SUDAN REDD+ PROGRAMME
Strategic Environmental and Social Assessment

Prepared for the Forests National Corporation
of Sudan and the World Bank

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ABBREVIATIONS AND ACRONYMS

AFOLU Agriculture, forestry and other land use
CAD Computer Aided Design
CBOs Community Based Organization(s)
CDM Clean Development Mechanism
C&P Consultation and Participation
CRC Convention of the Rights of the Child
CSOs Civil Society Organization(s)
D&D Deforestation and Forest Degradation
E&S Environmental and Social
EIA Environmental Impact Assessment
EPA Environmental Protection Agency
ESIA Environmental and Social Impact Assessment
ESMF Environmental and Social Management Framework
ESMP Environmental and Social Management Plan
FAO Food and Agriculture Organization
FCPF Forest Carbon Partnership Facility
FNC Forests National Corporation
FPIC Free, Prior and Informed Consent
FRs Forest Reserves
GHG Greenhouse gas
GIS Geographic Information System
GNPOC Greater Nile Petroleum Operating Company
ICT Internet Communication Technology
IDPs Internally Displaced People
LGA Local Government Act
LULUCF Land use, Land Use Change and Forestry
MASL Meters Above Sea Level
M&E Monitoring and Evaluation
MRV Monitoring Reporting and Verification
NA Native Administration
NASA National Aeronautics and Space Administration
NbS Nature-based Solutions
NBSAP National Biodiversity Strategy and Action Plan
NFP National Forests Programme
NGOs Non-Governmental Organization(s)
NWFP Non-wood Forest Product
PLR Policy, Laws and Regulations
PMU Programme Management Unit
PPP Policy, Plan or Programme
R-PP Readiness Preparation Proposal
REDD Reducing Emissions from Deforestation and Forest Degradation

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EXECUTIVE SUMMARY

The Republic of Sudan (also named Sudan hereafter) is undertaking a Strategic Environmental and Social Assessment (SESA) as part of the REDD+ readiness process. The SESA integrates environmental and social concerns during the formulation of the REDD+ National Strategy (NS) and subsequent implementation of the NS. It is a process that assesses the potential environmental and social risks and benefits from the national REDD+ strategy options, formulates alternatives and develops mitigation strategies. It is aimed at ensuring that the programme and activities implemented under the REDD+ mechanism do not cause adverse social and environmental impacts and, where possible, result in social and environmental benefits.

The objective of this report is to present the outcome of the SESA study carried out from October 2017 to August 2018 and from February to December 2020. This assignment consisted of the following: identification of potential environmental and social impacts of the proposed REDD+ strategy options, developed in parallel to this study; extensive stakeholder consultations in the locations potentially impacted by the implementation of the various REDD+ strategy alternatives; analysis the suitability of the current regulatory framework for the implementation of the REDD+ programme activities; and suggest an impact management framework to deal with potential environmental and social impacts in line with the World Bank standards.

The methodological approach used is detailed in section 3 of this report and predominantly consisted of a scoping and assessment of potential environmental and social impacts of the strategy options and stakeholder consultations. These took place initially in the locations of the three deforestation and forest degradation (D&D) hotspots identified by the strategy options: the riverine ecosystem (Blue Nile and Sinnar states), the gum arabic belt (Gadaref, Sennar, Blue Nile, south White Nile and South and North Kordofan states) and the watershed forests of Jebel Marra (East, Central and South Darfur states). In a second phase all remaining states were included (Northern, Red Sea, West Darfur, Gezira, Kassala, River Nile and Khartoum states). In parallel, the SESA consultants conducted an extensive review of the enabling regulatory framework to demonstrate how the current policies, laws, regulations and institutional arrangements of the Sudan would enable the REDD+ programme activities and safeguards to be aligned with internationally recognised environmental and social standards. Based upon these, the SESA consultants issued recommendations on the suitability of the suggested strategy options.

The SESA consultants were requested to validate the drivers of deforestation and forest degradation, found by a study previously carried out and the SESA consultations led to the prioritisation of these drivers. The opinion of stakeholders was that the most important drivers of deforestation and forest degradation were cutting trees for firewood collection and charcoal production, followed by clearance for subsistence agriculture and pastoralism-related issues. Other drivers were found to be of relatively minor importance. These findings concur with the findings of the drivers' study consultations carried out in 2017.

Each of the five strategy options were screened and analyzed according to the environmental and social risks and benefits they each feature. The detailed social/environmental benefits and impacts analysis is presented in section 5.5 to 5.10 of this report. A summary of the major risks and proposed related mitigation measure is presented below Table 1.

Table 1. Major risks identified for each strategy option and their proposed mitigation measures

Proposed strategy options	Major risks identified	Mitigation measure
Strategy option 1: Integrated forest landscape management	• Impacts on community livelihoods with ecosystem disturbances. • Land tenure-related conflicts. • Lack of capacity from community to implement/enact the proposed measures. • Policies/plans that are not adapted to the local context. • Changes in land use and resulting conflicts over resources. • Social risks of inequitable distribution of benefits and resulting conflicts. • Adverse impacts on economic development and food production. • Infringement of private property rights.	• Capacity building to disseminate knowledge related to technology. • Rational use of agro-inputs. • Simplification of processes to register forests for the communities and provision of market information. • Transparent and participatory approaches to revision of Policies, laws and regulations. • Multi sectoral planning to resolve tradeoffs between competing land uses.
Strategy option 2: climate smart agriculture and rangeland management	• Land degradation, & pollution of soil and water. • Dependence on external financial and technical inputs increasing vulnerability. • Ecosystem disturbances. • Reduced crop diversity and food security. • Conflicts related to land tenure rights.	• Use of environmental-friendly agro-inputs, • Adoption of sustainable agriculture techniques, • Capacity-building, • Using E&S impact assessment World Bank standards,

Proposed strategy options	Major risks identified	Mitigation measure
	• Lack of capacity. • Unequal access to climate smart agriculture technology. • Health impacts related to the misuse of chemicals/ Risks of pollution from inappropriate use of chemicals. • Exclusion of women/other vulnerable groups from the ability to exert any land rights. • Intensification of grazing. • Intensification of conflicts between farmers and pastoralists over water and land use access practices and rights. • Increased use of crop residues. • Poor demarcation of grazing routes. • Increased governance failures linked to changes to traditional livelihoods (loss of income, loss of access to key previously open access resources). • Changes in land use and resulting conflicts over resources. • Social risks of inequitable distribution of benefits and resulting conflicts. • Social risks associated with potential restrictions on movement of pastoralists. • Adverse impacts on economic development and food production. • Infringement of private property rights.	• Developing microfinance schemes, • Securing involvement of women, • Implementing conflict resolution mechanisms and/or strengthening the ones that already work including via customary/traditional or village/state-based channels, • Providing technical assistance, • Value chain upgrading. • Ensuring farmers use protective material when applying chemicals. • Securing involvement of women through women-led community organizations. • Awareness raising and extension, provision of standards and implementation of regulations. • Multi sectoral planning to resolve tradeoffs between competing land uses.
Strategy option 3: integrated land use planning	• Women may be excluded as land rights are usually held by men. • Impacts on traditional livelihoods through changes, governance risks, potential conflicts related to land tenure and use of lands (farmers vs pastoralist v miners) as well as changes to water and demarcation of routes. • Possibility that rich stakeholders are likely to benefit more, and poor stakeholders will lose out especially in areas affected by conflict. • Tree clearance for mining. • Livelihood and health impacts on artisanal miners. • Lack of enforcement of new rules. • Changes in land use and resulting conflicts over resources. • Vulnerable groups may lose out. • Social risks of inequitable distribution of benefits and resulting conflicts.	• Improving participation of all stakeholders into policy design and management, transparent participatory planning processes • Developing health and safety standards, • Developing Environmental and Social Impact Assessment (ESIA) regulation and ensuring implementation • Multi sectoral planning to resolve trade-offs between competing land uses.
Strategy option 4: sustainable energy supply and use	• Accrued impoverishment due to high upfront costs for isolated and poor community members to access renewable energy installations as well as gas and improved charcoal cookstoves. • Loss of income linked to disappearance of traditional wood harvesting activities. • dependency on external funding. • Social risks of inequitable distribution of benefits and resulting conflicts. • generation of new environmental hazards linked to use of alternative energy. • unequal access to energy and cooking equipment. • Heightened risk of conflict over biomass between fodder producers and energy producers. • Use of inappropriate species. • Infringement of land rights in wood fuel plantation development and use/implementation of inappropriate policies. • Use/implementation of inappropriate policies. • Impacts on poor livelihoods that are dependent on fuelwood which is a freely available. • Loss of livelihoods for fuelwood traders.	• Implementing cost-benefit analysis for policy design and implementation. • Creating incentives for individuals and the private sector. • Promoting participation of all stakeholders. • Following national standards guidance and E&S guidance. • Creating awareness campaigns • Tree planting and fuelwood plantations to meet fuelwood demands. • Energy efficient stoves. • Subsidize the cost of transition to LPG.
Strategy option 5: Promoting participation in climate change responses	• Inappropriate policy. • Non-compliance with policy. • Infrastructure barrier, high initial cost, and culture change resistance. • Lack of enforcement. • Impacts on traditional livelihoods through changes. • Increased governance risks.	• Using participatory approaches to enhance inclusion of all stakeholders. • Transparent participatory planning processes.

In doing this assessment, the SESA consultants mapped out the suitability of each option in the various regions where stakeholders have been consulted, giving elements that could be fed into strategy design and future implementation (summarized in Table 2 below).

Table 2. List of suggested enhancement to each strategy options

Proposed strategy options	Suggested enhancements to strategy options
Strategy option 1: Integrated forest landscape management	Implement reforestation initiatives by: • (1) enforcing the regulation to plant trees on 10% of rain-fed agricultural land and 5% of irrigated land. • (2) making compliance with the tree planting requirement a condition of the renewal of farming land leases. • (3) promoting and facilitating community forestry initiatives. • (4) planting more shelterbelts. • (5) ensuring that internal displaced peoples and refugees participate in tree planting schemes. • (6) improving the management and regulation of the gum Arabic trade. • (7) strengthening/clarifying land use and access rights legislation and land tenure systems to prevent conflicts. • (8) strengthening local and national education, training and capacity-building initiatives to facilitate implementation of regulations and laws.
Strategy option 2: climate smart agriculture and rangeland management	• (1) strengthen land tenure rules and provide institutional support for the enforcement of these rules. • (2) decrease the practice of allocating very large areas of land to individuals in the interests of social and economic fairness and efficiency in the use of land. • (3) enforce the regulation of planting trees on 10% of rain-fed agricultural land and 5% of irrigated land. • (4) promote agroforestry/the taungya system. • (5) promote initiatives to use/improve native seeds.
Strategy option 3: integrated land use planning	• (1) planting trees to compensate for any deforestation resulting from mining activities. • (2) securing involvement of women through women-led community organizations. • (3) building and transferring capacity to enable communities to take the full advantage of new regulations and policies. • (4) Screening for social impacts and involving all stakeholders in decision making. • (5) strengthening/establishing conflict resolution mechanisms. • (6) involving stakeholders in planning and implementation stages, esp. farmers, miners and pastoralists. • (7) providing livelihoods opportunities for the poor and marginalized people. • (8) developing national standards, including health and safety standards. • (9) implementing integrated sectoral planning. • (10) capacity building on ESIA.
Strategy option 4: sustainable energy supply and use	• (1) promoting increased efficiency in fuelwood and charcoal use through fuel efficient domestic charcoal stoves, improved charcoal making kilns, and improved boilers used in small industries such as in the soap industries. • (2) promoting fuelwood plantations using species suited to the climate and the clay and sandy soils in Sudan to substitute the unsustainable levels of harvesting being done at present. • (3) following national standardisations guidance and environmental and social impact assessment regulation. • (4) encouraging stakeholders participation. • (5) securing supply side through open and transparent markets an increasing access points. • (6) provision of training in relation to the appropriate use of LPG for cooking. • (7) implementing awareness campaigns to encourage acquisition of improved cookstoves. • (8) for biomass: provide alternative feedstock for livestock. • (9) encouraging crowd funding and micro-finance for local communities.
Strategy option 5: Promoting participation in climate change responses	• (1) encouraging stakeholder participation. • (2) provide training/sensitization opportunities and implement awareness campaigns to develop capacity building.

With regards to the assessment of the legal, policy and regulatory environment for REDD+ strategy implementation, the consultants aimed to identify national policies, laws and regulations as well as the institutions of relevance to the 2017 World Bank (WB) Environmental and Social Standards on REDD+ implementation, identify overlaps, conflicts, gaps or inconsistencies between Sudan's policies and laws and the WB's environmental and social standards policies; and determine which of these policies are likely to be triggered under the REDD+ program. Past and existing policies and laws relevant to REDD+ were considered and analyzed against **ten environmental and social standards**. It was found that the Sudan has legal instruments for **Assessment and Management of Environmental and Social Risks and Impacts (ESS1)** assessment, but that processes are not standardized, and implementation is inconsistent and weak. Sudan's current legislation provides for good protection of **Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS6)** and provides for all of the related requirements, but weaknesses are in implementation, partly due to jurisdictional issues related to decentralized control of states. It was also found that the current laws provide the framework for **pest management (related to ESS3, Resource Efficiency and Pollution Prevention and Management**) but regulations are required under the current Environmental Protection Act to put into practice the provisions of the law. However, some requirements of this World Bank policy are not covered. Current laws provide for some but not all of the requirements of the World Bank safeguard policy related to **forests (ESS1,3, 4 and 6)**. Sudan's current constitution and the Wildlife Conservation and National Parks Act (1986) and proposed revised Act 2015 cover the requi-

rement for conservation and protection of habitats **(ESS6, Biodiversity Conservation and Sustainable Management of Living Natural Resources)**. However, the issue of invasive species is not adequately covered. The weaknesses are also in implementation which is partly due to jurisdictional issues related to decentralized control to states which does not facilitate efficient transboundary wildlife management between states and between Sudan and neighbouring countries. The revised management arrangements in the draft 2015 Act provide for strengthening control at the federal level and are aimed at improving management. The revised Act is currently in its final stages of approval. In relation to **Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities (ESS7)**, the Sudan Transitional Constitution (2019) provides for the recognition of equal rights and protection of all Sudanese people including indigenous peoples and for respect of customary laws and practices and local heritage, however these are not well enforced. The requirements of **ESS2 (Labor and Working Conditions)** are covered in the Sudan policies, laws and regulations but institutions and implementation are weak. Awareness, inspection and compliance levels are low, especially in the informal sector. Furthermore, it was found that the requirements of the World Bank environmental and social standard on **Land Acquisition, Restrictions on Land Use and Involuntary Resettlement (ESS5)** were not covered in the current legislation. The requirements of the **ESS8 (Cultural Heritage)** are in the current legislation but not implemented in practice as regulations, guidelines and standards have not been developed. Staff and institutions responsible for implementing the legislation are weak. Finally, the existing legislation does not meet the requirements of **ESS10 (Stakeholder Engagement and Information Disclosure)** but the revised forests Act 2015 and the draft revised EPA do include these kind of requirements. With regards to **ESS9 (Financial Intermediaries**), are subject to the same environmental and social standards as funding and development agencies.

The current gaps in the Republic of Sudan's policies and legislation in relation to the World Bank environmental and social standard policies can be overcome in the short term by including provisions of these standards in the environmental and social screening process in the Environmental and Social Management Framework and other complementary environmental and social risk management instruments. This will enable REDD+ activities to be implemented in compliance with the environmental and social standards requirements.

1.
INTRODUCTION

In 1993, the Republic of Sudan signed and ratified the Statement of Forest Principles and Agenda 21 following the United Nations Framework Convention on Climate Change (UNFCCC) and started its participation in one of many initiatives focusing on climate change mitigation and adaptation. As a result of this framework, an implementation instrument was developed: Reducing Emissions from Deforestation and Forest Degradation (REDD). REDD seeks to reduce deforestation and forest degradation (D&D) in developing countries like the Sudan. This concept was later superseded in the negotiations by REDD+, hence including forest degradation and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks. While some stand-alone REDD+ projects issued their first carbon credits in 2011, this mechanism is now being institutionalized and readiness programmes are being developed through REDD national programmes, such as in the Sudan. As part of the Sudan's national REDD+ readiness programme, several studies have been carried out, including the identification of underlying drivers of deforestation and forest degradation and the elaboration of a strategy to tackle these drivers. While the Sudan initiated the national dialogue on REDD+ in 2012, its REDD+ Readiness Programme officially started in 2015 (FCPF, 2015a) when the government of the Sudan signed a contract with the World Bank (WB) to receive USD 3.8 million from the Forest Carbon Partnership Facility (FCPF). Since that time, the Forests National Corporation (FNC), the focal institution, set up a programme management unit (PMU), designated focal points in all states of the Sudan and focal points for geographical sectors, communicated with a broad range of stakeholders (both formal and informal). The Minister of Environment formulated the Steering Committee and the FNC established the technical advisory committee representing a broad range of stakeholders.

The objective of the REDD+ readiness and REDD+ future implementation activities is to enhance the Sudan's ability to contribute to mitigating the impacts of climate change in addition to enhancing the sustainable management of forests. The expected outcomes of the REDD+ programme support Sudan's national goals of (i) conserving the country's renewable natural resources; and (ii) facilitating sustainable land use management, eventually providing benefits to the millions of people that depend on the forest for their livelihoods and wellbeing.

The FNC has recognized that REDD+ was an opportunity to assist Sudan to undertake a participatory national forest and land-use planning exercise that will contribute to mitigating impacts of D&D, including from developments in other sectors (e.g., agriculture, energy, mining), and existing land tenure arrangements. The long-term protection of forests, better land use planning, practices and governance, restoration of degraded land, and improvements in local livelihoods and resilience will also contribute to the achievement of the Sudan's broader development, environmental and climate change goals (FCPF, 2015b).

As of November 2020, the REDD+ readiness programme is nearing its terms and has achieved numerous milestones. It has carried out and completed the communication strategy and the studies on benefit sharing, land use and tenure and the Drivers of deforestation and forest degradation. It has also completed the Feedback & Grievance Redress Mechanism, the Draft Gender Study, the Mining Study, the Private Sector Engagement Study, the Greenhouse Gas (GHG) Inventory and Reporting Process for the Agriculture, forestry and other land use (AFOLU) Sector study, the Forest Reference Emission Level, the Public and private financing options in Sudan study along with a resource mobilization plan for further investment in Forest Landscape Restoration, as well as the Sudan REDD+ Readiness Assessment and Sudan National Forest Inventory. At the time of this report, a number of other REDD+ components were being finalized: the Monitoring, Reporting, Verification (MRV) arrangements, the safeguard information system, the impact of military people on forest resources, the land monitoring system, the national REDD+ pilot emission reduction programmes, the fire management strategy and the strategy options.

While the REDD+ readiness activities in the context of FCPF entail no projects investment on the ground and mostly consist of strategic planning and preparation, these activities have potentially far-reaching impacts for the design of future projects. Unless appropriately addressed, possible negative impacts (e.g. the definition of rights to forest carbon or the design of benefit-sharing mechanisms) could not be mitigated.

The Strategic Environmental and Social Assessment (SESA) integrates environmental and social (E&S) concerns during the formulation of the REDD+ strategy and during subsequent implementation of the strategy. It is a process that assesses the potential impacts of the proposed national, regional and or local REDD+ strategies, formulates alternatives and develops mitigation strategies. It is aimed at ensuring that the activities that will be implemented under the REDD+ strategy address the causes of D&D forest degradation and reverse the trend do not cause adverse E&S impacts and where possible, result in social and environmental benefits.

The main outputs of the SESA are twofold: (i) a REDD+ strategy that is environmentally and socially sustainable; and (ii) a framework that will enable projects implemented under the strategy to be environmentally and socially sustainable. The outputs have been, as much as possible, generated in an integrated manner with other REDD+ processes and in tandem with the formulation of the strategic options for REDD+. The process has been informed by studies and analyses that had already been completed and were about to be completed. It has been a consultative and participatory

process that has offered the civil society the opportunity to influence the reforms required for reducing D&D in the Sudan.

The overall objective of the SESA has been to ensure that the World Bank and the UNFCCC E&S safeguards have been and will be applied to integrate E&S considerations into the Sudan's REDD+ readiness process in a manner consistent with the Sudan's environmental laws and regulations and the World Bank's safeguard policies.

In accordance with the FCPF guidelines, special consideration has been given to livelihoods, rights, cultural heritage, gender, vulnerable groups, governance, capacity building and biodiversity.

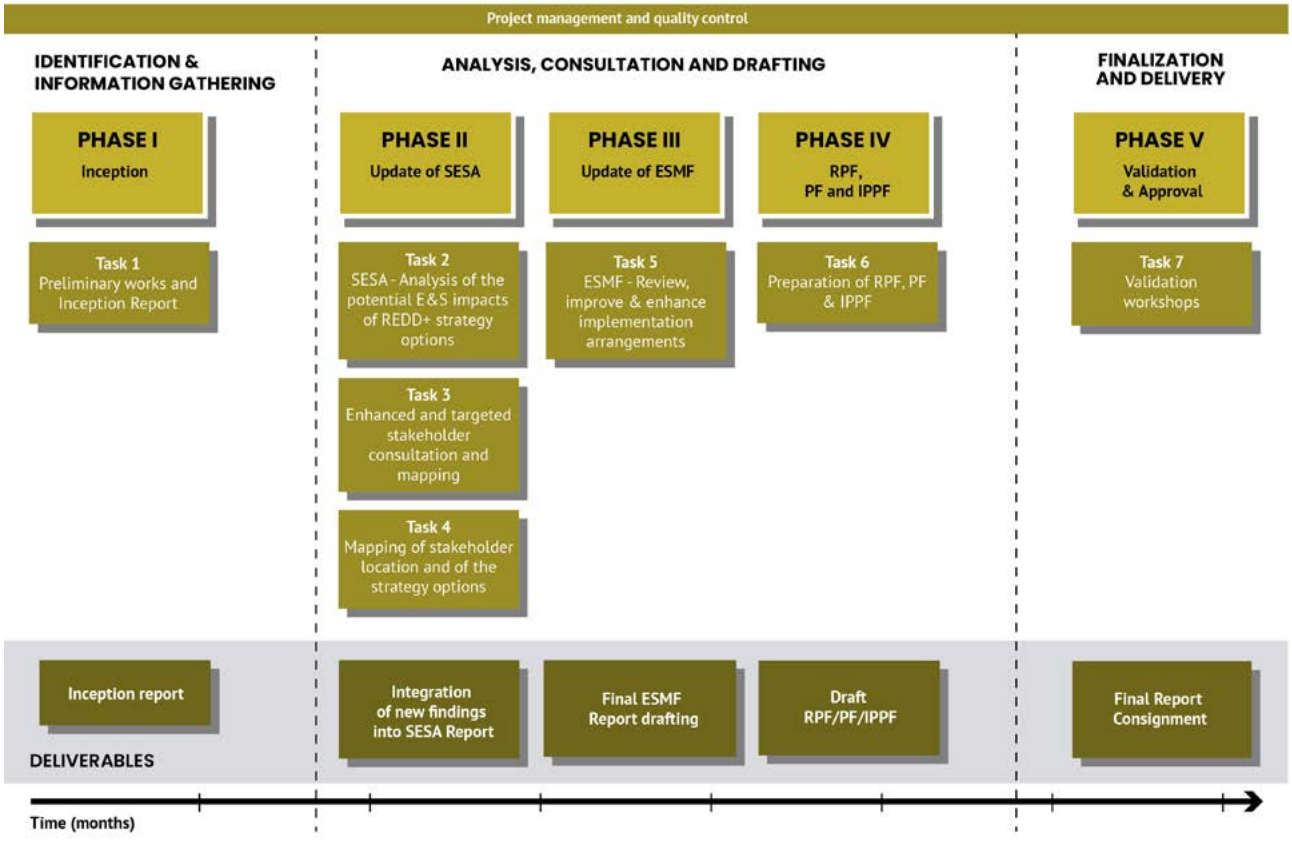
The specific objectives of the SESA have been to:

- Integrate environmental management and socio-economic concerns/decisions into the Sudan' REDD+ readiness process.
- Provide avenues for the involvement of the public, local communities, proponents, private interest groups and government agencies in the assessment and review of the proposed strategy options among others.
- Evaluate reasonable alternatives or options based on potential severity and likelihood of impacts, considering the REDD+ objectives and geographical scope.
- Provide guidelines/recommendations as an input into the design and implementation of the REDD+ Strategies.

Upon completion of the SESA and Environmental and Social Framework (ESMF) deliverables in July 2018, the SESA Working Group (WG), along with the Project Management Unit (FNC-PMU PMU) of the Forest National Corporation (FNC), identified the need to go further and concluded the SESA process needed to be continued. As such, a second phase of the SESA and ESMF took place and aimed to address these needs. This second phase (called in short "SESA II") began in February 2020 and concluded in December 2020. SESA II updated the ESMF, aligned SESA with updated strategy options and addressed gaps connected to stakeholder consultation and engagement efforts. Most importantly, the Resettlement Policy Framework (RPF), the Indigenous Peoples Planning Framework (IPPF) as well as the Process Framework (PF) were updated.

The general sequence and approach of the SESA-ESMF assignment in phase II is presented in Figure 1 below.

Figure 1. SESA II/ESMF phases, inputs and expected outputs



This report starts with an update on the status of the REDD+ readiness process in Sudan (Chapters 1 and 2), a detailed description of the methodological approach used for this assessment (Chapter 3) and a summary of the drivers of deforestation and forest degradation study and suggested strategy options (Chapter 4). The report then follows with the environmental and social impact assessment and resulting recommendations (Chapters 1 and 6).

2.
REDD+ IMPLEMENTATION FRAMEWORK

Since the Rio Earth Summit in 1992, the UNFCCC has been debating principles and mechanisms to include forest protection and restoration. D&D are responsible for around 15% of global GHG emissions and therefore should be addressed within global efforts to reduce atmospheric GHG concentration. Table 3 features key dates (milestones) towards the development of the REDD+ mechanism.

Table 3. Milestones in the development of REDD+ mechanism

Date and event	Decision made related to forestry and REDD+
1997. COP-1 in Kyoto	The Kyoto Protocol was adopted, and the Clean Development Mechanism (CDM) was agreed as a flexible mechanism to incentivize GHG emissions reductions in developing countries (non-Annex I).
2001. COP-7 in Marrakesh	The Marrakesh Accords were adopted, and afforestation and reforestation became eligible to generate carbon credits under the CDM. REDD were not included for various technical reasons.
2005. COP-11 in Montreal	The Kyoto Protocol entered into force and carbon credits (or Certified Emission Reductions) could be generated from emission reduction projects.
2007. COP-13 in Bali	REDD (without the plus) was discussed and formulated as a potential mechanism for mitigating GHG in the Bali Action Plan.
2008. COP-14 in Poznan	The concept of REDD+ was adopted and recommendations were made to give it the same level of priority in the negotiations as afforestation and reforestation.
2009. COP-15 in Copenhagen	The Copenhagen Accord recognized the need for immediate establishment of a REDD+ mechanism. The rights of Indigenous Peoples and local communities were also more formally acknowledged along with biodiversity conservation principles.
2010. COP-16 in Cancun	The Cancun Accord recognized the REDD+ mechanism, including afforestation and reforestation activities. REDD+ methodologies and frameworks started being developed.
2011. COP-17 in Durban	The Durban Platform further strengthened the progress towards REDD+ implementation and the role of future markets.
2013. COP-19 in Warsaw	Five decisions were adopted. These were on national forest monitoring systems, modalities for MRV, technical assessment of proposed forest reference emission levels/forest reference levels, safeguards information systems and addressing the Drivers of deforestation and forest degradation), providing technical guidance for the implementation of REDD+ activities.
2015. COP-21 in Paris	The Paris Agreement explicitly endorses REDD+ and countries have been encouraged to track forest conservation and management as a key component of their progress.
2016. COP-22 in Marrakech	Discussions during the Marrakech negotiations led to attempts to strengthen data consistency over time (between Forest Reference Emission Levels and REDD+ results reported) and with the GHG inventory reporting. Emphasis was also placed on the importance of linking REDD+ to nationally determined contributions (NDCs). The GCF also began looking into ways to translate the Warsaw Framework on REDD+ into specific procedural and technical elements in line with the goals and criteria of the Fund.
2017. COP-23 in Bonn	The Board of the GCF approved the pilot programme for REDD+ results-based payments in October 2017, indicating that REDD+ has moved on from rule-setting to implementation and payments for results.
2018. COP-24 in Katowice	Discussions at the Katowice COP were about whether to exclude or include REDD+ activities from Article 6 of the Paris Agreement.
2019. COP-25 in Madrid	The COP called for action on reducing emissions from REDD+ and enhancing carbon sinks to increasing the ambition of NDCs through nature-based solutions (NbS) based on forest activities, including REDD+. The conference also stressed the need to implement the existing REDD+ framework to reduce deforestation effectively and raise ambition in NDCs.

Background to Sudan's joining REDD+

The Sudan started to initiate REDD+ in collaboration with the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and the Food and Agriculture Organization (FAO) in 2009. The Sudan was selected as a REDD+ country participant in the FCPF in 2012. The Sudan's Readiness -Preparation Proposal (R-PP) states that it was initially aiming to achieve REDD+ Readiness by the end of 2017. The R-PP presents all activities that the Government of Sudan envisaged in order to achieve REDD+ readiness. A FCPF additional Grant Agreement was concluded and started in 2018 in order to complete activities by the end of 2019 initially and then by the end of 2020 with the production of the readiness package.

The primary objective of the Sudan's readiness has been to strengthen the country's capacity to design a socially and environmentally sound national REDD+ strategy, with a special focus on:

- Institutional arrangements
- Social and environmental safeguards
- Feedback, grievances and redress mechanism
- Forest reference emission level
- National forest monitoring system

The FNC is the institutional body in charge of implementing and coordinating all forestry and REDD+ issues and agreements. The FNC is also a member of the Designated National Authority for the Kyoto Protocol, an UN-REDD partner which makes it a dedicated partner to contribute to the global efforts to mitigate the adverse effects of climate change. The Sudan signed the Paris Agreement in 2015 at COP21 and ratified it in August 2017. The Sudan submitted its Intended Nationally Determined Contributions in line with the Conference of the Parties Decisions to communicate programmes containing measures to mitigate climate change and facilitate adequate adaptation taking into account the principle of common but differentiated responsibilities and its national development priorities. One of the overall aims of Sudan's NDC is to integrate climate mitigation and adaptation into its national sustainable development process to achieve low-carbon and resilience development objectives. In line with Sudan's national development priorities, objectives and circumstances, the Sudan intends to implement low carbon development interventions in three sectors: energy, forestry and waste.

The Sudan strategy for the forestry sectors is to:

- Implement afforestation/reforestation by increasing forest cover in the country through official planting, community planting and planting in irrigated agricultural areas; to meet the main goal of 25% forest coverage from the total area of Sudan. By 2030 an area of 790,795 ha needs to be planted annually if international financial support is provided.
- Implement a national REDD+ strategy to decrease the high rate of D&D for biomass energy, crop cultivation, infrastructures development (oil and mining industry) and overgrazing, charcoal, firewood efficiency, increased gum Arabic production, forest conservation and sustainable forest management and a more balanced livestock production.

3.
SESA METHODOLOGY

The SESA process' main objective is to assess the proposed REDD+ strategy options for potential environment and social impacts, and to propose mitigating measures where negative impacts are anticipated. During the stakeholder consultations, this objective, along with the methodology presented hereafter for the SESA were presented to various types of stakeholders, along with the national REDD+ strategy; and technical assessment of the potential environmental and social impacts of the REDD+ strategy options. Two inception reports were also developed that presented the SESA approach and proposed work plan to the WB, the FNC-PMU and the multi-sectoral SESA Technical Working Group (TWG), one at the beginning of each of the SESA development phase in 2017 and 2020.

3.1 Scoping of environmental and social impacts and risks

The aim of the SESA is to identify the potential E&S impacts of the national REDD+ strategy options, including the applicable WB safeguards that could be triggered in the implementation of the strategy in relation to the WB Environmental and Social Framework guidelines (WBESF, 2017) and formulate mitigation measures that could be implemented.

The WBESF specifies that the SESA is a systematic examination of E&S risks and impacts and issues, associated with a policy, plan or program, typically at the national level but also in smaller areas. The examination of E&S risks and impacts include consideration of the full range of E&S risks and impacts incorporated as Environmental and Social Standards (ESS).

The application of these ESS, by focusing on the identification and management of E&S risks, intend to help reducing poverty and increasing prosperity in a sustainable manner for the benefit of the environment and their citizens. These ESS establish objectives and requirements to avoid, minimize, reduce and mitigate risks and impacts, and where significant residual impacts remain, to compensate for or offset such impacts.

The environmental and social assessment, informed by the scoping of the issues, takes into account all relevant E&S risks and impacts of the programme or project, as follow:

a. Environmental risks and impacts, including: (i) those defined by the environmental health and safety guidelines; (ii) those related to community safety (including dam safety and safe use of pesticides); (iii) those related to climate change and other transboundary or global risks and impacts; (iv) any material threat to the protection, conservation, maintenance and restoration of natural habitats and biodiversity; and (v) those related to ecosystem services and the use of living natural resources, such as fisheries and forests.

b. Social risks and impacts, including: (i) threats to human security through the escalation of personal, communal or inter-state conflict, crime or violence; (ii) risks that project impacts fall disproportionately on individuals and groups who, because of their particular circumstances, may be disadvantaged or vulnerable; (iii) any prejudice or discrimination toward individuals or groups in providing access to development resources and project benefits, particularly in the case of those who may be disadvantaged or vulnerable; (iv) negative economic and social impacts relating to the involuntary taking of land or restrictions on land use; (v) risks or impacts associated with land.

The following ESS were thus considered by the SESA consultants: Assessment and Management of Environmental and Social Risks and Impacts; Resource Efficiency and Pollution Prevention and Management; Labour and Working Conditions; Community Health and Safety ; Land Acquisition, Restrictions on Land Use and Involuntary Resettlement; Biodiversity Conservation and Sustainable Management of Living Natural Resources; Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities; Cultural Heritage; Financial Intermediaries; and Stakeholder Engagement and Information Disclosure.

The environmental and social assessment was based on current information, including an accurate description and delineation of the project and any associated aspects, and E&S baseline data at an appropriate level of detail sufficient to inform characterization and identification of risks and impacts and mitigation measures. The assessment evaluates the potential projects' E&S risks and impacts; examine project alternatives; identify ways of improving project selection, siting, planning, designing and implementing in order to apply the mitigation hierarchy for adverse E&S impacts and seek opportunities to enhance the positive impacts of the projects. The E&S assessment includes stakeholder engagement as an integral part of the assessment.

Under WB guidelines, the environmental and social assessment takes into account in an appropriate manner all issues relevant to the strategies being assessed, including:

a. The country's applicable policy framework, national laws and regulations, and institutional capabilities (including implementation) relating to environmental and social issues; variations in country conditions and project context; country environmental and social studies; national environmental and social action plans; and obligations of the country directly applicable to the project under relevant international treaties and agreements.

b. Applicable requirements under the relevant environmental and social standards.

c. The Environmental Health and Safety Guidelines, and other relevant Good International Industry Practice.

The SESA also provides opportunities for stakeholders to influence REDD+ development and policy choices. As a result, the SESA development process involved extensive consultations and validations with relevant stakeholders throughout the course of its development. These stakeholders were identified at the initial stages of the SESA implementation and throughout the first (2017-2018) and second phase (2020) of its development. This identification was done through scoping.

Scoping was thus initially conducted in order to determine the baseline situation and orientate analysis of the future situation. Scoping consisted in the elaboration of the E&S baseline conditions, as well as basic spatial analysis of maps and forest trends, to ultimately delineate the extent of E&S issues related to REDD+ in the Sudan. This was done using a blended approach combining desk-based research and local stakeholder consultations. The baseline was established based on information collected during previous studies on land tenure, benefit sharing, drivers of deforestation and forest degradation and strategy options formulation. This baseline information included:

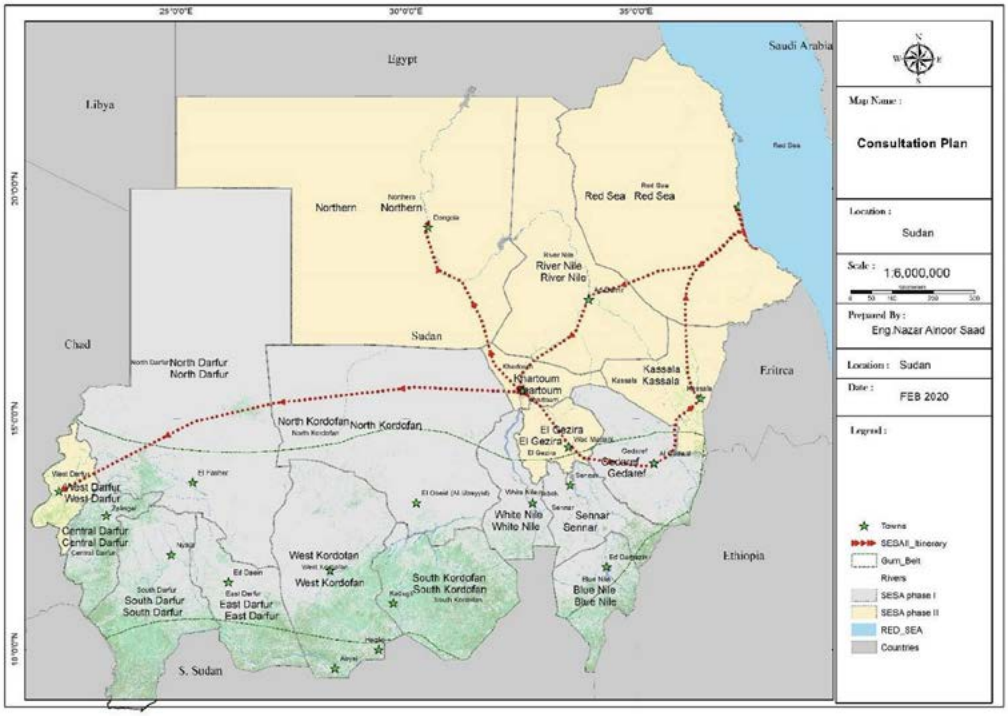
- Environmental domain: geography, climatic conditions, water resources, surface water quality and pollution, relief and topography, soil characteristics, vegetation and ecological zones, forestry resources.
- Socio-economic domain: major crops grown in the various agro-ecological zones, socio-cultural background, economic profile, livelihood characteristics, climate change and vulnerability Issues.

However, over the course of SESA II (in 2020), the baseline information collected have been a lot more related to proposed mitigation measures.

Identified stakeholders to be approached during consultations included federal and state level government officials, village level small farmers and forest adjacent communities, commercial farming and large agricultural enterprises representatives, livestock and pastoralist workers, marginalized and vulnerable communities and indigenous peoples, refugees and internally displaced peoples, gum Arabic value chain participants, forest products-based business representatives, women groups representatives, representatives of the mining and energy sectors, as well as representatives of Non-Governmental Organizations (NGOs), academics, and school teachers.

Due to the COVID-19 virus pandemic, activities were seriously constrained in 2020, in particular with regards to in-person consultations of rural stakeholders. As a result, with a strong logistical and financial support of the SESA consultants, state-based REDD+ Focal Points (FP) facilitated consultations in each state by assisting in the identification of forest threatened by D&D, forest-dependent communities and appropriate stakeholders. A consultation website was also set up[1]. A total of 18 states were nevertheless consulted and visited (by the SESA consultants or the REDD+ FP) throughout phases I and II as made visible on Map 1 below.

Map 1. Itinerary SESA consultations phases I and II



[1] Website url: http://reddplus-sesa.org/

Within each state there are specific areas where D&D is occurring. The locations in which to consult in rural areas are the hotspots of current drivers of deforestation and forest degradation as these are the areas where the REDD+ strategy is aiming to have an impact. Stakeholders in those areas will be most directly impacted by the REDD+ strategy. A representative[2] sample of localities and lower-level administrative units were identified, weighted by the amount of forest and woodland area and by population level for states not specifically mentioned in the drivers of deforestation and forest degradation and the strategy option studies.

These consultations were complemented with desk-based research focusing on preceding REDD+ studies including the latest version of the national REDD+ strategic options, forest inventory, as well as cartographic data and relevant laws and policies. Data and analysis from the field consultations and desk studies led to detailed impacts/risk assessment (Section 1), and the drafting of priorities and recommendations (Section 6).

In order to develop the priorities topic and strategies to consult on, the SESA consultants followed the WBESF and produced a preliminary analysis (presented in Appendix 1).

3.2. Identification of D&D hotspots: data collection and mapping

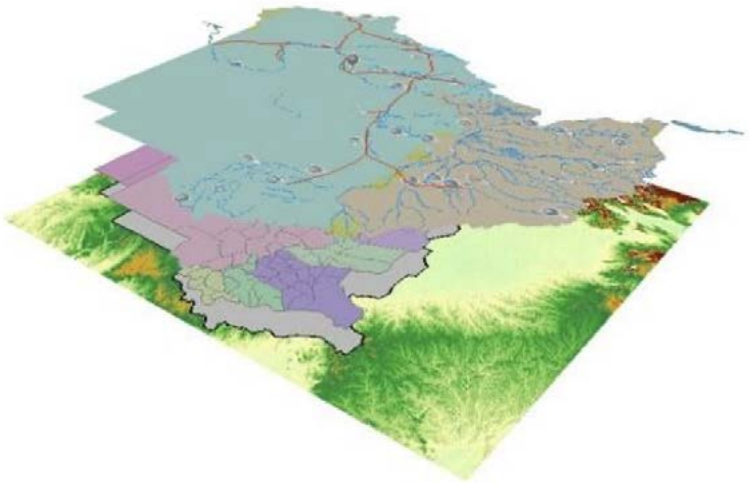
Data collection for mapping the drivers of deforestation and forest degradation and strategy options

State-specific information was collected during consultations at both state and national level.
Since raw data from the land use and land tenure assessment and from the study on drivers of deforestation and forest degradation were not provided on digital workable format (including Excel worksheets, shape files, database from different resources, Computer Aided Design (CAD) files, images and text formats), the SESA consultants relied on secondary sources of information.
The SESA consultants collected secondary data available such as previous studies carried out as part of the REDD+ Readiness Programme as well as sector-related studies and maps (agriculture, forestry, energy, mining, oil and gas, etc.). These included Africa land cover and the land cover atlas of the Sudan (FAO, 2010).

Drivers of deforestation and forest degradation Data verification

In Phase I, moderate resolution satellite imagery (archived) and National Aeronautics and Space Administration (NASA) missions (such as, climate, Shuttle Radar Topography Mission, aqua mission, Landsat, Terra, Africover) were used to support the assessment of the drivers of deforestation and forest degradation. Geographic Information System (GIS) tools were used for organizing, storing, analyzing, displaying and reporting spatial information relevant to locating the relevant stakeholders. These information systems have been used to:

- Superimposed mapped data layers.
- Map population settlements.
- Identify biological and ecological sensitive areas, hotspots and economic activities mentioned in the drivers of deforestation and forest degradation study.



One of the important outcomes of this task was to identify the stakeholder locations and delineate the hotspots in line with the drivers of deforestation and forest degradation studies and the strategy options for the southern states. However, in SESA II, mostly covering norther states as well as West Darfur, the hotspots were not a guiding factor in the consultation process. The location of interest areas was instead determined by consulting the FNC directors and the FP at the state level.

[2] Representative of all relevant stakeholders. See section 3.5. Stakeholder Mapping for explanation of how identification and selection of these stakeholders was done. Representativeness was achieved through a sampling strategy (described throughout the present section).

3.3. Initial expert appraisal of environmental and social impacts

The initial step of the E&S impacts assessment appraisal (see task 2 of SESA II in Error! Reference source not found.) consisted of carrying out an expert review of the proposed REDD+ strategies options and their potential impacts using the indicators listed below for each option, when possible. The expert review was a desk-based exercise and was used to form the preliminary grounds to inform the stakeholder consultation and participation plan (C&P).

The potential impacts of the proposed strategies (and associated activities) were identified and evaluated through the following steps:

- Identification of major activities for each strategic option.
- Group discussion with the multi-sectoral SESA TWG made of experts in different fields, covering all strategy options.
- Identification of all potential E&S aspects (sources of potential impacts) associated with each strategic option and sub-option.
- Assessment of the significance of identified E&S impacts of each option.

The strategy options were assessed according to their indicators presented in Table 4.

Table 4. Indicators used for E&S impacts assessment

Type of indicators	Indicators
Environmental	• Forest and range resources (decrease in available resources or in their accessibility or quality). • Biodiversity (decrease or overall variation in the number of species; species migration; Inappropriate species and inter-species conflict). • Land resources (change in the aggregate of the land qualities, land use pattern transformation, impacting land qualities). • Water resources (decrease in available resources or in their accessibility or quality) • Soils and ecosystem services (increasing runoff and consequent gully formation in soils; decrease in the number of functions attributed to soils; degradation in the number and/or the quality of ecosystem services). • Soil carbon content (degradation of carbon and nutrient cycling processes, degradation of natural “waste” (decomposition) treatment and recycling processes). • Use of resources (change in use practices leading to resource degradation, and/or conflicts). • Wildfire assessment. • Impact on livestock.
Socio-economic	• Livelihoods (livelihood opportunities, changes of income generation as a result of the strategy, impact on assets, saving opportunities or access to credit, labor/working conditions). • Tenure and resource rights (changes in access rights, resources type and quantities, benefit sharing arrangements). • Rights of indigenous people and vulnerable groups (resettlement, changes in livelihoods and rights). • Gender impacts (change in workload and employment opportunities for women). • Intergenerational impacts (changes for older/younger people). • Basic social services. • Cultural and traditional values of forest communities. • Ability to control decisions and choices over natural resource use and management (access to information). • Ability to mobilize financial and human resources, social and economic conflicts resulting from change in activity/increased competition (farmers/pastoralists). • Protection of cultural and traditional heritage, knowledge and values.
Health and safety	• Deterioration in access to food. • Deterioration in health due to increase in water-borne or forest-borne diseases. • Change in living/working conditions or deteriorated opportunities. • Deterioration in safety and security due to accrued conflicts.
Political	• Governance (transparency/information disclosure; accessibility of documents; accountability). • Corruption. • Inappropriate/inefficient activity/policies planning, and/or management. • Non-compliance with new policies. • Degree of stakeholder engagement (including by minority and other disadvantaged groups). • Alignment with applicable international policies and guidelines.

The outcome of this initial assessment is presented in Appendix 1

3.4. Legal, policy and institutional assessment

The assessment of the national policy and legal framework was conducted based on a three-step methodological approach, including:

- An extensive document/literature review and analysis covering recent policy and law documents, as well as existing reports and studies; including Indigenous customary law considering the Sudan's 2019 political transition. More than 70 past and current policies and laws relevant to REDD+, covering some 16 different topics/sectors, were considered in line with the WBESF as listed in section 3.1.
- An expert assessment via a total number of 23 focus groups, conducted at state level : the total number of focus group was 23 in states conducted using purposive sampling.
- Stakeholder consultations involving 390 stakeholders, representing 11 different socio-professional categories across the Sudan.

The main assessment was carried in 2017-2018 and later updated in 2020. The findings of this assessment are summarized in section 5.11 of the present report.

3.5. Stakeholder mapping

The stakeholder mapping exercise aimed at defining who the key stakeholders are and identifying their interests and concerns with regard to forest resources and their integrity and management.

According to the WB's Toolkit on Stakeholder Mapping and Public and Private Dialogue (2016) and Guidelines on Stakeholder Engagement in REDD+ Readiness (FCPF & UN-REDD, 2012), stakeholder mapping *"helps to proactively anticipate stakeholder challenges and plan mitigation strategies. It is a way to map complex stakeholder dynamics to understand how they individually and collectively determine the success or failure of projects. Mapping identifies the following:*

- *Whom to involve at different stages of the project as not all actors require the same level or timing of engagement.*
- *Conflicts, collusions, and other informal relationships among stakeholders that influence the outcome.*
- *Influential actors who may support or derail the reform".*

The approach applied to achieve the stakeholder mapping is laid out in the following steps.

Defining the criteria for qualifying as a stakeholder for the REDD+ programme

Stakeholders consist of those who may be directly or indirectly affected by any REDD+ activities, or those who will be directly or indirectly impacted by the revised policies, laws and regulations to be adopted as a part of the REDD+ process[3]. REDD+ planning in the Sudan context has requested a special focus on the inclusion of indigenous peoples, ethnic minorities and other forest-dependent communities, women and other marginalized groups.

The stakeholders likely to be impacted by REDD+ strategies and activities are therefore:

- Indigenous peoples and other forest-dependent communities living in and around the forests that are currently being degraded.
- Pastoralists who use the forest for browse and shelter for livestock.
- Farmers who depend on forests for livelihoods.
- Civil society (NGOs, community associations, etc.) whose objectives and functions relate to forests.
- Government agencies responsible for policies laws and regulations in forest and related sectors (forests, environment, agriculture, energy, water, transportation, finance, planning, national, state, local, etc.).
- The Forest Authority responsible for implementing the REDD+ programme.
- Environmental law enforcement agencies.
- Private sector engaged in forest-related activities (such as gum producers and processors, loggers, beekeepers (Apiculture), energy producers, farmers, non-wood forest products (NWFP) based businesses, agri-business, etc.).

[3] FCPF defines stakeholders as "... those groups that have a stake/interest/right in the forest and those that will be affected either negatively or positively by REDD+ activities. They include relevant government agencies, formal and informal forest users, private sector entities, indigenous peoples and other forest-dependent communities" (FCPF & UN-REDD, 2012).

Reviewing and updating existing stakeholder lists drawn up during previous and ongoing stages and studies of Sudan's National REDD+ Programme

In phase I, stakeholder lists were compiled from past REDD+ activities (i.e. R-PP, land tenure study, benefit sharing study, communications strategy, drivers of deforestation and forest degradation study). Contacts were gathered, grouped and reviewed in order to build upon identified stakeholder lists.
In SESA phase II, the list of stakeholders was drawn from an assessment of the missing or under-represented stakeholders in phase I. Similarly, contacts were regrouped in categories and subcategories. Direct interaction with stakeholders through key informant interviews and focus group discussions were conducted through remote consultations done via an online platform. Questionnaires were used to guide the interviews.

Analyzing the findings of the study on the drivers of deforestation and forest degradation
The drivers of deforestation and forest degradation and associated REDD+ strategy options indicated the stakeholder categories most likely to be directly impacted by the proposed REDD+ activities. The strategy activities addressing fuelwood harvesting and charcoal making will impact people involved in fuelwood and charcoal market chains, and end users. Strategies addressing agricultural expansion will impact on farmers, and others involved in subsistence and commercial agricultural market chains as well as households. Strategies addressing pastoralism activities will impact on pastoralists, people involved in livestock market chains including end-users. Stakeholders less directly involved include legislators, FNC staff, administrators, civil society organizations (CSO) and others responsible for forest and related sectors policy development and implementation.
Understanding and analyzing the drivers of deforestation and forest degradation and identifying the geographic areas where D&D is occurring was the starting point to the identification of the stakeholders who are most affected by D&D and the strategies designed to address them. The drivers of deforestation and forest degradation study report identifies priority drivers by state but does not provide more specific geographic locations within states where drivers of deforestation and forest degradation are most critical. However, in SESA Phase I, drawing on raw data collected during the drivers of deforestation and forest degradation study and in consultation with the drivers of deforestation and forest degradation consultants, five broad geographic areas, each associated with a set of drivers of deforestation and forest degradation were identified. They were:

- Forests in the riverine ecosystem of Blue Nile and Sennar states.
- The gum Arabic belt: mainly Kordofan and including parts of Blue Nile, White Nile and Darfur states.
- Clay plain: Gadaref, Sennar, Blue Nile, South White Nile and South Kordofan states.
- Sand Plain: Greater Kordofan.
- Mangrove forest (Red Sea)
- Watershed forests in Jebel Marra Massif, East, Central and South Darfur.

Forest change map data was not available for the Sudan at the time to identify the hotspots for D&D, but other relevant information was available to help identify likely hotspots. These data include forest locations, human settlements, pastoralist routes, infrastructure, rivers, topography and rainfall. GIS tools were used to analyze these data to identify the areas where D&D is occurring and where stakeholders are most likely to be located.
The analysis used differing moderate-resolution satellite imagery (archived), Google earth images and NASA data (Climate, Shuttle Radar Topography Mission, Landsat, Tropical Rainfall Measuring Mission, Africover, etc.). Buffering was done to delineate the general features within the buffer zone of the areas of interest.
As there was no up-to-date map data on forests, the forests layers were extracted from the 2008 FAO Africover maps as the best available forest map data at the time of this report.
Overlaying the forest layer with sociological data such as population centers, Internally Displaced People (IDP) camps, pastoralist corridors, rivers, etc. helped to further identify zones with potential REDD+ stakeholders. An arbitrary 5-km buffer around the forest areas was drawn to identify forest dependent communities located within 5 km of forest boundaries. The purpose of GIS mapping was to help identify the location of the stakeholders most likely to be directly affected by the implementation of the REDD+ strategy.

During SESA Phase II, hotspots of D&D and REDD+ strategy options were identified using REDD+ FP, FNC staff and through other sources including information generated through recent REDD+ studies. Within each state there are specific areas where D&D is occurring. Although it is known that desertification is progressing southwards, there is very little specific information in the literature on forest change in the Sudan. However, the hotspots were known locally and to FNC staff located in each of the northern (and West Darfur) state. As such, they assisted the SESA consultants to identify appropriate locations in which to consult stakeholders.

These hotspots included in particular:

- Gezira: the areas within and around the irrigation scheme including irrigated plantations (in Al-Hasahisa and Rufaa areas), areas in the scheme that are denuded of trees, areas being encroached by sand dunes, and the sunt forests along river courses.
- Kassala: rural areas in the southern part of the state where the forest cover is located and in the irrigated plantations along the Gash river and in the east where refugee camps are located. Wad Elhiliao (bordering Ethiopia and Eritrea) and Wad Elhelio localities, where gum Arabic is considerably produced were also identified as relevant areas. In these areas, consultation investigated the E&S impacts of the strategy options concerned with the gum belt restoration.
- Red Sea: the localities of Elgnab, Olaiab, Sinkat and Tokar and the coastal areas within and around the mangrove forests were identified as relevant areas. Relevant issues to consult on are related to fuelwood, agroforestry and mangrove conservation and restoration.
- River Nile: areas around Ad-Damir, Shandi, Al-Matama natural forests, areas along the Atbara (about 32 watershed areas including the Hassania Natural Reserve and Bayouda desert), and in the archaeological area of Elbagarawia Pyramids and Elnagaa and Elmassawarat were all identified as relevant sites.
- Northern: Meroe and Adabah localities, locations around Kudruka and Birkat Elmulook protected forests, Kudruka forest reserve in Dongola locality, the gold mining area in Dongola locality and Al-Qabab were identified as relevant locations. Sand dunes encroaching on farms is a problem in Meroe locality. Mechanized agriculture has expanded rapidly in the last two decades in Northern state and is considered as one of the main causes of D&D.
- Karthoum: areas around the Sunt forest reserve, and refugee camps at Sharg al Neel and Nivasha were identified as relevant locations. Relevant topics to consult on are options related to urban forestry, windbreaks, fuelwood and alternative clean energy sources, and refugees.
- Western Darfur: three localities Giniana, Gabal Mon and Kalabas were identified as relevant locations. Relevant issues to discuss were gum Arabic subsistence agriculture, overgrazing, and over cutting for fuelwood particularly from Chad.

Consulting with national and regional forest authorities in Khartoum and in the states to obtain information on stakeholder groups

The lists of stakeholders and the GIS maps were discussed with FNC staff at the national and state levels with the aim of identifying areas/sites most affected by D&D and the stakeholders affected accordingly. These discussions included:

- Meetings with national and state forest authorities in Khartoum during the annual national forestry conference, that took place in March 2018.
- Dialogue with the REDD+ focal points from the 18 states (including 2 days after the annual national forestry conference and field visits).
- Dialogue with REDD+ FP from the 18 states and Safeguards Technical Advisor in the REDD+ PMU in Khartoum.

Information about potential REDD+ stakeholders were obtained from secondary sources, including from the FNC and state technical departments of pastoralism and range. These stakeholders were requested the following information:

- Lists of registered community forests.
- Lists of registered CSOs and community organizations relevant to potential REDD+ activities.
- Information on registered sawmillers.
- Information on nomadic pastoralist tribes and livestock corridors.
- Information on gum Arabic associations.
- The location of IDP/refugee centers.

Field consultations with stakeholders during the SESA of the REDD+ strategy

During the SESA stakeholder consultations held over the period April-June 2018 and then in 2020, the lists of stakeholders compiled in the earlier steps were verified and strengthened. In phase II, the REDD+ SESA Phase II stakeholder consultations were carried out over a 8-week period in October and November 2020 in Northern, River Nile, Red Sea, Kassala, Gezira, Western Darfur and Khartoum states. However, the list of the registered community forests in all states was not directly obtained from the FNC during SESA II, however. Furthermore, the following stakeholders were consulted:

- Community Based Organizations' representatives
- NGO representatives
- Nomadic tribes
- Gum Arabic Associations

In Phase II, as described above, consultations were held in a two-stage process: remotely and in person, using electronic means and state-based FP.

Throughout this process the Africover map data was used. This stresses the necessity to have updated forest maps for REDD+ planning and for identification of relevant forest dependent communities.

3.6. Stakeholder consultations

Appendix 2 describes in detail the processes used in implementing engagement activities around the SESA. This plan has been designed to contribute towards ensuring that the SESA has incorporated stakeholders' views and particularly by marginalized or vulnerable groups.

The consultation process aimed to be inclusive and diversified in the range of views it collected and the desired outcomes, as such it aimed to:

- Identify potential positive and negative environmental and social (E&S) impacts of the draft REDD+ strategy options.
- Propose measures to avoid or mitigate adverse impacts and enhance positive impacts.
- Verify the drivers of deforestation and forest degradation.
- Verify the draft strategy options proposed in the NRS.
- Raise awareness of the REDD+ process.
- Assemble baseline information relevant to the mitigation and enhancement measures being proposed.
- Assemble baseline information relevant to the Environmental and Social Management Framework (ESMF) and associated instruments, including the Resettlement Policy Framework (RPF), the Process Framework (PF), the Grievance Redress Mechanism (GRM), and the Indigenous Peoples Planning Framework (IPPF).
- Identify stakeholders that may have been overlooked in the stakeholder mapping stage.

The objective of the consultations was to get stakeholders' feedback on:

- The drivers of deforestation and forest degradation.
- Potential positive and negative environmental and social impacts of the strategy options proposed in the National REDD+ Strategy (NRS).
- Mitigating measures to avoid or minimize adverse impacts and enhance positive impacts.
- Collect relevant information for stakeholder mapping and for the Environment and Social Management Framework and associated instruments (Grievance Redress Mechanism, Indigenous peoples Planning Framework, and Process Framework).

In the initial consultation plan developed in December 2017, consultations were used to identify potential positive and negative impacts of the proposed strategy options and to help devising mitigation measures. However, following discussions with the SESA TWG and the PMU, the mandate was broadened to include other objectives:

- Inform stakeholders of REDD+ and the SESA.
- Verify the findings of the drivers of deforestation and forest degradation study and obtain stakeholders views on the drivers of deforestation and forest degradation and their proposed solutions/strategies.

In both Phases I and II, participants were invited to comment on the topics listed in section 3.3 above.

The agenda, process and transparency of the outcome of the SESA process were stated at the beginning of each consultation. These were carried out according to local customs. Once the presentations were finished, stakeholders were invited to make comments on each of the topics presented. All comments were collected and are presented in Section 1.

Stakeholder consultations with FNC officials and the national consultation were held in a similar format but were planned 4 to 8 days ahead. Stakeholders attending these meetings were usually familiar with the concept of REDD+.

The design of the consultations process itself was based on a snowball sampling technique. This allowed the SESA consultants to classify and investigate the targeted stakeholders based on the following criteria and constraints:

- The indefinite population size.
- The homogeneity among the stakeholders regarding resource use and management.
- Accessibility, notably considering security and environmental factors (e.g., rainy season).
- Mobility of some targeted groups (e.g., nomadic herders).
- Amount of information provided by previous Sudan REDD+ readiness studies.
- Logistics and time limitation.

Interviews of key stakeholders as well as focus groups and remote consultations were used to extract data from stakeholders. Focus groups sampling was based on drawing random small samples comprising 20-25 respondents per group. Criteria for selection were based on the above-mentioned rationales. Purposive sampling technique as well as expert-based

assessment of relevant actors were also used. In addition, in SESA II, a representative sample of localities and lower-level administrative units was identified, weighted by the amount of forest and woodland area and by population size. Stakeholders that were under-represented in the sampling regime in Phase I were adequately sampled in SESA II, in particular: large scale mechanized farming enterprises; downstream participants in the gum Arabic value chain; stakeholders in the energy sector; marginalized and vulnerable communities and indigenous peoples.

When no concrete information on key stakeholders existed, the SESA consultants conducted a stakeholder identification assessment exercise during field visits in the D&D hotspots, and in discussions with local REDD+ FP, key informants at local level, or via literature review or using personal knowledge[4]. When the same stakeholder groups were identified through several different sources, the SESA consultants were able to confirm their importance with regards to specific forest areas.

