

Desertification has also reached Southern Sudan; this is manifested in the decrease in rainfall and the degradation of the vegetation cover caused by burning and cutting of trees. There is a new phenomenon, large numbers of livestock have moved to Southern Sudan following the signing of

the CPA, there should be laws to organize grazing. The war has negative impacts on the natural resources in the south; large areas have been deforested and mined due to military operations. The NA has to issue legislations to organize grazing and minimize tree cutting. There is a shortage of qualified personnel to manage the natural resources of the South.

Mohamed N.M. Ismail – Chairperson, Culture, Youth & Sports Committee, the NA:

Historically the deserts in Northern Sudan were inhabited. There should be public engagement to combat desertification and the convention should be part of our culture. The existing dissemination outlets should be used, e.g. the mosques, the churches, the newspapers, etc. the oil industry can provide an alternative source of energy.

The Minister of Agriculture of the Government of the South Sudan has issued a decree that prohibits tree cutting

Yusif Yagoub – Agricultural Engineer, Freelance:

The present institutional setup of the NDDCU has to be reconsidered.

Hanadi Awadalla – FNC:

There are severe shortages in raising the public's awareness about this convention although it was developed in 1994! The Government concentrated on development and ignored the environmental dimensions. There is a lot of ambiguity about the revenues from the oil industry. The companies working in this industry have to pay to conserve the environment and combat desertification. The Mesquite tree has its advantages as it grows in harsh areas where no other tree can grow.

Yahia Salih, CAAA – NA:

The graduates of the agricultural and forest colleges should be employed to establish nurseries to produce trees.

Mohamed E. Mukhtar – The Sudanese Environmental Conservation Society:

There are so many benefits generated from trees and forests. Some countries use gasification of wood to produce energy (e.g. Philippines, Brazil, etc.). The appropriate technologies have to be used to make the utmost benefit of the available resources.

Ibtisam Abdelsalam – Gasr Elsalam Society:

Our attitudes and behaviour towards our environment have to be changed. With regard to awareness it proved effective to focus on students in schools and universities. The agricultural policies have to be revised e.g. credit.

Edward A. Asheek – Meteorological Society:

There is a severe shortage of scientific data, meteorological data is one example. What is the role of the NA in the promotion of scientific research?

Mohammed Elmubarak – Director General, Ministry of Agriculture, Animal wealth & Irrigation, the Blue Nile State:

There are about 6 million arable feddans in the Blue Nile state. In 1984, the forests covered 80% of the total area of the state, while mechanized agriculture occupied only 20%; in 2004 the study of satellite images has shown that these percentages are reversed (80% agric., 20% forest). The Ministry of Agriculture has prohibited tree cutting and is promoting the establishment of community forests.

Dr. Omer M. Salih – Food Research Centre:

The Food Research Centre has surveyed, documented and conducted detailed research on the indigenous famine foods in the 1980s. The results of this research showed that numerous indigenous foods are of high nutritional value. They helped populations especially in the Darfur States of Sudan to survive during the famine in 1983-1985. The main findings of this research were published by a Sudanese scholar, Prof. H. Dirar.

Dr. Adam A.A. Darosa – Pastoralists' Union and member of the CAAA, NA:

How can we achieve coordination between all the stakeholders?

Abulgasim Saif Eldi – CAAA, NA:

The decree of planting shelterbelts within the agricultural schemes has to be activated and enforced. The local communities have to take a leading role in the management of the natural resources (e.g. tree planting).

Yahia Kabbashi – The International Corporation for the Development of Sub-Sahara:

Desertification is also found in the south of Sudan because of different forms of unsustainable land use e.g. over-cultivation and overgrazing. There should be a central NDF and NDFs at state level. The CAAA has to work with the media to raise public awareness.

Bakash T. Ibrahim – NA:

The Armed Forces are deforesting extensive areas in the Blue Nile State.

Abdelrahman Tairab – Ministry of Human Affairs:

The problem lies in our urban-biased policies. The environment should be an inherent component of the programmes of the political parties. The President should lead the anti-desertification campaigns as the voice of the newly established Ministry of Environment is still very weak.

Mr. Abdelrahim Ali Hamad – State Minister, Min. of Agric. and Forests:

Our efforts in the past were fragmented and lacked coordination. We will support the finalization of the NAP and its implementation. The Ministry will offer political, executive and financial support to combat desertification.

Day 2: December 29th 2005

1.3.3 Third Paper: National Action Programme: Elaboration and Implementation Mechanism (see annex 5), by Prof. Mukhtar A. Mustafa

The paper portrayed the desertification problem in the Sudan, its extent and its impacts. The paper then mentioned the previous national efforts for combating desertification giving a short description of some of the projects that aimed at combating desertification and evaluating their successes and their shortcomings. The NAP and the Convention were then examined in detail including the process for the formulation of the NAP, the vision of the NAP and its components. The paper reiterated the previous efforts in formulation of the NAP which culminated in the National Forum for the implementation of the NAP which was held in August 1998 which recommended the establishment of a National Desertification Fund (NDF) and the establishment of an institutional structure that ensures a bottom up approach, the participation of all the stakeholders and rendering political back up to the NDDU. However, the paper criticized the outcomes of the states' workshops stating that the plans presented by the states were mostly strategy directives including some proposed activities from the various sectors. Moreover, the plans of the states did not follow the

strategy directives of the UNCCD and the priority areas were not identified which is the main constraint facing the current effort of formulating the NAP.

Some examples of the states' programmes were detailed (the River Nile, Kassala and N. Kordofan states). The paper ended by proposing an organigramme for the compilation, implementation, follow up, and monitoring and evaluation of the NAP. This structure is headed by a National Coordination Council (NCC) that is comprised of line ministries, states' representatives and representatives of scientific and academic institutions, NGOs, CBOs, etc. The paper proposes that the President of the State or his nominee chair the NCC. The structure includes the organizational set up at the states' level down to the villages and the horizontal and vertical linkages.

1.3.4 Fourth Paper: Linkages and Integration of UNCCD/NAP with Various Development Policies and Programmes of the Country (see annex 6), by Ustz. Hashim M. EL Hassan

This paper began by defining the following: Combating desertification, integration, linkage, missing link, National Action Programme (NAP) and the Stakeholders (see annex 6). The paper identified the main stakeholders who are involved in the process of combating desertification as follows:

- The Ministry of Agriculture & Forests,
- The Ministry of Finance & National Economy,
- The Ministry of Environment and Physical Development,
- The governments of the affected states,
- The affected communities.

The paper then elucidated the UNCCD and the NAP depicting the obligations of the affected countries and describing the main stakeholders. The most important link which was examined by the paper is that between development and environment (development versus environment). The author calls for a definite and basic national commitment which links development and environment and that is supplemented by international assistance. The paper then poses some questions on the agricultural investment policies and their impact on the natural resources stressing the need for a land use map. A comparison between rain fed agriculture and irrigated agriculture was stated depending on the basis of management and research. The paper then examined the necessity for integration and linkages. Finally, the paper points to the way forward which is represented in the enactment of legislation e.g. most important of which is on land use. Legislations are also needed to establish mechanisms for achieving integration and linkages that consists of: The national desertification council or committee; the desertification steering committee and the secretariat office which will be held by the UNCCD national focal point. The paper then proposes the following details:

- The membership of the council consists of the main stakeholders: pastoralist and farmer representatives, national NGO representatives, the private sector, and youth and women representatives.
- The council must form the steering committee from among the official stakeholders.
- The functions of these three levels of mechanisms would be as follows:
 - The national council level: policy-making and decision-making;
 - The steering committee level: managerial work (planning, organization, direction and control);
 - The national focal point (secretariat): co-ordination and daily routine work.

The paper put forward the following general recommendations:

- The inclusion of the NAP in the development plan of the federal government as well as the affected states;
- The formation of the previously mentioned mechanisms;

- It is advisable for the legislative National Assembly to issue an initiative on desertification so as to speed up meeting commitments at the domestic and international levels;
- The main stakeholders must agree that the NAP is an integral part of the development plan of the government;
- Rio conventions at the domestic level must consider the role of the UNCCD role as complementary to theirs;
- NGOs being national or international must be dealt with as true partners.

Discussion of the third and fourth papers:

Prof. Ibrahim Agabna – Researcher (retired), member of the NAP Task Force:

Our priorities have to be determined following the finalization of the NAP. One of the first actions is to identify all the relevant institutions working in the field of desertification to single out the centres of excellence in each discipline. The same exercise should be carried out by the NGOs.

Dr. Abdin M. Ali – Director General, Sudanese Cotton Company:

There is a clear need for an extensive awareness and extension campaign at all the levels. What has been presented in the last paper should reach the decision makers and the public to achieve real changes in the attitudes and behaviours. An annex to the budget of 2006 is proposed to supply funds to implement the NAP.

The following is proposed:

- Extensive outreach campaigns through the media (television, radio and newspapers) to form lobbying groups to advocate for support to the NAP;
- To increase the use of butane gas;
- To target all the decision makers especially the Council of Ministers;
- To promote coordination at all levels and to enhance public participation.

Prof. Tibin – Director General, Animal Research Corporation:

The number of livestock in the Sudan is about 130 million heads (40% of the livestock in the Arab World). These huge numbers accelerate the desertification process through soil erosion, blocking surface runoff of water, sedimentation of *wadies* and rivers (e.g. Bahr Elarab) and soil compaction.

Dr. Mutasim B. Nimir – Project Manager, Dinder National Park Project:

Why is our national effort to combat desertification weak? The whole nation has to be mobilized to confront this problem. An inventory of our natural resources has to be undertaken noting the climatic and demographic changes as a prerequisite for strategic plans based on land use maps. Special attention should be directed toward the rangelands as there is historical injustice afflicted on the traditional sector (pastoralists and farmers). The institutions and responsibilities of natural resources management are fragmented (agriculture/livestock/water/environment, etc.). Innovative and daring solutions are needed to resolve this dilemma.

Kamal Badi – Ex Director, Forest Department:

Most of the actions proposed in the papers are included in the 25 years Comprehensive National Strategy (2002-2027). Desertification is a reversible process; if we left nature to itself, it could mend all the damage inflicted by human activities. Fires are a major cause of desertification. Drought is caused by desertification not vice versa³.

³ This is the view of the participant and does not reflect the view of DCG. DCG believes that desertification understood as land degradation in dryland areas is caused by direct and indirect human activities and non-human factors (e.g. drought).

Dr. Saadeldin Ibrahim – Secretary General, the Higher Council for Environment and Natural Resources:

In the past we used to preach to the converted! This workshop is a breakthrough as it is the first time that the parliamentarians are involved in the desertification issue. There is a lot of research but the problem lies in the lack of implementation of the results. The current institutional setup of the NDDU has to be reconsidered. If it is agreed that it should continue to function under the Min. of Agric., then it should be headed by a state minister. How can we say that desertification is the first environmental problem, while the Higher Council for Environment and Natural Resources has no mandate over this problem?! The problems of displacement which are caused by desertification in the Northern state should be considered. How can we make use of the coming year, 2006, which was designated for deserts and desertification to design specific messages to reach the decision makers?

Dr. Gaafar Karrar – Freelancer:

In the Sudan we have about 11 million illiterate people. Education for those people and reduction of poverty are prerequisites for combating desertification. Can we establish a shadow parliament that includes scientists, governmental executives and representatives of the traditional administration to assist in the NAP?

Elrayah E. Elsanhoury – Elobeid Society for Development and Rehabilitation:

Desertification is a major worry in the Kordofan Region. It has resulted in the displacement of people who were forced to move to larger cities to work in the informal sector. North Kordofan is now embarking on an ambitious plan to plant a tree belt in which the scattered villages will be resettled and grouped together to facilitate the provision of basic services. The Government has not provided sufficient support to the farmers and the agricultural sector in general.

Abdelrahman Tairab – Ministry of Human Affairs:

Strategic planning is needed in addition to bi-laws to conserve the natural resource (national parks, improving water use, etc.).

Amna Musa – Green Campaign Organization, National Youth Union:

The role of the NGOs is crucial but there is a clear need for financial support from the State.

Ali M. Alarabi – CAAA, NA:

Giraih Elsarha and Gardud Projects in the Kordofan Region were quite successful as they were based on scientific studies.

Prof. Kamal Norain – Minister of Agriculture, Animal Wealth and Irrigation, Sennar State:

Desertification has to be classified into: severely deserted, moderately deserted and slightly deserted; the focus should then be directed to the two latter groups as a preventive measure. Desertification has affected even the Gezira state (East Gezira Locality for instance). The states have to implement a policy of establishing shelterbelts in rainfed and irrigated agricultural schemes (10% and 5% of the area respectively).

Prof. Mukhtar Mustafa – Centre for Desertification Studies and Cultivation of the Deserts, U. of K.:

The following sources are proposed to supply funds to the NDF:

1. The General Budget of the State;
2. Taxes on each barrel of oil produced;
3. Taxes on exported livestock.

2. TASKS AND OUTPUTS OF THE FOUR WORKING GROUPS

The facilitator initiated the group work by introducing the four groups and elaborating the general guidelines for their work including their specific tasks and the expected outputs from each group. The themes were discussed with and agreed upon by the CAAA representatives, the DCG coordinator and some of the workshop participants.

2.1 WORKING GROUP (1)

Task: Identification of the role and commitments of the national parliamentarians.

