



**SOUTH SUDAN-EASTERN AFRICA REGIONAL TRANSPORT, TRADE AND
DEVELOPMENT FACILITATION PROGRAM (SS-EARTTDFP)**

UPGRADING OF THE JUBA – NADAPAL ROAD

SOCIAL ASSESSMENT REPORT

FINAL REPORT

NOVEMBER 2013

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ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
BRC	Boma Resettlement Committee
CBOs	Community Based Organizations
CPA	Comprehensive Peace Agreement
CRC	County Resettlement Committee
EIA	Environmental Impact Assessment
FID	Final Investment Decision
GRSS	Government of the Republic of South Sudan
GoS	Government of Sudan
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICSS	Interim Constitution of Southern Sudan
INC	Interim National Constitution
LCFs	Local Consultative Forums
MTRB	Ministry of Transport, Roads and Bridges
M&E	Monitoring and Evaluation
MDTF	Multi Donor Trust Fund
NI	National Income
NGOs	Non-Governmental Organizations
OP	Operational Policy
PRC	Payam Resettlement Committee
PAC	Project Affected Communities
PAH	Project Affected Household
PAPs	Project Affected Persons
PRIC	Project Resettlement In-Charge

PRO	Project Resettlement Office
RP	Resettled Persons
RAP	Resettlement Action Plan
RIB	Resettlement Information Brochures
ROW	Right of Way
SA	Social Impact Assessment
SPLM	Sudan's People Liberation Movement
SSDP	South Sudanese Pound
TOR	Terms of References
USD	United States Dollar
WB	World Bank

Executive Summary

The historic Comprehensive Peace Agreement (CPA) signed between the Government of Sudan (GOS) and Sudan People's Liberation Movement/Army (SPLM/SPLA) on January 9, 2005 marked the end of a 21 year civil war and signifies a new era of peace, reconstruction and development for South Sudan. To facilitate the financing of the consensus emerging from the (JAM) Joint Assessment Mission process, some donors pledged financial assistance and agreed to pool their assistance to create separate Multi Donor Trust Funds (MDTF), for the North and the South.

The Government of the Republic of South Sudan (GRSS), with the assistance of the World Bank, prepared a Sudan Emergency Transport and Infrastructure Development Program (SETIDP) for implementation in three parallel phases over a period of about five years. The project development objective of SETIDP is to rehabilitate and develop critical national and rural roads and transport infrastructure, and improve critical urban infrastructure in the major towns that form the national and state capitals of South Sudan. The GRSS intends to apply part of the proceeds of this first phase project for the consultancy services towards the upgrading of Nadapal-Juba gravel surfaced road to paved (bitumen) standard, which construction is planned to be carried out in follow up operations.

The project was initiated to be constructed under MDTF program and therefore an SA was prepared in 2010. Recently the Government has agreed on the upgrading of the proposed Nadapal-Juba road with the funding from the World Bank and other financiers. As such, this social assessment report (SA) is updated to reflect the existing situation along the Nadapal-Juba road stretch.

The proposed Program Development Objective (PDO) of the South Sudan – East Africa Regional Transport, Trade and Development Facilitation Program (SS-EARTTDFP) is to enhance regional connectivity and integration of South Sudan with its Eastern Africa neighboring countries. This would be achieved through increasing transport efficiency, facilitating trade and development, connecting Juba with fiber optics, and linking South Sudan to alternative sea ports.

The proposed program helps eastern part of South Sudan and north western part of Kenya to boost export oriented agricultural development by facilitating increased agricultural production along the Juba-Eldoret corridor, endowed with abundant natural resources, through improved access and development of export processing zones. The proposed program contributes to the overarching goal of integrating the economies of the countries in the sub-region and helps them compete in the free market zone of Eastern and Southern Africa, and the global market. The program will also contribute to the reduction of transport cost that will help lower the cost of economic development, services delivery to the poor, and doing business, in the sub-region.

The principal factors for focusing on the Juba–Nadapal-Eldoret corridor, include: (a) the corridor opens the massive agricultural, animal and mineral resources rich area in eastern South Sudan, the closest to the regional and global market, and the less developed Turkana region of Kenya; (b) the corridor crosses only one transit regime and will be the cost effective and shortest

connection to Mombasa, in terms of truck turnaround time; (c) the project crosses flatter terrain, which will reduce vehicle operating cost and safer for driving; (d) the corridor opens access to an alternative sea port – Djibouti; ; and (e) the corridor offers the quickest route to the offshore submarine cables off the East African coast, with the fewest transit countries.

Purpose of Social Impact Assessment

Following the World Bank Operational Policy OP 4.10 (Annex A Social Assessment) and National Transport Sector Environmental and Social Assessment Framework (ESSAF) a Social Assessment (SA) is prepared based on free, prior, and informed consultation with the affected communities, to ensure that the up-grading of Nadapal -Juba Road is socially accepted and sustainable by recognizing social consequences and identifying ways to prevent, avoid, minimize or mitigate adverse effects as well as enhance the positive impacts.

The first purpose of the SA was to determine the characteristics of the existing social and bio-physical environments that may be impacted by this project. The second purpose is to provide the basis for the Social Management Plan (SMP), designed to prevent or mitigate potential negative impacts that may be caused by the project and enhance the positive one.

Methodology for SA

The methodology adopted involved gathering of the information on social and economic status of the communities living along the proposed road through community consultation meetings in focus groups discussions with; women; youth; farmer and business groups. Questionnaires were also administered to a sample of the project affected people. The study also focused on the key (sensitive) sites such as the wildlife (elephants) seasonal migratory crossing around Kidepo; SA Extensive public consultation were conducted by the study team in May 16th 2009 to understand and address the concerns from people who were expected to either be directly or indirectly affected by the proposed project

Institution, Policy and Legal Requirements

The constitution of South Sudan spells out in Section 2, that every person shall have the right to have the environment protected for the benefit of present and future generations, through reasonable legislative action and other measures that prevent pollution and ecological degradation; promote conservation; secure ecologically sustainable development and use of natural resources while promoting rational economic and social development so as to protect the bio-diversity. It is on this basis that the ESA was conducted. Various laws that are in place in the GRSS have been evaluated during the study.

It is now accepted that development projects should be economically viable, socially acceptable, and environmentally sound. Being a young Government, GRSS is still in the process of enacting various legislations, and among the pieces of legislation that are yet to be developed is a comprehensive Environmental Act. For this reason, only pieces of legislation that are relevant to the environment and enacted have been reviewed in this report. These include the Constitution of Southern Sudan, the Wildlife Conservation and National Parks Act, Land Act 2009, Water

Policy, The Forest Commission Act, Mines and Quarries Act of 1972 and the Traffic Act. On the other hand other guidelines of international in nature have been considered which include International Conventions and Treaties such as Biological Diversity Convention.: Desertification Convention, United Nations Framework on Climate Change, Bamako Convention on Trans-boundary Movement of Hazardous Waste, Vienna Convention (ozone layer depletion), Montreal Protocol, Ramsar (wetlands) Convention and Kyoto Protocol.

The Ministry of Petroleum and Mining has developed an environment policy for the GRSS which will include a national mandate for Environmental Impact Assessment and from the policy the procedures will be established. Currently the World Bank Operational policies, procedures and guidelines and the National Environmental and Social Assessment Framework (ESSAF) are followed in implementation of projects that are likely to have an impact to the environment and the communities. This particular project falls under category “B” of the World Bank Environmental Assessment classification. This determines the extent and depth of carrying out EIA.

The overall purpose of the National ESSAF is to provide pragmatic operational guidelines and procedures to the GRSS to eliminate, reduce and/or mitigate the environmental and social risks associated with Bank-financed operations implemented under the Transitional period.

The national ESSAF has been prepared in line with Bank operational policies and procedures for investment operations and the guidance note for crises and emergency operations for application of Bank safeguard and disclosure policies. The ESSAF was prepared to provide the basis for simplifying the application of Bank safeguard policies and related provisions of the Bank’s disclosure policy to all Bank-finance operations in South Sudan during the Transitional period. The Framework has been developed within the context of draft National environmental policy and the Interim Constitution and covers all phases of the project cycle. Specifically, they complement existing Environmental Impact Assessment (EIA) procedures and are to be used in undertaking EIAs for the sectors covered. Support and facilitate preparation of safeguards instruments (ESA, ESMP, RPF, RAP) by providing relevant information on the standard content and structure of each type of instrument.

The Government of Republic of South Sudan (GRSS) has various ministries that deal directly with utilization, management and conservation of natural resources. These are the. Ministry of Housing and Physical Planning(MHPP); Ministry of Environment(MoE), Ministry of Interior and Wildlife Conservation(MoIWC), Ministry of Electricity, Dams, Water Resources and Irrigation, Ministry of Agriculture, Forestry, Tourism, Animal Resource and Fisheries (MAFTACF). The Ministry of Environment works hand in hand with the MTRB to ensure that environmental standards are achieved when implementing the road projects. The institutions at National and State Levels are responsible for the implementation and monitoring compliance to both national and international environmental policies and standards. South Sudan The SA study was also undertaken in accordance with the World Bank (WB) Environmental Guidelines.

Project Baseline Site Conditions

The Nadapal - Juba Road is an interstate road that links The Central Equatoria and Eastern Equatoria states. The entire road covers approximately 341.2 km traversing undulating terrain. The road passes through major townships and trading centres i.e. Nadapal, Narus, Kapoeta, Lobira, Torit, Liriya, Ngangala and Nesitu Junction which marks the end point. Along the road there are numerous villages alongside the road and with a varying population.

The project road crosses six counties (Juba, Torit, Kapoeta North, Kapoeta South, Budi, and Ikotos) with the total population 838,555. The counties are inhabited by Toposa, Buya, Longi, Lotuko, Lukoya and Bari communities.

s.NO	County	Tribe	Male	Female	Total
1.	Ikotos		42,106(50%)	42,543(50%)	84,649
2.	Budi county	Buya	50,103(51%)	49,096(49%)	99,199
3.	Kapoeta south east	Toposa	42,402(53%)	37,086(47%)	79,470
4.	Kapoeta east		53,269(52%)	49,815(48%)	103,084
5.	Torit	Lotuko Lukoya	50,644(51%)	49,096(49%)	99,740
6.	Juba	Lukoya Bari Lulubo	205,674(55%)	166,739(45%)	372,413

- **Location**

South Sudan is located in Africa with Juba as its capital city. South Sudan borders Ethiopia to the east, Kenya, Uganda, and the Democratic Republic of the Congo to the south, and the Central African Republic to the west. South Sudan consists of the ten states which formerly composed the provinces of Equatoria (Central Equatoria, Eastern Equatoria, and Western Equatoria), Bahr el Ghazal (Northern Bahr el Ghazal, Western Bahr el Ghazal, Lakes, and Warap), and Upper Nile (Jonglei, Unity, and Upper Nile). It is estimated that the Southern region has a population of around 12 million, but given the lack of a census in several decades, this estimate may be severely compromised. The economy is predominantly rural and subsistence farming.

- **Topography and Soils**

South Sudan is bisected roughly by the Nile River which is surrounded by a gently sloping to flat basin into which the highlands of the surrounding countries drain. It has a “substantial areas of relatively high soil suitability ratings for rain-fed agriculture” (relatively flat topography, productive albeit occasionally heavy soils, and low intensity of cropland use). Crop production is scattered, and the soils, where cultivated, lose fertility relatively quickly; even the richer soils are usually returned to bush fallow within five years.

Livestock rearing is this area's major activity, but a significant amount of crop cultivation, mainly of millet, also occurs. The qoz sands are the principal area from which *Gum arabic* is obtained through tapping of *Acacia Senegal* (known locally as hashab). This tree grows readily in the region, and cultivators occasionally plant hashab trees when land is returned to fallow.

- **Geology**

The geology of the South Sudan is extremely diverse with a variety of metamorphic, igneous and sedimentary rocks. The intensity of deformation and metamorphism varies from place to place. Extensive studies carried out by several workers in Sudan proved that the central Sudan and Nile Valley metamorphic belt include relic structures of ancient basement which date back to Lower Proterozoic or even Archaean. The project will traverse different section with diverse geologic characteristics this will determine the intensity and magnitude of ground exaction works that will be carried out.

- **Rainfall and Temperature**

Rainfall is seasonal across most of the south, with a pronounced dry season lasting from January to April, coinciding with the hot season. This causes large scale migration of many of the pastoral people to wetlands along the river and elsewhere in pursuit of water and fodder for their herds. Rainfall in the south western extremes and highland areas of Equatoria ranges from 1200 to 2200 mm. The most arid portions of South Sudan occur in the extreme southeast along the border with Kenya where rainfall may not exceed 200 mm. The tropical climate in South Sudan defined in the desert zones, where winter temperatures as low as 4.4°C (about 40°F) is common, particularly after sunset. Summer temperatures often exceed 43.3°C (about 110 F) in the desert zones and rainfall is negligible.

- **Agro-Ecological Zonation within South Sudan**

Descriptions of the ecology and environment of South Sudan had to be cobbled together from older documentation, much of it citing earlier works which might no longer be entirely valid or which contained unverified data and information. It is predicated on the notion that planning and development interventions need to take account of both the physical environment and how people use it to derive their livelihoods.

- **Drainage Pattern and Surface Water**

There are numerous wetlands ecosystems in South Sudan. Wetlands are a common feature of the flat plain areas west and east of the Nile and the existing road system traverses them on countless occasions, often over causeways or raised roadbeds that were also expensive to build and which have disrupted the wetland ecosystem. The predominance of wetlands is vitally important as part of the land-use strategy among the agro-pastoralist society which retreats to them during the long dry season to sustain their cattle with fresh fodder and water. Wetlands also serve an important ecological function as well, absorbing the run-off from occasionally torrential rain storms, storing it and releasing it slowly later in the season regulating the flow of many streams and watercourses. There are several rivers crossing the road at different points.

- **Soil Erosion**

Large proportions of the population live in rural areas (90 per cent out of the total population), making them subject to rapid economic development such as logging and agricultural development. There are positive impacts of any rural development, but also there are negative impacts such as deforestation, soil erosion, and flooding. Soil erosion reduces the productivity of the crops, range, and forest and as a result of that endangers food security, causes displacement of local people and degrades the quality of human life in the affected areas. There is a relationship between food security/insecurity and environmental degradation, this result from inappropriate cultivation practices, overgrazing, excessive fuel wood, cutting, burning, and

overstocking of animals and deforestation. This process of soil erosion has resulted to high poverty.

- **Flora and Fauna**

South Sudan endowed with a wide range of ecosystems and species diversity (flora and Fauna). South Sudan is considerate to biologically richest as compared to the neighbour country (Sudan). The ecological zones extend over a wide range from the desert in the extreme north to the rain forests deep in the southern parts. Conservation of biodiversity is vital in a country like South Sudan, where ecosystems are fragile and the renewable natural resources are endangered through over-exploitation.

There is evidence that many aquatic and terrestrial species have either disappeared or are subject to severe threats resulting from the destruction of their habitats. Limitation of legislation and law enforcement efforts which call for protection of biodiversity have led to improper utilization and misuse of natural resources and adversely affected the biota both at sea and land. Lack of clear policy and strategy for the conservation and management of resources has led to unsustainable use of resources and irreversible loss of biota.

- **Biological Resources and Ecological Analysis**

The vegetation is diverse but mostly of the lowland woodland, bush land, shrub land and grassland. These undulating plains are crossed by several perennial rivers namely: Kidepo, Thingaita, Koss Idolu and Kudo which forms a unique ecosystem. A total of 19(nineteen) plots were laid out between Nadapal and Nimule Junction. Emphasis was made on species diversity survival and coping mechanisms of the local population. South Sudan is not a highly urbanized region apart from the major towns and located along the road. Most of the structures are temporary to semi-permanent in nature. These are centres of population concentration, which are included as towns because of their administration and commercial importance.

On the other hand South Sudan is much better watered and more fertile than the arid north but it is still a land where the imperatives of fragile soils, erratic rainfall regimes and under-developed land-use technologies mean that local people are persistently vulnerable to food insecurity. Most of the social infrastructures such as electricity, feeder roads, and health are poorly developed the high insecurity cases along Nadapal juba road has made development along this road to lag behind. Therefore with upgrading of this road the general security situation of the region will be improved and consequently development project to improve the general wellbeing of the communities will be achieved.

Detailed Description of the Project

The Nadapal-Juba road is located in Central and Eastern Equatoria States. The Nadapal-Juba road has been identified by the GRSS since 2003 as one of the priority roads for investment to speed up post-war reconstruction, add support to development and reduce the cost of transit transport goods into the country coming from Kenya. The total length of road is approximately 363.2km of unpaved road which provides transport connectivity between Juba and the district headquarters, towns and villages of Juba, Torit, Budi and Kapoeta Counties in Central and Eastern Equatoria states. The road is also an international corridor linking the hinterland of South Sudan with markets in Kenya and international markets through the port of Mombasa. The topography of the project area can be described as undulating at Nadapal and the hills surrounding Mineral Springs. The next section is mainly flat plain. From Longario, there are high

volcanic outcrops up to Liriya and Luluba. From Torit to Ngangala, the road crosses numerous streams and rivers and follows a gently sloping ridge through the subsequent section to Juba. The altitudes vary from an elevation of 741 m at the border with Kenya to 800 m at Mineral Springs, 620 m at Torit and with gentle variations in slope down to an elevation of 460 m near Juba.

Activities Associated With the Project

Some of the main activities that will be associated with road construction are outlined below

- Establishment of construction camps
- Construction of temporary/permanent accommodation
- Provision of sewage disposal facilities
- Water abstraction
- Construction of workshops
- Transportation of construction materials and equipment
- Recruitment of the labour force
- Earthworks
- Construction of detours and access routes
- Borrow pits and materials extraction
- Crushing and screening of materials
- Operation of Asphaltic Plant
- Screening, mixing, and stockpiling of aggregates
- Transportation of hot mix asphalt
- Construction of drainage structures, e.g. culverts, bridges
- Excavation of side drains, mitre drains, and cut-off drains
- Pavement Construction
- Construction of erosion protection works
- Asphaltic concrete binder and wearing courses

These activities will have various degrees of impact on both the biophysical and human environment. This Environmental and Social Impact Assessment report includes a Management Plan that is intended to act as a guide in avoiding negative impacts, and mitigating those, which are not avoidable. The project will involve utilization of different material in different quantities and quality. Material that will be used during construction of this road will include:

- Granular Sub base
- Hard rock
- Sand
- Water
- Bitumen

Proposed Road Upgrading Project

In line with the South Sudan road design standards the proposed road upgrading shall consist of the following:

- (i) Design Speed - Varies at different sections
- (ii) Lane Width - 3.5m (each lane)
- (iii) Shoulder Width - 1.5m (to edge of drain, unless there is restriction)
- (iv) Type of carriageway pavement –Asphaltic Concrete surfacing

(v) Shoulder Surface –Asphaltic Concrete

(vii) Design Life - 20 years

The proposed project upgrading works will comprise the following:

- Improvement of the alignment at the poor sections;
- Realignment of road to by-pass Torit Town;
- Widening the road to a width of 10.0m (including the shoulders);
- Reconstruction of the base material and pavement of the entire road length;
- Reconstruction or Construction of 22 bridges;
- Reconstruction or Construction of about 200 box culverts;
- Provision of lay-bys/bus bays at appropriate locations;
- Installation of road signs and markings; and
- Installation of necessary traffic and pedestrian control devices

Public Participation

The SA process involved the participation of all stakeholders especially the project affected persons and communities along the project corridor. The public consultation took the form of meetings and oral interviews with community opinion leaders. In each of the Payams /Bomas, the SA team conducted key informant interview with Payam administrators, Sultans/sub-chiefs (Boma leaders' paramount chiefs) rainmakers, landlords and opinion leaders. Focus group discussions were also held with the youth, business and women representatives.