In addition to the above-reported issues, in phase I, some consultations at the grassroot level took place as impromptu consultations as timing could not be communicated in advance. However, in both phases, in line with the requirements of free, prior and informed consent (FPIC), most consultations were organized in advance by the relevant REDD+ FPs in the state in cooperation with the FNC staff. The stakeholder representatives to be consulted were made aware of the issues for discussion and the date the consultations were to be held.

However, in SESA II, due to COVID-19 related restrictions, forest adjacent communities, nomads and others with limited or no access to information and communication technology (ICT) could not be consulted directly. As a result, a two-stage approach which enabled stakeholders to be consulted remotely, was used and relied much more intensively on communication (see the following section).

Ensure that stakeholders have enough capacity to engage fully and effectively in consultations

While most of the consulted stakeholders - in particular those at the grassroots level - were not familiar with the concept of REDD+, training or capacity building prior to the consultations was not practically feasible, mostly due to the assignment timeline and the sampling techniques used.

For physical meetings, the format of the briefing and level of detail varied according to the context and the category of stakeholders being consulted. Each meeting started with the explanation of the concept of REDD+, the suggested drivers of deforestation and forest degradation and strategy options. Explanatory leaflets were produced providing background information on REDD+ and SESA and distributed as needed. The livelihood of nearly all stakeholders consulted depended fully or partially on forestry resources and they could consequently understand the suggested strategy sub-options and their potential implications. As such, it was considered they had sufficient knowledge to contribute to the consultations.

Newspaper announcements, radio and TV interviews were also done to publicize REDD+ and the SESA as explained at the beginning of the present section.

Due to COVID-related restrictions, a specific protocol was put in place for the implementation of consultations conducted in 2020 (Phase II). This protocol drew on the guidance note issued by the WB in March 2020 on “Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints on conducting public meetings”. The guidance note recommends avoiding public gatherings, workshops, community meetings, minimizing direct interaction with stakeholders, and proposes more reliance on smartphones, social media, online channels, email and traditional media such as TV, radio, newspapers and phones. This was done by disseminating information and sending key messages in advance of consultations. The information disseminated was associated with REDD+, the REDD+ strategy, the drivers of deforestation and forest degradation, the SESA and the consultation. As much as feasible, the Consultation and Participation (C&P) activities followed the step-by-step process recommended in the joint UN-REDD and FCPF guidance on stakeholder engagement (FCPF & UN-REDD, 2012).

Consequently, a two-stage process was designed whereby Stage 1 involved use of ICT, and Stage 2 involved direct consultation with stakeholders considered to have low levels of ICT penetration, such as local communities and pastoralists.

This involved key informant interviews and focus group discussions carried out by State level REDD+ focal points (within the limits of Covid-19 restrictions) acting on behalf of the SESA consultants. Table 5 below ranks stakeholders according to their level of access to ICTs.

[4] By asking the following questions: (1) Who uses the forest resources in the specific area? (2) Who benefits from the use of forest resources and who wishes but is unable to do so? (3) Who has impacts on forest resources, whether positively or negatively? (4) Who has rights and responsibilities over the use of forest resources? (5) Who would be affected by potential changes in the current status, regime or management of forests resources? (6) Who makes decisions that affect the use and status of forest resources and who does not?

Table 5. Categories of stakeholders ranked according to their ICT access level

Category	Stakeholders included (sub-categories)	Level ICT penetration 1-5 (1 High, 5 low)
1. Federal-level government sector institutions	Federal administrators - ministries, directorates, boards, etc.	1
	Forests National Corporation	1
2. State-level government sector institutions	State administrators - (legislators, ministries directorates, etc.)	1
	Native administration	1
	Locality administration	1
	FNC in the States	1
	State level community forestry representatives	1
3. Communities and indigenous peoples	Village level farming community members	5
	Community leaders, Sheiks, Umdas, Village elders	4
	Community forest members	4
	Indigenous forest dwellers	5
4. Livestock and pastoralist sector	Pastoralist unions	2
	Nomadic pastoralists	5
	Camel herders	5
5. Refugees and IDPs	Refugees and IDPs	5
6. Gum Arabic value chain actors	Gum Arabic Productor Associations (GAPAs)	2
	Gum Arabic producers	5
	Gum Arabic trader/middlemen	3
	Gum Arabic processors and exporters	1
7. Private sector	Commercial farming enterprises	1
	Oil companies	1
	Mining companies	1
	Artisanal miners and miner's associations	4
	Sawmills and timber traders	4
	Fuelwood and charcoal traders	4
	Clean energy traders and users (solar, LPG)	3
8. CSOs and NGOs	Environmental organisations	1
	Women organisations	3
	Others	
9. Donors and development partners	International donors	1
	International organisations	1
	NRM projects	2
10. Academics and researchers	Academics and researchers	1
11. Others	Others	

Stakeholders with medium to high levels of Internet Communication Technology (ICT) access were consulted by remote means (creation of a dedicated website with questionnaires, WhatsApp, webmail, phone) and those with lower levels of ICT access were consulted directly when COVID restrictions were sufficiently relaxed to allow SESA team members or their representatives (Focal Points, FP) to carry out direct consultations. For direct contact, state-based REDD+ Focal Points (FP) were used to identify relevant stakeholders and facilitate direct interviews and focus groups.

Accordingly, the role of the SESA II REDD+ FPs was to:

- Identify D&D locations in the state where stakeholders should be consulted.
- Help to identify stakeholders and stakeholder groups/categories and provide contact information.
- Act as a hub coordinator, for WhatsApp consultation groups using their contacts and social relations.
- Arrange focus group meetings online or on WhatsApp between stakeholders and SESA consultants.
- Arrange key informant interviews online or on WhatsApp between stakeholders and the SESA consultants.
- Verify and provide E&S baseline information on the state.
- Follow up with key stakeholder interviews in stage 1, encouraging key informants to fill questionnaires online or carrying out key informant interviews and filling the questionnaires online accordingly.
- Facilitate and lead focus group discussions in rural areas during stage 2 and filling questionnaires accordingly.

Stage 1 consisted of the following steps:

1) Design and set up a consultation website.
2) Establish a direct communication network within each state.
3) Develop and implement a communication and publicity plan.
4) Develop questionnaires for use on an online public consultation platform.
5) Identify and train facilitators in each state.
6) Consult stakeholders remotely.

Each of these steps is explained briefly below:

Step 1. Design and set up a consultation website.
A website was developed to provide a public consultation platform and the link was provided in all the communication and publicity materials disseminated. The website consisted of an opening page providing a brief overview of the purpose of the consultations and inviting stakeholders to participate in the consultation. Links on the opening page provided access directly to questionnaires or to background briefing materials.

Step 2. Establish a direct communication WhatsApp network within each State.
The SESA team in conjunction with the State level REDD+ focal points and FNC directors at state level and representatives from the PMU created WhatsApp social groups and used existing WhatsApp networks already established by other sectors to disseminate REDD+ and SESA information and briefing materials. These groups were also used to train the REDD+ focal points on how to launch the consultations in their states and to discuss obstacles encountered during consultations and how to resolve them.

Step 3. Develop and implement a communication and publicity plan (see details in 3.7, communication plan below).
Advertisements were placed in two popular newspapers (Eltayar and Elgaryda) notifying the public of the REDD+ strategy and ongoing SESA and inviting the public to participate in the online consultation. The circulation numbers provided by these newspapers were:

- Al Tayyar newspaper: Printed 8,000 copies (range of normal distribution 65-70%, on Thursday and Sunday 80%).

- Aljareeda newspaper: Printed 10,000 copies (range of distribution is about 85% of it and on Thursday and Sunday and 100% during the rest of the week).

Notices and announcement were sent through 4 different radio stations on different days and times and seven interviews were carried out: 4 for radio and 4 for TV. A complete list is presented in Table 6 below.

Table 6. List of TV and radio interviews held

Media name	Website (if any)	Nature of advert.	Name of the show	Interview Duration	Announcement Duration	Date (for msg & adv, the date is the start date)
Al Tayyar	https://al-tayar.net	Announcement	-	-	1	12/10/2020 15/10/2020
Al Jareeda	https://aljareeda-sd.net/	Announcement	-	-	1	06/10/2020 11/10/2020
Al bait Alsudani	http://www.sudanradio.gov.sd/	Interview	Nehna Maakum/ Sabah Blady	20 min		27/10/2020
		Messages / Announcement	-		8/day for 5 days	18/10/2020
Omdurman Radio	http://www.sudanradio.gov.sd/	Interview	-	20 min		24/10/2020
		Messages / Announcement	-		8/day for 5 days	17/10/2020
Radio Erabaa	www.alrabaafm.com	Interview	Mubtasim Elsa-bah	25 min		17/10/2020
		Messages / Announcement	-		5/day for 5 days	19/10/2020
Khartoum Radio	http://www.kfm89.net	Interview		20 min		12/10/2020
		Messages / Announcement			10/day for 5 days	14/10/2020
Khartoum TV	www.khartoumchannel.net	Interview	Sabah Elkhar-toum	25 min		15/10/2020
Eljazira Radio from Madani	https://web.facebook.com/ medaniradio/?_rdc=1&_rdr	Interview (Tarig)	Muatasim Hawara	10 min	13 October 2020	13/10/2020
		Messages / Announcement	-		Band announce-ment /24h for 10 days	13/10/2020
Blue Nile TV	www.bnile.tv	Interview	Masaa Gadeed	20 min		27/10/2020
Sudan TV	www.sudantv.net	Interview	-	25 min		25/10/2020
		Messages / Announcement	-		Band announce-ment/24h for 10 days	17/10/2020
Sudania 24	https://www.sudania24.tv http://s24.live.net.sa	interview		30 m		02/11/2020

Step 4. Develop questionnaires for use on an online public consultation platform.

The consultation platform contained a series of questions relating to drivers of deforestation and forest degradation and the draft NRS strategy options (NRS version Aug 2018). The full questionnaires is available in the consultations report.

The question on the drivers of deforestation and forest degradation was in multiple choice format, consisting of a list of drivers (identified in Phase I consultations) and requesting the respondent to select those considered most relevant.

Regarding the questions on the strategy options, there are 55 strategy options in the draft NRS, which are too many to be covered in a single online questionnaire. 30 minutes was considered a reasonable time to expect respondents to take for completion of the questionnaire. To overcome this constraint, it was decided to:

a) Merge similar strategy options as several options are similar or overlapping. This reduced the questions from 55 to 24 (Table 7)

b) Omit strategy options considered to have low or negligible E&S adverse impacts (Table 9)

c) As 24 questions is still too many for an online consultation, design separate questionnaires for specific stakeholder categories, containing questions relevant to those categories. On the opening page of the consultation platform, the respondents were asked to identify which stakeholder category best describes him/her. Depending on the category/ sub-category selected, the respondent was taken to the page containing the questionnaire designed for the category/ sub-category selected. Eight separate questionnaires were designed, each containing a number of questions. The maximum number of questions any stakeholder category had to answer was 8, while some categories had just one or two questions. Some questions appeared in multiple questionnaires while others appeared in just one questionnaire. The eight questionnaires are summarised in Table 8.

Table 7. Similar and overlapping strategy options combined

Question	Title of strategy options combined for the Questionnaires	Strategy option as presented in the Draft NRS (Aug 2018 version)
1	Revise Policies, Laws, Regulations, Plans	1.1 Improve forest policy and laws. 1.5 Policies, regulations and standards for sustainable forest management. 1.9 Develop model forest management plans. 1.12 Revise curricula. 1.18 Develop a Masterplan for tree planting. 2.6 Revise Agric Policy / legal / programmatic framework. 5.2 Review mining policies and laws. 5.3 Harmonise mining policies and laws. 5.5 Improve standards of infrastructure.
2	Agroforestry in degraded landscapes	1.2 Agroforestry within deforested and degraded landscapes.
3	Establish shelterbelts, windbreaks and woodlots	2.2 Shelterbelts, windbreaks, woodlots.
4	Enhance agricultural productivity	2.3 Enhance agric. Productivity. 2.5 Agroforestry and Agric inputs.
5	Moratorium on conversion of forest to agriculture	2.7 Moratorium on conversion of forest to agriculture.
6	Promote clean renewable energy	3.1 Revised energy policies to promote renewable energy and efficient stoves and charcoal production. 3.2 Substitutes (LPG, solar, etc.). 3.3 Solar energy. 3.4 Promote LPG. 3.5 Hydroelectric power.
7	Reforestation by oil/mining industry	5.8 Reforestation by oil/mining industry.
8	Forest plantations	1.4 Forest plantations.
9	Restore degraded landscapes	1.10 Restore degraded landscapes.
10	Control wildfire	1.19 Prevent and control wildfires.
11	Fuelwood plantations	3.6 Fuelwood plantations.
12	Plant 5% or10% agric schemes with trees	Plant 5% or 10% of agric schemes and commercial farmland with trees .
13	Certification standards and systems	2.9 Monitoring of farmers compliance with certification standards and payment for ecosystem services (PES) contracts. 2.10 Monitoring of Agric certification systems.
14	Land use institutionalization	2.1 Land use institutionalization.
15	Livestock fodder and feed	4.2 Livestock compound feeds. 4.5Cultivated fodder production. 4.7 Increase fodder production outside forests.
16	Range management	4.1 Sustainable management of range.
17	Rangeland mapping and assessment	4.3 Rangeland mapping and assessment.
18	Integrated arable farming and livestock	4.4 Integrate arable farming and livestock.
19	Improved livestock breeds and vet services	4.8 Improved livestock breeds. 4.9 Improved vet services. 4.10 Animal breeding.
20	Cater for refugee energy needs	3.9 Cater for refugee and IDP energy needs.
21	Improve silviculture and marketing of gum arabic trees	1.17 Improve silviculture and man. of gum Arabic trees.
22	Rationalize mineral resource exploitation	5.1 Rationalise above and below ground mineral resource exploitation.
23	EIAs in the oil and mining sector	5.6 Apply E&S safeguards in oil and mineral sector. 5.9 Conduct EIAs
24	Offset unavoidable emissions in the mining sector	5.7 Establish a mechanism to offset unavoidable emissions in oil and mining sector.

Table 8. The eight questionnaires designed for specific stakeholder categories[6]

Questionnaire	Stakeholder categories	Number of questions
1	1. Federal-level government sector institutions. 2. State-level government sector institutions. 8. CSOs and NGOs. 9. Donors and development partners. 10. Academics and researchers. 11. Others.	7
2	3.Communities and indigenous peoples. 7.4. Artisanal miners and miner's associations.	8
3	7.1. Commercial farming enterprises	7
4	4. Pastoralists.	2
5	5 Refugees and IDPs.	1
6	7 Private sector (7.5, 7.6, 7.7, 7.8 Forest products businesses, charcoal and firewood sellers, NTFPs).	2
7	6 Gum Arabic value chain actors.	1
8	7. Private sector (7.2, 7.3 Oil companies and commercial mining companies).	3

Notes:
** Questionnaire 1 for the indirect stakeholder categories*
** Questionnaires from 2-8 for the direct stakeholder categories*

Table 9. Strategy options omitted from the online questionnaires

Strategy options omitted from the questionnaires	
1.3	1. Federal-level government sector institutions. 2. State-level government sector institutions. 8. CSOs and NGOs. 9. Donors and development partners. 10. Academics and researchers. 11. Others.
1.7	3.Communities and indigenous peoples. 7.4. Artisanal miners and miner's associations.
1.8	7.1. Commercial farming enterprises
1.11	4. Pastoralists.
1.13	5 Refugees and IDPs.
1.14	Cultivation of trees for NWFPs (no adverse impacts)
1.15	Intensive sustainable management in Blue Nile, Sennar and Gezira (no adverse impacts)
1.16	Intensive sustainable management Greater Darfur, Blue Nile, Red Sea and South Kordofan
2.4	Conservation agriculture (no adverse impacts)
2.8	Funding packages
3.7	Biomass briquettes
3.8	Bioenergy products (like bioethanol, biodiesel, biogas, wood pellets)
4.6	Agro-silvo-pastoral systems
5.4	Build capacity of FNC staff (as in 1.11)

** Questionnaires from 2-8 for the direct stakeholder categories*

[6] Questionnaire 1 for the indirect stakeholder categories

Step 5. Train the REDD+ focal points in each state.
The state-based REDD+ Focal Points acted as facilitators and assisted stakeholders to complete the online questionnaires during stage 1 and carried out the direct consultation with stakeholders in rural areas in Stage 2.

The role of the REDD+ focal point was to:

- Identify deforestation and forest degradation locations in the state where stakeholders should be consulted.
- Help to identify stakeholders and stakeholder groups/categories and provide contact information.
- Act as a hub coordinator, for WhatsApp consultation groups using their contacts and social relations.
- Arrange focus group meetings online or on WhatsApp between stakeholders and SESA consultants.
- Arrange key informant interviews online or on WhatsApp between stakeholders and the SESA consultants.
- Verify and provide environmental and social baseline information on the state.
- Follow up with key stakeholder interviews in stage 1, encouraging key informants to fill questionnaires online or carrying out key informant interviews and filling the questionnaires online accordingly.
- Facilitate and lead focus group discussions in rural areas during stage 2 and filling questionnaires accordingly.

Step 6. Consulting stakeholders.
The publicity and information dissemination plan launched through TV, radio, newspapers, WhatsApp groups, and Facebook posts generated public and stakeholder interest in providing responses through the questionnaires on the website. The responses were slow to begin initially but improved when the consultants sent targeted emails to stakeholders providing information and encouraging participation. The consultants also carried out many phone interviews with key informants and uploaded the responses on the consultation platform.

Stage 2. Direct consultation with stakeholders:
Stakeholders located in rural areas such as forest-dependent communities, indigenous people, nomadic pastoralists and others that have low or non-existent access to ICT (levels 4-5 in Table 5) were consulted directly by the REDD+ focal point in each state.
The same questionnaires used for online consultations were used for field consultations with stakeholders with low-level ICT access. The REDD+ FP filled the questionnaires online following individual and group interviews.
The sampling intensity took into account the area of forest and woodland in each state and the human population (Table 10). Stakeholders were consulted in all States administrative capitals as well as in a representative sample of localities and lower-level administrative areas.

Table 10. Locations where stakeholders were consulted

State	Human Pop. Millions	% Forest and woodland cover	No of localities in the state	Locations consulted	No. of FGDs	No.of K
Northern	0.94	0.05	7	Dongla & Elduba	2	40
River Nile	2.49	1.6	6	Al Damer, Atbra, Shandi, Matamah, Burber , Abu Hamad	10	388
Red Sea	1.48	1.5	10	Port Sudan. Oannab and Sinkat Forests covered were: The forest of Khor Al-Nus in Sinkat locality (Cultivation of Arak trees) Arbaat Forest in the locality of al-Qannab for cultivation of Seyal trees Hoshiri mangrove forest	6	236
Kassala	2.52	17.3	11	Wad Elhelio, Delta Shamal, Hamshkoreib, Rural Aroma, Halfa	15	95
Gezira	5.1	0.2	6	Great Madani, South Gezira, East Gezira, Forest dependent people in Kordigaili, Abujalfa, Umda of Bashagra	31	120
Western Darfur	1.02	26.9	12	El Ginaina, Jabal Moon, Kolbas		
Khartoum	7.69	1.8	7	Khartoum, Khartoum North & Um durman		

Chronological progression of the consultations

In Phase I, the consultations were held over a six-week period in April, May and June 2018. The format consisted mainly of focus group discussions with varying numbers of people or individual key informant interviews. Most of the meetings were arranged in advance and others were impromptu meetings held when forest users or other stakeholders were encountered by chance in the field.

In North and Central Darfur, because of the difficulties in travelling to remote areas, two workshops were held as an alternative to a focus group discussion in the field, but the SESA team was also able to visit a number of forest sites and speak directly to forest users.

At a first glance the total sample size may look small for such a large country but each of the five zones identified within the three main targeted areas were sampled: the riverine ecosystem (Blue Nile and Sennar State), the gum Arabic belt (the clay plain and the sand plain) and the watershed forests in Jebel Mara massif (East Central and South Darfur). Since there is a level of homogeneity with regards to drivers of deforestation and forest degradation, strategies and stakeholders within each of these categories, the sampling level was considered satisfactory[7].

In addition to stakeholder meetings and workshops where issues and solutions were discussed, the SESA team had the opportunity to visit the forests and observe the impacts of the drivers of deforestation and forest degradation. This helped to inform the SESA team's expert judgments.

The outline Map 1 (in Section 3.1) shows the locations where stakeholders were consulted in both phases.

In SESA II, the C&P plan was approved by the PMU by mid-August 2020. Stage 1 of the consultation campaign was held between mid-September and end of November, while stage 2 began around mid-October and ended at the end of November.

The primary focus of the consultations in SESA II was those stakeholders most likely to be directly impacted by the proposed strategies. These include the communities living in areas where deforestation and forest degradation is occurring. As there is very little specific information available on where forest degradation and deforestation are occurring and at what rate, the consultant relied on the FNC staff located in each state to identify the hotspots.

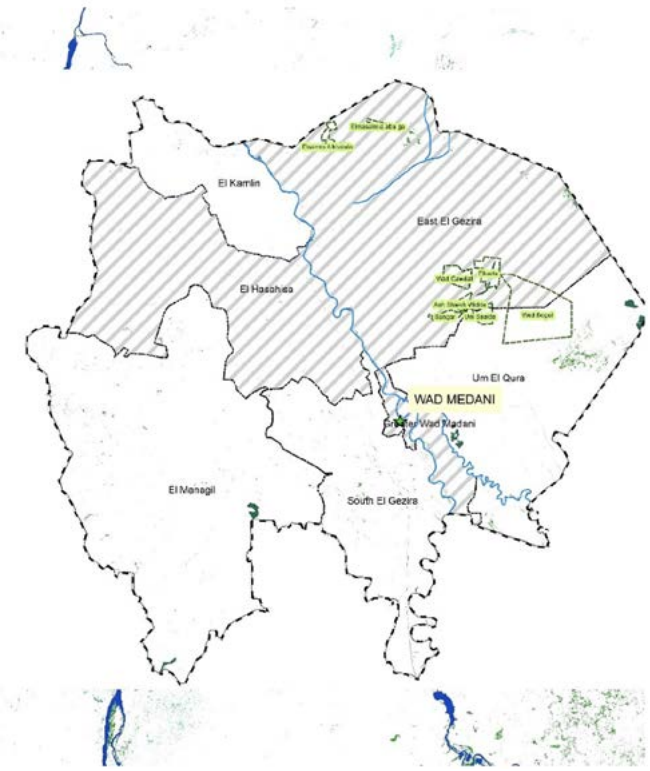
In addition, GIS maps of forest cover and human settlements were generated using Sentinel satellite data and Africover data and population census data. These helped to identify appropriate locations in which to consult stakeholders.

In all seven states, consultations were held in state capitals and location capitals where government and state administrators are located and where representatives of stakeholder categories and others such as NGOs are located.

In SESA II, consultations were organized as follows.

1. Gezira

Map 2. Locations of consultations in Gezira state



Gezira state is in the "low rainfall woodland savannah on clay" ecological zone. Annual rainfall varies from 300 to 400 mm and forest cover is fragmented and consists of Acacia nilotica (sunt) forests in periodically inundated riverbanks and some irrigated plantations in the Gezira scheme.

During establishment of the Gezira scheme, trees were cleared on an area of over a million acres to make way for mechanised crop farming and to enable efficient aerial spraying of pesticides. The removal of trees led to land deterioration, loss of soil physical properties and susceptibility to wind erosion. Water stagnation in the irrigation canals of resulted in adverse social impacts such as water bore diseases like malaria and bilharzias. Currently the area is facing serious problems of sand encroachment from its severely decertified surroundings and sand dunes are encroaching in different parts of the scheme.

The areas consulted in Gezira were the state capital Wad Medani, and the localities of Great Medani, South Gezira and East Gezira. Communities were consulted at Abujalfa and Kordigali forests. The stakeholders consulted were, the state and locality administrators; researchers and academics; forest dependent people in Kordigaili; farmers; livestock

[7] Within each of the zones sampled, there was a high degree of similarity in the prioritization of drivers and the responses of the stakeholders regarding the proposed strategy options. This supports the assertion that the sampling size was sufficient to get a good cross-section of stakeholders' views and recommendations.

raisers; commercial agricultural companies; fuel wood and charcoal users; women groups; and the native administrations (Umda of Bashagra). In Abujalfa people consulted were tea makers; and indigenous people.

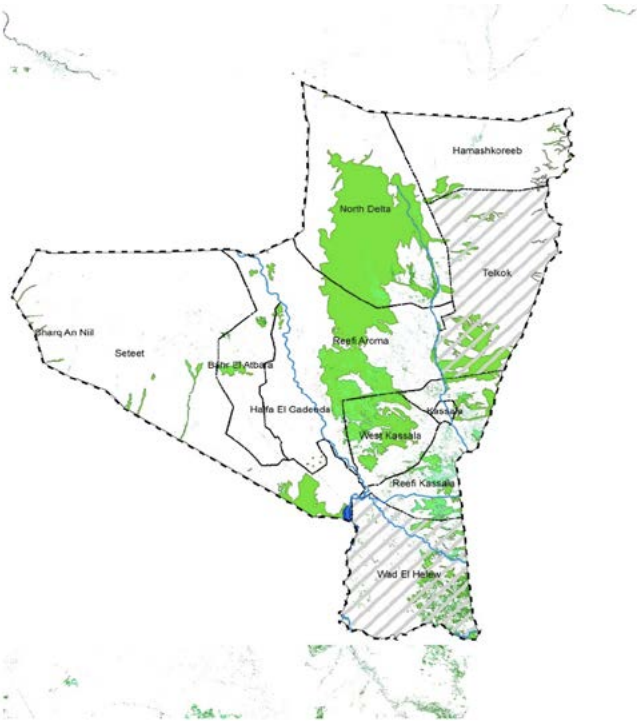
Issues discussed were the drivers for deforestation and forest degradation, and the strategic options related to mechanized farming, fuelwood, charcoal and alternative clean energy, shelterbelts, and irrigated plantations. Stakeholders in Gezira identified the main drivers of deforestation and forest degradation as poverty, climate change and agricultural expansion.

Feedback from the focus group discussion in the state, confirmed that the three types of forests in Gezira (natural forests, irrigated forests, and refrain forests) were threatened or degraded. The main causes of degradation were told to be tree cutting for energy and building material; poverty and bad economic conditions; soil erosion; establishment of fruits and vegetable orchids at the expense of the riverine forests, absence of regulations and climate change.

Pictures taken during the visits to Al-Hasahisa and Rufaa

2. Kassala

Map 2. Locations of consultations in Gezira state



In Kassala state, the annual rainfall is 400-700 mm and natural vegetation is semi-desert and low rainfall woodland savannah on clay. Forest cover is around 18%.

In Kassala, large, mechanized farming operations dominate the land use. The clay plains are overgrazed and the desert in the north is moving southwards. The main cropping areas in the state include New Halfa irrigation scheme, Gash scheme (flood irrigation) and the traditional rain-fed and semi-mechanized farms. There are irrigated forest plantations along Gash river and in Halfa agricultural scheme.

The population in Kassala state is characterized by high levels of chronic poverty and food insecurity and by vulnerability to shocks, including drought, floods and conflict. One of the key historical problems in Kassala state has been that, while food production of the staple crop sorghum (dura) is primarily in the rain-fed traditional sector, investment in agriculture has historically been concentrated in the modern and irrigated sector, and very little attempts was made to develop the traditional sector or address its problems.

Mesquite has spread extensively especially in the Toker delta and this can be a blessing or a curse depending on how it is managed. The southern part of state is rich in tree cover mainly *Acacia seyal.* Firewood and charcoal are the main woody products of the area.

Kassala state suffers the problem of continued inflow of refugees since the 1960s. In 2015, FAO reported a refugee population of over 300,000 mainly from Ethiopia and Eritrea. In June 2019, UNHCR reported 96,327 in Kassala and ACT reported in 2020[8] over 80,000 refugees registered in four refugee camps in Kassala state at Al Lafa, Gulsa, Gergaf and Shagarab camps. Supply of household fuel is the most relevant issue for discussion. In addition, there is a traditional mining activity in the area of Telkuk and Aid Alwahash.

The locations consulted were the state capital Kassala and the localities of Wad Elhelio, Delta Shamal, Hamshkoreib, rural Aroma and Halfa.

Consultations were held in rural areas in the southern part of the state where the forest cover is located and in the irrigated plantations along the Gash River (Delta Shamal and Aroma) and in the east where refugee camps are located. The consultation covered Wad Elhiliao locality (bordering Ethiopia and Eritrea) where gum arabic is considerably produced. Here also, the consultation investigated the E&S impacts of the strategy options concerned with the gum belt restoration.

The consultations covered strategy options related to large scale commercial farming, subsistence agriculture, gum Arabic, fuelwood (including charcoal), refugees (fuelwood) and agroforestry. Stakeholders in Kassala State identified the main drivers of deforestation and forest degradation as poverty, climate change and desertification, and cutting trees for building materials.

Stakeholders consulted included gum Arabic producers, private businesses dealing in natural resources products, state administrators and women's groups.

[8] https://reliefweb.int/sites/reliefweb.int/files/resources/21D715D751F4FD65C12569070050C0E1-sudan3.pdf

3. Red sea

Map 4. Locations to be consulted in Red Sea state

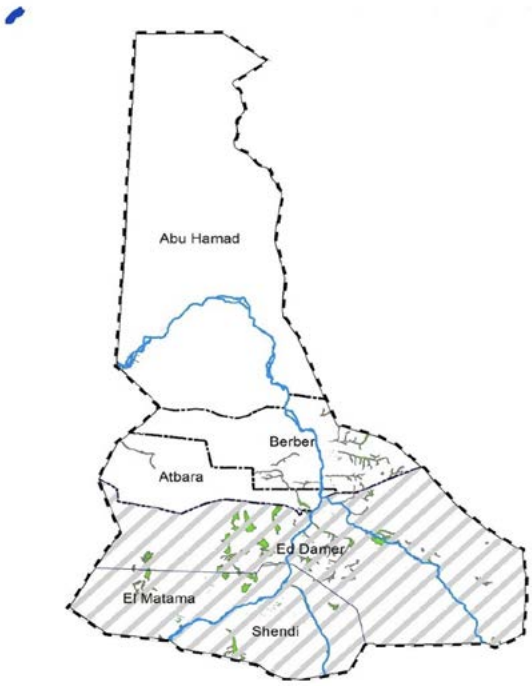
Red Sea state is in the semi desert zone with annual rainfall levels varying from 75 to 300 mm. Forest cover is very sparse occurring mainly along water courses. The localities with the most significant forest are Elgnab, Olaiab, Sinkat and Tokar. The most important forests are Arak in Sinkat locality and the mesquite forest in the Tokar delta. Mangrove forests occur along the seashore and are important for the role they play in maintaining fish stocks, supporting livelihoods, protecting the coast from flooding as well as the other environmental services they provide. The mangrove forests are being degraded by unsustainable levels of utilisation.

The consultation took place in 3 localities, namely, Port Sudan, Oannab, and Sinkat. The forests covered were Khor Al-Nass forest in Sinkat locality (cultivated by Arak trees), Arbaat forest in the locality of al-Qannab (cultivated by seyal trees), and Hoshiri mangrove forest (cultivated by mangrove). Categories consulted were university teachers and academicians, department managers, native administrations (umdas and sheikhs), charcoal and firewood merchants, forest dependant people, fish hunters at the mangrove, NGOs and CBOs, and others. Issues discussed were the strategic options related to fuelwood, agroforestry and mangrove conservation and restoration.

The main drivers of deforestation and forest degradation were identified as poverty, livestock and pastoralism, desertification, commercial agriculture and horticulture.

4. River Nile state

Map 5. Locations to be consulted in River Nile state



The River Nile state straddles both desert and semi-desert zones with rainfall varying between 75 to 300 mm per year. It contains the River Nile, the river Atbara and a number of seasonal streams that support wheat production. Agriculture is the dominant economic activity with irrigated cultivation concentrated around the River Nile and the River Atbara banks and delta area. Doum forests (Hyphaene thebaika) occur along the Atbara river and are managed specifically for river course protection against sand dune formation and nature conservation.

There have been efforts at afforestation in the archaeological area of Elbagarawia Pyramids and Elnagaa and Elmassawarat for protection against sand movement.

The demographic composition of river Atbara communities can be divided into two major groups: (i) settled tribes (i.e. Besharien, kamalab, Nefedab, Manassir, Gallien, Rubatab, and Hudendwa); and (ii) nomadic tribes (i.e. Rashida, Amarar, and some areas of Busharien and Manaseer). Herders depend on access to natural grazing areas during the rainy season (July- Sep).

Mechanised agriculture has expanded rapidly in the last two decades in River Nile state and is considered as one of the main causes of deforestation.

The hotspots for forest degradation were identified by the FNC staff as the localities Ad-Damir, Shandi, and Al-Matama (for their natural forests). Both areas were visited, and local stakeholders were consulted.

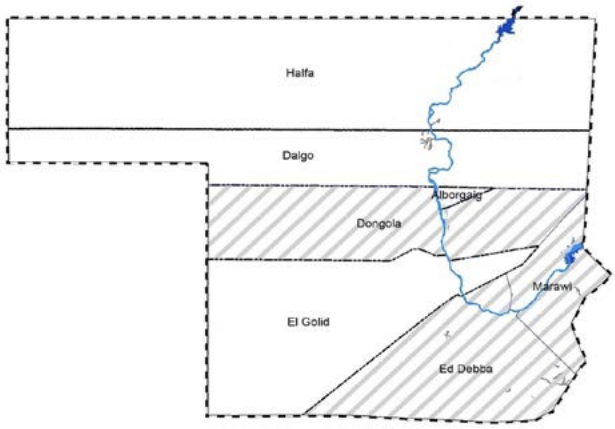
Atbara locality comprises about 32 watershed areas including the famous Hassania Natural Reserve and Bayouda Desert. Mining activities take place in Abu Hamad and Barbar.

The localities covered were Al Damer, Atbra, Shandi, Matamah, Burber and Abu Hamad. The forests covered were Al-Halgi and Um Seyala forests in Al-Damer Locality, and Umm Dhabie and Hassania Mountains forests in Atbra locality. The stakeholder categories consulted were federal government officials, state administrations, NGOs & CBOs, village level stakeholders, private sector, investors, women groups, and the energy sector.

The strategy options discussed were related to tree planting for soil conservation, shelterbelts and windbreaks in mechanised farms, agroforestry, riverine forests, afforestation, fuelwood and alternative energy. Stakeholders in River Nile State identified the main drivers of deforestation and forest degradation as poverty, burning bricks and agricultural expansion.

5. Northern state

Map 6. Locations to be consulted in Northern state



The Northern state is located in the heart of the desert zone and is characterized by low rainfall, extreme temperatures, and sparse vegetation. Average annual rainfall is less than 20 mm.

The local economy depends upon irrigated agriculture. Rising temperatures, decreasing rainfall, fluctuations in the River Nile, and increased wind speeds have combined to result in mix of drought and flooding with adverse effects on crop yields, rangelands, animal production, and riverbank erosion. While irrigated agriculture is vulnerable at all localities, hotpots for rainfed agriculture include forests and rangelands in Marawi and Adabah localities.

Kudruka and Birkat Elmulook natural forests exist in Marawi and Dongola localities and are under pressure for fuelwood and other forest resources. In 2019 and July 2020, a devastating fire destroyed substantial areas of Kudruka Forest. Farmers around Kudruka forest reserve in Dongola locality are practicing agroforestry. Sand dunes encroaching on farms is a problem in Marawi locality. Mechanised agriculture has expanded rapidly in the last two decades in Northern state and is considered as one of the main causes of deforestation.

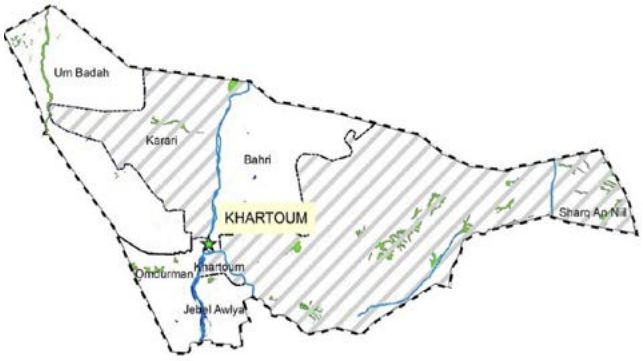
Gold mining is an important livelihood activity in Dongola locality (e.g., Al-Qabab mine and market) and in other areas and is carried on both formally by gold mining companies and informally by artisanal gold miners using sieves. Gold mining activities interrupt water flows and can have positive impacts by creating an environment for tree growth by harvesting water, or vice versa, negatively by preventing the flow of water downstream.

Locations consulted were the administrative capital at Dongula, Marawi and Adabah localities, locations around Kudruka, Wadi Elmugadam and Birkat Elmulook reserved forests, the gold mining area in Dongola locality and Al-Qabab.

Issues discussed with stakeholders were tree planting for windbreaks and dune stabilisation, fuelwood, alternative energy, gold mining and pastoralist issues. Stakeholders in Northern State identified the main drivers of deforestation and forest degradation as agricultural expansion, climate change and desertification, and cutting trees for building materials.

6. Khartoum state

Map 7. Locations consulted in Khartoum State



Khartoum state includes the federal capital and surrounding areas and is relatively small in area compared to other states in Sudan but has a substantial population of over 5 million and is therefore an important market for forest products such as fuelwood.

Khartoum is in the semi desert zone, with rainfall between 100 and 200 mm per year and estimated forest cover at 1.7% of the total area. Dust storms are regular occurrences and river fluctuations threaten riverbank erosion and flooding[9]. Rapid urban growth combined with rising temperatures, rainfall variability, and river fluctuations have placed serious pressure on Khartoum's resources. Although studies are needed to assess existing and future climate change, if Khartoum follows the countrywide trend of an increasingly dry climate, then this will threaten crop yields, rangelands, and natural forests in the area.

[9] Source: Khartoum State NAP Committee 2013

The Sunt Forest Reserve located on the eastern bank of the White Nile River near the confluence of Blue Nile and White Nile rivers has an important role in nature conservation and as a recreation area.

Khartoum state hosts a large number of refugees mainly from South Sudan but also some from Eritrea. UNHCR reported over 283,850 refugees from South Sudan residing in several locations in Khartoum state. The largest concentrations are Sharg al Neel (19,095) east of the city, Jebel Alia (12,326) and Bantiu (12,247) in the southern part of the State and Nivasha (12,189) in the western part of the State .

Khartoum, which is a substantial market for forest products especially wood fuel (there are more than 1,200 markets for wood fuel only in Khartoum). About 20% of the population of Sudan lives in Khartoum and the REDD+ strategies on energy may have significant environmental and social benefits and costs in this state[10].

Locations consulted in Khartoum State were the capital Khartoum, and areas around Sunt forest reserve. Stakeholders consulted included traders in the main charcoal and fuelwood markets in Eldaim and Omdurman, Unions of Tea and Food Makers at Suq Shabi Market Station, oil and mining interests and commercial farming enterprises, gum Arabic processors, NGOs and development partners, international organisations, federal administrators and academics. Covid 19 restrictions precluded physical visits to refugee camps in Khartoum State but staff at UNHCR were consulted at the HQ in Khartoum.

Stakeholders in Khartoum identified the main drivers of deforestation and forest degradation as agricultural expansion, poverty, and burning bricks.

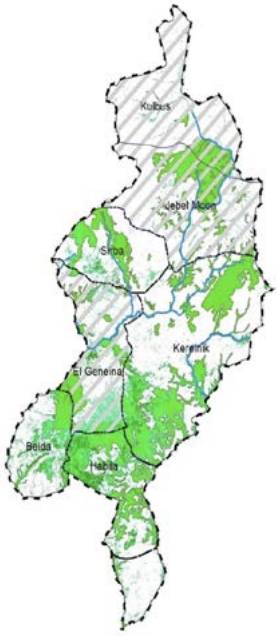
7. Western Darfur state

The Western Darfur state is in a “low rainfall woodland savannah” ecological zone. Annual rainfall levels vary from 800 to 4,400 mm and forest and woodland cover 26.9% of the area of the State. The drivers of deforestation and forest degradation in the state are mechanised farming, pressures from livestock, and harvesting of fuelwood.

The localities covered in West Darfur were El Geneina, Jabal Moon, and Kolobass. The stakeholders consulted included private business owners; agricultural farmers; producers of gum arabic; fuelwood users; bricks makers; fuelwood and charcoal merchants.

Issues discussed were the strategic options related to gum Arabic, subsistence agriculture, expansion of agriculture, overgrazing, over cutting for fuelwood markets in Western Darfur and Chad. Stakeholders in Western Darfur identified the main drivers of deforestation and forest degradation as agricultural expansion, refugees and IDPs, livestock and pastoralism and tree cutting by military.

Map 9. Locations of consultations in Western Darfur state



[10] https://reporting.unhcr.org/sites/default/files/SSD%20All%20State%20Level%20Dashboards%20May%202020.pdf

Gender considerations

Stakeholders located in rural areas such as forest-dependent communities, indigenous people, nomadic pastoralists and others that have low or non-existent access to ICT (levels 4-5 in Table 5) were consulted directly by the REDD+ focal point in each state.

The same questionnaires used for online consultations were used for field consultations with stakeholders with low-level ICT access. The REDD+ FP filled the questionnaires online following individual and group interviews.

The sampling intensity took into account the area of forest and woodland in each state and the human population (Table 10). Stakeholders were consulted in all States administrative capitals as well as in a representative sample of localities and lower-level administrative areas.

Table 11. Categories of stakeholders consulted (SESA I)

Category	Males	Females	Total
Forest dependent community	309	256	565
Administrator, legislator, Academic	212	88	300
FNC staff	158	4	162
Commercial private sector	60	5	65
Subsistence agriculture	10	-	10
IDP, Refugee	45	-	45
Pastoralist	59	-	59
Commercial agriculture	10	-	10
Total	863	353	1,216

Table 12. Categories of stakeholders consulted (SESA II)

Stakeholder Category	No of questions answered	No of individual or groups that responded
Academia and researchers	177	28
Communities and indigenous peoples	344	85
CSOs and NGOs	57	15
Donors and development partners	14	1
Federal Govt Sector Institutes	204	40
Gum Arabic value chain participants	19	18
Livestock and pastoralist sector	25	9
Others	117	17
Private Sector	141	57
Refugees and IDPs	8	7
State Govt Sector Institutes	198	59
Grand Total	**1,304**	**336**

Analyze the process and disseminate results

The findings from every consultation were then analyzed, reported and discussed with the SESA TWG (especially in Phase I). The analysis is provided in Section 1 of this report. The analysis carried out was then shared to strategy option consultants to inform the strategy formulation.

Free, Prior and Informed Consent

The World Bank's Environment and Social Standards indicates that *"Indigenous Peoples (or as they may be referred to in the national context) may be particularly vulnerable to the loss of, alienation from or exploitation of their land and access to natural and cultural resources. In recognition of this vulnerability, obtaining the Free, Prior and Informed Consent (FPIC) of the affected Indigenous Peoples when such circumstances described in ESS7 are present is necessary. […]. It does not require unanimity and may be achieved even when individuals or groups within or among affected Indigenous Peoples explicitly disagree."*

For the purposes of the ESS, FPIC is established as follows:

- The scope of FPIC applies to project design, implementation arrangements and expected outcomes related to risks and impacts on the affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities.
- FPIC builds on and expands the process of meaningful consultation […], and will be established through good faith negotiation between the project developer and affected Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities.
- The Borrower will document: (i) the mutually accepted process to carry out good faith negotiations that has been agreed by the Borrower and Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities; and (ii) the outcome of the good faith negotiations between the Borrower and Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, including all agreements reached as well as dissenting views.
- FPIC does not require unanimity and may be achieved even when individuals or groups within or among affected Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities explicitly disagree.

ESS 7 specifies that the circumstances requiring FPIC are:

a. When the project activities have adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation.

b. When the project activities cause relocation of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities from land and natural resources subject to traditional ownership or under customary use or occupation. or

c. When the project activities have significant impacts on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected Indigenous Peoples/Sub-Saharan African Historically Underserved traditional local communities live.

As detailed in the following chapters, **the REDD+ strategy options do imply possible adverse impacts on land and natural resources that are subject to traditional ownership or are under customary use or occupation, particularly for forest-dependent Indigenous and vulnerable communities**. However, as the present report makes clear, the object of the SESA is to seek the advice, perceptions and suggestions of stakeholders that could be affected by the REDD+ strategy options and related activities, precisely so that these could be designed and implemented with the consent and participation of these stakeholders at community-level.

As such, Indigenous' and traditional forest-dependent communities' participation to the SESA campaigns of consultations was encouraged and facilitated insofar as they (1) did not refuse to participate and/or (2) they were able to participate.

The following measures were nevertheless put in place to ensure the FPIC of affected indigenous stakeholders (and were added to the consultation framework described throughout section 3.6), when they could be identified as such through secondary or primary data prior to the consultations themselves, and given the logistic and material difficulties caused by the COVID pandemic in phase II:

A. Identifying customary lands and rights holder.

B. Identifying and engaging with appropriate community decision-making institutions/ authorities or support organizations when the former could not be reached.

C. Building mutual understanding and agreement on a locally appropriate consultation process.

D. Providing transparent, reliable and understandable information.

E. Encouraging participation to consultations via local channels (media, Focal Points) to facilitate stakeholders' participation to decision making regarding the REDD+ strategy options/actions design and implementation process.

F. Keeping records of exchanges with stakeholders.

Furthermore, the present SESA report introduces different proposals to ensure that (a) conflict resolution mechanisms will be in place when the REDD+ strategy options, policies and actions will be implemented, that (b) consent of involved community-based stakeholders will be verified through third-party involvement, that (c) measures will be put in place to ensure that FPIC guidelines will be applied when the REDD+ strategy options, policies and actions will be implemented, so as to ensure the protection of the underlying substantive rights, and that (d) measures to strengthen decision-making capacity among forest-dependent communities and their representatives will be designed and implemented.

3.7. Communication plan

During Phase I of the SESA process (2017-2018), states were visited physically by the SESA consultants who mostly communicated with FNC FP, who themselves communicated with stakeholders before consultations. Indeed, two radio interviews were done lasting approximately 45 minutes each and broadcasted on State radio in Blue Nile and Gedaref. In Blue Nile the consultations were covered on State TV and in a series of 8 short pieces broadcast over a period of several weeks. The SESA team meeting with the Minister of Agriculture was covered in the evening TV news in Southern Blue Nile and a TV interview was done on the national TV channel of Omdurman. The SESA consultants then took advantage of being in the states to participate to radio and TV interviews to raise awareness.

During SESA II, a much more intensive communication was required to raise awareness on the remote consultations and cover a wide range of stakeholders. As such, briefing materials in Arabic language were developed for inclusion on the SESA consultation website and for use in media advertisements, radio and TV interviews and for distributing to the relevant stakeholders in order to form the basis for meaningful consultations and feedback (see Appendix 3).

All information materials included a link to the consultation website. The materials developed were:

- A 2-page summary of the REDD+ strategy
- A 2-page frequently asked questions factsheet about REDD+
- A 2-page summary of the drivers of deforestation and forest degradation study
- A 2-page summary of the SESA process
- A 2-page frequently asked questions factsheet about the SESA consultation process
- Text and adverts (incl. audio and video) for distribution to media

Awareness about the consultation process was raised by disseminating information and sending key messages in advance of consultations. The information disseminated was associated with REDD+, the REDD+ strategy, the drivers of deforestation and forest degradation, the SESA and the consultation.

The below media were used:

- **National TV and radio stations:** the format that was chosen was interviews between SESA experts and the program host for TV and radio as well as recorded messages / announcement for radio and TV broadcasted several times a day.
- **Newspapers**: an advertisement has also been published on two popular newspapers (Eltayar, Elgaryda).

The radio, TV and newspapers were selected in close consultation with media experts and with the objective to reach a wide range of stakeholders. Based on inputs from the SESA experts, media experts advised on the TV and Radio stations with the largest reach and programs adapted to the proposed time and content of interviews, as well as the announcements. The interviews and announcements were notably broadcasted early mornings, before people started working and afternoons, when people returned back home. As per Appendix 3 messages and announcements were sent through 4 different radio stations in different days and times and eight interviews were carried out: 4 for radio and 4 for TV.

The interviews generally started with a briefing on the REDD+ programme and its aims, identification of drivers of deforestation and forest degradation, and then the strategies identified to address the causes of D&D and achieve the long-term goal of improving forest resource management in the Sudan. The objectives of SESA were then presented. Finally, it was stressed that identifying the E&S benefits and risks of various action plans was key and that this was partly done through the relevant consultations with the various stakeholder categories who may directly or indirectly be impacted by the strategy. It was announced that the SESA team started consultations in the relevant states and that a dedicated website was set up for anyone to provide their opinion.

Almost all promotional events proposed at planning stage were completed. Blady Radio was replaced by Al bait Elsudani and the announcements and messages on the Blue Nile and Sudania S24 TVs were cancelled due to a misarrangement independent from the SESA consultants.

The size of the audience was not made available by the various media who stated these numbers did not exist. Instead, the audience estimation for TV channels were based on the number of people who have access to electricity, on population age groups, and popularity and estimated audience (expert judgement). For the radio channels, these estimations were

based on the population size and age groups as well on the percent of audience for popular stations (expert judgement).

The reach of the communication campaign was estimated as follow:

Al Tayyar newspaper:	Printed 8,000 copies (range of normal distribution 65-70%, on Thursday and 80 % on Sunday).
Aljareeda newspaper:	Printed 10,000 copies (range of distribution is about 85% of it on Thursday and Sunday and 100% during the rest of the week).
Albait Alsudani Radio:	13,154,400 people
Umdurman Radio:	21,924,000 people
Radio Erabaa:	18,270,000 people
Khartoum Radio:	10,952,000 people
Khartoum TV :	3,946,320 people
Blue Nile TV :	5,700,240 people
Sudan TV:	7,454,160 people
Sudania 24 TV :	4,823,280 people
Eljazira Radio:	2,500,000 people
from Madani	from Madani

3.8. Post-consultations expert appraisal of E&S impacts

Once the consultations were completed, the SESA consultants carried out a second and more advanced round of impact assessments. The tool used was the modified Leopold Matrix (Canter, 1996) which relies on a small amount of data and provides a logically inclusive process for the identification of potential impacts on environmental and socio-economic components.

Considering the high level of strategy options and sub-options suggested by the strategy consultant, the SESA consultants used a combination of mostly qualitative techniques to carry out the impact assessment. As far as qualitative techniques are concerned, impacts were rated as “low”, “medium” or “high”, based on the severity of impact (consequence) and the probability of occurrence (likelihood). The severity depends on the nature and size of the activity or environmental aspects and the environment and social sensitivity. The probability of occurrence depends upon the nature of the activity and the control measures in place.

Impact severity was assessed on a scale ranging from negligible (0) to major (4). The criteria for rating were:

- Magnitude: the level or intensity of an impact. An impact of high magnitude signifies that a large amount of the resource or population is affected.
- Areal Extent: the area of coverage of an impact.
- Duration: estimated time for a population or resource to return to its initial state prior to an impact.

Based on these criteria, the potential impacts of the strategy options were classified as negligible, minor, moderate or major with regards to their severity. Criteria for defining these levels of severity are provided in Table 13.

Almost all promotional events proposed at planning stage were completed. Blady Radio was replaced by Al bait Elsudani and the announcements and messages on the Blue Nile and Sudania S24 TVs were cancelled due to a misarrangement independent from the SESA consultants.

The size of the audience was not made available by the various media who stated these numbers did not exist. Instead, the audience estimation for TV channels were based on the number of people who have access to electricity, on population age groups, and popularity and estimated audience (expert judgement). For the radio channels, these estimations were

[11] Khartoum TV interview: https://youtu.be/zAbF6L_kGOY
[12] Blue Nile TV interview: https://www.youtube.com/watch?v=nrBPiHTVRLU&feature=youtu.be
[13] Sudania 24 TV interview: https://www.youtube.com/watch?v=7lA8quHSQH0&feature=youtu.be

Table 13. Impact severity criteria

Level	Ranking	Definition
Negligible	0	Little or no change in the natural environment or socio-economic conditions, effects are barely measurable above background conditions, much less significant than periodic stress by nature and people, measurable effects very temporary (a few days or less) before complete recovery.
Minor	1	Localized, relatively isolated change in natural and socio-economic environment lasting only a few days to a few months before recovery, with no observable residual effects. Areal extent only up to a Total of 0.5 square kilometers.
Moderate	2	Local modification of considerable severity in atmospheric, surface or subsurface conditions, and socioeconomics lasting from a few months to two years before recovery.
Major	3	Widespread modification of considerable severity.
Risk Level		Description

Impact likelihood

A likelihood criterion was used to estimate the probability of occurrence of each potential impact. Impacts assessed as low were considered to be within acceptable levels. For impacts rated as medium, control measures and an environmental management system is recommended to reduce or avoid the impacts. Impacts rated 'high" require additional studies to ascertain if an alternative activity or location will lower its effects on the environment. Table 14 summarizes the impact likelihood, ranking and applicable definitions.

Table 14. Impact likelihood criteria

Level	Ranking	Definition
Negligible	0	Occurrence of the effect is insignificant (less than 2% likelihood of occurring)
Low	1	Low to moderately likely (between 2% to 20% likelihood of occurring)
Medium	2	Has been known to occur in some circumstances (20% to 70% likelihood of occurring)
High	3	Effect could occur frequently during normal operations (more than 70% likelihood of occurring) could occur readily if unregulated and controlled.
Risk Level		Description

Impact risk evaluation

Impact risks were assessed by combining the likelihood and the severity criteria to classify the significance of potential impacts as negligible (dark green), minor (light green), moderate (yellow) or major (orange). An impact assessment matrix is presented in Table 15 as a combination of the two assessment criteria (i.e. the severity of an impact and the likelihood of aspect occurrence). The matrix aims to highlight the most significant E&S issues.

Table 15. Impact risk matrix

Likelihood	Severity			
	Negligible	Minor	Moderate	Major
High	Low	Moderate	High	High
Medium	Low	Moderate	High	High
Low	Negligible	Low	Moderate	High
Negligible	Negligible	Low	Moderate	Moderate

The Leopold matrix relies on small amounts of data and provides a methodical and comprehensive identification of potential impacts on environmental, socio-economic and public health components. The use of a risk matrix enhances the ability to systematically identify and focus on resources most likely to be impacted by the strategies. For example, high risk impacts become high priority issues for further evaluation or management actions. Low risk impacts are of low significance, and thus have lower priority.

In determining the risk level, the consultants also took into account relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential E&S risks and impacts; and the capacity and commitment of the Sudan (and any other entity responsible for the implementation of the project) to manage the E&S risks and impacts in a manner consistent with the WB's Environmental and Social Standards and Sudan national standards. Other risks included legal and institutional considerations; the nature of the mitigation and technology being proposed; governance structures and legislation; and considerations relating to stability, conflict or security.

3.9. Mitigation, avoidance, reduction and compensation

Mitigation measures were suggested according to E&S best practices. As much as possible, mitigation options were formulated in the hierarchy as follows:

- Avoidance of impacts
- Reduction of impacts where unavoidable
- Restoration of habitats to their original state
- Relocation of affected species or habitats
- Compensation for any residual, unavoidable damage

The SESA consultants suggested mitigation measures for all potential risks identified in the E&S assessment table (Sections 5.6 to 5.10).

3.10. Environmental and social management plan

The implementation of mitigation measures is often one of the weakest parts in the process of managing E&S impacts and requires special attention from managers. All mitigation measures designed should be monitored and enforced by the relevant authorities. This requires defining the proposed mitigative and compensatory measures, specifying who is responsible for the monitoring activity, how results shall be reported and then taken into account to improve management and thus minimize/reduce risks and impacts, and briefing, educating, and training implementing entities on E&S relevant issues. For both E&S impacts, mechanisms for collecting and addressing complaints and any other input from third parties should be in place, including mechanisms for dispute resolutions.

Even though the REDD+ implementation unit has not been set up and the strategy is not fully formulated and approved, the SESA has suggested an ESMF that could be adapted to mitigating all risks identified in the E&S assessment. This can be found in the ESMF report.

4.
DRIVERS OF DEFORESTATION, DEGRADATION AND THE REDD+ STRATEGY OPTIONS

4.1 The Drivers of deforestation and forest degradation

The study of drivers of deforestation and forest degradation in Sudan was conducted over the course of 2017 by a national consultant for the REDD+ programme. The study assessed the causes of D&D from an historical perspective, taking into account the clearance of forest for agriculture and infrastructure development and population increase over time. One of the objectives of the SESA stakeholder consultations was to review and verify the drivers of deforestation and forest degradation study and get stakeholders' views on the current drivers of deforestation and forest degradation that needed to be addressed by the REDD+ strategy.

The following section is an extract of the executive summary of this study. The feedback from the consultations comes from a) the questionnaires on the online consultation platform b) direct interaction by SESA consultants with stakeholders in Khartoum and Gezira during a period when COVID-19 restrictions were relaxed and c) REDD+ Focal Points in the States who held face-to-face interviews with key informants and focus groups.

Table 16. Responses by stakeholder category

Stakeholder Category	No of questions answered	No of individual or groups that responded
Academia and researchers	177	28
Communities and indigenous peoples	344	85
CSOs and NGOs	57	15
Donors and development partners	14	1
Federal Govt Sector Institutes	204	40
Gum Arabic value chain participants	19	18
Livestock and pastoralist sector	25	9
Others	117	17
Private Sector	141	57
Refugees and IDPs	8	7
State Govt Sector Institutes	198	59
Grand Total	1304	336

Respondents were asked to identify potential adverse environment and social impacts of the draft strategy options and to propose mitigating measures. Table 17 shows the environment and social impact criteria along with the number of times each criterion was selected by a respondent, indicating a potential adverse impact.

Table 17. Criteria for assessment of environment and social impact

Environment assessment criteria	No. of responses	Social assessment criteria	No of responses
Biodiversity	93	Livelihoods/incomes/Food security	195
Ecological functions and ecosystem services	88	Traditional access to resources	194
Soil productivity	101	Rights	157
Pests and diseases	157	Conflict and social harmony	173
Invasive alien species	173	Capacity (of people and institutions)	81
Pollution (air, soil, water)	115	Empowerment	90
Other aspects of the environment	79	Social equity and fairness	88
		Cultural values	101
		Aesthetic values	67

No E&S risks were identified for most of the strategic options that were the subject of the consultation questions. Six issues within the strategies were identified as having environmental and social risks as follows:

- Revise Policies, Laws, Regulations.
- Agroforestry in degraded landscapes.
- Enhance agricultural productivity.
- Establish shelterbelts.
- Moratorium on conversion of forest to agriculture.
- Promote clean renewable energy.

Revision of Policies, Laws, Regulations (PLRs). There is strong support for revision of policies, laws and regulations but implementation capacity is weak, and this will have little impact unless implementation and enforcement Is improved. The forest and environmental governance Institutions responsible require strengthening.

Revising PLRs and in harmonizing sectoral policies related to land and resource use, results in changes in land use. There are competing and potentially incompatible sectoral priorities that require compromises and trade-offs. The needs for food security and economic development must be balanced with needs for forest resources and ecosystem services. Livestock is a key component of the economy and of subsistence livelihoods and any changes in land use may have adverse impacts for pastoralists and the economy. Vulnerable groups such as nomadic pastoralists or forest dependent communities may lose out when PLRs are being revised and harmonized. The mitigating measures proposed are transparent and participatory approaches to revision of PLRs.

Agroforestry in degraded landscapes. This strategy refers to use of the taungya system of reforestation involving planting trees in degraded forest areas and allowing communities to grow crops along with the trees for 2-3 years until the trees have reached a sufficient height to shade out the agricultural crops. The practice has substantial benefits for communities in the form of food production, and for the forest as the weeding associated with the food crops helps the trees to grow. The risks identified were social risks of inequitable distribution of benefits and potential conflicts. The mitigating measures proposed were transparent participatory planning involving communities.

Enhance agricultural productivity. Enhancing agricultural productivity increases sustainability and reduces the need for expansion of agriculture into forest areas. The environmental risks identified were risks of pollution from inappropriate use of pesticides and fertilizers. The mitigating measures proposed were awareness raising and extension, provision of standards and implementation of regulations.

Establish shelterbelts. The proposal to establish shelterbelts has environment and social benefits for farmers, pastoralists and forest dependent communities. The risks identified were social risks associated with potential restrictions on movement of pastoralists and the mitigation measures proposed were transparent participatory planning processes.

Moratorium on conversion of forest to agriculture. This strategy proposes to stop further expansion of mechanized agriculture into forest areas. Stakeholder categories had differing views on this with most in support because of the benefits of the forest to communities. The private sector representatives disagreed and pointed out the adverse impacts on economic development and food production. They also mentioned infringement of private property rights as a negative social impact.

Promote clean renewable energy. Alternatives to fuelwood such as LPG were considered to be appropriate in certain situations such as urban areas but not practical in rural areas. The risks identified are potential adverse impacts on livelihoods that are dependent on fuelwood which is a freely available resource at no cost compared to LPG and other clean energy sources which cost money. Fuelwood and charcoal sales are also an import source of income in rural areas where there are very limited other income options. Transition to LPG or other renewable alternatives would adversely affect this income stream. The mitigation measures proposed were increasing the supply of fuelwood through tree planting and fuelwood plantations, energy efficient stoves and subsidizing the cost of transition to LPG.