Outputs:

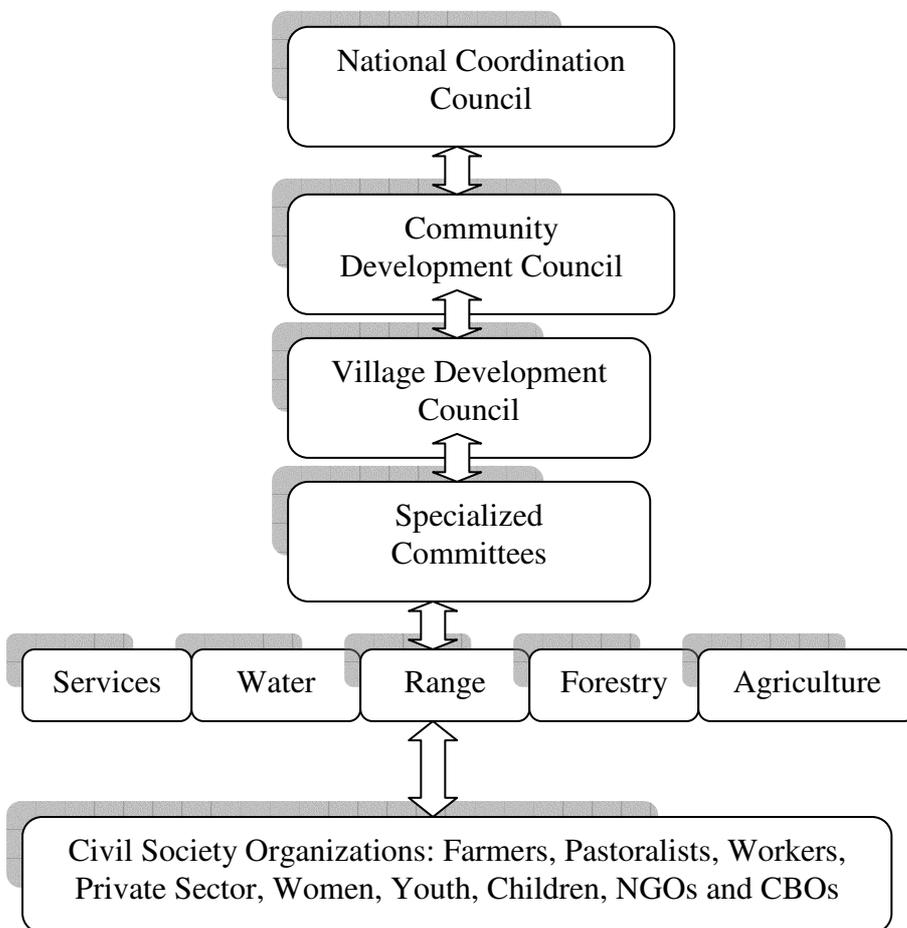
1. To endorse the NAP.
2. Participate in the session of the round table of the parliamentarians in the COPs.
3. Ensure their commitment as parliamentarians by their full contribution to the implementation of the UNCCD.
4. Provide an enabling environment by strengthening relevant existing legislation and approving long-term policies and action programmes.
5. Strengthen and implement legislation related to combating desertification and conserving the ecosystems.
6. Ensure the priority of educational and scientific policies through awareness raising campaigns at the local communities' level that focus on causes and impacts of desertification.
7. Launch the parliamentarians' initiative to combat desertification.
8. Contribute effectively to the implementation of the UNCCD and the NAP at the grassroots level in the states and advocate for the mobilization of the other parliamentarians in the NA to support the NAP.
9. Endorse all the papers presented in the workshop and use them as references.
10. Support the establishment of the NDF and the enactment of pertinent legislation.
11. Coordinate with the other committees in the NA and support the drafting of legislation on desertification.
12. Participate in COPs and secure financial support from the Government.
13. Strengthen the role of civil society organizations and voluntary organizations in combating desertification.
14. Commend DCG for its initiative and its cooperation with the Ministry of Agriculture and Forests and the CAAA of the NA in organizing the present workshop.

2.2 WORKING GROUP (2)

Task: Establishing the implementation mechanism.

Outputs:

1. The organization structure for the implementation of UNCCD/NAP in the paper of Prof. M. Mustafa is to be amended as follows:



2. Strengthen the NDDCU.
3. The NDDCU is to be integrated in the National Coordinating Council.
4. Enact legislation to establish the National Coordinating Council.
5. Advocate and support the establishment of the National Desertification Fund.

2.3 WORKING GROUP (3)

Task: Integration of the NAP in the development strategies, policies and programmes.

Outputs: Compile the following developed documents, identify gaps and links and integrate the NAP into these documents:

1. The 25 years strategy (2002-2027).
2. The National Biodiversity Strategy Action Plan (NBSAP).
3. The first National Communication of the UN Framework Convention on Climate Change.
4. Interim Poverty Reduction Strategy Paper (IPRSP).
5. Millennium Development Goals (MDGs) programmes.
6. States' development plans.

7. Rehabilitation and Reconstruction Programmes.
8. The NAP should take into consideration international and regional programmes on desertification.

The Group recommended the following with regard to the NAP implementation:

9. A bottom-up approach is to be adopted.
10. The establishment of the National Desertification Council to function as a follow-up mechanism for the implementation of the NAP.
11. The NDDCU is to be integrated in the National Coordination Council as a secretariat and a focal point.
12. To carry out a detailed inventory of the natural resource base and socio-economic elements to develop comprehensive land use plans as a prerequisite for radical and innovative changes in the current institutional setup for the management of natural resources.
13. Ensure exchange of information at all levels.

2.4 WORKING GROUP (4)

Task: To set a time frame for the following:

1. The revision and finalization of the NAP.
2. Establishment of the implementation mechanism.
3. Integration of the NAP in the development strategies, policies and legislations.

Outputs:

At the National Level

No.	Task	Time Frame
1.	Revision of the NAP and inclusion of the results and recommendations of the workshop by the NAP editing team.	Prior to 20/1/2006
2.	Submission of the NAP to the Ministry of Agriculture and Forests	Latest 20/1/2006
3.	Endorsement of the NAP by the Council of Ministers	Latest 27/1/2006
4.	Submission of the NAP to the National Assembly to be endorsed	Prior to 15/2/2006
5.	The NAP will be forwarded to the UNCCD secretariat	End of February 2006

At the States' Level:

1. Integration of the NAP into the state plans within three months following the endorsement of the NAP by the National Assembly.
2. Legislation on desertification should be federal and binding to the states.

The group also proposed the following organizational setup:

1. The National Coordination Council for Combating Desertification (NCCCCD) should be under the Presidential Institution.
2. Membership of the NCCCCD is composed of the relevant ministers and representatives of the states.
3. The NDDCU is to function as the secretariat of the NCCCCD.

N.B.: All the outputs of the working groups are the output of the workshop. The CAAA will follow-up the implementation of the workshop's output.

3. CLOSING SESSION

Prof. Elamin Dafalla – Chairperson, CAAA of the NA:

The recommendations of the working groups represent the recommendations of the present workshop and will be a valuable input for our future workshops.

Mr. Hagu Saad Hamid, recited a poem depicting the effects of desertification.

Mr. Abdelrahim Ali Hamad – State Minister, Federal Ministry of Agriculture and Forests:

This workshop was very effective in brainstorming. The deliberations and outcome will give us scientific and moral support. The papers were quite excellent and the discussions were frank and thought provoking. The NAP will comply with the 25 years National Strategic Plan. The Ministry of Agriculture wholeheartedly supports all the recommendations of the present workshop:

- The proposed new institutional setup of the UNCCD implementation mechanism.
- The establishment of the NDF.
- Upgrading, strengthening and supporting the NDDCU within the Ministry of Agric.
- Converting the NAP into detailed action plans with time schedules and budgets.
- Consultations at community and decision-making levels.
- The creation of an effective information and awareness raising mechanism that will inform the public about the importance of natural resources conservation and the impacts of desertification.
- The initiatives of the local communities should be promoted, encouraged and incentives should be allotted, e.g. tree planting. The women, youth and children should be part of the actions directed towards combating desertification.
- To convey what has taken place in this workshop to the other ministers and all the decision makers.
- We aim at creating a NAP that enjoys political, executive and financial support.
- I call all who are present to convene a follow-up workshop to monitor what has been implemented by the Ministry of Agriculture

Dr. Bashir Elbakri – Chairperson, the Sudanese UN Association:

I commend the spirit shown by the NA. The NA is a product of the long strive to reach peace. In this era of dominance of science, a charismatic leadership has no role. We aspire that the present NA which is based on unity would adopt science as the base for its work. I propose the following:

- Allocation of a considerable portion of the GDP to combating desertification.
- Making use of the Sahel and Desert Organization to promote ecotourism and make economic benefits from the deserts by investing in sands.
- Strengthen the ties with the UNESCO.

Prof. Elamin Dafalla – Chair person, the Committee of Agricultural and Animal Affairs (CAAA), the National Assembly (NA):

We appreciate the kind interest, supervision and follow up shown by the Vice Speaker of the NA. It is fortunate that the CAAA inaugurates its activities by holding this workshop. We have to work towards achieving sustainable development through combating desertification. We in the NA are committed to follow up the implementation of the recommendations of this workshop very closely.

The NA can also assist in the national awareness raising campaign through its information committee.

The CAAA is planning two workshops to be held in February 2006: The first one will deal with the problems faced by agriculture (technologies/finance/marketing/storing, etc.) while the second one will deal with livestock with a special emphasis on the pastoralists who even cross the borders into neighbouring countries. The recommendations of the present workshop will be part and parcel of the ensuing workshops, so that the current agricultural policies will be reformed to achieve sustainable development.

Sustainable peace in the Sudan cannot be achieved without combating desertification

Mr. Atim Garang – Vice president, NA:

I appreciate the efforts exerted for this workshop to materialize. I assure you that we are very concerned about desertification and its impacts. I declare that we will render support and follow up for combating desertification. We will revise all the laws connected to the environment.

Our future is closely tied to the sustainable management of our resources

The initiative of the CAAA, the Ministry of Agriculture and DCG/ADRA is to be commended.

We hope that a second workshop would be held to follow up the implementation of the recommendations of the present workshop. We also commend the roles played by the UN and the CSOs in combating desertification and disseminating environmental awareness.

Finally, I hope that the CPA will ensure the principle of natural resource conservation as we have inflicted a lot of damage and we have cut the forests without any mercy.

ANNEXES

ANNEX 1: WORKSHOP PROGRAMME

Day One: 28th December 2005

- 10:00 – 11:00 **Opening Session:**
Speeches by:
Executive Director, ADRA
Chairperson of the Committee of Agricultural & Animal Affairs
State Minister, the Ministry of Agriculture & Forests
Deputy Chairperson, the National Assembly
- 11:00 – 11:30 Break
- 11:30 – 03:30 **Session II:**
11:30 – 11:35 The facilitator presented the workshop programme, the objectives
11:35 - 12:00 and the expected outputs in addition to the daily evaluation indicator
and the overall evaluation
Presentation of the paper: **Desertification: The Number One
Environmental Problem in Sudan** by Dr. Ahmed S. El Wakeel
- 12:00 – 12:30 Discussion
- 12:30 – 01:30 Presentation of the paper: **The United Nations Convention to
Combat desertification**, by: Ms. Fathia S. Musa and Ms. Fatima S.
Hussein
- 01:30 – 02:00 Discussion
- 02:00 – 02:30 Break
- 02:30 – 03:30 Continuation of the discussion

Day 2: 29th December 2005

- 10:00 – 12:30 **Session III:**
10:00 – 10:30 Presentation of the paper: **National Action Programmes:
Elaboration and Implementation Mechanism**, by Prof. Mukhtar A.
Mustafa
- 10:30 – 11:00 Presentation of the paper: **Linkages and Integration Of
UNCCD/NAP With Various Development Policies And
Programmes Of The Country**, by Ustz. Hashim M. EL Hassan
- 11:00 – 12:00 Discussion of the two papers
- 12:00 – 02:00 Working groups
- 02:00 – 02:30 Presentations by the working groups
- 02:30 – 03:30 **Closing Session:**
Speeches by:
Chairperson of the Committee of Agricultural & Animal Affairs
(NA)
State Minister – the Ministry of Agriculture & Forests
Deputy Chairperson, the National Assembly

ANNEX 2: LIST OF PARTICIPANTS

#	Name	Institution	Stakeholder/ Category
1.	Yahya Ahmed Kabashi	International Cooperation for Development of Southern Desert	NNGO
2.	Mohamed Abdel Al Mahmoud Ibrahim	SOS Sahel UK	INGO
3.	Abbas Babiker Al Tahir	Sudanese Environment Conservation Society	NNGO
4.	Dr. Mutasim beshir Nimir	Sudanese Environment Conservation Society	NNGO
5.	Mohamed Alamin Mukhtar	Sudanese Environment Conservation Society	NNGO
6.	Adil Mohamd Ali	Sudanese Environment Conservation Society	NNGO
7.	Sannia Saleem Gaber	Bawadina Rural Women Development society	NNGO
8.	Altahir Bakri Ahmed	Consumer's Protection Society	NNGO
9.	Kamal Mohamed Ali	Consumer's Protection Society	NNGO
10.	Ibtisam AbdelRahman	Gisir Alsalam Society	NNGO
11.	Ibrahim Rahamtalla hamad	Sudanese Social Forestry Society	NNGO
12.	Amona Musa Mohamed	Green Creeping Society	NNGO
13.	Gada Tag Alsir	Om Almomneen Charity Society	NNGO
14.	Alsheik Alraih Sanhori	Obeid Organization for Development and Rehabilitation	NNGO
15.	Salah Bamseka	Obeid Organization for Development and Rehabilitation	NNGO
16.	Muwaia Alfatih Alnour	Obeid Organization for Development and Rehabilitation	NNGO
17.	Batol Faozi Sahal	Environmentalists Society	NNGO
18.	Fatima Shoeib Hussein	Drylands Coordination Group-Sudan	Forum
19.	Fadul Beshir alhag	Drylands Coordination Group-Sudan	Forum
20.	Dr. Ibrahim Aldukhiri	Drylands Coordination Group-Sudan	Forum
21.	Huda Abdalla Mohamed	Aswra Organization	NNGO
22.	Hago Saeed Hamed Adam	Al Grs AlTyeb for Combating Desertification Society	NNGO
23.	Idward Andrew Asheek	Metrological Society	NNGO
24.	Dr. Beshi Bakri	Sudan Society for UN	NNGO
25.	Hanan A. Mutwakel	UNDP- Khartoum Office	UN
26.	Dr. Fisal Hassan	UNSCO	UN
27.	Osman Alkhir Algabshawi	UNHCR, Environment and Project	UNHCR
28.	Gaffar Mosa	Farmer's Union, Blue Nile State	Union
29.	Abdalla Naser	Farmer's Union, Blue Nile State	Union