The public response to the consultation shows that the local people are very supportive of the Project and want the Project to be completed as soon as possible. The consultation took in recognition the various tribal groups living along the project.

Since the different tribes have different sources of livelihood; the consultation focused on these areas.

Specifically the agriculturalist tribe whose main occupation is subsistence farming was concerned about the loss of agricultural lands that may be impacted by the road project. They were assured of adequate compensation should that happen to enable them to relocate the farms which lies close the road.

The pastoralist tribes of the Toposa and Buya whose concerns were related of loss of food and grazing opportunities for their cattle because of the impact of accidents from high volume and speed traffic when the road is upgraded were assured adequate road safety and calming measures as well as crossing paths for their cattle. The consultations also revealed that unlike the agriculturist tribes, majority of the pastoral tribes (Buya, Toposa and Lotuka) lives and settles very far away from the road corridor and did not expect any impacts during the road upgrading works.

Thus the people living along the proposed road were consulted and clearly understood the Project well and had most concerns related to the noise and traffic safety to mention but a few were; raised by the affected public have been recorded by SA team, and together with the design team responsive mitigation measures have been developed as separate ESMP and RAP reports and these were;

- Land acquisition and resettlement
- Employment of local labour force
- Siting of borrow pits and quarries
- Noise and safety impact
- Traffic blocking
- Soil erosion
- Bitumen emission
- Cultural heritage
- Security of the workers and materials

One of the major concerns from the communities during public participation was regarding the construction of workers camps. A request was put forward to the contractor(s) to put up permanent structures for the workers so that after completion of the project the structures will be donated to the community to be converted to community facilities such as school, hospital and Government offices among others. It is therefore important for the GROSS to consider this request and forward it to the contractors who will be constructing the road.

Project Alternatives

The alternative to the current alignment is to build a new road which will result in much higher and more significant environmental/social impacts; land acquisition, rural residents relocation and resettlement, damage to plants, more earth work and higher soil erosion. Furthermore, since communities are located along the existing road, they will receive not benefits from access to service and market if an alternative road is constructed. Although demining activities are on-going along the road corridor, there is a danger posed by the unexploded landmines that may be planted on a selected new alignment.

It is obvious that upgrading of the existing road will have the least negative environmental impacts than the alternative, a completely new road. Therefore the upgrading of the existing road is considered the optimal and no other alternative is designed in comparison.

Social Impacts and Mitigation Measures

The upgrading of this road and subsequent construction of various structures along the road will not only improve the road transport network but also open up the entire region for development. In view of the activities involved it is anticipated that the project will have both positive and negative impacts during and after construction. These impacts can be direct and indirect. The negative impacts may lead to unacceptable cumulative impacts on the human environment. These must be avoided or mitigated if the roads program is to be fully effective and efficient

The SA survey team which consisted of a socio-economist, an environmental specialist, a surveyor, a valuer, Payam Administrators and enumerators were convinced from this study and analysis that the impacts the project would have effective protection both from the engineering and design as well as during its construction and operation phases. Among the many measures that have been proposed are the provisions of speed calming measures with signs for animals crossing locations and sensitization programmes for the herdsman. With appropriate measures during construction, the potential adverse impacts to the environment and people can be minimized and the social and economic benefits of upgrading of the existing road shall be obvious.

Summary of Analysis of Potential Impacts

Potential Impact	Nature of Impact			
	Construction Phase		Operation Phase	
		Mitigation		Mitigation
Impacts on Local Hydrology	-, Irr,t	Y	+	Y
Soil Erosion and Degradation	--, L,Sp	Y	-	Y
Impacts on Tropical Forests and Protected Areas	-, P, Irr	Y	0	
Increased Access to Natural Resources and the Potential for Land-Use Changes and the Rate of Habitat Loss	-,Irr,P,	Y	0	Y
Water and Soil Contamination	--,Sh	Y	0	
Water Sources for Construction Work	-, Sp	Y		
Loss of Vegetation	-, R	Y		
Environmental Health, Safety and Aesthetics of Borrow Pits and Drainage Features	-,P,R	Y	-,P,R	Y
Construction Camp Impacts	--,L,R,Y	Y	0,-	Y
Environmental Health and Safety Hazards of High Dust Conditions	--,T,Irr	Y	--,T,R	Y
Traffic Safety on Improved Roads	T,Sp,R	Y	-	Y
Material Storage and Handling	-	Y	0,NC	0, NC
Diversion routes	+,T	Y	0	0
Waste Management	--,R, Sp	Y	-	
Spread of Disease along Roads	--,P,Sp,Irr	Y	--,P,Sp,Irr	Y
Roads and Internally Displaced Peoples	+		++	
Demographic Changes	++, Sp	Y	++, W	Y
Cultural Resource Impacts	-	Y	-	Y
Human Settlement impacts	-,T	Y	+,-, P	Y
Noise Level	-, Sp, T	Y	-, Sp, T	Y
Conflict Impact	+,Sp,	Y	-	Y
National / Regional Economy	++,P,W		++,P,W	Y
Increased Occupation / Economic Activities	++,Sp	Y	++,W	Y

Impacts Analysis Key

Key	Type of Impact	Key	Type of Impact
++	Major Positive Impact	+	Minor Positive Impact
--	Major Negative Impact	-	Minor Positive Impact
0	Negligible Impact	NC	No Change
Sp	Specific/Localized	W	Wide Spread
R	Reversible	Irr	Irreversible
Sh	Short term	L	Long Term
T	Temporary	P	Permanent
Y	Mitigation of Negative Impact/Enhancement of Positive Impact is Possible	N	Mitigation of Negative Impacts/Enhancement of Positive one is Not Possible

Social Monitoring and Management Plan

Monitoring is a long-term process, which should begin at the start of construction and continue throughout the life of the road project. Its purpose is to establish benchmarks so that the nature and magnitude of anticipated social impacts can be continually assessed. So monitoring involves the continuous or periodic review of construction and maintenance activities to determine the effectiveness of recommended mitigation measures.

The responsibility for the incorporation of mitigation measures for the rehabilitation of the roads lies with the Supervising Engineer, who must ensure that the Contractor implements all specified mitigation measures. The MTRB through the supervising engineer and the Environment officer will have to oversee the supervision of the road during construction to ensure that the contractor conforms to the mitigation measures. Social monitoring should adopt a cross-sectoral approach to ensure that mitigation measures are well implemented.

Simple monitoring systems should be set up during construction by the Supervising Engineer and Contractor and during operation by the MTRB, so that potential social and environmental problematic areas can be detected well in advance and the appropriate remedial action taken. Many of the potentially significant negative impacts identified in the SA relate to the construction and operation phase of the project. Mitigative and support measures are therefore, best achieved through the incorporation of suitable clauses in the contractual documents, which are enforced by the Supervising Engineer.

Social Management and Monitoring Plan

Socio economic Impacts

Socio Aspect and Impact	Proposed mitigation and Aspect for Monitoring	Responsibility for intervention and Monitoring During Design, Construction and operation Period	Responsibility for Mitigation, Monitoring and/or Maintenance During operation	Monitoring Means	Recommended Frequency of Monitoring
Land Acquisition Impact: Loss of land predominantly under agriculture by owners of acquired land	Minimize land acquisition; Adequate compensation (RAP); Demined areas identified as farm sites to enable residents move their farm away from the road project.	GROSS	Project Project GRSS	Household farm size	Annually
Impact: Loss of numerous housing structures as over 80% linearly exist within 20 meters on either side of the proposed road centre.	Adequate compensation (RAP) Demined areas identified as resettlement sites to enable residents build their structures way from the road project	GRSS	Project GRSS	New settlement sites	Annually
Impact: Loss of shade for community meetings and income as a result of felling of numerous trees dominated by mango trees on road side	Planting of shade and fruit trees in the resettlement sites; Minimise unnecessary felling of fruit trees	Communities	Project Project	Number of new trees planted	Annually
Impact: Loss of cultural and religious properties (sacred trees, churches, cemeteries etc) identified along the road	Demolish with full permission and as per conditions set by the community Relocation in full conformity with the wishes of the community	GRSS	Project Project	Community support level	After implementation of every phase

Cont...

Socio Aspect and Impact	Proposed mitigation and Aspect for Monitoring	Responsibility for intervention and Monitoring During Design, Construction and operation Period	Responsibility for Mitigation, Monitoring and/or Maintenance During operation	Monitoring Means	Recommended Frequency of Monitoring
Loss of livelihood like of business; homes located along the project road Impact: Interference with source of livelihood and ;business premises (some of which are very near to the road project)	Relocation of business and homes; to places far away from the proposed right of way (ROW) through the implementation of the RAP	GRSS	Project	Types of social infrastructures in the resettlement sites	Annually
Traffic and Safety Impact: Loss of lives and livestock due speeding vehicles during and after construction	Provide speed calming facilities for pedestrians and non-motorized traffic especially also at the migratory route crossing Erect and maintain all traffic safety measures	Contractor	Project Project	Traffic records on number and nature of accidents	Monthly
Influx of Project workers Impact: Overstretching of few social infrastructures available in the area (house rent rise, water shortage and sanitation problem)	Use of temporary camp sites to accommodate workers Provision of good and sufficient water supply, sanitation and waste disposal facilities in camp sites.	Contractor	Project Project	Percentage increase in house rents Number of persons per toilets,	Monthly
Impact: Increased STDs including HIV/AIDs infections due to increased number of commercial sex workers from Juba, Kenya and Uganda	STDs sensitization campaigns. Training and distribution of awareness materials for information, education and communication on HIV/AIDs Distribution of condoms, and encouraging status testing.	GRSS – MOH	Project Project Project	Number of sensitization programs Number of residents visiting Voluntary Counselling and Testing Centres	Monthly

Cont...

Socio Aspect and Impact	Proposed mitigation and Aspect for Monitoring	Responsibility for intervention and Monitoring During Design, Construction and operation Period	Responsibility for Mitigation, Monitoring and/or Maintenance During operation	Monitoring Means	Recommended Frequency of Monitoring
Labour requirements Impact: Increased employment opportunities and skills acquisition	Priority to be given to local indigenous people in all vacancies Skills improvement and on job training programs to locals	GRSS & Contractor	Project Project	Employment rate	Annually
Security of project workers	Open door policy to facilitate information flow to and from host communities to enhance cordial relationship Each County Commissioner to be responsible for security on sections of the road within their Counties	GRSS	Project County	Acceptance level Number of reported cases of insecurity	Monthly Weekly
Operation stage Impact: Large scale clearing of land and intensified demand for forest products for building materials and fuel by returnees	Improved governance. Control and management of land and forest products Encourage use of non forest products construction materials	GRSS & Contractor	State State State	Settlement patterns Percentage change in forest cover	Annually
Impact: Reduced transportation cost and availability of high class transportation facilities	Provide effective road signage	Contractor	State	Percentage change in transport cost	Monthly
Impact: Rapid economic growth of East Equatoria State	Improve security Promote private property rights	GRSS	State State	Economic growth rate	Annually

Conclusion and Recommendations

The primary objective of the study on the Nadapal – Juba road was to identify the most appropriate economically justified up grading and periodic maintenance or strengthening solutions for this road in South Sudan. It is anticipated that in the long term there will be considerable economic benefit accruing to the areas of influence of the project roads due to stimulated economic and social activities and improved traffic flow.

At this detailed design stage, no adverse environmental and social impacts of significant magnitude are foreseen that would hinder the proposed upgrading of the road to Bitumen standards. The road project will not harm any sites that are historically or environmentally sensitive. The most important negative impact will result from soil erosion during earth works and construction of structures along the road especially in the road section between Nadapal – Kapoeta.

The findings of the Socio Economic Impact assessment concluded that the impact of upgrading of the Nadapal – Juba road will have a positive impact on the socio-economic. RAP took into consideration the willingness of the people to give out community lands to persons whose properties shall be affected as a result of the road project.

The social management measures proposed are generally straight forward. The majority of the measures relate directly to sound operating practices both during the construction phase and subsequently over the operational life of the road. Provided that the road is upgraded with due attention to the mitigation and management measures outlined, then the project will have a positive impact on the socio-economic environment of the project area. The upgrading of this road to a paved (bitumen) standard will improve the socio-economic conditions in South Sudan and more specifically the Eastern Equatoria States through the facilitation of trade, access to social facilities, improved economic ties, reduction in vehicle operating cost among others.

This study concludes that there will be no major ecological impact that will negatively affect the up-grading of the Nadapal-Juba road. In support of the huge acceptability shown by our survey, it is recommended that this project proceeds and that the proposed mitigation and monitoring measures are effectively enforced. The project has no serious negative environmental impacts and we recommend its implementation as proposed, while ensuring implementation of the proposed Environmental Management and Monitoring Plan

Recommendations

To successfully implement the environmental and social safeguards in a manner consistent to WB and National Policies the team recommends that:

1. The mitigation measures identified in this report are incorporated as far as is practically possible, within the design details, specification and contract documents, to be drawn up for the project road.
2. The local people must be informed of the details and progress of the project, particularly those who will be affected by the proposed realignment and extension of the road so that they can plan for the future accordingly.

3. A Resettlement / Compensation Action Plan have been prepared by the GRSS to address issues such as amount of payment of compensation and methods and mode of payment to the affected people.
4. Since land is communally owned, communities have agreed to reallocate an equivalent of land for free to the PAPs to be resettled. The project will only compensate in cash or in kind there location and reconstruction costs so that PAPs way of production, living and social relationship can be maintained.
5. Diligence on the part of the contractor and proper supervision by the Supervising Engineer during construction and the initial operation period is crucial for mitigating impacts. However all mitigation measures need to be specified in tender and contract documents, and must be included in the Engineering Drawings, Specifications and Bills of Quantities.
6. During operation, the maintenance of the road must be ensured. For example, if the project roads are always in motor able condition, vehicles would not have to drive off-road, thereby destroying vegetation, road structures, and posing a danger to pedestrians, cyclists and livestock.
7. It is strongly recommended that the mitigation measures proposed in this report be incorporated, as they are reasonable and implementable. It is further recommended that a result based monitoring and evaluation program should be drawn and documented as an integral component of the Social Management Plan.
8. The list provided on Annex 21 represents the list of peoples, structures/properties that will be affected during road construction.
9. Social monitoring allows measures to be implemented in order to prevent or avert negative impacts. The MTRB and Ministry of Environment must ensure that monitoring does take place and oversee environmental compliance in all road related activities.

1.0 BACKGROUND

1.1 Background and Context

The Nadapal-Juba road has been identified by the GRSS since 2003 as one of the priority roads for investment to speed up post-war reconstruction, add support to development and reduce the cost of transit transport goods into the country coming from Kenya. The Nadapal-Juba road is located in Central and Eastern Equatoria States. The total length of road is approximately 341.2 Km of unpaved road which provides transport connectivity between Juba and the district headquarters, towns and villages of Juba, Torit, Budi and Kapoeta Counties in Central and Eastern Equatoria states. The road is also an international corridor linking the hinterland of South Sudan with markets in Kenya and international markets through the port of Mombasa.

The project road starts at Nadapal in Eastern Equatoria State on the side of Kenya/Sudan border. The Customs and Excise Department and Immigration Department of South Sudan are located on this point. The fence and gate defining the border point is the exact starting point of the project. After leaving Nadapal, the road traverses through numerous towns and villages. The road is passing in two states, i.e. Eastern and Central Equatoria States. The towns and villages which the project road traverses are Narus, Kapoeta, Loriyok, Torit, Liriya and ends at Nesitu (Nimule Junction) Figure 1 and Plate 1. The project road joins with Nimule to Juba road at Nesitu. The junction of road going to Bor is at Gumbo.

At Torit, the road proposed upgrading will by-pass the community just after the Military Barracks from Kapoeta and end after the Magwi Junction on the Torit – Juba road. This is to reduce the number of PAPs and also preserve the Prisons, health facility and other structures in the Community as well as improve safety from pedestrian –vehicular conflicts.

The topography of the project area can be described as undulating at Nadapal and the hills surrounding Mineral Springs. The next section is mainly flat plain. From Longario, there are high volcanic outcrops up to Liria and Lulubo. From Torit to Ngangala, the road crosses numerous streams and rivers and follows a gently sloping ridge through the subsequent section to Juba. The altitudes vary from an elevation of 741 m at the border with Kenya to 800 m at Mineral Springs, 620 m at Torit and with gentle variations in slope down to an elevation of 460 m near Juba.

The climate in the project area is characterized by high temperatures, generally above 20°C, and the precipitation is low compared to the evaporation. The average annual rainfall increases from 700 mm in Lokichogio, about 25 km south of Nadapal to 1,000 mm at Boya Hills and all the way to Juba. The main rivers crossed by the road are the Kidepo, Thingaita, Koss, Idolu and Kudo Rivers.



Plate 1: Beginning at Nadapal (0 + 000) and End Point (Nimule Junction)

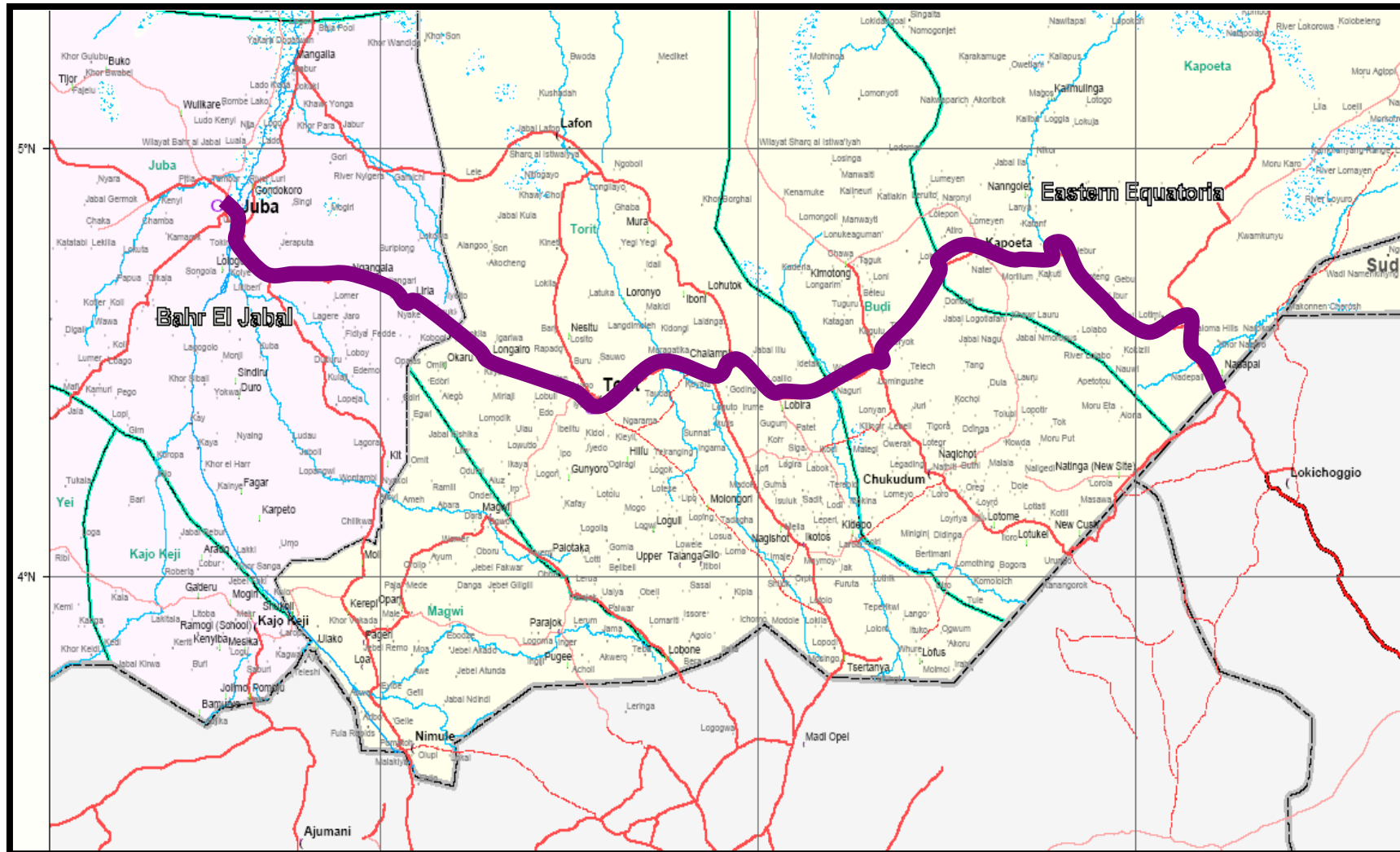


Figure 1: Map of the Proposed Road Project

1.2 Importance of the Program

The importance of the upgrading of the Nadapal–Juba road to the donors, the Sudan People’s Liberation Movement/Army (SPLM/A) and Government of Republic South Sudan (GRSS) is to improve access to and from South Sudan. The overall South Sudan – East Africa Regional Transport, Trade and Development Facilitation Program (SS-EARTTDFP) Development objective is to enhance regional connectivity and integration of South Sudan with its Eastern Africa neighbouring countries. This would be achieved through increasing transport efficiency, facilitating trade and development, connecting Juba with fibre optics, and linking South Sudan to alternative sea ports. Specifically the project aims to:

- Improve road access, reduce the cost of access to food and food production itself;
- Stimulate commercial activity and self-sufficiency;
- Facilitate the movement of Internally Displaced Peoples (IDPs) and other returnees;
- Show the dividends of Peace;
- Reduce the transport cost of the massive amounts of humanitarian operations and assistance flowing into the country;
- Open up GRSS for rapid economic development;
- helps eastern part of South Sudan and north western part of Kenya to boost export oriented agricultural development by facilitating increased agricultural production along the Juba-Eldoret corridor, endowed with abundant natural resources, through improved access and development of export processing zones;
- Contributes to the overarching goal of integrating the economies of the countries in the sub-region and helps them compete in the free market zone of Eastern and Southern Africa, and the global market; and
- Contribute to the reduction of transport cost that will help lower the cost of economic development, services delivery to the poor, and doing business, in the sub-region.