Drivers of deforestation and forest degradation in Sudan

Direct causes of deforestation, by order of magnitude and chronology:

- **Commercial agriculture, principally, large-scale, semi-mechanized rainfed farming, together with irrigated forms of agriculture.** All irrigated agricultural schemes in Sudan starting with Gezira Scheme through Mangil, Suki, Rahad, sugar schemes and semi-mechanized farming schemes were established on what was closed canopy forests and woodlands which led to uprooting of entire tree populations. Sorghum as a crop is probably of the main drivers of such deforestation.

- **Urban sprawl. Present day Sudan boasts some 90 cities & towns and hundreds of sub-urban villages.** Some cities like the capital Khartoum are understood to encompass some 50 townships. All these cities, towns and villages

were built on what used to be forests or woodlands and were mostly built of mud bricks fired with wood derived from Sudan's forests. The lifestyles of town and large village occupants entailed substantial consumption of wood for building material, furniture, firewood and charcoal.

- **Infrastructure development:** these include hydroelectric power plants (e.g. Jebel Awlia, Sennar, Khasm El Girba, Roseries and the recent Twin Atbara & Setiet Dams) which have all deforested thousands of hectares of forests and woodlands or had their reservoir cleared of trees beforehand. Also, the associated infrastructure such as highways and roads (e.g. Port Sudan – Haiya – Atbara - Khartoum, Haiya – Kassala - Gadaref, etc.) some 56,000 km in length and an alignment width of 100 meters, almost all was on forests, woodlands or scattered trees. Railways (Wadi Halfa - Abu Hamad - Atbara; Port Sudan – Haiya - Atbara, etc.) with some 16,000 km in length and an alignment of 50 meters width mostly on what used to be forests or woodlands or scattered trees.

- **Petroleum Exploration:** which has entailed forest clearance and overall environmental disturbance causing measurable forest and environmental degradation. This is the case of the Greater Nile Petroleum Operating Company that has led to oil spills, removal of tree cover and other vegetation for construction of facilities, roads, pipelines, camps, workshops, warehouses, and wells. Several hundred kilometers of grid line and feeder roads were cut through prime forests and woodlands.

- **Mining:** non-hydrocarbon minerals of actual or potential commercial value in Sudan include gold, chrome, copper, iron, manganese, asbestos, gypsum, mica, limestone, marble. In the last few years there has been an outburst rush in gold mining with more than 80 companies and one million miners in traditional mining. All mining and extraction activities have contributed to the removal of hundreds of thousands of square kilometers of vegetation mainly forests, range land and soils, interrupted ecosystem service flows, and resulted in inevitable and often permanent farmland loss.

- **Refugees and Internally Displaced People (IDPs):** the eastern region (Red Sea, Kassala and Gadaref states) has been receiving refugees from the Horn of Africa since 1963, with a peak of around 1,000,000 refugees in the mid-1980s. Approximate average annual wood consumption of per capita at the time was 0.73 m^3. Their annual wood consumption was estimated at 730,000 m^3 from deforesting approximately 10,000 ha of prime forest and woodlands. In 2013, East Sudan hosted approximately 88,745 refugees living in camps and urban areas. From the civil war in Darfur, total annual wood consumption in Greater Darfur was estimated to be 0.85 m^3 per capita, or an annual wood consumption of 1,275,000 m^3 for 1.5 million people. Converted into annual forests and woodlands removed, this represents approximately 17,850 ha.

While an approximative quantification has been provided, it is important to consider the chronological factors to be at least as important. Indeed, since the main objective of REDD+ mechanism is to reduce emissions from D&D, recent or actual trends related to these are more likely to qualify to receive funding under the REDD+ mechanism, where the government would demonstrate how the funding of activities would enable to reduce the rate of D&D, against a current trend (i.e. baseline).

The study on the drivers of deforestation and forest degradation also points out underlying causes, listed below:

- **Human and animal population growth:** the numbers of livestock and wild animals have increased from about 10 million heads around 1898 to 32.6 million in 1975 and 106.6 million in 2015. This represents a 226% increase 1898-1975, and 227% 1975-2015, or 966% from 1898-2015. Human population increased during the same period from about 2 million to 35 million people in 2017. The increased number of animals has been linked to the loss of rangelands into desertification. Agriculture and more recently oil exploration and mining are all caused by population growth and behavior.

- **Insecurity**: this has expanded in Sudan in the aftermath of civil strife in most peripheries declared as "military operation zones". This has been the case with the montane vegetation zones of South Blue Nile, South Kordofan and Jebel Marra area in East Darfur. Sizeable quantities of sawn timber, sawn logs, building poles and charcoal are hauled out of such areas which are then converted into denuded forest and woodlands.

- **Legal and institutional gaps**: there seems to be a consensus among national experts that the absence or loopholes in existing relevant legislation coupled with lack or weakness of enforcement is a genuine underlying driver of deforestation and degradation.

- **Lack of stakeholder participation:** there seems to be a consensus among national experts that the absence of tangible stakeholder participation in forest management or decision-making and the inadequacy of benefit-sharing mechanisms has caused uncertainty and indifference among forest neighboring communities to better manage these natural resources.

Below, causes of degradation have been ranked, as with the drivers of deforestation. These have been summarized here.

Direct causes of forest degradation, by order of magnitude:

- **Unsustainable wood extraction for energy and other purposes:** this is taking place in ten states east of the Nile

Basin (Northern, River Nile, Khartoum, Red Sea, Kassala, Gadaref, Gezira, Sennar, Blue Nile & White Nile states) where the total annual consumption of wood is beyond the annual allowable cut. Biomass, mostly firewood, has been the dominant primary energy supply source for decades. Around 76% of the Sudanese population use low efficiency three stones and traditional and low-efficient cooking stoves. Substantial loss of energy also occurs from the conversion of wood into charcoal. The use of wooden building poles in construction without protective treatment also require frequent replacement, which all in all further exacerbates the gross loss of the resource.

- **Overgrazing:** a major cause of range depletion is intensive grazing during tree and shrub cover growth stage. This phenomenon is mostly occurring during the rainy season when premature grazing reduces the chance for future propagation, and over time many of these areas are now almost bare soil.

- **Destructive Agents:** this is an aggregate of biotic and abiotic factors. In the Sudanese context, biotic factors include the population and organizations collectively causing cumulative damage to natural resources, notably through trampling and soil compaction and insects damaging seedlings and mature trees. Abiotic factors include drought spells, fire, wind and floods.

- **Subsistence Agriculture:** it usually expands in areas which were previously rangelands. Although individual holdings may seem small, their impact is significant when aggregated.

4.1.1 SESA stakeholder validation of the drivers of deforestation and forest degradation

During the SESA stakeholder consultations, participants and interviewees were asked to prioritize the drivers of deforestation and forest degradation on the basis of the category-based questionnaires that were provided to them. The responses are listed in Table 18 which shows the number of meetings in each state where each driver was listed as a cause of D&D. The findings are summarized nationally in the next following table, beginning with those obtained during SESA I, followed by those obtained in SESA II.

Table 18. Number of meetings where the drivers were listed by state (SESA I)

Drivers I States	Sennar	Blue Nile	Gedaref	North Kordofan	South & West Kordofan	Darfur	White Nile
Charcoal and firewood	4	6	5	5	1	7	3
IDPs		5				6	1
Agric expansion	6	6	4	3	1	2	2
Cutting for building materials		1	1	1	1		
livestock & pastoralism	6	2	3	4	1	7	
Poverty	1	2	1		1	10	3
Governance	2			1		1	2
Expansion of dam		2					
Mining-gold		1					
Burning bricks	1						1
Horticulture	2						
Commercial Agriculture	1						
Climate change & desertification			1	1			
Oil			1				1
Military	1	1			1	8	1
Commercial logging							1
Bad policies					1		
Other	2		3	2		8	3

The frequency of the drivers of deforestation and forest degradation shown in the above table is based on the findings from consultations in the states. They do not include the findings from national-level consultations.

Poverty was recognized as an important underlying cause of fuelwood harvesting, charcoal making and expansion of subsistence agriculture in forests. In certain areas, insecurity was also pointed out as an important underlying cause resulting in forest clearance for subsistence agriculture by IDPs and refugees; fuelwood harvesting was by IDPs and refugees, as well as by the military.

While livestock and pastoralism were the third most frequently mentioned driver and often described by stakeholders as "over-grazing", discussions with participants on this issue revealed that the issue experienced was often not so much due to over-grazing but to pastoralists living in forest and cutting trees for firewood or fodder.

When poverty or IDPs were quoted as a driver, it usually meant cutting of firewood and charcoal for sale as a livelihood opportunity for poor people, or expansion of subsistence agriculture into the forest or a combination of both. These could be described as underlying causes rather than direct drivers. Similarly, when stakeholders listed the military as a driver, it was in reference to the military cutting trees for firewood and charcoal.

The conclusions from the findings of the SESA consultations were that, in the opinion of stakeholders, the most important drivers of deforestation and forest degradation are cutting trees for firewood and charcoal, followed by clearance for subsistence agriculture and pastoralism related issues. Other drivers were considered of relatively minor importance.

These findings concur with the findings of the drivers of deforestation and forest degradation study consultations carried out in 2017 where the responses from 169 stakeholder questionnaires found the main drivers were agriculture and tree cutting for fuelwood and charcoal (Table 19).

These findings are based solely on the opinions of stakeholders consulted and would ideally need to be supported by data from objective scientific analysis.

Table 19. Responses to stakeholder questionnaires during the study on causes D&D (SESA I)

FNC Management Circle	Major causes for D&D					
	Agriculture expansion	Energy fuel wood and charcoal	over grazing	Fire	Drought	Lack of awareness
Northern	4	18	0	1	1	1
Central	13	5	3	0	4	0
Eastern	19	4	0	0	2	0
Kordofan	14	9	0	0	2	0
Darfur	18	7	0	1	0	0
Total	68	43	3	2	9	1

As Table 20 below shows, similar results were obtained during SESA II.

Table 20. Verification of the drivers of deforestation and forest degradation in SESA I

Driver of deforestation and forest degradation	% of respondents that indicated the driver
Poverty	11
Charcoal and firewood	10
Agric expansion	8
Climate change	8
Cutting for building materials	8
Desertification	8
Livestock	7
Pastoralism	7
Military	7
Refugees and IDPs	6
Burning bricks	5

Inappropriate policies	5
Mining-gold	3
Low gum arabic prices	2
Governance	2
Expansion of dam	2
Oil	1
Commercial logging	1

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These findings are based solely on the opinions of stakeholders consulted and would ideally need to be supported by data from objective scientific analysis.

4.2 Sudan proposed REDD+ strategy options

As per the requirements of the FCPF, the strategy options, developed on the back of the studies of the drivers of deforestation and forest degradation have been developed in a parallel process to the SESA. This is in order for the SESA to inform and enable the iteration of the strategy options in a way that enables them to be more environmentally and socially friendly.

The draft version of the strategy options dated February 2018 and subsequent drafts dated September 2018, and September 2020 were used for the consultations respectively during phase I (in 2018) and phase II (in 2020) of the SESA.

Following iteration and feedback on the potential E&S impacts of these options, the first official draft of the REDD+ strategy options was released in April 2018 and further iterated in June and September 2018. Finally, an updated draft of the strategy options was published in September 2020 and then in December 2020. These were used in this report. Outcomes from consultations based on the previous drafts were transposed on the 2020 draft.

While the detailed strategy options report will be published by the relevant consultants and provide the full details of the strategy options considered, the SESA consultants reproduced the September 2020 draft strategy options below. The overarching strategic options identified in this document are:

(1) integrated forest landscape management;

(2) climate smart agriculture and rangeland management;

(3) integrated land use planning;

(4) sustainable energy supply and use;

(5) promoting participation in climate change responses.

4.2.1 Option 1. Integrated forest landscape management

The recommended interventions in the forest sector to reduce D&D include:

1. Strengthening sectoral policies, financing, and institutional capacity for sustainable natural resource management:

- Improving forest sector regulations, laws, and policies to mainstream REDD+ actions: sector review and assessment of priority actions
- Support Revision and strengthening of the Sudan National Forest Policy Statement (2006; updated from Sudan's Forest Policy 1986).

Support and improve policies to reduce deforestation and land degradation from refugee settlements.

- Development of National Forest Information Systems to support forestry and landscape management in Sudan (NFMS, MRV, FREL Development, Safeguards, Carbon Registry).
- State Level REDD+ Implementation Framework and Financing Options: Development of State REDD+ Action Plans (S-RAPs).

2. Strategic Landscape Management, Restoration and Emission Reductions:

- Smallholder Forestry Program in Selected States for high value timber, fuelwood/biomass, and pole production and non-wood forest products (Initial target – Blue Nile and Sinnar States).
- Statewide Forestry Nursery Systems to support community-based, afforestation, reforestation, and restoration of degraded lands.
- Capacity building for sustainable gum production value chain through sustainable finance and private sector engagement.
- Support sustainable forest management through development of capacity for and use of forest management plans (including selected coastal zones, protection of mangrove forest, and riparian).
- Capacity development and institutional strengthening for fire management.

3. Support for Forestry Research and Development:

- Revise and redesign of forest and rangeland research programmes and curricula.
- Establishment of Centres of Excellence through Tertiary institutions – (Consideration for setting a Forestry Research Development Institution).

4.2.2 Option 2. Climate smart agriculture and rangeland management

1. Improving the adaptive and climate mitigation capacity of the agriculture sector:

- Capacity building to improve agriculture productivity through agroforestry system to improve water utilization and reduce forest encroachment (shelterbelts, alley cropping, wind breaks riparian forest buffers).
- Improving agricultural productivity through crop diversification and agro-pastoral systems.
- Rehabilitating irrigation services to make water use more efficient, including the introduction of appropriate technologies to optimize water use and raise water awareness.
- Build capacity and conduct knowledge transfer for conservation agriculture with water harvesting, zero tillage, and improved seeds.

2. Promoting Sustainable Livestock and Rangeland Management:

a. Strengthening regulatory and non-regulatory measures for livestock movement corridor management including monitoring systems.

b. Rangeland restoration/rehabilitation, protection, and provision of adequate seasonal feedstock (fodder production): creating business partnerships between livestock owners and farmers along livestock routes.

c. Improving access to finance and support services for farmers and livestock producers (such as animal health, extension and training, farmer field schools, marketing).

d. Promoting cooperation and coordination between public and private sector institutions in range infrastructure development and management.

e. Increasing adaptive capacity of farmers and livestock producers for preparedness to seasonal variability in feed and water supply through community-based water conservation and river protection and management schemes.

4.2.3 Option 3. Integrated Land use Planning

1. Harmonizing land use planning, investment policies, and legislation:

- Strengthening institutional capacity of environmental and social impacts assessments in agriculture, forestry, and mining sectors to prevent land degradation: (Institutional Capacity Needs and Gap Assessment and preparation of Capacity Development Plans).
- Rationalizing, organizing and harmonizing above and below ground resource exploitation and related economic developmental activities and policies, in order to encompass environmental and climate change concerns.
- Improving standards for the establishment and development of mining infrastructure (Updating of existing guidelines/ policies and development of new guidelines and policies.

2. Sustainable Land management stewardship through land tenure security:

- Regulatory and non-regulatory measures to improve land tenure security for local communities: Assessment and identification of opportunities for strengthening land tenure security for communities in deforestation hotspots (prioritization of deforestation hotspots).
- Land use capability assessment and digitization to support the National Investment Map: optimizing land use through spatial planning and reliable spatial and non-spatial information.

4.2.4 Option 4. Sustainable energy supply and use

1. Increasing access to efficient and sustainable household energy:

- Assessment and implementation of options for sustainable charcoal production.
- Assessment and implementation of options and measures to incentivize and increase use of LPG gas and other alternative sources of energy in urban and rural communities.

2. Promoting a sustainable biomass-based energy value chain:

- Creating business opportunities in the biomass energy sector for the private sector through regulatory and non-regulatory measures.
- Assessment of opportunities, incentives, and promotion of adoption of efficient cookstoves – linking biomass producers and consumers.

4.2.5 Option 5. Promoting participation in climate changes responses

1. Advance the participation of youth and women:

- Encourage access of women and youth to decision making forums and bodies at national and local levels regarding climate response measures.
- At national levels, gender and youth perspectives should be mainstreamed into national policies and strategies on climate change.
- Develop education and awareness programmes to help youth develop deeper understanding of the impacts of climate change and develop skills and knowledge in responding to these impacts.
- In implementing all PAMS in this NRS, specific consideration should be made in addressing gender inequalities in relation to access to resources, including credit, extension and training services, information and technology.
- All communications undertaken in relation to the PAMS in this NRS should involve a well-defined, gender and youth sensitive and culturally appropriate communication strategy.
- Design and implement mechanisms that involve communities (including women, youth and elders) in monitoring social and environmental improvements in local areas.

5.
SOCIAL AND ENVIRONMENTAL ASSESSMENT OF THE STRATEGY OPTIONS[14]

[14] When not specified otherwise, the baseline sub-sections in this chapter are taken from the UNEP's Sudan First State of Environment and Outlook Report, 2020; as well as from Sudan Intergovernmental Authority on Development's Review of Sudan's National Forestry Policy and Strategy: for developing IGAD Regional Forestry Policy and Strategy published in December 2018. Authors involved in the preparation of the present SESA report were indeed also involved in these two publications. As baseline information featured in these two reports is considered the most up to date as of December 2020, it seemed appropriate to use it in the present SESA review. Other sources include (1) Sudan's Draft National Strategy for Reducing Emissions from Deforestation and Forest Degradation and the Role of Forest Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks, 2018 and September 2020 versions, and (2) Sudan's Draft Progress Report on the Emission Reduction Programme Assignment, April 2020; (3) FAO's State of Sudan's Biodiversity for Food and Agriculture, 2015

5.1 Environmental and social baseline

The baseline information presented in this section relates to the Sudan. As such, it relates to the geographic areas in which the REDD+ strategy is expected to be implemented; and to the measures proposed the E&S assessment to mitigate potential negative impacts of the strategy options as well as to the measures proposed to enhance expected positive impacts of the strategy. Key baseline data are summarized in Table 21.

Table 21. Key baseline data

Official name	Republic of Sudan
Number of States	18
Number of Localities	57
Population	Estimated at 44 million based on Worldometer elaboration of the latest United Nations data. 35% is urban.
Population density	25/km2
Gross Domestic Product	$18,902.28m (WB sources 2019)
Gross National Income per capita	$3,962 (UNDP/HDI 2019)
Human Development Index	0.507 ranked 168 of 189 countries (UNDP 2019)
WB doing business index (ranking)	Ranked 171 out of 190 economies in 2019. The rank of Sudan dropped from 162 in 2018.
Number of refugees	1.1 million individuals estimated to be living in Sudan (as of 30 November 2019). This includes refugees from the Central African Republic, Chad, the Democratic Republic of Congo, Eritrea, Ethiopia, Somalia, South Sudan, Syria and Yemen. The majority from South Sudan: approx. 840,000 (2019)
Land area	1,765,048 km^2
% of forest cover	10.66%
Annual rate of forest loss	Estimated annual rate of deforestation of about 542,000 ha
Desertification	In 2007, a report by UNEP suggested that the boundary between desert and semi-desert had shifted southwards by 50 to 200 km since 1935[15].
Livestock population	110 million. Highest in Africa
Energy consumption	Woody biomass: 71%; petroleum products: 19%; others: 10%
Woodfuel supply & demand gap	Deficit of 2 million tonnes per year (3.3 million m3) in 2011 (source: FAO/WISDOM[16])

5.1.1 Sudan's environment

Overview

The Sudan possesses vast areas of fertile agricultural land, abundance of water for irrigation, approx. 110 million heads of livestock, forest resources, oil and gas deposits and mineral wealth in the form of gold, silver, platinum and uranium. Its population and economy are heavily reliant on natural resources for livelihoods, food security and economic well-being. These resources are under threat from desertification, reducing levels of rainfall and climate change. Its forest and range resources are being degraded by unsustainable use, and its agricultural lands are being encroached by sand dunes. Deforestation and desertification continue to be a major environmental challenge facing Sudan. Forests have been facing encroachment by agriculture, urbanization, and unsustainable wood fuel extraction for several decades. Climate data from Sudan's nine meteorological stations shows that rainfall across the country is decreasing and becoming highly variable and that desertification is advancing.

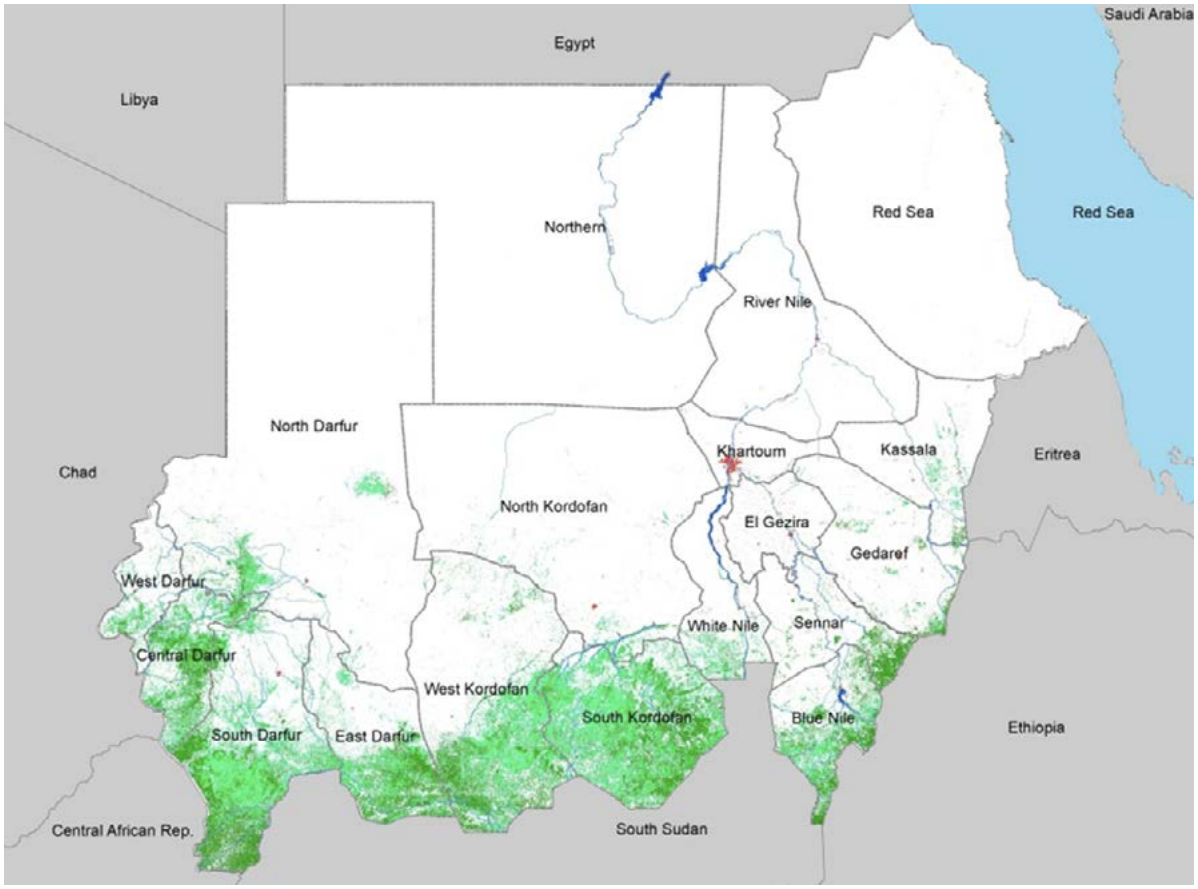
As a result, drought threatens approximately 12 million hectares of rain-fed land, particularly in the northern Kordofan and Darfur states. Sudan's National Adaptation Programmes of Action (NAPA) and its three national communications to the UNFCCC identified agriculture, water resources and health as the three sectors most vulnerable to climate change.

[15] UNEP, 2007. Sudan: Post-Conflict Environmental Assessment. Source: https://postconflict.unep.ch/publications/UNEP_Sudan.pdf
[16] http://www.fao.org/3/j8227e/j8227e06.htm

Forest cover

For the purposes of REDD+, Sudan defines **a forest as an area with a minimum of 10% tree canopy cover, at least 0.4 hectares in extent with trees that have attained or have the potential to attain at least 2 meters in heigh**[18]. Currently, forests cover 10.66% of the total area of the country.

Map 9. Sudan forest cover[17]



In the Sudan, the forest cover follows the following ecological classification profile and rainfall trends from the north to the south: vegetation takes the form of bush land as well as scattered trees and shrubs in the north and dense forests of large trees ranging from acacias to broad-leaved trees in the southern end of the savannah and mountain region. Table 22 below shows the distribution of land cover classes in the Sudan based on 2012 FAO data[19].

Table 22. Sudan's land cover classes

Land Cover Class	Area (ha)	%
Agriculture in terrestrial and aquatic/ regularly flooded land	23,710,025	12.6
Trees closed-to-sparse in terrestrial and aquatic/ regularly flooded land	18,733,182	10.0
Shrubs closed-to-sparse in terrestrial and aquatic/ regularly flooded land	22,231,327	11.8
Herbaceous closed-to-sparse in terrestrial and aquatic/ regularly flooded land	25,982,720	13.8
Urban areas	730,331	0.4
Bare Rocks and Soil and/or Other Unconsolidated Material(s)	95,277,727	50.7
Seasonal/perennial, natural/ artificial water bodies	1,290,000	0.7
Total Sudan area	187,955,312	100.0

[17] 2016, based on sentinel data
[18] Definition from Review of Sudan's National Forestry Policy and Strategy: for developing IGAD Regional Forestry Policy and Strategy.
[19] Source: FAO, 2012. The Land Cover Atlas of Sudan. Accessed from: http://www.fao.org/3/a-be896e.pdf.

Table 23 presents the distribution of wood vegetation by state[20].

Table 23. distribution of wood vegetation by state

Location (states)	Total volume of all woody vegetation m3	Annual allowable cut (increment m3)
River Nile	672	47,04
Eastern	3,234,000	226,38
Central (Khartoum, Gezira, Sennar, Blue Nile and White Nile States.)	29,531,000	2,067,170
Kordufan	44,218,800	3,095,316
Darfur	89,096,800	6,236,776
Total	166,752,600	11,672,682

Rich forests grow along the Nile and its tributaries. In 1948, Andrews estimated that forests were about 12.6 million ha and he classified the vegetation of the Sudan, recognizing seven types in a consecutive series from north to south. Ten years later, Harrison and Jackson (1958) produced an ecological classification of the vegetation recognizing five major divisions (zones) based on floristic composition, rainfall and soil type. The divisions were further elaborated into subdivisions (belts) (Abdel Magid et al, 2008). As a result, the Sudan' forests can be classified according to their purposes and management:

- **Protected forests:** national parks and other protected areas cover 8.1% (150,963 km2) of the country. Most of this protected land is accounted for by three sites: Wadi Howar (100,000 km2), Radom (12,500 km2) and Dinder (10,000 km2) (UNEP, 2007). These are managed to combat desert encroachment and environmental protection. They are located north of latitude 13 and they are dominated by various types of Acacia trees. The area of these forests is estimated at about 4.2 million ha. Protected forests include the creation of shelter belts as a measure of augmenting agricultural yield or for protection purposes such as sand dune fixation and creation of aesthetic plantain around habitations.

- **Production and protection forests:** protected areas that are managed for the purpose of production of goods. These forests are located mainly along the River Nile and its tributaries. The prevailing tree species is Acacia nilotica with a total area of about 144,000 ha. Production forests have the following purposes:

  o Production of timber for sawn wood like railway sleepers and also production of firewood on sustainable bases (working plans)
  o House construction and rough furniture for rural areas and high-grade timber for quality furniture and urban houses
  o Development of foreign exchange-earners (e.g. gum Arabic gardens)

- **Mountain forests in Jebel Marra:** these are mainly tropical pines with other temperate species. Their total area is estimated at about 3,000 ha.

- **There are also forests in open grazing land which are mainly in the central part of Sudan on both sandy and clayey soils.** The total area of such forests is estimated at 4.6 million ha. They represent the most economically and socially important tree belt (i.e. gum Arabic belt) which contains trees like the Acacia Senegal tree, the gum Arabic producing tree both for sandy, clayey plains. Other important fruit producing trees such as Baobab and other natural forests are scattered, and they are mainly cultivated under agroforestry system.

- **Irrigated forests:** with a total area of 3,361 ha. They are managed with the aim of producing building parts and other timber for furniture making. These include areas of institutions and agricultural schemes such as El-Jazirah, El-Rahad and the sugar cane schemes.

There are also desert areas, woodland savannahs, rangelands, mangroves described below. The coverage of these different ecozones is described in Table 24 below.

[20] Source: ibid

Table 24. Percent-wise coverage of ecozones[21]

Desert	Semi-desert	Low Rainfall Woodland Savannah		High Rainfall Woodland Savannah	Special Areas	Montane	Flood Region	Total
		Clay	Sand					
38.6	26.2	15.9	11.4	0.9	6.4	0.2	0.4	100
Arid				Sub-humid			Humid	
92.1				7.5			0.4	100

Trees outside forests

Trees outside forest-area are trees growing in public facilities (e.g. schools, public yards, institutions), houses and highways. This type of trees exhibits the typical tree shape referred to as wolf trees. The contribution of such trees in wood products is limited because they are essentially planted to provide shade, amenity, decoration and protection. The extent of the existence of trees outside forest area is not known with precision, and data on both the number of trees and planted areas is limited and/or not specific.

Mountain forests

Mountain Forests are found in Jabel Marra in the west and the Red Sea Hills on the eastern borders of the country. Forests on special sites include the mangroves, the riverain forests and the palm. The *Acacia nilotica* forests growing on flooded basins along the Blue Nile and its tributaries and along the White Nile are distributed on both sides of the banks in alternating sites along the banks. These forests are under management plans since 1935. The forests are growing on sites of special characteristics in dry lands areas.

Desert

The desert covers northern Sudan from north of latitude 16° and corresponds to a total area of 725,800 km2, through Mohamed Qul on the Red Sea and westwards across Northern Kordofan and Darfur, constituting approximately 29% of the total surface of the country. In this area, the annual rainfall is below 75 mm. Vegetation is virtually absent except close to water courses.

The semi-desert extends south of the desert with an area of approximately 491,000 km^2, equivalent to 19.6% of the country's total surface. Rainfall ranges between 75 mm and 300 mm annually and the vegetation consists of grasses with scattered small trees and bushes not more than two meters high interspersed with bare areas.

Woodland savannah

The woodland savannah extends south of the semi-desert zone, covers the rest of the country except for small portions in the southern area which form part of the equatorial zone, from the southern parts of Blue Nile, Kordofan and Darfur to cover the greater parts of Equatoria and Bahr el Ghazal in Southern Sudan. It occupies a sizeable area south of Safaha in Darfur and south of Talodi in Kordofan. The vegetation is highly sensitive to fire by its nature and dryness (Harisson et al, 1958).

Woodland savannah is divided according to precipitation levels into low rainfall woodland savannah covering an area of 691,000 km^2 or 27.6% of the country area and high rainfall woodland savannah covering an area of 347,000 km^2 or 13.8 % of the total area. Low rainfall woodland savannah is further divided according to soil type into low rainfall woodland savannah on clay and low rainfall woodland savannah on sand. Clay soils in this subdivision carry associations of *Acacia mellifera* thornlands, Acacia seyal – Balanites woodland and *Anogieisus – comboretum* woodland.

The high rainfall savannah woodland formation occurs under annual rainfall of 900-1,300 mm and extends from the southern parts of Blue Nile, Kordofan and Darfur to cover the greater parts of Equatoria and Bahr el Ghazal in Southern Sudan. It occupies a sizeable area south of Safaha in Darfur and south of Talodi in Kordofan. The most important species are *Khaya senegalensis* and *Isoberlinia doka*. Other species are *Parkia oliveri*, *Daniellia oliveri*, *Afzelia Africana*, *Monotes kerstingii*, T*erminalia mollis*, *Burkea africana* and *Butyrospermum niloticum*. The trees are high, broadleaved and with thin bark; thorny trees are infrequent. The vegetation is highly sensitive to fire by its nature and dryness (Harisson et al, 1958).

Rangeland

The Range and Pasture Law of 2015 recognizes and identifies four categories of rangelands: public grazing lands, private hema, commonly held hema and privately cultivated rangeland.

Rangelands currently make up 25.6 % of the Sudan's total land area (FAO and UNEP 2012). However, there is great variability in distribution across the states: rangelands account for over 60% of South Darfur state but only 0.5 % of Khartoum and Northern states. Nearly two-thirds of the country's rangelands are found in the three states of North Darfur, North

[21] Forest Carbon Partnership Facility (FCPF)., 2012. Readiness Preparation Proposal (R-PP), Working Draft. Accessed from: https://www.forestcarbonpartnership.org/system/files/documents/Sudan%20R-PP%20_Oct%20%202014_final_clean%20version_0.pdf

Kordofan and South Darfur (FAO and UNEP 2012). Forage from rangelands is estimated to provide, depending upon the region, from 55-80% of the national herd feed requirements (FAO, 2015).

Total livestock feed availability in the country was estimated at 66.6 million tons on dry matter basis (DM) in 2015. This includes different feed sources from rangelands and agricultural sources as shown in Table 25 below.

Table 25. Animal feed supply source[22]

Feed type	Dry Matter (million tons)	Energy (million Mega Joule)	Digestible protein (million tons)
Herbaceous plants	48	432720	1.9
Browsing	5.2	39150	0.03
Fodder crops	3.4	44386.292	0.68
Crop residues	8.3	53086.2	0.0003
Agro-industrial by products	1.4	14485.3	0.314
Cereals (sorghum, maize and millet)	0.1	1822.7	0.007
Total	66.6	585650.492	2.9

However, rangelands have been severely depleted, particularly by the expansion of farmlands. In 2007, UNEP estimated that the Sudan had lost between 20% and 50% of its rangelands (UNEP 2007). The loss of rangelands and the deterioration in the quality and accessibility of grazing land is considered to be the root cause of conflict between pastoralists and farmers in the Sudan.

With regards to veterinary services, the community animal health workers program (CAHWs) which started in 2007 and was supported by the FAO made a great difference in the community of livestock keepers in Eastern Sudan (FAO, 2012). The project achieved the following results: besides reducing the number of traditional healers, CAHWs provided efficient veterinary services, increased awareness of their importance among livestock keepers; helped herders increasing their herd size and diversifying the types of animals they raise and Livestock disease outbreaks in North Darfur have been reduced due to vaccination campaigns carried out by FAO and CAHWs. Similarly, large commercial dairy and poultry enterprises located in peri-urban areas around large cities benefit from extensive veterinary coverage. As for other regions, veterinary coverage is not sufficient[23].

Lastly, integrated farming (crop/livestock) is present in Khartoum and Gezira States and in the Red sea region but not in other parts of the Sudan.

Mangrove

There are 19 mangrove areas distributed along the Sudanese coast. Their areal coverage was roughly estimated to be 0.02% of the total African mangrove area, according to different inventory studies published between 1980 and 2015[24]. Thirteen of these mangrove areas were identified by FAO in 1995 as highly productive ecosystems that may play an important role in maintaining biodiversity of the coastal habitats.

Despite their ecological values, the survival of the Sudanese mangroves is seriously threatened. Apart from mass mortality caused by increased temperature and decreased precipitation as a result of climate change, mangroves are also affected by various human activities such as camel grazing, cutting and removal of the mangroves, damming of freshwater from rain due to the lack of perennial rivers and the arid climate, diverting tidal water to feed salt pans, and shrimp farming (Mohammed, 1984; Untawale et al., 1992: In Rasha, 2015; PERSGA, 2004).

In addition, other human activities caused by rapid development and growth of coastal communities were also reported to have negative impacts. These include coastal construction and urbanization of rural areas, changes in land use, oil shipping and production, coastal industrial development, oil or direct chemical and industrial inputs to the mangrove areas, marine dumping, tourism, boating and recreational fishing.

[22] FAO, The State of Sudan's Biodiversity for Food and Agriculture, 2015
[23] FAO, 2015. The State of Sudan's Biodiversity for Food and Agriculture
[24] See for example https://core.ac.uk/download/pdf/45440948.pdf

Biodiversity

The Sudan is endowed with a wide range of ecosystems and species diversity. There are some 184 species of trees and shrubs including 33 exotic species together with a few endemic and near endemic. Special areas with a wealth of rare species are found in the Red Sea coast. About 204 range of species were identified. Most of the wildlife resources of the country are to be found within the High Rainfall Wood Savannas (HRWS). Wetlands on the Red Sea coast, desert oases, dams, reservoirs and in-land lakes are important habitats for resident and migratory birds. The River Nile and the Red Sea coast are part of the fly over for soaring and migratory birds from Eurasia to Africa. The Sudanese Red Sea is still fortunate to have attractive and mostly pristine habitats, particularly its coral reefs. There are remnants of mangrove stands, seagrass beds, and associated marine fisheries and biodiversity including sharks, dugongs, turtles, and several varieties of sea birds.

Conservation efforts

Regarding conservation efforts and the country's strategy to cope with biodiversity crises, the Sudan has initiated many national action plans on biodiversity. The most recent strategy covers the period between 2015 and 2020 and is called National Biodiversity Strategy and Action Plan (NBSAP). Increasing conservation efforts and the establishment of new protected areas to satisfy community needs is a central goal in this NBSAP.

The total reserved area consists of public, institutional, community, private and wildlife protected areas and national parks and by the end of 2012 it reached 12.3 million ha. All reserved forests (public, community, private) represent 4.54% of all forested areas while those occupied by other protected areas (including wildlife protected areas) represent about 7.12% of the total area of the country. The public reserved forest area was remarkably increased (by nine times) from 1.25 million ha in 1993, to approximately 12.3 million ha by the end of 2012 because of a Presidential Decree in 1993. Community and private forest reservation started in the mid-1980s and is showing an increase of over six and twelve times, respectively, between the periods 1986-2000 and 2001-2012. The area of institutional forests is very small. It increased by nearly 8,687 ha (2.7 folds) from 1986 to 2012 (FNC 2011b).

In spite of the ongoing conservation efforts and declaration of new protected areas in the Sudan, habitat destruction and decline of plants and animals is thought to be a major biodiversity dilemma in the country due to several human and natural threats (Pullaiah 2018).

5.1.2 Sudan's environment in the national economy[25]

Forest resources and value chains

Forests contribute to about 12% of the national gross domestic product (GDP) of the Sudan. However, with an estimated annual rate of deforestation of about 542,000 ha, or about 2.4% (Gafar, 2013), the country is among the ten countries with the highest deforestation rates (FAO FRA, 2015).

As of now, forests decrease is mostly due to demands at varying levels in the country for forestry products in form of fuel wood, construction poles, charcoal, timber, food, gums, fodder, and native medicines. The contribution of the forests sector to the national economy, on the other hand, is under-estimated: the formal national accounts reveal an under-estimation of the contribution of the forestry sector to the GDP in the range of 3%. For instance, gum Arabic, which is obtained from Acacia senegal and Acacia seyal, is the most important NWFP in the Sudanese economy as a cash earner for the peasant farmers and as a foreign exchange source for the country. It provides employment for approximately 7 million of the rural people in the Gum Belt of the Sudan during the dry season (November – March) when other cash-earning opportunities become scarce. The revenue from the annual export of Gum Arabic makes up 2.4% of total non-oil exports and 0.7% of total exports.

This contribution is primarily accounted from annual exports of gum Arabic, and from numerous direct and indirect benefits such as environmental protection, soil amelioration, and work opportunities for rural population, building material and wood fuel.

Of the total population, almost 70% of rural and nomadic people are considered as forest-dependent for livelihood, wood energy and on round timber for buildings. 66% of the rural population uses wood as the main source of fuel for cooking and as construction material. The industrial sector typically accounts for less than 10% of the total wood consumption, out of which, over 98% is consumed as firewood at industrial and commercial facilities with the remainder taken up by brick kilns, the lime industry, sawmills, and other wood-based industries in the country. The 1994 energy consumption study

[25] Sources: A review of Sudan's National Forestry Policy and Strategy: for developing IGAD Regional Forestry Policy and Strategy, National Status Report, Sudan; Sudan's NFMS Action Plan Draft 2020 & Sudan's State of the Environment 2020

confirmed that the per capita consumption of fuel wood is 0.7 m3 per annum which, when converted into ton oil equivalent (TOE), could be valued at nearly 2.0 billion US dollars. Moreover, NWFPs are diverse and have substantial contribution in the livelihood at the household level and at the national economy.

In parallel, forests account for about 70% of the total energy consumed in the country. They provide for 30-70% of the fodder used by the country's livestock in autumn and during periods of drought respectively.

Forests also have many indirect benefits through their role in supporting agricultural and livestock production, rural and urban life, supporting food security, alleviating poverty, preserving the environment and minimizing the risks of climate change from the emission of GHG by absorbing a large amount of carbon dioxide and methane emissions. Therefore, in view of these goods, benefits and services, this contribution is estimated at 12%.

Thus, the Sudan's forests and woodlands provide incalculable benefits in the form of environmental services, namely: climate regulation, soil nutrients, water filtration, biodiversity, substantial genetic resources and habitats for wildlife as well a wide range of cultural, spiritual and recreational benefits.

In addition, the forestry sector provides 15% of job opportunities available in the rural areas, 30% of the feed of the national herds. In particular, forestry activities support the rural communities through (Elsiddig et al., 2007):

- Provision of employment in forestry operations (planting, thinning, guarding and harvesting of tree crops).
- Supply of NWFPs such as edible parts, medicinal items and raw material like tannins, fibers and dry materials for cottage industry. The Sudan forests produce diversity of NWFPs constitutes potential sources for industrial development for local use and for export. Cottage industries could make up to 20-50% of rural household income, amounting to some 1 billion US dollars a year.
- Provision of areas inside forest reserves for farming. The farmers raise crops on part of leased land and in return plant trees on the other part. This symbiotic relationship allows farmers to produce the needed crops and benefits the forester by reforesting of bare areas and rehabilitation of degraded forests.
- Support given to village communities to establish village forests for fuelwood production, shelter and recreational purposes. The support is usually in the form of tree seeds/seedlings, irrigation installations and technical backstopping, and contribution in rural development through generation of income at the individual or communal level. Communities use income from forests to improve livelihood and rural services.

In relation to the role of forests in improving microclimates and protecting soil and watersheds from wind and water erosion, Badi (1989) showed that precipitation decreased with increasing deforestation in five Sudanese villages during the period 1930-1979.

A variety of indigenous tree species that produce NWFP are used by various communities for consumption at household level and used for income generation. Fibers provide raw material for manufacturing hats, food covers, baskets and decorations. Various fruits are used for soft drinks preparation and for food.

Agriculture

Agriculture employs about 49% of the Sudan's workforce (FAO 2018) and accounts for 32% of the country's economic output (African Development Bank 2020). About 80 % of the working population is engaged in crop and animal production, including in the informal sector. The Sudan has cultivable arable land estimated at 86 million ha. However, less than 20% is used. Principal uses include irrigated agriculture, as well as semi-mechanized and rain-fed agriculture. The leading export crops are livestock, meat, sesame, gum Arabic, groundnuts, cotton and sugar. The Sudan has the largest livestock inventories in Africa next to Ethiopia. Sheep, cattle, goats and camels are mostly raised.

Rain-fed agriculture contributes about 60% of the country's food grain production and employs more than 60% of the labor force in rural areas (Ministry of Finance and National Economy 2011). Rain-fed agriculture is the Sudan's traditional farming system and provides most of the food for rural communities. It accounts for 12.4 million ha, representing 96.1% of the total area under cereals (Ministry of Agriculture and Forests 2018). It takes place in the western, central and southern parts of the Sudan. The main crops produced by this sector are sorghum, millet, groundnuts, sesame, short staple cotton and gum Arabic.

Lands under irrigation, where various crops are grown, covers approximately 3.5 million ha. The main crops include sorghum, millet, wheat, cotton, ground nuts, sesame, sugar cane and vegetables such as potato, onion, okra and tomato.

Semi mechanized agriculture is practiced in a broad belt of 6.7 million ha which runs through Kassala, Gedaref, Blue Nile, Sennar, White Nile and South Kordofan states (FAO 2019b). Indeed, most arable lands are in the Kordofan (35.6% of the country's arable cover) and Darfur (32.4%) regions. This belt is effectively the granary of the country, with sorghum accounting for about 80% of the cultivated land. Other crops include sesame, sunflowers, millet and cotton.

Rural livelihoods

The bulk of the Sudan population (approximately 66%) lives in rural areas and considered to be dependent on being able to access forest to collect fuel wood and round timber for roofing and building. During the periods (up to 1950) when the country was heavily forested, the rural population enjoyed unlimited benefits from their forests. In addition to the wood they obtain, people use the forests for grazing, for wildlife hunting and for obtaining traditional food in the form of tree leaves, fruits, honey and tubers. They also use tree shade for their social functions and other recreational purposes (FNC, 2000). Animals grazed through shrubs and trees. Other products of importance to rural communities include honey, fruits, fibers and medicines.

Plantations

The total area of forest plantations in the Sudan is approximately 1,300,000 ha. As is visible from Table 26 below, these plantations are generally under three types of ownership: government, private and community. This table also shows that about 70.2% of the country's forests are owned by the government and managed by the Forests National Corporation (Gafar 2013). Gum Arabic producers own 28.2%, while 0.2% are owned by individuals. Forests registered under community management schemes and private companies represent 0.8% and 0.6% respectively (Gafar 2013).

Table 26. Plantation land ownership and management system[26]

Category of owner and management system	Area, ha (rounded)	Percent of total
Government/public forests	15 000 000	70
Privately managed: 1. Gum Arabic producers (societies/families) 2. Individual farmers 3. Private companies	 6 006 000 49 000 126 000	 28 0.2 0.6
Community managed	166 000	0.8
Total	**21 347 000**	**100**

Part of these plantations are supported by irrigation, particularly in irrigated agricultural schemes and at some community out-growers level. Government plantations rely mainly on rain-fed systems in the Savanna region. Management of these is based on working plan systems, where acacias, teak, softwoods and eucalypts are well controlled in a sustainable system that maintains a steady flow of goods and services at national and community levels. For example, the irrigated forests that belong to Farmers' Unions were established with the objective of wood provision for farmers and agricultural workers in the form of wood fuel and building poles to compensate for the scarcity in wood supply created as a result of clearing forests during land preparation of the irrigated scheme (e.g. in the case of the Gezira irrigated scheme, approx. 850,000 ha are bare of tree cover). However, other objectives included income generation for the peasant unions to facilitate funds for running the union and support services at villages.

The most important forests in the Sudan however are in the gum Arabic belt, which extends across Central Sudan. The belt is an important area because it acts as a natural barrier to protect more than 40% of the total area of Sudan from desert encroachment. It is also an area of intense and diverse human activities where most of the county's agriculture and animal production are practiced. This includes irrigated agriculture, mechanized rainfed agriculture, traditional rainfed agriculture and forestry (Ballal, 2002).

The largest out-grower plantation programme, that made a breakthrough in social forestry in Sudan, was the restocking of gum Arabic belt project during the period 1981-1996, where more than 100 million seedlings were distributed and planted on community lands. The area thus reforested was estimated at 300,000 ha. Community forests are developed for multiple purposes. The main purpose is to generate revolving funds to support village development in various aspects (e.g., school maintenance, water supply development, health services support and poverty reduction, in addition to provision of wood to the village inhabitants at subsidized prices). Increasing areas of community forests are aiming at generating revolving funds (Abdel Magid and Salih, 2005). In the case of community forests, the forest land is a reserve and registered in the Sudan Gazette under the title of the community. The community has the right of ownership and bears the responsibility of protecting and managing the forest and the land. For ensuring such responsibility, the community forest is usually put under

[26] Gafaar, A., (2011). Forest Plantations and Woodlots in Sudan, African Forest Forum Working Paper Series, Volume 1. https://www.sifi.se/wp-content/uploads/2012/02/Forest-plantations-and-woodlots-in-Sudan.pdf

the responsibility of an elected village committee that bears all responsibilities of management of the forest, sales of the produce and administration of services.

Another arrangement that promotes community-based forests management is a contractual relationship between the Forest Department and local farmers, where the latter are enabled to grow food and cash crops inside the forest reserves in lieu of planting trees with the crops. This mutual relationship, called Taungya, provides the farmers with a temporary land lease and the forester with free planting and tending of trees. The incentives provided by the FNC to promote community forestry in Sudan varied between different states and included: subsidized seedlings, survival incentives, subsidies to private nurseries, and extension and technical guidance to the farmers.

One example of a successful community forest project is the Elrawashda model II, where selected blocks of degraded parts of the Elrawashda forest reserve in eastern Sudan were allocated for integrated land use involving a rehabilitation process and a participatory approach. The model was based on a partnership between FNC and the local communities in planting, protecting and getting benefits from forest reserves. The collaboration has been developed since 1994 on the basis of a contract between the two partners granting the farmers security of land tenure for crop (e.g. sorghum, millet and sesame) cultivation inside the reserve. The system grants each farmer land for cultivation each year, in a way that 75% of the land is used for crops and 25% for forest stand establishment. This was continued for four years until the whole piece of land was reforested. Then another piece of arable land within the forest reserve was targeted.

In parallel, some private industrial groups have launched reforestation initiatives. For example, a number of the sugar companies and agricultural schemes, such as Kenana, Rahad, Guneid, Sennar and New Halfa have implemented programmes for tree planting in their estates. These plantations are generally made up of fast-growing eucalypts, they provide substantial employment to casual labor, and they supply much of the market demand for poles and fuelwood. Private farmers in Jebel Marra and the Gezira have reacted positively to the FNC forestry extension messages and planted their own woodlots.

Another type of plantations is Gum Arabic gardens. These are managed for gum production, which is sold locally to small entrepreneurs or transported to auction centers to be sold to external markets.

The gum gardens, managed on successive rotations in the bush-fallow system, result in soil fertility restoration at the end of the rotation. The soil is fertile and is suitable for agricultural use. During the bush-fallow the *Acacia senegal* produces gum supporting livelihood and contributing to poverty reduction.

The impact of regrowth forests in environmental protection is recognized. The role played by shelterbelts in protecting the agricultural environment and increase crop yield is stated by various studies. In addition, these forests may eventually make contribution in climate change mitigation.

However, most of the privately owned land is not registered and have been subjected to land acquisitions from companies and individuals practicing mechanized farming following the 1970 Unregistered Land Act. The situation has created obvious conditions for conflicts between different stakeholders. It is the Unregistered Land Act of 1970 that put these lands under government control and allows for the intensive use of all unregistered land for agricultural purposes based on monoculture mechanized farming. As a result, forests were degraded and pasture lands were taken, resulting in major problems for forest development and pastoralists.

In any case, existing plantations will not satisfy the growing demand for forest products. The forest-based industry in the Sudan is indeed still in its infancy. Today, the wood industry is basically confined to sawmilling and furniture making. There is limited development in other types of wood-based industry, including pulp and paper, plywood, particle board and chipboard. A major part of the demand for these industrial products is supplied through import.

As of 2011, approximately 70% of rural area supply of fuel wood comes from indigenous forests (reserved and non-reserved) through unplanned illegal felling. The per capita consumption of fuel wood was 0.7 m^3 per annum, which, when converted into TOE, could be valued at nearly 2.0 billion US dollars. However, it is expected that demand for wood fuel will keep increasing in the coming years because of urbanization and increasing rate of agricultural expansion. A 2010 report estimated that annual fuelwood consumption in the Sudan would be 15.5 million m^3 by 2020 and 30 million m^3 by 2030[27]. Similarly, a FAO study in 2011 estimated the gap in wood fuel supply demand at 2 million tonnes (3.3 million m3) per year which at the time was estimated at a fifth of the current consumption of 10 million tonnes per year[28].

[27] Cited in Sudan's State of the Environment report

[28] Gafaar, A., (2011). Forest Plantations and Woodlots in Sudan, African Forest Forum Working Paper Series, Volume 1. https://www.sifi.se/wp-content/uploads/2012/02/Forest-plantations-and-woodlots-in-Sudan.pdf

Pastoralism

The country is home to one of the largest concentrations of traditional pastoralists in sub-Saharan Africa. An estimated 13% of Sudan's population are pastoralists. In Darfur, that figure is closer to 25%, according to the 2008 Population Census.

Livestock is by value the largest subsector of the Sudan's domestic economy, contributing more than crops and even more than oil. The Sudan's pastoralists keep an estimated 108.6 million head of livestock, including 31.2 million cattle, 40.8 million sheep, 31.8 million goats and 4.8 million camels (FAO 2018). Camel pastoralism dominates in the desert and semidesert in the north, and cattle herding in the savannah belt to the south.

The links between pastoralism and forest are strong as pastoralists seek out forested lands for shelter and fodder for their livestock. Typically, branches are lopped from trees for fodder. Felling, if overdone, can cause forest degradation.

The livelihood systems of different pastoral groups (camel herders, cattle herders, sheepherders, and agro-pastoralists) demand more or less extensive seasonal movements in search of water and forage, the availability of which varies seasonally in different areas. Recognized livestock corridors exist and have been agreed in the past with settled groups.

5.1.3 Forests policies and laws

This section presents the key elements of Sudan's forest policies and law.

Key policies and regulations

The Sudan partly derives its environmental laws and governance systems from the Islamic Laws and Teachings. In modern Sudan, there are more than 150 laws and regulations dealing with health, water supply, land tenure, game, protected areas, fisheries and other aspects of natural resources (Ali 2007). Among the most significant are the Environmental Health Act (1976), the Public Health Act (1975), the Labor Act (1998), the Wildlife Protection Act (1935), the Freshwater Fisheries Act (1984), the Road and Traffic Act (1983), and the Natural Parks and Protective Areas Act (1986).

The prominent core of 1986 forest policy includes: recognized new forms of forest tenure including private, community, and institutional forests; targeted 20% of the area of the country as forest reserves; stressed the role of forests in environmental protection by creating new obligations in semi-mechanized farming or irrigated area to maintain or establish green belts; emphasized the role of public participation and the international community in afforestation and sustainable management of forests; and recognized the need for research in forest development and emphasized the role of forest extension.

The Forest Act of 1989 prescribes the allotment and upkeep of 10% and 5% of rain fed and irrigated agricultural land respectively to forests in the form of wood lots and shelter belts. This legislation is particularly notable in its call for the active participation of community and private sectors in forestry development and management. This legislation is widely perceived to have resulted in improved forest management practices, as well as increased levels of forest reserves and protected areas.

The Comprehensive National Strategy 1992-2002 stipulates the allotment of 25% of the country's land area to forest, rangelands and wildlife reserves.

The Sudan National Forest policy Statement (2006), developed through technical support of FAO, is the most recent update of Sudan's Forestry Policy's 1986. The 2006 Statement, which has not yet been ratified due to political instability in the country, is expected to make major changes in forest development and management. It is incorporating poverty reduction strategy, improvement of people standards, amelioration of physical environment and combating desertification. The reservation of forest area as a community forest proposes coordination between the native leader, the locality, the commissioner and the state minister of agriculture to establish rights of the community over the area.

A parallel effort is underway to advocate explicit articles in the forthcoming Sudan Permanent Constitution about federal, provincial and local prerogatives over land, water, forest, range and minerals. Budgetary allocations for some of the afore-mentioned activities have been proposed in the current R-PP. The envisaged forest policy review will inevitably be consultative and participatory but would quite likely consider re-establishment of designated functions for riverine, non-riverine and montane forests to accommodate meeting livelihoods and grazing needs of forest dependent and neighboring communities; embed forestry concerns into those other competing land using sectors such as agriculture, water, mining and oil resources; build/consolidate synergies between national forest and food security policies and programmes and reiterate the importance of judicious and rational utilization of natural resources.

Other examples of important environment laws include the Urban Planning and Disposition Act (1994), the Environment Protection Act (2001) and the Investment Act (2013), the Land Resettlement Act (1925), the Civil Transaction Act (1984), Forests National Corporation Act (2001), Physical Planning Act (1994), National Water Act (2007). One of the most recent and important federal laws is the Regulation of Range and Pasture Resources Development Act (2015), which recognizes

public rangeland, private *hema* (a protected area where grazing is restricted), community-held *hema* and privately cultivated rangeland. The main national environmental policies are presented in Table 27 below.

With regards to rangelands, State authorities are responsible for the management of rangelands, in coordination with those who use them. The law gives state authorities the right to impose restrictions on grazing, and to allocate land for grazing for the benefit of the whole community. The law also prohibits closure of livestock routes (Government of Sudan 2015).

Table 27. Sudan' key policies on the environment and natural resources[29]

Policy or plan	Policy goals	Policy measures or programmes	Body responsible for implementing the policy
1. National Comprehensive Strategy for Development (1992–2002)	The sustainable management and development of natural resources and improving livelihoods.	Sudan's main objectives and priorities for achieving sustainable development are spelt out. Desertification control and protection of natural resources are frequently referred.	Higher Council for Strategic Planning assumes overall responsibility for the plan and its implementation.
2. Decentralization Policy (1997)	Conservation and protection of natural resources.	State responsibilities over land and management of natural resources.	Government bodies at locality, state and federal levels.
3. Sudan National Adaptation Plan (2015)	Response to the threats of climate change. Reduce vulnerability to the impacts of climate change. Promote the integration of climate change adaptation into existing and new policies, programmes and activities.	Building adaptive capacity and resilience at various levels. Identify projects and actions through participatory process.	Government, non-government and private institutions at state and national levels.
4. Quarter Century Strategy (2007–2031)	The sustainable management of land.	The environment comes under the economic strategy rather than the national development framework.	Higher Council for Strategic Planning assumes overall responsibility for the plan and its implementation.
5. The Intended Nationally Determined Contribution (INDC) (Contribution to the UNFCCC)	Achieve the objectives of United Nations Framework Convention on Climate Change and its national development objectives.	Measures to facilitate adaptation to climate change.	Higher Council for Environment and Natural Resources is responsible for the convention, but it suffers from poor coordination and funding mechanisms.
6. National Water Policy (1999; revised 2006)	To ensure sustainable and integrated management of valuable water resources. Recognition of water as an instrument for conflict management.	Cost effective and appropriate technologies. Public and private partnerships. Cost-sharing and cost recovery mechanisms.	National Water Corporation.
7. Natural Water Supply and Sanitation Policy (2009)	Ensure equitable and sustainable utilization of safe water and sanitation.	Integrated water resource management.	Ministry of Water Resources to lead integrated water resources management.

[29] Sudan State of Environment (UNEP, 2020)

Policy or plan	Policy goals	Policy measures or programmes	Body responsible for implementing the policy
8. National Biodiversity Strategy (2015)	Management of biodiversity through sound policy advice and best practice.	Programmes that demonstrate sound biodiversity management practices.	Higher Council for Environment and Natural Resources supported by UNDP.
9. Sudan National Forest Policy Statement (2006; updated from Sudan's Forest Policy 1986)	Poverty reduction, improve Sudanese population welfare by enhancing food and income security and combat of desertification.	The measures include alignment with Water Policy, Forest Outlook* and commitment to social development and population policy.	The Forests National Corporation and the Federal Ministry of Federal Agriculture and Forestry.
10. Poverty Reduction Strategy Paper (interim 2012)	Environment as a vehicle for poverty reduction. Recognition of the links between environment, risk management and poverty reduction.	Strengthening people's resilience to environmental risks and climate change. Establishment of institutions for the sustainable management of natural resources (water, forest and land). Comprehensive land reform and security of land title. Preparation of land use maps, especially for marginal areas. Social and water harvesting programs. Promote private investment in gum arabic production. Enhanced community role in resources management.	Federal Ministry of Finance and Economic Planning in coordination with technical ministries and the donor community.
11. The SDGs and 2030 Agenda	Society based on national consensus, peaceful co- existence, social justice and global and regional partnership. Achieve sustainable development and continual improvement in people's livelihoods. Combat desertification and land.	State reform programme. Risk-informed approach to development. Integrated approach to achieving 2030 agenda. Sustainable forest resource management. National agricultural investment plan.	A national mechanism to supervise the implementation of SDGs; the National Population Council is the focal point for this mechanism.

Federal and state levels

Responsibilities for environmental management in the Sudan are divided between the federal and state governments. The federal government has jurisdiction over matters relating to natural resources, minerals and other underground wealth, and trans-boundary waters. Detailed regulations on land, forests, agriculture, livestock and wildlife are the responsibility of the state, but are subject to federal planning and coordination. Islamic Law is a major source of legislation in the country. Aspects of customary law – accepted ways of doing things – are also recognized and applied mainly by traditional administrations and tribal leaders. The division of responsibility over natural resources between federal and state powers is laid out in the Interim National Constitution and shown in Table 28.

At the state level, there are laws covering water, rangelands and forests. In Darfur, Blue Nile and South Kordofan states, natural resources have been at the center of conflicts, and state laws have been helpful in managing some of the conflicts. Some of these state laws are presented in Table 28 below.