30.	Dr. Adam Alhag Darusa	Pastoralists Union	Union
31.	ALfaki gibreel Ibrahim	National General Union for Manufacturing of Natural Gums	Union
32.	Taregue AlGameri Atta Almanan	Institute of Desertification Research, the National Centre for Research	Research Ins.
33.	Dr. Amna Ahmed hamed	Remote Sensing Corporation, The National Centre for Research	Research Ins.
34.	Dr. Megdam Al Shekih Abdel Ganni	Institute of Environmental Research, The National Centre for Research	Research Ins.
35.	Dr. Iman alrasheed Deyab	National Research Centre	Research Ins.
36.	Hashim Awad Alkareem	National Research Centre	Research Ins.
37.	Prof. Osman Awad Alkareem	National Research Centre	Research Ins.
38.	Prof. Ahmed Ali Salih	Forests Research Centre	Research Ins.
39.	Dr. Ahmed Suliman Alwakeel	Agricultural Research Cooperation , Ministry of Science and Technology	Research Ins.
40.	Edward Andrew Ashek	Meteorological Cooperation, Ministry of Science and Technology	Research Ins.
41.	Sabir Ali Taha Mohamed	Meteorological Cooperation,, Ministry of Science and Technology	Research Ins.
42.	D. Ali Adam Tahir	Animal Wealth Research Corporation	Research Ins.
43.	Prof. Omer M. Salih.	Food Research Centre	Research Ins.
44.	Halima salim Ahmed	Sudan National Assembly	Media
45.	Alzubir Osman Ahmed	Sudan National Assembly	Media
46.	Tahani Abdaala Alsheck	Sudan National assembly	Media
47.	Mahgoup Gebash	Alwan Newspaper	Media
48.	Sumia Nadeem	Armed Force Newspaper	Media
49.	Yasir M. Algabshawi	Citizen Newspaper	Media
50.	Hassap Alrasul Suliman	Sudan Radio	Media
51.	AlFatih Ali Hamad	SOUNA	Media
52.	Amani Khmis Ali	Alwahda Newspaper	Media
53.	Igbal Mohamed Al nour	Alwahda Newspaper	Media
54.	Mona AlBeshir	Sudan Vision Newspaper	Media
55.	Mohamed Idris Mohamed	Alray Alaam Newspaper	Media
56.	Dr. Nawal Khidir Nasir	Sudan University for Science and Technology	University
57.	Prof. hassan A. musand	Sudan University for Science and Technology	University
58.	Alabas Doka M. Ali	Sudan University for Science and Technology	University
59.	Prof. Mohamed O. Gaffar	Sudan University for Science and Technology	University
60.	Dr. Omer Saeed Musa	Faculty of Forestry, University of	University

61.	Prof Mukhtar A. Mustafa	Khartoum Institute of Desertification Studies and Afforestation of Desert, University of Khartoum	University
62.	Prof. Ibrahim B. Agabana	Institute of Desertification Studies and Afforestation of Desert, University of Khartoum	University
63.	Dr. Awad Abu Swar	Institute of Desertification Studies and Afforestation of Desert, University of Khartoum	University
64.	Dr. Altegani M. Salih	Institute of Desertification Studies and Afforestation of Desert, University of Khartoum	University
65.	Prof. Mohamed A. Albasir	Africa International University	University
66.	Prof. .Salah Aldeen Goda	Faculty of Forestry, University of Khartoum	University
67.	Dr. Mirgani tag Alseed	Institute of environmental studies, University of Khartoum	University
68.	Abdalla Ahmed Alhadalo	States Council	Parliamentarian
69.	Istanlarose Wani Jadia	Committee of Agricultural & Animals Affairs , Sudan National Assembly	Parliamentarian
70.	Mickel Madout Shali	Sudan National Assembly	Parliamentarian
71.	Wall Deng Alew	Committee of Agricultural & Animals Affairs , Sudan National Assembly	Parliamentarian
72.	Mousa Ahmed Hamed Al Neel	Committee of Agricultural & Animals Affairs , Sudan National Assembly	Parliamentarian
73.	Bakash Talha Ibrahim	Committee of Agricultural & Animals Affairs ,	Parliamentarian
74.	Salah Mohamed Ali Alfaki	Sudan National Assembly	Parliamentarian
75.	Saimon Naset Peter	Media and Information Committee, the Sudan National Assembly	Parliamentarian
76.	Margret Samoeil Aro	Chairman, Health and Community Development Committee, the National assembly	Parliamentarian
77.	Mahdi Ibrahim, Mohamed	Sudan National Assembly	Parliamentarian
78.	Mohamed Alim Ahmed	Sudan National Assembly	Parliamentarian
79.	Abdalla Shul Rool	Sudan National Assembly	Parliamentarian
80.	Altahir Alregig Alhag	Committee of Admin. Work and Grievances, Sudan National assembly	Parliamentarian
81.	Abbas Alkhider Hussein	Sudan National Assembly	Parliamentarian
82.	Abugasim Seif Aldeen	Sudan National Assembly	Parliamentarian
83.	Ali Mohamed Ibrahim Alarabi	Committee of Agricultural & Animals Affairs , Sudan National Assembly	Parliamentarian
84.	Samwel Check Shuol	Sudan National Assembly	Parliamentarian

85.	Khalil Mohamed Abdalla	Sudan National Assembly, S. Dafur	Parliamentarian
86.	Idirs Ibrahim Alwale	Sudan National Assembly, Kassala	Parliamentarian
87.	Alzubir Abdalla Taha	Sudan National Assembly, Gadarif	Parliamentarian
88.	Mohamednour M. Ismail	Chairman, Committee of Culture, Youth, and Sport , Sudan National Assembly	Parliamentarian
89.	Ahmad Hagana Mohamed	Sudan National Assembly, Gezira	Parliamentarian
90.	Fisal Balla Awad	Sudan National Assembly	Parliamentarian
91.	Taha Hassan Tag Aldeen	Sudan National Assembly, Darfur	Parliamentarian
92.	Pul Magog ben Deing	Sudan National assembly	Parliamentarian
93.	Yagoub Alsaid Hamid	Committee of Transportation, Sudan National Assembly	Parliamentarian
94.	Mohamed Ahmed Atta	Committee of Agricultural & Animals Affairs , Sudan National Assembly	Parliamentarian
95.	Mustaffa Omer Ahmed	Sudan National Assembly	Parliamentarian
96.	Yousif Ahmed Yousif	Sudan national Assembly, Sinnar	Parliamentarian
97.	Nasir Fadulalla Alamin	Sudan National Assembly	Parliamentarian
98.	Prof. Alamin Dafalla	Chairman, Committee of Agricultural & Animals Affairs , Sudan National Assembly	Parliamentarian
99.	Huda Gala Aldeen Yousif	Federal Ministry of Justice	Gov.
100.	Al Fadil Mustafa Al faki	National Corporation for Geological Research	Gov.
101.	Dr. Abdel Muneim Abdu Baiyomi	Ministry of Animal wealth	Gov.
102.	Muawia mohamed Mustaffa	Ministry of Agriculture and Forestry	Gov.
103.			
104.	Mohamed Markazo kuku	Ministry of Tourism and Wildlife	Gov
105.	Sidig Moham ed Ali	Suki Agriculture Cooperation	Gov
106.	Ibrahim Hussein Abdalla	Administration of Federal Range and Pasture	Gov
107.	Omer Algonee	Administration of Federal Range and Pasture	Gov
108.	Handi Awadalla	Forests National Corporation	Gov
109.	Abdel Malik Mohamed Ali	Southern Sudan Development Funds	Gov
110.	Abdel Halig Al Hussein	Commission of Humanitarian Aid	Gov
111.	Abdel Rahman Ysin Terap	Administration of NGOs, Ministry of Humanitarian Affairs	Gov.
112.	Dr. Altag Beshir Ahmed	National Centre for Peace and Development	Gov.
113.	Osman Omer Abdalla	Forest National corporation	Gov.

114.	Suliman Abdu Algadir	Drought centre	Gov
115.	Dr. Sadda Al deen Ibrahim	General Secretary, Higher Council for environment and Natural resources	Gov.
116.	Salah AlDeen Abdalla Al Obeid	UNCCD, Focal Point, Ministry of Agriculture and Forestry	Gov.
117.	Sumia Ismail Abdaala	UNCCD, Focal Point, Ministry of Agriculture and Forestry	Gov.
118.	Amal Abulgadir Hussein	UNCCD, Focal Point, Ministry of Agriculture and Forestry	Gov
119.	Aziza kuku Magoon	UNCCD, Focal Point, Ministry of Agriculture and Forestry	Gov
120.	Mahasin Alhag Osman	Ministry of Agriculture and Forestry	Gov
121.	Mohamed Yousif M. Adam	General Administration of Technology Transfer	Gov
122.	Saad Hamad M. Algali	Teacher, Ministry of Education	Gov
123.	Gebri Abdellatif Ahmed	Minister, Ministry of agriculture and Animal wealth, River Nile State	Gov.
124.	Abdel Raheem Ali hamad	State Minister, Ministry of Agriculture and Forestry	Gov
125.	Ahmed Altayep Ali	Acting Minister, Ministry of Agriculture , Blue Nile State	Gov
126.	Mohamed A. Khalid	Ministry of Agriculture, AlDamazin	Gov
127.	Omer A. Alwasilla	Forests National Corporation	Gov
128.	Ali Kudi Teraia	Administration of Wildlife	Gov
129.	Ilham Kamal Aldeen	Ministry of Foreign Affairs	Gov
130.	Dr. Fathrahman A. Mohamed	Ministry of Agriculture and Forestry	Gov
131.	Hashim Omer Mohamed	Ministry of Agriculture and Forestry	Gov.
132.	Ilham Alsadig Ahmed	Rang and Pasture Administration, Ministry of Agriculture and Forestry	Gov
133.	Ibrahim Hussein	Rang and Pasture Administration, Ministry of Agriculture and Forestry	Gov
134.	Fisal Hasab Alrasoul	Ministry of Agriculture, N. Kordofan	Gov.
135.	Abdel Alhameed A. Saeed	Ex –Minister of Agriculture	Free Lance
136.	Yousef Yagoup Mohamed	Retired Agriculturalist	Free Lance
137.	Hashim M. AlHassan	Retired Agriculturalist	Free Lance
138.	Fathia salh musa	Retired Agriculturalist	Free Lance
139.	Dr. Gaffar Karar	Karar and Partner’s Consultancy Office	Free Lance
140.	Kamal Hassan Badi	Retired forester	Free Lance
141.	Dr. Abdel Raheem A. belal	Workshop’s facilitator	Free Lance

ANNEX 3: DESERTIFICATION: THE NUMBER ONE ENVIRONMENTAL PROBLEM IN SUDAN

Dr. Ahmed S. El Wakeel⁴

1. INTRODUCTION

Deserts and drylands are the largely unfenced, unforested parts of the planet, where low and erratic rainfall makes the land unsuitable for cultivation. The land is used for grazing domesticated animals, set aside for wild animals or simply set aside. Human population density is generally low, except around water sources or the focus of economic activity such as minerals. But experienced nomadic and pastoral cultures often thrive in the marginal land, some of which is suitable for cultivation if irrigated, making it a potentially valuable resource where water is available.

1.1 History and concept of desertification

The term 'desertification' emerged in the 1920s/30s to express a concern that the Sahara might be advancing southwards, swallowing Sub-Saharan Africa in its wake (Aubréville 1949; Stebbing 1938). Lamprey (1975) came to similar conclusions in his studies in North Kordofan. Others urged caution though as more careful studies could not substantiate the hypothesis of an advancing Sahara (Anglo-French Commission 1973; Helldén 1991; Mortimore 1989). The concept of desertification has been the subject of continuous debate ever since the term was brought up by Aubréville, with major disagreements on the causes, impacts, reversibility, environmental setting, rate of progress and remedies. Nevertheless, the frightening image of a creeping burial by sand triggered urgent calls for action from international aid organizations, donor countries and governments (Swift 1996). However, the notion of 'advancing deserts' or 'creeping deserts' faded in the absence of convincing data, attention shifted towards human actions that were clearly degrading lands, such as deforestation, over-cultivation, over-grazing, and salinity-inducing irrigation practices, frequently aggravated by droughts. Desertification does not refer to the expansion of existing deserts, nor should be used to describe cyclic phenomena, as when decadal variations in precipitation lead to periods of drought and to losses of vegetation that are fully restored when the rains return. For example, desertification has been used to describe land degradation along the southern border of the Sahara desert, where the desert was found to be expanding southward at 5.5 km per year in the Sudan and Sahel (UN survey 1975). In fact, this expansion, reaching its peak in 1984, was effectively reversed with a return to a period of greater rainfall in more recent years and in most areas, there was no long-term loss in the productive capacity of the land. The best example in Sudan was the year 1988 where rains and floods devastated the country and when vegetation covered areas that were assumed barren with species that had disappeared for long periods.