The principal factors for focusing on the Juba–Nadapal-Eldoret corridor, include: (a) the corridor opens the massive agricultural, animal and mineral resources rich area in eastern South Sudan, the closest to the regional and global market, and the less developed Turkana region of Kenya; (b) the corridor crosses only one transit regime and will be the cost effective and shortest connection to Mombasa, in terms of truck turnaround time; (c) the project crosses flatter terrain, which will reduce vehicle operating cost and safer for driving; (d) the corridor opens access to an alternative sea port – Djibouti; ; and (e) the corridor offers the quickest route to the offshore submarine cables off the East African coast, with the fewest transit countries.

1.3 Detailed Description of the Program

The Nadapal-Juba road is located in Central and Eastern Equatoria States. The Nadapal-Juba road has been identified by the GRSS since 2003 as one of the priority roads for investment to speed up post-war reconstruction, add support to development and reduce the cost of transit transport goods into the country coming from Kenya. The total length of road is approximately 363.2km of unpaved road which provides transport connectivity between Juba and the district headquarters, towns and villages of Juba, Torit, Budi and Kapoeta Counties in Central and Eastern Equatoria states. The road is also an international corridor linking the hinterland of South Sudan with markets in Kenya and international markets through the port of Mombasa.

The topography of the project area can be described as undulating at Nadapal and the hills surrounding Mineral Springs. The next section is mainly flat plain. From Longario, there are high volcanic outcrops up to Liriya and Lulubo. From Torit to Ngangala, the road crosses numerous streams and rivers and follows a gently sloping ridge through the subsequent section to Juba.

The altitudes vary from an elevation of 741 m at the border with Kenya to 800 m at Mineral Springs, 620 m at Torit and with gentle variations in slope down to an elevation of 460 m near Juba.

1.3.1 Program Component

This program is composed of the following components under phase 1:

Component 1: Upgrading of priority road infrastructure (US\$220 million): This component consists of:

Sub-component 1 (a): Upgrading of approximately 125 km of the Juba-Torit section of the Juba-Nadapal-Eldoret corridor (about US\$158 million) to be financed by the China EXIM Bank and Government of the Republic of South Sudan (GRSS).

Sub-component 1 (b): Construction/reconstruction of bridges between Kapoeta and Nadapal, and upgrading of approximately 40 km of the Kapoeta-Narus section of the Juba-Nadapal-Eldoret corridor to a gravel sub-base level through a design and build (DB) arrangement (about US\$50 million). This will focus on constructing bridges (reconstruction of old bridges and replacement of existing collapsed bailey bridges and drifts) starting about 10 km before entering into Kapoeta and up to Nadapal, which are critical to ensure all season possibility of trucks, and upgrading of the road to a gravel sub-base level, to be paved under the second project.

Sub-component 1 (c): Road repair of approximately 190 km sections between Torit and Kapoeta, and between Narus and Nadapal (US\$2 million). In addition, GROSS will provide about US\$2.5 million for compensations to be paid for compensation and land acquisition for the sections to be upgraded under the first project.

Sub-component 1 (d): Support to preparatory activities and capacity strengthening, planned to be carried out through a Project Preparation Advance (PPA), in the amount of US\$1.5 million.

Component 2: Facilitation of Regional Transport, Trade and Development (US\$9 million): This component supports promotion of sound transport, trade and development facilitation measures, increasing the efficiency of the corridors. This includes:

Sub-component 2(a): Support to MoFCIEP/SSCS for establishing the institutional base and legal framework for trade and development facilitation (US\$7.50 million), including: (i) carrying out a study on key regional corridors related to trade and development facilitation as well as transport review; (ii) introduction of corridor performance monitoring system (CPMS); (iii) preparation of transit transport agreement and protocol, customs procedures harmonization agreements, and support to the national corridor management committee. The transit agreement includes setting the legal and institutional arrangements for the establishment of One Stop Border Post (OSBP) at Nadapal and agreement on establishing a networked vehicle overloading control system

between the two countries; (iv) provision of advisory services for the modernization of SSCS; (v) support to integrated border management through rationalizing and streamlining the number of formalities, number of agencies at the border post, and user fee structures; and (vi) provision of advisory services and equipment for the establishment of a Trade Information Platform/Portal within MoFCIEP.

Sub-component 2 (b): Support to MTRB for the facilitation of transport, trade and development (US\$1.50 million), including: (i) carrying out a study of social infrastructures and social services delivery needs assessment, (ii) conducting Road Safety audit along the Juba-Nadapal road; and (iii) carrying out studies and SA for services at rest stops, axle load control station at Nadapal, export processing zones(site and services, including access road, electricity, water, customs bonded warehouses, products certification office, etc), and storage facilities, as well as certification of export products and simplifying the process of import-export, including through electronic document handling and online customs processing.

Component 3: Institutional Development and Program Management (US\$5 million):

Sub-component 3(a): Strengthening of MTRB's institutional capacity through the provision of advisory services and training as well as preparation of sectoral governance and anti-corruption strategy to enhancing good governance in the transport sector.

Sub-component 3(b): Strengthening MTRB's safeguards management capacity through engaging an independent safeguards management firm to help the ministry through the process of the resettlement and monitoring of implementation of safeguard measures while strengthening the in-house safeguards capacity.

Sub-component 3(c): Provision of advisory services, training and logistical support (including office equipment, materials, supplies), and operating costs required to sustain management and coordination of Project implementation activities, including audits and monitoring and evaluation of progress achieved in the execution of the Project. This will include support to institutions providing technical support to the project implementation.

Component 4: Connecting Juba with Fiber Optics (US\$15 million): This component will support:

sub-component 4 (a)- the construction of a fiber optic cable alongside the road from Juba into Kenya (Lokichoggio) to bring high speed broadband internet connectivity into South Sudan for the first time. The construction of the road into Kenya offers a one-time opportunity to create a high-capacity, reliable terrestrial fiber link. On the Kenyan side of the border, fiber reaches as far as Lokichoggio, and from there connects to submarine cables off the coast at Mombasa. Constructing the fiber cable at the same time as the road will reduce costs and will avoid disruption that would occur if it was built at a later date than the road. The fiber will be installed within the right-of way of the road, adjacent to the side drains in rural areas and under the pedestrian walkway in urban areas.

Sub-component 4(b): A PPA to undertake technical study, establishment of an internet exchange point and recruitment of telecom experts (US\$0.5 million)

1.4 Activities Associated With the Project

Some of the main activities that will be associated with road construction are outlined below

- Establishment of construction camps
- Construction of temporary/permanent accommodation
- Provision of sewage disposal facilities
- Water abstraction
- Construction of workshops
- Transportation of construction materials and equipment
- Recruitment of the labour force
- Earthworks
- Construction of detours and access routes
- Borrow pits and materials extraction
- Crushing and screening of materials
- Operation of Asphaltic Plant
- Screening, mixing, and stockpiling of aggregates
- Transportation of hot mix asphalt
- Construction of drainage structures, e.g. culverts, bridges
- Excavation of side drains, mitre drains, and cut-off drains
- Pavement Construction
- Construction of erosion protection works
- Asphaltic concrete binder and wearing courses

These activities will have various degrees of impact on both the biophysical and human environment. This Environmental and Social Impact Assessment report includes a Management Plan that is intended to act as a guide in avoiding negative impacts, and mitigating those, which are not avoidable. The project will involve utilization of different material in different quantities and quality. Material that will be used during construction of this road will include:

- Granular Sub base
- Hard rock
- Sand
- Water
- Bitumen

1.5 Proposed Road Upgrading Project

In line with the South Sudan road design standards the proposed road upgrading shall consist of the following:

- (i) Design Speed - Varies at different sections
- (ii) Lane Width - 3.5m (each lane)
- (iii) Shoulder Width - 1.5m (to edge of drain, unless there is restriction)
- (iv) Type of carriageway pavement –Asphaltic Concrete surfacing
- (v) Shoulder Surface –Asphaltic Concrete

(vii) Design Life - 20 years

The proposed project upgrading works will comprise the following:

- Improvement of the alignment at the poor sections;
- Realignment of road to by-pass Torit Town;
- Widening the road to a width of 10.0m (including the shoulders);
- Reconstruction of the base material and pavement of the entire road length;
- Reconstruction or Construction of 22 bridges;
- Reconstruction or Construction of about 200 box culverts;
- Provision of lay-bys/bus bays at appropriate locations;
- Installation of road signs and markings; and
- Installation of necessary traffic and pedestrian control devices

1.6 Public Participation

The results from the public consultation show that the local people are very supportive of the Project and want the Project to be completed as soon as possible. This involved meetings and oral interviews with community opinion leaders. In each of the Payams /Bomas, the SA team conducted key informant interview with Payam administrators, Sultans/sub-chiefs (Boma leaders' paramount chiefs) rainmakers, landlords and opinion leaders. Focus group discussions were also held with the youth, business and women representatives.

The public response to the consultation shows that the local people are very supportive of the Project and want the Project to be completed as soon as possible.

The people surveyed understood the Project well and had most concerns related to the noise and traffic safety. Concerns raised by the affected public have been recorded by S-A team, and together with the design team responsive mitigation measures have been developed and included in the report. Following are the major public concerns and responses

Land acquisition and resettlement
 Employment of local labour force
 Siting of borrow pits and quarries
 Noise and safety impact
 Traffic blocking
 Soil erosion
 Bitumen emission
 Cultural heritage
 Security of the workers and materials

One of the major concerns from the communities during public participation was regarding the construction of workers camps. A request was put forward to the contractor(s) to put up permanent structures for the workers so that after completion of the project the structures will be donated to the community to be converted to a may be a school, hospital, Government

offices. It is therefore important for the GRSS to consider this request and forward it to the contractors who will be constructing the road.

1.7 Socio-Economic and Public Awareness Survey

Sample Design and Selection

A multi stage sampling procedure was used in selecting a sample size of 96 households along Nadapal -Juba road. First stage involved listing all the Bomas/Payams dotted along the proposed road project. They were sixteen (16) in total. In each of the sixteen (16) Payams/Bomas, six (6) households were randomly selected. This generated a sample size of 96 households. In representation of the various tribal groups living the road project.

Field Administration of Questionnaires

The socioeconomic data was gathered using a structured questionnaire. The data gathered comprises demographic characteristics of sampled households, occupational and income distribution, land tenure and land use patterns, HIV/AIDS, health and social infrastructure, Due to low level of literacy levels and language problem among the communities living along the project road, direct interview method was used with interviewers interpreting and filling out the questionnaires during the survey.

Key Informants Interviews

This involved meetings and oral interviews with community opinion leaders. In each of the Payams/Bomas, the SA team conducted key informant interview with Payam administrators, Sultans (Boma leaders), youth leaders, women leaders, rainmakers, landlords and business persons Plates 2.

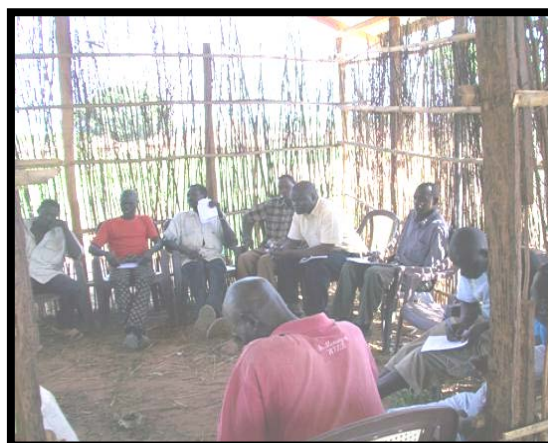


Plate 2: A Focus Group Discussion at Obule and Kudo Payam Respectively

1.8 Public Hearings and Consultative Meetings

It is recognized that conducting consultative meetings with community members and other stakeholders is an important process in SA studies and is specifically to ensure community involvement in hearing concerns and mitigating measures proposed and to create a sense of responsibility and commitment towards implementation of the project. Consultative meetings were held in relatively larger Bomas along the project road with a major one being held in Torit

town. Stakeholders' consultative meeting in Torit was a special case because it was chaired by the County Commissioner, His Excellency Colonel Allam. It attracted most of the major stakeholders (Annex 3 and Plates 3 and 4 since the project road passes through the town and is likely to create a big socioeconomic impact.



Plate 3: Public Hearing at Lyangari Payam



Plate 4: Stakeholders Consultative Meeting at Torit County Hall

It is recognized that CPP is an important process in SA studies and is specifically to ensure community involvement and to create a sense of responsibility and commitment towards implementation of the project. This component was handled by the sociologist as a separate activity.

The methodology followed in carrying out this SA has been summarized (Figure 3). Write-up of the SA proposal based on the TOR and presented the proposal. An SA team was also formed during this period. This also meant team mobilization for the field work.

2.0 INSTITUTION, POLICY AND LEGAL REQUIREMENTS

2.1 Customary Laws on Land Acquisition

The customary laws in South Sudan most especially in Eastern Equatoria state are similar to other tribes; there is no absolute freehold ownership. Families have an usufructuary right that passes down through the family and cannot be sold to another. The chiefs protect this bond. Nevertheless land is owned by the community and the chiefs regulate its equitable use to ensure community harmony and prosperity. Communities through chiefs can remove someone from their land if they do not abide by community norms; as determined by the community and the chief on a case to case basis.

Rights of land use include resource use such as trees or access to water; however the Land Act 2009 vests all subsurface ownership (such as mineral resources) in the state. All customarily held land use rights are regulated by the community and cannot be sold to another directly without the involvement of the Chief and community leaders.

2.2 The constitution of Southern Sudan

The interim constitution of Southern Sudan spells out in Section 2, that every person shall have the right to have the environment protected for the benefit of present and future generations, through reasonable legislative action and other measures that prevent pollution and ecological degradation; (b) promote conservation; (c) secure ecologically sustainable development and use of natural resources while promoting rational economic and social development so as to protect the bio-diversity. The Constitution therefore acknowledges that social and economic developments may impact on the environment but emphasizes the need to minimize such impacts.

It is now accepted that development projects should be economically viable, socially acceptable, and environmentally sound. Being a young Government, GRSS is still in the process of enacting various legislations, and among the pieces of legislation that are yet to be developed is a comprehensive Environmental Act. For this reason, only pieces of legislation that are relevant to the environment have been enacted and reviewed in this report. Among others include: the Constitution of Southern Sudan, The Interim National Constitution of Southern Sudan (ICSS), The Comprehensive Peace Agreement (CPA), The Transitional Constitution of the Republic of South Sudan, 2011 (TCRSS), Environment Policy (2010), Draft Environment Protection Bill (2010), Southern Sudan Land Act 2009, the Wildlife Conservation and National Parks Act, the Forest Commission Act and the Traffic Act, The Wildlife Forces Act, 2003, Wildlife Conservation and Protected Areas Bill 2010, Draft Forestry Policy, and the Forestry Commission Act of 2003.

The Government of the Republic of South Sudan has 10 States exercise powers on: lands, natural resources, animal wealth, wildlife, non - Nilotic waters and electric power. There are concurrent powers where both Federal (National) and State authorities exercise power over education, health, environment, tourism, industry and meteorology. The localities exercise powers within the locality boundaries through local orders to be approved by the locality legislative organ.

The Interim Constitution of the Goss provides for the creation of Commissions particularly, on land to assume among other things planning and allocation of lands and forests between Federal and State authorities. The Interim Constitution of Southern Sudan (2005) states in Section 44 (1-4) that “every person or community shall have the right to a clean and healthy environment”. To have the environment protected for the benefit of present and future generations, through reasonable legislative action and measures that: prevent pollution and ecological degradation; promote conservation; and, secure ecologically sustainable development and use of natural resources while promoting rational economic and social development so as to protect genetic stability and biodiversity of Southern Sudan (Part II, Fundamental Objectives and Guiding Principles, Chapter I Objectives and Principles (Guiding Objectives and Principles).

2.3 The Interim National Constitution of Southern Sudan (ICSS)

The ICSS is the supreme law of Southern Sudan which stipulates the legal aspects for the protection and management of the environment and natural resources. **Part three, article 44 of the Interim Constitution of Southern Sudan (The Environment)** has guaranteed every person or community the right to have a clean and healthy environment. The Constitution further commits all levels of government in Southern Sudan to sustainable development in order to ensure that the environment is protected for the benefit of present and future generations, through reasonable legislative action and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting rational economic and social development so as to protect genetic stability and bio-diversity of Southern Sudan. And also all levels of government in Southern Sudan shall promote energy policies that will ensure that the basic needs of the people are met while protecting and preserving the environment.

The Interim Constitution also specifies land issues 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 states manage issues related to State lands that are not under National control. These include: management, lease and utilization of lands belonging to States, town and rural planning and agricultural lands within the state boundaries. The concurrent powers include matters related to urban development, planning and housing, electricity generation, waste management, consumer safety and protection, water resources other than inter – state waters and regulation of land tenure and the rights on land.

Articles of the Constitution are of direct relevance to this project are the right to expropriate land and compensation to the owners, protection of cultural heritage and religious sites, as well as issues related to the safety and protection of the inhabitants, beside penalties incurred for environmental damage and pollution as well as respect of the International Environmental Agreements, ratified by the Government of the Republic of South Sudan.

2.4 The Comprehensive Peace Agreement (CPA)

The CPA provides the general framework and implementation modalities for addressing the management of the environment and natural resources as well as the regulation of land tenure and protection of national heritage and areas of Cultural and social significance.