Table 28. Federal and state powers over natural resources[30]

Federal powers	State powers	Joint federal and state powers
National land and natural resources	Local government	Environmental management, conservation and protection
The management of the Nile, transboundary waters and disputes arising from the management of interstate waters and national protected ecosystems	State land and state natural resources	Regulation of land tenure, usage and exercise of land rights
	The management, lease and utilization of land belonging to the state	Water resources other than interstate waters
	Enforcement of state laws	Disaster preparedness, management of relief and epidemics control
	Laws in relation to agriculture within the state	Pastures, veterinary services and animal and livestock diseases control
	Pollution control	Urban development, planning and housing
	Traditional and customary law	

At state level, after the Ministry of Environment, Natural Resources and Physical Development was dissolved in 2018, environmental and natural resources administration was assigned in most states to the Ministry of Production and Economic Resources, an umbrella ministry embracing agriculture, industry, mining and investment. Table 29 below presents the state of natural resources management legal framework, state by state.

Table 29. Natural resources management legal framework, by state[31]

State	Water	Range, Pastures and Forests	Remarks
West Darfur	South Darfur Water Authority of 2003 West Darfur Water Law 2013 Protection of Water Sources Act Rationalization of Water Uses Act	Organization of agriculture and pasture law 2014	The law is not strongly enforced. There is little grassroots awareness of the law. The ineffectual local government and native administration weakened the implementation of the law. The West Darfur water law bans the drilling of any water source without the approval of the water department. It is implemented but weakened because of political influence, with politicians intervening and making the decision to drill for water. In October 2015, a workshop was held in EL Geneina to explain to participants both the federal range law and state pasture and rangeland laws with the aim of raising awareness of the law and improve applicability.
East Darfur	East Darfur State Water Corporation Act of 2013	Range and Pastures Law for East Darfur State 2015	The state water corporation controls all water stations within the state. The degradation of pasture and of forests continues despite the law because of lack of rangers, vehicles and means of enforcement.
Central Darfur	Water Corporation Act 2013	Organization of Agriculture and Pasture Law in West Darfur 2009 The state is two years old established in 2016 and is located in the midst of Darfur conflict as well as suffering tribal conflicts. Legislation is mostly derived from West Darfur from which most institutions and ministries were originated. There are no laws governing the demarcation of pastures, however around 100 km of grazing routes were demarcated.	The Water Corporation Act 2013 was passed by the State Legislature and the State Council of Ministers.

[30] ibid
[31] Sudan State of Environment (UNEP, 2020)

State	Water	Range, Pastures and Forests	Remarks
South Kordofan	Water Corporation Law	South Kordofan Pasture Act 2014	The creation of protected pastures is hampered by lack of resources, inability to fence reserved areas. There is departmental disagreement over control of pasture administration within different ministries. Sudan Peace Building and Development Project and state government successfully distributed pasture seeds and recovered vegetation cover in many areas
	Land use policy, water and public health document Native administrative law	Livestock Routes document Native administration law	The livestock document was implemented and recognized by different stakeholders. The draft water document was not approved by the public council.
North Darfur	Water Corporation Law	Organization of agriculture and grazing law Tree shelter belts, and gum arabic belt development law Native administration law	Water law is implemented. Pasture law is partially implemented with no by-laws in effect.
South Darfur	South Darfur Water Authority of 2003	Agriculture and Grazing Organization Act 2011 Local Order No.1–9 for pasture protection in Idd El Fursan Locality Legislative Council Decree No. 17/2005 to reduce NRM conflict between government departments particularly the MOA and Sudan Survey Authority	The Act was applied in South Darfur. Local orders and decrees are applied and their functions determined.

Furthermore, as is visible from Table 30 below, in addition to state and federal government authorities, the forest governance system overall is made of academia, research centers, civilians, and the private sector. The most important institution however is the Forests National Corporation (FNC). The FNC is a parastatal service-oriented and autonomous corporate body. The corporation is directly accountable to the Ministry of Agriculture, Irrigation and Natural Resources and managed by a Management Board. While FNC is a federal institution responsible for supervision and management of all federal forests in the country, the policy and legislation define state forests that belong to the states. Private and community forests belong to their owners.

Table 30. Government bodies in forest governance

Organisation / Institution	Tasks
Presidency and State's governors	• Designation of land • Authority of land acquisition • Establishment of local councils (Localities)
Ministry of Environment, Natural Resources and Physical Development (MoENRPD) Higher Council for Environment and Natural Resources (HCENR	Since Sept. 2018: • Environmental and natural resources administration was assigned in most states to the Ministry of Production and Economic Resources (incl. agriculture, industry, mining and investment). • National Council for the Environment (replacing MoENRPD). HCNER maintained. Since Apr. 2020: • New HCENR endorsed (Transitional Supreme Council endorsed amendments to Environment Protection Act 2001. • Controlling the exploitation of renewable natural resources within the limits of the natural energy of the ecosystems for growth and renewal to ensure their sustainability (in the period of democratic transition and consolidation of civilian rule) • The HCENR is concerned with policies, legislation and strategic planning in relation to environmental and natural resources conservation and management. It adopts a range of policies for the protection of environment that include inter alia: encouragement, support and coordination of scientific research in all fields of the environment and natural resources development and conservation, adoption of environmental impact assessment studies at the federal and state levels, and work towards securing governmental, popular and international funding for the environment and natural resources development and conservation. • The Council is the national focal point for international and regional conventions and treaties in the field of environment to which Sudan is a party
Ministry of Agriculture, Irrigation and Forestry Natural Resources	• Selecting and adopting the appropriate technology in the field of agriculture • Developing agricultural extension programs and methods • Supervising the natural resources and their investment • Rationalizing the use of agricultural lands to stop environmental degradation and combat Drought and desertification in cooperation and coordination with the relevant authorities. • Development and maintenance of pastures in coordination with the relevant authorities. • Monitoring and controlling national pests in coordination with the concerned authorities. • Follow up on the implementation of laws that encourage and protect forests. • Supervising federal investment in the field of agriculture. • Supervising agricultural statistics and publishing them at the national level. • Supervising international and regional cooperation projects and investments in the field of agriculture. FNC responsible for: • Overall management of forests in the country (reservation, protection, conservation and replacement) falls under its overall auspices. • Develop public policies, rules and methods for safeguarding Sudan's forest resources. • Technical supervision of Sudan's forests. • Raising awareness about forest issues. • Undertaking studies and planning of forests. • Afforestation and reforestation (incl. gum arabic and other small forest products).
Ministry of Animal Resources and Fisheries	• Management of animal resources at national level. • Management of rangelands through Range and Pasture Administration. • Mapping and demarcation of livestock routes.
National Council for physical Development and Land Disposition	• General policies for urban planning. • Drafting of laws and regulations concerning physical planning. • Training of staff.
National Investment Council	• Identification of land for agricultural, industrial and other purposes. • Allocation of land for investment.
States Councils of Ministers	• Implementation of the executive government machinery at the state level. • Final approval of urban land use and housing plans.
Council of States	• Introduce and oversee legislation relevant to the states, particularly concerning the decentralized system of government. • Passing laws. • Fostering social harmony. • Endorsing state policies. • Monitoring the performance of the executive legislature. • Promoting good governance.
Native Administration	• Application of customary law to land management. • Guarantee every tribal group and village resident access to resources on the principle of "No harm inflicted; no antagonism created" (la darer wa la dirar). Although customary laws are not written, they shape the life of the people.
Physical Planning and Land disposition committees	• Approval of locations and purposes of land use. • Designation of governmental land for institutions, individuals and corporations
Physical Planning Administration	• Preparation of physical plans for approval. • Conduction of socioeconomic studies for planning and establishment of rights, on behalf of the state.
Land Administration	• Support to land registration at the judiciary after approval.

Organisation / Institution	Tasks
Department of Surveying	• Surveying and mapping of lands. • Preparation of land maps. • Information Centre for land issues. • Physical handover of land to those entitled.
Land Registration Offices	• Keeping land registers of the town. • Information Centre on town land and planning.
Land Courts	• Arbitration and conflicts over land.
Range and pastures Department	• Mapping and demarcation of livestock routes. • Protection and management of range lands.
Land Disposition Committees	• Allocation of agricultural land. • Policy making on agricultural land uses.
Nomads Commissions	• Policy making for the development of pastoralists. • Mapping and demarcation of pastoral routes. • Advocacy for and defending of pastoral rights.
State Security Committee	• Reporting on land and resource-related conflicts.
Mechanized Farming Administration	• Mechanized Farming Administration.
Locality Security Committees	• Resolution of conflicts over land.
Locality Executive body	• Issuing of certificates that the specific piece of land is void of conflict. • Approval of temporary locations for services/ related uses.

Community participation in forest management (CFM)

Information for six states (Gezira, Red Sea, Kassala, River Nile, West Darfur, Northern states) has been collected as part of a rapid assessment of existing regulations and efforts in the area of community participation in forest management (CFM). Although this information cannot be considered to be representative of the entire Sudan, it does offer a general outlook of the types of institutions currently in place in this area.

Possibilities for participatory planning do exist at federal and state level, first via arrangements put in place in articles 11 and 3 of the Forestry Act of 1989 and revised version of 2002, and second via customary management systems such as local village committees and the Taungya system[32]. These ensure either management of forest exploitation activities or protection of existing forests. However, capacity still needs to be built. Other participatory benefit sharing schemes exist such as shelterbelt planting, irrigation systems, tree nurseries and education programs encouraging more participation. Pastoralists' corridors are also generally set up at community level, particularly when it comes to designating grazing areas.

In a pilot study conducted in three states (East Darfur, Gadaref, South Kordofan), 22 % of respondents confirmed that they would welcome the development of community forest management initiatives[33].

Customary governance

Customary law encompasses tribal territorial rights and social customs that were established during successive indigenous kingdoms of pre-colonial Sudan and reinforced through legislative provisions during the British colonial administration. Within the tribal homelands, these rights constituted the collective security of the tribe. They recognized individual rights to use land which could be inherited, though the land would remain under the ownership of the tribe (Shazali 2006). Under customary law, an individual's access to land was legitimized through their membership of a village or community. Among pastoralists, access to the rangelands was legitimized through membership of fluid tribal structures which controlled strategic resources, or through negotiated arrangements with village leaders. The main feature of customary law is that it guarantees every tribal group and village resident access to resources on the principle of "No harm inflicted; no antagonism created" (*la darer wa la dirar*) (Esen 2017).

[32] The taungya is a system whereby villagers and sometimes forest plantation workers are given the right to cultivate agricultural crops during the early stages of forest plantation establishment. Cultivation is often allowed to continue until trees shade crops due to canopy closure.

[33] Developing Feedback and Grievance Redress Mechanism, (FGRM) Sudan REDD+ Readiness Programme. Agro Consult and Services, Khartoum, 2018

Ownership of forest resources

Sudan's 1986 Forest Policy defines and recognizes several levels of forest ownership:

- Federal forests which fulfill national protective, productive and social functions (such as the Acacia nilotica forests along the banks of the Blue and White Niles and tributaries thereof, mountain forests on watersheds and forests on the fringes of the desert curbing further spread of the latter), owned by the Federal Government and managed on its behalf by the national forest service, currently the FNC.
- State forests which fulfil productive and social roles at the State (Provincial) level, contribute to national protective functions, owned by the State Government, and managed on its behalf by State Forest Service or by FNC.
- Institutional Forests such as the ones in large agricultural schemes (e.g. Gezira, New Halfa and Rahad Schemes) and sugar estates (e.g. Kenana, Assalya, W. Sennar, N. Halfa, Guneid and White Nile Sugar Companies). These fulfil productive, protective or social functions in the vicinity but contribute to the national environmental matrix and carbon dynamics. They are owned by the respective institutions and are managed on their behalf or by own forest units.
- Community Forests which satisfy a multitude of functions to their respective communities, are owned and managed by them.
- Private Forests which bring about various functions and are owned and managed by their initiators.

Even under this classification the FNC continues to be the custodian of all forests in the country in administering the enforcement of the forest law and levying fees on forest products. However, the introduction of privatization and the securing of safe tenure to private forest holdings greatly improved the understanding of the roles of forests and resulted in increased commitment to forest development. FNC encouraged the build-up of these new partners through providing technical advice on management aspects, free or subsidized planting stock and secondment of trained personnel to major forest owners.

Conflict resolution mechanisms

Sudan's internal conflicts are in one way or another all related to land and natural resources. They are exacerbated by the erosion of environmental governance, weak law enforcement, poorly implemented policies and weak institutional arrangements. Good governance in Sudan is seen not only as essential to sustainable development, but also as a path to peace. The problem is that the central government has steadily been encroaching on the powers of the states, particularly in relation to land, meaning that local interests are not represented in decisions about sustainable development. This in turn has made it harder to manage natural resources equitably and heightened the risk of conflict.

Sometimes, conflicts arise from the misinterpretation of the country's statutory and traditional laws. For example, under traditional policies nomads have no recognizable rights to land, but they can access water and other resources through their relationship with farmers. In bad years, nomads would be accommodated under an eat-and-go system which permitted them to utilize farmland for three consecutive years before moving on (Partners for Sustainable Development 2016). However, all policies and strategies developed since independence have been working towards the marginalization of pastoralists.

Conflict has been most aggressive in Darfur, where around 26 major tribal wars have broken out over the past two decades (Partners for Sustainable Development 2016). It has been less intense in Blue Nile, where a strong native administration (NA) has contained disagreements between farmers and pastoralists and where different ethnic groups co-existing in integrated communities have helped maintain stability. This is also the case in South Kordofan: although a civil war has been raging there since 2011, tribal groups have long been inter-marrying and tensions over resources have not led to ethnic polarization. In both these states, the traditional mechanism of conflict resolution is still operational and effective.

Currently however, local land and forest-related conflicts are still solved by both the traditional leaders (customary system) and Village Popular Committees (Tubiana et al. 2012) as well as the Areefin (individuals with distinctive talents), Land governance committees and through the judicial system (Ajaweed or mediators). Although the role of tribal chiefs is fading, they represent part of the National Assembly and are significant players in rural areas such as in Darfur (Tubiana et al. 2012). The NA was created under the British in the 1920s-30s. Their responsibilities traditionally include the negotiation of stock routes, passing and grazing rights, and farming and grazing calendars among sedentary and nomadic groups, supporting allied tribes in conflict situations, and resolving disputes both within and among tribes. The NA primarily manage resources on the basis of a system of customary arrangements. The legal instruments that are available to the NA for conflict prevention via resource management include annually issued Local Orders that set the calendar and direction of pastoral movements, as well as the last harvest date, after which pastoralists are free to enter the cultivated areas to graze on crop stubs (Siddig et al., 2007).

Within the customary land tenure, there is the tribal homeland (Dar) with demarcated boundaries recognized by neighbouring tribes and local authorities. The tribal land is organized and supervised by the "Nazir" (the chief or tribal leader). Within

the tribal land, there is clan land organized by the "Omda". Within the clan's land, there are a number of villages, each with its land allocation organized and controlled by the village "Sheikh". Within the village land, each villager practices his private ownership respected and recognized by all. The unclaimed land is used as rangeland or allotted to migrants by the village "Sheikh" provided that they respect the traditional rule of surrendering 1/10 of the crop to the "Sheikh". As a general rule, land allotted to any person cannot be withdrawn unless he/ she leaves the village. Under such circumstances, the land abandoned by any person reverts to the community to be re-allotted to someone else. In all cases, the owner of the land is free to hire part of his land or dispose of it in the way he likes. After death, his children or relatives inherit the land.

These customary rules are to be respected in any development activity. Land needed for public use and according to Civil Transactions Act 1984, the owner must be compensated in any form, whether land for land, a small fee or in many cases, the village community willingly donates land needed for public use.

It should be noted here that rangelands and water resources (pools) are communally owned and utilized. They are not appropriated by individuals and pasturelands are always defined as uncultivated lands. Nomads have definite corridors (Murhal, Masar) to avoid farms and allowed to utilize uncultivated areas. Tribal chiefs usually specify these routes and grazing areas for nomads.

Generally, these Acts provide procedures for land expropriation for development purposes and ways to specify rights in order to compensate the owner. The Urban Planning Act sets specific rules for the separation of industrial areas from the residential ones. In carrying out EIA, the legal requirements are not confined to the above-mentioned Acts. There are other important sectoral laws that must be considered and used as yardsticks to identify the negative environmental effects. The Environmental Health Act of 1975 and the Public Health Act 1975 provide regulations and restrictions for industries regarding water and air pollutions (standards). According to these Acts, protection obligations extend to cover animal and plant life. Specifically, the Acts cover issues related to collection, treatment and disposal of waste. Also, they prohibit water pollution by addition of any solid or liquid wastes, chemicals, sewage and remains of animals on water resources such as rivers, hafirs, and wetlands.

Other laws of relevance to this project include the Investment Act of 1999 and different updates and amendments, requires an EIA study as a pre-condition for giving license to implement the project, the Industrial Safety Act 1976 whose objective is to protect the work environment and the safety of workers. The Location of Industries Act of 1977 prohibits the location of industries in residential areas.

Feedback and Grievance Redress Mechanism

In any case, as a first step, any problems, complaints, grievances or disputes can be communicated to the resettlement administration authorities. Grievances can be submitted and must be received by whichever means of communication available to the complainant; this includes, but is not limited to, email, written letter, telephone, SMS and a suggestion/ complaint box placed at the administration authorities, as appropriate.

Depending on the relative severity of the grievance, the complainant should be supported by a relevant representative (non-governmental) organization. Grievances are assessed by subject-experts and project staff possessing substantial knowledge about natural resources management and conflict resolution within these organizations. If there are no organizations to represent a specific complainant, the authorities shall identify an external expert to serve as a mediator in trying to reach agreement between disputing parties. If parties are unable to reach a resolution, stakeholders can submit a formal complaint through the formal Sudanese institutional structures outlined in the next section.

The current *Feedback and Grievance Redress Mechanism* (FGRM) structure in Sudan is defined by adopting the existing formal (legal) and informal (traditional) institutional structures in a complimentary mechanism (the FGRM). This FGRM that will seek to receive and deal with any grievances raised by the wide range of stakeholders identified as being affected by impacts or risks through the REDD+ strategy options identified and assessed in the SESA, and eventual forest investment projects and programmes. The following sub-sections extracted and summarized from the *Developing Feedback and Grievance Redress Mechanism*, (FGRM) *Sudan REDD+ Readiness Programme report* developed in 2018 define, in a preliminary way, the different levels of contact receival and addressing contact institutions (formal and informal) for Sudan's context.

Village and Nomadic Camp Level

Conflicts and grievances at village and nomadic camps levels throughout each locality are handled by the sheikh and ajaweed. The Omda and ajaweed perform the same at sub-locality level, while the Nazir, handles the grievances at the tribal (or nazirite), level within the locality by reference to FNC circulars/local orders.

The function of the ajaweed is to listen to both the plaintiff and the defendant, try to settle the matter amicably, by correction of the damage and persuade the conflicting parties to forgive one another, as a step towards preserving the closely-knit social fabric, which binds the villagers together. No penalty is imposed, except that a small fine might sometimes be de-

manded from the offender, for coffee or another suitable donation for the committee, which is also the custom to support the Omda's ajaweed.

The system is basically the same as the recommended model, except that the proposed FGRM, as an institution, should be supported with adequate judicial and administrative powers that would enable it to implement its decisions when necessary.

Notwithstanding its new powers, the FGRM should always uphold, first and foremost, the spirit and adopt procedures of amicable settlement of the conflicts, in order to preserve the social fabric from disintegration. This is particularly important because residents of a village or nomadic camp are socially connected to one another with blood relations, marriages or other interests, which they are keen to preserve by following advice from the village or camp elders, ajaweed FGRM.

Locality Level

Local governments with administrative and political authority, supported by government departments at the locality, in collaboration with Nazir, who is linked to district court, shall constitute FGRM at the locality level. The NA, which is a critical element of the entire FGRM (see Figure 3), is elected by the local people, as described above, and endorsed by the government. It is, in fact, a low cost and efficient administrative and judiciary system based on customary laws to deal with personal matters or offences on natural resources.

It is proposed that any grievances and conflicts that are not resolved at the village level, should be referred to the executive managers of the localities, and then the State FGRM and the Environmental court (see Figure 3). If the NA structures, the locality FGRM and the environment court fail to resolve a grievance or conflict, or if any aggrieved party is dissatisfied with the conduct of the structures above, they will still have the option of appeal to the formal courts/judiciary within the locality.

State Level

It is proposed that FGRM be formed at the state level from the executive managers of the localities, representing the governor of the state, representatives of the locality legislative councils, community development officers and natural resources departments of agriculture, forests, rangelands, wildlife, water and environment. This new institutional structure, which wields administrative and political powers, should handle the conflicts and grievances at state level, in collaboration with NA. Should the state FRGM fail to resolve the issues, the cases might be appealed to the Environmental Court at the state level (see Figure 3 below).

National level

The national FGRM secretariat, which is a proposed institutional structure, should be formed from FNC as chairperson, and representatives from line ministries, REDD+ coordinator, relevant trade unions and the High Court.

Cases unresolved at the national level should be referred to the Court of Appeal, which will pass and enforce decisions as orders of the court. The strength of the orders stems from the authority of the Court of Appeal of regulating its own procedures, without being bound by the rules or procedures followed by the ordinary courts. Any party aggrieved by the decision of the Court of Appeal may appeal to the Supreme Court within thirty days of the issuance of the decision or order.

Figure 2. Presentation of Existing GRM Structure

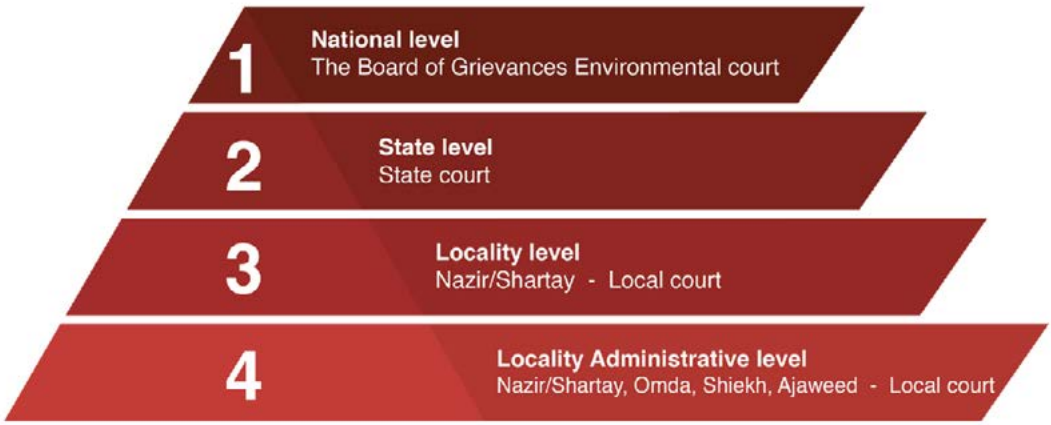


Table 31 below presents relevant laws and regulations that aim to prevent environment related conflicts in relation to issues of forced resettlements, while Table 32 shows examples of existing conflict management institutional mechanisms, for selected states.

Table 31. Laws & regulations pertaining to environment related conflict prevention & management[34]

Regulation name	Year	Description and relevance
Sudan national policy and law		
Land Settlement and Registration Ordinance	1925	Provides rules to determine rights on land and other rights attached to it and ensure land registration
The Land Acquisition Act	1930	Gives the government the power to appropriate lands for development purposes. It also states detailed formalities of acquisition and rules governing assessment and payment of compensation. In relation to compensation, outlines detailed procedures to be followed in the acquisition of land and rules governing payment of compensation for land for public purposes. An appropriation officer appointed by the People's Executive Council would notify the occupant of land the declaration that a designated area of land is to be appropriated for public purposes; call upon persons claiming compensation to appear before him at place and time (not earlier than fourteen days) and to state particulars of their claims for compensation (Section 10). He must attempt to agree on the amount of compensation for land. The Act provides for further steps to be taken with regard to assessment of compensation if agreement is not reached. All these sectoral laws provide procedures and details regarding land acquisition and rules governing assessment and payment of compensation.
Provincial Forest Act	1932	Protects an area in the Gezira Province as a provincial forest reserve from being interfered with on the same principle as applied to the central forest reserve.
The Unregistered Lands Act of 1970	1970	An act that proved even more repressive and detrimental. Article 4 (1) states that: "all land of any kind whether waste, forest, occupied or unoccupied, which is not registered before the commencement of this Act shall, on such commencement, be the property of the Government and shall be deemed to have been registered as such, as if the provisions of the Land Settlement and Registration Act, 1925, have been duly complied with." The 1970 Act even entitled the government to use force in safeguarding its 'land'. Its promulgation was virtually concurrent with the abolition of the system of native administration, a measure that resulted in virtual chaos around rural Sudan (Share the Land or Part the Nation: The Pastoral Land Tenure System in Sudan.2006. United Nations Development Programme in Sudan). *In this Act, any case against the government pertaining to unregistered land has no legal basis; therefore, no court of law is competent to receive a complaint that goes against the interest of the state. The Act was not fully enforced in rural areas due to the predominance of the tribal and traditional ownership systems*.
The Civil Transactions Act	1984	Regulates the different matters related to civil transactions with respect to titles on land, means of land acquisition, easement rights and conditions to be observed by land users, for example it stipulates the right of the Government to impose temporal or spatial restrictions on grazing or to allocate land for grazing for the benefit of an entire community or for the protection of wildlife.
Urban Planning and Land Disposal Act	1994	Regulates designation of lands for different purposes and urban planning. With respect to land expropriation for public purposes, mentioned in Section 13 of the Act
Forests and Renewable Natural Resources Act	2002	Provides the framework for the management and protection of forests and renewable natural resources encompassing pasture and range as well as the framework governing the managerial system of the forestry sector. The Act spelled out the National Forests Corporation's objectives in intensifying afforestation activities, developing production of different types of gums, NWFPs, encouraging popular participation and presents a good model for sustainable management.
Central Forest Act	1932	An act that presents a specific class of "public purpose"— the reserved forests within which grazing is either completely excluded or substantially limited. The forest reserves during the colonial period did not cover large areas, but since independence the reserve policy has increasingly proved detrimental to pastoral interests. It also empowers the Minister of Agriculture, Food and Natural Resources to declare to be a central forest reserve an area of land, which is registered under the Land and Settlement and Registration Act, 1925 as a Government Land (section 5).
Environmental Protection Act	2001	This Act aims to: a) protect the environment b) provide guidance for the development and improvement of the environment as well as guide the use of natural resources c) make a connection between environmental protection and development activities d) assure and confirm responsibilities of the competent Authorities for the protection of the environment e) activate the role of the competent Authority in environment protection The Act lacks any procedural provisions to safeguard transparency and adequate participation by stakeholders in decision making with respect to development projects.
The Environmental Health Act	2009	Contains detail provisions for the protection of water and air from pollution and assigns defined administrative responsibilities to District Councils with respect to preservation of environmental health in general.

[34] Sudan State of Environment (UNEP, 2020)

Regulation name	Year	Description and relevance
Customary laws		
See GRM in sub-section x	n/a	The national policy on pastoralism is not clearly stated but a number of policy measures have been implemented that impact on involuntary resettlement such as attempts at nomad settlement (all of which failed), and demarcation of livestock routes to protect the interests of nomadic pastoralists. Land used for pasture and for traditional cultivation is communally owned under customary land laws. Access to land and rights to resources are protected under customary law. The main feature of customary law is that it guarantees every tribal group and village resident access to resources on the principle of "No harm inflicted; no antagonism created" (la darer wa la dirar) (Esen 2017). In other words, you have the right to access and use land, pasture and water provided you do not cause loss or harm to life and property. Such rights are accepted because they are a democratic way to allow people access to land whether they are a tribal resident, a passer-by or a member of a migratory group. This is especially beneficial to the poorest groups, who find representation through their sheikhs or the Nazir (or Emir) of the tribe. Local government administrations are closely tied to these traditional structures, unlike state government departments which are only accessible to wealthy or urban groups
Relevant international policy on resettlement		
World Bank Operational Policy on Involuntary Resettlement and newer Environmental and Social Standard (Guidance Note 5)	2000, 2017	Both policies give guidance on defining the context and setting up frameworks for inclusive and consultative resettlement practices
United Nations HCR Resettlement Handbook	2011	Guidelines for defining and managing resettlement effectively

Table 32 shows existing conflict management institutional mechanisms, for selected states.

Table 32. Conflict resolution mechanisms

State	Remarks
South Kordofan	• Tribal chiefs • Local government executive officers • Five-person committees • Good deeds committees
Blue Nile	• Native Administration • Peace Conflict Management Committees • Peace Council • Local Courts • Ajaweed system (peace mediators)
North Darfur	Native Administration
South Darfur	• Ajaweed (peace mediators) • Nomads Development Commission • Wise Men Committee • Nomadic Forum for Peace and Social Coexistence • Local Peace Committees • Agricultural Season Support Committees (local government committees) • Grazing routes Higher Committee (membership include police, judiciary, chiefs)
West Darfur	Native Administration
East Darfur	Native Administration
Central Darfur	Native Administration of the Rizeigat, Maalia and Birgid paramount chiefs

Vulnerable Groups, including Indigenous groups

The WB Environmental and Social Safeguards defines vulnerable groups as *"those who may be more likely to be adversely affected by the project impacts and/or more limited than others in their ability to take advantage of a project's benefits. Such an individual/group is also more likely to be excluded from/unable to participate fully in the mainstream consultation process and as such may require specific measures and/ or assistance to do so. This will consider age, including the elderly and minors, and including in circumstances where they may be separated from their family, the community or other individuals upon whom they depend."* [35]

As such, vulnerable groups include widows, disabled, marginalized groups, low-income households and informal sector operators, incapacitated households (those where no one is fit to work), child-headed households and street children. These groups are among other things, characterized by low nutrition levels, low or no education, lack of employment or revenues, old age, ethnic minority and/or gender prejudice (Abdalla, 2014 and Zakieldeen, 2007).

The Convention of the Rights of the Child (CRC) was signed by the Sudan that was one of the first countries to ratify it in 1991. The UN Committee on the Rights of the Child (CRC) was established in 1991 as the relevant treaty body in accordance with article 43 of the CRC. The Sudan' first periodic report to the committee was submitted in 1993, the second in 1999 and the combined third and fourth in 2007. The Sudan signed the Optional Protocol on the involvement of children in armed conflict in 2005 and the Optional Protocol on the sale of children, child prostitution and child pornography in 2004. The Sudan has also ratified the African Charter on the Rights and Welfare of the Child. Nonetheless, the Child Act 2010 (building on the Child Act 2004) is a major achievement, although many challenges are faced to enforce it.

There is an increasing number of children in the streets. Within the state of Khartoum, the number reached 15,000 in 1991 and 34,000 in 2000. The majority of homeless children are boys and only about 15% are girls. The increasing number is mainly due to displacement because of war and conflict and most of these children come from southern and western Sudan. The extended family structure is under severe pressure after many years of civil war. This has resulted in a breakdown of support systems. These children are vulnerable to sexual abuse, violence, exploitation, etc. (al-Nagar et al., 2011).

Other vulnerable groups include forest dependent ethnic and indigenous minorities. Although there is no accurate demographic data on Sudan, the US Department of State's 2015 Human Rights Report states that the population includes more than 500 different ethnic and sub-ethnic groups. Arabic is the dominant and official language and sources suggest that Arabs account for 70% of the population. However, a significant proportion of the population identify as African, although there is no reliable data on this breakdown[36].

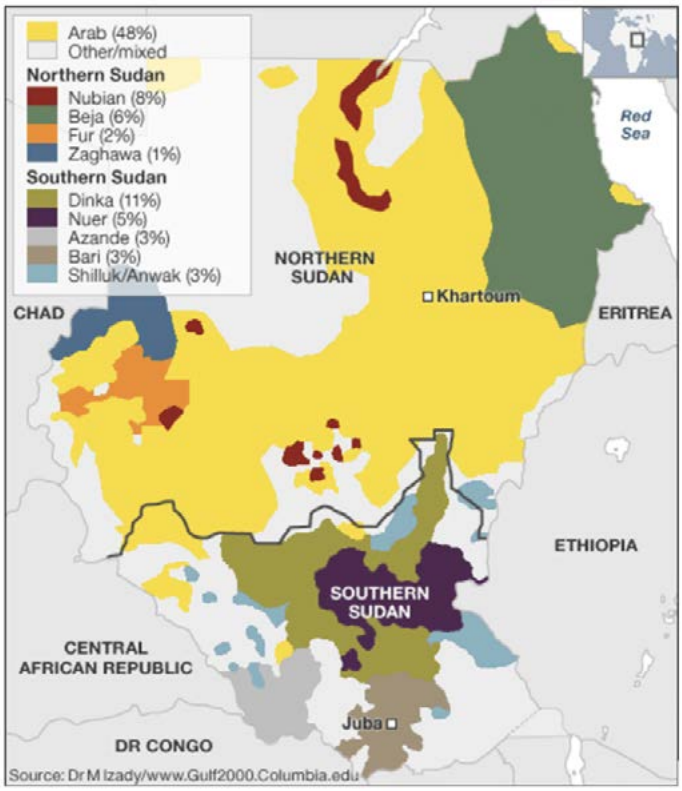
Prominent non-Arab groups include the Nubians, who live along the Nile River in northern Sudan, the Beja who reside in eastern Sudan, the Fellata located mainly in Gezira, the Nuba (a collective term for the different tribal groups inhabiting the Nuba Mountains) in South Kordofan and the Fur, Massalit and Zaghawa located in the Darfur region. The distribution of the main ethnic groups is shown in Figure 4 below. More information is available in the IPPF, including ESS7 IPs Identification and assessment of most important ethnic groups in Sudan relevant to the REDD+ Programme (as outlined on Table 1 of IPPF).

In terms of religion, the Sudan consists of Muslims, Christians, and followers of local religions and belief systems. Thus, there is no one society in the Sudan, nor is there one culture, or one system of morals or belief that can or should govern the whole of the Sudan. Since independence, there has been an increasing awareness of regional and ethnic identities in the peripheries, mainly due to the exclusionary policies by the governments. The relatively significant disparities in development between the periphery and the central parts of the country are partially responsible for this awareness. Many groups in the Sudan have found themselves in crisis as the state has wittingly and, sometimes unwittingly, adopted a single national identity that does not reflect the social, ethnic, religious and cultural realities of the country. This has been expressed in the different internal and foreign policies of successive governments of the Sudan and resulted in the secession of South Sudan.

Groups threatened by the domination of an identity considered by the state to be the national identity are struggling to make the government respect their languages, religions and cultures and recognize their right to genuine participation in the administration of the public affairs of their country.

[35] WB Environmental and Social Framework, 2017. P.17
[36] Australian Government (2016) DFAT Country Information Report Sudan 27 April 2016

Figure 3. Distribution of ethnic groups[37]



The Sudan also has received large numbers of refugees from neighboring countries mainly South Sudan, Ethiopia and Eritrea. UNHCR estimates that by the end of 2021, Sudan will be hosting 1.06 million refugees, 71% are of South Sudanese origin. IDP numbers are expected to reach 2.5 million IDPs by the end of 2021, mostly in Darfur[38].

Displacement associated with slow-onset phenomena such as drought is likely to have occurred, but its scale has yet to be determined with any accuracy.

Most of the disaster displacement recorded has been linked to flooding, including flash floods in arid areas and riverine flooding. The latter is particularly common in eastern and south-eastern states through which the Blue Nile, White Nile and Gash rivers flow. Flooding tends to happen between August and September, at the height of the rainy season. In parallel, drought aggravates desertification which affects the savannah belt in the northern region, displacing entire villages.

With regards to large-scale project, more than 50,000 small-scale farmers living along the Nile were displaced as a result of the building of the Merowe dam.

5.1.4 Current challenges to Sudan's environment

Overview

Deforestation and desertification continue to be a major environmental challenge facing Sudan. Forests have been facing encroachment by agriculture, urbanization, and unsustainable wood fuel extraction for several decades. The average deforestation rate over the past 40 years is reported between 0.4-0.7 million ha per year (World Bank 1985, FRA 2005, Daak 2007, Elsiddiget al. 2007). Studies (Zakieldeen, 2009 and HCENR, 2007b) also pointed out that environmental change in conjunction with climate change is likely to exacerbate people's vulnerability in the Sudan by weakening coping capacities and reducing options for adaptation. These pointed out 11 indicators that have negative impacts on the welfare of communities in the Sudan: human diseases, industrial pollution, overgrazing, deforestation, desertification, shortage of domestic water, unsafe domestic water, lack of safe sanitation, conflicts, urban problems and the effect of agrochemicals.

[37] Source: GCF Building Resilience in the Face of Climate Change Within Traditional Rainfed Agricultural and Pastoral Systems in Sudan. Environmental and Social Management Framework
[38] Source: https://reporting.unhcr.org/sudan#:~:text=By%20the%20end%20of%202021,Darfur%20are%20anticipated%20throughout%202021

Continued forest degradation and deforestation

The Sudan's forests cover is about 10.66% of its total land surface, with an estimated annual rate of deforestation of about 542,000 ha, or about 2.4% placing the country among ten highest countries with high deforestation rates (FAO FRA, 2015). Unplanned land-use change, mismanagement, and reduction in the forest stock in the Sudan have caused the forest to become a source of GHG emissions rather than a sink.

One of the reasons is that the majority of Sudanese farmers have depended on rainfed farming. A study by the Sudan' Ministry of Agriculture and Forests found the mechanized farming sector to be a major cause of land degradation and biodiversity loss on the country's central clay plains due to the wholesale clearance of vegetation, water and soil erosion, monocultural farming practices and a lack of investment in soil quality (Government of Sudan 2009). Rural communities' heavy dependence on firewood and charcoal for domestic energy and income has significantly added to the problem. Indeed, the rural economy, which contributes to 70% of overall economic growth, is currently locked into an unsustainable, extractive, poverty environment. As a consequence, potentially high-value agricultural landscapes and forest resources are being rapidly degraded by low-yield agriculture and unsustainable fuelwood harvesting, which are projected to be exacerbated by the increasing effects of climate change.

Furthermore, the lack of rights and secure access to land, along with the decline in average crop yields, are partly to blame for the proliferation of conflicts, the rapid increase in rural to urban migration, and the decision of many young people to abandon farming in favor of artisanal gold mining.

Indeed, with regards to wood consumption, based on the total per capita wood consumption estimates of 1994, by 2015, the total consumption approximated 40 million m3 (over 21 years). Consumption rate exceeds the supply side by 45.5%. It is expected that this deficit will increase with the increasing rate of agricultural expansion which results in an increasing rate of deforestation and reduced forest area. Deforestation in the Sudan is indeed estimated at 2.4% a year, one of the highest rates of deforestation in the world (Gafar 2013). Between 1990 and 2005, the country lost about 11% of its forest cover (Dahlberg and Slunge 2007). This situation is not expected to change drastically and will increase the possibilities for consumption satisfaction over time but at the expense of forest stock. Women will be made disproportionately worse off, since the scarcity of fuelwood and water adds to their workload.

Desertification & Droughts

In 2007, a report by UNEP suggested that the boundary between desert and semi-desert had shifted southwards by 50 to 200 km since 1935 (UNEP 2007) in the Sudan. The conflict in Darfur has also caused an unprecedented destruction of environmental resources and the creation of desert-like conditions (UNEP 2007). A Göteborg University study (Dahlberg and Slunge 2007) predicts that the desert boundary will continue to shift southwards due to climate change and changing rainfall patterns, leading to an estimated 20% drop in food production. Most of the remaining semi-arid and low rainfall savannah, representing approximately 25% of the Sudan's agricultural land, is at considerable risk of further desertification. Several grasses and herbs have disappeared due to overgrazing, repeated droughts and fires (fires are responsible for the annual loss of 30% dry fodder otherwise available to wildlife and the 103 million heads of livestock).

Furthermore, in the Sudan, as in many parts of the region, drought and the harsh ecological circumstances, exacerbated by climate change, war and conflict, have created conditions of chronic vulnerability. Extreme poverty, persistent food insecurity, widespread economic hardship and human suffering are common.

For instance, climate data from the Sudan's nine meteorological stations shows that rainfall across the country is decreasing and becoming highly variable. Maximum and minimum temperatures have increased at all the stations except Khartoum, Kadugli and El Obeid. These changes have started to have a significant impact on the Sudan's agriculture, resulting in lower crop yields and animal productivity. Droughts are increasing in frequency, leading to food insecurity in some years. Floods are common in central and southern the Sudan.

The consequence is that the Sudan remains highly vulnerable to climate change and climate variability, predominantly a result of climatic and non-climatic factors (NAPA, 2007). These factors, in addition to the interaction of other multiple stresses such as ecosystem degradation, complex disasters and conflicts, and limited access to capital, markets, infrastructure and technology, have all reduced the country's ability to adapt to the impacts of climate change (AIACC WP No. 42, 2005; Zakieldeen, 2009).

Deforestation, overgrazing, and poor land management practices all speed the process of desertification, as the Sahara encroaches onto previously arable and forested land.

As a result, the most vulnerable people to climate change are the farmers in western, central and eastern Sudan, whose livelihoods are exposed to the severity of drought and variability of rainfall (in terms of amount, distribution and frequency). Drought threatens approximately 12 million ha of rain-fed land, particularly in the northern Kordofan and Darfur states. Between 1971 and 2001, over ten million people in the Sudan were affected by drought. In 2000, drought reduced food

stocks and caused prices to rise three-fold compared to the same period in the previous year (Zakieldeen, 2007). Sudan's NAPA and its three National Communications to the UNFCCC identified agriculture, water resources and health as the three sectors most vulnerable to climate change.

Droughts have had devastating humanitarian consequences. More than 82% of people live in rural areas and are largely dependent on rain-fed subsistence agriculture and animal husbandry for their livelihoods. These climatic conditions have overlapped with conflict and economic and political instability to create extremely high levels of food insecurity.

Pollution

The Sudan's long-term focus on agriculture, oil and mining has resulted in deforestation, degradation of forests and rangelands, and widespread pollution. For instance, uncontrolled use and burial of large quantities of pesticides in some agricultural and forest areas have led to the phenomenon of fish death in Gezira state and high pollution levels in River Nile state. Long-term policies for growth and development still shape the pattern of land use in the country.

Most air pollution is caused by energy consumption. 56 % of Sudan's energy supply comes from biomass (wood, charcoal, agricultural residues and animal waste), 39% from petroleum (gasoline, diesel and heavy oils) and 5% from hydropower (Rabah et al. 2016). The Sudan largely depends on fossil fuels for energy, and this exposes people to various forms of pollution. he main consumer of biomass is the household sector representing 62% of total biomass consumption or 4.4. million TOE. Over 60% of biomass supply comes from woody biomass and is used for cooking by households (NERC 2015). This has serious social and environmental implications since it impacts on family's health through indoor pollution by smoke emitted from burning firewood in addition to its negative impact on the general environment because of emitted carbon dioxide and deforestation. Brickeries utilize the silt from the Blue Nile, consume wood fuel and are a source of air pollution not far from residential areas.

Research conducted by the SESA experts team found that in addition to air pollution caused by wood fuel burning, pollution caused by the disposal of industrial waste receives little official and public attention, but it is real. Most of the industrial facilities dispose of their wastes without any treatment.

One positive development is that liquefied petroleum gas (LPG), which is cleaner in terms of emission of greenhouse gas and of toxic smokes. It is also more efficient than biomass, is fast becoming the most popular cooking fuel, especially in urban areas. It is easily available on the local market as one of the country's petroleum by-products. As of 2014, LPG makes up 58.8 % of the energy used by urban households, compared with 33.5 % for rural households (Central Bureau of Statistics 2016).

Governance[39]

There is an absence of appropriate and coherent policies on natural resource management. This largely stems from a lack of participation by affected groups in policy creation. For example, forest policies are often drawn up by forest staff. This results in policies that are focused on the protection of forests and the planting of trees, and that fail to address the rights of communities to use the forests. Similarly, the design of agricultural policies often excludes representatives of rangelands and pastures, resulting in policies that do not address the daily needs of those communities.

Many of these policy gaps and overlaps are due to the lack of a clear distinction between the roles of federal and state institutions (UNEP 2012; Ministry of Environment, Natural Resources and Physical Development 2015). When it is not clear who is responsible for formulating policy, the outcome is either a policy that does not work, or no policy at all. The Sudan's multiple policies, laws, orders and acts are fragmented and overlapping, and the country lacks a comprehensive approach to environmental protection. One other problem in the Sudan, is that the administration of the country's environmental laws and knowledge about them is fragmented across various institutions. This lack of coordination means that the laws are often interpreted and applied subjectively. Another problem is that they are often not properly enforced. Furthermore, ordinary people tend to recognize customary laws but not statutory laws, reflecting a disconnect between the government and local people. This issue is recognized in the Interim National Constitution, which calls for harmonization of customary and statutory law.

This lack of coordinated governance has contributed to serious environmental degradation, including extensive deforestation, a decline in biodiversity and increasing vulnerability to drought and the effects of climate change. Natural resource management is a major issue of concern in Sudan. Population growth in both humans and animals, at a time of rapid transformation to a market economy, has led to unregulated demand for water, wood, minerals, land and other natural wealth and triggered conflicts and environmental degradation that mainly hurt the rural poor. There is increasing recognition that the Sudan's governance regime is too weak and ineffective to stop the damage. Likewise, although there are several con-

[39] This section is taken from the UNEP's Sudan State of the Environment repot (2020)

flict resolution institutions in the Sudan, they are mainly too ineffective to deal with the complexities on the ground.

Furthermore, government institutions responsible for environmental management suffer from instability, underfunding, a lack of staffing and training, poor coordination, overlapping roles, and the loss of skilled personnel to the brain drain.

Conflicts

The Sudan entered the twenty-first century mired in several conflicts and facing enormous security risks. Most of these conflicts are over natural resources such as land, water, grazing or forests. They are taking place in the rich agricultural areas where traditional crop farming and pastoralism are the main sources of livelihood. The conflicts are between pastoralists and sedentary farmers, or between different pastoralist communities, or between tribal groups who disagree over boundaries, mining resources or livestock routes. They range from occasional spontaneous skirmishes to large-scale violent clashes. The country's increased vulnerability to climate change is intensifying the pressure on resources and making conflict more likely.

As a consequence, the Sudan hosts one of the largest populations of internally displaced persons (IDPs) and refugees in Africa[40]. The movement of IDPs and refugees has far-reaching implications for the Sudan. It puts additional pressure on land and natural resources and causes severe environmental problems, including deforestation around camps, unsustainable groundwater extraction and uncontrolled growth of urban slums. The voluntary return of IDPs is also a major area of alarm, especially in Darfur, since it can lead to disagreements with local farmers and residents.

Urbanization

Urbanization is increasing in the Sudan. For instance, the population of Greater Khartoum – which is made up of three towns, Khartoum, Omdurman and Khartoum North – grew from 240,000 people in 1955-1956 to about 7 million in 2018 and is still increasing. 43% of the country's urban population is in Khartoum state (Ministry of Environment, Forestry and Urban Development 2014). Most of the rest of Sudan's urban population is in the central regions of Gezira, Sennar and Blue Nile. Many people are driven to cities from rural areas by drought, famine and conflict, or drawn by the better infrastructure and services. Camps for internally displaced persons that are close to urban centers, such as those outside El Fasher and Nyala in Darfur, have grown so much that they have become part of the towns.

Urbanization is accelerating deforestation in the Sudan. This is because of two factors. First, urban populations tend to purchase woody biomass for their individual needs. The ratio of purchased versus collected firewood is strongly associated with urbanization: The percentage of firewood collected is 14.6% for urban households, and 82.2% in rural areas. Collected wood is generally less damaging to natural resources and environment, since the material is confined to collected branches, twigs etc. Purchased wood on the other hand, is more destructive, because it is harvested from natural forest areas cleared for agricultural production or for purpose of wood fuel production i.e. whole plant[41].

The second factor is that the expansion of urbanized zones leads to accrued deforestation at a local level as forested areas are cleared to make way for new constructions.

Mining and oil prospection

Large concessions are allocated for petroleum and minerals prospecting in different parts of the country. Such areas are subjected to deforestation and soil and air pollution. The problem of disposal of the water produced from these processes is presented as one of the environmental problems linked to the resource industry in the Sudan. The water contaminated by these activities cannot be used for crops intended for consumption by humans and/or animals. The only suitable crops are forest crops. Other issues include land rights conflitcs.

Impact of the creation of South Sudan

The secession of South Sudan led to many pastoralists returning with their animals to settle in the forests of the Blue Nile, South Darfur, South Kordofan, Sennar and the White Nile states. The natural forest vegetation has been exposed to significant over-exploitation for agriculture, felling for fuel and unsustainable livestock practices to the extent that extensive stretches of forest land lie bare of vegetation, especially in areas such as White Nile and Northern Kordofan. Kordofan and Darfur are the most affected areas due to their erodible sandy soils.

[40] https://www.bpb.de/gesellschaft/migration/laenderprofile/307860/internal-displacement-in-sudan
[41] Ibid

5.2 Baseline related to the REDD+ Emission Reduction pilot projects

The national REDD+ strategy of the Sudan will be implemented at a national scale. Specific REDD+ pilot activities/projects and emission reduction pilot programmes will be operationalized at the subnational level. While the implementation of several REDD+ pilot projects will build capacities, generate lessons and showcase best practices, they will be operated at large scale with the clear objective of targeting result-based payments. Indeed, the Sudan's contribution to GHG emissions is very limited but its potential contributions to climate change mitigation is substantial.

As such, the strategic options to address the Drivers of deforestation and forest degradation have identified some key actions that can guide the development of small-scale short-term REDD+ pilot projects and large-scale long-term emission reduction programmes (ERP). The 2012 FAO Wisdom Study confirmed that the per capita consumption of fuel wood is 0.7 m3/yr which, when converted into Ton/Oil Equivalent (TOE), could be valued at nearly 2.0 Billion US dollars. Moreover, NWFPs are diverse and have substantial contribution to the rural livelihood, household income and to the national economy in terms of experts.

The ERP consist of a common result framework, given the similar circumstances, forests conditions and factors behind drivers in the four states (Gedaref, Blue Nile, Sinnar, Red Sea). Indeed, a Drivers of deforestation and forest degradation report (2018), and a 2020[42] FNC report, highlighted the selected states (Blue Nile, Sinnar, Gedarif, Red Sea) for this Emission Reduction programme (ER) as a hotspot area for deforestation and forest degradation. Agriculture expansion is the main driver for deforestation in these regions, as about 50% of all rainfed mechanized framing in Sudan is located in these three states (Blue Nile, Sinnar, Gedarif). Blue Nile, Sinnar, Gedarif are also considered an important source of biomass energy supply for several decades to the major urban areas in central Sudan including the capital city of Khartoum State. Large portion of Sudan's animal resources are found in these three states and are contributing to overgrazing and forest degradation.

The Pilot project in the Red Sea state is being implemented because mangrove areas are considered priority mitigation areas. Mangrove ecosystems provide significant carbon storage, and as such, mangrove blue carbon is significant in climate mitigation. Indeed, the reasons for selection of Red sea coastal zone to conduct this testing project for enhancing carbon removal and to increase adaptation and resilience of the local communities and other stakeholders are:

- Generally, the coastal zone is a vulnerable area given the increased temperature trends (annex 2), and increasing concentration of infrastructure, industrial activity, and population render these areas vulnerable to impacts such as inundation, erosion, and flooding, and changes in sea surface temperature and salinity. Moreover, the intricate terrestrial and marine ecologies of coastal zones render these areas vulnerable to changes in seawater salinity levels and temperatures.

- In addition, the coastline of the Red Sea wetland is categorized as "hot priority" areas with its unique mangrove ecosystems along the shoreline. In spite of their important ecological and socioeconomic functions, they appear to be under threat of degradation and sometimes extinction due to human activities caused by rapid growth and development of coastal communities as well as climate change.

- The coastal zone has low density of other forests vegetation and the rangelands were highly affected by the deforestation drivers and drought.

- The local communities in the rural areas are vulnerable and adversely affected by climate change. Accordingly, the Sudan's National Adaptation Plan May 2014 identified for the Red Sea, and the Mangrove workshop January 21 -25 /2019 Stressed "Adaptation measures to mangrove restoration and conservation; the development of program for marine-related research; monitoring, education, and awareness-raising; introduction of policies to promote integrated coastal zone management; and support for mangrove-dependent communities to reduce mangrove destruction". Sudan second national communication (2013) indicates Coastal Zone vulnerability and adaptation.

The ERP results framework contains the outcomes, outputs, activities to be implemented through dedicated state management units. Each State has its specific targets and activities to be implemented in selected localities, forests, agriculture lands, communities, etc. The live time of the ERP is 25 year with the first five years is a pilot phase, for which detailed prescriptions, implementation arrangements and costing are provided. The pilot phase in Blue Nile, Sinnar, Gedarif covers specific areas in 9 localities in the three states, with the forest and agriculture components targeting 18 reserved forests and one fifth of the rainfed agriculture schemes in these 9 localities in addition the biomass energy component targets 15-20% of the households and 30-100% of services using fuel wood in the same localities.

[42] Forest National Corporation, (2020). *Enhancing climate change mitigation and adaptation in Mangrove and coastal forests at the Sudanese Red Sea Coastal zone, Mangrove Ecosystems Forest Land Restoration*. Sudan REDD+ Program Khatoum, Sudan.

The climate impacts of the implementation of ERP in reducing GHGs emissions has been estimated ex ante for each state of the three states: Blue Nile, Sinnar, Gedarif. At the overall ERP level, the enhancements forest carbon stock activities estimated to sequester about 2,255,088 t.CO2 by the end of pilot phase in 2025, about 7,577,118 t.CO2 after ten years (2030) and about 45,330,022 by the end of its 25 years live time (2045). Emission reduction resulting from the implementation of the biomass energy component estimated at 636,410 tCO2 by the end of the pilot phase (2025) and at 2,333,503 tCO2 after ten years (2030). The GHGs impact potential of participatory forest management including grazing managements and sustainable wood harvesting has partially been estimated (bare land inside the forest). However, based on the data to be generated by the ERP forest monitoring plan the emission reduction associated with changes in existing forest stock can also be estimated, ex post. The design of the ER programme takes fully into consideration the existing socioeconomic activities of the people in the targeted localities, particularly the ones related to the drivers of deforestation ad forest degradation. Therefore, there is no plan or expectation for displacement of any existing activity that may lead to emissions occurring outside the boundary of the ERP and that can be attributed to its implementation.

Arrangements have been proposed to be operationalizing the REDD+ mechanisms at the ERP level. These include for Benefits Sharing Mechanism (BSM), Environmental and Social Management Framework (ESMF) and Feedback, Grievances and Redress Mechanism. The arrangements involved all relevant stakeholder groups including local communities and traditional leadership and are linked to the national REDD+ arrangements of these mechanisms.

5.3 Environmental and social assessment of the strategy options

5.3.1 Summary of results of the consultations

As noted in the methodology section, and following the WB guidelines, the SESA process' main objective is to assess the proposed REDD+ strategy options for potential environment and social impacts, and to propose mitigating measures where negative impacts are anticipated.

An expert assessment has been carried out, combined with stakeholders' views and is presented below. The draft strategy options were presented at the stakeholder consultation meetings and the potential environment and social impacts were discussed. The findings are presented below in the format of the five strategy options and activities as described in the September 2020 draft version of the REDD+ strategy.

The indicators used by the SESA team to assess the positive and negative impacts of the proposed strategy options are shown in Table 33 below.

Table 33. Aspects for assessment of environment and social impacts

Type of indicators	Indicators
Environmental	• Forest and range resources (decrease in available resources or in their accessibility or quality) • Biodiversity (decrease or overall variation in the number of species; species migration; Inappropriate species and inter-species conflict) • Land resources (change in the aggregate of the land qualities, land use pattern transformation, impacting land qualities) • Water resources (decrease in available resources or in their accessibility or quality) • Soils and ecosystem services (increasing runoff and consequent gully formation in soils; decrease in the number of functions attributed to soils; degradation in the number and/or the quality of ecosystem services) • Soil carbon content (degradation of carbon and nutrient cycling processes, degradation of natural "waste" (decomposition) treatment and recycling processes) • Use of resources (change in use practices leading to resource degradation, and/or conflicts) • Wildfire assessment • Impact on livestock
Socio-economic	• Livelihoods (livelihood opportunities, changes of income generation as a result of the strategy, impact on assets, saving opportunities or access to credit, labor/working conditions) • Tenure and resource rights (changes in access rights, resources type and quantities, benefit sharing arrangements) • Rights of indigenous people and vulnerable groups (resettlement, changes in livelihoods and rights) • Gender impacts (change in workload and employment opportunities for women) • Intergenerational impacts (changes for older/younger people) • Basic social services • Cultural and traditional values of forest communities • Ability to control decisions and choices over natural resource use and management (access to information) • Ability to mobilize financial and human resources, social and economic conflicts resulting from change in activity/increased competition (farmers/pastoralists) • Protection of cultural and traditional heritage, knowledge and values.

Type of indicators	Indicators
Health and safety	• Deterioration in access to food. • Deterioration in health due to increase in water-borne or forest-borne diseases. • Change in living/working conditions or deteriorated opportunities. • Deterioration in safety and security due to accrued conflicts.
Political	• Governance (transparency/information disclosure; accessibility of documents; accountability) • Corruption • Inappropriate/inefficient activity/policies planning, and/or management • Non-compliance with new policies • Degree of stakeholder engagement (including by minority and other disadvantaged groups) • Alignment with applicable international policies and guidelines

Each of the strategy options and sub-options have been screened and analyzed below according to the E&S risks and benefits of each feature. The views of the stakeholders consulted from April to June 2018 and then from September to December 2020 periods are reflected in the assessment presented in Section 1. It is important to mention that the stakeholders were consulted on the drafts of the strategy options, dated February 2018 and the subsequent one dated September 2018.

Table 34 shows the criteria chosen by the stakeholders to assess the environmental and social impacts of the strategy options in SESA II.

Table 34. Criteria for assessment of environment and social impact

Environment assessment criteria	No. of responses	Social assessment criteria	No of responses
Biodiversity	93	Livelihoods/incomes/Food security	195
Ecological functions and ecosystem services	88	Traditional access to resources	194
Soil productivity	101	Rights	157
Pests and diseases	157	Conflict and social harmony	173
Invasive alien species	173	Capacity (of people and institutions)	81
Pollution (air, soil, water)	115	Empowerment	90
Other aspects of the environment	79	Social equity and fairness	88
		Cultural values	101
		Aesthetic values	67

Figure 4 and Figure 5 below show a summary of the environmental and social impacts of each strategy option, according to the stakeholders consulted in SESA II.

Figure 4. Assessment of environmental impacts by the stakeholders consulted in SESA II

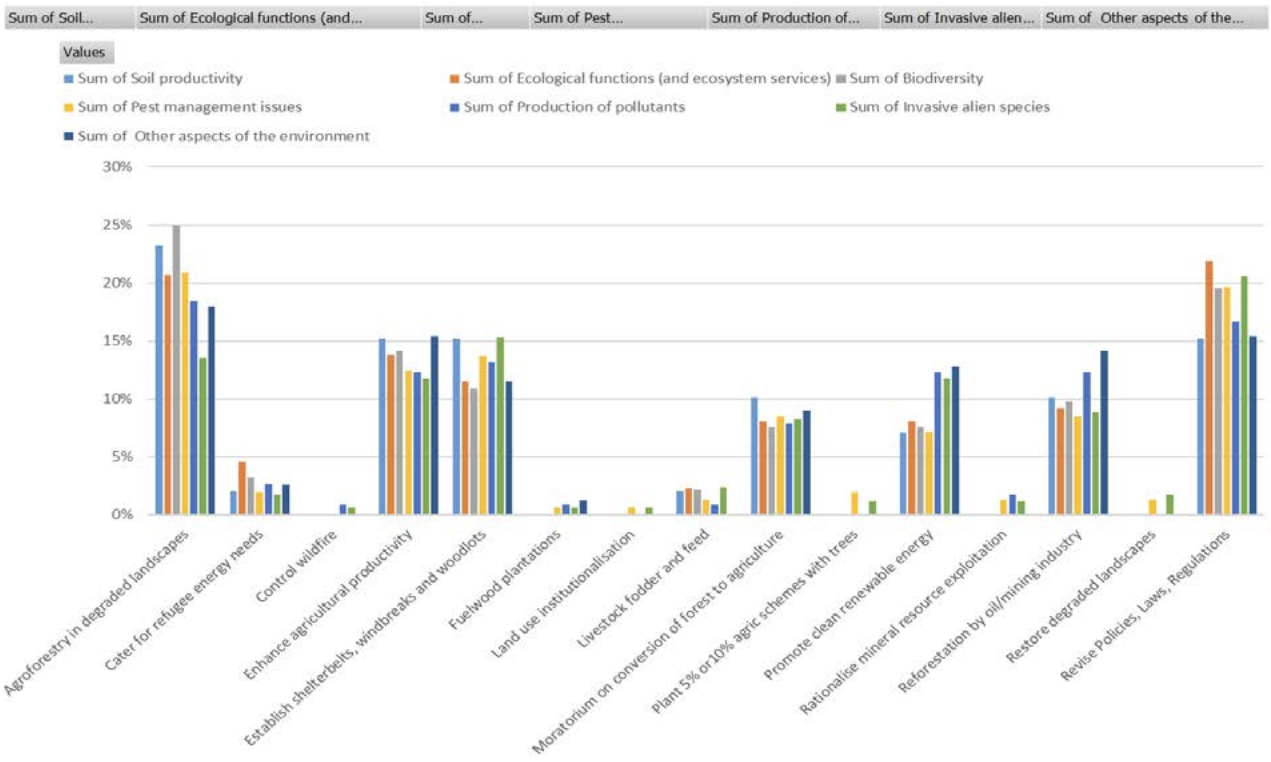


Table 35 presents a summary of their views.