Although desertification is usually associated with drought, it is quite common for land degradation to occur without changes in rainfall. It is often associated with the loss of desirable plant species and their replacement by species of lesser economic importance. Desertification is considered as a severe stage of land degradation, in which disturbances have gone beyond the resilience of the land and have caused an irreversible loss (at human timescales) of the land's carrying capacity or biological production potential.

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1.2 Definition and global extent of desertification

The UNCCD defines desertification as “land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities”. The most commonly cited forms of unsustainable land use are over-cultivation, overgrazing, deforestation, and ill-considered irrigation practices. Soils are being mined of nutrients at an alarming rate (Smaling, 1997; Van der Pol, 1992). Periodic droughts incapacitate and destabilize poor societies, and contribute to land degradation by reducing vegetative cover and water supplies, triggering a desperate exploitation of the remaining resources in order to survive. There are many factors that trigger desertification, including the unpredictable effects of drought, fragile soils and geological erosion, livestock pressures, nutrient mining, growing populations, inadequate/ambiguous property and tenure rights, landlessness and an inequitable distribution of assets, poor infrastructure and market access, neglect by policy makers and agricultural and environmental research systems, and the failure of markets to reward the supply of environmental services. Given this complexity of causal factors, an integrated approach including broad stakeholder participation is essential if peoples’ livelihoods and security needs are to be improved.

Land degradation, which includes both desertification and deforestation, is occurring worldwide, with the most severe impact on the poorest rural communities. It affects more than 110 countries and as much as two thirds of the world’s agricultural land. As a result, agricultural productivity is declining sharply, while the number of people to feed continues to grow. The situation is especially dire in Africa, where 43 per cent of the land is moderately to severely at risk from human induced land degradation and where millions of people are threatened by starvation. Land degradation is closely linked to poverty in developing countries. Poverty is both a consequence of land degradation and one of the causes. Poor people, with no resources to fall back on, are forced to put immediate needs before the long-term quality of the land.

2. CURRENT STATUS OF DESERTIFICATION IN SUDAN

Desertification is the number one environmental problem facing Sudan. Therefore, literature of the 1970s particularly in areas of north Kordofan is replete with information on causes and impacts of desertification. Among such studies and publications are those of Rapp (1974), Lamprey (1975), Mensching and Ibrahim (1976), DECARP (1976a, b), Hammer-Digernes (1977), Eckholm (1977), Ibrahim (1978), Baumer and Tahara (1979) and (Rapp and Hellden in 1979). Other studies carried out in the 1980s and 1990s were such as those of Hellden (1988), Hussein (1991) and Kassas et al. (1991).

2.1 The magnitude of desertification in Sudan

In the Sudan, desertification occurs to varying degrees in the areas (44,000 km²) lying between Lat. 10 and 18 N and traverses the country from eastern to the western borders. It also includes a narrow strip of the land along the river Nile stretching northward to the Egyptian border between long. 30 and 32 E. thirteen states are affected by desertification, namely, Northern, River Nile, Red Sea, N. Kordofan, N. Darfur, W. Kordofan, W. Darfur, Kassala, Gedarif, Khartoum, White Nile, Gezira and Sennar. These states, including the desert in the north, cover an area of 178 million ha, i.e. 72% of the total area of the country. Desertification ranges from very severe in the northern fringe of the semi-desert ecological zone to moderate in the southern fringe of the low rainfall savanna (Anonymous, 1985; Salih, 1996). Thirteen states out of the 26 states of the country are affected. However, some other areas in the country are prone, threatened or vulnerable to desertification.

Recent assessments showed that severe and very severe soil degradation covers a total area of 58 million hectare, while degraded land is estimated at 17 million hectares (UNEP/ISRIC/GLASOD

1990; Dregne *et al.*, 1991; Ayoub, 1998). It was estimated that wind erosion, water erosion and chemical and physical deterioration of the soil covered 27.0, 18.2, 15.8 and 3.0 million hectare, respectively. Soil degradation was highly correlated with human population density. The most degraded zones were the arid and semi-arid zones where 76% of the human population lives. Most of the population of the affected States is poor and relies heavily on the natural resources (cultivation of marginal sandy soils, tree and vegetation cutting for fuel and construction of huts and overgrazing) for subsistence. Poverty leads to subsistence livelihood, which increases land degradation and hence desertification which aggravates poverty. This vicious circle can only be broken if programs for combating desertification are integrated with strategies of poverty alleviation. The overall impact of desertification is reduction in crop productivity and carrying capacity and consequent increasing levels of poverty. Thus there is a strong relationship between desertification and food insecurity. Regions of sever land degradation coincide with regions of sever food insecurity. Thus action programs for combating desertification, which are not integrated with poverty alleviation programs, are doomed to fail. It goes without saying that participation of the local affected people is an obvious key to success.

2.2 Impacts of desertification

In general land degradation undermines the natural resources on which the relatively poor resource users of the affected areas and their families depend for their very survival. It is well established that desertification processes cause reduction of biological and economic productivity, socioeconomic deterioration, and environmental degradation and consequent degradation of the quality of life.

In the Sudan, biological degradation is reflected in reduction of crop yields, perennial biomass production in rangelands, woody mass, and surface and ground water resources. Sand encroachment on the River Nile in the north, on productive first terrace alluvial soils, on villages and infrastructure are additional manifestation in of land degradation. While the poverty is the root cause of desertification in Sudan, desertification accentuates poverty and creates a vicious circle, which commences with poverty leading to desertification, and ends with more poverty. Furthermore, desertification causes economic instability political unrest through tribal conflict over scarce rich range land, crop land, and water resources. Desertification also prevents sustainable development in affected countries, causes environmental migration, and threatens the health status of the local communities, particularly children. Desertification causes environmental degradation since it contributes to the planet's loss of biodiversity, biomass, bio-productivity, and humus reserve, and causes climate change. All Africa in general and Sudan in particular, the most dramatic impact of desertification is stagnating and declining yields of field crops and hence food supply and increasing levels of poverty.

Environmental disasters and armed conflicts that have become so frequent in Africa threaten livelihoods and also contribute to rural-urban migration, generating new types of refugees, the environmental refugees which move away from vulnerable regions (Myers 2001; McLeman & Smit 2005). Sustained rural-rural migration particularly from the drier regions to the wetter sub-humid regions puts undue pressure on land resources both for farming and pasture. This has largely resulted in communal conflicts between pastoralists and sedentary farmers, further weakening the economy of the already impoverished rural areas (Fiki and Lee, 2005; Moore, 2005).

2.2.1 Desertification and food security

Until proven otherwise, agriculture and forestry remain the backbone of the economy of Sudan. Most of the agricultural activity lies in the arid and semi-arid zones. Prior to the introduction of the oil sector in the Sudanese economy, agriculture was the dominant tradable sector. It contributed

about 48% to the gross domestic product (GDP), generated over 90% of the foreign exchange earnings, and provided the raw material for agro-industries and employment for over 80% of the labor force (Shaaeldin 1986). The total output of cereals averaged about 3.6 million tons. The contribution of the irrigated, mechanized and traditional rain-fed sectors amounted to 33.8, 44.9 and 21.2% respectively (Anonymous 1997). It is evident that two thirds of this output is affected by the uncertainty of precipitation and desertification. Mechanized rain-fed agriculture introduced in the 1940's is practiced on the heavy clay soils of the central clay plain (El Gadarif, El Damazin and Kadugli). The main crops grown are sorghum and sesame. The soil extent over large level plain favorable to mechanized cultivation and have high water holding and nutrient capacity, but they are limited by the high montmorillonitic clay content which makes them vulnerable to compaction by heavy machinery, water logging and poor aeration. The soils are also vulnerable to wind erosion and hence desertification in summer particularly during the period of prolonged droughts e.g. 1974/75 and 1986/87. Over this period, the performance of the agricultural sector has been characterized by low production coupled with great variability of yield and stagnation of exports. Although some positive growth rates were recorded during some years, the overall trend during that period has been a declining one. The contribution of the sector of the GDP declined at an annual rate of 1.14%. The total export on the other hand, which is mainly of agricultural origin, recorded a final annual increase of 0.87%. The total production of cereals (sorghum, millet and rice) increased from an annual average of 2.52 million metric ton during 1974-1977 to 3.197 million metric ton during 1985-1988 reflecting an annual rate of growth of 1.6% compared to an estimated population growth rate of 2.8%. Recent data for the period 1984/85-1995/96 indicated both spatial and temporal variation of cereal production. The total cereal (sorghum, millet and wheat) production ranged from 1.33 in 1984/85 to 5.17 in 1988/89 with an overall average of 3.44 million metric ton. The increases in the nineties were attributed to increase in the cultivated areas, allocation of credits in the traditional sector and adoption of recommended technical production packages. The major crops grown in the irrigated sector include cotton, sorghum, wheat, groundnut, broad bean and vegetables. Sudan also produces oil crops, especially in the rain-fed sector. FAO data for the period 1960-1990 presented by Ayoub 1998 showed a yield (kg/ha) decline from over 1000 to 600 for groundnut, from 900 to 600 for sorghum, from 800 to 250 for millet and from 400 to less than 200 kg/ha for sesame. This decline was attributed mainly to soil degradation that increase the last 40 years. Food insecurity was very major to severe in the Red Sea hills area, partial to major in most parts of Kordofan and Darfur where traditional agriculture is practiced in marginal sandy soils, and absent in Gadarif, Sinnar, Blue Nile, Upper Nile and southern Kordofan

2.2.2 Impacts on Biodiversity Components and Ecosystems

Agrobiodiversity

Repeated droughts and desertification, during the 1970's, 80's and 90's that have hit large areas in the country have dramatically affected dryland agriculture. In Sudan many of dry land areas were once productive and rich in agrobiodiversity. They were also known to support large numbers of domestic livestock and wildlife. These drylands contribute significantly to the country's biodiversity, food production and (GDP). Agriculture in these zones is mostly rainfed and includes some of the country's most important crops grown on; sandy, clay and gardud types of soils and along the Nile banks and wadies.

In the northern region of Sudan encroachment is endangering all valuable agricultural lands and species. The situation in Karma Basin is one best indication. Serious river bank erosion (Haddam) associated with moving sands are constricting the Nile course at Dongola and Affad areas (Mohamed, 1999). Thousands of communities along the narrow strip of arable land that borders the

Nile River have watched the sand move closer every day. The riverbanks erode, the river changes course, and the only source of water thickens with silt and other debris.

Genes, species and other components of biodiversity can not be separated from the process of life that the components give rise to. While many people tend to associate biodiversity with tropical rain forests, dryland ecosystems also contain a rich biota, including plant and animal species not found elsewhere. Many of Sudan's most important crops, such as sorghum and millet originated in drylands. There are also other species that provide plant-derived oils, medicine, resins, waxes and other commercial products. Drylands provide critical habitats for wildlife including large mammals and migratory birds. These can be threatened and endangered by elements of nature and/or human activities. However, the most affected regions of the country by desertification are the northern, western, central and eastern parts. This does not mean that the south is immune to desertification. Even though there are no accurate data on the magnitude of biodiversity losses, in what follows there are some examples to the negative effects of desertification on ecosystem diversity.

Traditional and indigenous crop varieties and cultivars, which constitute the staple food for people in dry regions, have been threatened. The survival of local pearl millet strains especially the late maturing ones in western Sudan have been adversely affected (Abuel Gasim, 1999). Sorghum types, local groundnut landraces, roselle and cowpea varieties are also suffering from desertification accelerated by climatic changes in those parts of the country (Abdalla and El Awad, 1999). This has become a driving force to shifting to early maturing and improved seed varieties. The traditional varieties gave way to modern ones thus sacrificing many important genetic traits of adaptability. Though disappearing fast, indigenous varieties remain a vital resource for plant breeders because of their resistance to stresses such as drought and diseases.

Field crops raised on these locations are different varieties and cultivars of sorghum, millet, maize, groundnut, sesame, roselle, cotton, cowpea and watermelon. There are also several varieties and accessions of horticultural crops (both vegetables and fruits) that are grown in the semi-desert zone in flood plains. Several date palm (*Phoenix dactylifera*) cultivars dominate the desert and semi-desert regions particularly in northern Sudan and "Kutum" area of western Sudan. Mangoes (*Mangifera indica*) and citrus cultivars prevail on those areas too. There are also several tree species of economic value in these zones. Furthermore, there are so many wild relative species of these crops within these zones. Many of these crops are either under pressure or they are already endangered by drought and desertification.

Recent estimates of livestock numbers stand to a total of almost 116.5 millions heads of cattle, sheep, goats and camels distributed in most of the states of the country. This wealth of domestic livestock in addition to equines and poultry encompass a diversity of breeds and types. Other than direct losses by mortality of domestic livestock due to droughts and desertification, movement of livestock to other grazing areas and mixing with different breeds leads to genetic erosion and crosses resulting in less desirable traits. An outstanding example is the known "Foja" cattle type one of the best milking types is now confined to a small pocket in north western Kordofan and faces extinction because of drought and desertification. This cattle type has originated from Butana cattle of north central Sudan and was introduced into the region by El Mahdi followers in the late 1890s (El Hag, 1999).