2.5 The Transitional Constitution of the Republic of South Sudan, 2011 (TCRSS)

The TCRSS specifies that every person or community shall have the right to a clean and healthy environment. (2) Every person shall have the obligation to protect the environment for the benefit of present and future generations. (3) Every person shall have the right to have the environment protected for the benefit of present and future generations, through appropriate legislative action and other measures that: considering to (a) prevent pollution and ecological degradation; (b) promote conservation; and (c) secure ecologically sustainable development and use of natural resources while promoting rational economic and social development so as to protect genetic stability and bio-diversity. (4) All levels of government shall promote energy policies that will ensure that the basic needs of the people are met while protecting and preserving the environment.

2.6 Environment Policy (2010)

The Republic of South Sudan has been in conflicts that led to the civil wars, causing millions of loss of lives and serious damage to the natural environment. South Sudan is endowed with abundant natural resources which include vast land and water resources, oil, and rich biological diversity due to varying climatic patterns, undulating topography, diversified ecosystems and habitats. Among others, the Sudd wetland which has been designated as a Ramsar site of international importance and is essential to be protected that the country to have a benefit from this resource.

Following the achievement of the CPA in 2005, there has been increasing growth of population in the major towns and rural areas of South Sudan. Additionally, the upcoming investments in the oil sector and infrastructural development in terms of housing projects, road construction, and others all have adverse impacts on the environment, especially if undertaken without due consultation of such impacts.

South Sudan has experiences a wide range of environmental problems, including, soil degradation due to widespread deforestation with consequent loss of biodiversity and wildlife habitats, pollution of rivers and the environment due to oil drilling in the wetlands, over-exploitation of fisheries, conflicts over diminishing resources such as rangelands and water points for livestock, increase and prevalence of environment-related diseases such as malaria, typhoid, and watery diarrhoeal diseases due to widespread water contamination by urban surface runoff and poor environmental sanitation as a result of disposal of both solid and liquid wastes on open grounds.

Having all these environmental problems and considering the various on-going and upcoming development activities in South Sudan have a contribution to put more pressure on the environment. Despite the lack capacity to enforce the existing sectoral legislations and regulations pertaining to environmental and natural resources management, to avoid or minimize these potential impacts and to make EIA process legally binding, developing and enforcing environmental policy and legislations is inevitable.

The Ministry of the Environment is in the process of submitting a draft Environment Protection Policy that enables to guide the management of environment and natural resources along with

the development activities to the GRSS Council of ministers through the Ministry of legal Affairs.

The main purpose of this draft policy document is to provide guidance and direction to all stakeholders, which include, the sector government agencies, the private sector, NGOs, CBOs and the general public regarding sustainable management of the environment and mitigating the adverse impacts of their development activities as such. Due to lack of environmental information at hand the content of the document in terms of the background information, environmental issues to be addressed and the policy guidance prescribed are extremely general in the sense that they do not tackle the concerns in a specific manner as it should be.

The formulation of this policy is a step forward in promoting sustainable environmental management across all sectors in Southern Sudan. The effectiveness of this Environmental Policy will be continuously monitored besides being periodically reviewed to ensure that it remains pertinent and relevant.

The Government of Republic of South Sudan (GRSS) has the mandate and responsibility for protection, preservation of natural heritages, and conservation of the environment and sustainable utilization of natural resources. The Draft Environmental Policy stated that the policy provides a framework with conformity to legislative requirements and having the following objective:

- (1) Improve livelihoods of South Sudanese through sustainable management of the environment and utilization of natural resources;
- (2) Build capacity of the government at all levels of governance and other stakeholders for better management of the environment;
- (3) Integrate environmental considerations into the development policies, plans, and programs at the community, government and private sector levels; and
- (4) Promote effective, widespread, and public participation in the conservation and management of the environment.

The implementation of the Environment Policy will require clear responsibilities of the Ministry of line ministries, and decentralization at least to State level, with trained and equipped staff.

2.7 Draft Environment Protection Bill (2010)

The Draft Bill stipulates the need to undertake an Environmental Impact Assessment where and when the Lead Agency deems the project may have varies levels of an impact on the Environment. The Bill recommends the EIA should be conducted by an expert retained by the Project Proponent whose name and qualifications are approved by the Ministry.

2.8 Land Act 2009

According to the Land Act 2009 Chapter 2 Section 7 all land in South Sudan is owned by the people of South Sudan and its usage shall be regulated by the government. This land may be acquired, held and transacted through customary, freehold and leasehold by the people of South Sudan. Section 8 of this Act further states that every person in South Sudan have the right to acquire or own property as regulated bylaws and stipulated in Article 31(1) of the constitution.

Chapter 3 classifies land in South Sudan as public, community or private. Section 10 further classifies public land as land owned collectively by all people of South Sudan and held in trust by

the appropriate level of government. The above land regulations help organize land tenure. However, most of Sudan's lands are organized by customary and traditional rules and regulations. Therefore land administration and management in South Sudan is based on the principle of decentralization, participation and transparency for the benefit of the people of South Sudan.

The Section 42 of Land Act empowers the GOSS and State Government in management of the land on South Sudan through:

- Intervention in rural and urban planning
- Solving disputes arising from use of land
- Resettlement, rehabilitation and reconstruction
- Management and protect historical sites of common interest for South Sudan
- Control and restoration of environment

Chapter Eleven Section 69 of Land Act 2009 provides for the protection of land by individuals, communities and organizations in order to keep it in a productive condition in which problems such as land degradation will be adequately managed with the provisions of Article 44 of the constitution.

Section 70 makes provisions for any development activity to be undertaken in South Sudan be subjected to Environmental, Social, Economic Impact Assessment to ensure that the social, Economic and Environmental implications of the activities on the land are taken into consideration be any decisions is made thereon. The acts states that Social, Economic and Environmental Assessment be undertaken by both private and public sectors prior to any activity that may impact on the environment and people as determined by law.

The acts provides for restoration of any degraded environment in due to economic activities. Because any misuse of the resources endangers the population or nature. The authority concerned may requisite of occupancy of people living in the area after consultation and subject to relocation and or compensation as mention in Section 75 of the Land Act 2009. The GOSS, The State Government or Private Company shall proceed with resettlement plan for the communities affected by the project.

The GRSS, State Government and any other public Authority may expropriate land for public interest/use subject to compensation and upon agreement with people affected as prescribed by the Act. For the purpose of this project GRSS, State Government and any other public Authority may expropriate land for road construction this is done according to Chapter 12,13 14 and 15 of Land Act.

The GRSS has assigned responsibility for state and county decision making at the state, and locality levels. The state and local and traditional authorities play important roles in land administration and management. These local institutions also play important roles in consultation and mobilization of local communities, conflict resolution and providing direct links to the locality for any issues related to village affairs. Table 3 summarizes institutional arrangements and their mandates. Depending on the type and size of the projects to be implemented and according to the National and State legislation requirements, a number of approvals and permits may be required from various governmental agencies (Table 1).

Table 1: Permit Procedures in Government of Republic of South Sudan

Institution	Mandate
National Level	
▪ South Sudan Land Commission	▪ Entertain claims, arbitration and mediation, enforcement of law, accept references and assess compensation
State Level	
▪ State Land Commission	▪ Entertain claims, arbitration and mediation, enforcement of law, accept references and assess compensation
▪ State Land Administration	▪ Land allocation & mapping. Land measurement and quality evaluation. Land classification. Design land use & approval. Land record & statistics & registration. Land valuation. Assign land use right. Issue land Title deeds. Regulate land transfer and land lease. Control and protect land use. Protect customary land rights; regulate withdrawal or requisition.
Local Level	
▪ County Land Authority	▪ Hold and allocate public lands with approval of State Ministry Physical Infrastructure and Planning. Make recommendation to the Concerned Ministry on gazetted land planning; advise concerned ministry on resettlement of persons in the County; facilitate the registration and transfer of interest in land; advise the local community on issues related to land tenure, usage, and exercise over land rights; protect community lands; chair the consultation process between community and State Government if required; and liaise with South Sudan Land Commission.

2.9 Wildlife Conservation and National Parks Act, 2003

According to this Act, access and use of resources are not forbidden, but rather the powers to permit anybody to exploit the inherent resources in such protected areas are vested in the Director General of the Secretariat. However, there are specific animal species whose capture is prohibited and these are listed in Schedules 1 and 2 of the Act (Annex 19). Section 27 provides that no person shall hunt with firearms or birds of prey or capture any animal listed in Schedule II, except under a valid ordinary hunting licence or a special permit issued. This section exempts the species listed in Schedule 3 from such restrictions.

Whereas the Land Planning Act has not been concluded, The Wildlife Conservation Act provides that the establishment or extension of any national park, game reserve, forest reserve or controlled area, shall be within the framework of any national land use planning in force and shall be deemed to be for public interest. The Director General, after relevant consultations, may make regulations generally for the development, preservation, protection and management of wildlife and environmental resources and may make regulations concerning, inter alia,

- The proper administration, management and development of national parks, game reserves, forest reserves, controlled areas and other protected areas;
- The terms and conditions of any concessions to be granted under sections and the procedures to be followed in applying for and granting any such concessions;

The administration and execution of the policy shall be vested in the Secretariat of Wildlife Conservation Environment Protection and Tourism. The objective and functions of the Secretariat shall include:

- The conservation, management and administration of parks, controlled areas and other protected game reserves.

- The development, in cooperation with other competent authorities, of Tourism based on wildlife in the New Sudan and the development of other forms of rational utilization of the wildlife and environment resources;
- The promotion of Education and the dissemination of information about wildlife resources in the New Sudan, in cooperation with the competent authorities;
- The development and carrying out of research on wildlife and environmental resources with a view of their optimum preservation, conservation, management and protection
- The administration and enforcement of the provision of this Act and the attainment of its objectives.

2.10 The Forestry Commission Act, 2003

The Forest Commission Act establishes the Forestry Commission here in after referred to as “the Commission”. The Commission shall be responsible for the regulation, management and utilisation of forests and forestry resources of The New Sudan and the co-ordination of policies in relation to them. The Commission shall, among others:

- Advise on national policy and practices related to forests, forestry resources and associated economic activities;
- Make comprehensive database information on national forests and forestry resources for decision making by the relevant authorities.
- Recommend research and training priorities consistent with the national forestry policy;
- Collate, analyse and disseminate information of forests, forestry resources and associated resources;
- Publish journals and periodicals on research findings in the forestry sector;
- Educate the public on the effective and efficient utilisation of forests, forestry resources and matters concerning forests generally;
- Receive, assess and advise on the approval and implementation of investment proposals and projects involving forests and associated resources;
- Monitor and co-ordinate the operations of agencies charged with the implementation of the New Sudan policies on the management and utilisation of forests and forestry resources;
- Mo-operate and liaise with the national, regional and international organizations and agencies on matters of forests, conservation, utilization and environmental issues generally;
- Advise on land use and development affecting forests, forestry and associated resources;
- Advise the commissioner on matters concerning forests, forestry and associated resources; and
- Perform such other functions as are incidental to the specified functions.

According to this Act the Commissioner may in consultation with the appropriate authorities make rules and regulations on:

- Investment projects related to forestry and forest resources;
- The management, development and utilization of forestry resources;
- Forest conservation; and
- Any other matters as may be necessary to carry the provisions of this Act into effect.

The Ministry of Agriculture, Forestry, Tourism, Animal Resource, Cooperative and Fisheries (MAFTACF) has developed a forest policy framework in which management of forests and forest resources has been well stipulated. The Directorate of Forestry in the MAFTACF takes responsibility for effective management of National Forest Resources in a formalized

partnership with state Government and Local Communities. Thus the forest plantation and Reserves are protected and Managed as common by GOSS – MAFTARF as National Resources and Heritage.

2.11 The Wildlife Forces Act, 2003

The Act describes the duties and responsibilities of military forces deployed to protect wildlife and protected areas. The essence of this law is being implemented with the deployment of former game guards and ex-combatants as Wildlife Forces.

2.12 Wildlife Conservation and Protected Areas Bill, 2010

Currently, the MIWC is developing a Wildlife and Protected Area Policy, from which a new set of legislation will be developed to replace The Wildlife Conservation and National Parks Act, 2003. The purpose of this Bill is to cover all matters concerned with wildlife conservation, the establishment and management of Protected Areas and controlled areas and to preserve Southern Sudan's natural heritage including its unique wildlife. The Bill contains principles that introduces new concepts of: public participation, community-based conservation; participation of local and traditional leaders, cultural and social benefits for conserving wildlife resources; recognition of indigenous knowledge Wildlife Conservation and mitigation of human-wildlife conflicts wherever they occur

2.13 Draft Forestry Policy

The first draft of the new forestry policy was produced in June 2006 and has been under discussion since then. The policy is in line with best practice in sustainable forest management and is based on guiding principles that include sustainable development, poverty eradication, equity, and community involvement.

2.14 The Forestry Commission Act of 2003

This Act is among the Acts that were produced in 2003 with USAID support, yet stakeholders were not involved in the production, and it was not implemented. The *Forests Act of 1989* is the law that still governs the management and conservation of forests in Sudan. This law was produced by the north, and is not in line with the new policy in the south. A new Forestry Act will be required to implement Southern Sudan's new forestry policy.

2.15 The Mines and Quarries Act 1972

The GOSS is yet to develop a Mines and Quarries Act however currently the Mines and Quarries Act 1972 is operational and adopted by the government of South Sudan. According to this Act quarried material': means rock, stone (including limestone), gravel, sand and clay. 'Quarry': means any land, in, upon or under which operations are undertaken (whether by surface or opencast working or otherwise) for the getting of quarried material.

In the Act ownership of mineral resources and quarried material as lying in, upon or under land or under territorial waters or upon the continental shelf of the Republic of Sudan, is vested in the Government which shall have the exclusive right of prospecting for and getting such minerals. The Acts through the Mines and Quarries Board provides for issuing of Quarrying licence

authorising the holder to get quarried materials from a quarry as provided for in the licence and to sell them in accordance with the provisions of this Act or any other Act.

This particular project will involve extraction of gravel materials from quarries and borrow pits. A result clearance in the form of mining licences or leases from the GOSS - Ministry of Petroleum, Mining and Industry shall be issued to contractor.

2.16 Traffic Act

There are several provisions of the Act that are of direct relevance to all phases of the project, namely design, construction and operational phases. The following paragraphs summarize some relevant provisions

- No person shall drive or being the owner or the person in charge of vehicle, cause or permit any other person to drive a vehicle on a road at a speed higher than such speed as may be prescribed as the maximum speed for that class of vehicles.
- On a vehicle subject to a speed restriction under subsection (1), except a vehicle registered as a motor car or motor cycle, or a private hire vehicle there shall be painted or affixed to the rear as close as possible to the rear number plate and so as to be clearly legible, to a person within ten meters of the rear vehicle, a mark in the prescribed form indicating its maximum permitted speed in kilometres per hour.
- No person shall drive or being the owner or person in charge of the vehicle cause or permit any other person to drive any vehicle at a speed exceeding fifty kilometres per hour on any road within the boundaries of any village, town or city. Highway authority shall erect and maintain traffic signs to indicate to drivers entering or leaving such roads or areas where the fifty kilometres per hour speed limit restrictions begin and end.
- Notwithstanding the provisions of subsections (1) and (3) the Commissioner may:-
 - Impose on any road such lower speed limit as he considers necessary by reason of repairs, reconstruction or damage to the road or the condition of the road, for public safety or prevent damage to the road. Such lower speed limit shall be imposed only for such period as is necessary to carry out repairs or construction or until the condition of the road is satisfactory.
 - Impose on any road or area permanently or provisionally as he considers appropriate, such lower limit of speed as may be necessary to prevent damage to the road or for the safety of the public, having regard to any permanent or temporary hazards such as the alignment or characteristics of the road, the width of street, nature of traffic or general development of the area.

Section 57 of the Traffic Act highlights the Limitation of Loads that vehicles are to carry along the road. No vehicle shall be used on a road with a load higher than the load specified by the manufacturer of the chassis of the vehicle or the load capacity determined by the inspector under this Act. No vehicle shall be used on a road if it is loaded in such a manner as to make it a danger to other persons using the road, a person travelling on the vehicle, and should any load or part of it fall from any vehicle on to a road, that shall be prima facie evidence that the vehicle was loaded in a dangerous manner, until the contrary is proved to the satisfaction of the Court. For the purposes of this Section a person travelling on a vehicle shall be deemed to be part of the load.

Section 74 of the Traffic Act highlights the procedures for the Closure of Roads. It states that the highway authority or its authorized representative may for public interest, close the whole or part of such a road to all vehicles or any particular type of vehicles at any time for any period it thinks fit. No driver, or person in charge of any vehicle shall drive or haul the vehicle or cause it to be driven or hauled over a bridge or any portion of a road which is closed to traffic and where a conspicuous notice is displayed to the effect that the road is closed, unless he has a written permission from the highway authority.

Section 75 of the Traffic Act highlights the procedures to follow in case there is an Injury to Bridges and Roads. The Act states that if any injury is caused to a bridge or road due to any contravention of this Act, the highway authority shall repair the road or bridge and recover the cost from the owner of the vehicle and the certificate of the highway authority, of the cost of repair, shall be conclusive evidence of the amount payable by such owner.

2.17 International Conventions and Treaties

In carrying out an EIA, there are other important sectoral laws that must be considered in identifying environmental impacts and their mitigation. The Environmental Health and the Public Health Acts of 1975 provide regulations and restrictions for industries regarding the control of water and air pollution (standards). According to these Acts, protection obligations extend to cover animal and plant life. Specifically, the Acts cover the collection, treatment and disposal of waste and prohibit water pollution by addition of any solid or liquid wastes, chemicals, sewage and remains of animals to water bodies such as rivers, hafirs, and wetlands. The Electricity Act (2001) provides regulations covering environmental protection standards. Article 9 of the Act requires that any developer (investor) must comply with existing laws regarding roads, watercourses, communication network, environmental issues and archaeological sites. Article 13 notes that environmental standards must be taken into consideration when establishing power plants. Article 17 requires compensation to any damage that the project may cause to life and property.

In addition to national environmental legislations, the regional and international conventions and protocols on environment that might be applicable to be party include:

- **Biological Diversity Convention.**
 - The Convention on Biological Diversity has three goals. These are: the conservation of biodiversity; the sustainable use of the components of biodiversity; and the fair and equitable sharing of the benefits arising from the use of genetic resources.
- **The United Nations Convention to Combat Desertification(CCD)**
 - The objective of the Convention is to combat desertification and mitigate the effects of droughts in countries experiencing serious drought and/or desertification, particularly in Africa.
- **United Nations Framework on Climate Change.**
 - This convention takes into account the fact that climate change has trans-boundary impacts. The basic objective of this convention is to provide for agreed limits on the release of greenhouse gases into the atmosphere so as to prevent the occurrence of climate change. It also aims to prepare countries to minimize the impact of climate change should it occur.
- **Bamako Convention on Tran’s boundary Movement of Hazardous Waste.**
 - The Bamako Convention of 1991 plays a similar role at the level of the African continent.
- **Vienna Convention (ozone layer depletion).**
 - The basic objective of the Convention is to combat the negative impact on the environment and human beings resulting from ozone depleting substances by reducing the amounts released and eventually banning their commercial use

through internationally agreed measures. The Montreal Protocol entered into force in 1989 to facilitate the implementation of the Convention.

- **The Basel Convention**
 - The objective of the Basel Convention is to control and regulate the trans-boundary movement of hazardous wastes.
- **The Stockholm Convention**
 - The Stockholm Convention on Persistent Organic Pollutants by proclamation No. 279/2002 designed to ban the use of Persistent Organic Pollutants (POP).
- **The Rotterdam Convention**
 - This Rotterdam Convention on Prior Informed Consent (PIC) relates to prior informed consent in the context of international trade in specific hazardous chemicals and pesticides

2.18 Institutional Arrangements

The MoE is the key ministry regarding EIA and works hand in hand with MTRB to ensure that environmental standards are achieved when implementing the road projects.

