



**Soil erosion valuation using advanced laboratory measurement methods to support  
climate resilient agriculture and food security**

**GENDER ACTION PLAN**

**10<sup>TH</sup> MAY 2022**



## Table of Contents

Acronyms.....	3
<b>1. INTRODUCTION.....</b>	<b>4</b>
<b>1.1 Purpose of Gender Analysis .....</b>	<b>5</b>
<b>1.2 Project Summary .....</b>	<b>6</b>
<b>2 GENDER ACTION PLAN .....</b>	<b>8</b>



### Acronyms

CTCN	Climate Technology Centre and Network (CTCN)
EO	Earth Observation
GESI	Gender Equality and Social Inclusion
M & E	Monitoring & Evaluation
NRGD	Ministry of Agriculture and Natural Resources (NRGD)
RCMRD	Regional Centre for Mapping of Resources for Development
UAV	Unmanned Aerial Vehicle

## 1. INTRODUCTION

This gender assessment aims to provide an overview of the gender situation in Sudan with a specific focus on supporting climate resilient agriculture and food security by using advanced atomic absorption and Earth observation to evaluate soil erosion. This gender analysis is presented as an approach, of how the project aims to give gender considerations in the preparation, implementation and monitoring and evaluation.

Several vulnerability indices rank Sudan among the most vulnerable countries in the world to climate variability and change. Both the SNC (2013) and (NAP, 2014) illustrated that the frequency of extreme climatic shocks is increasing particularly drought and floods. Frequent drought threatens about 19 million hectares of rain-fed mechanized and traditional farms (INDCs,2015). More than 70% of Sudan's population's livelihood depends on these sectors. Floods in Sudan can either be locally caused by exceptionally heavy rainfall or more widespread, caused by the overflow of the river Nile and its tributaries. Further negative climatic related impacts on agriculture, includes, soil heath, disease outbreaks, water shortages and food crises are experienced from time to time and famine impose a threat at least once in each decade (HCNER, 2007)

It is important to note that the above impacts of climate change are not gender-neutral. Women are increasingly being seen as more vulnerable than men to the impacts of climate change, mainly because they represent the majority of the world's poor and are proportionally more dependent on threatened natural resources. The difference between men and women can also be seen in their differential roles, responsibilities, decision making, access to land and natural resources, opportunities and needs, which are held by both sexes. Worldwide, women have less access than men to resources such as land, credit, agricultural inputs, decision-making structures, technology, training and extension services that would enhance their capacity to adapt to climate change) (Osman- Elasha,2012). In Sudan, women lack the same legal rights as men to own land assets, however, women and men have the same legal rights and secure access to non-land assets although this does not apply to all groups of women (OECD, 2019). The legal framework in Sudan derives from British common law and Islamic law (Shari'a) which does not grant women same equal rights to men. In the MENA region, Sudan is one of the two countries, alongside with Iran that has not ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).

One of the challenges contributing to the gendered differences in climate impacts directly relevant to women's (and men's lives) and the lives of their families is addressing the socio-cultural norms and practices and how these translate into local level (customary) laws, customs and practices, and social

relations/power dynamics between women and men (and among women themselves along age, ethnicity, socioeconomic, and other lines and also among men (FP139,2020)

The gaps that need to be addressed include the following;

- Insufficient specialized expertise in the field of soil properties measures
- Low institutional capacities to address climate change adaptations needs in relation to sustainable soil management; inadequate monitoring framework to support climate resilient livelihoods regarding soil
- Low levels of climate impacts information and communications, low levels of awareness on systematic observation and seasonal forecasting for soil conservation, early warning systems; and lack of skills/know-how in areas of vulnerability monitoring and mapping

### **1.1 Purpose of the Gender assessment**

Gender analysis examines the different roles, rights, and opportunities of men and women as well as relations between them. It also identifies disparities, examines why such disparities exist, determines whether they are a concern, and looks at how they can be addressed.