Rangeland Ecosystem

Sudan's rangeland areas occupy approximately 46% of the total area of the country and provide 86% of the feeds for the animals in the country. There is wide diversity in rangeland habitats and with 204 plant species supporting these animals. The bulk of this wealth is in the western parts of

the country. However due, to the many threats, major of which is repeated droughts and desertification, several rangeland plant species have disappeared. Many important range plant species are endangered such as *Blepharis linanariflolia* (Begheil), *Andropogon gayanus* (Abu Rakhees), *Panicum turgidum* (Tumam), and *Zornia glochidiata* (Luseig) and many others. It is not that grasses and herbs are the only ones endangered but there are several prominent fodder shrub and tree species that are under pressure from both grazing and desertification. Species such as *Maerua crassifolia* (sereh), *Dicrostachys cinerea* (Kadad) and *Cadaba glandulosa* (Kurmut) are endangered, to name but a few. Desertification has played a remarkable role in changing the botanical composition of the rangeland areas. Palatable plant species started giving way to less palatable ones and finally invaders (unpalatable species) are taking over. If retrogression continues then bare ground will be the final outcome.

Forest Ecosystem

It is estimated that there are about 533 tree species in the Sudan, 25 of which are exotic and 184 shrub species, 33 of that are exotic. This ecosystem has great diversity both in habitats and species. Species have also wide variation of uses such as for timber, fuelwood, building material, fodder, honey production, gum, tannins and medicine production.

There is a long list of important tree species that are threatened by extinction due to repeated droughts and desertification in many areas of the Sudan especially Kordofan and Darfur States. These are such as *Adansonia digitata* (Tabaldi), *Borassus aethiopicum* (Daleib), *Hyphaene thebaica* (Dom), *Anogeissus leiocarpus* (Sahab), *Lonchocarpus laxiflorus* (Horhor), *Faidherbia albida* (Haraz), *Cordia africana* (Gimbeel), *Khaya senegalensis* (Mahogany) and *ziziphus-spina-christi* (Sidir). Drought directly affects the magnitude of Hashab tree production (El Tahir,1999). Regeneration is not always possible among species and extinction will ultimately be the end.

Wildlife Ecosystem

Drought and desertification directly and indirectly affect wildlife diversity. In the northern parts of the country where sandy soils are dominant and desert has encroached depleting the vegetation cover, wildlife had to migrate seeking food, water and shelter. The region became almost void of wildlife. On the other hand, in wildlife "hot spots" on clay soils like Dinder, migrating livestock trespass the park not only competing with wild animals for forage and water but forcing them out of the park altogether (Abdel Hameed 1985, Awad 1985). Many animals are reported to have been lost (658 reedbuck, 33 buffalo, 15 bushbuck and 3 oribi) (Mohamed 1980). Degradation in the catchment area of the "mayas" (water logged depressions) and increased rate of erosion have led to silt deposition on the beds of the mayas. Furthermore, drought has caused drying of the depressions (mayas) along the river flood plain where animals drink. This caused unavailability of water and might have changed the vegetation composition in the area. Wildlife is then faced with shortages in both water and feed.

Marine Ecosystem and Coastal Habitats

The Sudanese Red Sea coastline is certainly affected by what is taking place on the terrestrial areas. Disturbances such as deforestation, drought and desertification on land many kilometers away from the coast can lead to degradation of the coastline environment. This is obviously observed in the mangrove habitats and this is reflected on the losses in the many species harbored in the habitat.

In view of the general degradation of rangeland in dry tropics some of the natural vegetation of coastal habitats in Sudan offered alternative substitute for grazing animals. Many mangrove and halophytic species in the Red Sea coastal fringe have been subjected to grazing pressure by camels and goats. These are species such as *Suaeda monaica*, *S. fruticosa*, *Acluopus lagopodes*, *Limonium axillare*, *Zygophyllum album*, *Z. simplex* and others. This habitat is under pressure from grazing by domestic animals which is triggered by drought (Mohammed, 1999).

3. STRATEGIES, MECHANISMS AND RECOMMENDATIONS FOR MITIGATION

At the national level, first and foremost needed, is identifying and developing a central coordinating agency responsible for providing guidance and directing of work on Drylands. The philosophy and mandate of this body or agency will include both research and development components.

The programs and actions recommended to be undertaken by this agency can be summarized in the following:

- Determine by ranking on basis of magnitude the current desertification – impacted dryland locations through use of precise high technology techniques such as mapping by aerial photography, remote sensing and Geographical Information Systems (GIS), and monitor closely the desert encroachment on potentially productive drylands.
- Adopt an ecosystems research approach in solving problems of desertification while linking the implementation of the conventions on Biodiversity on Climate change and on Desertification (CBD, UNFCCC and UNCCD).
- Strengthen the role of NGOs and their cooperation with governmental institutions.
- Raise awareness among and involve communities at all levels of decision making.
- Use in-situ conservation of genetic resources through conserving wild relatives of cultivated plants in their natural habitats. This gives them the chance to evolve in confrontation with all changes of soil and climate and pests and diseases. Their seeds may be collected and preserved in gene banks (ex-situ conservation), even though they stop to evolve this way. Also discourage use of improved varieties at the expense of indigenous species, whenever possible.
- Develop legislation and enforce laws that prohibit over exploitation of natural resources and encourage protection and preservation of terrestrial ecosystems at levels of habitats, species and genetic resources.
- Promote demonstration projects using a holistic approach of natural resources management that concentrates on decentralized, participatory and multi-sector interventions. The field strategy of these projects must lie on the local communities with the assistance of a multidisciplinary team able to link biodiversity conservation and development including the economic and social aspects of the ecosystems.
- Encourage and promote popular participation and environmental education, focusing on desertification control and management effects of drought public awareness using an approach based on cost-benefit for the conservation of biological diversity. Strengthen the knowledge base and developing information and monitoring systems for regions prone to desertification and drought, including the economic and social aspects of these ecosystems.

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ANNEX 4: THE UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD)

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HISTORY OF THE UNCCD

From 1998 to the 1974, a very severe drought struck the Sahel region of Africa. Over 200,000 people died of starvation while others field their homes for other areas and countries. Millions of animals also died due to lack of water and pasture.

An in-depth analysis of the problem revealed that, in addition to the drought a series of factors had combined to weaken the social, economic and production systems of the people living in the Sahel, which in turn had weakened their ability to cope with the drought. Some of the underlying issues included an unstable world economy; a drop in the prices of agricultural products, falling land productivity and government policies that discriminated against people in the dry lands. These created a situation that made the people of the Sahel much more vulnerable to the drought when it arrived, and left them devastated when it was finally over.

In response to this crisis, the Inter-State Permanent Committee on Drought Control in the Sahel (CILSS) was established in 1973 by nine Sahelian Countries. Further, in 1977, the United Nations Conference on Desertification (UNCOD) was held in Nairobi, Kenya. At this Conference, desertification was addressed as worldwide problem for the first time and a Plan of Action to Combat Desertification adopted. Unfortunately, despite this, and other efforts, the United Nations Environment Programme (UNEP) concluded in 1991 that the problem of land degradation in arid, semi-arid and dry sub-humid areas has intensified, although there were some local examples of success.

In 1992, the United Nations Conference on Environment and Development (UNCED), which is also known as the Earth Summit, was held in Rio de Janeiro, Brazil. UNCED brought together over 100 heads of States to address urgent problems of environmental conservation and socio-economic development. At this Summit, the leaders adopted Agenda 21, which is a plan for achieving sustainable development in the 21st Century. In addition, the UN, General Assembly was asked to setup an inter-governmental committee to prepare a legally binding instrument to address the problem of desertification. The Intergovernmental Negotiating Committee (INCD) was established in December 1992.

The INCD held five sessions, during which the convention to Combat Desertification was developed. The Convention was adopted in Paris, France, on 17 June 1994 and opened for signature on 14-15 October 1994.

The United Nations specified a period of one year, during which countries could append their signatures to the Convention By October 1995, 115 countries have become signatories. Countries which have signed the Convention were then required to ratify it, which means to pass it through their respective parliaments and ensuring that their national laws were consistent with the

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Convention. The Convention came into force on 26th December 1996, meaning that it became an international, legally binding agreement for those countries, which had ratified it. Over 191 countries were parties as at September 2005.

OBJECTIVE OF THE UNCCD

1. The objective of this Convention is to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective action at all levels, supported by international cooperation and partnership arrangements, in the framework of an integrated approach which is consistent in the Agenda 21, with a view to contributing to the achievement of sustainable development in affected areas.
2. Achieving this objective will involve long term integrated strategies that focus simultaneously in affected areas, on improved productivity on Land and the rehabilitation, conservation and sustainable management of land and water resource, leading to improve living conditions, in particular at the community level.

PRINCIPLES OF THE UNCCD

In order to achieve the objective of this convention and to implement its provisions, the Parties shall be guided, inter-alia, by the following:

1. The Parties should insure that decisions on the design and implementation of programmes to combat desertification and/or mitigate the effect of drought are taken with the participation of populations and local communities and that an enabling environment is created at higher levels to facilitate actions at national and local levels
2. The Parties should in spite of international solidarity and partnership, improve cooperation and coordination at sub-regional, regional, and international levels, and better focus financial, human organizational and technical resources where they are needed.
3. The Parties should develop a spirit of partnership, cooperation among all levels of government, communities, non-governmental organizations and land holders to establish a better understanding of the nature and value of land and scarce water resources in affected areas and to work towards their sustainable use : and
4. The Parties should take into full consideration the special need and circumstances of affected developing country Parties, particularly the least developed among them.

THE IMPORTANCE OF THE UNCCD

- The UNCCD is a binding Convention, and initiates basis for an international environmental Law.
- The Convention gives priority for implementation to Africa continent
- The affected Parties committed to prepare and implement NAPs
- The affected parties committed to establish the National Desertification Funds (NDF).
- The Donor committed to help the affected developing countries
- The Convention encourages the partnership between the government, civil society, and donors.
- The implementation of the Convention based on bottom – up approach.

STRUCTURE OF THE UNCCD

CONFERENCE OF PARTIES (COP)

The COP is the Convention's supreme governing body or decision-making body, with authority to oversee its implementation.

The mandate of the COP:

- Regularly review the implementation of the convention.
- Promote and facilitate the exchange of information on measures adopted by the parties and determine the shape of timetable for transmitting the information to be submitted by the parties and review the reports and making recommendation on them.
- Establish the subsidiary bodies and provide guidance to them.
- Approve the programme and budget for its activities.

SECRETARIAT

In 1999, a permanent Secretariat of the UNCCD was established in Bonn, Germany. It has been established to carry the administrative function and serving as a focal point for the convention. The General Secretary has been appointed by the COP to coordinate the Convention activities.

The main functions the Secretariat

- To provide services to the COP by arranging meetings, preparing documents, coordinating with other relevant bodies, compiling and transmitting information and facilitating consultations.
- To provide assistance to affected developing countries in the compilation and communication of information that is required by the Convention particularly in Africa. by the convention.

GLOBAL MECHANISM (GM)

The GM encourages and assists donors, recipients, development banks, NGOs and others to mobilize funds and channels them to where they are most needed. It seeks to promote greater coordination among existing sources of funding and greater efficiency and effectiveness in the use of funds. The GM is under the authority of the COP, which periodically reviews its policies, operational modalities and activities. The GM is hosted by the International Fund for Agricultural Development (IFAD)

SUBSIDIARY BODIES

The UNCCD has two subsidiary bodies with specific functions; the committee on Science and Technology (CST) and the Committee for the Review of the Implementation of the Convention (CRIC)

THE COMMITTEE ON SCIENCE AND TECHNOLOGY (CST)

The CST provides the COP with information and advice on scientific and technological matters relating to combating desertification and mitigating the effects of drought. It is a multi-disciplinary committee composed of government representatives with the relevant expertise from countries that have ratified the Convention. The CST reports regularly to the COP.

The Bureau of the CST is responsible for following up on the work of the Convention in-between COP sessions e.g.:

- The committee surveys the existing networks institutions, agencies and bodies.
- The CST set up and maintains a roster of independent experts and draw on it to form ad hoc panels to give it information and advice on specific issues. The roster shall be based on nomination received in writing from the Parties, taking into account the need for multidisciplinary approach and broad geographical representation. These experts shall have scientific backgrounds and field experience.

THE COMMITTEE FOR THE REVIEW OF THE IMPLEMENTATION OF THE CONVENTION (CRIC)

The Conference of the Parties (COP), by its decision 1/COP/t, established the CRIC to assist the COP in regularly reviewing the implementation of the Convention. It considers reports from Parties and Observers, as well as information and advice from the CST and the Global Mechanism.

The CRIC shall be composed of all parties to the convention according to decision /COP.1, which contains the rules of procedures of the conference of the parties, and decision 1/COP, 5 on additional procedures, or institutional mechanism to assist in the review of the implementation of the convention.

THE ROLE OF DIFFERENT STAKEHOLDERS

THE ROLE OF GOVERNMENT

Only government can negotiate, vote and affirm or reject official UN agreements. In addition, governments that are Parties to the UNCCD are commitments under the Convention, using guidelines that are provided by the UNCCD Secretariat.

National Action Programmes (NAP) is one of the key instruments in the implementation of the Convention. National Action Programmes are meant to be developed by governments in a participatory manner involving the local communities. They spell out the practical steps and measures to be taken to combat desertification in specific ecosystems. NAPs are strengthened by Action programmes of Sub-regional (SRAP) and Regional (RAP) levels.