The institutions at National and State Levels responsible for the implementation and monitoring compliance to both national and international agreements include:

- Council of Ministers;
- County Land Authority;
- Local government at the County level.
- Ministry of Interior and Wildlife Conservation (MIWC);
- Ministry of Petroleum, Mining and Industry
- National and State Land Commissions;
- Payam Land Council.
- State Land Administration and Authority;
- State Ministries of Health, Industry and Agriculture; and,
- Directorate of Environment.

The environmental acts and laws provide standards to be applied in assessing the probable environmental impacts of the project. State Organs and Local laws deal with issues at State or Local levels, while the Federal Acts are more concerned with general directives and set limits and standards for environmental protection without going into details at the local level. Based on the provisions of these legal requirements and sectoral laws as well as policies of different departments, the impacts of the proposed projects are to be assessed and appropriate mitigation measures recommended.

EIA is a requirement for the most projects in South Sudan. Currently, EIAs are being undertaken for most projects, especially those funded by international organizations and agencies. In most cases, EIA is being conducted by prominent local and international consulting firms and submitted to the ME for approval. At the ministerial level, only the Ministry of Transport, Roads and Bridges has established an Environmental Unit with guidelines for environmental protection.

Beside the government institutions responsible for environmental management and land issues, there are also local institutions that play important roles in environmental management and land institutions at local level. In the environmental field, such local institutions can play important roles in sanitation and garbage collection beside taking part in mobilization of local communities and providing direct links to the locality for any issues related to village affairs.

Table 2: Institutional Arrangements in land related Decision Making

Institutions	Mandate
National Level Directorate of Environment South Sudan National Lands Commission	<ul style="list-style-type: none"> ● Environmental Policies / Plans ● Guidelines ● Approves EIAs ● Sign International Conventions ● Monitoring(as independent agent/entity)
At State Level State Ministries- Ministry of Physical Infrastructure Lands and Public Utility State –Lands Commission	<ul style="list-style-type: none"> ● Implement State Policies ● Implement Sectoral Laws (National or State Laws) ● Approval of development activities
At Local Level Counties and Payam Popular Committees/Village Committees headed by Sub chief; rainmakers; opinion leaders; land lords, women and youth representatives CBOs and NGOs	<ul style="list-style-type: none"> ● Implement local orders on Public Health ● Implement local orders on locality natural resources ● Implement State Laws ● Approval of projects at Locality Level ● Implement local orders ● Mobilize local communities ● Submit requests for development activities

3.0 PROJECT SOCIO-ECONOMIC BASELINE CONDITIONS

The proposed road project falls within four counties namely the Juba County, Torit County, Kapoeta County and Narus County. There are over sixteen dotted settlements known as Payams or Bomas situated linearly along the project road. The road project is principally within one state, Eastern Equatorial State with just about a third of the initial alignment located within the Central Equatoria.

3.1 Population and Demographic Characteristics

The 2008 South Sudan census figures have not yet been released and hence the census figures for the study area cannot be estimated. From the sampled households, there are on the average 5 persons per household Table 8. Lyangari Boma had the highest fertility rate with an average household size of 6.7 with Town having the least average household size of 1.5. The household size is low in Torit town because most residents are business persons whom majority were still youth and single.

3.2 Historic and Cultural Resources

The cultures of South Sudanese are basically alike, and it is true that there are basic elements of culture common to many of the societies in the region.

The people of South Sudan have been classified and re-classified by scholars depending on a number of criteria. The most common criterion used by the majority of scholars has been cultural and linguistic features. According to cultural and linguistic similarities, there are three broad groups of people in south Sudan:

- The Nilotics; the main groups include the Dinka, Nuer, Shilluk, Luo of Bahr el Ghazal, the Acholi, Lango, and the Pari of Lafon, (and probably parts of the Mundari).
- The Nilo-Hamites; the main groups include the Bari-speaking, the Lotuko, Lopit, Lokoya, Anuak-Murle-Didinga-Toposa groups,
- The Sudanic, the main groups include the Zande, Muru-Madi, Baka, Mundu, Avokaya, Makraka, Bongo-Baka-Bagirmi-Balanda

Most scholars until about mid-1950s used this classification, when a new classification of the above groups was adopted, which was:

- The Central Southerners; (in place of Nilotics)
- The Eastern Southerners, (in place of the Nilo-Hamites);
- Western Southerners, (in place of the Sudanic groups).

A new classification was adopted for the two groups, which were Nilotics and Para-Nilotics, suggesting that the groups of South Sudan were closely related, especially with regards to language and some cultural characteristics. Despite the language and cultural characteristics the people of the South Sudan is still assign the classification as the Nilotics and Para-Nilotics.

The term Nilotics or Nilotes is sometimes used indiscriminately to describe all the people south of the Sudan Arabs and living near the Nile or its tributaries. But the term is now used more precisely to cover a group of people who display certain similarities of cultures, means of livelihood, physical type, and in particular language. They are now found widely spread out in South Sudan, Uganda, Kenya and Tanzania. The Nilotics and Nilo-Hamites groups have other common characteristics, and one of the most important is animal husbandry. Moreover, some of the words are very common to the majority of the people in these groups.

There are about 200 tribal groups in South Sudan. The distribution of these groups corresponds very closely with the physical geographical classification shown above. The Nilotics groups are generally found in the Central and Flood zones of the Nile, while the Nilo-Hamites and the Sudanic groups are concentrated in the Equatoria zone. The project road crosses six counties (Juba, Torit, Kapoeta North, Kapoeta South, Budi and Ikotos) with a total population 838,555. The Counties are inhabited by Toposa, Buya, Langi, Lotuka, Lukoya and Bari communities.

S.No	County	Tribe	Male	Female	Total
1.	Ikotos		42,106 (50%)	42,543 (50%)	84,649
2.	Budi County	Buya	50,103 (51%)	49,096 (49%)	99,199
3.	Kapoeta South County	Toposa	42,402 (53%)	37,068 (47%)	79,470
4.	Kapoeta East County		53,269 (52%)	49,815 (48%)	103,084
5.	Torit	Lotuka Lukoya	50,644 (51%)	49,096 (49%)	99,740
6.	Juba	Lukoya Bari Lulubo	205,674 (55%)	166,739 (45%)	372,413

Toposa

The Toposa people are an ethnic group living in the Greater Kapoeta region of the Eastern Equatoria State. Predominantly they are mainly traditional herders and belong to the "eteker cluster", who migrated from the Jie, Dodoth, and Karamojong people of Uganda, to reside in the They are currently found in the Kapoeta East, Kapoeta South and Kapoeta North counties, residing in Kapoeta, Riwoto, Narus, Kauto, Naita, Mogos, Lamurnyang and Karukomuge. These communities are located along the road corridor.

Cattle rustling and competition over the scarce resources of water and pasture has strained the relations between the Toposa and their neighbors

The Toposa society is organised into agnatic lineages of which the family form the small unit. Their social values and customs are passed onto the children as early as possible despite them not allowed to attend communal meetings and decision making in the clans. They are taught how to herd their livestock (boys) and look after the home, the farms and to care for the elderly and children (girls).

Since they mainly reside very far away from the proposed road project, the project is expected to have minimal impacts on them. However provision has been catered for in the design to provide cattle crossing points with adequate speed calming and safety measures. The selection of the crossing sites were selected by the communities as part of the consultation process.

Buya

The Boya (called *Larim* and *Langorim* by the Didinga people) are an ethnic group living in Budi County of Eastern Equatoria State. They believe they originated from Ethiopia. The language of the Boya is the Nilo-Hamites Narim language, related to that of the Didinga, Tenet and Murle in South Sudan and the Pokot in Kenya. They mostly live in dispersed settlements but they come together for collective decision making with on matters like to land issues their location lies north of Didinga Hills, east of Kidepo valley and the Lopit Hills. The main towns of the Boya are Kimatong at the foot of the Boya Hills Their area is a rugged and hilly terrain with few shrub

covered outcrops lying between the Kidepo valley to the west and the Singaita river valley to the east. The vegetation is that of rich savannah with high grassland and thick shrubby bushes. It is drained by seasonal streams that flow eastwards into Singaita and westwards into Kidepo. They are agro-pastoralist. While they engage in cultivation of food crops like sorghum, maize, and beans, the bulk of their socio-economic activities rest on livestock herding and hunting of game and fishing. Livestock is the only known natural resource in the area and are always used as a medium of exchange. Although they were very excited and supportive of the road upgrading project, vehicular – livestock accidents and conflicts are the major concerns that came up during the consultation process. The SA team assured them of adequate speed calming and safety measures. The also indicated their preferred cattle and livestock crossing points which have been incorporated in the design.

Lotuka

The Lotuhu people sometimes called ‘Otuho (Otuko)’ live in settlements (villages) including Iliu, Khiyala, Lobira, Torit, Kudo and many others located along the road corridor. The Lotuka neighbour the Lopit and Pari to the north, Lokoya and Lulubo to the northwest; Acholi to the south and Logir and Dongotono to the southeast; and the Didinga and Boya to the east. The Lotuka have been known to be anti-foreigners who came to rule over them. The influx of road construction workers whose activities are temporary and is not in competition with them is not regarded as foreign. Through the consultation process, they explained that their definition of foreigners is people who come to settle and compete with them.

They therefore indicated that the road construction workforce shall therefore not be considered as foreigners. They are agro-pastoralists who are known to keep large herds of cattle, sheep and goats and engage in subsistence agriculture growing sorghum, ground nuts, sesame, and maize in the plains, while in the hill they grow millet, dukhn, sweet potatoes (a kind of yam), and tobacco.

Generally, they subscribe to a traditional governance system which combines spiritual, political, and administrative and justice authority. The most spectacular development in the Lotuka land is the long running war. The Lutuka being both pastoral and agricultural communities; felt that the road will make their communities more accessible/vulnerable to cattle raiders which will interfere with their safety and security; Through consultation meeting the SA team enlightened the communities on benefits of the project economically; socially and politically hence made to understand clearly that project would improve the road condition hence security situation will be enforced.

Lukoya

Lokoya people are found in Torit and Juba Counties of Both Eastern and central Equatoria States. They are considered as Lotuhu sub-ethnic – ohoryok group. The main towns of the Lokoya are Kudo, Liria and Ngangala. The Lokoya neighbour and interact with Bari and Lulubo to the west, Acholi to the south, Lotuka and Lopit to the east, and Pari to the north. It's believed that the Lokoya came from East Africa along with the wave of migrations that brought in the Bari, Lotuka and the other ohoryok groups to their present respective lands. They speak virtually a dialect of the Lotuko .The Lukoya lives in hilly terrain dissected by valleys and season streams covered with thick vegetation of grass, trees and shrubs. The Lokoya are agro-pastoralists; they herd cattle, sheep and goats and engage in subsistence agriculture. The cultivation of sorghum, maize, simsim, groundnuts and millets is authorised by the chief priest of the soil (ohiribo) at the

beginning of each rainy season. The Lokoya also engage in extensive hunting practices as a socio-economic activity that must be authorised by the chief of the land and mountains (ohobulahadule) at the beginning of the dry season. The hunting practise will not impact negatively by upgrading of the road since they hunt very far away from the proposed road project. The Sudan and South Sudan war was the most spectacular development that adversely affected the Lokoya society as well as the modernity with all its negative aspects like the erosion of social and cultural values. There was massive burning of villages, displacement and movement into towns and refugee camps across international borders. The project will have no negative impact on the social and cultural values (since there will be no displacement) of the tribes hence there will be no disagreements /fighting among the tribal groups. Adequate compensation shall be paid and the relocation, if any shall be within the same settlements.

Lulubo

The people call themselves Olu'bo but they are recognized by their cousins and neighbors the Madi as Lulubo which translates as 'people who are far.'" They are found in Lomega and Nhuelere Payam of Juba County in Central Equatoria. Their neighbors include the Lokoya, to the north-east, Bari to west, Madi and Acholi to the south and Lotuka to the east and southeast. The Lulubo speak Olu'bo thi which belong to the Sudanic group and is very close to the Moro, Avokaya, Lugbwara, Madi and Keliko.

According to the Lulubo oral tradition Lulubo, Moru, Avokaya, Madi, Lugbwara, Logo and Keliko nationalities were one and the same people and lived in the same region. However, they had perpetual feuds with the Azande. The Azande King Gbudwe pushed them on to the top of the mountain. From there they rolled down big stones onto the Azande army killing thousands. Then the Azande decided to set ablaze the mountain forcing these people to flee to safety.

The Lulubo territory is hilly for which Lulubo hills derive its name. The vegetation consists mainly of huge trees intercalated with shrubs and tall grass (savannah). It is extremely wet during the rainy season and hot during the dry spell.

The Lulubo economy is agrarian based and they cultivate crops like sorghum, simsim, sweet potatoes, groundnuts, millet, cassava and maize. The area is infested with tsetse fly and that has rendered cattle herding impossible. However, they keep large herds of goats, sheep and fowl and also engage in honey collection and extract edible oil from the shea nuts of which they trade with their neighbours. They also engage in hunting game like elephants, buffaloes, wild pigs, bush rats and the road construction project will have no negative impacts on the hunting practise since hunting grounds are far from the vicinity of the project right of way Since the emerge of Christianity; the Lulubo have transformed to modernity civilization and the society has been transformed .The Lulubo area has a huge potential in mahogany trees, bamboos etc. The following minerals: gold, chromites and lead-zinc have been discovered in the area.

The Lulubo society although completely distinct from their neighbours the Bari and Lotuka, is heavily influenced by these neighbouring communities. Some of their social and cultural practices are similar to those of Lotuka. This include maintaining a centralised socio-political set up although the age-set system has become an important factor in socio-political management of

the Lulubo society but unlike the Lotuka, the elders retain their power as the main decision-makers on community concerns.

3.3 Socio Economic Baseline Results and Discussions

Social Environment

The project road crosses six counties (Juba, Torit, Kapoeta North, Kapoeta South, Budi and Ikotos) with a total population 838,555. There are over sixteen dotted settlements known as Payams or Bomas situated linearly along the project road. The road project is principally within one state, Eastern Equatorial State. The Counties are inhabited by Toposa, Buya, Langi, Lotuka, Lukoya and Bari communities. The area is largely dominated by the pastoral communities—Toposa, Buya and Lotuka with few small scale subsistence farmers growing mainly sorghum.

Table 2 below shows the professional /economic status of affected Communities;

Tribe	Ethnic Group	Location /Town	Profession/Economic Status
Buya	Nilo- Hamites	Budi County-Loriyok	Grazing
Toposa	Nilo -Hamites	Kapoeta South; North – Nadapal ;Narus - Napotpot; Korip;	hunting game for meat
Langi	Nilo -Hamites	Ikwotos-Lobira	Subsistence Farming; Hunting game meat
Lotuka	Nilo- Hamites	New Kenya;Kiyala;	Subsistence Farming; Hunting game meat
	Nilo -Hamites	Narus ;Torit	Administrative officers ;Shop keeping
Lukoya	Niltics	Kudo;Lyangari;Nhuelere	Subsistence Farming; Hunting game meat; Charcoal burning shop keeping; Grass selling

Religion

The inhabitants of the project region practices three religions. The religions include Christianity, Islam and African Traditional Religion. Nearly 30% of the households from Juba to Torit are Christian, over 50% are traditionalists and very few are Muslims. From Torit to Nadapal, over 80% of the household are Christians with very few the pockets of Muslims and Traditionalists. Of the Christians, over 70% were Catholics.

Population and Demographic Characteristics

The 2008 South Sudan census figures have not yet been released and hence the census figures for the study area cannot be estimated. From the sampled households, there are on the average 5 persons per household Table 9. Lyangari Boma had the highest fertility rate with an average household size of 6.7 with Torit town having the least average household size of 1.5. The household size is low in Torit town because most residents are business person's majority of whom are still youth and single.

Although gender composition of the sampled households is on average balanced, Torit town and Lopiri Boma had very skewed gender distribution with males recording 79.59% and 33.33% respectively. Most residents of Torit town are business persons and government workers who

are either single or had their wives and children staying in the rural areas. Lopiri Boma had the reverse experience of Torit town. Most of the male members of the households had migrated to the nearby towns and trading centres for wage employment or businesses living behind women in the villages to work on farms and graze livestock. The women offer better labour services on projects compared to the men; this is based on the experience from the 100% participation of women in some community intervention project component in Roads maintenance (SSRMP)

Table 3: Population of Project Area

County	Male	Female	Total
Juba	205,674 (55%)	166,739 (45%)	372,413
Torit	50,644 (51%)	49,096 (49%)	99,740
Kapoeta North	53,269 (52%)	49,815 (48%)	103,084
Kapoeta South	42,402 (53%)	37,068 (47%)	79,470
Budi	50,103 (51%)	49,096 (49%)	99,199
Ikotos	42,106 (50%)	42,543 (50%)	84,649
Total	444,198 (53%)	394,357 (47%)	838,555

Source: Census Report 2008

Table 4: Summary Statistics of Demographic Characteristics of the Sampled Household

Boma	Average household size	Gender Composition of Households		Male Headed Households	Average Years of formal education
		Male	Female		
Ebalanyi	4.5	51%	49%	67%	2.5
Gikokwe	4.6	54.17%	45.83%	70%	2.8
Khiyala	5.7	50.42%	49.58%	50%	0.6
Korjip	6.3	47.93%	52.07%	68%	2.8
Kudo	6.3	43.39%	56.61%	84%	1.9
Liria	2.7	64.92%	35.08%	100%	1.5
Lobira	6	45.46%	54.54%	80%	1.2
Lopiri	4.3	33.33%	66.67%	66%	4.6
Lyangari	6.7	42.76%	57.24%	66%	4.2
Napotpot	3.7	65.28%	34.72	100%	2.1
Narus	5.7	55.65%	44.35%	100%	3.6
New Kenya	5.5	52.93%	47.08%	50%	3.5
Nhuelere	6	51.36%	48.64%	100%	2.5
Obule	5.3	50.56%	49.44%	100%	0.6
Olere	6.3	53.57%	46.43%	80%	3.2
Torit town	1.5	79.59%	20.41%	90%	1.4

Source: Field Data

3.4 Demographic Profile and of Population Distribution of Project-Affected Peoples in the Road Corridor

The project affected households survey registered and counted the households within the proposed project road corridor. The demographic variables that were considered included: Population distribution by sex; Household Size; Education status of the household head; Primary occupation of the household head; Household expenditure patterns; and Household sources of income. The census of PAPs revealed that a total of 180 households with a total population of

1218 will be adversely affected by the project. Of the affected population, 50.5% were male and 95.5 % female. The average household size was found to be 6.76 persons. The population composition of affected household is presented Table 10 below.

Table 5: Population Distribution of Project Affected Household

Payam	Total HH	Male	Female	Total	Average HH Size
Ngony	49	181 (56%)	144 (44%)	325	6.7
Loriyok	81	250 (48%)	274(52%)	524	6.4
Liria	8	26(59%)	18(41%)	44	6.2
Narus	33	123(46%)	144 (53%)	267	8.1
Khiyala	9	35(60%)	23 (40%)	58	6.4
Total	180	615 (50.5%)	603 (49.5%)	1218	6.76

Source: Field Study, 2010

3.5 Social Infrastructure

Most of the Payams dotted along the project road lack basic social infrastructures such as accessible roads, electricity public and private hospitals, dispensaries hotels and gas station. The entire project area further lacks a dedicated transport system, residents using public transport to travel for more than two days to cover distances of more than 100 kilometres.