The Gender expert will use the CTCN gender mainstreaming tool for Response Plan Development in collaboration with Sudan Ministry of Social Welfare, Women and Child. Gender equality and social inclusion will be integrated in the design, planning and execution of activities. Ministry of Agriculture and Natural Resources, a critical stakeholder in this project is committed to creating opportunities for discussion and learning for all. The gender analysis will be as follows;

- Consult Country Gender Profiles;
- Valuables to be considered during the gender analysis:
  - i. Gender roles and responsibilities;
  - ii. Productive and reproductive work;
  - iii. Access to and control over resources (e.g., land, property, education, health, communication);
  - iv. To identify male and female needs and barriers in terms of technological transfer mechanism in using atomic absorption and EO tools including the use of UAVs;
  - v. Assess the roles and power within decision-making. This will further find strategies for strengthening women's participation in decision-making at all levels by sensitizing both men women about the structural inequalities (including socio-cultural norms) and inequitable social relations and power inequalities;
  - vi. Participation/consultation and representation by utilizing gender and socially inclusive approaches in stakeholder engagement and capacity building process which are essential for achieving social justice, and for ensuring equitable and sustainable human development for all;

- vii. Division of labour, formal and informal (e.g. within the household, community, work place);
- viii. Rights- formal legislation as well as realisation of rights;
- ix. Values and norms that affect the behaviour and opportunities within the sector;
- x. Combine qualitative and quantitative data: Disaggregated statistics are a must in gender analysis. A gender analysis should include a combination of statistics, descriptions, facts and analysis;
- xi. Ensure information and communication materials and tools are gender and socially inclusive.

The technical assistance might take steps to ensure it does not negatively impact on women for example the proposed technology might be sustainable from a resource use perspective but which might increase the household burden on women, or which women cannot access due to physical, social or cultural barriers

## 1.2 Project Summary

The Sudanese Natural Resources General Directorate of Ministry of Agriculture and Natural Resources (NRGD) with the support from Climate Technology Centre and Network (CTCN) seeks to evaluate the soil erosion using advanced atomic absorption to support climate resilient agriculture and food security in Sudan. This method is expected to provide a basis over which new or different methods of development of soil- and climate-based systems can be compared and objectively evaluated. Earth Observation based monitoring systems complement the qualitative and quantitative analysis of micronutrients in the soil, enhancing the overall understanding of erosion. EO-based monitoring systems could play a significant role in improving soil information system and crop production assessments by validating soil analysis assessments identified through field soil surveys within a targeted area.

The technical assistance to be provided shall contribute to enhance technological capacities by filling information gaps, providing physical and human capacities and demonstration of application Earth Observation technologies. Besides, this technical assistance will support technology transfer mechanism in using atomic absorption and Earth Observation tools including the use of Unmanned Aerial Vehicle (UAV) in monitoring the climate change variables on soil and their impacts on agricultural productivity, thereby strengthening soil monitoring systems and raising the resilience of the vulnerability of the agricultural sector.

The Regional Centre for Mapping of Resources for Development (RCMRD) has been proposed to implement this technical assistance based on RCMRD's expertise and proven track record of facilitating trainings and generating, applying and disseminating geoinformation technologies in Africa.

The **mandate** of the Regional Centre for Mapping of Resources for Development (RCMRD) is *“To provide capacity building; advisory services; implement programmes, and undertake Research & Development of innovative solutions and services on geo-information and allied technologies to Member States and other stakeholders”*.

*The Vision of the Centre is “To be a Premier Centre of Excellence in the provision of geo-information and allied technologies for Sustainable Development in the Member States and other stakeholders”.*

*The Mission of the Centre is “To Strengthen the Member States and our stakeholder’s capacity through Generation, Application and Dissemination of Geo-information and Allied Technologies for sustainable development”.*

<b>Title</b>	Soil erosion valuation using advanced laboratory measurement methods to support climate resilient agriculture and food security
<b>Goal</b>	Evaluate soil erosion using advanced atomic absorption to support climate resilient agriculture and food security in Sudan
<b>Starting Date</b>	14/04/2022
<b>Duration</b>	18 Months
<b>Target Area</b>	Sudan
<b>Beneficiaries</b>	Natural Resources General Directorate of Ministry of Agriculture and Natural Resources (NRGD)
<b>Cost</b>	USD 250,030
<b>Funding Source</b>	UN Climate Technology Centre & Network