THE PARLIAMENTARY NETWORK

Since 1998 the Parliamentary Round Table (RT) has become an integral part of the COP sessions. Declarations adopted by members of parliament are integrated into the final report of the COP6 and the members of parliament commit themselves to undertake concrete actions aimed at addressing desertification and sustainable development issues.

In 2003, during the UNCCD session held in Havana, Cuba, the Parliamentary Network on the UNCCD was created. The UNCCD was created in recognition of the unique role parliamentarians can play in scrutinizing, monitoring and holding national governments they make, especially within the context of international agreements, such as the UNCCD.

The Role of National Parliamentarians

- To ratify the UNCCD and NAP.

- Participation in the session of the round table of the parliamentarians in COP.

The Parliamentary Network emphasized its main role in the implementation of the convention through their declaration in COP sessions, which stated that:

- Ensuring their commitment as parliamentarians by full contribution in the Implementation of UNCCD.
- Providing and enabling environment by strengthening relevant existing legislation and approving long-term policies and action programmes.
- Strengthen and implementation of legislations that related to combat desertification and conserve the ecosystems.
- Ensuring the priority of educational scientific policies through awareness campaigns of causes and impact of desertification among local communities.

THE ROLE OF CIVIL SOCIETY

“The united nations once dealt only with Government. By now we know that peace and prosperity cannot be achieved without partnerships involving Governments, international organizations, the business community and civil society. In today’s world, we depend on each other.” Kofi Annan, UN Secretary General.

Within the UN system, civil society organizations are recognized for their contribution towards the attainment of sustainable development. Agenda 21 groups civil society into nine major groups: Women, Children and youth, Indigenous People, Non-Governmental Organizations (NGOs), Local Authorities, Workers and Trade Unions, Business and Trade, Scientific and Technological Communities, and Farmers.

In order for civil society organizations to participate at UNCCD sessions, they need to seek accreditation with the secretariat. To date, over 720 NGOs have been accredited with observer status to the COP.

In addition civil society organizations can participate in the NGO Preparatory Meeting that is held just before the start of the COP sessions. NGOs also hold morning meeting where they strategize on how they will lobby governments to include issues of concern into the official deliberations and negotiations. The UNCCD also invites NGOs to exhibit at the conference.

Because there are many conventions, like the UNCCD, and only a few people know that they exist, it becomes fairly easy for governments to ratify them and then ignore their commitments to implement. Therefore, civil society organizations can play the watch dog role of ensuring that their governments are implementing their commitments under conventions that have signed and ratified.

THE ROLE PLAYED BY THE NGOS OF SUDAN

- Setting up of an NGO coordinating committees on desertification (NCCD)
- Raising awareness of a larger NGO and Community Based Organizations (CBOs) and other stakeholders on the extent and impacts of desertification in Sudan and UNCCD
- Identification of NGO and CBOs for their full involvement in the National Action Programme process.
- Lobbying for the launching of NAP processes and for establishment of National Desertification Fund.

- Advocating for full involvement of all civil society in the process of UNCD implementation.

THE ROLE OF EXTERNAL DONOR

The external donor consists of developed country parties, various UN Agencies, intergovernmental organization, multilateral and regional Financial Institutions and other International development organizations. Partnership among these various groups and stakeholders are needed at national level in order to facilitate use of resource as for combating desertification and mitigate the effects of drought.

NAP PROCESS AND PARTNERSHIP BUILDING AMONG THE KEY STAKHOLDERS AND PARTNERS

THE NAP PROCESS

The purpose of the NAP as stated in articles 9 and 10 of UNCCD, is to identify the factors contributing to desertification and practical measures necessary to combat it and/or mitigate the effects of drought.

NAP process emphasized the followings:

- Should draw lesson from past experience through review of existing activities with a view to identify gaps and define priorities for improved information management.
- Participation of local population and NGOs in the process in the process to empower local communities to manage their local resources and to build their capacities to strengthen their role in combating desertification.
- Should establish measurable benchmarks/ indicators for assessing monitoring the NAP implementation.
- Ensure increased participation by NGOs, civil society organizations and associations in local level initiatives as well as capacity building actions for local populations.
- Create a foundation for ensuring support Implementation of innovative programmes/projects developed in the NAP process projects that clearly link desertification of issues such as livelihood, poverty and food security.
- Accompanying legal and regularly enabling measures to sustain local level initiatives and ownership. A clear information sharing policy should also put into place in order to make the process more transparent and democratic.
- To put in place the financial mechanism to channel resources to the local level.

CONTENTS OF THE NAP:

1- The approach:

- According to article 9 in the Regional Implementation Annex for Africa each affected African country shall designate an appropriate national coordinating body (NCB) or focal point to function as a catalyst in the preparation, implementation and evaluation of its national action programme.
- Initial Identification of key stakeholder group including local communities, NGOs women, youth, parliamentarians, grass-root and civil society organizations to participate in the National Forum.
- Sensitization, awareness raising and information on past experiences and current challenges.

- Identification of key issues for a first forum meeting building a process to engage key participants in identifying priorities to the forum and the NAP.
- Holding of the National Forum with the aim of building consensus on the element and content of the NAP.

2- Getting the NAP Process on solid ground.

- Awareness of CCD and understanding of its provisions.
- Preparation of the first national forum to facilitate partnership building and serve as a mechanism for consultation, coordination, monitoring and review throughout the process.
- Identification of priority areas of programmes /projects are to be formulated and implemented.
- Identification of alternative funding sources, development of resource mobilization strategies and establishment of National Desertification Funds (NDF)

3- Full implementation and operationalization of the coordination mechanisms agreed upon during the first forum meeting.

- Implementation of priority programmes, measures should be taken for immediate implementation in conformity with funding arrangements.
- Establishment of indicators and benchmarks to monitor the NAP Process Implementation indicator development will be based on relevant data.
- Holding of meeting to provide opportunities to exchange ideas on the status of the NAP process and provide guidance for corrective measures.

The key stakeholders and partners in the NAP process at National level are:

- (i) Government and its various departments.
- (ii) Land users, women, grass root and other civil society organization.
- (iii) NGOs and
- (iv) External partners.

Partnership among these groups has to be established for ensuring the possible coordination of action, financial and technical cooperation of consistent with the objectives of the convention.

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Desertification and drought may have caused more human suffering than any other environmental problem and continue to threaten the livelihood of millions of people.

ANNEX 5: LINKAGES AND INTEGRATION OF UNCCD/NAP WITH VARIOUS DEVELOPMENT POLICIES AND PROGRAMMES OF THE COUNTRY

Prepared by
Hashim Mohamed El Hassan Mohamed Osman

1. Introduction

1:1 Definitions

- **Combating desertification**

It is a process that aims at prevention and/or reduction of land degradation; rehabilitation of partly degraded land and reclamation of desertified land.

- **Integration**

It is the act or process of combining two or more things in order to make them more effective.

- **Land degradation**

It is the reduction or loss of the biological or economic productivity of land.

- **Linkage:**

It is the existence or establishment of connections between two or more things.

- **Missing link:**

It is something that is necessary for understanding a problem or making something complete.

- **National Action Programme (NAP)**

It is a tool for combating desertification through specifying the respective roles of government, local communities and land users and the resources available and needed.

- **Rio Conventions:**

Framework convention on climate change (FCCC) and convention on biological diversity (CBD).

- **Stakeholder:**

A person or an organization that is involved in the NAP and has responsibilities towards it and interest in its success.

1:2 Causes of Soil Degradation:

According to Ayoub(1998) the majors causes of soil degradation can be illustrated as follows:

- Overgrazing (47%);
- Mechanized farming & irrational cultural practices (22%);
- tree-cutting for charcoal-making and fuel wood (19%) and
- Intensive use of wood for other purposes (12%).

1:3 Size and Seriousness of Desertification

The size of the problem of desertification can be viewed through the following points:

- number of affected states (13 states);
- decertified land (26% of the total area of the country) and
- Productive land vulnerable to desertification (63%of the total area of the country).

The two major indicators that show the seriousness of the problem of desertification can be identified as follows:

- drifting of rural people from affected areas towards urban centers and
- Conflict between pastoralists and sedentary farmers.

2- What Does UNCCD Say About The NAP?

2:1 Obligation of affected country parties

These obligations can be illustrated as follows:

- give due priority to combating desertification and mitigating the effects of drought, and allocate adequate resources in accordance with their circumstances and capabilities;
- establish strategies and priorities, within the framework of sustainable development plans and/or policies, to combat desertification and mitigate the effects of drought and
- provide an enabling environment by strengthening, as appropriate, relevant existing legislation and, where they do not exist, enacting new laws and establishing long-term policies and action programmes (Article9)

2:2 National Action Programmes (NAPS)

Article 10 of UNCCD tells the story of the NAPS in the following points:

- The purpose of national action programmes is to identify the factors contributing to desertification and practical measures necessary to combat desertification and mitigate the effects of drought.
- national action programmes include, as appropriate measures in some or all of the following priority fields:
 - promotion of alternative livelihoods;
 - strengthening programmes aimed at the eradication of poverty;
 - ensuring food security;
 - demographic dynamics;
 - sustainable agricultural practices;
 - development and efficient use of various energy sources;
 - institutional and frameworks;
 - strengthening of capabilities for assessment and systematic observation, including hydrological and meteorological services, and capacity building, education and public awareness

3- Who are the main stakeholders in the process of combating desertification?

3:1 the Ultimate Goal of Combating Desertification

Successful process for combating desertification must lead to:

- food security;
- poverty alleviation and
- Protection of the local environment.

3:2 the main stakeholders

From the previous slide one can identify the main stakeholders who are involved in the process of combating desertification as follows:

- the ministry of Agriculture & Forests;
- the ministry of Finance & National Economy;
- the ministry of Environment And Physical Development;
- the governments of the affected states and
- The affected communities.

4- The Missing Link

4:1 Development VS. Environment

- The international community views UNCCD as a developmental convention. Therefore it is a national concern in the first place and the support of the international community should be looked at as a supplement.
- At the domestic level, decision-makers in the government and civil society organizations as well consider UNCCD as an environmental convention.
- The dilemma is about how to match the domestic position with the international one.

4:2 Agricultural Investment VS. Natural Resources Management

- The stated policy concentrates on horizontal expansion in both irrigated and rain-fed agriculture.
- We have or we are going to have an investment map, but we do not have a land use map.
- We treat our natural resource base as an infinite one.

4:3 Rain-fed Agriculture VS. Irrigated Agriculture

- Irrigated agriculture enjoys some sort of modernization in terms of management and research work.
- Rain-fed agriculture is still lagging behind in both management and research work.

5- Integration and Linkages

5:1 Necessity for Integration and Linkages

The following three points support the need for integration and linkages:

- the problem is big and our financial resources are limited;
- the main finance for our development plan comes from the ministry Finance And National Economy and
- the donor community assists a well-defined plan that aims at mobilizing domestic resources.

5:2 Necessities for a Unified Vision

- The main stakeholders must agree that the NAP is an integral part of the development plan of the government.
- Rio conventions at the domestic level must consider UNCCD role as complementary to their roles.
- NGOS being national or international must be dealt with as true partners.

6-The way forward

6:1 Legislation for Setting Things Right

- Under the missing link subtitle there are three areas that need attention from both the legislative national assembly and the government.
- Without having a land use map all our efforts to combat desertification will be less effective.
- The legislative national assembly must take the initiative in encouraging the government to give much more concern to the issue of combating desertification.

6:2 Mechanisms for Achieving Integration & linkages

- It is advisable to have effective and efficient mechanisms through a flexible administrative structure.
- This structure must be seen as a support to the mother institution “Ministry of Agric & Forests” rather than a creation of a new one.
- The proposed mechanisms consist of:
 - the desertification national council or committee;
 - the desertification steering committee and
 - The secretariat office which will be held by the UNCCD national focal point.

- The membership of the council consists of the main stakeholders, pastoralists and farmers representatives, national NGOS representatives, private sector, and youth and women representatives.
- The council must form the steering from among the official stakeholders
- The functions of these three levels of mechanisms will be shown as follows:
 - The national council level→ policy-making and decision-making.
 - the steering committee level→ managerial work (planning, organization, direction and control)
 - The national focal point (secretariat) → co-ordination and daily routine work.

6:3 Passing the Bill

- What is urgent now is:
 - the inclusion of the NAP in the development plan of the federal government as well as the affected states; and
 - The formation of the previously mentioned mechanisms.
- It is advisable for the legislative national assembly to issue an initiative on desertification so as to speed up meeting commitments at the domestic and international levels.

ANNEX 6: NATIONAL ACTION PROGRAMS: ELABORATION AND IMPLEMENTATION MECHANISM

Mukhtar A. Mustafa¹

INTRODUCTION

Desertification is the largest environmental problem confronting the Sudan, and negatively affects its economy and the livelihood of its people in general and the local affected communities in particular. In the United Nations Conference on Environment and Development held at Rio de Janeiro, Brazil, the international community reached a consensus that: “desertification is land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors including climatic variation and human activities.” Land in this context includes soil, land surface vegetation and local water resources. Degradation means reduction of the current and / or the potential productive capacity of the land. This definition is different from desert encroachment since desertification can occur any where away from the desert by one or more of the following processes: vegetation degradation, wind erosion, water erosion, salinization/ sodication, soil compaction / crusting, loss of organic matter and accumulation of toxic substances in plants and animals.