Education There is very limited number of schools in the project area and this explains why over 70% of the respondents had no education with the rest having very few years of formal schooling. As shown in the Table 9 above, Lopiri Boma households had the highest average schooling years of 4.6 years which by even the East and Central African Standard is very low. Obule and Khiyala Boma had most of its residents with no education at all. The low figures of years of schooling in the project area is due to the over twenty years of war which adversely affected education. The few who had primary and secondary education revealed that they got their education from Uganda, Kenya and Khartoum. It was only Kudo and Torit town that had new permanent buildings for primary schools the rest with temporary structures or children being taught under trees. The project area has only one secondary school situated in Torit town.

The average schooling years for the PAPs is 1.64 years. Among the PAPs, 86 percent have no education while only 10 percent have secondary education. The literacy status of female PAPs is worse as their average schooling years is 1.3 years. The low literacy levels are as a result of the project area being a “war zone” during the 20 years civil war and were exposed to frequent displacements with majority of the school going ages joining the army. The low literacy rate means that approximately 86 percent of the PAPs cannot read and write thus will likely affected the understanding of issues pertaining to land acquisition impacts. The RAP was prepared with consultation made in the local dialects to all PAPs on the basis of computing the compensation among others. The RAP has made provision for public for and consultation prior to its implementation. The Payam and Boma representatives of the RAP implementation Committee shall also explain the translated summary of the RAP to the uneducated PAPs. Table 11 provided the education status of the PAPs.

Table 6: Education Status of PAPs

Payam	Total PAPs	Average Schooling Years	Average Female PAPs Schooling Years
Ngony	325	2.76	2.4
Loriyok	524	0.99	0.45
Liria	267	2.48	0
Narus	58	1.52	0.51
Khiyala	44	0.95	0
Total	1218	1.64	1.3

Water

Most of respondents depend on boreholes for water supply. Communal boreholes were constructed by NGOs operating along the project road and are being maintained by the communities benefiting from them. Most respondents however complained that borehole water was not enough for both domestic and livestock need. There is provision for public facilities such as water supply will be provided for by the project for those who choose to resettle far from their original village where they had water supply.

Electricity

Individually owned diesel generators provide most of the electricity requirements to businesses along the project area. It is only in Torit town where the county government supply residents with electricity but is limited to between 6.00 PM to midnight. Most of the households use lantern lamps and candles for lighting their houses.

Roads

Before the improvement of Nadapal - Juba road to all season's road, most of the areas in the Eastern Equatoria were highly inaccessible. There are virtually no good roads feeding into the proposed road project. Over 90 percent of the respondents cited poor roads as a big obstacle to development and therefore the upgrading of this road to bitumen standard will be a big boost to economic development in the entire South Sudan.

Transportation

The transport system within the project area is very chaotic with majority of passengers relying on trucks from Kenya, few ill suited 14 seater small cars, motorcycles (Senkes Plate 13) and bicycles. A majority of the respondents indicated that most of the time they are unable to travel to other areas served by the road either due to lack of public transport or it being extremely expensive. The upgrading of the road is expected by many respondents to transform the transport system within the region into a modern transport industry which is expected to grow rapidly, improving comfort for travellers, and reducing travel time and costs.



Plate 5: A Man Using Motorcycle Transport (Senke)

3.6 Economic Environment

Occupational Distribution of the Respondents

The primary occupations of the residents within the project area are farming, trading and grazing. As shown in Table 12 farming activities on average account for 63.54% of the recorded economic activities. Trading which included shop keeping, hotel business, and charcoal burning for sale, selling of grass, alcohol brewing for sale, and hunting game meat for sale account for only 16.67% of economic activities with the project area. Grazing as an economic activity accounted for only 3.13% as Khiyala and Napotpot were the only Bomas with large livestock along the project road. Government employees accounted for 7.29% and were mainly Payam administrators. Torit town and Narus towns being administrative centres had largest concentration of Public servants which accounted for 33.33% of the occupational activities.

Farming activities in the project area is on a small scale and in most cases below the subsistence level; most households lacked enough food stock to last them up to the next harvest period. Most of the youth in the project region are engaged in raiding and stealing of livestock from other neighbouring communities as well as hunting and selling game meat as their major income generating activities. The road project is expected to improve the marketing of the sales of the game from the hunters. Most respondents cited that lack of gainful employment opportunities for the youth is the major cause of insecurity along the project road. The road upgrading is expected to employ the local youth and train them to become skilled labour thereby reducing the insecurity drastically.

Table 7: Occupation Structure of Respondents

Ethnic Group	Boma	Farming	Grazing	Trading	Public servant
Lotuka's	Ebalanyi	50.00%	33.33%	16.67%	0.00%
Lutuka-(Nilo Hamites)	Gikokwe	83.33%	16.67%	0.00%	0.00%
Lutuka-(Nilo Hamites)	Khiyala	16.67%	50%	33.33%	0.00%
Toposa-(Nilo Hamites)	Korjip	50.00%	0.00%	33.33%	0.00%
Lukoya/Lulubo-(Nilo-Hamites)	Kudo	33.33%	0.00%	16.67%	50.00%
Bari-(Nilo Hamites)	Liria	66.67%	0.00%	16.67%	16.67%
Lutuka-(Nilo Hamites)	Lobira	66.67%	0.00%	16.67%	16.67%
Lukoya-Nilo-Hamites)	Lopiri	83.33%	0.00%	0.00%	16.67%
Lulubo/Lukoya-(Nilo Hamites)	Lyangari	66.67%	0.00%	33.33%	0.00%
Toposa(Nilo Hamites)	Napotpot	33.33%	50.00%	16.67%	0.00%
Toposa(Nilo Hamites)	Narus	16.67%	0.00%	50.00%	33.33%
Lutuka(Nilo-Hamites)	New Kenya	50.00%	0.00%	50.00%	0.00%
Lotuko-(Nilo-	Nhuelere	100.00%	0.00%	0.00%	0.00%

Hamites)						
Lutuka	–(Nilo-	Obule	100.00%	0.00%	0.00%	0.00%
Hamites)						
Lutuka-Nilo	–	Olere	83.33%	0.00%	0.00%	16.67%
Hamites)						
Lutuka	(Nilo	–	Torit	0.00%	0.00%	66.67%
Hamites)						
		Project Area	63.54%	3.13%	16.67%	7.29%

Source: Field Data

3.7 Income Distribution of the Respondents

The minimum income among most respondents was below 1000 Sudanese Pounds. Table 13 below should be taken cautiously as the project area had several economic activities such as farming, hunting and livestock keeping which are always treated as non-cash items and as such could have led to an underestimation of incomes in the project area. Overall, the income distribution among the sampled households reflect high levels of poverty with over 35% of the respondents reporting incomes below 1000 Sudanese Pounds a year. Lopiri and Olere households are the most poor with over 66% of the households living in chronic poverty. High levels of income were reported in Torit and Liria towns. This could be explained by the fact the two towns are the major business centres along the proposed road project.

Table 8: Estimated Annual Income Distribution of Respondents

Income (SSP) Boma	Below 1000	1001 - 2000	2001 - 3000	3001 - 4000	4001 - 5000	5001 - 6000	6001 - 7000	8000 - 10,000	10,000 - 15,000	above 15,000
Ebalanyi	33.33%	16.67%	16.67%	0.00%	0.00%	16.67%	0.00%	16.67%	0.00%	0.00%
Gikokwe	33.33%	0.00%	16.67%	16.67%	0.00%	16.67%	0.00%	16.67%	0.00%	0.00%
Khiyala	33.33%	33.33%	16.67%	0.00%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%
Korjip	33.33%	16.67%	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	16.67%
Kudo	16.67%	33.33%	16.67%	16.67%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%
Liria	16.67%	16.67%	0.00%	0.00%	0.00%	0.00%	16.67%	0.00%	16.67%	33.33%
Lobira	16.67%	16.67%	16.67%	0.00%	0.00%	33.33%	0.00%	0.00%	16.67%	0.00%
Lopiri	66.67%	16.67%	0.00%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%
Lyangari	50.00%	16.67%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Napotpot	33.33%	0.00%	16.67%	16.67%	0.00%	0.00%	0.00%	0.00%	16.67%	16.67%
Narus	50.00%	0.00%	0.00%	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%	16.67%
New Kenya	16.67%	0.00%	33.33%	16.67%	0.00%	0.00%	0.00%	0.00%	16.67%	16.67%
Nhuelere	50.00%	0.00%	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%	16.67%	0.00%
Obule	50.00%	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	16.67%
Olere	66.67%	0.00%	16.67%	0.00%	0.00%	0.00%	0.00%	16.67%	0.00%	0.00%
Torit	0.00%	0.00%	0.00%	0.00%	0.00%	16.67%	16.67%	16.67%	33.33%	16.67%
Project Area	35.42%	11.46%	12.50%	7.29%	1.04%	8.33%	4.17%	4.17%	7.29%	8.33%

Source: Field Data

3.8 Agro-Ecological Zonation within South Sudan

Up until quite recently, descriptions of the ecology and environment of South Sudan had to be cobbled together from older documentation, much of it citing earlier works which may no longer be entirely valid or which contained unverified data and information. The “livelihood” paradigm is also well suited to this type of social analysis. It is predicated on the notion that planning and development interventions need to take into account both the physical environment and how people use it to derive their livelihoods. It thus mirrors the environmental assessment technique of considering both direct impacts on the physical environment as well as the indirect socio-environmental impacts of a given activity. The livelihoods paradigm is also useful in that an understanding of it can serve to highlight how adverse impacts from the activities being assessed can affect how people cope with hardships inherent to where they live or how they survive from year to year. Conversely, it is the livelihoods approach that also aids in an understanding of how the intervention being considered in this case of up grading Nadapal – Juba road actually benefits local people.

According to this report, South Sudan may be divided up into seven broad “Livelihood Zones” shown in Annex 16 and Table 3.

Table 9: Rural Livelihood Zones of South Sudan

In summary, these “Livelihood Zones” are described as follows:

Zone	Description
Greenbelt Zone	Households in the wetter south-western areas of the Greenbelt Zone rely almost exclusively on agriculture to meet their food needs. Here, surplus production is common and households cope with dry years by increasing their dependence on root crops and exchange.
Arid Zone	In the Arid Zone, which occupies the south-eastern tip of the country, households practice a nearly pure form of pastoralism and there is almost exclusive reliance on livestock and livestock trade for food. Seasonal migrations in search of both water and pasture provide opportunities for substantial trade and exchange with neighbouring communities.
Hills and Mountains Zone	The Hills and Mountains Zone falls somewhere between these two extremes (agriculture and pastoralism) with reliance on cattle, trade and root crops increased in difficult years.
Western and Eastern Flood Plain Zones	In the Western Flood Plain Zone, livestock and agriculture, supplemented by fish and wild foods, are the main food sources. Similar food sources are available in the Eastern Flood Plains Zone, but with an additional option of game hunting.
Ironstone Plateau	Households in the Ironstone Plateau Zone are heavily dependent on crop production and are well placed to access surpluses in the neighbouring Greenbelt.
Nile and Sobat Rivers Zone	Apart from crops and livestock, wild foods and fish contribute significantly in the Nile and Sobat Rivers Zone. Fish and wild foods are collected in varying quantities depending on the season and the location

Source: SSCSE 2006.

Forests and Forestry development in Eastern Equatoria State is vital in modification of the climate within this region since it acts as a water catchment for River Nile. The state has

woodland dominated by Acacia Senegal with substantial Gum Africa production potential. The state comprise of eight counties Budi, Ikotos, Kapoeta East, Kapoeta South, Kapoeta North, Lopa , Magwi and Torit in which the project is located.

The economic land use in the project area is farming during the rainy season and grazing. The settlements are dotted and crowded together with a small and large Boma consisting of 20 and over 50 households respectively. Some of the large settlements were provided primary schools and dispensaries by UNICEF. The main sources of water for domestic use are boreholes. These boreholes are constructed by NGOs operating in these settlements and provide clean and suitable water for the community. The project area covering up to Torit from Juba had several Mango trees linearly dotted barely five meters along the project road. These mango trees are countless and are, surprisingly a very important source of livelihood of the local communities.

The mango are harvested and sold in the local markets and also to outside markets within the region. The mango trees were not planted by the current residence in these communities and the ownership arrangement is communal with all the members having the harvesting rights. An estimated 80% of the mango trees are within 20 m of the present road centre line and are thus targets for felling during construction. The road has been design (realigned) to avoid the cutting down of any of mango trees.



Plate 6: Trees along a Section of the Proposed Project Road in Torit Town

Farming System

The farming system in the project area is rotation with multiple crops which includes sorghum, maize, cassava, groundnuts, peas, simsim and beans. The long spell of war in South Sudan was concentrated in the region covered by the proposed road project and this greatly affected agricultural production. The landmines and explosives planted during the war have forced local households to maintain a minimum subsistence level of agricultural production in this vast area with extremely high production potential Plate 15.



Plate 7: Farm at Gikokwe with Several Ammunitions Buried Underground along the Proposed Road

Although the current road condition makes it difficult for the farm produce to access markets, the upgrading project road to asphaltic concrete standard has compelled the GRSS with the assistance from the UN agency to currently carrying out demining exercise in the entire South Sudan country; they are also de-mining within 26m of the Right Of Way-ROW of the existing road from Juba to Nadapal The demining is currently on going along the entire stretch of road. Most of farm labor is communal in nature and Boma member's draw work schedules on all the farms owned by households. The household whose farm is worked on has to provide food and drinks as compensation to the workers. The Plate 16 below gives a picture on communal labor system.



Plate 8: Communal Work on a Farm in New Kenya along the Road Project

The farms are relatively small and over 60 percent of the sampled households owned average farm size below 0.25 ha as shown in Table 14. The smallest farms are found in Obule, Narus and Napotpot. These Bomas consists of households that are mainly pastoralists. Medium farms are relatively few and were found in Gikokwe and Olere. The residents who originally feared that most landmines are still buried on the ground and hence cannot risk by expending their farms away from the existing road have been sensitized by the MTRB, Torit State and UN demining agencies of such fears. The UN is currently undertaking demining exercises in South Sudan and has declared the Juba – Nadapal road and its environs free of any mines. The sensitization of communities on the demining is still on-going.

Table 10: Household Farm Size

Boma	Below Ha	0.25 Ha	0.25 - 1 Ha	1.1 – 2.0 Ha	Over 2.0 Ha
Ebalanyi	50.00%	50.00%		0.00%	0.00%
Gikokwe	33.33%	16.67%		16.67%	33.33%
Khiyala	66.67%	16.67%		0.00%	16.67%
Korjip	66.67%	16.67%		16.67%	0.00%
Kudo	50.00%	33.33%		16.67%	0.00%
Liria	33.33%	16.67%		33.33%	16.67%
Lobira	83.33%	16.67%		0.00%	0.00%
Lopiri	50.00%	16.67%		16.67%	16.67%
Lyangari	16.67%	50.00%		16.67%	16.67%
Napotpot	83.33%	0.00%		16.67%	0.00%
Narus	83.33%	0.00%		0.00%	16.67%
New Kenya	66.67%	33.33%		0.00%	0.00%

Nhuelere	66.67%	33.33%	0.00%	0.00%
Obule	100.00%	0.00%	0.00%	0.00%
Olere	33.33%	33.33%	0.00%	33.33%
Torit	0.0%	0.00%	0.00%	0.00%
Project Area	60.42%	21.88%	8.33%	9.38%

Source: Field Data

Livestock

Table 15 below shows the distribution of livestock ownership along the project road. Most of the livestock along the project road included cows, goats and sheep. Most households had at least a combination of the two livestock type with only 15% having all of them. 19% of the sampled households had cows, 44% had goats and 24% had sheep. The intensity of livestock ownership and type is not uniform along the road project and is tribe dependent. Most of the Bari speaking tribe owned only goats and sheep while the Lotuko and Toposa speaking tribes owned most of the cows and the goats. From the table below, it is evident that most of the cows and goats along the road are be found in Khiyala and Napotpot.

Table 11: Livestock Ownership by Respondents

Boma	Cows	Goats	Sheep
Ebalanyi	0.00	3.33	26.00
Gikokwe	0.00	26.17	42.67
Khiyala	50	83.83	1.67
Korjip	5.83	37.33	6.00
Kudo	1.00	5.00	2.50
Liria	5.00	3.00	1.67
Lobira	1.50	6.67	2.50
Lopiri	4.83	13.83	7.33
Lyangari	1.67	1.83	3.33
Napotpot	157.33	250.00	3.00
Narus	0.00	7.83	0.00
New Kenya	0.00	7.83	0.00
Nhuelere	34.67	1.50	3.17
Obule	10	83.30	0.00
Olere	3.33	1.87	3.00
Torit	0.00	0.00	0.00

Source: Field Data

In most of these Bomas, livestock movement is quite extensive, often using the road as pastures often endangering the animals as well as motorists. Accidents between vehicles and livestock are expected and mitigation must include the installation of warning signs erected at intervals along the road and the construction of underpasses to sensitize and protect the herders and the road users of the dangers. The plate below shows a large number of goats lying in the all over the road during day time Plate 17.



Plate 9: Livestock Lying On the Proposed Road Project
Community Health Status

Housing

The settlement dotted along the project road is unplanned and houses are built indiscriminately without any consideration for proper drainage. Over 80% of the housing units are either semi-permanent or temporary in nature and are built using grass, mud and sticks Plates 18 and 19) Table 16. Houses built with concrete and corrugated sheets along the project road were found in only in Torit town, Kapoeta and Nadapal.

Table 12: Housing Types of the Sampled Households

Boma	Permanent	Semi-Permanent	Temporary
Ebalanyi	0.00%	16.67%	83.33%
Gikokwe	0.00%	33.33%	66.67%
Khiyala	16.67%	33.33%	50%
Korjip	0.00%	80.00%	20.00%
Kudo	0.00%	60.00%	40.00%
Liria	0.00%	50.00%	50.00%
Lobira	16.67%	33.33%	50.00%
Lopiri	0.00%	50.00%	50.00%
Lyangari	0.00%	33.33%	66.67%
Napotpot	0.00%	16.67%	83.33%
Narus	0.00%	50.00%	50.00%
New Kenya	0.00%	50.00%	50.00%
Nhuelere	0.00%	0.00%	100.00%
Obule	0.00%	33.33%	66.67%
Olere	0.00%	33.33%	66.67%
Torit	83.33%	0.00%	16.67%
Project Area	7.45%	36.17%	56.38%

Source: Field Data



Plate 10: A Semi Permanent Housing Unit along the Proposed Road Project



Plate 11: Home Stead with Temporary Housing Units along the Proposed Road Project Water and Sanitation

Boreholes serve as the only source of clean water to communities along the project area. Most respondents indicated that this water source is grossly inadequate Plate 20. Sanitary conditions are pathetic with over 80 % of the respondents with no toilets at all, most defecating in the surrounding bushes. The health implication of such a practice is the frequent and serious outbreak of cholera and other communicable diseases during rainy seasons.



Plate 12: A Man Using Donkey Transport to Ferry Water in Torit Town

Knowledge and Attitude on HIV/AIDS

The ESIA team investigated the knowledge and attitude of the communities living along the project road on HIV/AIDS. 73% of the respondents indicated that they had heard about the disease and answered correctly how the disease is spread and ways to be protected from getting

infected. 27% of the respondents revealed total ignorance about HIV/AIDS. Table 17 below shows the distribution on respondents' the knowledge by their respective Bomas.