Table 35. Stakeholder views on the strategic options proposed in the draft NRS

Strategy	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Agroforestry in degraded landscapes	70%	19%	11%	1%	0%
Cater for refugee energy needs	63%	25%	13%	0%	0%
Certification standards and systems	63%	0%	38%	0%	0%
Control wildfire	78%	15%	7%	0%	0%
EIAs in the oil and mining sector	75%	25%	0%	0%	0%
Enhance agricultural productivity	58%	30%	9%	2%	0%
Establish shelterbelts, windbreaks and woodlots	73%	20%	6%	1%	0%
Forest plantations	71%	21%	7%	0%	0%
Fuelwood plantations	77%	14%	5%	5%	0%
Improve silviculture and marketing of gum arabic trees	79%	16%	5%	0%	0%
Improved livestock breeds and vet services	67%	0%	0%	33%	0%
Integrate arable farming and livestock	33%	67%	0%	0%	0%
Land use institutionalisation	67%	17%	17%	0%	0%
Livestock fodder and feed	55%	18%	9%	18%	0%
Moratorium on conversion of forest to agriculture	61%	22%	12%	5%	0%
Plant 5% or10% agricultural schemes with trees	100%	0%	0%	0%	0%
Promote clean renewable energy	83%	12%	3%	1%	1%
Range management	50%	25%	25%	0%	0%
Rangeland mapping and assessment	33%	67%	0%	0%	0%
Rationalise mineral resource exploitation	75%	25%	0%	0%	0%
Reforestation by oil/mining industry	78%	17%	5%	0%	0%
Restore degraded landscapes	72%	26%	3%	0%	0%
Revise Policies, Laws, Regulations	63%	30%	6%	0%	0%
Grand Total	71%	21%	7%	1%	0%

Table 36 presents a detailed breakdown of all recommendations made by stakeholders regarding possible additional strategies.

Table 36. Recommendations on additional strategies provided by stakeholders in SESA II

Stakeholder category and subcategory	Recommendation	State
Communities and indigenous peoples		
Community leaders, Sheiks, Umdas, Village elders	Create new jobs as forest guards	Red Sea
	Create jobs Address poverty Drilling water wells	Red Sea
	Address poverty by creating jobs for forest guards Providing drinking water	Red Sea
	Provide pre-financing to producers and traders so that prices improve for gum, so that not to cut down the trees to grow crops	Red Sea
	Digging wells for water provision	Red Sea
Indigenous forest dwellers	Forest guards are essential for forest protection Protect the forest with fences	Red Sea
	Address poverty	Red Sea
	Reserve and survey mangrove forests	Red Sea
	Employ forest guards	Red Sea
Village level farming community members	Employ forest guards	Red Sea
	Eradicating mesquite trees that threaten agriculture	Red Sea
	Involving women in forestry programs and organizations for the development of the area	Red Sea
	Provide income opportunities Water provision	Red Sea
	Provide Forest Rangers jobs	Red Sea
	Combat Desertification	Red Sea
Gum Arabic value chain actors		
GAPAs	Reduce deforestation and forest degradation in all parts of Sudan, not just the gum belt	Khartoum
	Include women and youth in trainings on tapping harvest of gum arabic	Kassala
Processors and exporters	Economic stability, improving the state's overall policies, implementing market mechanisms, and eliminating price discrepancies	Khartoum
Private sector		
Artisanal miners and miner's associations	Make forest rehabilitation and restoration programs compulsory for local communities and gum arabic stakeholders	Khartoum
Clean energy traders and users (solar, LPG)	Fight poverty	Red Sea
Commercial farming enterprises	Use of LPG for cooking not a suitable strategy to reduce dependence on firewood and charcoal.	Khartoum
Artisanal miners and miner's associations	Reach out to private sector companies, providing technical and logistical support to them, and encouraging them to establish integrated and diverse forests on their land holdings.	River Nile
Fuelwood and charcoal traders	Activate the existing laws	Red Sea
	Provision of gas, reducing its price or subsidizing it, while reducing the prices of transporting cylinders to the countryside.	Red Sea
Other	Supporting livelihoods preserves forests	Red Sea
	Dig water wells	Red Sea
Federal Govt Sector Institutions		
Federal administration - ministries, directorates, boards etc	1. Country wide public awareness campaigns for effects of deforestation in Sudan/Africa and how a collective effort will reverse that. 2. Public campaigns to rebuild the forests and green belts 3. Strengthening the relevant institutions involved in environment and social sustainability	Khartoum
	Mangrove Forest Surveys Employ forest guards. Awareness programs on mangroves for the fishermen sector	Red Sea

Stakeholder category and subcategory	Recommendation	State
FNC	Expanding of providing clean water to the area by digging wells	Red Sea
	Training of citizens in the field of saline agriculture Create job opportunities Activating laws Surveying and mapping marine forests	Red Sea
State Govt Sector Institutions		
Forest Department	Activate the laws Find alternative sources of income for people who depend on forests	Red Sea
	Forests must be surveyed and mapped, especially mangrove forests Provide job opportunities Training to protect and restore forests Coordination between environments related entities	Red Sea
State administration - (legislators, ministries directorates etc)	Fight poverty	Red Sea
CSOs and NGOs		
Environmental organistions	Enacting laws that deter the army and regular forces from destroying forests	River Nile
Donors and development partners		
International organizations	It is imperative to bring new ideas and influence the decision-making process. Awareness raising - change the mind-set of decision makers and workers in the sector	Kassala
Academia and researchers		
Academia and researchers	Accelerate the drafting of laws and legislations related to the environment and climate change	West Darfur
Others	Activate the laws	Red Sea

Key findings from the above are that the stakeholder consultation indicated strong support for the strategy options proposed in the draft National REDD+ Strategy. The strategy options receiving most support was tree planting (which is included as a component in several of the strategy options), revitalizing the gum arabic sector and promotion of clean and renewable energy.

No strategy options were considered to have serious environment or social risks, but a small number were considered to have potentially adverse environment and social impacts that should be taken into account in revision and finalization of the National REDD+ Strategy. The strategy options considered to have potential adverse impacts are:

- Revision of Policies, Laws, Regulations.
- Agroforestry in degraded landscapes.
- Enhance agricultural productivity.
- Establish shelterbelts.
- Moratorium on conversion of forest to agriculture.
- Promote clean renewable energy.

5.3.2 Results by category of stakeholders

Stakeholder categories identified as requiring additional consultation in SESA Phase II were mechanised farming, energy sector, gum Arabic middlemen processors and exporters, and marginalised and vulnerable communities and indigenous peoples. The findings from consultations with these stakeholder categories are included in the following sections.

5.3.2.1 Local communities, indigenous peoples and marginalized/vulnerable groups

In the course of community consultations, specific efforts were made to identify and consult marginalised and vulnerable groups, such as women and indigenous peoples who may be affected by the proposed REDD+ strategy options. Characteristics of vulnerable or disadvantaged individuals or groups include gender, age status, ethnicity, religion, physical or mental disability, social status, civic status, health status, economic status, indigenous status, or dependence on unique natural resources. In the revised stakeholder list compiled in preparation for the consultations, potentially vulnerable and marginalised stakeholders and stakeholder categories were identified.

Organisations representing such groups were identified and consulted during this phase. Those are listed in Table 37.

Table 37. Marginalised and vulnerable communities identified and consulted

Forest	State & locality	Forest Community
Kordigaili forest community	Gezira – East Gezira	Forest adjacent communities; and indigenous people (women group)
Abujalfa forest community	Gezira- East Gezira	Forest adjacent communities; and Koranic school communities
Forest Khor Al-Nus	Red Sea- Sinkat locality	Forest adjacent communities depending on Arak trees
Arbaat Forest	Red Sea- locality of al-Qannab	Forest adjacent communities depending on the cultivation of Seyal trees
Hoshiri mangrove forest	Red sea- al-Qannab locality	Forest adjacent communities depending on cultivation by mangrove
Kudruka forest community	Northern State – Dongola locality	Forest adjacent communities depending on doum & other trees; and pastoralists
Wadi Elmugadam forest community	Northern State	Pastoralists
Kolpus forest community	West Darfur, Kolpus	Pastoralists; forest adjacent communities, native people; non-wood forest products collectors; Gum Arabic producers; and pastoralists

In parallel to the virtual consultation platform, the consultants carried out an online review of available information (including grey and scientific literature) on “Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities”. The aim was to identify key experts, scientists and informants (individuals and organizations) representative of “Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities” of Sudan to explain and direct them towards the SESA consultation platform. This approach was to reinforce the low level of penetration identified for these stakeholder groups and make the process as inclusive as possible.

The risks identified were mainly social risks. The social risks related to the strategy options on plantation development and agroforestry (taungya) and potential adverse impacts on the rights of forest dwellers, pastoralists or nomadic groups. Regarding plantation development the concerns raised related to potential restriction of traditional access to resources and rights of nomadic pastoralists. In regard to agroforestry (taungya) the concern was in regard to inequitable benefits and the potential for conflict within the community. It was stated that “Injustice and inequity in distribution of benefits cannot be overcome”. Regarding restoration of degraded forest, the concerns raised related to potential restriction of traditional access by communities and pastoralists. Concerns were also raised about the strategy to promote clean energy and reduce reliance on fuelwood and the impact on poor people of any restrictions on fuelwood collection which is currently regarded a free resource compared to LPG which is expensive and unavailable in rural areas. Government subsidies to reduce the cost of LPG was recommended as a mitigating measure.

The stakeholders consulted from local communities and indigenous people indicated low or negligible levels of social or environment risks associated with the proposed strategy options. Invasive species was identified as a potential risk associated with restoration of degraded forest. The concern expressed related to potential invasion of mesquite into degraded forest in Kassala and Gezira which has both environment and social impacts. Removing the mesquite and planting indigenous trees was recommended. *Prosopsis juliflora* can spread out of control very quickly due to seed dispersal by livestock, taking over the indigenous species and impacting on livelihoods that depend on the native vegetation. The problem has been intensively studied by several researchers including Abdel Magid (2007 and 2016) who have proposed sustainable integrated management solutions that address the adverse environment impacts and provide for the needs of the population. Further research and pilot testing of these proposals is now required to address these environment and social impacts.

The concerns raised by communities and indigenous people can be effectively addressed by meaningful involvement of communities in planning and management of resources as demonstrated by the lessons from the FAO/ FNC project in Rawashda forest reserve in Gadarif, Eastern Sudan. The project established a model to demonstrate integrated multiple land use of natural forest areas and to accumulate experience and disseminate information regarding the motivation and mobilization of the local communities (settled farmers and nomadic pastoralists) in the rational management and protection of natural forests. Forest management within Rawashda forest reserve is intimately bound to grazing and range management in view of the forest location on the transhumant routes. The experience gained was considerable, especially as regards the problem of grazing and regeneration of the forest. The management plan was based on a detailed survey of the forest resource, studies of grazing within and around the forest reserve and land use patterns in the locality and social surveys of the adjacent village population. The project shows that community participation is key to sustainable management and use of the resource. This is in line with the findings of Abdel Magid and Badi, 2008.

Table 38. E&S concerns raised by communities & indigenous peoples and proposed mitigating measures

Strategy	Environment and social risks	Mitigating measures
Plantation development	Rights of forest dwellers, pastoralists or nomadic groups	Meaningful involvement of communities in planning and management of resources
Agroforestry (Taungya)	Inequitable benefits and the potential for conflict within the community	As above
restoration of degraded forest	Potential restriction of traditional access by communities and pastoralists. Invasive species (mesquite)	As above Remove the mesquite and planting indigenous trees Integrated management solutions
Promote clean energy and reduce reliance on fuelwood	Restrictions on fuelwood collection rights LPG which is costly and unavailable in rural areas	lant trees to meet fuelwood demand Subsidise LPG Fuel efficient fuelwood stoves

5.3.2.2 Livestock and pastoralists

Pastoralists and livestock administrators were consulted in Gazira, Kordigaili and Abufama forests and at FNC Madani. There was general agreement with the strategies proposed. The environment and social risks raised were not related to specific strategic options, but the following concerns were raised.

- Expansion of both traditional and mechanized rainfed farming onto the rangelands and pastures is having an adverse impact on pastoralism resources and affecting livelihoods.
- There is Pressure on pastoralists to move to marginal areas that are subject to more frequent droughts.
- Inadequate nutrition to livestock due to degraded range grazing supplemented by low fiber crop residues.
- Herders' rights on pastoral lands are reducing.
- Intensified competition for grazing between village-based livestock (residents) and nomadic livestock (nomads) is leading to conflicts.
- There is little or no access to health services.
- Inadequate technical support to pastoralists.
- insufficiency of public funds allocated to range rehabilitation programmes.

Recommendations (from the stakeholders):

- Improve governance and strengthen rights to herders on pastoral lands.
- Rehabilitate pastures and rangelands including establishment of pasture legumes on fallow areas using various species adapted to the local environment.
- Reopening and rehabilitation of livestock corridors and provide them with water and veterinary services.
- Improve access to a full and comprehensive health services in most places and particularly during the rainy seasons.
- Provide extension services and technical support to pastoralists.
- Public funding for range rehabilitation programs.
- Stop expansion of both traditional and mechanized rainfed farming onto the areas that are classified as rangelands.

5.3.2.3 Large-scale mechanised farming enterprises

Mechanized farming is one of the main drivers of deforestation and this is a significant issue in the states consulted in phase II. The draft strategy proposes a number of options that will impact on mechanized farming enterprises including revision of PLRs, shelterbelt establishment, agroforestry, livestock fodder and feed, plantation establishment, the moratorium on expansion of agricultural land, certification, promotion of clean energy, and the regulation to plant a percentage of agricultural scheme land with trees. Two focus group discussion were held, and 6 key informants were consulted. The draft strategies were mostly accepted (see Table 40).

Table 39. Mechanised farming companies consulted

Company	Location	Main activities
Bahri Kordofan Trading Co.	Khartoum, Kordofan, and other state	Production of food and cash crops in mechanized farming (South Kordofan)
MAGOUB Sons Group- Madi Branch	Madni Office for Gazira State Agric. Services. Focas Group Discussion held in Wad Medani.	Gum Arabic Business, Cultivation of guar gum, Export of cash crops
Alpha for Agric. Industry	Salih Basha Street Khartoum	Large scale farming, marketing and exports
Dal Group Co. Ltd (for agricultural investment)	Scattered offices in Khartoum (Madani street)	Large scale farming & food processing, local and international business
Central Trading Co. (CTC Co.)	Scattered offices all over Sudan	Mechanized farming and agricultural equipment and inputs

The strategies of most concern were those relating to shelterbelts and the requirement to plant a percentage of land holding with trees. From the commercial perspective, the proposals were considered desirable if the commercial benefits outweighed the costs. The strategy options were considered viable and desirable in irrigated farms (such as Kenana and Gezira) but not in the drier rainfed farms. In the case of Kenana, there is a commercial incentive as the shelterbelts benefit the sugar crop and as Kenana owns the land, it also owns the wood from the plantations. As a result, Kenana has already planted trees on over 6% of its land holding and is working towards the 10% target. In the case of rainfed schemes, there is little or no commercial incentive to plant shelterbelts as the benefits to crop production are minor. It reduces the land available for crop production and therefore reduces profitability as well as having an adverse impact on food security. In addition, the ownership of the resulting plantations is not clear as the land is held on a short lease basis and FNC can claim jurisdiction over the tree plantations. In such cases, the proposal was considered not viable unless the government provided the funding to cover the costs.

Regarding the strategy to impose a moratorium on conversion of forest land agriculture, one informant disagreed because of the adverse impact on food security. Another disagreed with the strategy to promote livestock fodder and feed because of the high cost involved. Another said the transition from fuelwood to LPG is not feasible because of the costs involved.

Table 40. E&S concerns raised by Large scale mechanized farming and proposed mitigating measures

Strategy	Environment and social risks	Mitigating measures
Plant shelterbelts	Ownership of trees not clear	Clarify ownership
Implement the regulation to plant trees on 5% or 10% of land holding	Not practical in drier areas (needs irrigation) Ownership of trees not clear	Provide Govt funds for tree planting. Clarify ownership
Moratorium on expansion of agric into forest land	Constraint of food production, Food security issues	Resolve trade-offs between competing land uses through multisector planning

5.3.2.4 Participants in the gum Arabic value chain

The REDD+ strategy proposes one option focused on gum Arabic. During SESA Phase I, gum Arabic producers were comprehensively consulted but downstream value chain actors such as middlemen, processors, and international traders were insufficiently sampled. The views of these downstream actors on ways to enhance to social and environmental benefits of this strategy option are required. 25 companies were contacted and invited to respond and at least 5 of them were responded to the online questionnaire.

Table 41. Gum Arabic value chain participants consulted

Company	Location	Activities
Africorp International Co.	Sudanese Kuwait Centre	Gum Arabic trade and processing activities
Green Zone Co.	Sahil & Desert Tower Khartoum	Gum Arabic exports and local trade
Habib Company	Khartoum 2 Market- Main office. Branches in Elobeid	Gum Arabic trade & Exports
MAGOUB Sons Group- Khartoum Main Office	Khartoum Centre - Elgamhoria Street	Gum Arabic Business, Cultivation of guar gum, Export of cash crops
Dar Savanah Co. for Natural Gums	Khartoum 2 main Office -Sudan	Gum Arabic Processing and Trade
Elimats Comapant	Khartoum – Nilain Tower	Gum Arabic and other agri-businesses

The draft NRS contained one strategic option on gum arabic: “Refine and improve silviculture, management, production and marketing of Gum Arabic producing trees”. The stakeholders consulted included six focal groups and 12 key informants representing producers, middlemen and downstream processors and exporters. All respondents agreed that the sector needed revitalizing and improvements along the values chain, but as strategy lacked specific details on what measures would be taken to improve the sector, it was difficult to identify the potential environment and social impacts of the strategy. The discussions with stakeholders therefore focused on elaboration of the strategy and making recommendations on ways of revitalizing and silviculture, management, production and marketing of gum Arabic and the associated environment and social risks.

Recommendations on elaboration of the strategy:

- Monitoring, forecasting and control of the most common pests and diseases that affect gum Arabic production (e.g., National locust control program strategy).
- Plant *Acacia senegal* and *A. seyel* trees.
- Raise the price at the producer level to encourage production and to improve incomes, livelihoods and food security of producers and other upstream value chain actors.
- Improve infrastructure, extension services, and education among rural people in the gum belt.
- Provision of water supplies in the gum belt as this is a constraint on production.
- Inclusion of women and youth in the training on improved ways of harvesting gum.
- Strengthen the gum Arabic producer associations and increase their capacity to participation in the decision-making processes.
- Revise taxes and fees imposed along the value chain to achieve more equitable sharing of benefits and to encourage production and local marketing.
- Provide formal credit and microfinance facilities to support gum production to reduce exploitation of producers by money lenders using the sheil system.
- Introduce policy measures to encourage exports.
- Encourage fair trade partnership arrangements between producers and private sector processors.
- Refocus gum markets from revenue levying to service provision.
- Reduce annual price fluctuations by buffer stocking and intervention buying.

The measures recommended are expected to have positive impacts through expansion and improvement of forests and forest management and to yield social benefits in the form of increased incomes, improved livelihoods, more equitable benefit sharing and improved governance. No adverse environment risks were expected from the measures proposed but there are social risks to some of these proposals as described by Elfadul et al, 2021[43] that need to be mitigated. The potential adverse social risks and mitigating measures are as follows:

- Unfair and inequitable benefit-sharing under the current practice of the sheil system which exploits producers. Simply proposing access to microfinance institutions (MFIs) as a way to address this issue may not be sufficient as such institutions consider agriculture as a high-risk sector and consequently, their financial products and conditions are generally unattractive to smallholders. One way around this problem is link microfinance institutions with the registered GAPAs whose individual members provide collateral (supported by signed documentation), providing the MFIs with security for the pre-finance of gum collection.
- There is a high level of mistrust between smallholder producers and gum buyers and the power imbalance between the two categories of stakeholders which results in inequitable arrangements. It is not clear how this can be addressed.
- Regarding contract farming arrangements between gum producers and buyers, who provide cash advances and/or inputs to smallholder groups, there are risks to the buyer as producers may then “side-sell” to other buyers who are offering prices higher than the contract price. A mitigating measure used piloted was to pay a 10% premium of the El Obeid auction market price. This has worked at the project level but other solutions are needed for broader scale application. A solution is to promote collaboration between the registered GAPAs and producer groups and gum companies entering contract farming arrangements. The incentives provided by the companies (pre-fiancé, provision of jute sacks, fair price, delivery at the production site) together with the close supervision by the companies can reduce the risk of side selling because the substantial long-term benefits that accrue to the producers are sufficient to incentivize loyalty to the arrangements.

[43] https://www.tropenbos.org/file.php/2379/etfrnnews60-elfadul-restoring-gum-arabic-belt-sudan-with-local-communities.pdf

There are issues of inequity currently within GAPAs whereby leaders may not share pre-financing equitably between shareholders. The solution proposed is to develop the capacity of GAPAs and increase transparency by adopting management and accounting tools, such as individually signed receipts from members for all pre-financing received.

Large scale restoration of gum arabic forests (over tens or hundreds of thousands of hectares) will result in land use change and may result in major land-use conflicts between competing interests. This can be mitigated by measures such as rehabilitating transhumance routes and water points, and encouraging farming and pastoralist communities, supported by national rangeland authorities, to actively engage in the co-management of these areas[44].

Table 42. E&S concerns by gum arabic value chain participants and proposed mitigation measures

Strategies proposed	Environment and social risks	Mitigating measures
Pre-financing production	• Unfair and inequitable benefit-sharing under the current practice of the sheil system • Inequity in distribution of pre financing funding (corruption within GAPAs) • Power imbalance between producers and buyers	• Provide access to MFIs • Capacity building GAPAs
Contract gum farming	Side selling by contract farmers	Pay a premium price to contract farmers
Large scale restoration of gum belt	Land use change leading to conflicts between competing interests	Co-management (farming and pastoralist communities, supported by national rangeland authorities)

5.3.2.5 Energy sector

During Phase I, there was insufficient consultation with domestic and commercial energy users, those involved in clean energy businesses, and energy policy makers. In Phase II, rural communities and refugees were consulted on household energy issues as were industries using commercial quantities of wood fuel such as the brick making (burning) industry. Table 43 indicates the numbers of key informant interviews and focus groups discussions held with traders in clean energy, fuelwood and charcoal. The technical staff in the Ministry of Environment, Natural Resources and Physical Development was also consulted. It was stated that the clean energy sources were part of the country strategy. This could take the form of Solar (applicable in most states of Sudan and could serve cooking purposes); wind energy (applicable in the northern part of the country but could not expected to reduce the impact on the fuelwood and charcoal. The LPG is very effective in reducing the pressure on forest as a substitute. However, this is severely hindered by the limited supply, affordability, absence of subsidy and transportation and accessibility to remote areas.

Table 43. Private sector energy traders

State	Clean energy traders and users	Fuelwood and charcoal traders
Khartoum	6 (2 KIIs, 4 FGDs)	6 (4 KIIs, 2 FGDs)
Gezira	1 (KII)	-
Red Sea	4 (KIIs)	4 KIIs
West Darfur	3 (2 KIIs, 1 FGD)	-
River Nile	-	14 KIIs
Kassala	-	2 (1 KII, 1 FGD)

Many stakeholders in the States indicated that providing LPG and solar energy is not viable. LPG needs storage resources and other infrastructures which are not manageable by the states. The appropriate form of energy for the rural requirements must be diffuse low-cost forms of energy. The per capita energy availability must be increased, through more efficient use of locally available energy resources. The urgent issue for rural people development is to increase the energy available per capita.

[44] Elfadul et al 2020

5.3.2.6 Refugees and IDPs

The strategy option to "Cater for refugee, IDPs and host communities' needs for energy and shelter" aims to address forest degradation around refugee and IDP camps and settlements which was identified as a driver of deforestation and forest degradation. Seven key informants were consulted. All respondents agreed with the strategy but as the strategy option did not specify how the needs were to be addressed it was difficult to identify the potential environment and social impacts of the strategy option. The discussions with stakeholders therefore focused on elaboration of the strategy and making recommendations on ways of reducing refugees and IDPs reliance on forest resources for fuel and shelter (and income generation) and reducing forest degradation.

The stakeholder recommendations were as follows:

- Provide LPG and subsidize LPG cylinders.
- Promote energy efficient stoves.
- Fuelwood and pole-wood plantations to be established with UNHCR funding.
- Reforestation of degraded forest.
- Awareness raising, capacity building, community engagement and participation.
- Providing for safe return of all displaced people to their home areas.

The risks identified related to potential interference with the rights of indigenous people, pastoralists and communities to access forest resources and the mitigating measure proposed was community engagement and participation in planning and implementing these interventions.

5.3.2.7 Responses from private sector including charcoal and firewood sellers and clean energy traders

Demand for firewood and charcoal greatly exceeds sustainable supply and is the most important driver of forest degradation. The strategy options to address this issue were discussed with local communities, domestic and commercial fuelwood users, and traders. The consensus was that there is no substitute for charcoal and that the best option is to increase sustainable supply by tree planting. The draft NRS strategy options on transition to LPG and other forms of clean energy have environmental benefits but social costs in the form of unaffordable costs for poor people and livelihood impacts for traders. Promotion of LPG would require subsidies to overcome initial costs of cylinders and distribution to remote rural areas is considered not feasible. Proposals to promote fuel efficient traditional stoves however is considered desirable.

The NRS includes several strategy options involving tree planting that have environment and social benefits and received positive feedback from stakeholders consulted including fuelwood plantations, shelterbelts, agroforestry, reforestation and restoration of degraded forest. In addition, community level stakeholders recommended establishment of community forests for biomass wood provision. The Forest Act 1989 revised as Forests and Renewable Natural Resources Act 2002 makes legal provision for reservation of local forests as community forest reserves. According to the 2002 Act, the management of community forests is assigned to committees designated by the communities for this purpose. This committee is the management body responsible for planting, protection and investment of forest resources. The Forest Policy (1986) recognizes and encourages the establishment of community, private and institutional forests is one of the most salient features of the forest policy (1986), and the greatest improvement on the Forest Policy (1932). Implementation of this policy would help to balance wood fuel supply and demand.

5.4 Assessing strategy option 1: integrated forest landscape management

5.4.1 Background on the integrated forest landscape management option

Strategy option 1 consists of 3 policies and action measures (PAMs): PAM 1 has 5 target actions; PAM 2 has 5 target actions and PAM 3 has 2 target actions as reported in Table 44 below. This strategy option proposes regulatory and institutional reforms and programs in the forestry sector to build national and community-based institutional capacity as well as economic momentum and political knowledge so as to enable sustainable forest management and development across institutional, organizational and community levels while developing commercial capacity in high value timber, fuelwood/biomass, pole and non-wood forest goods production. It also aims to develop research and education programs in the forestry sector.

Table 44. Integrated Forest Landscape Management option summary

PAMs	Target actions	Responsible stakeholders
Strengthen sectoral policies and institutional setting for sustainable natural resource management	Improving forest sector regulations, laws, and policies to mainstream REDD+ actions	FNC governing bodies, Council of Ministers and the Presidency.
	Support Revision and strengthening of the Sudan National Forest Policy Statement (2006; updated from Sudan's Forest Policy 1986)	FNC governing bodies
	Development of National Forest Information Systems to support forestry and landscape management in Sudan (NFMS, MRV, FREL Development, Safeguards, Carbon Registry)	FNC governing bodies
	Supporting and improving policies to reduce deforestation and land degradation from refugee settlements.	Ministry of Interior, Commissioner of Refugees (CoR), FNC, REDD+ PMU
	State Level REDD+ Implementation Framework and Financing Options: Development of State REDD+ Action Plans (S-RAPs).	FNC, Council of Ministers
Strategic Landscape Management, Restoration and Emission Reductions	Smallholder Forestry Program in Selected States for high value timber, fuelwood/biomass, and pole production and non-wood forest products (Initial target – Blue Nile and Sinnar States).	FNC, FAO, WB, Development Partners
	Statewide Forestry Nursery Systems to support community-based, afforestation, reforestation, and restoration of degraded lands	FNC, FAO, WB, Development Partners
	Capacity building for sustainable gum production value chain through sustainable finance and private sector engagement.	FNC, FAO, WB, Development Partners
	Capacity development and institutional strengthening for fire management.	Research Institutes, Universities, FCPF, WB, FAO, UNEP
	Support sustainable forest management through development of capacity for and use of forest management plans (including selected coastal zones, protection of mangrove forest, and riparian).	FNC, communities, private sector, Development Partners
Support for Forestry Research and Development	Revise and redesign of forest and rangeland research programmes and curricula.	Universities, FNC, Ministry of Higher Education and Scientific Research
	Establishment of Centres of Excellence through Tertiary institutions – (Consideration for setting a Forestry Research Development Institution).	

5.4.2 E&S Impacts and benefits assessment of strategy option 1

The proposed forestry sector strategy PAMs and target actions have the potential to trigger the WB safeguards on Environment and Social issues; Land Acquisition, Restrictions on Land Use and Involuntary Resettlement; Biodiversity Conservation and Sustainable Management of Living Natural Resources; Resource Efficiency and Pollution Prevention and Management; Financial intermediaries; Stakeholder Engagement and Information Disclosure; Labor and Working Conditions, as follows:

Table 45. Option 1 E&S impacts and benefit assessment and mitigation measures

Environmental and Social risks	Likelihood / Severity	Mitigation measure	Environmental and social benefits
• Ecosystem disturbances; introduction of non-indigenous or invasive species for new forest products • Pest management issues •Soil productivity issues • Loss of aesthetic value	High / Medium	• Rational use of agro-inputs (e.g. follow research findings and best practices) • Consult stakeholders • Provide technical support and extension	• Carbon sequestration
• Inappropriate training programs / Inappropriate or irrelevant research agendas • Curricula may not be relevant and appropriate • The right people may not be selected for training	Medium / Medium	• Involve climate change specialists in design of training programs • Design appropriate training programs • Care in selecting training participants • Involve stakeholders in planning the research agenda • Identify key information gaps Appropriate curricula	• Improved planning and decision making on climate change issues • Information generated to inform planning and implementation • Capacity building improved forest and rangelands management
• Infringement on customary land rights • Introduction of inappropriate species • Competition for land • Displacement of people • Interruption of pastoralist corridors • Rights of marginalised people infringed • Non-compliance with policy	Medium / Medium	• adequate involvement of all stakeholders • use of the RPF and PF to mitigate the risks related to land and access restriction to natural resources • Cost benefit analysis • Build in private sector or community incentives to adopt policy • Promote private and community plantations • Appropriate species selection • Develop community capacity for CFM • Secure land tenure rights • Use and application of the findings of the IPPF to mitigate the potential impacts on marginalized and indigenous groups	• Increased supply of wood products • Community empowerment, Job creation
• May expand deforestation/forest degradation. Farmers may claim ownership of the land	High / Medium	• Strengthen FNC supervisory capacity Community empowerment and Community Forest Associations	• Reforestation • Increased food security • Community empowerment, • Job creation • Improved forest management
• Inappropriate plans, policies that impact on users, rights or livelihoods • Non-compliance with new policies • Inappropriate management that impacts rights and livelihoods / Inappropriate interventions	Moderate / Medium	• Involve all stakeholders in policy planning, development including awareness and advocacy programs • Build in private sector incentives to adopt policy • Use international standards and best practices • Participatory planning • Provision of information and training to community • Build capacity of community to negotiate with FNC • Involve community in planning and management	Community empowerment Improved livelihoods • Benefit sharing • Reduced demand for fuelwood and commercial charcoal production to by refugees who have few alternative income opportunities • Sustainable exploitation of forests • Increase in supply of forest goods and services • Sustainable forest exploitation, community empowerment and job creation
• Loss of biodiversity (e.g. range and indigenous species)	Minor / Medium	Adopt sustainable silviculture approaches, internationally accepted standards and best management practices and capacity building to share know-how on best practices	
• Land use change may decrease land allocated to the community	Medium / Medium	• Provide alternative livelihood for individual affected by the land reallocation	• Improvement of livelihood (e.g. incomes, assets, etc.)
• Changes in benefit-sharing mechanisms	Medium / Low	• Secure involvement of women, poorer farmers, and marginal people into development schemes • Equitable benefit sharing arrangements	• Conservation of cultural and traditional practices and tree species
• Women may be excluded as land rights are usually held by men • Low confidence level of community in negotiating with FNC • Low level of community access to information	Medium / Low	• Provision of micro-finance to enable investment at farm level by women • Ensure involvement of women and marginalized groups in capacity building, planning and implementation • Speed up the registration process for community forests	• Increased food security • Reforestation
• Impact on food security	Low / Low	• Provide alternative livelihood for individual affected by the land reallocation	

Environmental and Social risks	Likelihood / Severity	Mitigation measure	Environmental and social benefits
Potential conflict over resources or related to land tenure and use of lands (farmers vs pastoralist) • Changing regulations to access to forest may result in changes to traditional access rights, it may impact their animals as the range resources are very scarce, it may require pastoralists to move and walk for long distances and away from home which has great impact on women and children • Exclusion of traditional users	Moderate / Substantial	• Implement conflict resolution mechanism • Conduct rapid conflict analysis, as needed • Equitable benefit sharing arrangements • Ensure a balance is achieved between forest and other sector development. Joint sector planning	Community empowerment, • Job creation • Improved forest management
• Impacts on community livelihoods	High / Substantial	• Capacity building to disseminate knowledge related technology	
• Conflicting priorities based on needs within the community	Medium / Medium	• Adopt effective benefit-sharing arrangements from local and regional success stories	
• Displacement of people	Low / Low	• Use the context-specific resettlement policy framework and the PF for displacements due to access restriction	
• Stakeholders may not adopt the programs	Medium / Low	• Include incentives for adoption • Develop fuelwood plantations • Develop knowledge and skills in clean and efficient production	• Reduced demand for fuelwood • Forest protection, SFM, Job creation
• Lack of capacity from community to implement policies translating into risk on livelihoods	Medium / Medium	• Simplify processes to register forests for the communities	
• Lack market structure, market mechanisms knowledge and information leading to impoverishment or create imbalances between those who can access financing and new opportunities and those who cannot	Medium / Medium	• Provision of market information, training, sensitization campaigns	
Stakeholder comments: • Agree on improving management of forest resources • Strong support participatory forest management (including use of Taungya system) • Community forests • Support private forestry (hashab and talh) • Incentivize using fruit trees and shade trees. • Urban forests • Improve capacity of FNC to manage resource • Review policies and laws • Establish forests for energy and building materials • Increase rural livelihood options **Conclusion:** Strong support for benefit-sharing mechanisms, participatory forest management such as the taungya system and additional tree planting for fuelwood and gum Arabic production as well as for shelterbelts.			

5.4.3 Stakeholders' assessment of impacts, benefits, and mitigation options of consultations for strategy option 1

Table 46. Assessment of strategy measures by stakeholders

Environmental and Social risks	Measures proposed to mitigate adverse impacts	Measures proposed to enhance positive impacts
Environment risks Production of pollutants: 18% Ecological functions (and ecosystem services): 20% Invasive alien species: 13% Biodiversity: 25% Other aspects of the environment: 18% Pest management issues: 20% Soil productivity: 23% **Social Risks** Empowerment: 14% Traditional access to resources (fuelwood, NTFPs): 12% Livelihoods/Incomes/Food security: 12% Capacity (people, institutions): 14% Social equity and fairness: 16% Aesthetic values: 15% Conflict and social harmony: 15% Rights: 12% Cultural values: 11%	• Raise awareness. • Adoption of integrated management approaches. • Improvement of rural infrastructure specially roads to enhance accessibility to markets (inputs and outputs). • Enhancement of the value chain for agricultural products. • Avoid use of pesticides and fertilizers in harmful concentrations. • Forests should be restored and preserved. • Develop some kind of benefit-sharing so as to guarantee access of local communities to their needs. • Establish livelihood programs, adopt climate change policy in Sudan, preserve tree cover and limit cutting and grazing within the forest by providing and appointing sufficient forests' guards. Raise awareness of the importance of the environment and forests among citizens. • Give attention to afforestation and agriculture. • Develop fairness in project distribution. • Find alternative energy and providing job opportunities. • Implement the forest law in planting agricultural projects with trees. • Apply the laws of agriculture and herding. • Allocate lands for pastures to prevent interference and define paths. • Re-farming for agricultural projects. To stop the expansion of agricultural projects. • Provide building materials as an alternative to wood. • Educate citizens about the importance of forests. • Expand public forests in the area and involve women through women's associations. • Provide energy alternatives. • Intensify community awareness and the interest of the forest department in planting trees and intensifying protection by appointing adequate guards and the participation of the communities. • Provide security for the return of displaced people to their villages, in addition to intensifying environmental awareness of communities and raising awareness of the importance of forests. • Remove mesquite trees and return of local extinct trees, with the involvement of the communities. • Enable the forest department to do the required management and protection of forests. • Addressing the armed forces to stop cutting trees in the area. • Apply penalties for illegal tree cutting. • Introduce environmental education in schools. • Introduce alternative activities for citizens to increase income. • Establish a major forest laboratory in the region. • Re-cultivate the creeks with trees. • Providing water sources for pastures. • Support agricultural federations and shepherds' unions to implement laws to protect logging. • Involve youth associations in restoring vegetation. • More rangers for the forest. • Introduce energy alternatives.	• Capacity building and community mobilization • Establishment of agric. cooperatives. • Training of the community in the agroforestry techniques. • Introduction of high yielding crop and fodder species." • Involve all relevant sectors in developing plans (agriculture - wildlife - localities - tourism) • Sowing pastures and creating pastoral paths. • Raise community awareness of the importance of the resource. • Training for communities to collect seeds and fruits to enhance community income. • Help the stakeholders and to be advised to join efforts at the local and federal levels. • Drafting new legislation. • There are vacant areas that can be planted with local trees and reserved for the community to participate in this through committees and to be fenced in to ensure full protection. • Ensure commitment of relevant government departments.
Forest plantations		
Environment risks N/A **Social Risks** Empowerment: 2% Traditional access to resources (fuelwood, NTFPs): 1% Livelihoods/Incomes/Food security: 1% Capacity (people, institutions): 2% Conflict and social harmony: 1% Rights: 1%	If the citizen has the basic needs, and the study takes into consideration these needs	

Restore degraded landscapes		
Environment risks Invasive alien species: 2% Pest management issues: 1% **Social Risks** Livelihoods/Incomes/Food security: 2% Capacity (people, institutions): 4% Conflict and social harmony: 1% Rights: 2%	No comments or recommendations	
Control wildfire		
Environment risks Production of pollutants: 1% Invasive alien species: 1% **Social Risks** Conflict and social harmony: 1%	Community participation in replanting trees with local government support for them. Activating the forest law, enabling the forest administration to implement it and enforce it. Intensify awareness, especially pastors, and provide proper guidance and services	Community participation in developing plans and studies

5.5 Assessing strategy option 2: climate smart agriculture and rangeland management

5.5.1 Background on the climate smart agriculture and rangeland management option

Strategy option 2 consists of 2 PAMs: PAM 4 has 4 target actions and PAM 5 has 6 target actions as is visible in Table 47. Strategy option 2 aims to improve agricultural efficiency and increase productivity through climate-smart agriculture and by creating a clear framework of land tenure, thus increasing land tenure security. Climate Smart Agriculture will promote farming systems that improve per unit productivity and increase diversification to secure alternative incomes through activities such as crop diversification, agroforestry, intercropping, advanced irrigation systems, and organic farming. Strategy option 2 also aims to enable provision of higher quality, sustainable feed for livestock, increasing availability without compromising forests and other critical ecosystems and to develop capacity in the field of health and welfare of livestock. This strategy option also aims to help develop the understanding and demarcation of traditional livestock migration routes, to reduce conflict between nomadic herders and settled agricultural producers. Finally, strategy option 2 aims to transform agricultural systems in order to address food security, sustain livelihoods and encourage prosperity, adapt and build resilience to climate change risks, encouraging coordination between public and private institutions, while reducing pressure on forests and other ecosystems and reducing GHG emissions.

Table 47. Climate smart agriculture and rangeland management option summary

PAM	Target actions	Responsible stakeholders
Improving the adaptive and climate mitigation capacity of the agriculture sector	Capacity building to improve agriculture productivity through agroforestry system to improve water utilization and reduce forest encroachment (shelterbelts, alley cropping, wind breaks riparian forest buffers)	Ministry of Agriculture and other related ministries, FNC, Communities, Private Sector, Business Unions, Gum and Livestock Producers
	Improve agricultural productivity through crop diversification and agro-pastoral systems	Ministry of Agriculture and other related ministries, Ministry of Agriculture and other related ministries, FNC, Communities, Private Sector, Business Unions, Gum and Livestock Producers
	Rehabilitating irrigation services to make water use more efficient, including the introduction of appropriate technologies to optimize water use and raise water awareness;	Ministry of Agriculture and other related ministries, FNC, Communities, Business Unions, Gum and Livestock Producers
	Build capacity and conduct knowledge transfer for conservation agriculture with water harvesting, zero tillage, and improved seeds.	Ministry of Agriculture and other related ministries
Forest plantations		
Promoting Sustainable Livestock and Rangeland Management	Strengthening regulatory and non-regulatory measures for livestock movement corridor management including monitoring systems.	Federal and State departments of Range/Pasture, Ministries of Agriculture and Animal Resources
	Rangeland restoration/rehabilitation, protection, and provision of adequate seasonal feedstock (fodder production): Creating business partnerships between livestock owners and farmers along livestock routes	Relevant departments and research in the ministry of animal resources, department of range-pasture, village base and agro-pastoral communities, CSOs and NGOs
	Improve access to finance and support services for farmers and livestock producers (such as animal health, extension and training, farmer field schools, marketing)	Animal Production Corporation (APC) and range-pasture dept. of MAR at federal and state level +dept. of Extension and Technology Transfer MAR, village-based communities

PAM	Target actions	Responsible stakeholders
	Promoting cooperation and coordination between public and private sector institutions in range infrastructure development and management.	Animal Production Corporation (APC) and range-pasture dept. of MAR at federal and state level +dept. of Extension and Technology Transfer MAR, village-based communities
	Increasing adaptive capacity of farmers and livestock producers for preparedness to seasonal variability in feed and water supply through community-based water conservation and river protection and management schemes	Federal and State departments of Range/Pasture, Ministries of Agriculture and Animal Resources

5.5.2 E&S impacts and benefits assessment of strategy option 2

The proposed climate smart agriculture strategy PAMs and target actions have the potential to trigger WB safeguards on Environment and Social issues; Land Acquisition, Restrictions on Land Use and Involuntary Resettlement; Biodiversity Conservation and Sustainable Management of Living Natural Resources; Resource Efficiency and Pollution Prevention and Management; Stakeholder Engagement and Information Disclosure; Labor and Working Conditions, as shown in Table 48.

Table 48. Option 2 E&S impact and benefit assessment and mitigation measures

Environmental and Social risks	Likelihood / Severity	Mitigation measure	Environmental and social benefits
• Lack of consideration for environmental issues (i.e. resource efficiency, clean production concept) on value enhancing processes	Medium / Low	• Following of best practices related to resource efficiency and management (i.e. water, energy) and outputs (e.g. zero waste) • Capacity building to share know-how on environmental and resource efficiency concepts • ESIAs to mitigate negative impacts • Agric extension programs	• Reduced pressures on forests • Improved food security and livelihoods • Reduction in shifting cultivation
• Unequal benefit sharing between the players along the value chain (e.g. asymmetry of information leading to low level of benefits for communities)	Medium / Medium	• Chain upgrading (i.e. bringing people to the market through cooperatives or associations)	• Improved job opportunities and livelihoods
• Organizations / individuals with more resources could capture most of the added value	High / Medium	• Crowd funding and micro-finance for processing facility investment by/for local communities	• Community empowerment
• Men may be culturally better placed to benefit from added value activities (e.g. travel to potential markets)	Low / Low	• Build capacity among women to develop their know-how on value chain enhancing and good practices activities • Strengthen the capacities and skills of women groups in selected food value chains through capacity development activities, including trainings, knowledge sharing tours, and specific support aimed at improving market-oriented production and value addition, enterprise development, business-to-business linkages and access to finance. • Support institutions (both at national, state and local levels) and promoting gender-sensitive value chains. • Investment into information sharing platform and tools for women to access information	• Knowledge and skills transfer • Improved benefit sharing arrangements
• Soil/Land degradation due to inappropriate mechanization.	Medium / High	• Use of environmental-friendly agro-inputs (e.g. lower hazard chemicals or organic inputs) •Integrate pest management •The 10% and 20% tree planting rule to be implemented.	• Lower land occupation and grabbing (e.g. reduction of greenhouse gas emissions related to clearing of lands)
• Pollution of soil and water	Medium / High	• Rational use of agro-inputs (e.g. follow research findings and best practices) and capacity building	• Income diversification potentially reduces the stress on natural resources
• Ecosystem disturbances	Medium / High	• Adopt sustainable agriculture techniques, internationally accepted standards and best management practices	
• Air quality deterioration increase emissions and pollution	Medium / Low	• Rational use of agro-inputs (e.g. follow research findings and best practices) and capacity building	

Environmental and Social risks	Likelihood / Severity	Mitigation measure	Environmental and social benefits
• Hazardous waste generation from machineries (Used lubricant oil/grease contamination)	High / Low	• Capacity building to share know-how on best practices	
• Surface water contamination	Medium / Low	• Rational use of agro-inputs (e.g. follow research findings and best practices) and capacity building	
• Promotion of inappropriate water harvest techniques may affect downstream river courses (biodiversity, water shortage, soil erosion, leftover material, etc.) and also lead to conflict due to access to and use of water resources	Medium / Low		
• Promote landscape approaches for sustainable development, water and land resource management. The landscape or watershed approaches to water management provide a framework and enables management of water resources for multiple stakeholders with different interests and drivers.			
• Reduced diversity of crop cultivated	Medium / Medium		
• Loss of range species using agro-inputs	Medium / Low	• Adhere to the national permissible limits of pollutants (SSMO) as well as the international acceptable standards	
•Increased use of technology may lead to lower employment opportunities or lay-offs	Medium / Medium	• Provide alternative livelihood for individual affected by the intensification (e.g. losing their job) or build their capacity on new roles	• Improvement of livelihood (e.g. income, assets, etc.)
• Dependence on external financial and technical inputs may increase vulnerability	Medium / Low	• Establish micro-insurance schemes to reduce vulnerability of farmers	• Potential food supply increase
• Restricted access to technology (high cost of technology and lack of knowledge)	Low / Low	• Ensure micro-finance possibilities enable access to technology for everyone	
• Women may be excluded as land rights are usually held by men • Increasing mechanization may reduce employment opportunities for women	Medium / Medium	• Secure involvement of women by enacting rules and processes at community level that recognize women's land rights. Develop women-led community organizations that can coordinate and help ensure the enforcement of these rules and processes by representing women with local, regional and national authorities. • Provide alternative livelihood for individual affected by the mechanization affecting the employability of women	
• Intensification may impact on food security	Low / Low	• Ensure provision of micro-financing enable investment at farm level and avoid marginalization of poorer farmers • Intensification strategy should take account of the food security issue for the state	
• Potential conflict related to land tenure and use of lands (farmers vs pastoralist) • Rich farmers are likely to benefit more and poor farmers will lose out especially in areas affected by conflict	Medium / Medium	• Implement conflict resolution mechanisms • Undertake rapid conflict assessment, as needed • Involve stakeholders in planning and implementation stages, esp. farmers and pastoralists, • Rehabilitation of degraded areas due the refuges in the state. • Afforestation of reserved forests under FNC management. • Provide livelihoods opportunities for the poor and marginalized people including women and the youth (gum tapping, agroforestry, home gardens). •Access to funding by agro-pastoralism to support rehabilitation of gum hashab areas	

Environmental and Social risks	Likelihood / Severity	Mitigation measure	Environmental and social benefits
• Reduction in land available for agriculture	Medium / Medium	• Provide technical assistance to mechanized schemes • Social screening and monitor compliance • Secure land tenure rights for the poor	• Increase in supply of wood products Improve environment for pastoralists Reduced deforestation
• Cost of inputs is high and increases risk of losses.	Medium / Low	• Facilitate access to credit. Link farmers to financial institutions.	
• Increasing grazing intensity may lead to increasing: • Soil compaction, erosion and reduced infiltration rate • Over-grazing in alternative locations • Emissions from livestock • Some alternative tree species could be affected by grazing • Impacts on traditional livelihoods through changes (Regulation of grazing and restrictions on access to forest may impact livelihoods (employment, income and assets)) • May impact on traditional culture if nomads are attached to new communities with different cultures. • Land tenure issues or conflicts may arise when opening livestock corridors or creating water points. • May create governance risks. • Initiatives may benefit richer pastoralists and marginalize the poorest	Medium / Low Medium / Medium Medium / Medium	• Follow best practices in livestock management • Building and transfer of capacity to enable communities to take the full advantage of new practices • Screening for social impacts and involving the pastoralists in decision making • Establishment of conflict resolution mechanism • Provide market information Conflict resolution mechanisms • Ensure participation of the poorest pastoralists, notably through micro-finance scheme and capacity building •Implement capacity-building activities and funding mechanisms (better access to micro-finance related resources and funding) at community level to help traditional livelihood dependent groups transition to new sustainable livestock management processes and activities •Ensure land tenure rules and practices are enforced by local community-based authorities through capacity training at local (village/traditional), regional (state) and national levels •Ensure equitable benefit sharing procedure is in place within each measure so that it positively benefits all groups of beneficiaries. •Also link this equitable benefit sharing programme to the REDD+ Benefit Sharing Strategy.	• Reduce pressure on range land and trees (Regulate grazing in forest areas where forest regeneration is occurring to allow forest to recover/Enforce or encourage the planting of trees on 10% of agricultural lands) • Livestock exclusion may lead to dramatic and rapid rates of riparian ecosystem recovery • Rest of rangelands as part of effective management may lead to effective and rapid repair of grazing damage to soils and other resources • Biogas projects from livestock my lead to additional emission reductions • Establishing shelterbelts has social and environmental benefits for both farmers and pastoralists (Gedaref example). • Improve livelihood due to healthier livestock
• Conflicts between farmers and pastoralists over water and land use practices/rights, increased use of crop residues and demarcation of routes	Medium / Medium	• Implement conflict resolution measures. The demarcation of the livestock route should involve pastoralists and residents along the mobility pattern. The process to be used should be the one in the process framework. • Stakeholder involvement in planning and implementation • Integrated planning – livestock, forest and agriculture	• Family may need to travel less which would benefit health and education of women and children • Sustainable natural resources management
• Intensification may increase dependence on external inputs	High / Low	• Provide alternative livelihood	
• Risk of non-adoption of improved livestock breed due to cultural reluctance	Medium / Low	• Raise awareness around best practices	
• Increase in livestock numbers • Culture change resistance, lack of technical know how	Medium / Low	• Stakeholder participation Livestock sector/Forest/Agric integrated planning	• Less stress on forest, better management of livestock sector, income generation
• Increased livestock activity could lead to damage around water points	Medium / Low	• Appropriate planning and location of water points	
Additional comments: • Mixed views depending on the location. • Most stakeholders generally agree for increasing agricultural productivity but with cautions on the environmental risks and the costs and availability of inputs and low capacity of farmers to adopt new technologies • Some farmers disagree with the strategy because of potential E&S risks, unaffordability, lack of know-how • Increasing production will not reduce pressure on the forest unless policies and laws are enforced. • Support for “zero tillage” • In Gedaref, stakeholders say there is minimal expansion of agriculture in recent years and this is not a significant driver and therefore this strategy is of minor importance to REDD+ • Stop the agricultural activities inside the reserved forests • Adoption of traditional agro-silvo-pastoral system is best approach			

• Adopt integrated agriculture
• Enforce the regulation to plant trees on 10% of agricultural land
• Regarding the requirement to plant 10% are with trees, if assistance is provided women are more than willing to assist. Assistance – technical advice from NNFA, seeds
• Traditional mechanisms for disputes resolution are generally working.
• Open grazing system results in deterioration of the resource - it needs regulation
• Not feasible to exclude livestock from forests – livestock will always enter the forest
• Pastoralists maintain that they are good custodians of the forest and generally protect the forest.
• Pastoralists want to retain the tradition of staying temporarily in the forest whereas some officials recommend excluding them from the forest
• Pastoralists want wide corridors (2 km) while farmers (e.g. Gedaref) want corridors restricted to 200m wide
• Range rehabilitation through reestablishing nutritional plant species
• Over grazing is more intense in forest areas due to encroachment of animal routes by agriculture.
• Change the local community perception on livestock from being a wealth for tribal prestige into a wealth for economic purposes
• Mechanized farmers agreed that forest plantation on mechanised farming lands was a good strategy to be applied in Gezira area
• Mechanized farmer disagreed with the benefits of stopping expansions of large, mechanised farms on forest area on the social ground that it would affect food security and lead to poverty in the state and the infringement of private property rights to decide on their land
• Unavailability of a land use map in the state is a real problem that leads to forest degradation
• Lack of prudential polices (incentives) to attract private sector to be involved in rehabilitation of forest
• Downstream actors of the gum Arabic sector insist on ways to enhance to social and environmental benefits of measures to facilitate marketing of gum arabic

Conclusion: general agreement on the strategy to increase agricultural production but some concerns on the environmental and health impacts of increased use of agro-inputs and of increased mechanization on rural employment opportunities. Farmers support requiring the plantation of trees over 10% of land or for shelterbelts (and 5% in irrigated schemes).
Support for rationalizing the livestock sector and improving livelihoods with measures such as the regulation of open grazing, re-establishment of livestock corridors, provision of water and veterinary services and improved breeds. Pastoralists maintain that forests are essential for livestock and that they were good custodians of forest resources, which was contested by other stakeholders. It was the consensus that range resources have been substantially depleted through agricultural expansion. Pastoralists support planting shelterbelts as they would benefit both farmers and pastoralists. Pastoralists expressed concerns that rationalizing the sector could have negative impacts on their traditional lifestyle and customs.

5.5.3 Stakeholders' assessment of impacts, benefits, and mitigation options of consultations for strategy option 2

Table 49. Assessment of strategy measures by stakeholders

Environmental and Social risks	Measures proposed to mitigate adverse impacts	Measures proposed to enhance positive impacts
Establish shelterbelts, windbreaks and woodlots		
Environment risks Production of pollutants: 13% Ecological functions (and ecosystem services): 11% Invasive alien species: 15% Biodiversity: 11% Other aspects of the environment: 11% Pest management issues: 13 Soil productivity 15% **Social Risks** Empowerment: 13% Traditional access to resources (fuelwood, NTFPs): 11% Livelihoods/Incomes/Food security: 8% Capacity (people, institutions): 13% Social equity and fairness: 14% Aesthetic values: 9% Conflict and social harmony: 13% Rights: 13% Cultural values: 13%	• Enhance awareness and capacity building, supervision, clear policies and empower regulations • Develop shelterbelts and windbreaks • For the pest and disease: use biological control or use the suitable species. • for the conflicts & rights; Community dialogues • legalization and registration of holdings to ensure the stabilization of land, financing and planting forests. • Maintaining tree cover and not cutting and grazing inside the forest> Involving the community in returning vegetation cover. • Apply penalties for logging. • Introducing environmental education in schools. • Raising environmental awareness among societies. • There are no environmental risks. As for social risks, they are resolved through community dialogue to reach formulas that protect the rights of the affected individuals. • Introducing modern renewable energy alternatives • Encouraging women's farming	• Afforestation in the desert areas • Enhance awareness and capacity building, supervision, clear policies and empower of regulations. • This strategy should be accompanied with awareness program, subsidy program and research program to determine the suitable species for each area. • Introducing tree belts, creating windbreaks, and providing quantities of seeds for rain-fed tree plantation. • If possible, relevant government departments to be committed to implementing the strategy. • The aforementioned percentage is 5% and 10%, and the government must contribute to it with support to reach 25% of the projects area, which are planted with trees that have economic returns. • A discussion workshop must be held.
Enhance agricultural productivity		
Environment risks Production of pollutants: 12% Ecological functions (and ecosystem services) : 14% Invasive alien species: 12% Biodiversity: 14% Other aspects of the environment: 15% Pest management issues: 12% Soil productivity: 15%	• Awareness raising and extension services. • Rationalize the use of pesticides and fertilizers and conduct the necessary research to determine and control the concentrations and quantities. • Activating the extension and awareness and focus on available cultivation techniques such as improved seeds, mechanized cultivation and appropriate land preparation methods.	• Empower regulations and policies and provide guidance. • Ensure public participation

Social Risks Empowerment: 10% Traditional access to resources (fuelwood, NTFPs): 7% Livelihoods/Incomes/Food security: 8% Capacity (people, institutions): 13% Social equity and fairness: 11% Aesthetic values: 11% Conflict and social harmony 9% Rights: 11% Cultural values: 7%	• The forms lie in the ill-advised use of fertilizers and pesticides. Advising and scientific research must be adhered to. • Create programs for rural communities that work to prevent illegal cutting of forests. • Maintaining tree cover, not cutting trees, grazing inside the forest and creating windbreaks. • Providing renewable energy alternatives	
Moratorium on conversion of forest to agriculture		
Environment risks Production of pollutants 8% Ecological functions (and ecosystem services): 8% Invasive alien species: 8% Biodiversity: 8% Other aspects of the environment: 9% Pest management issues: 8% Soil productivity 10% **Social Risks** Empowerment: 8% Traditional access to resources (fuelwood, NTFPs): 10% Livelihoods/Incomes/Food security: 12% Capacity (people, institutions): 9% Social equity and fairness 15% Aesthetic values: 8% Conflict and social harmony: 12% Rights: 13% Cultural values: 8%	• the livelihood improvement will be hindered, and the people will be pushed to cut the woods for income • Involvement in policy formulation, awareness • By stakeholder consultation early enough and raising awareness about benefits. • Adopt agroforestry and Agro-silvo-pastoral systems. • Emphasis on integrated management systems • Conflicts over land could be avoided by involvement of all stakeholders in the Strategy. • Private sector involvement. • Rectify the grievance redress mechanism. • Preferential and incentive policies. • Address food security issues. • Provide incentives and preferential policies. • Trees replacement (compensation) policy has to be adopted. • As for the River Nile State, there is no mechanized farming at that level. This strategy is not suitable because the risks of food insecurity cannot be avoided.	• “the commercial farmers has to compensate the forest trees they cut in other land in addition to the compulsory 10 or 5 % forest of cultivation. • the compensation in other land like which is marginally suitable for the agriculture. • encourage the commercial non wood trees. “ • Empower regulations. Decision makers awareness • “- Involving all stakeholders concerned, • - Raising awareness • - Ownership by people • - Commitment to laws • - Provide forest definition • Provide enabling environment. • Providing food security first through farming for all lands and forests through agroforestry system
Forest plantations		
Environment risks N/A **Social Risks** Empowerment 2% Traditional access to resources (fuelwood, NTFPs) 1% Livelihoods/Incomes/Food security 1% Capacity (people, institutions) 2% Conflict and social harmony 1% Rights 1%	If the citizen has the basic needs, and the study takes into consideration these needs	
Plant 5% or10% agricultural schemes with trees		
Environment risks Invasive alien species 1% Pest management issues 2% **Social Risks** Traditional access to resources (fuelwood, NTFPs) 1% Capacity (people, institutions) 1% Social equity and fairness 1% Conflict and social harmony 1% Rights 1% Cultural values 1%	No recommendations	
Livestock fodder and feed		
Environment risks Production of pollutants: 1% Ecological functions (and ecosystem services): 2% Invasive alien species: 2% Biodiversity: 2% Pest management issues: 1% Soil productivity: 2% **Social Risks** Traditional access to resources (fuelwood, NTFPs): 1% Conflict and social harmony: 1% Rights: 1% Cultural values: 3%	• High cost, increase of chemicals on soil • Reduction of the quality of the meat products.	

Rangeland mapping and assessment		
Environment risks None **Social Risks** Conflict and social harmony: 1%		
Integrate arable farming and livestock / Improved livestock breeds and vet services		
No E&S risks		

5.6 Assessing strategy option 3: integrated land use planning

5.6.1 Background on the integrated land use planning

Strategy option 3 consists of 2 PAMs as reported in Table 50 below: PAM 6 has 3 target actions and PAM 7 has 2 target actions as is visible in Table 50 below. Strategy option 3 aims to harmonize and integrate existing land use planning and tenure legislation and policies, so that the holistic impacts from various development projects are taken into account in order to reduce sectoral policy and planning conflicts. It will also develop robust EIA and social assessment processes. Participatory approaches to planning and management are to be utilized, including the involvement of women and marginalized groups in capacity building, planning and implementation. Overall, strategy option 3 aims to help achieve greater forest protection, including habitat restoration where impacts are unavoidable.