Sudan is the largest country in Africa affected by desertification, since about 72 % of its total area (1.78 million km²) lies within the climatic frame of desertification. The following thirteen states are affected to varying degrees by desertification: the Northern, the Nile, Kassala, the Red Sea, northern Kordufan, Northern Darfur, Western Kordufan, Western Darfur, Al Gedarif, the White Nile, Khartoum, Gezira, and Sennar (Salih 1996). Two in Southern Sudan are at risk, namely the Upper Nile and South East Equatoria (Mustafa 2004). Desertification ranges from very severe in the northern fringe of the semi-desert ecological zone to moderate in the southern fringe of the low rainfall savanna (Anonymous, 1985; Salih, 1996). Desertification ranges from very severe in the northern fringe of the semi-desert ecological zone to moderate in the southern fringe of the low rainfall savanna.

Desertification has the following on-site and off-site farm, state, national, and international adverse effects:

- Loss of the current and potential productive capacity of agricultural, forestry, range, and livestock.
- The reduction of crop yields in affected states may create food gaps in these states.
- Desertification may cause famine in the affected states and trigger displacement of the local communities (urbanization) resulting in adverse impact on the affected cities.
- Food gaps in many affected states may reduce the national food reserve and create food insecurity at the national level.
- In general, desertification may reduce national biodiversity. Many food crops and fodder species originate from arid and semi-arid lands, which are vulnerable to desertification.
- Desertification may reduce the natural bank of irreplaceable medicinal materials.
- Suspended soil particles and loss of the vegetative cover may alter the energy balance and cause climate change.

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Previous National Efforts for Combating Desertification

About four decades ago, several agricultural development projects were implemented by the Rural Development Administration over a wide range of climatic and soil conditions (Anonymous, 1976, 1985; Mustafa, 1993).

The soil and water conservation project on the 'gardud' soils was implemented in Kordufan for generating a management technical package for optimum utilization of these soils. The developed package consisted of chisel or disc plowing before the rainy season, ridging, furrow planting, and a three-course rotation, namely sorghum, sesame and groundnut. The implementation of this package improved the productivity of these soils.

Gereih Al-Sarha" project for the rehabilitation of the degraded rangelands was implemented in the northwestern part of Kordufan. It was implemented as a multi-purpose cooperative involving 38 families on an area of 20,000 feddans. The land was fenced for protection, fire lines were opened, bare areas were seeded and the land was subdivided into blocks to facilitate a deferred (rest) rotation grazing system. The carrying capacity of the range was doubled in two years. Life of the nomads was improved and soil erosion was almost stopped. Tamara project in southern Gedarif, similar to Gereih Al-Sarha but with mixed farming system had similar results.

A more recent UNDP project addressing range rehabilitation is entitled "Integrated Resource Management for Desertification control, Al-Odya (SUD/89/026)" was implemented as of July 1992. The project is located in the semi-arid zone of Kordufan State with a rainfall average of 450 per annum. The main objective was to establish institutional structure to promote individual and community involvement for the regeneration, conservation and proper management of the natural resource in the area. The project succeeded in the establishment of 10 "hafirs", well-managed and productive 7 grazing perimeters, and conduction of agro forestry experiments. The project also succeeded in forming eleven operational Village Councils Development Committees and Nomadic Development Committees. The project was based on the same rest-rotation concept.

In the semi-desert and low rainfall savanna zones (12 N°- 16 N°), water is the main limiting factor for exploitation of land resources. Past experience showed that development of unlimited supplies of water in the absence of a good range conservation and management system led to overstocking and consequent overgrazing, soil degradation and desertification. Thus, it was realized that water development projects should be integrated with range conservation and management systems, e.g. a rest-rotation system. Wadi-Rakaz water spreading project for crop and forage production is a good example. Its main objectives were establishment of a system of dykes and check dams to facilitate water spreading on 1000 feddans of silty clay soils in the valleys of northern Darfur. Forage and field crops were seeded and shelterbelts were established.

In the gum Arabic belt in northern Kordufan (Lat.10-14 N°), a project entitled "Restocking of Gum Arabic for Desertification Control" was implemented to increase fuel wood supply, combat desertification and cause overall rural development. In the successive two phases, 15,421,000 seedlings (*Acacia Senegal*, *Acacia tortilis*, *Balanites*) were raised and 53,454 feddans were planted by the local farmers. The project created a defense line against desertification, improved crop farming through better land rotation and enhanced farmers' sustenance and income level to some degree.

Other projects were implemented to conserve the forest resource by providing energy substitutes for use by households and services. Such projects include fabrication of briquettes from groundnut shells; dissemination of improved stove at Al-Nuhud, the production of charcoal from cotton stalks

in Al-Rahad and Gezira Agricultural Schemes and biogas plants in southern Darfur (Ali and Abas 1996, Fadlalla 1996).

Many afforestation and reforestation projects were implemented for the protection of tens of villages from sand encroachment, increasing crop productivity and per capita income in the Northern State. The regional project of the Middle East organization was implemented for sand dune fixation in various parts, namely Al Sehamab, El Getaina and the green canal in central Sudan, Al Bahiri valley, Goz Al Hamra and Bara (Al Shraim and Foga) in Western Sudan, Al Selaim and Wadi Al Khowi in Eastern Dongola and Al Afaad, Argi and Al Gaal.

Mobile or shifting sand dunes blockade waterways cover productive lands, rails, roads and buildings. The irrigation canals were blockaded by sand in Al Sehamab, in the Northeastern Gezira Scheme. The National Forestry Commission established a shelterbelt, 8 km long and consisting of 30 rows of tree. The belt was effective in sheltering the canal, which was cleaned, irrigation became normal and the farmers who abandoned the scheme returned and continued farming their land (Musand 2000). The scheme was successful, since it gave revenue to the NFC, availed jobs to the local people. Al Getaina town is an example for those towns that are encroached by sand. Sand accumulated in the secondary schools, buried many houses. The NFC also implemented the sand stabilization of the Green canal north of Al Duaim by establishing four stories tree rows consisting of 'Al Hanzal' (*Coloithynthis vulgarith*) on the top of the sand dunes, 'Tumam' (*Panicum turgidom*), one meter long as the second story, 'Marakh' (*Leptadenia pyrotechnica*), 3 meters long as the third story and the fourth story consisted of 'Samar' (*Acacia tortilis*), (*Acacia tortilis var. Radiana*) and 'Heglig' (*Blanites aegyptiaca*), 'Sidir' (*Ziziphus spinachristi*) and 'Tundub' (*Cappris deciduas*). The local people participated in the implementation of the project.

A successful project for sand dune stabilization was implemented near Al-Bashiri village, 18 km northwest of Bara (L14 N^o). The northern Goz was fenced by wires and the top of the dune was subdivided in chessboard-designed fences using local bush. The planting of a drought resistant grass, *Panicum turgidum*, and *Lyptadenia pyrotechnica* shrubs which are available in the area proved most suitable for building micro fences. However, during the drought periods 1980/1983 the dune was subjected to a high pressure, the fence was destroyed by 1992, the vegetative cover was degraded and sand encroachment started.

Al Hamra dune is similar to Al Bashiri, and it is now a source of sand encroachment to the surrounding villages. Some villages in Barra were provided with some shelter belts, horticultural gardens, wells and a nursery and they were all fenced with barbed wire. This project availed drinking water and supplementary irrigation for the horticultural crops and the nursery. These benefits encouraged the local community to participate in the various project activities. The same project was implemented in other surrounding villages. The NFC, the Horticulture Department, and Western Savanna Project provided the required seeds/seedlings and technical supervision.

In Northern Sudan, the sand dunes accumulated in the agricultural schemes, the buildings, roads, irrigation canals, and the Nile. The alluvial arable lands adjacent to the riverbanks in Dongola area are endangered by sand creep at one bank and gully erosion (Haddam) at the other. Some wells and irrigation canals were dug near Al Suleim on 1956, but they were buried in the two successive years. In 1975, some shelter belts (3 rows) were planted. They succeeded in reducing the wind speed by 30 % and stopped sand creep. The effect of the shelterbelts extended at the leeward side to 10 times the tree height (100 m). In the area which extended from south Al Rekabia to Al Suleim, east of Dongola, some mechanical barriers were made of date palm branches and one to 2 rows of 'Meskeet' trees (*Prosopis chilensis*) were planted. This model succeeded in stopping sand creep and

protected the agricultural lands. In Al Qaal area, on the eastern bank of the Nile, there is a sand dune 6 to 8 m high, which is protected by the natural plant community of the area consisting of 'Dom' (*Hyphaene thebaica*), 'Haraz' (*Acacia albida*), 'Marrakh' and 'Halfa' (*Desmostachia sp.*).

One example of arable land lost to desert encroachment is the Kerma basin which lies 40 km northwest of Dongola (Lat. 19 N^o) and runs parallel to the Nile at Longitude 29-30^o. The total area of the basin is 1500 km². Formerly the basin was rich of fertile alluvium and water during the flooding season, and when the water receded, various crops were grown. However, by 1940 the basin ceased to be flooded by the Nile. This was attributed to sand encroachment, which affected both the basin and the Nile. Shelterbelt projects were implemented to combat desert encroachment. It is proposed that this project model, formulated by UNDP for Al-Selaim and Al-Affad be replicated elsewhere in the Northern State.

Successes of these efforts

These projects succeeded in achieving most of their objectives and thus they are commendable. Furthermore, the farmers gained varied appropriate technical experience for combating desertification through on the job training. This accumulated good experience may be relied upon for future development and implementation of NAP. In general, the successes included the following:

- Evolution of the concept of integrated rural development through time i.e. WSDP.
- Application of the rest-rotation grazing system through establishment of grazing perimeters and dug wells (Geraih Al Sarha project).
- Development of a technological package for the appropriate use of the 'Gardud' soils. This package consisted of Chisel or disc plowing, furrow planting and the adoption of a crop rotation system (sorghum, sesame, and ground nut).
- Adoption of micro catchments techniques of rainwater harvesting.
- Establishment of nursery techniques and methodology for planting thousands of feddans (Restocking of Gum Arabic Project).
- Establishment of village development committees for the institutional participation in the implementation of the project (Al Odiya project).
- Establishment of natural reserves and rotating fund systems (Al Odiya project).
- Use of energy substitutes technology, water harvesting and sand stabilization.
- Training of farmers in the use of all above-mentioned techniques.

Common Problems of All Projects

In spite of the abovementioned successes, one or more of the following problems and constraints faced almost all projects:

- Failure of national institutions to provide their share in project inputs due to lack of funds.
- Lack of strong extension and community development units.
- Lack of adequate community services in project areas (education, health services, etc.).
- Some projects did not address the priorities of the community and thus they failed to attract effective popular participation.
- Lack of efficient public awareness and popular participation mechanisms.
- Many of the old projects were sector-oriented. They do not integrate with development projects at the local level.
- Two main problems limited the use of environmentally friendly technology (e.g., wind, solar), namely high initial cost and it is not accepted in the traditional communities. Therefore, the private sector is not willing to invest in these energy sources.

- Lack of effective monitoring, information, extension, and coordination system. There is also lack of trained manpower in this field.
- The expansion of rain-fed mechanized farming in un-demarcated lands at the expense of forests and range lands.
- The livestock numbers exceeded the range carrying capacity. The absence of nearby livestock markets aggravated the situation.
- Research and development are constrained by lack of adequate infrastructure, insufficient funds (local and foreign components), technical facilities, and trained manpower, research coordination between NARS and universities and effective extension network.
- The low reward system (i.e. low salaries) constrained the recruitment of suitable professionals in the remote areas of the projects with poor living conditions.

NAP and the Convention

The main objective of the convention is to elaborate a NAP and implemented to achieve sustainable development. The convention elaborated some directives of the strategy and contents of NAP and emphasized the need for an enabling environment.

Directives for the strategy

The strategy of NAP should ensure:

1. Integration of NAP with the national action plan for development at the local level;
2. Integration of NAP with poverty alleviation plan for the country in general and in the affected States in particular.
3. Formulation, implementation, monitoring and evaluation of NAP through a mechanism that ensures participation all official and civil society stakeholders, particularly the local communities, ensuring the adoption of bottom-up approach.
4. Ensuring the participation of NGOs and CBOs.
5. Ensuring the importance of human resource development in all related areas in general and in desertification and desert cultivation in particular.
6. Emphasizing the importance of education, training and public awareness for the community at large and the affected local communities in particular.
7. Strengthening the capabilities and supporting local authorities and other relevant institutions.
8. Creation of an enabling environment that facilitates all parties for implementing NAP.
9. Government commitment to give the implementation of NAP a top priority in the national development plan and the establishment of an effective institutional organization that ensures prompt decision making, coordination and implementation.

The process for formulating NAP

The National Drought and Desertification Control and Monitoring Unit (NDDU) with the support of UNDP formed a multidisciplinary national task force to establish a NAP consultative process to identify priority program areas, and role and responsibility of the various stakeholders. The task force set the following work plan:

- Sensitization / awareness program to all stakeholders.
- Team visits to the affected States (13) for establishing contact with stakeholders, collection of relevant socioeconomic information and data from affected States. These information and

data were collected from sectors, land users in villages, NGOs and CBOs. The information and data were used for writing papers for the State Forums.

- Organization of State forums with the following objectives:
 - Sensitization/awareness raising on UNCCD and NAP
 - Elaboration of the specific roles and contributions of the various stakeholders.
 - Elaboration of a coordination mechanism, information flow system and networking at the State level.
 - To review, analyze and evaluate one successful existing pertinent project.
 - To attain State consensus on priority program areas for NAP process.
- Organization of specialized forums for decision-makers to identify and elaborate government commitment areas, i.e. resource mobilization, enabling environment and networking.
- Preparation of main issue papers pertaining to priority program areas in each state, financial mechanism, networking, and capacity building for the national forum. These papers evolved from the State forums, specialized national forums and the information and data collected from the affected States.
- Organization of a national forum to reach consensus on priority program areas among other main issues.