Table 13: Knowledge on HIV/AIDS by Respondents

Boma	Significant Knowledge	Total Lack of Knowledge
Ebalanyi	33.33%	66.67%
Gikokwe	100.00%	0.00%
Khiyala	100.00%	0.00%
Korjip	50.00%	50.00%
Kudo	50.00%	50.00%
Liria	100.00%	0.00%
Lobira	100.00%	0.00%
Lopiri	83.33%	16.67%
Lyangari	50.00%	50.00%
Napotpot	66.67%	33.33%
Narus	100.00%	0.00%
New Kenya	66.67%	33.33%
Nhuelere	33.33%	66.67%
Obule	66.67%	33.33%
Olere	66.67%	33.33%
Torit	100.00%	0.00%
Total	72.92%	27.08%

Source: Field Data

The Table 17 above depicts that all respondent from six Bomas (Gikokwe, Khiyala, Liria, Lobira, Narus and Torit) had perfect information on issues relating to HIV/AIDS. A further interview with those who had perfect knowledge revealed that most of the households in these Bomas were returnees from Kenya and Uganda. The Bomas recording lack of knowledge by majority of its households consisted of those who migrated and settled on the mountains along the road project during the war and hence could not easily access any education and information.

Table 18 below reveals a very worrying scenario along the road project as over 47% of the female respondents claimed total lack of information about HIV/AIDS and how it is spread. Most male respondents revealed significant knowledge HIV/AIDS and discussed the subject freely with the interviewers.

Table 14: Knowledge on HIV/AIDS by the Gender of Respondents

Gender	Significant Knowledge	Total Lack of Knowledge
Male	86.30%	13.70%
Female	52.63%	47.37%
Total	72.92%	27.08%

Source: Field Data

The major sources of information on HIV/AIDS revealed by respondents was radio and friends, with 46.15% and 53.85% of the respondents indicating that they regularly get informed about the

disease by radio and friends respectively. Table 19 gives a detailed summary of the percentages of respondents from sampled Bomas by the information source. The Bomas with strong ties and good social capital easily accessed information about HIV/AIDS from friends. In most of the trading centres, majority of the respondents had radios and hence could easily access information through the media as opposed to most Bomas away from the trading centres with few radios.

Most of these respondents who had some knowledge on HIV/AIDS were not knowledgeable about condom use as a way of protection against contraction the disease. They all advocated for serious sensitization programs on the need for total abstinence among the youth who are unmarried. 100% of these respondents believed that social interaction with project employees, most of whom are likely to come from Juba, Kenya and Uganda, with the residents considering the influence of money, is a potential avenue for transmission of HIV/AIDS and other social infections.

HIV/AIDS control should therefore be a major undertaking under the project that should particularly focus on the small trading centres and Torit town in addition to areas which will be of social and economic concentration within the project corridor. Among the activities in this regard should be geared towards advocacy (awareness creation), training and preventive measures. It is recommended as follows;

- Review the activities of the road construction to integrate with HIV/AIDS campaigns.
- Develop appropriate training and awareness materials for information, education and communication on HIV/AIDS,
- Identify and partner other players on HIV/AIDS for enhanced collaboration
- Develop an intervention strategy compatible with the road construction programme to address success of the HIV/AIDS prevention and provide peer educators for sustainability in collaboration with stakeholders,
- Integrate monitoring of HIV/AIDS preventive activities as part of the road construction supervision. Basic knowledge, attitude and practice are among the parameters to be monitored, and particularly on provision of condoms, status testing and use of ARVs.

Table 15: Information Sources on HIV/AIDS along the Project Road

Boma	Radio	Friends
Ebalanyi	40.00%	60.00%
Gikokwe	16.67%	83.33%
Khiyala	83.33%	16.67%
Korjip	100.00%	0.00%
Kudo	40.00%	60.00%
Liria	66.67%	33.33%
Lobira	83.33%	16.67%
Lopiri	0.00%	100.00%
Lyangari	0.00%	100.00%
Napotpot	0.00%	100.00%
Narus	50.00%	50.00%

New Kenya	100.00%	0.00%
Nhuelere	25.00%	75.00%
Obule	33.33%	66.67%
Olere	25.00%	75.00%
Torit	60.00%	40.00%
Total	46.15%	53.85%

Source: Field Data

Vulnerable Groups

Vulnerable groups in this context are referred to demobilized soldiers; fallen heroes; returnees and they are considered to be vulnerable because they have to depend on others Tribes; Clans; Institutions and or Individuals to guarantee their access to land and property. Their livelihoods may be particularly vulnerable to disturbances created by the project. These groups include marginal income groups; nomadic /pastorals communities and are mainly wounded soldiers and widows. The other vulnerable groups identified along the road project include unemployed youth, squatters, landless, wounded soldiers, poor households, households with disabled members, households headed by the women, and the households consisting of the aged. The unemployed youth will be given first priority when it comes to skilled and unskilled labour for the demolition and reconstruction. The rest of the vulnerable groups will be allowed to decide the construction sites of their choice.

Vulnerabilities may arise in the context of expropriation in some project areas. For instance, the Dinka community in Narus Payams rights may be denied during project implementation due to lack of communal right over the land they are occupying. According to the land act (2009), Narus Payam is communally owned by the Toposa community. However the household survey examined possible sources of vulnerability which indicated that women, wounded soldiers, widows and orphans are not likely to be systematically disadvantaged due to project activities. However according to the RAP they will be accepted to choice a location of their choice and basic facilities will provided for them like hospitals ;schools and water. They shall be treated like other members of the society and have access to land.

4.0 GENERAL CONCLUSION AND RECOMMENDATIONS

The findings of the Socio economic Impact assessment conclude that the impact of upgrading of the Nadapal – Juba road with a by-pass in Torit, will have a positive impact on the socio-economic environment of the entire South Sudan. The social management measures proposed are generally straight forward. The majority of the measures relate directly to sound operating practices both during the construction phase and subsequently over the operational life of the road. Provided that the road is upgraded with due attention to the mitigation and management measures outlined, the project will have a positive impact on the socio-economic environment of the project area.

Considering the urgent need for socio-economic development in South Sudan, it is important to emphasize that this study recommends that the proposed road project should proceed. The upgrading of this road to a paved (bitumen) standard will improve the socio-economic conditions South Sudan and more specifically the Eastern Equatoria States. In summary, the potential positive impacts of the proposed project road by far outweigh the potential negative impacts. The recommended mitigation measures proposed in this report are reflected in the Environmental and Social Management Plan and the Resettlement Action Plan. It is further recommended that a result based monitoring and evaluation program should be drawn and documented as an integral component of the Environmental and Social Management Plan (ESMP).

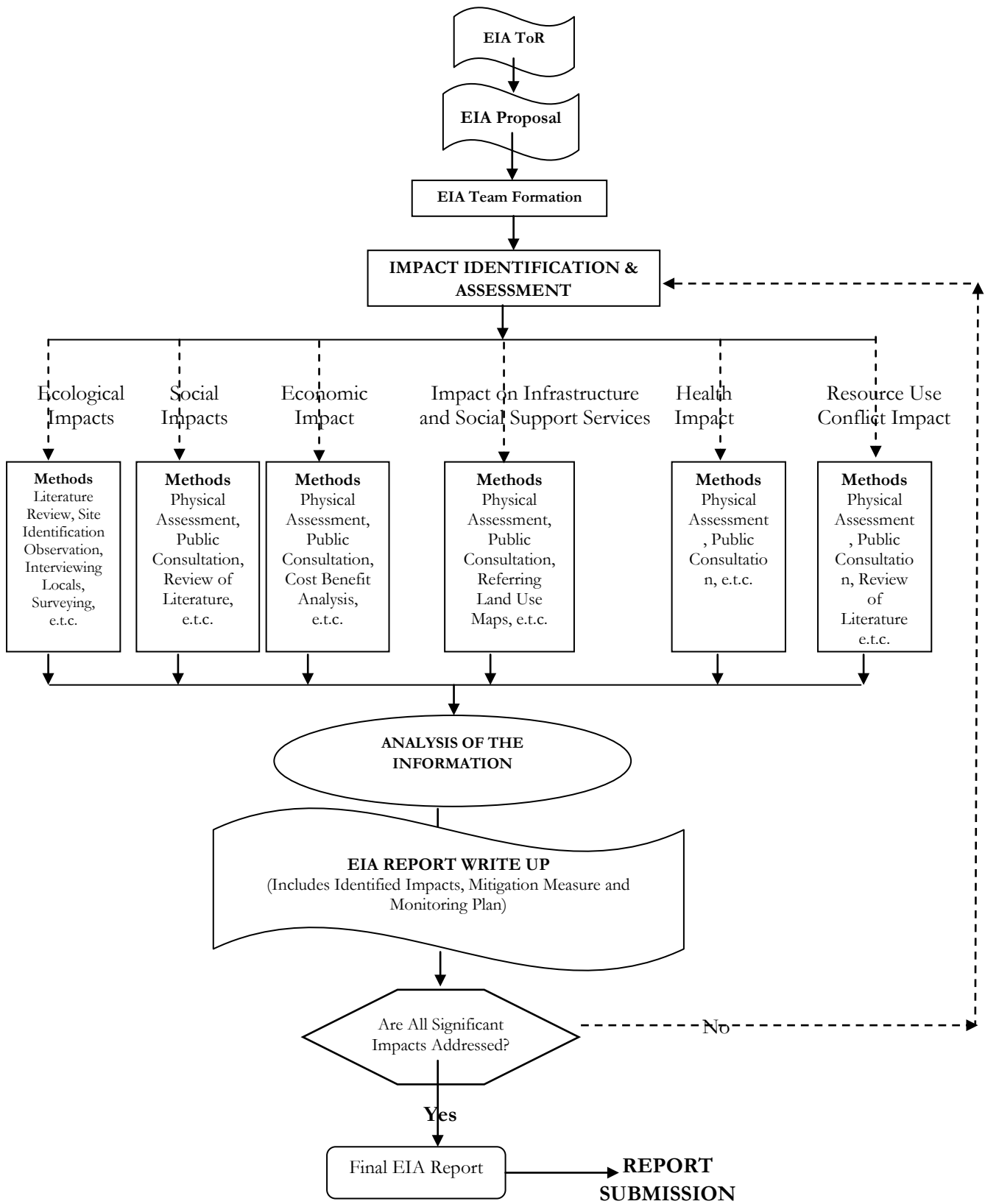


Figure 2: Summary Methodology Followed to Carryout EIA Study

5.0 PUBLIC PARTICIPATION

5.1 Public Consultations

The EIA team has carried out a public consultation program between April 27, 2009 and May 16th 2009 to understand the opinions and concerns of the public in the proposed road section from Nadapal to Juba. Additional fieldtrips were made in April 2013 to update the 2009 information, finalize the consultation on the Torit by-pass and sensitize PAPs about the completion of the demining exercise in the area. The public consultation has been carried out at various sampled points along the proposed road project. The consultation focused on the affected people and entities, including schools, residential areas, village committees, township and government agencies.

Public consultation was conducted in major Payams/Bomas with an objective of seeking various information about the socio-economic implications of the proposed road upgrading to paved (bitumen) standards, and to seek the buy-in of the proposed project by the impacted communities along the road. The Payam/Bomas included Obule, Lopwiro Lopiri, Gikokwe, Olere, Lyangari, Gikokwe, Nhuelere, Kudo, Ebalanyi, Lobira, Korjip, Narus and Nadapal. This was done through use of questionnaires, interviews and public meetings/hearing at the commissioner's office. Annex 2, 3 and 4 and Plates 27 and 28.

MTRB with the support from the TA conducted a consultation exercise in April 2013 around Torit and nearby area to clarify and confirm the extent of impacts due to the Torit By-pass and to hear the perception of the community along the Road. As per the observation and consultation with the community and relevant stakeholder, the 2013 consultation has also confirmed that no public facilities and/or utilities, which were originally documented for demolishing in Torit town, will be affected as a result of the redesign of the road to include the Torit by-pass. The public facilities originally identified and earmarked in Torit town for demolition shall no longer be affected due to the approval for a Torit by-pass. These facilities which included the prisons, health post, office of the Census Statistics, office of legal administration and a borehole shall not be affected and no longer earmarked for demolition. The Torit by-pass begins just after the Military barracks from New Kenya (towards Torit) and ends just after the Torit – Magwi junction on the Torit – Juba road. The proposed by-pass which is about 15km long lays within a virgin land with no communities and by passes the Torit town completely.

The SA team first briefed public members the project information, such as works description, alignment, possible benefits to people and negative impacts. The focus was placed on the collection of concerns from the roadside residents and organizations.

5.2 Objectives of Public Consultation

The overall objective of Public consultation was to disseminate information to interested parties, solicit their views and consult on sensitive issues. Specific objectives included:

- To identify community needs and ensure that those needs are documented before project commences.
- To avoid conflicts among the various tribal groups by addressing issues promptly
- To ensure that any suspicions or uneasiness about the Nadapal-Juba road project are fully addressed.
- To avoid misunderstanding about the Nadapal-Juba road project before and during its implementation.

- To inform community about and discuss the nature and scale of adverse impacts of the project on their livelihoods in a more transparent and direct manner and seek their participation in the project cycle.
- To identify and discuss mitigations of the impacts that may arise from the proposed road upgrading project.
- To give PAPs affected communities a chance to have a say and express their views in the planning and implementation of the project that affect them directly.
- To obtain qualitative as well as quantitative information on viable income generation and livelihood interventions which PAPs could engage themselves in order to restore their income and livelihoods in a self-sustaining manner.
- To check and confirm the level of impacts due to the Torit By-pass and hear the community and relevant stakeholders views and perception
- To inform local authorities of the impacts, agree on a cut-off date, solicit their views on the project and discuss their share of the responsibility for the smooth functioning of the overall project operations.

5.3 The Stakeholders

- **Primary Stakeholders**

These included all the Bomas/Payams and business enterprises dotted along the Nadapal-Juba road that will be directly affected by the impacts of upgrading the road.

- **Secondary Stakeholders**

These included all the county government agencies in the Equatorial State and NGOs operating along the Nadapal-Juba road.

The principal actors and stakeholders could include all of the following depending on how the road segment rehabilitation is contracted:

1. Ministry of Transport, Roads and Bridges: Directorate of Roads and Bridges, representing the Government of South Sudan (GOSS) as the executing agency in charge of sector policy and plans to expand the road network in the country.
2. Ministry of Environment: The regulatory agency tasked with protecting the environment and avoiding adverse environmental impacts on behalf of society.
3. The Contracting Agency: this could be World Bank or Implementers with the association of the Ministry of Transport, Roads and Bridges, as the agency responsible for the finance and administration of the road rehabilitation and construction.
4. The Consulting Engineers: Contracted to do the assessment of a chosen road segment scheduled for rehabilitation and to produce the basic design documents and Bill of Quantity.
5. The Construction Company: Being the successful bidders who will carry out the road rehabilitation activities on the road segment in question.
6. The Supervising Engineers: Working at the behest of the contracting agency, this entity monitors the construction efforts and is responsible for quality control and insuring compliance with standards and specifications. They are also responsible for preparation of regular progress report (usually monthly), which will include the degree to which environmental management expectations and goals have been achieved which are shared with the Ministry of Environment.

In addition to these principal actors, the environmental guidelines and oversight system takes into account the need and interests of other stakeholders, including the following:

1. Representatives of local government at the State, County and Payam level, who have a role in representing the local people living in communities affected by the road rehabilitation activities and who should be the vehicle for transmitting messages related to health and safety along newly constructed roads.
2. The Ministry of Health, whose monitoring services are critical to detecting the spread of infectious diseases, in particular, HIV/AIDS and who could take an institutional role in HIV/AIDS Awareness and Prevention along the road system.
3. The communities: they are the direct and indirect users who benefit from the services of the improved road network and whose views are generally sought to ratify the social acceptability of the road rehabilitation activities.



Plate 13: High Level Consultations with Stakeholders at Torit



Plate 14: Consultation with Community Members

5.4 Public Participation Process

The surroundings of Nadapal-Juba road belong to the communities living along this road and their participation is useful for gathering data, understanding the likely impacts, determining community and individual preferences, selecting project alternatives and designing viable and sustainable mitigation and compensation if any. Public participation conducted along the Nadapal – Juba road included all communities living along the proposed road project. Prior to any consultation process, the SA team made an advance visit to Bomas and made arrangements with the Sultan (head of the Boma) and Boma members to ensure that all the relevant parties

were well informed in advance of the purpose of the visit and the background information on the road upgrading process.

In all the public participation meetings, the SA team got a cordial welcome from the communities as well as their leaders. Most of the consultations were very impressive and cut across the different strata of the communities. The participation and consultation process included door to door personal interviews, focus group discussions, and stakeholder's consultation sessions.

In all the public meetings, the following groups were represented:

- Payam administrators;
- Opinion leaders;
- Traditional leaders (e.g. landlords, rain makers);
- Youth representatives;
- Women representatives;
- Traders along the project road;
- Community members;
- Schools along the project road; and
- Public Transport operators

Public participation was highly influenced by cultures, educational levels and political consciousness. During all the public meetings, a number of individuals were interviewed to ascertain their responses to specific questions concerning possible socio-economic impacts of the project road during construction and operation. Special attention was drawn to their knowledge of ensuring healthy socio-economic benefits of the project road. The communities identified their needs on the proposed road upgrading project and these included:

- The need for government to compel the construction company to consider the locals especially the youth for employment during the project execution;
- The need to preserve the mango trees as they are a very important source of livelihood of the local communities
- The need for the government to give those with structures in the road reserves enough time to relocate their structures;
- The need for the government to compensate those whose properties will be affected by the road upgrading;
- The need for the project not to interfere with sacred trees, shrines and ancestral graves unless accompanied with the required rituals;
- The need for more boreholes as the construction work will make water more scarce;

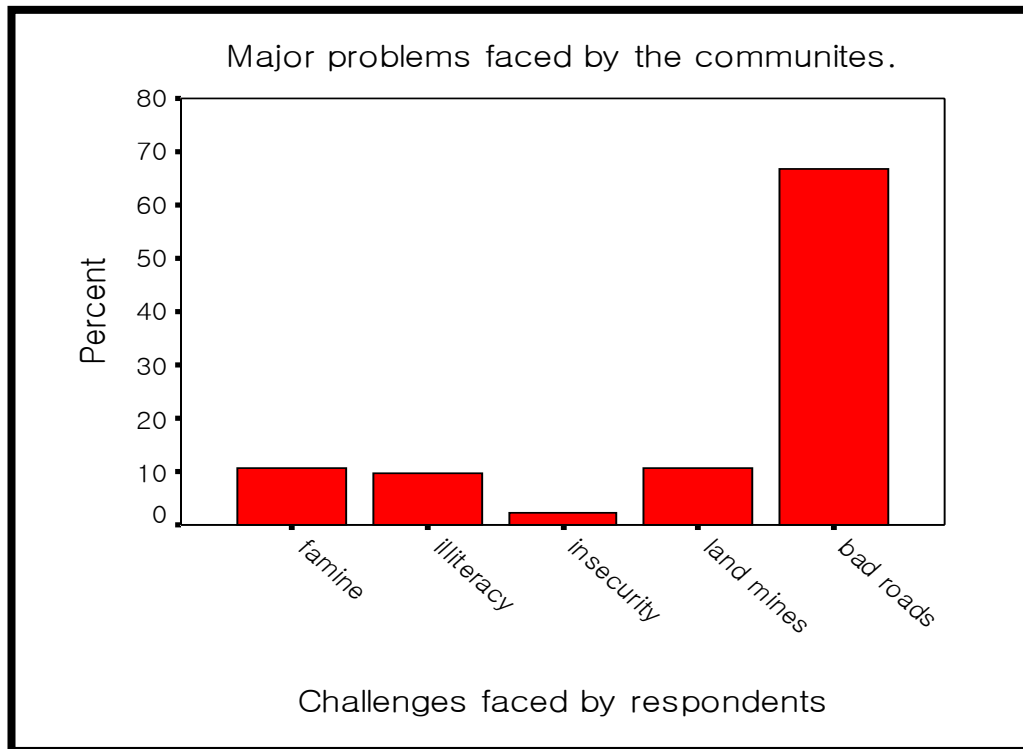
During the consultative meetings, the communities along the road were very enthusiastic about the road upgrading to bitumen standard. Most of the community members revealed that this is a rare opportunity that will give them a good road for first time in history. They indicated that as a result of the impassable roads during the war and peace time, they have lost lives due to famine and lack of access to medical care; they had been discouraged from large scale farming due to inadequate market and the presence of landmines. They are however being encouraged to get into large scale farming after the completion of the demining exercise by the UN. While this may take some time, it is expected that the productive youths who migrated to Juba due to rural urban migration will return once the road upgrading is complete.