Table 50. integrated land use planning option summary

PAM	Target actions	Responsible stakeholders
Harmonizing land use planning, investment policies, and legislation	Strengthen institutional capacity of environmental and social impacts assessments in agriculture, forestry, and mining sectors to prevent land degradation: (Institutional Capacity Needs and Gap Assessment and preparation of Capacity Development Plans)	Line Ministries of Agriculture and Forests, Animal Resources, Mining, Petroleum and Gas, Environment, Natural Resources and Physical Planning, Justice, National Legislatures. FNC, mining and oil exploitation companies
	Rationalize, organize and harmonize above and below ground resource exploitation and related economic developmental activities and policies, in order to encompass environmental and climate change concerns	Line Ministries of Agriculture and Forests, Animal Resources, Mining, Petroleum and Gas, Environment, Natural Resources and Physical Planning, Justice, National Legislatures
	Improve standards for the establishment and development of mining infrastructure (Updating of existing guidelines/policies and development of new guidelines and policies	Ministries of Minerals, Petroleum and Gas Environment
Sustainable Land management stewardship through land tenure security	Regulatory and non-regulatory measures to improve land tenure security for local communities: Assessment and identification of opportunities for strengthening land tenure security for communities in deforestation hotspots (Prioritization of Deforestation Hotspots)	Line Ministries of Agriculture and Forests, Animal Resources, Mining, Petroleum and Gas, Environment, Natural Resources and Physical Planning, Justice, National Legislatures
	Land use capability assessment and digitization to support the National Investment Map: optimizing land use through spatial planning and reliable spatial and non-spatial information	Line Ministries of Agriculture and Forests, Animal Resources, Mining, Petroleum and Gas, Environment, Natural Resources and Physical Planning, Justice, National Legislatures

5.6.2 E&S impacts and benefits assessment of strategy option 3

The proposed integrated land use planning PAMs and target actions have the potential to trigger WB safeguards on Environment and social issues; Labor and Working Conditions; Resource efficiency and Pollution Prevention and Management; Land Acquisition, Restrictions on Land Use and Involuntary Resettlement; Financial Intermediaries; Stakeholder Engagement and Information disclosure; Community Health and Safety; Indigenous peoples; and Stakeholder Engagement and Information Disclosure, as presented in Table 51.

Table 51. Option 3 E&S impact and benefit assessment and mitigation measures

Environmental and Social risks	Likelihood / Severity	Mitigation measures	Environmental and social benefits
• Women may be excluded as land rights are usually held by men	Medium / Medium	• Secure involvement of women through women-led community organizations	
• Impacts on traditional livelihoods through changes • May create governance risks (conflicts within administrations and institutions in interpretation/ understanding of new legislations, planning objectives or regulations)	Medium/ Medium	Building and transfer of capacity to enable communities to take the full advantage of new regulations and policies • Screening for social impacts and involving all stakeholders in decision making • Establishment of conflict resolution mechanism	• Improve livelihood due to clearer legislations
• Potential conflict related to land tenure and use of lands (farmers vs pastoralist v miners) as well as water and demarcation of routes • Rich stakeholders are likely to benefit more and poor stakeholders will lose out especially in areas affected by conflict	Medium/ Medium	• Implement conflict resolution mechanisms • Involve stakeholders in planning and implementation stages, esp. farmers, miners and pastoralists •The demarcation of different land uses through mapping and digitization should clearly take account of pastoral routes and reforestation efforts • Planning should involve rehabilitation of degraded areas due to the refugees in the state. • Provide livelihoods opportunities for the poor and marginalized people •Access to funding by agro-pastoralism to support rehabilitation of gum hashab areas • Integrated planning • Develop national standards	• Sustainable natural resources management
• Tree clearance for mining • Inadequate existing national E&S standards • Livelihood and health impacts on artisanal miners	Low/Low	• Improve Stakeholders participation • Integrated sectoral planning • Develop Health and Safety standards • Develop mining standards • Tree planting to offset forest clearance for mining • Unregulated artisanal gold mining has a big negative impact on range resources	• Income generation • Reduced environmental and social impacts
Lack of enforcement	Low/Low	• Stakeholder's participation • Capacity building on ESIA • Development of ESIA capacity in the Sudan	• Forest/land restoration • Sustainable and efficient natural resources management, • Clean production
Conclusion: • Need for coordination of sectors with FNC – mining, etc • Any D&D due to mining should be compensated for by tree planting with technical assistance from FNC • Unregulated artisanal gold mining has a big negative impact on range resources • The impact of infrastructure on D&D is localized and compensatory tree planting should be required Conclusion: oil exploration seemed to be regarded as a relatively minor cause of deforestation and degradation. It was also thought that related impacts could be mitigated through the requirement of planting trees to compensate for any deforestation resulting from oil activities. Forest destruction by artisanal mining was considered an issue in some locations and that the same compensatory mechanism could be used.			

5.6.3 Stakeholders assessment of impacts, benefits, and mitigation options of consultations for strategy option 3

Table 52. Assessment of strategy measures by stakeholders

Environmental and Social risks	Measures proposed to mitigate adverse impacts	Measures proposed to enhance positive impacts
Environment risks Production of pollutants 17% Ecological functions (and ecosystem services): 22% Invasive alien species 20% Biodiversity: 19% Other aspects of the environment: 15% Pest management issues 19% Soil productivity 15% **Social Risks** Empowerment21% Traditional access to resources (fuelwood, NTFPs)22% Livelihoods/Incomes/Food security: 20% Capacity (people, institutions) 21% Social equity and fairness 17% Aesthetic values 23% Conflict and social harmony 19% Rights 20% Cultural values 24%	• Give special attention to extension for awareness raising. • Spreading awareness among citizens of the importance of forests, planting trees inside and outside homes, and afforestation of sports fields in neighborhoods in schools and kindergartens. • Encourage farming activities in schools, encourage home gardens, make prizes for the most beautiful garden ... etc. • Biodiversity: May be affected if the proposed endangered and threatened species are not carefully considered, in the strategy activities • Raising awareness and strict legislation, insurance and strict guarding, by enacting deterrent laws for everyone who attacks Sudan's forests, • Large and fertile lands must be allocated to the traditional sector and an area must be allocated for it, • Provide energy alternatives, especially natural gas, for poor and rich families together, • Encourage participation of local communities in preserving forests and making use of forest products more broadly in balance with other agricultural products. • Creating programs related to improving livelihoods for local communities, such as the cultivation of vegetables (Gubraka system as example) with the necessary protection and the provision of aids. • Regulating the entry of community members into the forest and facilitating the exchange of benefits • Facilitating the enforcement of laws • Involve stakeholders in preserving resources and • Creating alternatives that relieve pressure on the resource to achieve sustainable development. • Mitigation though providing alternatives livelihoods measures. • Establishing public forests, raising awareness through educational curricula, opening lines of fire • Implementing the forest law, activating environmental protection laws. • Provide other ways to earn a living. • Raise awareness of local communities. • Improving stoves to rationalize use of biomass. • Put in place a deterrent law for the regular forces and the army, because in the previous law they were above the law and they removed and destroyed the forests of the Atbara River. • Increase the number of women with training to produce domestic charcoal. • Involving girls in planting trees in schools and villages • Empowering the forest department with the budgets that help it to carry out its tasks. • Cultivation of degraded forests and increasing forest areas with new crops, with full protection and means of movement. • Suggested deterrent penalties for logging. • Keep animal in fenced areas. • Making tree belts,	• Facilitate involvement, capacity-building. • If poverty reduction activities are not well addressed, the communities will take their needs from the nearest forests. • Traditional access to resources (fuelwood, NTFPs): needs roads, markets ....etc.". • Encourage poverty alleviation measures. • Follow up on implementation of laws. • Encourage public/community participation in planning, implementation and follow-up in managing forest resources. • Encourage integrated natural resource management. • Develop training and awareness raising initiatives for communities. • Introduce income-generating projects. • Spreading seeds for pastures and creating pastoral paths • Give attention to women skills development. • Introduce improved stoves for the manufacture of local bread (Kisra). • Encourage the distribution of fruit trees and vegetables to achieve food security. • Establish school forests and tree belts. • -Encourage home farming to achieve self-sufficiency and improve income. • Develop non-wood forest products such as beehives and gathering, seeds and fruits to improve the income of local communities. • Train communities on seedling production technologies and establishing family nurseries. • Rationalize the consumption of biomass by using the improved stoves. • Create public forests. • Involve youth in restoring tree cover in local afforestation.
Certification standards and systems/Land use institutionalization		
Environment risks N/A **Social Risks** Conflict and social harmony 1% Rights 1% Cultural values 1%	No comments	No comments

Improve silviculture and marketing of gum arabic trees		
Environment risks Ecological functions (and ecosystem services) 1% Invasive alien species 2% Biodiversity 1% Other aspects of the environment: 1% Pest management issues 3% Soil productivity 2% **Social Risks** Empowerment 2% Traditional access to resources (fuelwood, NTFPs) 1% Capacity (people, institutions): 3% Social equity and fairness 3% Aesthetic values 1% Conflict and social harmony 2% Rights 2% Cultural values 1%	• Activate the forest law. • Tightening forests guarding and engaging police and armed forces in forest protection. • Spreading awareness to communities. • Provide security. • Increase sentinels for the forest. • Providing alternatives and raising the level of environmental awareness for the community.	• Public and community participation in planning and project development

5.7 Assessing strategy option 4: sustainable energy supply and use

5.7.1 Background on the sustainable energy supply and use

Strategy option 4 consists of 2 PAM: PAM 8 has 2 target actions and PAM 9 has 2 target actions as is visible in Table 53 below. Strategy option 4 aims to adopt environmentally friendly policies and interventions in the energy sector, in order to reduce pressure on forest resources and optimize fuel consumption. This includes promoting renewable and more sustainable sources of energy, such as liquid petroleum gas (LPG), sustainable charcoal, biomass as well as encouraging use of efficient cookstoves. Actions will also seek to optimize production of charcoal. See table 53 below.

Table 53. Sustainable energy supply and use option summary

PAM	Target actions	Responsible stakeholder
Increasing access to efficient and sustainable household energy	Assessment and implementation of options for sustainable charcoal production	FNC, Energy Research Centre, development partners
	Assessment and implementation of options and measures to incentivize and increase use of LPG gas and other alternative sources of energy in urban and rural communities	Ministries of Petroleum and Gas; Environment, Natural Resources and Physical Planning; Agriculture and Forests; Finance and Economic Planning; Social Security and relevant subsidiaries; Ministry of Water Resources, Irrigation and Electricity, Private Sector
Promoting a sustainable biomass-based energy value chain	Creating business opportunities in the biomass energy sector for the private sector through regulatory and non-regulatory measures.	Ministries of Petroleum and Gas; Environment, Natural Resources and Physical Planning; Agriculture and Forests; Finance and Economic Planning; Social Security and relevant subsidiaries; Ministry of Water Resources, Irrigation and Electricity, Private Sector
	Assessment of opportunities, incentives, and promotion of adoption of efficient cookstoves – linking biomass producers and consumers	Ministries of Petroleum and Gas; Environment, Natural Resources and Physical Planning; Agriculture and Forests; Finance and Economic Planning; Social Security and relevant subsidiaries; Ministry of Water Resources, Irrigation and Electricity, Private Sector

5.7.2 E&S impacts and benefits assessment of strategy option 4

The proposed sustainable energy supply and use strategy PAMs and target actions have the potential to trigger WB safeguards on Environment and social issues; Labor and Working Conditions; Resource efficiency and Pollution Prevention and Management; Financial intermediaries; Stakeholder Engagement and Information Disclosure, as presented in Table 54.

Table 54. Option 4 E&S impact and benefit assessment and mitigation measures

Environmental and Social risks	Likelihood/ Severity	Mitigation measure	Environmental and social benefits
• Infringement of land rights in plantation development • Inappropriate species • Competition for land • Displacement of people	Medium/ Medium	• Involvement of all stakeholders • Promote private and community plantations IPPF &RP • Cost benefit analysis • Appropriate species selection • Develop community capacity for CFM	• Increased supply of wood products • Community empowerment, • Job creation
• Conflicts over land use rights	Low/Low	Stakeholders participation • Integrated sectoral planning • Develop national standards	• Harmonized policies/laws and reduced conflicts • Improved planning and management as well as environment and social sustainability of mining operations
• Conflict over biomass between fodders production and energy production	Medium/ Medium	• Stakeholder participation Cost benefit analysis and feasibility assessment	• Reduction in dependence on forest resources income generation
•Increased use of LPG may lead to environmental hazards •Affordability of gas and gas stoves may single out households •Availability of gas may lead households not having access to this fuel •Lack of awareness about the actual risks and benefits of LPG may lead low adoption rate and mis-sue of the technology •LPG is non-renewable •Employment opportunities in firewood collection for women are reduced if replaced with LPG •Health risk potential related to explosion	Medium/Low Low/Low	• Follow national standardization guidance and follow E&S impact assessment regulation • Incentivize the cost of gas stoves, cylinder or LPG • Secure supply side through open and transparent markets and increase access points (i.e. refilling shops) • Provision of training related to the appropriate use of LPG for cooking • Create fuelwood plantations • Create new livelihood opportunities	• Avoided deforestation and enhanced carbon sequestration • Soil conservation • Biodiversity and wildlife conservation • Desertification avoidance • Significant positive health impact (i.e. reduced mortality rate and diseases) from reduction of particles inhaled (Cleaner energy) • Potential reduction of household energy budget (when baseline fuel is commercially sourced) • Job opportunities related to the distribution of LPG (e.g. refilling shops) • Gender and safety benefit: reduce burden for women of collecting firewood on a daily basis, involvement of men in cooking activities • Increased time available for children, social and economic activities
•Traditional attachment to firewood and charcoal so it will require a lot to change attitudes	High/Low	• Create awareness campaigns, incentivize acquisition of alternative fuel	
For biomass: • Overuse of forest resources for generating electricity • Hazardous emissions into the atmosphere •Conflict over the resource and food security for livestock • Affordability of improved stoves may be difficult for some households • Reduction of quantities of firewood sold may lead to loss of income and livelihood	Low/Medium Medium/ High Low/High	• Only use renewable feedstock and follow best practices in line with Sudanese standards and measurement organization (SSMO) • Provide alternative feedstock for livestock	• If in the baseline the biomass is considered as a waste, it reduces environmental hazards
• Cost barriers • Infrastructure barrier, high initial cost	Medium/ Substantial	• Cost benefit Analysis • Financial incentives to LPG/solar energy adoption, energy efficiency practices, clean cookstoves, and other bioenergy products	• Reduced dependence on fuelwood and reduced pressure on forest resources • Clean energy Reduction in GHG emissions
• Inappropriate policy • Non-compliance with policy	Medium/ Substantial	• Stakeholder involvement • Cost benefit analysis of policy options • Build in private sector incentives to adopt policy (including subsidies)	

• Unequal benefit sharing between the players along the value chain (e.g. asymmetry of information leading to low level of benefits for communities)	Medium/ Medium	• Chain upgrading (i.e. bringing people to the market through cooperatives or associations)	• Improved job opportunities and livelihoods
• Organizations/individuals with more resources could capture most of the added value	High/ Substantial	• Crowd funding and micro-finance for processing facility investment by/for local communities	• Community empowerment
• Lack of consideration for environmental issues (i.e. resource efficiency, clean production concept) on value enhancing processes	Medium/Low	• Following of best practices related to resource efficiency and management (i.e. water, energy) and outputs (e.g. zero waste) • Capacity building to share know-how on environmental and resource efficiency concepts • ESIAs to mitigate negative impacts • Agric extension programs	• Reduced pressures on forests • Improved food security and livelihoods • Reduction in shifting cultivation
• Dependence on external financial and technical inputs may increase vulnerability	Medium/ Medium	• Establish micro-insurance schemes to reduce vulnerability of farmers	• Potential food supply increase

Stakeholders' comments:
•General agreement on the strategies but concerns expressed on availability of alternatives (LPG) and cost
LPG is price competitive compared to charcoal but in rural areas is not available and people cannot afford to buy it (firewood collection is free)
•More applicable in towns and cities but not viable in rural areas (thus promote/incentivize alternatives like LPG in cities and towns e.g. through taxation policy or subsidies)
•LPG is not available in rural areas during rainy season
•Recommend bakeries be encouraged to use LPG gas
• Optimizing of the biomass through using the energy efficient cooking stoves
• Mixed support for use of gas, ethanol or solar (Kenana co recommends alternatives gas, solar and ethanol gel).
• Widespread support for planting more trees for fuel wood. Focus on fuelwood plantations of fast growing species like A. sayel instead of alternatives
• Support for encouraging use of LPG by bakeries, brick burning,
• Support for enforcing the 10% requirement to plant trees on agricultural land
• Fuelwood plantations – grow more trees (shelterbelts)
• Provide livelihood opportunities to IDPs to reduce commercial charcoal production
• The appropriate form of energy for the rural requirements must be diffuse low-cost forms of energy in order to increase the energy available per capita
Feedback from rural communities and refugees on household energy issues and industries using commercial quantities of wood fuel such as the brick making (burning) :
• Clean energy sources were part of the country strategy.
• This could take the form of Solar (applicable in most states of Sudan and could serve cooking purposes); wind energy (applicable in the northern part of the country but could not expected to reduce the impact on the fuelwood and charcoal.
• LPG is very effective in reducing the pressure on forest as a substitute. However, this is severely hindered by the limited supply, affordability, absence of subsidy and transportation and accessibility to remote areas.

Conclusion: General agreement on activities aiming at reducing the harvest of fuelwood and encouraging the use of alternative fuels especially LPG in urban areas. Concerns were expressed about the potential affordability and availability of LPG especially for rural households. Reducing firewood and charcoal consumption would also have potential negative impacts on rural livelihoods related to trading. It was recommended that these negative impacts be mitigated by increased tree planting for fuelwood and by creating alternative livelihood opportunities.

5.7.3 Stakeholders assessment of impacts, benefits, and mitigation options of consultations for strategy option 4

Table 55. Assessment of strategy measures by stakeholders

Environmental and Social risks	Measures proposed to mitigate adverse impacts	Measures proposed to enhance positive impacts
Strategy option: Cater for refugee energy needs		
Environment risks Production of pollutants 3% Ecological functions (and ecosystem services): 5% Invasive alien species: 2% Biodiversity: 3% Other aspects of the environment: 3% Pest management issues: 2% Soil productivity 2% **Social Risks** Empowerment: 1% Traditional access to resources (fuelwood, NTFPs): 1% Livelihoods/Incomes/Food security: 1% Capacity (people, institutions): 1% Social equity and fairness: 1% Aesthetic values: 3% Conflict and social harmony: 1% Rights: 2% Cultural values: 3%	• Encourage the commercial cutting then should be monitored by local committee and increase the awareness. • Save refugees from risk of movement inside forests. • Providing safety and secure return of all displaced people to their areas.	• Awareness raising and capacity building. Engagement and participation. • Encourage the behavior of cutting wood for energy. • Subsidize LPG small cylinder. • Enhance livelihood by planting gum Arabic and fruits tree. • Develop improved stoves, LPG stoves, briquetting, ethanol, plantation of degraded forest, fast growing species for livelihood gum Arabic trees and fruits. • Involve the refugees in the process.
Promote clean renewable energy		
Environment risks Production of pollutants: 12% Ecological functions (and ecosystem services): 8% Invasive alien species: 12% Biodiversity: 8% Other aspects of the environment: 13% Pest management issues: 7% Soil productivity: 7% **Social Risks** Empowerment: 10% Traditional access to resources (fuelwood, NTFPs): 17% Livelihoods/Incomes/Food security: 20% Capacity (people, institutions): 13% Social equity and fairness: 8% Aesthetic values: 9% Conflict and social harmony: 9% Rights: 11% Cultural values: 8%	• Suitable policies, coordination, other sources. • Utilizing agricultural waste in energy production, as well as utilizing methane gas extracted from sewage to produce biogas. • Reducing pressure on firewood by using improved stoves. • Reducing volume of gas canisters and delivering them to remote areas. • Funding alternative energy projects. • Forming women's associations through community organization. • Achieving equal rights, transparency and justice. • Subsidize the alternatives of clean energy (solar) • Government institution should properly manage resources. • More tree planting and seed dispersal in swamps and lowlands. • Force owners of agricultural projects to plant tree belts. • It is preferable to use gas if it is provided. • No charcoal alternative. • Activating partnerships with the private sector in reforestation. • Intensification of guard operations by increasing the number of rangers in the forests and providing them with needs. • Increase the percentage of farming in the private sector. • Establishing private and public forests. • Develop home farming. • Improve irrigation policies in home farming. • Supporting citizens with seedlings and seeds to encourage tree planting. Make clean energy available with affordable prices. • Raise citizens' awareness. • Directing charcoal makers not to cut down local trees for charcoal making. • Planting tree belts in agricultural projects. • Providing job opportunities to train the community to use gas in burning bricks. • Providing energy alternatives.	• Involvement, Capacity building on know-how, technology and finance promotion. • LPG is not a RENEWABLE source of energy. It is better not to include it in the above list of energy sources. • To give the opportunity to take advantage of the managed departmental felling. • Planting trees, such as Mahogany and Neem, to be used in the manufacture of furniture. • Provision of energy alternatives. • Income-generating projects to alleviate poverty and reduce pressure on forest resources. • Encouraging farmers, supporting agricultural inputs and building capacity. • Encouraging honey production and establishment of apiaries. • Pay attention to non-simulated forest products such as fruits. • Attention to the female component and capacity building in the field of microfinance and income-generating projects. • Raising awareness among rural communities. • Rationalize the consumption of biomass and the use of agricultural waste. • The introduction of improved stoves. • Protection campaigns and increasing the number of guards. • Increasing the contracted area to cover the costs of agriculture. • Increasing the contracting time guarantees participation in the protection. • Activating community participation in forestry reconstruction. • The state's interest in agriculture and facilitating production inputs, especially fuel with good follow-up from the inspectors. • Providing renewable energy alternatives with the possibility of governmental subsidies. • Community participation in protecting forests

Fuelwood plantations		
Environment risks Production of pollutants: 1% Invasive alien species: 1% Other aspects of the environment: 1% Pest management issues: 1% **Social Risks** Empowerment: 2% Traditional access to resources (fuelwood, NTFPs): 2% Livelihoods/Incomes/Food security: 3% Aesthetic values: 1% Conflict and social harmony: 2% Rights: 1% Cultural values: 2%	• The cost of LPG and the way of refuel it is challenging and render this option unfeasible • It is a government job only	• Forest for energy may be more effective in this case. • Provision of clean energy alternatives with continuous availability.
Reforestation by oil/mining industry		
Environment risks Production of pollutants: 12% Ecological functions (and ecosystem services): 9% Invasive alien species 9% Biodiversity: 10% Other aspects of the environment: 14% Pest management issues: 8% Soil productivity: 10% **Social Risks** Empowerment: 12% Traditional access to resources (fuelwood, NTFPs): 9% Livelihoods/Incomes/Food security: 10% Capacity (people, institutions): 7% Social equity and fairness: 11% Aesthetic values: 16% Conflict and social harmony: 11% Rights: 8% Cultural values: 11%	• Involvement, coordination, well-articulated policies. • Green mining should involve the cultivation of vegetables and fruits.	• Policy makers awareness, adoption of policies • Empowerment of regulations. Supervision
Rationalize mineral resource exploitation		
Environment risks Invasive alien species 1% Pest management issues 1% **Social Risks** Empowerment: 3% Traditional access to resources (fuelwood, NTFPs): 2% Livelihoods/Incomes/Food security: 2% Social equity and fairness: 3% Aesthetic values: 4% Conflict and social harmony: 1% Rights: 2% Cultural values: 3%		
EIAs in the oil and mining sector / Offset unavoidable emissions in the mining sector		
No E and S risks		

5.8 Assessing strategy option 5: Promote participation in climate change responses

5.8.1 Background on promoting participation in climate change responses

Strategy option 5 consists in 1 PAM: PAM 10 has 6 target actions as is visible in Table 56 below. Strategy option 5 aims to promote the participation of women and youth in climate change response strategies. It seeks to mainstream gender and youth perspectives in national policies and strategies on climate change/forest management through partnerships within and between government agencies CSO, NGOs and development organizations.

Table 56. Resilient communities and livelihoods option summary

PAM	Target actions	Responsible stakeholder
Advance the participation of youth and women	Encourage access of women and youth to decision making forums and bodies at national and local levels regarding climate response measures.	Sudanese Environment Conservation Society Sudanese Environmental Community Organization, Youth Green Creep Organization, and the Sudanese Youth Parliament for Water Sudan MAB Youth Forum
	At national levels, gender and youth perspectives should be mainstreamed into national policies and strategies on climate change.	Relevant ministries and state authorities at local level, community organizations, and NGOs Federal Ministry of Youth and Sports Ministry of Higher Education and Scientific Research
	Develop education and awareness programmes to help youth develop deeper understanding of the impacts of climate change and develop skills and knowledge in responding to these impacts.	
	In implementing all PAMS in this NRS, specific consideration should be made in addressing gender inequalities in relation to access to resources, including credit, extension and training services, information and technology.	
	All communications undertaken in relation to the PAMS in this NRS should involve a well-defined, gender and youth sensitive and culturally appropriate communication strategy.	
	Design and implement mechanisms that involve communities (including women, youth and elders) in monitoring social and environmental improvements in local areas.	Relevant ministries and state authorities at local level, community organizations, and NGOs Sudan MAB Youth Forum
	Design and implementation of gender-responsive social and environmental monitoring systems.	Relevant ministries and state authorities at local level, community organizations, and NGOs

5.8.2 E&S impact and benefit assessment of strategy option 5

The proposed measures – promotion of youth and gender participation PAM and target actions have the potential to trigger WB safeguards on Environment and social issues; Labor and Working Conditions; Resource efficiency and Pollution Prevention and Management; Financial intermediaries; Stakeholder Engagement and Information Disclosure.

Table 57. Option 5 E&S impacts and benefits assessment and mitigation measures

Environmental and Social risks	Likelihood/ Severity	Mitigation measure	Environmental and social benefits
• Inappropriate policy • Non-compliance with policy	Medium / Medium	• Stakeholder involvement • Cost benefit analysis of policy options • Build in private sector incentives to adopt policy (including subsidies)	• Increased participation in forest management initiatives • Community empowerment • Shared benefits with more vulnerable groups
• Cost barriers • Infrastructure barrier, high initial cost	Medium / Substantial	• Cost benefit Analysis	• Reduced dependency on fuelwood and reduced pressure on forest resources for vulnerable groups • Encourage use of clean energy and reduction in GHG emissions
• Culture change resistance • Lack of enforcement	Medium / Medium	• Involvement of all stakeholders • Stakeholder participation	• Community empowerment, • Awareness building
• Impacts on traditional livelihoods through changes • May create governance risks	Medium / Medium	• Stakeholder participation • Cost benefit analysis and feasibility assessment • Follow best practices • Provide training/sensitization opportunities and implement awareness campaigns	• Reduction in dependence on forest resources income generation • Creation of new job opportunities in policy administration and management

5.9 Assessing the capacity of Sudan's environmental governance systems

The objectives of the assessment of the legal, policy and regulatory environment for REDD+ strategy implementation were to:

I. identify national policies laws and regulations as well as the institutions of relevance to the E&S safeguards on REDD+ implementation.

II. identify overlaps, conflicts, gaps or inconsistencies between the Sudan policies and laws and the WB and UNFCCC environment and social safeguard policies.

III. determine which World Bank Safeguard policies are likely to be triggered under REDD+ programme.

The assessment of the national policy and legal framework has been conducted based on a three-step methodological approach, including (i) an extensive document/literature review covering approximately 70 policy and legal documents, as well as existing reports and studies (ii) an expert assessment via focus group discussions involving HCENR, FNC and academics (iii) focus group discussions and interviews involving a series of stakeholders, representing Sudanese states.

Approximately 70 past and existing policies and laws relevant to REDD+, covering some 16 different topics/sectors, have been considered and analyzed against seven WB E&S Safeguard Policies. These policies are described briefly below. For each safeguard, gaps in the Sudan policies, laws and regulations were identified, and recommendations were made to address the gaps (in Table 58 in the following sections).

5.9.1 Sudan Transitional Constitution

The SUDAN Transitional Constitution (2019) provides a strong basis for the environment and social safeguards required for REDD+. Articles relevant to environmental and social protection are:

Article 8 which states that:

"(1) The Republic of Sudan is a decentralized state, whose levels of government is as follows:

(a) The federal level, which exercises its powers to protect the sovereignty of Sudan and the integrity of its territory, and promote the welfare of its people by exercising powers on the national level;

(b) The regional or provincial level, which exercises its powers on the level of regions or provinces as prescribed by subsequent measures;

(c) The local level promotes broad popular participation and expresses the basic needs of citizens, and the law determines its structures and powers.

(2) The different levels of governance have both exclusive and shared competencies and powers, and they have resources, as determined by the law.

(3) Until the geographical demarcation and distribution of powers and competencies between the levels of government is re-examined, the existing system shall remain in effect and executive governments shall be formed in the provinces, as determined by subsequent measures".

Article 9 states that "The bodies of the transitional government consist of the following:

(1) The Sovereignty Council, which is the head of state and symbol of its sovereignty and unity;

(2) The Cabinet, which is the supreme, executive authority of the state;

(3) The Legislative Council, which is the authority responsible for legislation and oversight over the executive's performance.

(4) The Sovereignty Council appoints the chairperson and members of the following commissions, in consultation with the Cabinet:

(a) Peace Commission;

(b) Borders Commission;

(c) Constitutional Drafting and the Constitutional Conference Commission;

(d) Elections Commission.

(5) [sic] (a) Legal Reform Commission;

(b) Anti-Corruption and Public Funds Recovery Commission;

(c) Human Rights Commission;

(d) Civil Service Reform Commission;

(e) Land Commission;

(f) Transitional Justice Commission;

(g) Women and Gender Equality Commission;

(h) Any other commissions that the Cabinet deems necessary to establish."

Article 65 indicates the following: "All ethnic and cultural groups shall have the right to enjoy their own culture and develop it freely. The members of such groups shall have the right to exercise their beliefs, use their languages, observe their religions or customs, and raise their children in the framework of such cultures and customs."

Article 67 states that:

"During the transitional period, state agencies shall work on performing the following duties:

a. Achieve a just and comprehensive peace, end the war by addressing the roots of the Sudanese problem and handling its effects, taking into account the provisional preferential measures for regions affected by war and underdeveloped regions, and treat issues of marginalization and vulnerable groups and the groups most harmed.

i. Return properties belonging to organizations and individuals that were confiscated due to war in accordance with the law.

j. Adhere to the relevant international standards for compensation and return of properties to displaced persons and refugees, and ensure and guarantee the human rights of displaced persons and refugees set forth in international agreements and national laws within the voluntary return process and after.

k. Ensure the right of displaced persons and refugees to participate in general elections and the Constitutional Conference."

Finally, article 68 states that *"The essential issues for peace negotiations include the following:*

c. Voluntary return and sustainable solutions for the issues of displaced persons and refugees;

d. Issues of marginalization and vulnerable groups;

f. The system of governance and the relationship between the centers, provinces/regions;

g. Issues of land and tribal lands (hawakir);

j. Reconstruction of regions affected by the war;

l. Transitional justice, reconciliation and restitution of victims;

m. The administrative status of provinces/regions affected by the war;"

5.9.2 Forests policies and legislation

The current forest policy dates from 1986. It established the framework and principles required to protect the forest resources and conserve environmental values, secure public participation and provides for the multiple uses of forests. The policy requires revision as it pre-dates modern trends in forest management and pre-dates the secession of South Sudan. A process of revising the policy was started in 2006 with assistance from FAO but was not completed.

The current forest act is the Forests and Renewable Natural Resources Act 2002. It promotes an intersectoral approach to natural resources management involving forests, range and pasture and agriculture. The act supports agroforestry and includes a requirement for 5% of irrigated agricultural land to be planted with trees and 10% of rainfed agricultural land to be planted with trees.

The Act recognizes three categories of forest ownership – private, community and institutional but places all types of registered forests under the technical supervision of the FNC. Private land is land registered before 1970. Community land is land that is registered as community forest or for other purposes (provided for under the 1984 Act). The 1986 forest policy and the 2006 forest policy (under process) which emphasize and encourage establishment of community, private and institutional forests. Since the mid-1980s community forests can be registered under communities' title and managed by the communities. The act also recognizes the role of the native administration and traditional leaders and local communities

and it recognizes the multiple uses of trees and forests and usufruct rights of communities living around forest reserves.

There are a number of gaps in the 2002 Act in regard to E&S safeguards. The Act prohibits settlements in Forest Reserves (FRs) and is silent on the issue of indigenous people living in forest reserves (such as the Megano ethnic group living in Dinder National Park, or others in Elgiri Forest reserve). The Act does not provide for joint forest management although there is collaboration with neighboring communities through the Taungya system. One weakness of the 2002 Act which was highlighted by stakeholders during SESA consultations (in particular in North Kordofan, South Kordofan, North Darfur and East Darfur) is the "reconciliation mechanism" which allows for negotiation of fines in cases of forest crimes as this often encourages corruption and further violations. Another weakness of the Act highlighted during consultations was the introduction of the natural resources police which had a negative impact on relations between the FNC and local communities.

A process of revising the Act was undertaken from 2013-5 and the revised Act is now at an advanced stage of the approval process. The revised Act provides for joint forest management, benefit sharing, community forestry, respect for indigenous culture and peoples, and protection of genetic resources. The "reconciliation mechanism" and the natural resources police have been dropped in the new Act. The multisectoral approach of the 2002 Act has also been dropped and all measures related to range and pasture in the 2002 Act have been dropped. Settlements in FRs are prohibited under the revised Act.

5.9.3 Policies and legislation safeguarding natural habitats

The conservation of forest resources is enshrined in national and state laws, including the conservation of genetic diversity at the ecosystem and species levels. Most forest genetic resources are conserved in national parks, forest reserves, natural stands and plantations.

The Wildlife Conservation and National Parks Act (1986) is the most important legislation for biodiversity conservation and management. It aims at the conservation of wildlife and natural habitats as well as promotion of sustainable use of wildlife resources. It prohibits activities inside National parks including cutting trees, grazing livestock, and human settlements.

The Sudan ratified the CBD in 1995 and developed the National Biodiversity Strategy and Action Plan (NBSAP) in 2000. Under the CBD, the Sudan signed up to the Aichi principles in 2015 and incorporated them into the revised 2015-20 NBSAP. Goal D of the Aichi Principles aims to enhance the benefits to all from biodiversity and ecosystem services and includes a target (by 2020) for ecosystems that contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable. Goal C of the Aichi Principles aims to enhance participatory planning. Target 18 calls for respect of traditional knowledge[45], innovations and practices of indigenous and local communities.

The Nagoya Protocol under the UNCBD deals with fair and equitable sharing of benefits arising from genetic resources and is still at draft stage. The Sudan expects to sign and operationalize this when completed and incorporate the provisions in national laws.

National Biosafety Law No. 15 (2015) regulates production of genetically modified organisms or genetically modified products and prohibits the direct release of GMOs or products into the environment which could pose risks to human health, biodiversity and the environment.

5.9.4 Environmental protection regulatory framework

The Environment Protection Act (2001) is the principal legal instrument for protection of the environment. The Act aimed to harmonize the different sectoral environmental laws. It provides for regulations setting environmental standards, provides for protection of biodiversity and combating of pollution, and requires environment screening to be done prior to implementing development projects. The act also provides for raising environmental awareness and participatory planning and policy development.

The Act provides the framework for environment management but very few regulations and guidelines which are needed to standardize procedures and implement the Act have been developed. As a result, the format of ESIAs has not been consistent and environment and social standards have not been specified. The main weakness is in implementation and there is little follow up and monitoring to ensure that mitigation measures in ESIAs are implemented.

Environment protection measures are also incorporated in several other laws and regulations which may be relevant to REDD+ such as the Petroleum Resources Act 1998, which states that oil exploration companies "shall give due regard to

[45] Examples of traditional knowledge relevant to REDD+ are knowledge of traditional medicines and herbs, knowledge of flora and fauna, knowledge and practice of traditional livelihoods linked to trees and forest resources, knowledge of the spiritual value of forests.

environmental health and safety measures". Compensation measures for pollution are required under the Act. In practice this has involved tree planting to compensate for forest destruction resulting from oil exploration and operations.

Taking stock of this gap, in 2017, the government put forward a plan to reduce the pressure on forests from agriculture and industry, slow the rate of deforestation, protect forest ecosystems while also protecting rural livelihoods, and reduce the threat of climate change (Forest National Conservation 2017). This will be achieved by:

- Monitoring the state of – and risks to – forest.
- Facilitating forest reserving procedures to ensure that at least 20 per cent of Sudan's forest area is reserved forest.
- Increasing planted area by natural and artificial regeneration in reserved forests.
- Encouraging communities and the private sector to produce non-wood forest products such as fruits, gum and honey, and regulating the markets to meet the increasing demand for these products.
- Expanding the production of gum Arabic to 500,000 tonnes per year by 2019 and increasing the export of gum Arabic to at least 200,000 tonnes per year.
- Promoting scientific and technical research in forestry to support forest-related industries such as furniture, construction, pulp and paper, food, fodder, glue, medicine and aromatic resources.
- Promotion of sustainable fuelwood production, consumption and usage.
- Use of alternative sources of energy such as LPG, solar and wind.

The Sudan also boosted its forest conservation efforts in 2012 by initiating the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation, known as REDD+. As well as reducing carbon emissions from forests, the programme is aimed at improving conservation and the sustainable management of forests.

5.9.5 Land tenure regulatory framework

The legal framework for land tenure is complex with parallel statutory and customary systems which have resulted in confusion over which takes precedence. The customary tribal system of land tenure and administration which functioned in the past was disrupted when the government took ownership and control of all unregistered land through the Unregistered Land Act of 1970. The role of the tribal system was side-lined but continued to function in practice as government control was ineffective and not consistent. The Act did not recognize customary rights or usufruct rights and gave the Government power to lease land to farmers, commercial farming companies, and others including oil and mining interests. The tribal system was partially restored in 1984 through The Civil Transactions Act 1984 which repealed the 1970 Act. It reaffirmed the role of the Government as owner of the unregistered land but recognized usufruct rights, transfer and inheritance of rights, and granting of land leases to cooperative bodies and communities.

As a result, Sudan has two forms of land tenure arrangements: statutory and customary. Under statutory arrangements, the country has long had a legal system for land registration through which individuals, enterprises or the government can establish title to a piece of land. This is covered by the Land Settlement and Registration Ordinance of 1925. Land registrations of this type cover most of the major urban centers and land along the River Nile, while the rain lands, which form most of the country's land, are unregistered (United Kingdom, Foreign Office 1925).

In 1970, the Unregistered Land Act declared that all wasteland, forests and unregistered lands are owned by the government (Komey 2009). Before the act was passed, the government had avoided interfering with individual customary rights to unregistered land in the rain lands. The Civil Transaction Act (1984), which repealed the 1970 Unregistered Land Act, legalized elements of Sharia Law by recognizing rights to unregistered land (urf) while confirming the role of the state as landowner and manager. The Civil Transaction Act converts all non-registered land by a pen stroke into registered government land. The Act states: "No court of law is competent to receive a complaint that goes against the interest of the state." The Act maintains the basic principles of usufruct rights – the right to enjoy another person's property without abusing it. These rights recognize individual rights to land, within the tribal land ownership, which can be inherited, but with no power to remove land from the ownership of the tribe (Shazali 2002).

The Civil Transaction Act also considers the following issues that are important to securing land tenure:

- Transfer and inheritance of rights.
- Compensation for land appropriated by the state.
- Granting of land leases to cooperative bodies and communities.
- Conditions for obtaining usufruct rights.

• Possibility of registering easement rights (rights of way).

The Sudan's customary land tenure arrangements derive from tribal territorial rights that were established during successive indigenous kingdoms of precolonial Sudan and reinforced through legislation under the British colonial administration. Customary rights ensured the collective security of the tribe within the tribal homeland. Within the customary land tenure arrangements, which still apply, security of access to land among settled communities was legitimized through membership of a village community. As well as wasteland, forests and unregistered lands, the government owns urban land, national parks and land under irrigated agricultural schemes, which is leased to individuals or to private companies. Land used for pasture and for traditional cultivation is communally owned under customary land laws that may vary between locations but follow a similar pattern.

The coexistence of statutory and customary land laws has created a confused legislative environment. To reduce the complexity and to try to harmonize the two systems, the Sudan Comprehensive Peace Agreement in 2005 called for the creation of land commissions – a National Land Commission and one for each of South Kordofan, Blue Nile, Darfur and Eastern Sudan. Although only the Darfur Land Commission has been established, all peace agreements and their resultant institutions are under review after the political change that ended the previous regime in 2019.

Sudan's Interim National Constitution of 2005 includes provisions that relate directly to land tenure and natural resource management:

Article 186

"1) The regulation of land tenure, usage and exercise of rights thereon shall be a concurrent competence, exercised at the appropriate level of government.

2) Rights in land owned by the government of Sudan shall be exercised through the appropriate or designated level of government.

3) All levels of government shall institute a process to progressively develop and amend the relevant laws to incorporate customary laws, practices, local heritage and international trends and practices."

Article 190

"1) Persons enjoying rights in land shall be consulted and their views shall duly be taken into account in respect of decisions to develop subterranean natural resources from the area in which they have rights. They shall share in the benefits of that development.

2) Persons enjoying rights in land are entitled to equitable compensation on just terms arising from acquisition or development of land for the extraction of subterranean natural resources from the area in respect of which they have rights.

3) The communities in whose areas development of subterranean natural resources occurs have the right to participate, through their respective states, in the negotiation of contracts for the development of those resources."

In 2015, the Interim National Constitution was amended, and Article 186 was replaced with the following (Government of Sudan, 2015):

Article 186

"1) Regulation of land tenure, usage and exercise of rights thereon shall be a concurrent competence, exercised at the government level concerned, in accordance with the provisions of law.

2) The President of the Republic may, from time to time, issue presidential decrees, for defining such land, as may be used for investment purposes; and the manner of disposal of the return of investment thereof; and determine the government level concerned, for management, and exercise of rights thereon.

3) The National Legislature shall approve the National Investment Map."

The implication of this amendment is that it gave the president powers to intervene and define lands for investment. As a result, most land is under government control. As a result, each category faces many problems due to conflicting rights of use and legislation that gives the government greater control on resource use. Farmers are required to plant trees on a proportion of the land or in shelterbelts, but the ownership of trees is not specified.

At the level of individual small holder farmers and pastoralists, their rights and entitlements to land and access to natural resources is through the customary system but they have no statutory entitlements to land and natural resources. This is a legislative gap that needs to be addressed. The lack of clarity on tenure of land and resources is a constraint in designing REDD+ benefit sharing mechanisms. Tenure arrangements will have a critical influence on the eligibility of stakeholders to benefit from REDD+ activities and to benefit from carbon credits generated through REDD+ activities. This is also needed to reduce the potential for elite capture and reduce the potential for corruption. Clarification of tenure arrangements and

improvement of tenure security for local stakeholders, in particular traditional users, needs to be addressed if the benefits of REDD+ are to be shared equitably.

An anti-corruption framework would play an important role in benefit sharing in several ways, including stakeholder participation in terms of access to information, and legitimate/inclusive decision-making processes; and creating incentives for stakeholders to participate in REDD+, in terms of a REDD+ system's ability to deliver promised benefits and channel finance effectively

The Interim National Constitution of 2005 sought to address some of these issues. Indeed, it gave the Sudan's states certain responsibilities over the administration of land and the management of natural resources. However, while this devolution of power is clear on paper, in practice there is confusion over the division of authority. Another challenge is that the government's Twenty-Five-Year Strategy (2007–2031) does not contain any specific policies for land and the environment under the Economic Strategy, which reflects a broader failure to integrate land issues into national development policies.

Nevertheless, the strategy does call for the sustainable management of land and contains suggestions for achieving that, including (WB/MFEP 2016):

- Optimizing land use according to its productivity.
- Implementing the national plan for land use, which includes allocating 25% of the total land for grazing and forests to benefit livestock and wildlife.
- Developing the Sudan's water resources by increasing storage capacity, exploiting ground water, expanding water catchments and providing drinking water for communities and livestock.
- Rehabilitating irrigation services to make water use more efficient, including the introduction of appropriate technologies to optimize water use and raise water awareness.
- Increasing the area of forest.
- Expanding exploration and exploitation of mineral resources.
- Expanding the oil industry by introducing policies and laws protecting local and international investments from state expropriation.

5.9.6 Regional and international conventions and treaties ratified by the Sudan

The regional and international conventions and treaties relevant to REDD+ environment and social safeguards that have been ratified by the Sudan are as follows:

- The Statement of Forest Principles and Agenda 21 (1992). The Statement of Forest Principles and Agenda 21 (Rio de Janeiro, 1992) are two of the major agreements adopted at the 1992 United Nations Conference on Environment and Development (UNCED). These principles are generally considered as guidelines to direct states towards a more sustainable forest management regime.
- The Criteria and Indicators for Sustainable Forest Management (2001). The Criteria and Indicators tool for SFM developed by the FAO provides a framework for SFM that incorporates environment and social safeguards. The C&I specify the essential elements or principles against which sustainability is judged, and the indicators help policymakers and forest managers monitoring the effects of forest management overtime, considering the productive, protective and social roles of forests.
- The United Nations Convention to Combat Desertification (UNCCD) (1994), and the New UNCCD (2018 - 2030). The Sudan ratified the UNCCD in 1995. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas.
- The Convention on Biological Diversity (CBD) (1992). The CBD was adopted in 1992 and contains a number of provisions that are relevant to REDD+ safeguards including conservation of biological diversity, sustainable use of biodiversity components, fair and equitable sharing of the benefits deriving from the utilization of genetic resources and integrating conservation and sustainable use of biodiversity in decision-making.
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973). The CITES was signed in by the Sudan in 1983. Its main objectives are: (i) strengthening international protection of endangered species by managing international trade therein; and (ii) ensuring that commercially exploited species, which are not currently threatened, do not become endangered.
- Sudan Biosafety Protocol (1999). The Biosafety Protocol (1999) deals with the handling, import, export and utilization of GMOs by developing a legal framework for their management. The Sudan became a part of the Biosafety Protocol

in 2004 and issued a National Biosafety Law No. 15 (2015) to prohibit the direct release of GMOs or products into the environment.

• The UNFCCC (1992). The UNFCCC deals with the management of natural resources and ecosystems, including forests, that might contribute to tackling climate change. The Sudan is a party to the UNFCCC since 1993. The Cancun Agreements of COP-16 included a decision listing environment and social safeguards for REDD+. The safeguards relate to social and environmental issues, including transparent forest governance structures, respect for indigenous peoples and local communities, effective participation of relevant stakeholders, and conservation of natural forests and biodiversity.

• The Kyoto Protocol (1997). The Kyoto Protocol (1997) has the objective to stabilize atmospheric concentrations of GHG. The CDM is one of the mechanisms defined by the Kyoto Protocol for the development of projects aiming to reduce carbon emissions: it allows mobilizing investments for low carbon development projects, including forest ones (afforestation and reforestation). The Sudan joined the Kyoto Protocol in 2005 and established a process to promote CDM, REDD+ and carbon investment opportunities to support low-carbon national development processes. The Sudan prepared a CDM strategy in 2011 to support carbon investments.

• Paris Agreement. The Sudan signed the agreement in 2017 and is planning programs including increasing efforts to reduce emissions from degradation and deforestation, support for afforestation programs and reforestation as indicated in its Nationally Determined Contribution. The Sudan is planning ambitious programs in the fields of solar energy and the energies of wind and water aimed at reducing reliance on wood fuel and charcoal.

The Sudan's willingness to embrace the principles of global thinking through the adoption of international agreements is to be applauded. International conventions have had a positive influence on the Sudan's domestic policies, especially those focused on environmental issues, and in a few cases the positive effects have filtered down to the community level.

5.9.7 Policy gaps and recommendations

Table 58 below compares environmental governance in the Sudan with the requirements of the WB ESSs and offers a series of recommendations to better integrate the ESSs into existing governance processes.

Table 58. Sudan governance gap assessment summary

Standard	Sudan Policies Laws and Regulations relevant to the WB Environment and Social Standards	Conclusions and Recommendations
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts **Objective:** to ensure projects implemented with WB funding are environmentally and socially sound. and sustainable. -The process will utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate, Provisions include: - Initial screening and categorizing risks depending on potential impacts. - Further EA or Environmental and Social Impact Assessment (ESIA) as determined in the screening process. - Development of an Environment and Social Commitment Plan as determined in the ESIA process. The ESCP will set out measures and actions required for the project to achieve compliance with the ESSs over a specified timeframe	The Environment Protection Act 2001 provides the framework for E&S screening, ESIAs and environmental and socially sustainable development. Work was started on developing the regulations, guidelines and standards which are needed to standardize procedures and implement the Act but they were finalized and approved. However, following the revolution, HCENR has established a committee to revise and finalize these instruments. As of now, the format of ESIAs is not consistent and environment and social standards are not clear. HCENR in the states are not branches of the Federal HCENR but are independent bodies, which established according to their respective state's laws. The committee formed by the Ministry of Agriculture and Forestry for the establishment of a mechanism for the development and management of the natural resources indicated that HCENR is converted to an implementing institution after the creation of the MoENRPD in 1994, which was dissolved in 2019. The same committee indicated that the HCENR is concentrating on environmental issues and not giving the same level of attention to the natural resources. At present, only five state councils for HCENR found in Gadaref, River Nile State, North Darfur, Sinnar, and Khartoum States. Although these institutions are in place, there is not any robust networking between them. Revision of the Act was started in 2013 and was updated in 2020, but it was not based on thorough stakeholders' consultation. Many governments and NGOs criticized the draft manuscript of the law. The revised Act is not approved.	**Conclusion:** Sudan has legal instruments for environment assessment, but processes are not standardized, and implementation is inconsistent and weak. The ESMF is not sufficient to meet the requirements of the WB standards. The HCENR, established in 1991, was visualized to be the most prominent, stable and recognizable environmental body in Sudan, but it was not empowered by the government to function properly. On 30 April 2020, the Transitional Supreme Council established a new HCENR. On May 21, a Secretary-General was appointed to the HCENR, who reports directly to the Prime Minister of the Transitional Government. It is expected that these changes will result in a more effective and productive institution for environment management.

	An assessment of EIA practice in Sudan by Turabi 2007 identified the main weaknesses as[46]: - Lack of trained staff and resulting poor quality of environment assessments, analysis and reports and inappropriate timing of EIAs - Poor quality Environment Management Plans, lacking feasibility assessment, cost analysis and responsibilities and monitoring schedules - Lack of public disclosure of EIA reports - Lack of Sudanese guidelines for EIAs and reliance on international guidelines - Reliance on experts' opinions and lack of stakeholder consultation in environment and social assessments - Inadequate monitoring and implementation of environmental management plans These weaknesses pointed out in 2007 are still valid.	**Recommendation:** - For REDD+ planning and implementation, utilize the institutional structures, process and tools as specified in this ESMF. - Support enhancing the capacity of Sudan's environmental and social framework as follows: • Completion of the revision and updating of the Environment Protection Act and development of its supporting guidelines, regulations, processes and tools. • Support institutional strengthening and capacity building of HCENR at Federal level and State levels and institutional linkages and collaboration between States and with the Federal level
ESS 2: Labor and Working Conditions **Objective:** to promote operational health and safety of project workers and to protect workers' rights. Provisions include: - OHS protection of direct project workers, third party contracted workers, primary supply workers and community workers - Health and safety standards - Non-discrimination and equal opportunity - Child labor and minimum age and - Workers organizations and grievance mechanisms	The 2005 Constitution is dissolved and replaced by the constitutional constitution, 2019 which endorses the rights of citizens to live in clean environment (Article 11). The constitution does not address occupational safety and health (OSH) specifically, but it includes several articles that refer to the rights and fundamental freedom of all citizens, and address upholding values of justice, equality, human dignity including the following. Article 65 provides for the right to health. "State undertakes to provide primary health care and emergency services free of charge for all citizens, to develop public health, and establish, develop and rehabilitate health and basic diagnostic institutions". Article 49, provides for free healthcare for motherhood, childhood and pregnant women. Article 8/14 14 states that "during the transitional period, state agencies shall be committed to play an active role in social welfare and achieve social development by striving to provide healthcare, education, housing and social security, and work on maintaining a clean natural environment and biodiversity in the country, protecting, and developing it in a manner that guarantees the future of generations". Article 40/1 states that "Upon the occurrence of any urgent danger, natural, or environmental disaster that threatens the unity of the country, or any part thereof, or its safety or economy, the Sovereignty Council may, pursuant to a request from the Cabinet, declare, a state of emergency in the country or any part thereof, in accordance with this Constitutional Charter and the law" The main legislation on occupational safety and health are the Labour Code of 1997, the Bylaw of Factories Decree of 1981, the Bylaw of Factories (occupational health) also of 1981 and the work injuries compensation Act of 1981. Other Laws and regulations covering Aspects related to OSH that are relevant to ESS2 are: - Social Insurance and Pensions Act 2016 - Occupational Health Act (Khartoum State 2011) - Civil defence Act 2005. - Protection and Safety Bylaw 2017 (Civil Defence). - Public Corporation for Workers Education Act 1970 amended in 1976, 1993. - The Environmental Health Act 1975: - The National Public Health Act 2008 - Pesticides act 1974 amended 1990. - Environmental Protection Act 2001 amended 2020 - Child Act 2004, Elimination of child labour, protection of children and young persons, Chapter VIII - Standards and Metrology Act of 2008 - National Medical commission Act 2008 - Medical Commission bylaw 2012 - Drugs and Toxins Act 2009	**Conclusion:** The requirements of ESS2 are covered in the Sudan PLRs but institutions and implementation are weak. Awareness levels are low, inspection levels are low, compliance levels are low, especially in the informal sector. **Recommendation:** A review of OSH carried out by ILO in 2018 recommended the following measures for improving compliance with international OSH standards: - Strengthen institution and sectoral coordination - Activate the regulatory framework - Additional finance and funding mechanisms - Improve statistics gathering and presentation - Awareness raising at the institutional level, for the workers to know their rights.

[46] Lamya Dafalla Abdalla Al Turabi 2007, Evaluation of EIA Practice in Sudan

	Technical standards have been developed under the OSH Act Khartoum State 2011, and Sudanese Standards and metrology Organization (SSMO) standards encompassed many of the items related to the workplace safety and environment, noise level, heat, light, boilers, PPE, radiation, and fire detectors. Also, the SSMO has specific standards on air quality and effluent standards. Guidelines and codes of practice have been developed for mining and for oil and gas industries. Sudan has ratified 16 international labor standards conventions which are currently in force in the Sudan including: - The forced labor convention 1930 - Right to organize and collective bargaining convention 1949 - Equal remuneration convention 1952 - Abolition of forced labor convention - Discrimination (Employment and Occupation) convention, 1958 - Minimum age convention (1973) - Worst forms of child labor convention, 1999 - Labor inspection convention, 1947 - Employment policy convention, 1964 - Unemployment convention 1919 - Equality of treatment (Accident Compensation) Convention 1925 - Minimum wage fixing machinery convention, 1928 - Protection of wages convention, 1949 - Social policy (Basic Aims and Standards) Convention, 1962 Part time work convention, 1994	
ESS 3: Resource Efficiency and Pollution Prevention and Management **Objective:** to promote sustainable use of resources and avoid or minimize pollution from project activities, including generation of hazardous waste and pollution associated with pesticide use. Provisions include: - Efficient use of resources including energy, water, raw materials and other resources - Pollution prevention and management - Avoiding adverse impacts on human health and the environment - Management of hazardous and non-hazardous wastes - Management of pesticides	The Environment Protection Act 2001 complements different environmental laws, including laws covering biodiversity protection, pollution control, public environmental awareness, and environmental and social impact assessments. Air pollution is covered by the Environment Protection Act 2001, which requires industries with potentially polluting emissions to carry out an environment and social impact assessment and abide by health and sanitation laws. However, there is no mechanism in HCENR to monitor and regulate pollution. The Environment Protection Act 2001 amended 2020 provides for environment screening for pesticide use and requires mitigation measures, but regulations of EIA have not been updated. The Act also requires efficient and sustainable use of natural resources. The Pesticide Act of (1974), updated by Act of Pesticides and Pests Control Products (1994) provides procedures for pesticide selection, use and control. It does not specifically require minimal effect on non-target species, or prevention of development of resistance which are requirements under the WB safeguard. A number of technical standards have been developed under the OSH Act Khartoum State 2011, and SSMO standards related to pollution including, noise level, heat, air quality in the workplace and effluent standards In 2006 the Sudan ratified the Stockholm Convention on Persistent Organic Pollutants (POPs) and has developed a strategy which was approved by the Council of Ministers in 2017.	**Conclusion:** Guidelines, standards and regulations are required under the EPA Act 2001 amended 2020 to put into practice the provisions of the Act in regard to pollution control. Institutional capacity to monitor and manage pollution is lacking. The current laws provide the framework for pest management. Recommendation: - Develop regulations under the existing EPA to include provisions of the WB ESSs including preventing development of resistance, minimal impact on non-target species - Capacity building of staff and institutions - Implementation of the POPs strategy
ESS 4: Community Health and Safety **Objective:** avoid adverse impacts on the health and safety of project-affected communities. Provisions include: - Safety of services - Traffic and road safety - Project impacts on ecosystem services impacting communities - Emergency preparedness and response - Management and safety of hazardous materials - Safety of dams	OSH laws and regulations listed under ESS2 are geared to workers but don't cover downstream impacts on communities. Ecosystem services are protected by the EPA 2001 amended 2020 but the regulations to operationalize the Act have not been developed. Management and safety of hazardous materials. Traffic and road safety and effluent discharges are covered under the State level OSH Khartoum Act 2011 but only applies to Khartoum State. In 2006 the Sudan ratified the Stockholm Convention on Persistent Organic Pollutants (POPs) and has developed a strategy which was approved by the Council of Ministers in 2017.	**Conclusion:** The EPA provides for community Health and Safety but implementation is lack due to the absence of regulations to operationalize the act as well as regulations, standards and guidelines for EIA not functioning yet. Lack of institutional and individual capacity to implement the Act Recommendation: Strengthen capacity to implement the EPA as follows: Develop the regulations of the EPA - Complete the update process and endorsement of the EIA regulation, guidelines and standards. - Develop staff and institutional capacity. - Develop the standards, regulations, guidelines and processes. - Improve institutions coordination mechanism.

ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement **Objective:** To avoid or mitigate involuntary resettlement. Provisions include: - Compensation for affected persons - Community engagement in project planning - Grievance mechanism	Sudan lacks clear and comprehensive frameworks for land administration and management. Land use policies are not clearly defined but are interpreted from a series of long term national development plans and strategies such as the Quarter Century Strategy 2007-2031, National Action Plan to Combat Desertification 2006, The Interim Poverty Reduction Strategy I-PRSP, 2010. The legal framework for land use is complicated by the existence of customary as well as statutory laws but the interface between the two is confused. Article 43 (2) of the Transitional Constitution gives the National Government the right to expropriate land for development purposes and compensate the owners. There are a number of articles related to natural resource management, pollution control, and protection of cultural heritage sites and respect of traditional and customary regulations related to land ownership. The Transitional Constitution also specifies lands that are under National powers (Federal level) and those under the control of states as well as joint powers (concurrent powers) shared by the Federal and States institutions. The relevant statutory laws are: - The Transitional Constitution - Forests and Renewable Natural Resources Act 2002 - Range and Pasture Law, 2015 - National Parks and Protected Areas Act, 1986 - Investment Act 2013 The national policy on pastoralism is not clearly stated but a number of policy measures have been implemented that impact on involuntary resettlement such as attempts at nomad settlement (all of which failed), and demarcation of livestock routes to protect the interests of nomadic pastoralists. Land used for pasture and for traditional cultivation is communally owned under customary land laws. Access to land and rights to resources are protected under customary law. The main feature of customary law is that it guarantees every tribal group and village resident access to resources on the principle of “No harm inflicted; no antagonism created” (la darer wa la dirar) (Esen 2017). In other words, you have the right to access and use land, pasture and water provided you do not cause loss or harm to life and property. Such rights are accepted because they are a democratic way to allow people access to land whether they are a tribal resident, a passer-by or a member of a migratory group. This is especially beneficial to the poorest groups, who find representation through their sheikhs or the Nazir (or Emir) of the tribe. Local government administrations are closely tied to these traditional structures, unlike state government departments which are only accessible to wealthy or urban groups Customary law also includes mechanisms for resolving disputes and grievances. The government owns urban lands; land under registered forests and national parks; and the land under modern irrigated agricultural schemes which are leased to tenants or to private entrepreneurs. There is no provision in Sudan legislation at present for dealing with involuntary resettlement of people apart from the “Act of Resettlement and Compensation of Local Communities Affected by the Merowe Dam (2002)”. The use of land for residence and other purposes is covered by the Land Settlement and Registration Ordinance 1925, the Unregistered Land Act 1970 and the Civil Transaction Act 1984 (Sullivan and Nasallah 2010). These land laws have allowed recognition of tribal and individual usufruct rights – the right to enjoy another person’s property without abusing it – and inheritance rights, as well as opening the way for compensation for land appropriated by the state (World Food Programme 2018).	**Conclusion:** Land tenure is one of the most complex current issues to be addressed. The policy, legal and institutional framework to deal with land is inadequate and leads to conflict. However, the customary system provides good protection for the rights of communities and for resolving disputes and conflicts. The forests Act 2002 (and the revised Act 2015) prohibits settlements in Forest reserves although in practice there are many settlements in forests. Implementation of the law could result in involuntary resettlement. Involuntary resettlement is not well covered in PLRs. The compensation for involuntary resettlement in the case of the Merowe dam was not up to the standards of the WB safeguard in terms of extent and levels of compensation. SESA consultations in Blue Nile State indicated that a recent expansion of a dam on the Blue Nile resulted in involuntary resettlement without compensation. **Recommendation:** - A GRM, RPF and PF have been developed for the REDD+ implementation. They are designed to overcome shortcomings of the Sudan PLRs in relation to ESS5. - Develop or Implement the National policy on involuntary resettlement - Complete the revision of the Forests Act to provide for: (i) fair treatment for forest dwellers; (ii) joint forest management with communities; (iii) participatory planning and disclosure of plans; and (iv) criteria and indicators for SFM.
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources **Objective:** to protect and conserve biodiversity and habitats and to integrate conservation and development needs.	The constitution Article 11 (1, 2 &3), provides that “the people of the Sudan shall have the right to a clean and diverse environment; The State shall not pursue any policy, or take or permit any action, which may adversely affect the existence of any species of animal or vegetative life, their natural or adopted habitat”. The Wildlife Conservation and National Parks Act (1986) provides for all of the requirements of ESS6. This Act is being revised at present. The revised draft includes all the measures in the 1986 Act to protect biodiversity, natural habitats and associated environmental services, and the focus of the revisions is on jurisdictional and decentralization arrangements for management of the sector.	Conclusion: Sudan’s current constitution and the Wildlife Conservation and National Parks Act (1986) and proposed revised Act 2015 covers the requirement for conservation and protection of habitats. The issue of invasive species is not adequately covered.