## 2. GENDER ACTION PLAN

Activity	Strategy	Indicator	Deliverable
<b>Output 1: TA coordination mechanism established</b>			
<b>1.0 Activities</b>			
1.1 Gender responsive stakeholder mapping of stakeholders and establish a gender balanced stakeholder working group	Ensure that men, women, youth and persons with disabilities / vulnerable groups are represented	<ul style="list-style-type: none"> <li>Number of men, women, youth and persons with disabilities mapped out</li> </ul>	Stakeholder list
1.2 Consultative meetings with the working group	Meetings should be participatory gender sensitive and socially inclusive Disaggregated information, decisions, recommendations and questions raised according to sex	<ul style="list-style-type: none"> <li>Number of meetings that are gender and socially inclusive</li> <li>Number of institutions represented within the working group</li> </ul>	Meeting minutes
1.3 Organize a multi-stakeholder inception workshop	<ul style="list-style-type: none"> <li>Workshop should be participatory gender sensitive and socially inclusive</li> <li>Training content should use language that can be understood by participants</li> <li>Use of captioning during presentations</li> <li>Training venue and facilities should be accessible to persons with disability</li> <li>Ensure the communication materials used are gender sensitive and inclusive</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women, youth and persons with disability participating in the workshop</li> <li>Number of communication materials that are gender sensitive and socially inclusive</li> <li>Number of men, women, youth and persons with disabilities making presentations</li> </ul>	Workshop report



Activity	Strategy	Indicator	Deliverable
		<ul style="list-style-type: none"> <li>Number of men, women, youths and persons with disability contributing to the workshops in terms of recommendations, questions and concerns</li> </ul>	
<b>Output 2: Selection of the site and data collection</b>			
<b>2.0 Activities</b>			
2.1 Identification of the sites and logistics. Identifying areas of eroded soil that are particularly vulnerable to climate change	Ensure the process of site selection is gender and socially inclusive	<ul style="list-style-type: none"> <li>Number of men, women, youths and persons with disability involved in site identification/ selection</li> </ul>	Project report
2.2 Baseline gender disaggregated data on selected site (demography, vulnerability assessment, farming practices,	Report on baseline data, field data collection protocols, mapped soil and project scope		Gender disaggregated baseline report
<b>Output 3: Capacity building activities</b>			
<b>3.0 Activities</b>			
3.1 Gender awareness	<ul style="list-style-type: none"> <li>Strengthen institutions and increase gender awareness.</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disabilities participating in the workshop</li> </ul>	Project report
3.2 Develop - Russle model - RUSLE modelling approach will be used to determine the spatial extent of	<ul style="list-style-type: none"> <li>Integration of gender and social inclusiveness in co-development of methodology</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability</li> </ul>	Project report

Activity	Strategy	Indicator	Deliverable
soil erosion risk, quantify the annual soil loss rates, and delineate the priority areas for climate-smart and sustainable soil management.	<ul style="list-style-type: none"> <li>Assess if new technology does not increase women's workload or adversely affect women.</li> <li>Assess barriers that limit participation of women and persons with disability from assessing and participation in training</li> </ul>	involved in co-development	
3.3 Developing Earth observation techniques for soil mapping	<ul style="list-style-type: none"> <li>Integrate Gender and social inclusion in co-development activities</li> <li>Assess if new technology does not increase women's workload or adversely affect women.</li> <li>Assess barriers that limit participation of women and persons with disability from assessing and participation in training</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in co-development</li> </ul>	Project report
3.4 Digital Soil Mapping techniques - Digital Soil Mapping techniques will be applied to create spatially explicit digital maps of soil functional properties, such as NPK, SOC and pH to assess the impact of	<ul style="list-style-type: none"> <li>Integrate Gender and social inclusion in co-development activities</li> <li>Assess if new technology does not increase women's workload or adversely affect women.</li> <li>Assess barriers that limit participation of women and persons with disability from assessing and participation in training</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in co-development</li> </ul>	Project report
3.5 Develop soil erosion mapping framework- (Proposed RUSSE-GEE framework)	<ul style="list-style-type: none"> <li>Integrate Gender and social inclusion in co-development activities</li> <li>Assess if new technology does not increase women's workload or adversely affect women.</li> <li>Assess barriers that limit participation of women and persons with disability from assessing and participation in training</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in co-development</li> </ul>	1
<b>Output 4: Monitor the evolution of the erosion overtime and plan actions</b>			
<b>4.0 Activities</b>			
4.1 Develop criteria and indicators to monitor the evolution overtime	<ul style="list-style-type: none"> <li>Integrate Gender and social inclusion in co-development activities</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability</li> </ul>	Criteria and indicators report