The National Forum for the Implementation of NAP was held on August 1998 in Al Shaied Al Zobeir Hall. Some of the important recommendations included establishment of a national desertification fund, establishment of an institutional organizational structure that ensures bottom-up approach, participation of all stakeholders and giving political will to the NDDU. The last recommendation was given in NAP paper.

Vision of the NAP

According to the convention the combating process should stem from a NAP integrated with the national development plan, considering in its formulation, implementation, follow up and evaluation the directives of the strategy outlined above and Sudan environmental and socioeconomic setting. Since Sudan is a very large country, NAP should be formulated state-wise and each state program shall consist of projects, and each project shall consist of several components selected according the prevalent ecosystems, land use systems, and the prevalent development entities.

Components

As Stated by article 2 of UNCCD: “achieving the main objectives of the convention involves long-term integrated strategies that focus simultaneously, in affected-areas, on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions, in particular at the community level”. Thus, Sudan NAP should include several interdisciplinary, multi-sectoral integrated components or measures. It also requires national coordinated actions or interventions. For each State, a set of these measures may be integrated to constitute a State NAP. These components will be outlined hereafter. Some are general and essential for each project and some are specific and appropriate for specific projects depending upon its physical setting and socioeconomic conditions.

General components

- Public awareness raising:
- Training and human resource development according to ecosystem (s) of the state.

- Capacity building (Material)
- Policies legislations and land tenure.
- Community services
- Technical services units
- Survey of natural resources
- Popular participation mechanism
- Follow up monitoring, evaluation and documentation
- Improvement of food productivity
- Research and technology transfer units

Specific components

- Reforestation, afforestation and establishment of shelterbelts
- Establishment of community forests
- Energy alternatives
- Mobile veterinary clinics
- Sand dune fixation
- Tree planting in public buildings
- Restocking of Gum Arabic trees
- Network of fire lines
- Delineation of livestock routes
- Recovery of vegetation cover
- Seeding of severely degraded rangelands
- Village perimeters
- Management and reclamation of salt-affected soils:
- Increasing food productivity
- Constructions for rainwater harvesting
- Wildlife reserves.
- Promotion of ranching.
- Capacity building.
- Cooperation and coordination

Priority Programs

In the past, some national programs were formulated in 1976, 1985 and 1993. DECARB presented details of the projects but in a limited project area in Kordufan and Darfur. Agenda 21 Chapter 12 presented six program areas, each elaborated under the titles: project area, principles, objectives, activities and methods of implementation. The papers encompassing the State programs submitted to the task force, varied in their presentation style. Most of these papers presented only strategy directives, objectives and plan of action of the state including some of the activities of the different sectors. These plans did not follow the strategy directives of UNCCD. Furthermore, most of them did not give priority programs. Some papers gave specific project profiles but they were not integrated with sustainable development projects and they did not adopt the criteria recommended by UNCCD. The NAP available now does not include priority state programs as required. The NAP summarized and presented in the National Forum in 1998 included state programs in spite of their limitations. There is need to formulate priority state programs and include them in NAP.

Examples of the State Programs

Nile State Program

The program consisted of the following activities:

1. Two parallel shelterbelts (50 km x 10 m), one east, and the other west the railway. Shelterbelts to protect villages in the south Shendi locality.
2. A shelterbelt to protect Hewalla agricultural project (3100 feddan), Abu Hamad Governorate. The local community participation is envisaged.
3. A shelterbelt to protect Neimeir Hag El Tahir water station and Al Bashbay 'hafir'. The local community participation is envisaged.
4. Rehabilitation of the reserved forests of Shendi, Metama and El Damar. Establishment of Nurseries.
5. Saving the river Nile project near Nada, Sharif locality. This consists of removing sand from the alluvial soil and establishment of protective shelter belts.
6. Projects of public awareness, forestry extension, and training courses for natural resource users.
7. Rehabilitation of rangelands at the state level, establishment of fire lines, adoption of rest rotation system and introduction of a crop rotation.
8. Projects for silage production, and the use of agricultural and industrial by products for animal feeding.
9. Projects for animal health (Om Seraira).
10. Projects for availing water, provision of dug wells and crop production at Om Shadida.
11. Conduction of Research and hydrological studies.

Kassala State Program

The program consisted of the following activities:

North of the State, east and west Atbara River

1. Establishment of water points (Hafirs): Digging of 30,000 m³ in Gradaaib and Matataib (First stage) and 50,000 m³ in Grataib and Ateema (Second stage) and 35,000 m³ in Tambi and Kodab (Third stage).
2. Spreading of range seeds: collection and spreading of 3000 sags each in the first and second stages and 4000 sags in the third stage.
3. Agriculture: digging of 30 artesian wells in three stages.
4. Opening of fire lines: opening of 4,500 km in 3 stages.
5. Shelterbelts: establishment of 15 belts (20x1000 m) in three stages.
6. Establishment of earth check dams: establishment of 600 earth dams for water harvesting in three stages, digging of 3 canals (3, 2.5, 1.5 km) in an area of 90,000 feddans in three stages.

Gash delta

1. Establishment of shelterbelts outside the delta: planting of 30 shelterbelts at 5 km spacing.
2. Establishment of community forests along six canals (5,000 feddans) in 3 stages.
3. Introduction of fruit trees: planting of 6,000 feddans in three stages
4. Replacement of 'Meskeet' with other trees at a rate of 100 trees / km² east and west delta and at a rate of 200 trees/km² inside the delta in three stages.

East Al Gash Basin to the boundary Eritrea

1. Establishment of stone dams on 45 'khors' in three stages.
2. Collection and spreading of 5000 sags of range seeds to rehabilitate 200,000 feddans of range in three stages.
3. Planting of Date and Dome trees: planting of 30 trees/km²
4. Establishment of community forests.
5. Establishment of earth check-dams for water harvesting to realize tree planting, range rehabilitation and crop production: making 600 dams in three stages.
6. Digging of 15 hafirs and 30 wells in 3 stages.

Al Butana area and south of the State:

1. Delineation of a grazing route from Al Suki through Al Sadgab to Eritrea boundary.
2. Delineation of the livestock routes: opening of 10 routs in three stages.
3. Establishment of 10 stone dams in three stages.
4. Establishment of water points: making 10 hafirs (220 m³) in three stages.
5. Opening of fire lines (5,000 km) in three stages.
6. Establishment of earth dams to harvest water for range rehabilitation and crop production.

Kassala and central area of the State:

1. Collection and spreading of 3000 sags in three stages.
2. Establishment of earth dams to harvest water for range rehabilitation and crop production.
3. Establishment of shelterbelts in six 'khors' in three stages.

North Kordufan State Program

The program consisted of the following activities:

1. Introduction of a crop rotation in Al Dayer Mountain schemes, Om Rawaba Governorate.
2. Expanding of guar plantation in Om Rawaba and Shekan Governorates.
3. Use of intermediate technology in plowing the land (Shekan Governorates).
4. Expanding the fire lines network in Sodari, Bara, Om Rawaba and Shekan Governorates.
5. Collection and spreading of seeds in the degraded rangelands in Bara Governorate.
6. Establishment natural range reserves in areas of high livestock density, Sodari Governorate.
7. Enforcing the law requiring the planting of 10 % of any rain-fed schemewith trees (Al Dayer Mountain schemes).
8. Sand stabilization in Bara Governorate.
9. Production and redistribution of seedlings for farmers in Bara Governorate.
10. Promotion of tree planting via water harvesting in Bara and Shekan Governorates.
11. Promotion of agroforestry in Shekan Governorate.
12. Establishment of concrete dams for water harvesting in Sodari Governorate.
13. Establishment of community forests in all Governorates.

Implementation Mechanism

General recommendations

To ensure successful implementation of NAP, the State should be committed to:

1. Adopt the strategy directives of UNCCD as outlined hereafter.

2. Abide by Article 5 of the UNCCD entitled “the obligations of the affected country parties”.
3. Support NDDU, administratively and legislatively specifying and upgrading its role in the process.
4. Support NDDU to complete the process.
5. Establish a National Desertification Fund.
6. Endorse the institutional structure for implementing the program.

Organization structure

A sustainable management organization should ensure successful implementation of NAP. The proposed organization structure in the following section ensures bottom up approach, popular participation, and institutional linkage with various governmental sectors along with NGOs, CBOs and other stakeholders. The structure presented depicted in the diagram (Fig. 1) is based on the following assumptions:

- Each state has a national action program, which consists of several projects.
- Each Governorate within a State may have more than one project.
- Each project in a given Governorate covers more than one village. These villages form the project area.

The State NAP should be initiated by a comprehensive sensitization / awareness raising at all levels within the State. Then in each village the local community, through a democratic process, elects members for a number of specialized sub- committees (water, agriculture, forestry, range/grazing services etc). The main function of these sub-committees is to mobilize the local community to effectively participate in some specialized activities such as establishment of community forests, fencing, terracing etc. As a good policy project should recruit specialized officers to be responsible for a set of specialized activities e.g. agriculture, range management, forestry, water etc. He will offer technical advice to the subcommittee and in coordination with it design and implement the work plan in his specialized area. He will be accountable to the project manager. The chairmen of these sub-committees will form the village development committee (VDC). The chairmen of VDCs of the project region form the project development committee (PDC). At the Governorate level, a project (s) coordination council (PCC) is formed from the managers of the projects, and representatives of relevant sectors and stakeholders (NGOs, CBOs, Women, Youth, etc.). A coordination council at the State level (SCC) is then formed from representatives from PCC and representatives of organizations and sectors. This council should be chaired by the Governor for increasing its efficiency and easing its decision making process. The coordination council at the national level (NCC) is formed from representatives from SCC, various relevant sectors, academic and research institutions, NGOs, CBOs etc. Since NAP crosses over various ministries, the President or his representative is desired to chair this national council. This arrangement will make NCC more effective and efficient. NDDU should be transformed into a secretariat to the NCC. This will give NDDU teeth and good control and supervision of the implementation of NAP.

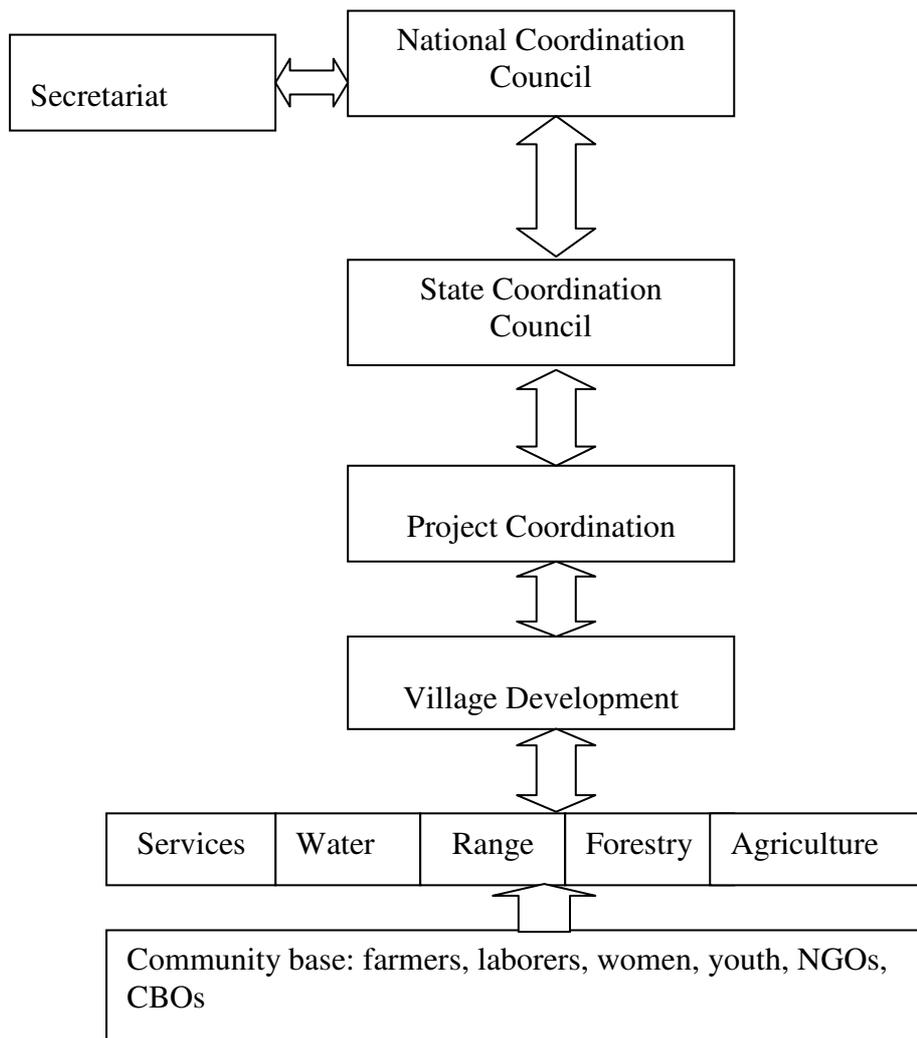
This organizational frame represents a national network for formulation, implementation, follow up, monitoring and evaluation of NAP. At the same time, it helps in management of the NAP at all levels.

This national network may be linked with and sub-regional regional and international networks.

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Fig. 1: Organization Structure





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