Provisions include: - Conservation of biodiversity and habitats - Sustainable management of living natural resources - Management of alien invasive species	The proposed revisions include screening project interventions for potential impacts on natural habitats. The National Biosafety Law No. 15 (2015) deals with protection of genetic resources and has some relevance to the WB safeguard requirements. The 1992 Convention on Biodiversity and its associated Aichi Principles and the draft Nagoya Protocol. The associated National Biodiversity Strategy was prepared with comprehensive stakeholder involvement in 2015 and is aimed at protection of natural habitats.	The weaknesses are in implementation which is partly due to jurisdictional issues related to decentralized control to States which does not facilitate efficient transboundary wildlife management between states and between the Sudan and neighboring countries. The revised management arrangements in the draft 2015 Act provide for strengthening control at the federal level and are aimed at improving management. The revised Act is currently in its final stages of approval. **Recommendation:** Finalize the approval and enactment of the proposed 2015 Wildlife and NPs Act.
ESS 7: Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities **Objective:** To respect the rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities Provisions include: - Avoid negative impacts - Mitigation and development benefits - Free, prior and informed consent (FPIC) - Grievance mechanism	The constitution provides equal rights for all. Article 25 states that "Recognition of the need for the involvement and participation of all Sudanese people, at all levels of government as an expression of the national unity of the country". Article 32 (2), states that "The State shall promote women's rights through affirmative action". The revision of the Forests Act in 2015 (not yet enacted) provides for most of the environment and social safeguards in ESS7 as it includes international best practices as contained in the criteria and indicators for sustainable forest management (SFM). The C& I for SFM endorsed and adopted by Sudan provides for protection of the rights of indigenous people. But the provisions have not been implemented in practice. The 1992 Convention on Biodiversity and its associated Aichi Principles and draft Nagoya Protocol The Wildlife Conservation and National Parks Act (1986) prohibits settlements in National Parks and does not recognize rights of indigenous peoples such as the Megano living in Dinder NP. The Forests Act 2002 and supporting regulations cover many of the requirements of the ESS7. A revised Act was developed in 2015 and is currently going through the process of approval (currently in the Min of Justice). Sudan Ministry of Agriculture endorsed the Criteria and Indicators for SFM in Sudan" in 2003. They include many of the requirements of the WB safeguard particularly in relation to FPIC an, GM and stakeholder involvement. However there has not been progress in implementing the SFM. To date, no forests in Sudan have been certified as SFM.	**Conclusion:** the constitution provides for equal rights and protection of all Sudanese people including indigenous peoples and for respect for customary laws and practices and local heritage. The gaps in current forest legislation (Forests Act 2002) relevant to ESS7 are: - Settlement in FRs is illegal but there are traditional forest dwellers living in FRs in several parts of the country (As discussed under ESS5) - There is no provision for joint forest management (but it is occurring through Taungya system) - Disclosure of plans is not specifically required but is happening in practice. - Stakeholder involvement not specifically provided for in the Act, but in practice this is beginning to happen **Recommendation:** Enact the provisions of the revised Forests Act 2015 which provides for most of the safeguards in ESS7. Clarify the policy in relation to settlements in FRs and involuntary resettlement. An IPPF has been developed for REDD+ implementation in Sudan to cover ESS7. This policy should be applied during project and sub-programme implementation.
ESS 8: Cultural Heritage **Objective** To protect cultural heritage from the adverse impacts of project activities and to promote equitable sharing of benefits.	Article 186 of the constitution states: *"All levels of government shall institute a process to progressively develop and amend the relevant laws to incorporate customary laws, practices, local heritage and international trends and practices".* There are a number of articles in the Transitional Constitution related to natural resource management, pollution control, and protection of cultural heritage sites. Article 65 of the Transitional Constitutional charter, 2019.	**Conclusion:** the requirements of the ESS8 are in the current legislation but not implemented in practice as regulations, guidelines and standards have not been developed. Staff and institutions responsible for implementing the legislation are weak.

Provisions include: - Stakeholder consultation and identification of cultural heritage - Built and moveable cultural heritage	States in relation to Ethnic and cultural groups: *"All ethnic and cultural groups shall have the right to enjoy their own culture and develop it freely. The members of such groups shall have the right to exercise their beliefs, use their languages, observe their religions or customs, and raise their children in the framework of such cultures and customs."* Environment Protection Act 2001 provides for protection of physical cultural resources and requires screening and mitigating measures. Specific regulations have not been developed. The revised Act also makes provision for protection of such resources.	**Recommendation:** - Enact the revised EPA. - Develop the guidelines and regulations to implement the revised EPA. - Build staff and institutional capacity to implement the Act.
ESS 9: Financial Intermediaries. **Objective** To set out how the FI will assess and manage environmental and social risks and impacts associated with the subprojects it finances. Provisions include: - Requirement for the FI to have environment and social management policy and procedures. - Requirements for the FI to develop and maintain staff capacity and competency (in environment management) - Stakeholder engagement	Sudan PLRs apply to all development projects in the country whether by development agencies or local or international intermediaries. This ESS is specifically aimed at ensuring that intermediaries utilizing WB funding observe environment and social standards.	**Conclusion:** Financial intermediaries are subject to the same safeguard standards as funding and development agencies. **Recommendation:** N/A
ESS 10: Stakeholder Engagement and Information Disclosure **Objective** To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with project-affected parties. Provisions include: - Engagement during project preparation and during implementation - Information disclosure - Meaningful consultation - Grievance mechanism	The draft EIA regulations under the EPA require information disclosure. The draft revised forest Act 2015 incorporates the FAO criteria and indicators for sustainable forest management which requires FPIC, stakeholder involvement in planning and implementing projects and fair and equitable benefits and grievance mechanisms.	**Conclusion:** The existing legislation does not meet the requirements of ESS10 but the revised forests Act 2015 and the draft revised EPA do include these safeguards. **Recommendation:** - Enact the draft revised EPA and Forests Acts. - Develop the regulations, standards and guidelines to operationalize the Acts. - Develop the capacity for stakeholder engagement and information disclosure. - Strengthen the staff and institutional capacity to administer the Acts

The current gaps in the Sudan policies and legislation in relation to WB safeguard policies can be overcome in the short term by the inclusion of the provisions of the safeguard policies in the E&S screening process in the ESMF. This will enable REDD+ activities to be implemented in compliance with the safeguard requirements.

In the medium term, the recommendations for strengthening environment governance in Sudan to meet WB ESS are as follows:

- Endorsement of the EIA regulation and enforcement of the amended environment act 2020.
- Endorsement of the draft revised Forests Act 2015.
- Endorsement of draft forest policy, 2015.
- Update the pesticides Act (or develop regulations under the existing Act).
- Finalize the approval and enactment of the proposed 2015 Wildlife and National Parks Act.
- Develop a policy and strategy for indigenous people living inside Forest Reserves.
- Develop a national policy and strategy for IDPs and refugees to address household energy requirements and sustainable livelihood options.
- Develop a policy and strategy for Involuntary resettlement.

• Develop standardized procedures for screening and ESIA.

• Develop regulations to implement the provisions of the revised EPA.

• Strengthen the reconstituted HCENR institution, improve linkages between HECNR and the States and collaboration between the State level HCENR institutions and the Federal level.

• Support establishment oh State level HCENR in all States.

• Strengthen staff capacity in HCENR to manage environmental concerns and monitor environment and social compliance at all levels.

5.10 Comments on the strategy options made by stakeholders

The below map has been produced to represent the geographical extent of current environmental hazard, which can be used to inform the implementation areas for the various strategy options. Each colored area represents a different combination of environmental hazard.

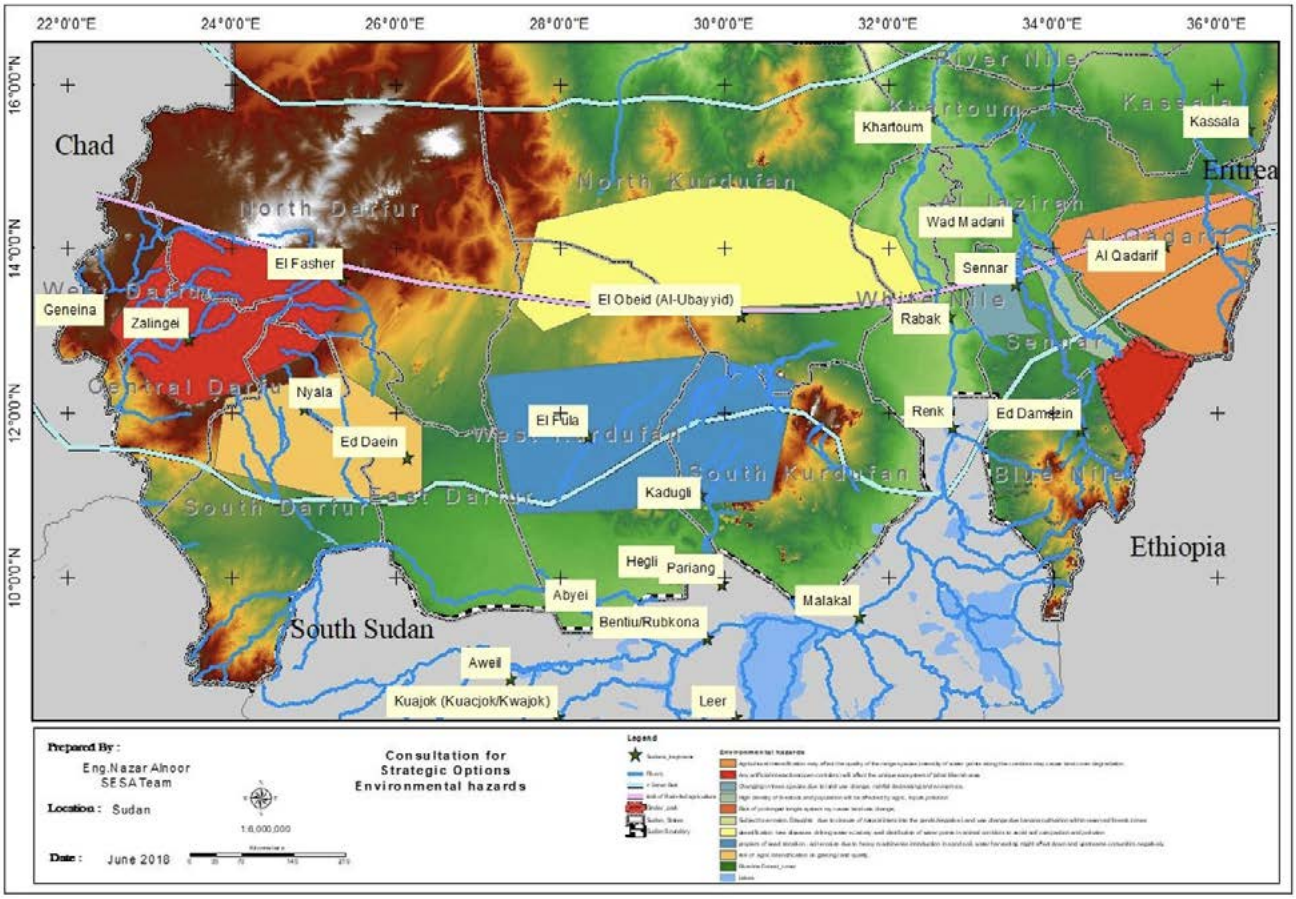
For instance:

● Yellow area (e.g., North Kordofan). Three main environmental hazards were identified in North Kordofan: desertification, water scarcity and the potential impact of livestock on fragile soil (i.e. compaction).

● Orange area (i.e., Gadareef state). Environmental hazard may be caused by agriculture intensification such as quality of range species and land degradation due to amount of water points available along livestock corridors.

● Red area (i.e., Jabal Mara). Fragile ecosystem may be affected by livestock strategy of establishing nomad corridors.

Map 10. Environmental risks



Recommendations from the present assessment report and from the different stakeholders consulted as part of this assessment are presented below, for each strategy option. These suggestions are presented with the intent of allowing local stakeholders to participate in the REDD+ strategy options design.

5.10.1 Strategy option 1: integrated forest landscape

Key recommendations to be taken into account in the design and implementation of this option, drawn from local stakeholders' consultations are as follows:

- Plant more trees: encourage agroforestry (the farmer planting 20 % forest every year and cultivate the rest for his own benefit).
- Develop smart partnerships with the private sector companies to develop agroforestry.
- Establish water harvesting projects for forest plantations and livestock.
- Develop participatory forest management, incentivize community forestry activities (and simplify and speed up the process of registering community forests), and involve people in the forest through the Taungya system.
- Authorize indigenous communities to enforce forest protections.
- Afforestation and reforestation should prioritize Hashab (A. senegal) and Talh (A. seyal) as these provide a promising strategy to restore tree cover to previous levels.
- Resettle the IDPs outside the forest and create buffer zones around protected forests.
- Develop other livelihood opportunities (e.g. gum tapping, agroforestry, home gardens) for poor people and the refugees as well.

5.10.2 Strategy option 2: climate smart agriculture and rangeland management

Key recommendations to be taken into account in the design and implementation of this option, drawn from local stakeholders' consultations are as follows:

- Develop livelihood possibilities and income generation opportunities for farmers. Give a high priority to rural development projects that enable diversification and improvement of community livelihoods.
- Establish shelter belts within (area of 10%) agricultural schemes.
- Select the type of crops which are friendly to the trees and develop crops suitability map.
- Provide seeds for the nomads for planting grazing grass and trees.
- Develop and implement land tenure solutions and strengthen land tenure security.
- Encourage use of residues after harvesting crops.
- Resettle the IDPs in agricultural areas created by the dam expansion.
- Replace mesquite by malihk and hashab and get attention to other forest trees rather than hashab.
- Develop awareness and education by supporting schools and other education institutions.
- Provide technical and financial support to gum Arabic producers.
- Improve rangelands in terms of quality and area size / Renewal of degraded rangelands with suitable species.
- Apply the Um Rimta model especially in the north and North West of the state.
- Improve livestock breeds.
- Rationalization of rangelands management – corridors, services, coordination between stakeholders and opening of new animal routes / better planning of location of water points.
- Control mining and agricultural expansion into rangelands.
- Support and develop the research on breeding, seeds.
- Pastoralists disagree with the perception that nomads and overgrazing destroy the forest. They insist they are good stewards of the forest and need trees for animal shelter and foraging. Overall, they strongly support opening livestock corridors, tree planting in shelterbelts or as fuelwood plantations and for alternative fuels, although there are concerns about availability and cost.
- Improve fodder production capacity to reduce pressure on forest.

5.10.3 Strategy option 3: Integrated land use planning

Key recommendations to be taken into account in the design and implementation of this option, drawn from local stakeholders' consultations are as follows:

- Coordination between NRs institutions, and enforcement of those institutions' laws and policies.
- Better overseeing of E&S impacts of the national development projects.
- Assessment, improvement and enforcement of land tenure system / ensure land tenure security.
- Better provision of hard and soft support materials and options (training, tools, etc.).
- Establish nomads' corridors and afforestation activities within corridors.
- Develop integrated planning strategies involving forest, agriculture and rangeland sectors.
- Enforce the laws and policies, especially the 10% and 5% shelterbelt tree planting rule and prevent illegal exploitation of protected forests.
- Strengthen institutional support, particularly from state and federal government administrations, including the FNC and facilitate recognition of access and property rights to ensure the revenues from carbon credits go to local communities.

5.10.4 Strategy option 4: Sustainable energy supply and use

Key recommendations to be taken into account in the design and implementation of this option, drawn from local stakeholders' consultations are as follows:

- Increase the efficiency of cooking stoves and encourage/promote use of more efficient fuels and sustainable energies such as ethanol gel, LPG, solar energy.
- Promote more efficient and sustainable fuelwood alternatives.
- Implement price subsidies for LPG.
- Encourage fuelwood plantations.
- Empower the FNC and fund the FNC from the taxes on charcoal.
- Using animal dung in brickmaking to reduce consumption of firewood / Promote alternative building materials.
- Implementation of poverty mitigation programs.

5.10.5 Strategy option 5: promoting participation in climate change responses

Key recommendations to be taken into account in the design and implementation of this option, drawn from local stakeholders' consultations are as follows:

- Promote participatory mechanisms.
- Encourage the inclusion of indigenous groups.
- Involve women and youth organisations, into participatory forest management schemes.
- Involve vulnerable groups (women, youth) in the forestry afforestation and reforestation activities.
- Encourage capacity building, knowledge sharing and leadership training among women and youth.
- Provide suitable employment opportunities for youth and women.
- Offer women and youth to participate in tree planting initiatives and
- Help secure land rights for women and youth.

5.11 Recommendations on the strategy options

As part of the present assessment, the SESA experts team recommends that the following suggestions be strengthened in the design and/or the implementation of the REDD+ strategy options:

- Implement reforestation initiatives by:
  - Enforcing the regulation to plant trees on 10% of rain-fed agricultural land and 5% of irrigated land.
  - Making compliance with the tree planting requirement a condition of the renewal of farming land leases, or
  - Implementing a levy on the rent of farmers and using these funds to plant shelterbelts thereby achieving the required % tree cover on their behalf.
  - Promoting agroforestry and the taungya system.
  - Shelterbelts benefit both farmers and pastoralists and can be planted to offset or compensate for tree clearance for agricultural expansion.
  - IDPs and refugees are degrading forests by cultivating and harvesting fuelwood while there are no measures being implemented to return or resettle them. The SESA experts team recommends that trees be planted outside protected forests and allocated to their needs in fuelwood.
- Strengthen land tenure rules and institutional support for the enforcement of these rules.
- Decreasing the practice of allocating very large areas of land to individuals in the interests of social and economic fairness and efficiency in the use of land.
- Facilitate the registration and creation of community forestry projects.
- Promote fuelwood plantations using species suited to the climate and the clay and sandy soils in Sudan to substitute the unsustainable levels of harvesting being done at present.
- Promote increased efficiency in fuelwood and charcoal use by promoting fuel efficient domestic charcoal stoves, improved charcoal making kilns, and improved boilers used in small industries such as soap industries.

6.
CONCLUSION: SUMMARY OF RECOMMENDATIONS

6.1. REDD+ Strategy options

As explained in the introduction, the following recommendations can be made in relation to the strategy options:

For **strategy option 1:** the following is suggested: (1) implementing measures to improve the regulation and management of the gum Arabic trade; (2) put in place reforestation initiatives as they can trigger a broad range of environmental and social benefits. These could include:

a. Enforcing the regulation to plant trees on 10% of rain-fed agricultural land and 5% of irrigated land.

b. Making compliance with the tree planting requirement a condition of the renewal of farming land leases.

c. Promoting and facilitating community forestry initiatives.

d. Planting more shelterbelts.

e. Ensuring that IDPs and refugees participate in tree planting schemes.

For **strategy option 2:** it is suggested to (1) strengthening land tenure rules and institutional support for the enforcement of these rules; (2) decreasing the practice of allocating very large areas of land to individuals in the interests of social and economic fairness and efficiency in the use of land; (3) enforcing the regulation of planting trees on 10% of rain-fed agricultural land and 5% of irrigated land; and (4) promoting agroforestry/the taungya system; and (5) promote initiatives to use/improve native seeds. For the livestock sector, we recommend that (1) land tenure rules be also strengthened; (2) initiatives be developed to plant more shelterbelts. It is also recommended to (3) strengthen conflict resolution institutions, practices and rules, at both local (customary) and state/federal (FNC, state/federal ministries) levels to prevent conflicts between pastoralists and farmers over grazing and water use; and (4) develop and implement initiative to promote healthy and sustainable livestock rearing, including by developing veterinary infrastructure and improved breeding practices.

For **strategy option 3:** we suggest (1) strengthening/clarifying land use and access rights legislation and land tenure systems to prevent conflicts; (2) planting trees to compensate for any deforestation resulting from mining activities; and (3) strengthening local and national education, training and capacity-building initiatives to facilitate implementation of regulations and laws.

For **strategy option 4:** we suggest (1) promoting increased efficiency in fuelwood and charcoal use by promoting fuel efficient domestic charcoal stoves, improved charcoal making kilns, and improved boilers used in small industries such as soap industries; (2) promoting fuelwood plantations using species suited to the climate and the clay and sandy soils in the Sudan to substitute the unsustainable levels of harvesting being done at present; and (3) following national standardisations guidance and environmental and social impact assessment regulation.

For **strategy option 5:** we suggest (1) encouraging capacity building, sensitization and awareness-raising initiatives; (2) encouraging leadership building initiatives among youth and women organisations; and (3) encouraging participatory structures in all decision-making processes.

6.2. REDD+ Strategy actions

For each of the potential negative social or environmental impact a mitigation measure was presented, the SESA consultants recommend that:

For activities corresponding to **strategy option 1**, capacity building be undertaken to disseminate knowledge related to technology; rational use of agro-inputs; and simplification of processes to register forests for the communities and provision of market information.

For activities corresponding to **strategy option 2**, use of environmental-friendly agro-inputs; adoption of sustainable agriculture techniques; capacity-building, using international standards; developing microfinance schemes; securing involvement of women: implementing conflict resolution mechanisms or strengthening the ones that already work including via customary/traditional or village/state based channels; upgrade value chains; ensure farmers use protective material when applying chemicals; and secure involvement of women through women-led community organizations. For livestock and rangeland related options, we suggest capacity-building, implementing participatory management schemes (ensuring the participation of the poorest pastoralists), creating conflict resolution mechanisms or strengthening the ones that already exist, developing integrated livestock, forest and agriculture planning initiatives.

For activities corresponding to **strategy option 3**, we suggest improving participation of all stakeholders into policy design and management; developing health and safety standards; and developing ESIA regulations and ensuring their implementation.

For activities corresponding to **strategy option 4**, we suggest implementing cost-benefit analysis for policy design and implementation; create incentives for individuals and private sector; promote participation of all stakeholders; follow national standards guidance and E&S guidance; and set-up awareness campaigns.

Finally, for **strategy option 5**, we suggest taking a participatory approach and following international standards on inclusiveness.

6.3. WB ESS based policy recommendations

The following recommendations were made using a gap assessment based on the ten relevant WB ESSs:

ESS 1: Assessment and Management of Environmental and Social Risks and Impacts:

- For REDD+ planning and implementation, utilise the institutional structures, process and tools as specified in this ESMF.
- Support enhancing the capacity of Sudan's environmental and social framework as follows:
  - Completion of the revision and updating of the Environment Protection Act and development of its supporting guidelines, regulations, processes, and tools.
  - Support institutional strengthening and capacity building of HCENR at Federal level and State levels and institutional linkages and collaboration between states and with the federal level.

ESS 2: Labor and Working Conditions

A review of Occupational Safety and Health carried out by ILO in 2018[48] recommended the following measures for improving compliance with international OSH standards:

- Strengthen institution and sectoral coordination.
- Activate the regulatory framework.
- Additional finance and funding mechanisms.
- Improve statistics gathering and presentation.
- Awareness raising at the institutional level, for the workers to know their rights.

ESS 3: Resource Efficiency and Pollution Prevention and Management

- Develop regulations under the existing EPA to include provisions of the WB ESSs including preventing development of resistance, minimal impact on non-target species.
- Capacity building of staff and institutions.
- Promote Implementation of the POPs strategy.

ESS 4: Community Health and Safety

Strengthen capacity to implement the EPA as follows:

- Develop the regulations of the EPA.
- Complete the update process and endorsement of the EIA regulation, guidelines and standards.
- Develop staff and institutional capacity.
- Develop the standards, regulations, guidelines and processes.
- Improve institutions coordination mechanisms.

ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement

- Use and implement the GRM and RPF and PF developed as part of the national REDD+ readiness for managing Land Acquisition, Restrictions on Land Use and Involuntary Resettlement. They are designed to overcome shortcomings of the Sudan PLRs in relation to ESS to ESS5.
- Develop or Implement the national policy on involuntary resettlement.

[48] ILO 2018. Occupational Safety and Health. National Country Profile, Sudan.

• Complete the revision of the Forests Act to provide for: (i) fair treatment for forest dwellers; (ii) joint forest management with communities; (iii) participatory planning and disclosure of plans; and (iv) criteria and indicators for SFM.

ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

Finalise the approval and enactment of the proposed 2015 Wildlife and NPs Act.

ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities

• Enact the provisions of the revised Forests Act 2015 which provides for most of the safeguards in ESS7.

• Clarify the policy in relation to settlements in FRs and involuntary resettlement.

ESS 8: Cultural Heritage

• Enact the revised EPA.

• Develop the guidelines and regulations to implement the revised EPA.

• Build staff and institutional capacity to implement the Act.

ESS 9: Financial intermediaries

• Financial intermediaries are subject to the same safeguard standards as funding and development agencies. No particular recommendations were made.

ESS 10: Stakeholder Engagement and Information Disclosure

• Enact the draft revised EPA and Forests Acts.Develop the regulations, standards and guidelines to operationalise the Acts, Develop the capacity for stakeholder engagement and information disclosure and Strengthen the staff and institutional capacity to administer the Acts.

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APPENDICES

Appendix 1.

Pre-consultation assessment of potential E&S impacts of SO (December 2020)

Col 1 in the tables below is copied and pasted from the Draft Strategy ver 30 Aug 2018.

Environmental and social risk classification:
Risk levels Low Risk(L), Medium Risk(M), Substantial Risk(S) and High Risk(H)

Risk Level	Description
Low risk	Negligible or minimal risk, and easily mitigated. No ESIA required
Medium (or unknown) risk	Narrower, geographically limited, readily identified and can be mitigated. ESIA required
Substantial Risk	Potential to cause conflict between resources users. ESIA required
High risk	Broad, diverse, potentially irreversible impacts such as major resettlement; conversion of natural habitats; hazardous materials. Required redesign of the project.

Strategy Table (7): Summary of key actions in the forestry sector

Options/Actions proposed in the REDD+ Strategy	Stakeholders	E&S risks & benefits	Risk Mitigation & Benefit Enhancement measures	WB ESS triggered	Risk level L, M, S, H
1.1 Improve forest sector regulations, laws, and policies to mainstream REDD+ actions: sector review and assessment of priority actions	1 and 2. FNC governing bodies, Council of Ministers and the Presidency.	**Risks:** Inappropriate policies, laws and regulations **Benefits**: Community empowerment Improved livelihoods Benefit sharing	Involve all stakeholders in policy development including awareness and advocacy programs Build in private sector incentives to adopt policy	1 10	S
1.2 Support Revision and strengthening of the Sudan National Forest Policy Statement (2006; updated from Sudan's Forest Policy 1986)	All stakeholders, esp. 1. FNC governing bodies	**Risk:** inappropriate training programs The right people may not be selected for training. **Benefits:** Improved planning and decision making on climate change issues	Involve climate change specialists in design of training programs. Design appropriate training programs Care in selecting training participants	1 3 10	L
1.3 Support and improve policies to reduce deforestation and land degradation from refugee settlements.	1 and 2. Ministry of Interior, Commissioner of Refugees (CoR), FNC, REDD+ PMU	**Risks:** Inappropriate policies Non-compliance with policy **Benefits:** Reduced demand for fuelwood and commercial charcoal production to by refugees who have few alternative income opportunities Sustainable exploitation of forests	Involve stakeholders. Use international standards and best practices. Build in private sector incentives to adopt policy	1 10	L
1.4 Development of National Forest Information Systems to support forestry and landscape management in Sudan (NFMS, MRV, FREL Development, Safeguards, Carbon Registry)	1&2 Federal and State level legislators: Land planning authorities, forestry. authorities, justice authorities, FNC, The Remote Sensing and Seismology Authority	**Risk:** Conflict over land **Benefit**: Reduces conflicts over land More sustainable land management	Involve stakeholders in planning and implementation stages esp farmers and pastoralists,	1 5 6 10	t
1.5 State Level REDD+ Implementation Framework and Financing Options: Development of State REDD+ Action Plans (S-RAPs)	1&2 Federal and State level legislators, ministries, and directorates, individual states	Risk: Inappropriate policies Non-compliance with policy Benefit: Improved planning and management	involve stakeholders. Use international standards and best practices.	1 3 9 10	L

1.6 Smallholder Forestry Program in Selected States for high value timber, fuelwood/ biomass, and pole production and non-wood forest products (Initial target – Blue Nile and Sinnar States)	All stakeholders, esp 1. Federal level legislators, Ministries and Dept's, FNC 2. State level Legislators, Ministries and Departments and Administrators, FAO, WB, Development Partners 3. Village level small farmers and forest adjacent communities 10. Women groups and representatives 8. Gum Arabic value chain participants	**Risks:** Inappropriate plans Plans that impact on users' rights or livelihoods. **Benefits:** Sustainable forest management, Community empowerment, job creation, income generation	Involve stakeholders. Adopt international best practices. Community involvement in implementation	1 10	L
1.7 Statewide Forestry Nursery Systems to support community-based, afforestation, reforestation, and restoration of degraded lands	1&2 Federal and State level legislators, FNC, 3. Village level small farmers and forest adjacent communities, 13. Private Sector,	**Risks:** Infringement of land rights in plantation development Inappropriate species Competition for land Displacement of people **Benefits:** Increased supply of wood products Community empowerment, Job creation	Involvement of all stakeholders Promote private and community plantations. IPPF &RP Cost benefit analysis Appropriate species selection Develop community capacity for CFM	1 3 9 10	L
1.8 Capacity building for sustainable gum production value chain through sustainable finance and private sector engagement	1. Federal level legislators, Ministries and Dept's (FNC), 2. State level authorities, 8. Gum Arabic value chain participants GAP 13. Others: private sector, R&D, FAO, WB, Development Partners	**Risk**: Inappropriate interventions **Benefits:** Increased output Improved livelihoods	Implement lessons from previous programs supporting the gum sector	1 6 10	L
1.9 Support sustainable forest management through development of capacity for and use of forest management plans (including selected coastal zones, protection of mangrove forest, and riparian)	All stakeholders	**Risks:** Inappropriate policies, laws and regulations Non-compliance with new policies **Benefits**: Community empowerment Improved livelihoods Benefit sharing	Involve all stakeholders in policy development including awareness and advocacy programs Build in private sector incentives to adopt policy	1 10	S
1.10 Capacity development and institutional strengthening for fire management	1. Federal level legislators, Ministries and Dept's (FNC), 3. Village level small farmers and forest adjacent communities, 5. Livestock and pastoralist sector	**Risk:** Conflict between farmers and pastoralists. Prevention of fires may cause in OM accumulation and hot destructive wildfires. **Benefits:** Forest protection	Stakeholder involvement esp pastoralists and farmers	1 3 10	M
1.11 Revise and redesign of forest and rangeland research programmes and curricula	All stakeholders esp. 13- Others: R&D (Universities, FNC,)	**Risks:** Inappropriate or irrelevant research agendas Curricula may not be relevant and appropriate. **Benefit:** information generated to inform planning and implementation Capacity building improved forest and rangelands management	Involve stakeholders in planning the research agenda. Identify key information gaps. Appropriate curricula	10	
1.12 Establishment of Centres of Excellence through Tertiary institutions – (Consideration for setting a Forestry Research Development Institution)	1 and 2 Ministry of Higher Education and Scientific Research All stakeholders esp. 13- Others: R&D, academia, NGOs	**Risks:** Inappropriate or irrelevant research agendas Curricula may not be relevant and appropriate. **Benefit:** information generated to inform planning and implementation Capacity building improved forest and rangelands management	Involve stakeholders in planning the research agenda. Identify key information gaps. Appropriate curricula	1 10	L

Strategy Table (9). Summary of key actions in the agriculture, livestock and rangeland sectors.

Actions to be considered	Stakeholders	E&S risks & benefits	Risk mitigation and benefit enhancement measures	WB ESS triggered	Risk level L, M, S, H
2.1 Capacity building to improve agriculture productivity through agroforestry system to improve water utilization and reduce forest encroachment (shelterbelts, alley cropping, wind breaks riparian forest buffers)	1&2 Federal and State level legislators, FNC and line ministries). (Ministry of Agriculture and other related ministries, FNC) 3. Village level small farmers and forest adjacent communities Private Sector, Business Unions, Gum and Livestock Producers	**Risk:** May involve environmentally damaging inputs **Benefit:** Reduced pressures on forests Improved food security and livelihoods Reduction in shifting cultivation	ESIAs .to mitigate negative impacts. Agric extension programs	1 2 9 10	M
2.2 Improve agricultural productivity through crop diversification and agro-pastoral systems	1&2 Federal and State level legislators, (quality control lab) (Ministry of Agriculture and other related ministries, Ministry of Agriculture and other related ministries, FNC) 4. Commercial farming and large Agric Enterprises and seeds providers, Communities, Private Sector, Business Unions, Gum and Livestock Producers	**Risk:** Environmental risk of inappropriate crop inputs **Benefits**: Increase in forest products. Improved livelihoods Reduction in shifting cultivation Sustainable agriculture	ESIA to exclude inappropriate inputs. Agric extension	1 6 5 10	M
2.3 Rehabilitating irrigation services to make water use more efficient, including the introduction of appropriate technologies to optimize water use and raise water awareness;	1&2 Federal and State level legislators, (quality control lab, Water Authority), 4. Commercial farming and large Agric Enterprises and seeds providers,	**Risk:** water harvesting, and storage may increase malaria spread. Conflict over water **Benefits:** Reduced pressures on forests Improved food security and livelihoods	Appropriate measures to reduce mosquitos and ensure acceptable water quality. Agric extension	1 3 6 9 10	L
2.4 Build capacity and conduct knowledge transfer for conservation agriculture with water harvesting, zero tillage, and improved seeds.	1&2 Federal and State level legislators, (quality control lab, Water Authority), 4. Commercial farming and large Agric Enterprises and seeds providers,	**Risk**: water harvesting, and storage may increase malaria spread. Conflict over water **Benefits:** Reduced pressures on forests Improved food security and livelihoods	Appropriate measures to reduce mosquitos and ensure acceptable water quality. Agric extension	1 3 6 9 10	L
2.5 Strengthening regulatory and non-regulatory measures for livestock movement corridor management including monitoring systems.	11&2 Federal and State level legislators, ministries and directorates (Federal and State departments of Range/Pasture; Ministries of Agriculture and Animal Resources) 4. Commercial farming and large Agric Enterprises 5. Livestock and pastoralist sector 13. R&D	**Risk:** livestock could be putting more pressure on forest resources Inappropriate or inapplicable policies **Benefits:** Improved livelihoods	Integrated planning – livestock/agric/forest/ range	1 3 6 9 10	L
2.6 Rangeland restoration/rehabilitation, protection, and provision of adequate seasonal feedstock (fodder production): Creating business partnerships between livestock owners and farmers along livestock routes	1&2 Federal and State level legislators, ministries and directorates (Relevant departments and research in the ministry of animal resources, department of range-pasture) 3. Village level small farmers and forest adjacent communities (village base and agro-pastoral communities) 4. Commercial farming and large Agric Enterprises 5. Livestock and pastoralist sector 13. R&D CSOs and NGOs	**Risk:** Increase in livestock numbers Culture change resistance, lack of technical know how Culture change issue Unequal access to opportunities/benefit sharing **Benefit:** Less stress on forest, better management of livestock sector, income generation	Stakeholder participation Livestock sector/Forest/Agric integrated planning Extension program Integrated planning – livestock, forest and agriculture	1 5 6 9 10	M

2.7 Improve access to finance and support services for farmers and livestock producers (such as animal health, extension and training, farmer field schools, marketing)	1&2 Federal and State level legislators, ministries and directorates (state level +dept. of Extension and Technology Transfer MAR) 3. Village level small farmers and forest adjacent communities (village-based communities) 4. Commercial farming and large Agric Enterprises 5. Livestock and pastoralist sector 13. R&D (Animal Production Corporation (APC) and range-pasture dept. of MAR at federal)	Risk: Unequal access may create inequalities Inappropriate policies Increased pressure on forests Benefits: develop livelihood opportunities	Stakeholder involvement integrated planning	1 5 6 10	M
2.8 Promoting cooperation and coordination between public and private sector institutions in range infrastructure development and management.	1&2 Federal and State level legislators, (Agriculture Ministry, FNC, Financial institutions,), (range-pasture dept. of MAR at federal and state level +dept. of Extension and Technology Transfer MAR) 4. Commercial farming and large Agric Enterprises (Animal Production Corporation (APC) and, village-based communities)	Risk: inappropriate authorities selected for cooperation Benefit: improved environment and social impacts of agriculture	Integrated planning Stakeholder involvement	1 3 9 10	L
2.9 Increasing adaptive capacity of farmers and livestock producers for preparedness to seasonal variability in feed and water supply through community-based water conservation and river protection and management schemes	1&2 Federal and State level legislators, (quality control lab, Water Authority), (Federal and State departments of Range/ Pasture, Ministries of Agriculture and Animal Resources) 4. Commercial farming and large Agric Enterprises and seeds providers,	Risk: Bureaucratic restrictions on production Corruption (bribing to get certification) Benefit: Improved standards Access to wider markets, Sustainable agriculture	Promote voluntary compliance. Develop standards that are internationally recognised Capacity building Trade/market facilitation measures	1 3 4 10	M

Strategy Table (11). Summary of key actions in integrated land use planning sector

Actions to be considered	Stakeholders	E&S risks & benefits	Risk mitigation and benefit enhancement measures	WB ESS triggered	Risk level L, M, S, H
3.1 Strengthen institutional capacity of environmental and social impacts assessments in agriculture, forestry, and mining sectors to prevent land degradation: (Institutional Capacity Needs and Gap Assessment and preparation of Capacity Development Plans)	1&2 Federal and State level legislators, (Line Ministries of Minerals, Petroleum and Gas Environment, Natural Resources and Physical Planning, National Legislatures) private sector, financial institutions 3. Village level small farmers and forest adjacent communities	**Risk:** Cost barriers, Inappropriate policies Noncompliance or non-implementation of policies Failure to adopt policies **Benefit:** reduced land degradation ; Improved planning and management	Stakeholder involvement Cost benefit analysis of policy options Build in private sector incentives to adopt policy	1 3 9 10	L
3.2 Rationalize, organize and harmonize above and below ground resource exploitation and related economic developmental activities and policies, in order to encompass environmental and climate change concerns	1&2 Federal and State level legislators, ministries and directorates, (Line Ministries of Agriculture and Forests, Animal Resources, Mining, Petroleum and Gas, Environment, Natural Resources and Physical Planning, Justice, National Legislatures) 11. Mining sector,	**Risk:** Tree clearance for mining Climate change impacts of increased fossil fuel production Inadequate national E&S standards Livelihood and health impacts on artisanal miners **Benefits**: Income generation Reduced environmental and social impacts.	Stakeholders participation. Integrated sectoral planning Develop Health and Safety standards Develop mining standards. Tree planting to offset forest clearance for mining	1 2 3 4 10	**L**

3.3 Improve standards for the establishment and development of mining infrastructure (Updating of existing guidelines/policies and development of new guidelines and policies)	1&2 Federal and State level legislators, ministries and directorates, (Ministries of Minerals, Petroleum and Gas Environment) 11. Mining sector	Risk: Nil Benefit: Reduced impact on forests Improved H&S for workers	Stakeholders participation	1 3 9 10	L
3.4 Regulatory and non-regulatory measures to improve land tenure security for local communities: Assessment and identification of opportunities for strengthening land tenure security for communities in deforestation hotspots (Prioritization of Deforestation Hotspots)	1&2 Federal and State level legislators, ministries and directorates, 11. Mining sector 3. Village level small farmers and forest adjacent communities	Risk: Conflicts over land use rights Benefit: Harmonised policies/laws and reduced conflicts,	Stakeholders participation Integrated sectoral planning	1 3 10	S
3.5 Land use capability assessment and digitization to support the National Investment Map: optimizing land use through spatial planning and reliable spatial and non-spatial information	1&2 Federal and State level legislators, ministries and directorates 3. Village level small farmers and forest adjacent communities 4. Commercial farming and large Agric Enterprises 5. Livestock and pastoralist sector 13. Others: R&D	Risk: Conflict over land between concerned stakeholders Benefit: Reduced pressure on forest for browse	Integrated planning – livestock, forest and agriculture	1 5 6 10	M

Strategy Table (12). Summary of key actions in the sustainable energy supply and use sector

Actions to be considered	Stakeholders	E&S risks & benefits	Risk mitigation and benefit enhancement measures	WB ESS triggered	Risk level
4.1 Assessment and implementation of options for sustainable charcoal production	12 Energy sector (Charcoal and fuelwood producers and traders). 1 and 2 FNC, Energy Research Centre, mining companies, National Centre for Renewable Energy 3. Village level small farmers and forest adjacent communities	Risk: Stakeholders may not adopt the program Benefits: Reduced demand for fuelwood Forest protection, SFM, Job creation	Include incentives for adoption. Develop fuelwood plantations. Develop knowledge and skills in clean and efficient production	1 10	L
4.2 Assessment and implementation of options and measures to incentivize and increase use of LPG gas and other alternative sources of energy in urban and rural communities	1&2 Federal and State level legislators, Ministries of Petroleum and Gas; Environment, Natural Resources and Physical Planning; Agriculture and Forests; Finance and Economic Planning; Social Security and relevant subsidiaries; Ministry of Water Resources, Irrigation and Electricity, Private Sector 3. Village level small farmers and forest adjacent communities	Risk: Cost barriers, Difficulty to change Unequal access Benefit: Reduced dependence on fuelwood Clean energy (reduction of GHG emissions)	Cost benefit Analysis Financial incentives	1 3 10	**M**
4.3 Creating business opportunities in the biomass energy sector for the private sector through regulatory and non-regulatory measures.	1&2 Federal and State level legislators, Ministries of Petroleum and Gas; Environment, Natural Resources and Physical Planning; Agriculture and Forests; Finance and Economic Planning; Social Security and relevant subsidiaries; Ministry of Water Resources, Irrigation and Electricity, Private Sector 3. Village level small farmers and forest adjacent communities, private sector	Risk: Conflict over commercial rights Unequal access Benefit: reduction in dependence on forest resources income generation	Cost benefit Analysis Financial incentives	1 3 10	**M**
4.4 Assessment of opportunities, incentives, and promotion of adoption of efficient cookstoves – linking biomass producers and consumers	1&2 Federal and State level legislators, (Line ministries including ministry of energy and mining, environmental authority, FNC), energy research center, development partners. private sector, financial institutions 3. Village level small farmers and forest adjacent communities	Risk: Inappropriate standards Noncompliance or non-implementation of policies Failure to adopt policies. Benefit: Reduced dependence on fuelwood energy Clean energy Less GHG emissions	Stakeholder involvement Cost benefit analysis of policy options Build in private sector incentives to adopt policy	1 3 10	**L**

Strategy Table (13): Key actions in promoting participation in climate change responses

Actions to be considered	Stakeholders	E&S risks & benefits	Risk mitigation & benefit enhancement measures	WB ESS triggered	Risk level L, M, S, H
5.1 Encourage access of women and youth to decision making forums and bodies at national and local levels regarding climate response measures.	Sudanese Environment Conservation Society Sudanese Environmental Community Organization, Youth Green Creep Organization, and the Sudanese Youth Parliament for Water Sudan MAB Youth Forum	**Risk:** Cost barriers, Inappropriate policies Noncompliance or non-implementation of policies Failure to adopt policies **Benefit:** reduced land degradation ; Improved planning and management; improved participation of vulnerable groups	Stakeholder involvement Cost benefit analysis of policy options Encourage private sector incentives to contribute to policy	1 3 9 10	L
5.2 At national levels, gender and youth perspectives should be mainstreamed into national policies and strategies on climate change.	1&2 Federal and State level legislators, (Line ministries, environmental authority, FNC) private sector, financial institutions 3. Village level small farmers and forest adjacent communities, NGOs	**Risk:** Cost barriers, Inappropriate policies Noncompliance or non-implementation of policies Failure to adopt policies **Benefit:** reduced land degradation ; Improved planning and management; improved participation of vulnerable groups	Stakeholder involvement Cost benefit analysis of policy options Encourage private sector incentives to contribute to policy	1 3 9 10	**S**
5.3 Develop education and awareness programmes to help youth develop deeper understanding of the impacts of climate change and develop skills and knowledge in responding to these impacts.	1&2 Federal Ministry of Youth and Sports, and State level legislators, (Line ministries, environmental authority, FNC) private sector, financial institutions, Ministry of Higher Education and Scientific Research 3. Village level small farmers and forest adjacent communities, NGOs	**Risk:** Cost barriers, Inappropriate policies Noncompliance or non-implementation of policies Failure to adopt policies **Benefit:** reduced land degradation ; Improved planning and management; improved participation of vulnerable groups	Stakeholder involvement Cost benefit analysis of policy options Encourage private sector incentives to contribute to policy	1 3 9 10	**S**
5.4 In implementing all PAMS in this NRS, specific consideration should be made in addressing gender inequalities in relation to access to resources, including credit, extension and training services, information and technology.	1&2 Federal and State level legislators, (Line ministries, environmental authority, FNC) private sector, financial institutions 3. Village level small farmers and forest adjacent communities, NGOs	**Risk:** resistance to change, inappropriate policies, policies are not complied with **Benefit:** Improved planning and management; improved participation of vulnerable groups	Stakeholder involvement Cost benefit analysis of policy options Encourage private sector incentives to contribute to policy	1 3 9 10	**L**
5.5 All communications undertaken in relation to the PAMS in this NRS should involve a well-defined, gender and youth sensitive and culturally appropriate communication strategy.	1&2 Federal and State level legislators, (Line ministries, environmental authority, FNC) private sector, financial institutions 3. Village level small farmers and forest adjacent communities, NGOs Sudan MAB Youth Forum	**Risk:** resistance to change, inappropriate policies, policies are not complied with **Benefit:** Improved planning and management; improved participation of vulnerable groups	Stakeholders participation	1 3 9 10	**L**
5.6 Design and implement mechanisms that involve communities (including women, youth and elders) in monitoring social and environmental improvements in local areas.	1&2 Federal and State level legislators, (Line ministries, environmental authority, FNC) private sector, financial institutions 3. Village level small farmers and forest adjacent communities, NGOs State and Community Level Organizations	**Risk:** resistance to change, inappropriate policies, policies are not complied with **Benefit**: Improved planning and management; improved participation of vulnerable groups	Stakeholders participation Develop national standards	1 2 3 4 9 10	**L**

Risk levels as specified in the tables above are summarized below

	E&S Risk level
	Low risk
	Medium (or unknown) risk
	Substantial Risk
	High risk

	REDD+ Strategy options/activities proposed in REDD+ strategy draft (Aug 2018 to December 2020)	E&S Risk level			
		Low	Med	Substantial	High
1	**Strategy option 1: Integrated forest landscape management**				
1.	**Strengthen sectoral policies, financing, and institutional capacity for sustainable natural resource management**				
1.1	Improve forest sector regulations, laws, and policies to mainstream REDD+ actions: sector review and assessment of priority actions				
1.2	Support Revision and strengthening of the Sudan National Forest Policy Statement (2006; updated from Sudan's Forest Policy 1986)				
1.3	Support and improve policies to reduce deforestation and land degradation from refugee settlements.				
1.4	Development of National Forest Information Systems to support forestry and landscape management in Sudan (NFMS, MRV, FREL Development, Safeguards, Carbon Registry)				
1.5	State Level REDD+ Implementation Framework and Financing Options: Development of State REDD+ Action Plans (S-RAPs)				
1.	**Strategic Landscape Management, Restoration and Emission Reductions**				
1.8	Smallholder Forestry Program in Selected States for high value timber, fuelwood/biomass, and pole production and non-wood forest products (Initial target – Blue Nile and Sinnar States)				
1.9	Statewide Forestry Nursery Systems to support community-based, afforestation, reforestation, and restoration of degraded lands				
1.10	Capacity building for sustainable gum production value chain through sustainable finance and private sector engagement				
1.11	Support sustainable forest management through development of capacity for and use of forest management plans (including selected coastal zones, protection of mangrove forest, and riparian)				
1.12	Capacity development and institutional strengthening for fire management				
2	**Strategy option 2: Climate smart agriculture and rangeland management**				
2.	**Improving the adaptive and climate mitigation capacity of the agriculture sector**				
2.1	Capacity building to improve agriculture productivity through agroforestry system to improve water utilization and reduce forest encroachment (shelterbelts, alley cropping, wind breaks riparian forest buffers)				
2.2	Improve agricultural productivity through crop diversification and agro-pastoral systems				
2.3	Rehabilitating irrigation services to make water use more efficient, including the introduction of appropriate technologies to optimize water use and raise water awareness;				
2.4	Build capacity and conduct knowledge transfer for conservation agriculture with water harvesting, zero tillage, and improved seeds.				
2.	**Promoting Sustainable Livestock and Rangeland Management**				
2.5	Strengthening regulatory and non-regulatory measures for livestock movement corridor management including monitoring systems.				
2.6	Rangeland restoration/rehabilitation, protection, and provision of adequate seasonal feedstock (fodder production): Creating business partnerships between livestock owners and farmers along livestock routes				
2.7	Improve access to finance and support services for farmers and livestock producers (such as animal health, extension and training, farmer field schools, marketing)				
2.8	Promoting cooperation and coordination between public and private sector institutions in range infrastructure development and management.				
2.9	Increasing adaptive capacity of farmers and livestock producers for preparedness to seasonal variability in feed and water supply through community-based water conservation and river protection and management schemes				
3	**Strategy option 3. Integrated land use planning**				
3.1	**Harmonizing land use planning, investment policies, and legislation**				
3.2	Strengthen institutional capacity of environmental and social impacts assessments in agriculture, forestry, and mining sectors to prevent land degradation: (Institutional Capacity Needs and Gap Assessment and preparation of Capacity Development Plans)				
3.3	Rationalize, organize and harmonize above and below ground resource exploitation and related economic developmental activities and policies, in order to encompass environmental and climate change concerns				
3.4	Improve standards for the establishment and development of mining infrastructure (Updating of existing guidelines/policies and development of new guidelines and policies				
3.5	**Sustainable Land management stewardship through land tenure security**				
3.6	Regulatory and non-regulatory measures to improve land tenure security for local communities: Assessment and identification of opportunities for strengthening land tenure security for communities in deforestation hotspots (Prioritization of Deforestation Hotspots)				
3.7	Land use capability assessment and digitization to support the National Investment Map: optimizing land use through spatial planning and reliable spatial and non-spatial information				
4	**Strategy option 4. Sustainable energy supply and use**				
4.1	**Increasing access to efficient and sustainable household energy**				
4.2	Assessment and implementation of options for sustainable charcoal production				
4.3	Assessment and implementation of options and measures to incentivize and increase use of LPG gas and other alternative sources of energy in urban and rural communities				
4.4	**Promoting a sustainable biomass-based energy value chain**				
4.5	Creating business opportunities in the biomass energy sector for the private sector through regulatory and non-regulatory measures.				
4.6	Assessment of opportunities, incentives, and promotion of adoption of efficient cookstoves – linking biomass producers and consumers				
5	**Strategy option 5. Promoting participation in climate change response**				
5.1	**Advance the participation of youth and women**				
5.2	Encourage access of women and youth to decision making forums and bodies at national and local levels regarding climate response measures.				
5.3	At national levels, gender and youth perspectives should be mainstreamed into national policies and strategies on climate change.				
5.4	Develop education and awareness programmes to help youth develop deeper understanding of the impacts of climate change and develop skills and knowledge in responding to these impacts.				
5.5	In implementing all PAMS in this NRS, specific consideration should be made in addressing gender inequalities in relation to access to resources, including credit, extension and training services, information and technology.				
5.6	All communications undertaken in relation to the PAMS in this NRS should involve a well-defined, gender and youth sensitive and culturally appropriate communication strategy.				
5.7	Design and implement mechanisms that involve communities (including women, youth and elders) in monitoring social and environmental improvements in local areas.				

Appendix 2.
Consultation and participation plan

Background

The C&P process[49] for Sudan, outlined in section 1.B.1 of the R-PP, pinpoints a number of participation structures and processes at national and local level with potential to be utilized to promote stakeholder engagement. Participatory approaches including meetings, workshops, interactive media, programs and publicity messages and direct interviews will be used to consult on issues.

This SESA C&P plan describes the processes to be used in implementing the SESA and is designed within the framework of the draft Sudan REDD+ C&P plan. Specifically, this plan shall contribute towards ensuring that the SESA is informed by stakeholder's views and in particular by vulnerable groups. By drawing on stakeholder knowledge, experience and expertise, the process will help in addressing the complex nature of SESA, while providing access for all relevant stakeholders to contribute to solutions and planning. The plan has drawn from several sources mainly the Sudan's RPP, communication strategy, Drivers of deforestation and forest degradation study, draft strategy and the stakeholder mapping report produced as part of the SESA process. The plan will be used throughout the SESA process to help determine who should participate in the work, how, where and when.

The steps in the C&P process, following FCPF principles and guidelines for stakeholder engagement and outlined in sectorial studies (e.g. Slocum, 2003) are as follows:

- Define the desired outcomes of the C&P process.
- Identify stakeholders.
- Identify the issues to consult on.
- Define the terms of consultation & select the consultation and outreach methods.
- Ensure that stakeholders have sufficient capacity to engage fully and effectively in consultations.
- Define the plan and the time frame.
- Invite participants and promote the event.
- Conduct the consultations.
- Analyze the process and disseminate results.

Each of these steps is described below.

The desired outcomes of the consultation

The desired outcomes of the C&P process were to:

- identify positive and negative social and environmental impacts of the proposed strategy options for REDD+ implementation.
- select alternatives or mitigating measures to reduce the negative impacts of proposed strategy options for REDD+ implementation.
- identify alternatives or mitigating measures to enhance the positive impacts of proposed strategy options for REDD+ implementation.
- validate and get perception related to gaps, overlaps and inconsistencies in the national policy, legal and institutional framework with regard to REDD+ SESA requirements.
- defining of a framework for E&S screening of future REDD+ projects to be implemented under each strategy option.

Stakeholders C&P methodology

Introduction

The workshop of engaging Non-Governmental Organizations and Civil Societies in the Sudan REDD+ Programme held on November 19, 2015 recommended that the REDD+ C&P Plan should be expanded to ensure a socially inclusive process throughout the readiness phase that is inclusive of all Sudanese regardless of their ethnicity or gender.

At national level, consultations were convened to discuss issues and components of REDD+, including SESA issues; rights and tenure, Drivers of deforestation and forest degradation, benefit sharing, REDD+ structures and gender roles.

In Phase II, due to restrictions caused by the global Coronavirus outbreak, the Government of Sudan has imposed a range of restrictions on travel, public gatherings and social interactions. These restrictions mean that it was no longer possible

[49]** Consultation is a bi-directional process where the consulted party defines the issue. Participation is a process based on a partnership in which stakeholders and experts actively engage in the discussion. All parties involved can frame the issue, in a different extent.

to undertake stakeholder consultations as initially proposed in the SESA Technical Proposal. Consequently, a two-stage process has been designed whereby stakeholders with medium or high levels of ICT penetration will be consulted by remote means and those with lower levels of ICT access will be consulted directly when Corona restrictions are sufficiently relaxed to allow SESA team members or their representative to carry out direct consultations. In order to so, stakeholders were classified according to their level of ICT penetration. Each stakeholder subcategory has been classified on a scale of 1 to 5 (with 1 indicating a high level of ICT penetration, 2-3 indicating a medium level and 4- 5 indicating a low level).

For stakeholders with high or medium levels of ICT penetration (levels 1 to 3), the methods will depend on the level of access to the technology as follows:

- Level 1: webmail, online meetings/focus group discussions, questionnaires, WhatsApp
- Level 2-3: WhatsApp
- Level 4-5: some potential for phone contact during stage 1 but mostly to be done in stage 2

The list of categories and subcategories of stakeholders to be consulted (see Annex 1) was drawn from the SESA Phase I consultations and from additional information provided in REDD+ studies since Phase I was completed.

The main categories of stakeholders consulted in Phase II are listed below:

- Federal-level government sector institutions
- State-level government sector institutions
- Communities and indigenous peoples
- Livestock and pastoralist sector
- Refugees and IDPs
- Gum arabic value chain actors
- Private sector
- CSOs and NGOs
- Donors and development partners
- Academics and researchers
- Others

All relevant categories and sub-categories of stakeholders were consulted. Particular attention was given to ensuring that stakeholders that were under-represented in the sampling regime in Phase I were adequately sampled including:

- Large scale mechanised farming enterprises
- Downstream participants in the gum arabic value chain
- Stakeholders in the energy sector
- Marginalised and vulnerable communities and indigenous peoples.

Sampling Frame

The sample frame for E&S consultations will address the affected stakeholders by the implementation of the strategic options and actions, which involves all resource users including: grassroots community, indigenous peoples and other forest dependent communities, tribal and civil leaders, CBOs, CSOs, private sector entities, key informants, technical experts, academics, politicians from government at three levels locality, state and federal levels. How forest management interventions and REDD+ processes affect these stakeholders varies. REDD+ interventions impact on these stakeholders in different ways – positively and negatively.

The process of stakeholder mapping is underway and is using the information on the Drivers of deforestation and forest degradation and the hotspots for those drivers to identify stakeholders and the relevant issues to consult on. The draft report identifies the stakeholders to be consulted and gives guidance on appropriate ways of consulting stakeholders as it indicates levels of power relationships.

The consultation plan will adopt a snowball sampling technique to classify and investigate the targeted stakeholders based on the following rationale:

- The indefinite population size.
- High homogeneity among the stakeholders with regarding resource use and management.
- Limited accessibility due to security unrest and environmental factors (e.g. rainy season).
- Mobility of some targeted groups (e.g. nomadic herders).
- Limited information provided by other studies conducted within the REDD+ program.
- Logistics and time limitation.

In Phase II, the sampling intensity took into account the area of forest and woodland in each state and the human population (see Table 59). Consultations were held in all states and the capitals of the localities to be visited. A representative

sample of localities and lower-level administrative units was sampled, weighted by the amount of forest and woodland area and by population level.

Sample size

In Phase I, the consultation exercise focused on a small sample size comprising 20-25 respondents per focus group discussion based on the abovementioned rationale. This is also argued by Hinton (1995) who confirmed that this sample size represents successfully the minimum population in case of highly homogenized communities. Some other techniques such as purposive sampling techniques, individual key informant interviews etc. might be employed as the team will see appropriate. Moreover, the expert judgment, personal observation aided with digital devices such as cameras and GPS etc. can also be used.

As there is no concrete information on key stakeholders at local level, the consultant will conduct a stakeholder exercise by asking the following questions:

- Who uses the forest resources in the specific area?
- Who benefits from the use of forest resources and who wishes but is unable to do so?
- Who has impacts on forest resources, whether positively or negatively?
- Who has rights and responsibilities over the use of forest resources?
- Who would be affected by potential changes in the current status, regime or management of forests resources?
- Who makes decisions that affect the use and status of forest resources and who does not?

The above questions were answered using visiting site (hotspot) discussions with REDD+ focal points or key informants at local level or via remote means when not possible, literature review and personal experiences. When the same stakeholder groups are identified for a number of forest dependents or users, this will facilitate observation of the interconnected stakeholders that have an important stake with forests or the area.

The responsibility for stakeholder identification at local level rests primarily with the person or organization taking initial lead in a given recommended strategic action for reducing forest deforestation and degradation, which is the FNC. At the starting point, stakeholder identification at local level cannot be a fully participatory exercise, because its purpose is precisely to determine who should eventually be affected by or become part of the REDD+. When involving some of the stakeholders in broadening the scope of participation by asking them to identify other stakeholders, by inviting people and groups to express their concerns on the proposed strategic options, stakeholder identification can become a mechanism to incorporate new stakeholders progressively and widen the circle of consultation, with the aim of making it a truly exclusive process and avoid neglecting key stakeholders behind. The results of the exercise will be to fill in the table.