Activity	Strategy	Indicator	Deliverable
		involved in co-development	
4.2 Develop guidance for Soil erosion modelling	<ul style="list-style-type: none"> <li>Integrate Gender and social inclusion in co-development activities</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in co-development</li> </ul>	Soil erosion modelling report
4.3 Production of policy briefs on Criteria and indicators and Guidance to develop local soil erosion modelling	<ul style="list-style-type: none"> <li>Integrate Gender and social inclusion in co-development activities</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in co-development</li> </ul>	Policy briefs
4.4 Identify adaptation measures to address soil degradation and development of strategic action plan	<ul style="list-style-type: none"> <li>Integrate gender and social inclusion in adaptation measures</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in co-development</li> </ul>	Report on mainstreaming Gender adaptation measures
4.5 Consultative and validation workshops to present the action plan, the indicators, the policy briefs, the guidance	Integrate gender and social inclusion in workshop activities	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in the workshop</li> </ul>	Validation workshop report
4.6 Training on UAV and remote sensing technologies)	<ul style="list-style-type: none"> <li>Integrate gender and social inclusion in the training activities</li> <li>Assess barriers that limit women and persons with disability in accessing training</li> <li>Assess if new technology does not increase women's workload or adversely affect women</li> </ul>	<ul style="list-style-type: none"> <li>Number of men, women and persons with disability involved in the training</li> </ul>	Training report
5.0 Conduct a gender analysis	<p><b>Access and control</b> (Identify tasks and activities performed by women and men. Who does what, where, how, and when in project areas? Is there time, mobility, social, cultural, and</p>		Gender analysis report

Activity	Strategy	Indicator	Deliverable
	<p>economic constraints that may interfere with women’s participation in project activities, and hinder achievement of expected project outputs and outcomes?</p> <p><b>Access to and control of resources</b> identify any gender-based constraints in access and control of resources (e.g technology, finances, training, information networks) that are necessary to accomplish expected outputs</p> <p><b>Decision-making power:</b> Identify any cultural, social, legal, and other constraints limiting women’s participation in decision making at the all levels, or the use of resources and distribution of project benefits.</p> <p><b>Needs and priorities</b> Analyze gender-differentiated needs and priorities in project areas. Ensure both men and women are consulted and involved in project design. Assess who will likely benefit or lose, and how this will impact on the sustainability of project benefits</p> <p><b>Institutional capacity</b> Describe the types of institutions necessary to achieve the project’s expected results. Assess their commitments and capacities to implement gender-inclusive projects. Ensure nongovernment organizations and women’s organizations are consulted and their capacities as service providers are assessed.</p>		
Technical Assistance Close out	Final report		
Compile Final report	Final report		

## REFERENCES

1. FP139: Building resilience in the face of climate change within traditional rain fed agricultural and pastoral systems in Sudan, UNDP | B.26/02 08  
October 2020
2. Balgis Osman-Elasha, 2012 Women in The Shadow of Climate Change
3. <https://www.genderindex.org/wp-content/uploads/files/datasheets/2019/SD.pdf>
4. Africa Development Bank, 2015 Briefing Note on the significance of INDCs