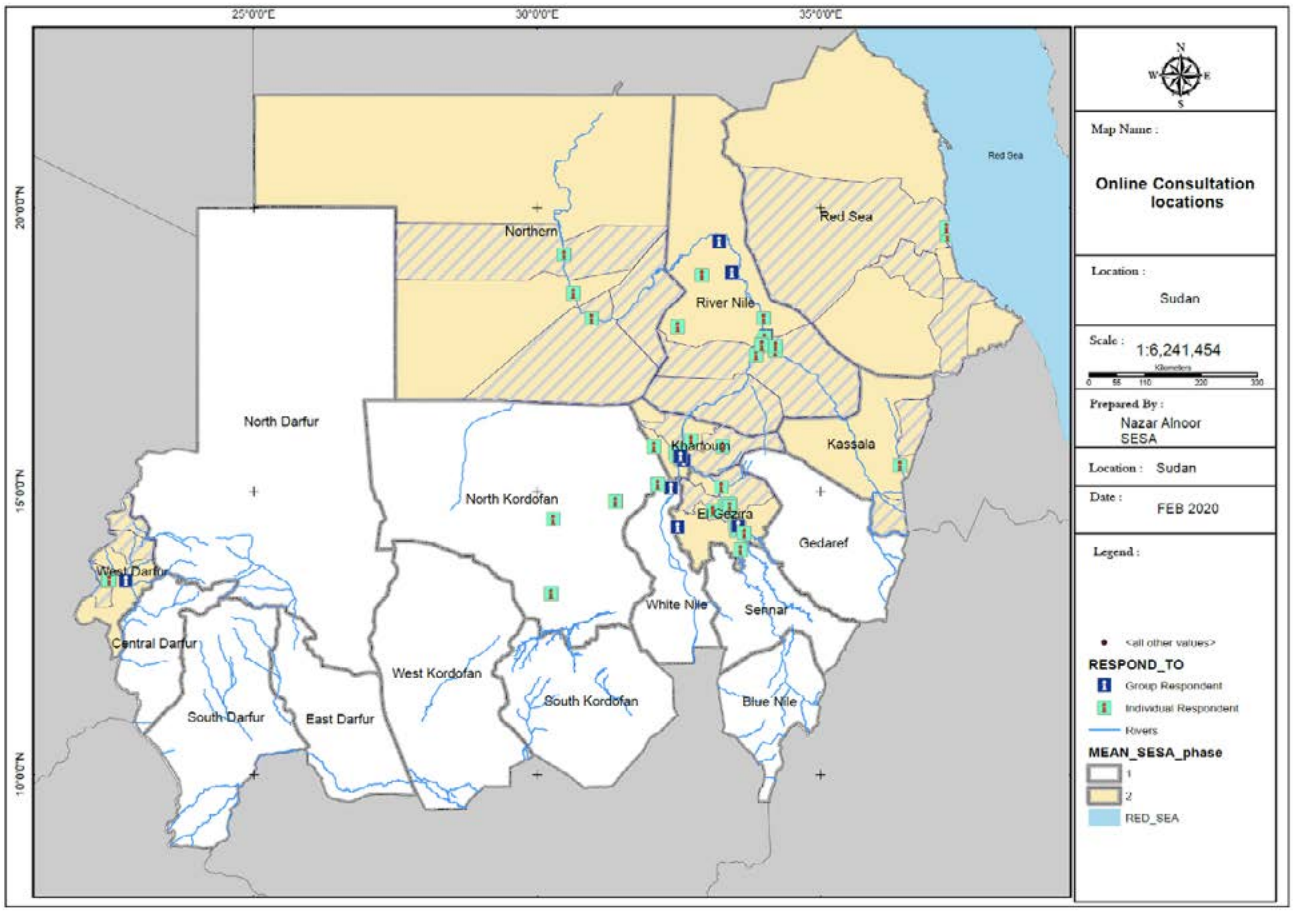
In Phase II, the choice of localities to be sampled was based on consultation with state-level REDD+ focal points, FNC staff and by using other sources including information generated through recent REDD+ studies. This has included collecting available email and phone contacts and identifying WhatsApp groups which could be used for information dissemination and soliciting responses.

The specific localities that were sampled, the numbers of Focus Group Discussions (FGDs) and of Key Informant Interviews (KIIs) are specified in Table 59 below.

Table 59. List of localities consulted in Phase II

State	Population	% Forest and other woodland cover	No of localities in the state	Localities to be consulted	No. of FGDs	No.of participants in FGD	No. of KIIs	Total sample size	% of Sample Size
Northern	936,300	0.05	7	Dongola and Marrawi.	2	12	14	109	14%
River Nile	2,493,900	1.6	6	Ad Damir, Shandi, Al Matama, Attbra (Hassanani forest reserved) and Abu Hamad	**5**	**10**	**14**	**91**	**12%**
Red Sea	1,482,100	1.5	10	Elgnab and Olaiab, Sinkat and Tokar	**3**	**18**	**15**	**101**	**13%**
Kassala	2,519,100	17.3	11	Wad Elhelio	**3**	**18**	**16**	**124**	**16%**
Gezira	5,096,900	0.2	6	4 localities: East Gazira, South Gazira, Hassahia, Greater Wad Madani	**4**	**24**	**12**	**109**	**14%**
Western Darfur	1,024,500	26.9	12	Giniana, Gabal Mon and Kalabas	**3**	**18**	**22**	**150**	**16%**
Khartoum	7,687,547	1.8	7	Umbadda, Umdurman\ Sharg Elnile, Jabel Awlia	**3**	**18**	**19**	**73**	**10%**
TOTAL	23	118	112	757	**100%**				

Map 11. Locations of consultations conducted in Phase II



Stakeholders at national and subnational level

Table 60. Stakeholders consulted in SESA Phase I

Level	Why they are relevant stakeholders?	Primary (directly impacted)	Secondary (indirectly impacted)
National level – Government institutions	Harmonization and supporting integration and implementation relevant policies	Ministry of Agriculture and Forestry, Ministry of Environment, Natural Resources and Physical Development, Forests National Corporation, The REDD+ Technical Working Group (TWG) National REDD+ Steering Committee, National REDD+ Coordination office Ministry of Animal Resources, Fisheries and Range, Ministry of Water Resources, Irrigation and Electricity	Ministry of Tourism and Wildlife, Ministry of Humanitarian Aid Commission Ministry of Local Governance and Administration, Ministry of Finance at federal and state levels, Veterinary Research Corporation, Ministry of Federal Governance Chamber, Ministry of Finance & Economic Planning, Ministry of Higher Education & Scientific, Research Ministry of Industry, Ministry of Investment, Ministry of Minerals, Ministry of Oil & Gas
State level Government institutions	Harmonization and supporting integration and implementation relevant policies	State Legislatures, State Line, Ministries, Universities, Research, Local Administrations, Business Owners Association, Commissioners, Land Commissions	Relevant ministries and their departments
Federal councils	Harmonization and supporting integration and implementation relevant policies	National Legislature, National Assembly, Council of States, Higher Council for Environment & Natural Resources, National Council for Desertification, Gum Arabic Board	
Civil society	Mobilization and advocacy for sustainable REED+ practices, piloting good best practices	Sudanese Red Cross Association	Sudanese Environmental Conservation Society, Sudanese Social Forestry Society, Sudanese Environmentalists Society, Sudanese Society for Combating Desertification, Sudanese Society for Wildlife, Sudanese Horticultural Society, Babiker Badri Scientific Society for Women, Green March/ Planting trees for Environmental Protection, Technology Transfer Society in the field of Agriculture, Sudan's Pastoralists Union, Sudan's Farmers Union, Gum Arabic Producers Associations, Almassar Charity Organization Practical Action Organization and many other NGOs
External partners	Supporting REDD+ activities and process	FCPF, FAO	UN Environment, UNDP, British Embassy, World Bank, IFAD
Private	Their actions may cause deforestation or support the implementation of REDD+ activities	DAL Group, Mamoun El Birair, Petroleum & Derivatives, Abbarsi, Aman, Agip, Nile, Total Wagdi Mirgjani	
Resource users	The need to understand the costs, benefits, their roles (since they interact closely with resources), addressing drivers of forest deforestation and degradation	Gum Arabic Producers Associations and Unions (at federal and state level), Farmers and Pastoralists Unions (at federal and state level), Charcoal dealers (at state level)	
Civil society	Mobilization and advocacy for sustainable REDD+ practices, piloting good best practices	Local NGOs, CBOs, international agencies	
Private	Their actions may cause deforestation or support the implementation of REDD+ activities	Energy producers, industries, timber growers, timber dealers	

Table 61. Stakeholders consulted in SESA Phase II

Level	Why they are relevant stakeholders?	Primary (directly impacted)
Federal Govt sector institutions • Federal administration, ministries, directorates, boards etc • Forests National Corporation	Harmonization and supporting integration and implementation relevant policies	• FNC staff • HCENR • SSMO • Gum Arabic board
State level administration • State administration -(legislators, ministries directorates etc..) • Native administration • Locality administration • Forest Department • State level community forestry representatives	Harmonization and supporting integration and implementation relevant policies	• State Ministries of Mining, Agriculture, Livestock, Forestry (now called Ministry of Production and Economic resources), Energy, Wildlife. • Directorates (Agriculture, Range and Pasture, Animal Resources, Forestry, Horticulture,) • Native administration • Forests Guards • State level Community Forestry Representatives • State Council of Ministers • State Alliance for Freedom and Change • State Struggle Committees • Locality Executive Director • SCEUP: Supreme Council for the Environment and Urban Promotion
Communities and indigenous peoples • Village level farming community members • Community leaders, Sheiks, Umdas, Village elders • Community forest managers and members • Indigenous forest dwellers	Mobilization and Advocacy for sustainable REDD+ practices, piloting good best practices, Ensuring participation of vulnerable and marginalized communities	• Native administration • Agricultural society members • Forests guards • Locality administration • Indigenous people living in Forest Reserves, National Parks or other protected areas • Other marginalised and vulnerable communities • Village level farming community members • Community representatives living near forest, Sheiks representing the Communities. • Farmers managing community forests with FNC (represented by Tunjia contact farming systems) • Women firewood collectors • Village elders and tribal leaders • Forest users, forest-dependent communities • Community forest members
Livestock and pastoralist sector • Pastoralist unions • Nomadic pastoralists • Camel herders	Mobilization and advocacy for sustainable REDD+ practices, piloting good best practices. Ensuring participation of vulnerable and marginalized communities	• Pastoralist unions • Nomadic pastoralists • Village-based livestock raisers • Camel herders • Nomadic pastoralists living inside Forest Reserves. • Agricultural Society members
Refugees and IDPs	Mobilization and advocacy for sustainable REDD+ practices, piloting good best practices. Ensuring participation of vulnerable and marginalized communities Their actions may also cause deforestation or support the implementation of REDD+ activities	• IDP representatives • IDPs
Gum Arabic value chain participants • GAPAs • Gum Arabic producers • Gum Arabic trader/middlemen • Gum Arabic processors and exporters	Their actions may cause deforestation or support the implementation of REDD+ activities	• Gum Arabic Unions • Gum Arabic producers • GAPAs • Gum Arabic traders (rural traders, urban traders and central auction traders) • Gum Arabic processors and exporters
Private sector • Commercial farming enterprises • Oil companies • Mining companies • Artisanal miners and miner's associations • Sawmills and timber traders • Fuelwood and charcoal traders • Clean energy traders and users (solar, LPG)	Their actions may cause deforestation or support the implementation of REDD+ activities	• Businessman's federation • Oil companies • Large scale mechanized farming companies • Artisanal gold miners • Medium scale mechanized farmers • Middlemen, brokers and trade gents (rural, urban and central markets) • Fuelwood and charcoal traders • Sawmill owners • Sawmill workers • Women traders in NWFPs • Clean energy traders (solar, LPG) • Wood cutters and Timber trader

Donors and development partners • International donors. • International organisations. • NRM projects.	Mobilization and advocacy for sustainable REDD+ practices, piloting good best practices.	• Women Unions • Women environmental group • Women society • Sudanese Environmental Conservation Societies (SECS)
Academia and researchers	Mobilization and advocacy for sustainable REDD+ practices, piloting good best practices.	• School teachers • Academics
Others	Mobilization and advocacy for sustainable REDD+ practices, piloting good best practices.	• Domestic energy users • Clean energy users (solar, LPG)

Issues to consult on

The REDD+ strategy is currently being formulated. An initial draft was formulated based on the study of the Drivers of deforestation and forest degradation and the information obtained from its stakeholder consultations. As part of the SESA process, the draft (provided to the SESA team on 24 February 2018) was subjected to a technical assessment of the potential environment and social impacts and the findings were fed back to the strategy formulation team. Two revised drafts of the strategy were provided on 31 March 2018 and 28 September 2020 and were subjected to a detailed stakeholder consultation process during the month of April 2018 and October 2020, respectively. These assessed the potential environment and social impacts of the proposed strategy options, proposed mitigating measures for potential negative impacts and proposed measures to enhance the environmental and socio-economic benefits. The specific issues to consult on were those defined in the REDD+ strategy different versions

The terms of consultation and methodology

Participatory forums and structures are in place at National and State levels and have already been used for consultations on the drivers and strategy development. Also, the different stakeholders' consultations conducted by the safeguard consultant were revisited (the series of workshops on capacity building on REDD+ safeguards in the five regions of the FNC, including the 18 states). These previous experiences also allow for the identification of locations suitable for accommodating all participants and an audience, easily accessible and with the required furniture and instruments (table, chairs, electricity etc.). Several lessons and experiences have been learnt during the preparation of the various REDD+ processes, including the R-PP and workshops[50]. The SESA benefited from the lessons of these consultations and participation processes. These include among others:

Use of awareness and capacity building approaches that enhances participation and ownership of decisions. The consultation process utilized approaches and tools that involved all stakeholders in understanding issues, roles, responsibilities. The approaches helped in making sure that consultations were inclusive and participatory, it helped in creating trust by sharing each other's visions and concerns and in building consensus toward a common future vision.

Use of existing structures both at the local and national levels helped to empower and strengthen participation and ownership of processes.

Clear documentation and dissemination of facts and information arising from consultative processes offers strong foundations upon which stakeholders monitor and build on future consultations. Careful minutes, observations and documentation of the consultations preparation and implementation were collected, both by paper and by recording. At least one person was in charge of documenting the events as detailed as possible. Pictures were taken and release forms were used to secure permission to use photos. Outcomes were communicated to stakeholders.

Multi-media approaches boost reach, participation and feedback of a broader audience. National-level workshop to initiate the assessment of Environment and Social impacts of the strategies, assess the policies, laws and institutions, verify the stakeholder mapping findings, and validate the C&P plan were held. It consisted of presentations, exercises, working-group sessions, and plenary discussions. Focus-group discussions were also conducted[51].

Stakeholder capacity - the principles of the stakeholder engagement

The process attempted to integrate and emphasize the following principles:

Inclusiveness: targeting a broad audience of stakeholders both at national and state levels including those directly and indirectly affected by REDD+ activities.

[50] insert reference for these lessons

[51] Focus group method consists in gathering and consulting selected people (usually from 5 to 10) who possess determinate characteristics in order to obtain qualitative and quantitative data which serve to better understand the topic under discussion.

Incremental in nature: take into account the existing participatory platforms, ongoing interventions and earlier consultation initiatives conducted during R-PP formulation.

Mutual respect: considering the integrity of persons, their institutional structures and cultural diversity.

Transparency: verifying and reporting of outcomes of all consultations, revealing them widely in a timely schedule,

Consensus: the process shall enable discussions and exchanges of information, with the ultimate aim of building consensus and broad community support.

As per the Asia Indigenous Peoples Pact (2014), the process is also aimed at assuring the **Free Prior and Informed Consent (FPIC)**, which is the principle according to which a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use. The FPIC process requires that communities are provided with accurate and complete information regarding the issue, that may affect them; that they are consulted in accordance with their customary decision-making processes; that they are given the freedom, time and space to conduct their internal decision-making process without interference; and that their collective decision to give or withhold consent including setting conditions for consent is recognized and respected with proper and accurate documentation of the decision.

The plan and timeframe

The steps that were followed in the Participatory and Consultation Plan were:

a. Invitation of participants and process launch.

b. Subnational consultative workshops: in phase I, workshops were conducted in 3 states that are representatives of the different zones of Sudan.

c. National and regional consultations through key informant interviews and group discussions on laws/policy/institutions and on screening for E&S impacts of strategies will be organized.

d. Use of focal points and remote consultations means in phase II.

e. A national workshop to do E&S screening and assessment was conducted.

f. A national workshop to present SESA findings and the ESMF framework was organized.

Invite participants and promote the event

Stakeholders were informed both through the pre-existent REDD+ network and through media, and through the REDD+ website (www.REDDsudan.org) and also other media (newspaper, television, radio, posters). Through consultative meetings in Khartoum (and potentially in the States), participants were informed of the scope of the consultations. The process included briefing visits to Ministries in Khartoum, visits to NGOs, emails to stakeholders and stakeholder organizations as well as a general communication plan, presented in the methodology section of the present SESA draft report.

Conduct the consultations

The consultations consisted of a combination of events (meetings, key informant interviews and group discussions) held at national (Khartoum) and state level, as follows:

a. Participation by SESA team members in the strategy formulation process consultations (in conjunction with the strategy formulation consultants) by attendance at the strategy formulation workshops.

b. Regional consultative meetings and focus groups in the targeted states as advised by the strategic options.

c. National and regional consultations through key informant interviews and group discussions.

d. A national workshop to do E&S screening and assessment. At national level, a workshop was held to do E&S screening and to discuss issues arising from the sub-national fora.

Analyze the process and disseminate results

Drawing on the findings and recommendations of the consultative process and the expert analyses, the SESA team compiled a report and presented it to a national level stakeholder workshop for discussion and validation. This provided a forum for stakeholders to review the findings and recommendations and to voice concerns and have a say in the outcome. The draft SESA report and draft ESMF was presented at this workshop. Following the workshop, the reports was finalized and disseminated.

The rationale behind the identification of hotspots that delineated the strategy implementation approach:

The implementation of the strategic option/actions was done according to the jurisdiction delineation agreed upon at the

meeting dated 8th of March 2018 at the REDD+ PMU attended by H&T, WB International Consultant, REDD+ Coordinator, PMU Technical lead, Safeguard consultant plus SESA team representatives. The meeting agreed that the emissions reduction potential should be the guiding approach for the implementation of projects at the following listed areas:

1. Sustainable Forest Management Riverine Ecosystem Blue Nile and Sennar State,

2. Agro-sylvo-pastoral development of gum arabic Belt:

2.1. Clay plain: Gadaref, Sennar, Blue Nile, South White Nile and South Kordofan,

2.2. Sand Plain: Greater Kordofan,

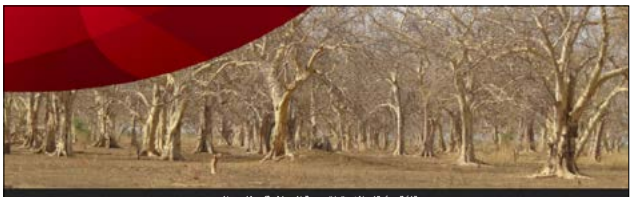
3. Water shed management Jebel Marra Massif East Central and South Darfur

Table 61. Stakeholders consulted in SESA Phase II

	Location	Key issues for discussion	Target stakeholders
SESA Phase I			
15-18 April	Regional consultation 1- Sennar Riverine reserved forests: Galengani forest west of Blue Nile. Wad baihaiga, Dinder National Park	Strategies addressing expansion of mechanized agriculture. Strategies addressing semi mechanized agriculture	General Director of Agriculture, Extension and Technology Transfer Department, Ministry of Agriculture, Forestry Extension, Range and Pasture Administration, University of Sennar/College of Natural resources, Native Administration (Nazir Kenana and Leader of the gum arabic Producers), Forests National Corporation, Producers and Farmers Federation and REDD+ Focal point.
19-21 April	Blue Nile Azaza forest	Strategies addressing expansion of mechanized agriculture. Strategies addressing semi mechanized agriculture	Indigenous forest users, communities around Dinder NP and Azara Forest
22- 23 April	Gadaref State	Rawashda Reserved Forest Wad Elbashier reserve forest Refugee camps.	
28 April -2 May	Greater Kordofan Gum arabic Belt Northern Kordofan: Um Rwaba and Shekan Southern Kordofan: Nabag forest and Habila Mechanized Farming Administration. Western Kordofan: Al Nohood	Strategies addressing agricultural expansion. Strategies addressing D&D due fuelwood and charcoal production	General Director of Agriculture, Extension and Technology Transfer Department, Ministry of Agriculture, Forestry Extension, Range and Pasture Administration, University of Kordofan/College of Natural resources, Native Administration, Gum arabic Producers, Forests National Corporation, Producers and Farmers Federation and REDD+ Focal point
7-12 May	Greater Darfur Forests close to Jabal Marra Western Darfur and Central Darfur Kaja East, Neem forest –Al gainaina, Azerni extension (Al gainaina). Zalengi forest, Fatma Karal forest, Zalengi locality; Nairtati forest (Nairtati locality), Saraboya forest (Wadi Salih locality) Galabat forest	Strategies addressing agricultural expansion. Strategies addressing D&D due fuelwood and charcoal production.	Western Darfur Sudanese Environment Conservation Society (SECS), Ministry of Animal Wealth and Forestry, Gum arabic Producers, Wildlife Forces, Coordinator of Gum arabic, Coordinator of Extension, Agricultural Services, Ministry of Agriculture, Native Administration, REDD+ Focal point Central Darfur Ministry of Agriculture, Range and Pasture Administration, The legal administration, Native Administration, General Director of Agriculture, Agricultural Services, Gum Arabic Producers Associations, Civil Society Organizations (CSOs), Community Based Organizations (CBOs), REDD+ Focal point

5 Jul.	Khartoum	National workshop – screening and assessing strategies	Political and administrative staff of government sectors including forestry and range, water, agriculture and others; national-level CSOs, academia, private sector, development partners and representatives from the sub-national platforms
7 and 9 Aug.	Khartoum	National workshop presentation of draft SESA and ESMF	As above
SESA Phase II			
	Activity	**Dates**	
	Approval of present plan by the REDD+ PMU	Start: 21 July End: 3 August	
	Consultation stage 1	Start: 4 August (or when present plan is approved) End: 15 November or later is the plan take more than 2 weeks to be approved	
	Consultation step 2	Start: depending upon the COVID-19 restrictions. End: 7 December 2020	

Appendix 2.
SESA communication material



حقائق وارقام الإستراتيجية الوطنيةلبرنامج الرد+

تعني الرد+

الحد من الانبعاثات الناتجة عن إزالة وتدهور الغابات ، والإدارة المستدامة للغابات ، والحفاظ على مخزون الكربون في الغابات وتعزيزه. لدى الرد+ القدرة على تقديم مكافآت مختلفة للشعوب الأصلية والمجتمعات الأخرى المعتمدة على الغابات ، بما في ذلك الإدارة المستدامة للتنوع الحيوي ، وتوفير سبل العيش البديلة ، والتقاسم العادل للإيرادات الناتجة عن خفض الانبعاثات ،

في السودان ، هذا يعني تحسين الممارسات وتقليل التأثيرات السلبية (المشاكل ، وتسمى أيضًا "المسببات") التي تسبب هذه الآثار السلبية :

- الزراعة التجارية وخاصة الزراعة الآلية بالإضافة إلى الزراعة المروية
- الرعي الجائر
- قطع الأخشاب بشكل غير مستدام للطاقة والاستخدامات الاخرى
- تطوير البنية التحتية

كيف يمكننا وقف هذه المشاكل؟

نحن جميعاً جزء من وقف هذه المشاكل (الآثار السلبية) ، ولتحقيق هذا الهدف ، تقوم الهيئة القومية للغابات بتطوير حلول "خيارات" لمعالجة الآثار السلبية على الأشجار والغابات. تسمى هذه الخيارات خيارات استراتيجية الرد+. الخيارات هي عناصر رئيسية تشكل استراتيجية أوسع للحد من الآثار السلبية على الموارد الغابية في السودان - "الاستراتيجية الوطنية". تركز الاستراتيجية على الحد من قطع الغابات ، والاراضي المغطاة بالاشجار ، وزيادة الغابات ، من خلال تعزيز الحماية وإعادة الغطاء الشجري : الإدارة المستدامة وإنتاج طاقة الكتلة الحيوية ، وتعزيز إنتاج الطاقة المتجددة واستخدامها ، وتعزيز الحوكمة وتنمية القدرات المحلية ، وتهيئة بيئة مواتية للإدارة المستدامة للغابات. المجموعة الحالية من الخيارات المدرجة في الاستراتيجية هي اقتراح متكامل وملخص على النحو التالي :

الخيار 1. قطاع الغابات

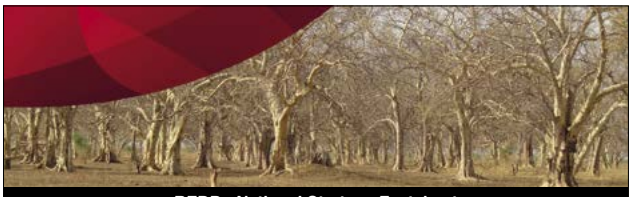
- تحسين السياسات واللوائح والمعايير للإدارة المستدامة للغابات والأنشطة المرتبطة بها
- الإدارة المستدامة والمحسنة للغابات (بما في ذلك تخطيط وإدارة حرائق الغابات ، وتخطيط الغابات) واستعادة المناظر الطبيعية المتدهورة (الغابات والرعي والزراعة).
- بروتوكولات الإنتاج والتسويق لأنواع الأشجار المنتجة للصمغ وغيرها من المنتجات الغابية غير الخشبية
- الترويج للاستخدام المستدام لحطب الوقود
- إنشاء أحزمة الحماية

الخيار 2: القطاع الزراعي

- تعزيز الإنتاجية
- تكثيف وتنويع الزراعة الغابية والنظم الزراعية باستخدام المدخلات
- تحسين سلسلة التوريد للمحاصيل الرئيسية وتنفيذ ورصد المعايير المستدامة
- إنشاء أحزمة الحماية

الخيار 3. قطاع الطاقة

- تحسين استهلاك الكتلة الحيوية الخشبية حسب القطاعات (تقليل الطلب المنزلي على الكتلة الحيوية الخشبية من خلال وقود الطهي النظيف وغاز البترول المسال والغاز الحيوي والمواقد الكهربائية من الطاقة الشمسية / الرياح)
- تحسين استهلاك خشب الوقود في القطاع الصناعي
- تحسين استهلاك خشب الوقود في القطاع الصناعي
- تعزيز إنتاج الطاقة المتجددة (الطاقة الشمسية ، الإيثانول ، الرياح ، الطاقة المائية)



REDD+ National Strategy Factsheet

What is REDD+

REDD+ is a policy tool that aims to support governments to pay specific forest stakeholders based on results from improving and respecting the forests more. These results are connected with reductions in negative forest management activities and improvements in sustainable forest management practices. Redd+ activities include reducing cutting of forests and trees within forests and woods, conserving and enhancing existing trees and forests and managing them sustainably. Simplified, the aim is to fix problems with sets of solutions.

In Sudan, this means improving practices and reducing negative impacts (the problems, also called "drivers") that cause these negative impacts;

- Commercial agriculture, especially mechanized agriculture, in addition to irrigated agriculture
- Overgrazing
- Unsustainable wood logging for energy and other uses
- Infrastructure development

How can we stop these problems?

We are all part of stopping these problems (negative impacts), and to reach that goal, the FNC is developing solutions "options" to address the negative impacts on trees and forest. These options are called the REDD+ strategy options. The options are key elements that form a wider strategy to reduce the negative impacts on Sudan's forest resources – the "National Strategy". The strategy focuses on reducing the cutting of forests, woodlands and trees, and increasing forests, woodlands and trees through promoting conservation and restoration; sustainable management and production of biomass energy, promoting renewable energy production and usage, strengthening governance and development of local capacities and putting in place enabling environment for sustainable forest management.

The current set of options listed with the strategy are an integrated proposal and are summarised as follows;

OPTION 1.
FORESTRY SECTOR

- Improve policies, regulations and standards for sustainable forest management and associated activies
- Improved and sustainable management of forests (including wildfire planning and management, and forest planning) and restoration of degraded (forest, grazing and farming) landscapes.
- Production & marketing protocols for gum Arabic producing tree species and other NWFPs
- Promotion of sustainable fuelwood

OPTION 2.
AGRICULTURAL SECTOR

- Enhancement of productivity
- Intensify and diversify agroforestry and agricultural systems using inputs
- Improve supply chain of key crops and implement and monitor sustainable standards
- Establishment of shelterbelts

OPTION 3.
ENERGY SECTOR

- Optimize woody biomass consumption by sectors (reduction of household demand for woody biomass through clean cooking fuel, LPG, biogas and electric cookers from solar/wind)
- Optimize fuel wood consumption in industrial sector
- Promote renewable energy production (solar energy; ethanol; wind; hydro)

الأسئلة التي يتكرر طرحها عن الرد

ما هو الرد+

عبارة عن أداة سياسة تعني بشكل أساسي أن تدفع الدول المتقدمة للدول النامية مقابل حمايتها لمواردها الغابية وإدارتها بشكل أفضل واستخدامها بحكمة ، والمساهمة في الكفاح العالمي ضد تغير المناخ. وهذا يعني على وجه الخصوص عدم قطع الغابات أو إعادة زراعتها. بدون المشروع والبرنامج من هذه الأداة ، من المرجح أن يتم قطع هذه الغابات وتسريع تغير المناخ.

ماذا يعني ذلك عمليا؟

الناس / المجتمعات الذين يستخدمون / يعتمدون على الغابات يتم تحفيزهم لعدم قطع الغابات أو إلحاق الضرر بها. مثال على الأنشطة:

تعزيز مخزون الكربون من الغابات

يعني إنشاء غابات على أرض لم تكن غابات في السابق ، أو تم تحويلها من غابة إلى استخدام آخر للأراضي

الادارة المستدامة للغابات

في أبسط المصطلحات ، تعني انه يمكن الحفاظ على الغابة من خلال زراعة شجرة جديدة لكل شجرة يتم إزالتها. الإدارة الجيدة للغابات هي إيجاد توازن جيد بين الاحتياجات البيئية والتجارية والاجتماعية لموارد الغابات. أحد الأمثلة على ذلك النشاط هو إزالة بعض الأشجار مع الحفاظ على التوازن في الغابة أو إتاحة مدة كافية لنمو الأشجار الصغيرة.

المحافظة على الغابات

تعني الحفاظ على مناطق الغابات لصالح الأجيال الحالية والمقبلة. أنها تنطوي على الحفاظ على الموارد الطبيعية داخل الغابات التي تعود بالفائدة على كل من البشر والبيئة مثل الحظائر القومية ومناطق الغابات الأخرى. وتشمل الأمثلة على الأنشطة مساعدة صغار المزارعين والمحرومين على حماية غاباتهم وتطوير أنشطة مستدامة مربحة بالاستفادة من الخدمات التي تقدمها الغابات مثل ترسيم الحدود والحماية وجمع البذور واستخدام المنتجات غير الغابية وزيادة الانتاج الزراعي وتعزيز خصوبة التربة ومساعدة التجدد الطبيعي.

من سيتأثر؟

معظم الناس الذين يعتمدون على الغابات ومواردهم. وبشكل أكثر تحديدًا ، فإن السكان المستضعفين الذين يعتمدون على الغابات والسكان الأصليين هم الركيزة الهامة بشكل خاص في هذه المناقشات لأن الكثير منهم يعيشون في الغابات أو حولها ، وترتبط أساليب حياتهم بها. قد يحصل هؤلاء السكان على فوائد مباشرة ، والدخل من بيع المنتجات ، ونقل التكنولوجيا ، وتعزيز الحقوق ، والوظائف.

اسباب انحسار وتدهور الغابات –نشرة تعريفية

ماذا نعني بكلمة الرد+ (برنامج تقليل الانبعاثات الناجمة عن إزالة الغابات وتدهورها، أو ما يعرف اختصارا بـ "REDD+").

ت ان انحسار الغطاء الشجري في السودان وتدهورغاباته المتبقية له آثار سلبية على تغير المناخ وزيادة التصحر وكذلك على سبل كسب العيش والأنشطة الاقتصادية التي تعتمد على موارد الغابات. اقترح السلطات المختصة خطة عملية أو استراتيجية لمعالجة هذا الوضع وخفض مستويات إزالة الغابات تدهورها وتعزيز الإدارة المستدامة للغابات. كانت الخطوة الأولى في تطوير هذه الاستراتيجيي هة دراسة أسباب إزالة وتدهور الغابات في عام 2017. و

ما هي أبساب تدهوا ولغابافي ا تلسودان؟

هنالك عدة عوامل ادت الي انحسار الغابات في السودان، من بينها:

• الزراعة التجارية، بشكل رئيسي، الزراعة المطرية شبه الآلية، واسعة النطاق، إلى جانب الزراعة المروية: مثل زراعة السكر والذرة الرفيعة.

• تم بناء العديد من المدن والبلدات والقرى في مناطق غابات كانت مغطاة بالأشجار والشجيرات، وتم بناؤها في الغالب من الطوب الطيني الذي تم حرقه من الاخشاب المستخرجة من غابات السودان.

• البنية التحتية: (1) محطات الطاقة الكهرومائية (مثل سد خشم القربة، وسدود عطبرة وستيت) التي شيدت جميعها بإزالة الاف الهكتارات من أشجار وشجيرات الغابات أو تم تنظيف خزاناتها من الأشجار مسبقًا؛ (2) الطرق وطرق المرور السريعة (مثل بورتسودان -هيا -عطبرة -الخرطوم، هيا - كسلا -القضارف، إلخ)؛ "3" السكك الحديدية (وادي حلفا -أبو حمد -عطبرة؛ إلخ).

• التنقيب عن البترول الذي أدى إلى إزالة الغطاء الشجري والنباتات الأخرى لبناء المرافق والطرق وخطوط الأنابيب والمعسكرات والورش والمخازن والآبار.

• تعدين الذهب، والكروم، والنحاس، والحديد، والمنغنيز، والأسبستوس، والجبس، وما إلى ذلك. وقد ساهمت جميع أنشطة التعدين والاستخراج في إزالة مئات الآلاف من الكيلومترات المربعة من النباتات بشكل رئيسي من الغابات والمراعي والتربة.

• اللاجئون والنازحون داخلياً في الإقليم الشرقي (البحر الأحمر وكسلا والقضارف) وكان متوسط استهلاك الفرد السنوي من الحطب في ذلك الوقت 0.73 متر مكعب. وقدر استهلاكهم السنوي من الأخشاب بحوالي 10000 هكتار من الغابات المغطاة بالأشجار والشجيرات. بالنسبة للحرب الأهلية في دارفور، قُدر إجمالي استهلاك الخشب السنوي في دارفور الكبرى 1،275،000 متر مكعب لحوالي 1.5 مليون شخص.

Appendix 4.
ToR for the SESA

Phase I

The Republic of Sudan is considering the REDD+ mechanism to be a priority area for development in the management of forest resources and rangeland in the country. Greenhouse gas emissions from D&D have come to the top of the international negotiations on climate change since 2005. Reducing Emissions from Deforestation and Forest Degradation (REDD+) is a proposed global mechanism to mitigate climate change caused by forest loss or degradation, while mobilizing financial resources for the socio-economic development in forest countries. The Forest Carbon Partnership Facility (FCPF) supports selected countries in the preparation and subsequent implementation of their national REDD+ strategies.

The Republic of Sudan has received a grant through the Forest Carbon Partnership Programme of the World Bank to support Sudan in preparing for the implementation of its National REDD+ Programme.

The REDD+ readiness process should ensure that implementation of proposed programs and activities will not cause adverse social and environmental impacts, while striving to enhance benefits for local communities and the environment. Countries participating in readiness activities with support from the FCPF are required to undertake a Strategic Environmental and Social Assessment (SESA) to assess the potential impacts from national REDD+ programs and policies, formulate alternatives and develop mitigation strategies. SESA offers a platform for consultation to integrate social and environmental concerns into the policy-making process of REDD+.

SESA is complemented by an Environmental and Social Management Framework (ESMF), which establishes the principles, guidelines, and procedures for reducing, mitigating, and/or offsetting potential adverse environmental and social impacts, enhancing positive impacts and opportunities, and otherwise guiding potential investments towards compliance with relevant safeguards.

Context

1. The work and deliverable required in this contract includes a collection of linked activities:

a. (i) development of the SESA at the National Level

b. (ii) a national-level Environmental and Social Management Framework (ESMF); and

c. (iii) analysis of land and involuntary resettlement issues and the preparation of a Resettlement Policy Framework and Process Framework (if needed).

These activities will support the integration of social and environmental safeguards into the REDD+ strategy development. Each of these initiatives is discussed in detail below. A key overarching principle for this consultancy is that the outputs need to be generated in an integrated manner in tandem with the other REDD+ Readiness processes. There needs to be close coordination with the REDD+ Safeguards Working Group and Technical Advisory Committee and, depending on the specific activities, cooperation in planning, undertaking and analyzing the results with designated stakeholders and as appropriate, other consultants.

2. The development of the SESA will be done in tandem with the assessment of the REDD+ strategic options at the national level. The SESA will assess the different REDD+ strategy options in an iterative and participatory way. This will be accomplished through a national and state policy dialogue that includes forest communities who represent the daily needs of subsistence land users at the local level. The SESA will value Sudan's principles and traditional authority and will include processes to build these principles into design. The (SESA Working Group to be established) and the national REDD+ Unit will provide oversight and coordination for the SESA and other safeguards reports described below. Furthermore, the SESA process will be guided by C&P Plan and also involve consultations with key stakeholders and interest groups, including forest-dependent groups (ethnic minorities), forest dwellers, and communities living adjacent to the forests). It will be an inclusive process giving special consideration to livelihoods, land rights (including informal rights of forest-dependent people), biodiversity, cultural heritage, equitable distribution of benefits, gender, special protection of vulnerable groups, capacity development, and governance aspects of FCPF unique to Sudan.

Objectives

SESA aims to ensure that environmental and social issues and risks are addressed at an early stage in the process of formulating REDD+ policy and programmes.

The specific purpose of the SESA in Sudan is to identify opportunities that:

- Facilitate an understanding of the operating environment for REDD+ programs, including stakeholder analysis and the socio-environmental dimensions of the forestry sector;

- Identify potential environmental and social impacts related to REDD+ programs in Sudan;

- Suggest methods and measures to mitigate environmental and socioeconomic risks during REDD+ strategy implementation;

Links between the SESA and the REDD+ Strategy

The SESA will contribute towards the REDD+ Readiness process in Sudan by assessing how REDD+ Strategy options address environmental and social priorities. In addition, SESA will assess inter-sectoral linkages within the land-use planning process and, trade-offs and opportunity costs involved with different land uses.

Gaps identified through these assessments will lead to strengthening the REDD+ Strategy options before they are validated and confirmed. For any outstanding potential social and environment issues, the SESA will develop an Environmental and Social Management Framework (ESMF) that will outline the procedures to be followed for managing potential environmental and social impacts of specific REDD+ options during the implementation of the REDD+ Strategy for Uganda.

If the SESA process identifies any potential impacts related to involuntary resettlement or restriction of access (consistent with provisions of the World Bank Operational Policy on Involuntary Resettlement (OP 4.12), a Resettlement Policy Framework and / or a Process Framework should be prepared as well. If the SESA process identifies any potential social impacts on indigenous peoples, an Indigenous Peoples Planning Framework may be prepared as well.

Scope of Work

The Strategic Environmental and Social Assessment (SESA) will encompass stakeholder analysis, a description of the initial social and environmental situation of the forestry sector in Sudan, an analysis of the possible impacts of different REDD+ strategy option scenarios, an analysis of impacts of different REDD+ alternatives and the verification of compliance with World Bank policies.

Tasks

Task 1: Identifying key issues and assessment of key stakeholders

- Review and update the comprehensive list of stakeholders identified during R-PP preparation that are directly linked with the social and environmental impacts of the REDD+ readiness;

- Prepare a map of the forest dependent communities;

- Analysis of their attachments, access to and use of forest resources, including the formal/ informal institutions and internal mechanisms regarding the use of forests and equitable distribution of benefits from this utilization;

- Assessment of issues and options related to land tenure and land rights, conflict resolution mechanisms, natural resource management and benefit sharing mechanisms; and

- A summary of their views, concerns and recommendations for REDD+ program.

Task 2: Outline the legislative, regulatory, and policy regime

Describe legislative, regulatory, and policy regime (in relation to forest resources management, land use, forest-based enterprises, etc.). The analysis must include, among others, a review of relevant environmental impact assessment guidelines, regulations and government policies regarding gaps for addressing environmental and social impacts including conflict and grievance redress mechanisms.

Task 3: Establish implementation arrangement

Describe the required arrangements for implementation modalities with a focus on the procedures for

(i) screening and assessment of site-specific environmental and social impacts;

(ii) the preparation of time-bound action plans for reducing, mitigating, and/or offsetting any adverse impacts;

(iii) coordination, facilitation, monitoring the implementation of the action plans, including arrangements for the participation of relevant stakeholders.

Task 4 Assess capacity of institutions in implementing SESA and ESMF

Assess the capacity of institutions at national, state and local levels in implementing SESA and ESMF. The assessment should propose actions required to improve capacity such as staffing needs, inter-sectoral arrangements, management procedures, operation monitoring and maintenance arrangements, budgeting and financial support.

Task 5: Analysis of the possible impacts of different REDD+ strategy option scenarios

Analyze the social and environmental impacts of each REDD+ strategic option. This will help the implementing agencies to move the program in the right direction for poverty reduction, environmental protection, socioeconomic development and the protection of traditional rights and biodiversity.

Task 6: Present preliminary findings on Environmental and social risks and gaps

Present preliminary findings on Environmental &Social risks and gaps from the assessment work and analytical work undertaken. The preliminary findings will be presented to the stakeholders to stimulate a discussion and further enrich the document.

Task 7: Enhanced and targeted stakeholder consultation

Carry out targeted consultations on the REDD+ strategy options for Sudan, paying particular attention to the forest dwellers and indigenous people. These consultations should be culturally appropriate, taking into account the diversity of ethnic groups in Sudan.

Task 8: Preparation of final SESA documents

Prepare a SESA report that provides the findings and recommendations that have emerged from the SESA process. This report would, at a minimum, contain the following:

- Identify the key REDD+ social and environmental impacts emerging from the SESA analyses and consultations.
- Based on analyses and consultations, describe the policy, legal, regulatory, institutional, and capacity gaps to implement REDD+ and to manage the key environmental and social issues relevant to REDD+.
- Identify, analyze, evaluate and mitigate/enhance impacts of policy options so as to maximize the positive impacts and avoid or minimize the negative ones.
- Present recommendations for REDD+ policy design, implementation, and monitoring and evaluation (including legal and policy reforms) based on the results of the SESA.
- Formulate policy recommendations for a policy framework to address key environmental and social impacts, and for addressing institutional and governance weaknesses.
- Identify any gaps in knowledge where additional data-gathering and analysis may be needed.

Task 9. Preparation of Environmental and Social Management Framework

The Environmental and Social Management Framework (ESMF) will be developed from results of the SESA. The ESMF is an instrument to manage safeguards risks and impacts. The ESMF will help minimize and mitigate any potential negative safeguard risks and impacts of REDD+ as well as ensure its social and environmental integrity. The ESMF will lay out the processes, procedures and/or requirements though which future activities and projects under the REDD+ program, shall undergo to ensure compliance with safeguards.

In terms of engagement of all stakeholders, the ESMF will take the outcome of the stakeholder mapping exercises from the earlier SESA activities into consideration and give specific consideration to the protection of special and/or vulnerable groups of stakeholders. An assessment will be made of the capacity required to develop, implement, and administer the

ESMF and potential shortfalls will be remedied with a capacity development program.

The ESMF incorporates procedures for:

- Description of the proposed project and analysis of alternatives;
- Comprehensive assessment of potential positive and negative environmental and social impacts of the potential projects
- Identification of capacity building needs for the project and recommendation of actions
- In-depth voluntary consultations with concerned stakeholder groups to seek their broad support;
- Culturally-appropriate capacity building measures;
- Environmental and social impact screening, assessment, and monitoring; and
- Grievance redress.

The ESMF also specifies the inter-institutional arrangements for the preparation of time-bound action plans for managing and mitigating adverse impacts related to the future project(s), activity(ies), or policy(-ies)/regulation(s).

By doing the above, the output is an ESMF that is compliant with applicable safeguard policies at the time of the assessment of the R-Package while also providing the overall framework for addressing social and environmental risk management issues in REDD+ activities that are implemented beyond the readiness preparatory work.

The development of the ESMF will be supervised by the REDD+ Unit and the SESA WG will be working closely with the consultants of the SESA to provide advisory support. FNC will coordinate the implementation of the SESA work plan.

Contents of the ESMF:

The Consultant will prepare a draft ESMF suitable for public consultations that includes the following:

- Review of the country's existing legal and institutional framework and current practices of relevant government agencies, vis-à-vis relevant World Bank Safeguards Policies as described in the R-PP Assessment Note, and the initial set of REDD+ strategy options (collected as part of the SESA activities);
- Description of the expected project/activity types under the REDD+ program i.e., the typology of potential REDD+ projects to be implemented;
- A list and description of the potential environmental and social risks and impacts for each anticipated project activities;
- Safeguard screening requirements for the overall REDD+ program at each stage of the project cycle, including required processes and approaches (e.g. awareness, consultation, social and environmental review, consensus building, stakeholder participation, etc.), documentary requirements (e.g. Environmental and Social Assessment Report, Environmental and Social Management Plan, evidence of free, prior and informed consultation, community consent, land acquisition documents such as landowner consent, lease agreement, etc.) and the responsible project unit;
- Methods by which the particular needs of ethnic minorities people have been incorporated in the overall project design;
- Institutional arrangements to implement the ESMF and relevant program units and staffing arrangements;
- Specific guidelines (e.g. how to conduct an environmental and social review of proposed project, consultation, etc.) and templates/forms for: (i) Environmental and Social Screening; (ii) Environmental and Social Management Plan (ESMP); (iii) specific checklists for those project types requiring greater environmental and social due diligence; (iv) approval; and (v) audit/monitoring requirements; and
- A capacity building plan for the various agencies and REDD+ program units involved in the implementation of the ESMF that includes a review of the authority and capability of institutions at different administrative levels (national and local levels

Task 10. Preparation of Resettlement Policy Framework (RPF) and Process Framework (PF) (if applicable)

Analysis of land requirements and Preparation of Safeguard Documents

The activities in this task are to be complemented with the preparatory work by the land tenure/forest governance analysis (under separate contract) and the SESA process. Given the locality based nature of REDD+ strategies, it is considered likely that REDD+ strategies may have impacts on land and access to livelihood resources. Accordingly, a detailed analysis of land requirements will be required to identify these issues/risks early in the process. To address these issues/risks, a Re-

settlement Policy Framework (RPF) and a Process Framework (PF) will be prepared to establish objectives and principals, organizational arrangements, capacity building activities and funding mechanisms for any land requirements including compensation for resettlement or restrictions to access as required by the World Bank OP 4.12, Involuntary Resettlement. Since the extent and location of resettlement/compensation is not known at this time and will be determined as the SESA process unfolds and REDD+ strategies/activities are detailed, the Framework provides the opportunity to document how compliance with OP4.12 will be achieved, either through existing country systems, or through the use of special provisions documented in the Framework. If any resettlement/compensation is identified for any future REDD+ activity, preparation of a Resettlement Action Plan or Process Framework will be subsequently prepared.

The RPF ensures that any Resettlement Action Plan protects affected parties and physical structures, and livelihoods are restored to their previous standard and preferably exceed their current status. The RPF will include the process for valuation of all associated impacts on people's property and livelihoods and address mitigation of the impacts of resettlement based on international standards.

A Process Framework will address restrictions of access to legally designated parks and protected areas which result in adverse impacts on livelihoods of the affected persons. The Process Framework will outline the criteria and procedures as described in OP 4.12, which will be followed for REDD+ activities in cases where project-induced involuntary restriction of access to natural resources results in adverse livelihood impacts, to ensure that eligible, affected persons are assisted in their efforts to restore or improve their livelihoods in a manner which maintains the environmental sustainability of the nature reserve in question. More specifically, it describes the participatory process by which: (i) specific components of the Project were prepared and will be implemented; (ii) the criteria for eligibility of affected persons will be determined; (iii) measures to assist the affected persons in their efforts to improve or restore, in real terms, to pre-displacement levels, their livelihoods (e.g., as appropriate, alternative grazing areas, cultivation of unique non-timber forest products such as mushrooms, or of other crops, or investments in community infrastructure) while maintaining the sustainability of the park or protected area will be identified; and (iv) potential conflicts involving affected persons will be resolved. It also provides a description of the arrangements for implementing and monitoring the process.

Task 11: Consultation on and Disclosure of the ESMF, RPF, and PF

The draft ESMF, RPF, and/PF) will be reviewed and discussed at a designated stakeholder workshops. The consultants and SESA WG will agree on the most efficient manner to ensure broad stakeholder feedback and consultation. Aside from the broad stakeholder consultations, targeted workshops should be held with state governments, forest and agricultural extension workers, CSO Platforms and community-based forest associations, custom institutions, women's and youth associations, and farmer's associations. All consultations should follow the C&P principles. These consultations will also serve as validation workshops at national level that will conclude with the final ESMF, RPF, and PF reports.

Methodology

To develop the assignment according to the above objectives, the Consultant/Firm shall propose a methodology for carrying out the proposed activities and how these will lead to the delivery of the outputs, as detailed in above. It is expected that the proposed methodology will include extensive work including the all sections of the study.

Deliverables

1. An Inception Report, providing full details on the approach and work flow for both the SESA and the ESMF. The Inception Report will be reviewed by the REDD+ Management Unit through the Safeguards working group and only after endorsement will the activities continue.

2. A SESA Report that provides the findings and recommendations that have emerged from the SESA process. This report would, at a minimum, contain the activities indicated above.

3. A report on the RPF, if applicable.

4. A report on the PF, if applicable.

5. An ESMF in full detail, addressing all the activities listed above.

6. A report describing processes and structures to manage the ESMF such that it can be used in a continuous manner by all relevant government and non-government stakeholders. The report shall identify how the ESMF interfaces with other information systems of the National REDD+ Programme, in particular the registry of REDD+ activities (LMS, MRV), the benefit sharing mechanism and the Feedback and Grievance Redress Mechanism (FGRM).

7. Final report, with full details of activities performed, including details of the capacity-building events.

Since the reports are to be used as reference documents for other work packages of the National REDD+ Programme the reports should be produced with that use in mind, including at least a detailed index by topic in addition to a regular Table of Contents. The reports will be produced in the English language. The reports are to be submitted electronically in Microsoft Word DOC or Open Document ODT format. One hard-copy of each report has to be submitted, including a signature sheet where the Consultant signs off on the report.

The Consultant will deliver a small number of presentations (about 3) of approximately one hour to present the (intermediary) result of the ESMF to a meeting of the National REDD+ Programme. The meetings will be facilitated by the REDD+ Management Unit. In addition, the Deputy Team Leader is expected to participate in meetings of the National REDD+ Programme at the request of the REDD+ Management Unit (maximum of 1 meeting per month).

Key expertise required

The Consultant will propose a team to undertake the assignment, consisting of at least the following members (time allocation to each team member is indicative only and may be modified by the Consultant):

Team Leader (international, 4 months)

- Advanced academic degree (MSc or PhD) in Forestry or a closely related discipline.
- At least 10 years of professional experience in forestry and forestry governance in the semi-arid region.
- Demonstrable knowledge of World Bank procedures for SESA and ESMF, for instance through prior engagement in World Bank forestry (environmental) projects.
- Extensive knowledge in leading a team of professionals from different backgrounds to achieve a common goal.
- Experience working in the semi-arid zone of North-East Africa is essential; experience working in Sudan is a distinct advantage.
- Excellent skills in the English language for writing and delivering presentations.

Forest Governance Specialist (Deputy Team Leader national, 6 months)

- Advanced academic degree (MSc or PhD) in Forestry or a closely related discipline.
- At least 10 years of professional experience in forestry and forestry policies and governance at Federal and State levels.
- Demonstrable knowledge of forestry Laws and regulations, for instance through specific professional positions and/or publications of professional reports or scientific papers.
- Ability to work in a team of peers, integrating knowledge and products from other disciplines into a coherent final product.
- Excellent skills in the English language for writing and delivering presentations.

Legal Expert (national, 2 months)

- Advanced academic degree (MSc) in Law or a closely related discipline.
- At least 5 years of professional experience in forestry law and forestry policies and governance at Federal and State levels.
- Demonstrable knowledge of forestry Laws and regulations, for instance through specific professional positions and/or publications of professional reports or scientific papers.
- Ability to work in a team of peers, integrating knowledge and products from other disciplines into a coherent final product.
- Excellent skills in the English language for writing and delivering presentations.

Social Development Specialist (national, 4 months)

- Advanced academic degree (MSc) in Natural Resources Management, Social Sciences, Development Studies or a

closely related discipline.

- At least 5 years of professional experience in rural development and natural resources development at Federal and State levels.
- Demonstrable experience in delivering training to government and non-government staff.
- Ability to work in a team of peers, integrating knowledge and products from other disciplines into a coherent final product.
- Excellent skills in the English language for writing and delivering presentations.

Environment Specialist (national, 4 months):

- Advanced academic degree (MSc) in Environment, Social Sciences, Communication or a closely related discipline; or significant additional professional experience in lieu of an academic degree.
- At least 5 years of professional experience in environment &community engagement and consultation in rural areas of Sudan.
- Demonstrable experience with tools and methods for environmental problems related to community development of communication materials for rural communities, both literate and illiterate.
- Ability to work in a team of peers, integrating knowledge and products from other disciplines into a coherent final product.
- Excellent skills in the English language for writing and delivering presentations. Knowledge of local languages or dialects is a distinct advantage.

Mapping & Information Technology Specialist (national or international, 2 months)

- Academic degree (BSc or MSc) in Information Technology or a closely related discipline.
- At least 3 years of professional experience in analysis and design of data models for information management in databases.
- Knowledge of forestry or natural resources information management is an advantage.
- Demonstrated ability to translate real-world problems into abstract data models, with full documentation.
- Excellent skills in the English language for writing and delivering presentations.

Application guidelines

Apply by the date specified in the section “Key data”. Late submissions will not be considered.

The Consultant may be a single firm or a consortium of firms. In the case of a consortium one firm shall be indicated to be the lead consulting firm, who will be the sole formal interlocutor for the consortium with the REDD+ Management Unit. The term “Consultant” is used both for single firms and for consortia.

Interested Consultants are requested to prepare an Expression of Interest (EoI). The EoI shall have the following sections:

1. Presentation of the Consultant (all firms in case of a consortium) – max 2 pages.
2. Proposed technical approach for undertaking the assignment – max 4 pages.
3. Presentation of key experts proposed for undertaking the assignment – max 1 page per expert.
4. List of relevant experience (past 10 years only) of the Consultant – max 4 pages.

Submissions have to be made via email with attachments in Adobe Acrobat PDF, Microsoft Word DOC or OpenDocument ODT format. The subject line of the email should contain the procurement number and the Consultant name. Include the procurement number and Consultant name in the name of all submitted documents.

All applicants will be acknowledged for receipt of their EoI. A maximum of six applicants, to be selected on the basis of the content of the EoI, will be invited to submit a full technical and financial proposal, within 1 month after the EoI submission deadline.

Phase II

1. BACKGROUND

Strategic Environmental and Social Assessment (SESA), as part of the REDD+ readiness process, integrates environmental and social (E&S) concerns in the formulation of the REDD+ strategy and subsequent implementation of the strategy. It is a process that assesses the potential environmental and social risks and benefits from the national REDD+ strategy implementation, formulates alternatives and develops mitigation strategies. It is aimed at ensuring that the activities implemented under the REDD+ mechanism do not cause adverse social and environmental impacts and, where possible, result in social and environment benefits.

During Phase I of the REDD+ readiness process, the PMU commissioned a consortium made of international and national consultants from Carbon Clear, Etifor and Lavola to: (i) prepare SESA at the national level (ii) develop an Environmental and Social Management Framework (ESMF) at national-level; and (iii) analyze land and involuntary resettlement issues and prepare Resettlement Policy Framework and Process Framework. The SESA study was carried out from October 2017 to August 2018, and a report was submitted. The assignment consisted of the following: identification of potential environmental and social impacts of the proposed REDD+ strategy options; extensive stakeholder consultation in the locations potentially to be impacted by the implementation of the various REDD+ strategy alternatives; analysis of the suitability of the regulatory framework for the implementation of the REDD+ programme activities; and suggest a management framework to deal with potential environmental and social impacts.

As part of Phase II of the Readiness Process, the SESA needs to be updated considering:

- scaling up stakeholders consultations into new areas covering the six remaining states out of eighteen states (Northern State, River Nile State, Red Sea State, Kassala State, Gezira State and Western Darfour State); mapping stakeholders, using updated data that could emerge from the ongoing activities of REDD+ readiness; and widening the scope of stakeholders engagement by reaching different administrative levels (national, state, locality) and institutions (government, non-government, informal institutions, private sector, etc.)
- the new World Bank's Environmental and Social Framework;
- the outcome of the most recent studies carried out under Phase I and Phase II of the readiness process and; (iii) try to the extent possible to assess the updated strategic options;
- the need to propose environmental and social issues and mitigation measures that are specific and can be translated to activities in pilot programs.
- An update of the ESMF: (i) integrating the complementary safeguard instruments developed as part of the Readiness Process (e.g. FGRM and BSM) for them to be taken into consideration during the implementation of investment projects to ensure environmental and social concerns have been considered; (ii) prioritizing the gaps and opportunities identified in the current institutional setup of the different institutions that could be involved in the implementation of the proposed strategic REDD+ options; (iii) identifying the needs and supports needed by these institutions for the ESMF implementation of REDD+ investment projects; and
- The preparation of Resettlement Policy Framework (RPF) and Process Framework (PF) safeguards instruments that were not fully developed and included into the SESA and ESMF reports.

2. OBJECTIVE

The main objective of this consultancy is to update and fill out the gaps of the SESA carried out during phase I of the REDD+ readiness process. The specific objective of the SESA are:

(i) Integrate social and environmental considerations into the preparation of the ESMF and the national REDD+ strategy;

(ii) Enhance the readiness process through participation in identifying and prioritizing key issues, assessment of policies, institutions and capacity gaps and disclosure of findings in the REDD+ country's progress report on readiness preparation; and

(iii) Finalize Environmental and Social Management Framework (ESMF) to manage environmental and social risks and to mitigate potential adverse impacts during project implementation.

3. SCOPE OF WORK

For the SESA, the consultant needs to:

- Update of the SESA final report; identifying and prioritizing key social and environmental issues associated with the drivers of deforestation and forest degradation, including those linked to the WB safeguard policies as stipulated in the new World Bank's Environmental and Social Framework (ESF). The update exercise should include extending the stakeholder's consultations into new geographical areas covering the six remaining states (Northern Region, Eastern Region, and Central Region and to some extent in selected parts of Darfour Region);
- Draft recommendations which inform the REDD+ strategy options;
- Establish outreach, communication and consultative mechanisms with relevant stakeholders.

For the ESMF, the consultant needs to:

- Update the final ESMF report in a way that is suitable for inclusion in the R-Package and consistent with the new WB safeguard policies. The consultant should also update/revise the following associated ESMF reports:
- Environmental and Social Management Framework (ESMF) to address any potential environmental impacts, including cumulative and/or indirect impacts of multiple activities;
- Resettlement Policy Framework (RPF) to address any potential land acquisition and/or physical relocation, as required by the World Bank Involuntary Resettlement policy;
- Process Framework (PF) for situations of restriction of access to natural resources within legally designated parks and protected areas, as required by the World Bank Involuntary Resettlement policy; and
- Indigenous Peoples Planning Framework (IPPF) as required by the World Bank Indigenous Peoples policy.

4. METHODOLOGY

To conduct the assignment according to the above context, objectives and scope, the Consultant shall develop a detailed methodology for carrying out the proposed activities in a way that lead to the delivery of the expected outputs. It is expected that the proposed methodology will include extensive work covering all sections of the study and will fully take into account all delivered outputs under the phase one of the Sudan REDD+ Readiness Project SESA/ESMF consultancy.

5. DELIVERABLES

5.1 An Inception Report, providing full details on the approach and work flow for updating the SESA and the ESMF. The Inception Report will be reviewed by the REDD+ Management Unit and only after endorsement will the activities continue;

5.2 The plan and method for stakeholder/community consultation and participation in the new states;

5.3 An updated SESA report that provides the findings and recommendations that have emerged from the SESA process, including stakeholders' consultation and engagement. The following sections should be included in the report:

- The World Bank's applicable policies triggered, and the environmental and social studies or assessments carried out;
- The results of the assessment of environmental and social risks and potential impacts of REDD+ strategy options to comply with the WB safeguard policies, and how the results of this assessment inform the selection and preparation of the REDD+ strategy projects;

5.4 An updated ESMF report, including the RPF and RPP and the PF and PP. The report shall identify how the ESMF interfaces with other information systems of the National REDD+ Program, in particular the registry of REDD+ activities (LMS, MRV), the benefit sharing mechanism (BSM) and the Feedback and Grievance Redress Mechanism (FGRM).

6. PROJECT REFERENCES

All project reference material including lists of activities and their descriptions, organization, methodology, scheduling, experts experience and commitments and all associated costs are outlined in the technical and financial proposal in appendix. Experts letters of commitment to project have all been confirmed and validated again with each expert.