Attitudinal Attributes of the Population along the Proposed Road

On the other hand 66.7 percent of the respondents (Figure 5) identified poor roads as their major problem and viewed the proposed road project as a vital step towards the opening up of

the area to development and thus a source of economic growth to the marginalized South Sudan. During all the public consultative meetings, this project was unanimously seen by the communities along the road project as the immediate source of employment for the idle local youths and stronger members of the community (as construction workers). Based on the above Figure 5, it is therefore evidenced that this proposed road project will be a valuable asset to the local communities along the road as a whole.

Figure 3: Ranking of General Problems Identified by The Communities along the Proposed Road.



Source: Field Data

Weighted Rating for Attitudes towards the Project;

To capture people’s attitudes towards the project, a semantic scale is used. This scale is chosen because it easily reflects people’s attitudes towards any developmental project. The responses to the perception questions during the consultative meetings are weighted using the scale that ranges from 1 (strongly agree with the project) to 5 (strongly opposed). The social acceptance of this road project depends on general attitudes. The following weighting formula was used to assess the respondent’s attitudes towards the project;

Where;

$$A = \left(\frac{f_i(1,2,\dots,5)}{n} \right) = \frac{1(s_1) + 2(s_2) + \dots + 5(s_5)}{n}$$

- A is the mean response for the ith question by the respondents;
- f_i is the frequencies of respondents per attribute;
- n is the sample size (number of respondents)
- 1, 2, …, 5 are the degree of responses
- S₁…S₅ are the number of respondents score or rating

Based on the above formula and the semantic scale below, judgments on public attitudes towards the proposed road project are made Table 23 and 24.

Table 16: Summary of Weighting Used

Average Rating	Respondent's Responses
1.0 – 1.5	Strongly Agree
1.6 – 2.5	Agree
2.6 – 3.5	Undecided/Indifferent
3.6 – 4.5	Disagree
4.6 – 5.0	Strongly disagree

Source: Field Data

Table 17: Results of the Mean Responses;

Main Attribute Related to Project	Strongly Agree	Agree	Indifferent	Don't agree	Strongly Disagree	Score
The project will contribute positively to agricultural activities	90.0	10.0	0.0	0.0	0.0	1.06
The project will open South Sudan to more business opportunities	60.0	40.0	0.0	0.0	0.0	1.54
Project will lead to the creation of more employment opportunities	90.0	10.0	0.0	0.0	0.0	1.06
The project will greatly improve the availability and range of basic consumers goods and services	96.0	4.0	0.0	0.0	0.0	1.03
Project will lead to an improved incomes and life quality of households	95.0	4.0	1.0	0.0	0.0	1.04
Project to be a source of rapid economic growth to South Sudan	70.0	22.0	8.0	0.0	0.0	1.26
The project will facilitate and attract the returning of the displaced people	45.0	35.0	20.0	0.0	0.0	1.53
The project will lead to more cases of HIV/AIDS	90.0	10.0	0.0	0.0	0.0	1.06
The project will lead to more accidents and deaths to livestock	30.0	20.0	0.0	10.0	40.0	1.83
Project is likely to interfere with safety of communities along the project road	15.0	30.0	10.0	35.0	10.0	2.61

Source: Field Data

The General Weighted Attitude (GWA) towards the project was 1.40 which is an indication that the communities dotted along the project road generally and strongly supported the project. The highest anticipation (1.03) was that the project will greatly improve the availability and widen the range of basic consumers' goods and services. However; most communities (2.61) felt that the road will make their communities more accessible to cattle raiders which will interfere with their safety and security. During the consultation meeting; it was explained by the SA team and communities (Lotuka; Lukoya; Lulubo and Toposa tribes); unemployed youth who engage in activities of insecurity like raiding animals will be given first priority when it comes to skilled and unskilled labour for the demolition and also upgrading of the road would improve the road condition hence basic services like security facilities will be easily established along the road i.e. Police Posts.

5.5 Summary of potential harms of the project to local communities

The potential adverse impacts associated with the project include: (a) Frequency of accidents, among vehicles and with other users of the road; (b) Loss of land predominantly under agriculture by owners of acquired land; (c) Loss of numerous housing structures as over 80% linearly exist within 20 meters on either side of the proposed road center in most of the trading centers and towns; (d) Loss of shade for community meetings and income as a result of felling of numerous trees including mango trees on road side; (e) Loss of cultural and religious properties (sacred trees, churches, cemeteries etc) identified along the road; (f) Interference with social amenities (Schools, health facilities and boreholes) most of which are very near to the road project; (g) Loss of lives and livestock due to speeding vehicles during and after construction; (h) Large scale clearing of land and intensified demand for forest products for building materials and fuel by returnees; (i) Increased STDs including HIV/AIDS infections due to increased number of construction workers and other road users; (j) Overstretching of few social infrastructures available in the area (house rent rise, water shortage and sanitation problem).

Overall, land acquisition and resettlement impacts of the project are modest with minimal risks associated with losses to lands and homes. Mitigation for these adverse impacts has been reflected in the ESMP and RAP and they are as follows: (a) Minimize land acquisition; (b) Adequate compensation; (c) Planting of shade and fruit trees in the resettlement sites; (d) Minimize unnecessary felling of fruit trees; (e) Demolish structures with full permission and as per conditions set by the community and Relocation in full conformity with the wishes of the community; (f) Construction of basic social infrastructures (schools, primary health facilities, boreholes) in resettlement sites; (g) Provide facilities for pedestrians and non-motorized traffic; (h) STDs sensitization campaigns training and distribution of awareness materials for information, education and communication on HIV/AIDS; and (i) Improve security and Encourage use of non-forest products construction materials.

Summary of potential benefits to be shared with the local communities;

The up grading of the road will provide greater opportunity to the local farmers and pastoralists to have better access to the domestic and regional agricultural markets .The farmers and pastoralists would have the opportunity to be suppliers of agricultural products; processing plants and business; hence these will help local products to be sold at market prices and increase household income; contributing to improved livelihood of the local community.

The construction and maintenance works will also provide, in the short term, income generating jobs to the local people. The works contracts will have no provision for any community development that would help to provide basic services; such as boreholes for potable water; lines; except in situations where PAPs have been moved to.

Response to Public Concerns

Public participation conducted along the Nadapal – Juba road included all communities living along the proposed road project like Bari; Lulubo, Lukoya; Lotuko and Toposa. Prior to any consultation process, the SA team made an advance visit to the Bomas and made arrangements with the Sultan (head of the Boma) and Boma members to ensure that all the relevant parties were well informed in advance of the purpose of the visit and the background information on

the road upgrading process. The participation by the public included door to door personal interviews, focus group discussions, and stakeholder's consultation sessions and the following groups were represented Payam administrators; Opinion leaders; Traditional leaders (e.g. landlords, rain makers); Youth representatives; Women representatives; Traders along the project road; Community members; Schools along the project road; and Public Transport operators

The public consultation shows that the local people are very supportive of the Project and want the Project to be completed as soon as possible. The people consulted understood the Project contents well and had most concerns related to the noise and traffic safety. During the consultation to voice concerns, the affected public showed no ethnic conflict over land, the SA team, together with the design team responsively recorded concerns and mitigation measures have been developed and included in the ESMP and RAP reports. Following are the major public concerns and responses:

1. Land Acquisition and Resettlement

Land acquisition is inevitable to any road project. The roadside residents understand the necessity of land acquisition particularly to those living within and/or on road reserve. In preparation for the project and to identify the impacted community, properties and other assets, a resettlement team has been constituted to prepare a project RAP. The team represented the relevant government officials and affected communities.

There is need to safeguard the public interest based on the national laws and applicable World Bank policies. The effort will be made that the compensation will be distributed to the affected public in the most efficient way possible.

2. Compensation

Since land is communally owned, the compensation for acquired land either for the road or quarries should be two fold. Individual members' compensation should be limited to the private structures replacement cost and crops at the market price.

3. Employment of Local Labour Force

The impacted communities and government requests the project to employ local labour so provide income opportunities from the Project construction and operation. The ESA team has submitted the communities' request to the government/construction company to give full considerations of employing labour from local sources. The locals can be employed as unskilled labour and maybe after with training for jobs requiring more skills.

4. Siting Of Borrow Pits and Quarries

The quarries borrow pits should not be selected on farmland/grazing land. The sites of deposit and borrow pits will be carefully selected during the advanced design phase to avoid occupying farmland/grazing land. The soil conservation and restoration will be carried out immediately after the construction by contractor according to contractual provisions after the soil borrowing operation is completed. Landscaping of these sites was proposed as an outcome from the stakeholder consultations. It was suggested that the quarry/borrow site may be filled up with top soil or appropriately converted to watering point/water pans for animals.

5. Noise and Safety Impact

The public is concerned that construction activities near schools, hospitals and villages will cause noise disturbance. Increased traffic on the upgraded road during the construction and operation will be a safety concern particularly to school children. Therefore, local counties will participate in monitoring the ESMP during the construction and operation phases. Noisy equipment will not be operated during school hours or at night without the consent from the affected people and local governments. The ESA team has worked with the design team to develop mitigation measures against noise. Warning signs and dedicated person from the contractors will provide safety measures during construction. The health and safety clauses will be included in the contractual agreement of civil works.

6. Traffic Blocking

The public is concerned that construction activities could close the roads and impede the traffic. As a result of this, diversion routes will be opened in areas where construction activities will be carried. On the other hand Warning signs like "construction ahead, reduce speed, deviation ahead among others " will be installed by contractors on their road section, a staff will be designated by the contractor to guide traffic when necessary.

7. Soil Erosion

The public is concerned with the increased soil erosion due to construction activities. Soil conservation ability will be improved when drainage structure facilities are completed. The road slopes will be protected through landscaping and mortar-brick embankment will be built on the water saturated road base.

8. Bitumen Emission

The public is concerned with Bitumen mixing station emission. Three Bitumen stations will be sited in areas, at least 300m leeward from residential housing. These stations will be fully enclosed. Small and uncontrolled Bitumen stations will be not be permitted.

9. General Security

Since the area covering the project is prone to insecurity, the local administrations at both County and Payam level will be directly involved in security issues along with the staff from the contractors concerning the sections of the road project within their local boundaries.

10. Movement of Site Workers

The movement of site workers and their interaction with local communities will be restricted by the contractor in order to avoid insecurity, conflicts and to protect control and minimize AIDS transmission during the construction period.

11. Cultural Heritage

The cultural heritages of the people need to be considered and preserved where possible. Concerns were raised where the road may pass through a graveyard on a settlement. The affected people must be consulted on the way forward and where necessary be allowed to perform some cleansing rituals as per the beliefs.

12. Security of the Workers And Materials

Concerns were raised on general security from the beginning to the completion of the project. It was noted with a lot of concern that the general security along the Nadapal - Juba road is poor.

Therefore security of the workers needs to be provided from the beginning to the end of the project. If possible a full time security personnel need to be attached to the project.

5.6 Information Disclosure

This Environmental and Social Impact Assessment and the Environment and Social Management Plan reports will be disclosed to the public once completed. In view of the difficulties in distribution of information in such region between Nadapal and Juba, the SA team carefully proposes the means for information disclosure. The team proposes that once finalized and approved the report be distributed to the relevant government offices that are located within the project site; at the Commissioners' offices in different counties for public review and reference.

6.0 COMMUNITY CONSULTATION AND PARTICIPATION IN THE PROJECT

The key objective of the public consultation process is to ensure awareness, support and participation of the Project-Affected People in the planning and implementation of activities associated with Project development and resettlement. The Consultant had extensive and continuous consultation with individuals, public officials, County, Payam and Boma Officials as well as the affected communities during the data collection and field work in 2010 and 2013. During the process of community consultation; it all began with popularizing a project initiative to community members, gagging their concerns and reactions, and securing their acceptance, trust, and support for it.

The participation began with the dissemination of the resettlement information on the Project to the PAPs. As early as the engineering feasibility study and the preliminary design for the Project, the route alignment scheme was decided through the solicitation of the PAPs' opinions

During the preparation and implementation of the project and RAP, the project shall ensure that continuous public participation shall be in place. This shall be done through the establishment of formal communication mechanisms to the States, Counties, Payams and Bomas. Additionally occasional visits to the project road shall take advantage to brief officials on the state of the preparations of the road implement whiles series of foras and public meetings shall be held to explain the road alignment and process of payment of compensation once the Contractors are selected and date of project commencement announced. Continuous education and consultation shall go on during the RAP and project implementation. This will also be done on an informal basis through continuous interaction with the affected communities.

Since the entire resettlement and rehabilitation program was carried out with the participation and consultation of the PAPs, it is expected that no major grievance issue will arise. However, to ensure that the PAPs have avenues for redressing their grievances related to any aspect of the land acquisition and resettlement summary of RAP will be translated and disclosed in languages well understood by the project affected households well before and during the RAP implementation. The RAP summary will provide information on resettlement impacts, entitlements, compensation, livelihood restoration programs and schedules. To achieve an effective community consultation and participation in the project; the following institutions will be established with their respective responsibilities;

1. Project Management Team (PMT)- Lead the internal monitoring, day today and periodic and conduct regular monitoring to ensure that the approved assessed compensation are paid
2. Ministry of Transport; Roads and Bridges - Lead agency and coordinating institution for both internal and external monitoring of the implementation of this RAP. Periodic monitoring of the Plan implementation and its impact
3. Ministry of Environment –to ensure that Periodic monitoring of the Plan implementation and its impact
4. Central Equatoria and Eastern Equatoria States- Periodic monitoring on impacts of the Plan implementation

5. External Consultant(s) or NGOs- Periodic monitoring, evaluation and auditing of implementation of RAP
6. The Project Affected Persons (PAPs)
7. Traditional land committees in practice of customary laws head by chiefs of the communities along the project road ;

At the same time, PMT will work in collaboration with Bomas and local officials to implement the clearance programme. PMT will inform the County, Payam and Boma in each locality of the date to begin clearance of the safety corridor. A public forum will be convened to further explain the program to the affected people.

6.1 Participation of Women in the Project

Much as the Gender composition of the sampled households is on average balanced, some towns like Torit town and Lopiri Boma had very skewed gender distribution with males recording 79.59% and 33.33% respectively. Most residents of Torit town are business persons and government workers who are either single or had their wives and children staying in the rural areas. Women participation in the project is guaranteed based on the experience of the previous South Sudan Roads Maintenance project (SSRMP) In which the Community Intervention component women's participation in project activities like bush clearing ;culvert de-silting ;opening drains and collection of stone materials for stone pitching ;gabions construction and other end structures was seen during the maintenance of Torit –Nesitu; Torit –Kapoeta ;Kapoeta –Nadapal Most of the male members of the households had migrated to the nearby towns and trading centres for wage employment or businesses living behind women in the villages to work on farms and graze livestock and perhaps on the roads project activities ; The culture and traditions followed by most households in the project area does not allow women to be the head of household. Khiyala and New Kenya were exceptional and 50% of households were headed by women. Women participation in the project activities will improve their living standards through offer of better employment opportunities.

7.0 GRIEVANCE AND REDRESS

The Project Management Team (PMT) shall set up a Grievance and Redress Committee to receive and mediate compensation disputes amicably. The Committee shall be composed of a representative of each State, County, Payam and Boma together with Officials of the PMT. It is expected that this Committee will be able to amicably settle any claims and disputes.

Traditional system is present and will operate on the customary laws and practise of the locality to resolve disputes related to land. According to the customary law ;chiefs establish a community (sometimes called community land surveyor)to resolve disputes at customary courts, starting at Boma level to Payam and county .Chiefs handle all disputes regarding customary land and supposed to also be involved in land decisions under both statutory and customary regimes .

In situations where the beneficiary is still not satisfied with the amount of compensation payable to him/her, the PAP can seek redress from the to the Civil Court in accordance with the “Civil Procedure Act” to the Highest court as is common practice in South Sudan. However, the property cannot be demolished until the issue is resolved.

Compensation will only be paid to a PAP after receiving his/her written consent. Should a PAP refuse the compensation suggested by the PRO, litigation is settled by the courts. The litigation commences from the Civil Courts and if the applicant is still not satisfied with the decision, he/she can appeal to the highest court.

However, grievances are first preferred to be settled amicably whenever possible. That is, the PAP is allowed to engage his own Valuer at the cost of the project to determine the compensation due. The Valuer and the PRO then together will negotiate a settlement. If the PAP is still not convinced with what has been proposed, as stated above, he can take the case to the court for redress.

In situations where the complainant is still not satisfied with the outcome of the grievance redress procedure, he/she can seek redress from the court at Traditional /Boma and County level to the High court. However, no property can be acquired or asset demolished until the issue is resolved.

Compensation will only be paid to a complainant after receiving his/her written consent. Should the complainant refuse the compensation suggested by the MTRB, litigation is settled by the courts. The litigation commences from the County Courts and if the applicant is still not satisfied with the decision, he/she can appeal to the highest court which is the Supreme Court.

However, grievances should be settled amicably whenever possible, with the possibility of negotiation for lost land or other assets. If the complainant is still not convinced with what has been proposed, as stated above, he can take the case to the court for redress.

8.0 SOCIAL IMPACTS AND MITIGATION MEASURES

The SA focuses not only on the impacts assessment associated with the design and the construction phases of the road project but also long term impacts of the road upgrading. The identification of potential and associated impacts of the proposed road upgrading was based on:

1. Expert group discussions and meetings;
2. Field investigation results;
3. The understanding of the socio-economic and health baseline conditions;
4. The knowledge of potential impacts of similar road upgrading projects;
5. The knowledge of the proposed project activities.

The table below listed various socio-economic and health components that are likely to be impacted on by the proposed road. This impact assessment is based on the assumption that these components will register changes as a result of the proposed project activities.

Socio Aspect and Impact	Proposed mitigation and Aspect for Monitoring	Responsibility for intervention and Monitoring During Design, Construction and operation Period	Responsibility for Mitigation, Monitoring and/or Maintenance During operation	Monitoring Means	Recommended Frequency of Monitoring	Estimated Budget (US\$)
Public health and occupational safety	Sensitization campaigns on HIV/AIDS and STDs in the communities along the project site Monitor solid waste disposal and collection Monitor waste water management Provide clean water to the project worker	Contractor Supervisor Engineer	MOH, MPMI, MoE	Observation during construction Observation/reports during operation	Once a year during operation	
Traffic safety on the road	Install warning signs on approach to trade centres and busy junction as well as black spots Enforce speed limits Monitor road accidents	Supervising Engineer and the Contractor Design Engineer Roads Engineer	MTRB Traffic Police	Inspection during construction Routine maintenance and observation during operation	When erecting during construction Once a month during operation	5000 per annum
Conflict over resources	Sensitize the communities on the importance of peaceful co-existence	GRSS, Commissioners, Chiefs	GRSS	Meetings, Before and After the Project	Once in Every Six Months	4000 per annum
Human Settlement impacts	Ensure that human settlements are fully controlled to reduce growth of shanties in urban centres. Increase the distribution of public services to meet the increasing demand. Planning for the settlements/structures	Supervising Engineer and the Contractor	MPMI, MoE	Inspection After Completion	Once Every Six Months	3000 per annum
Demographic/Population Changes	It is therefore important to increase the facilities for the labour camps to avoid any	GRSS	SSCBS	Census	Once in Every 10 Years	TBD

	conflicts over natural resources like water points. Such as water supply system, sewerage system, communication system, electricity among others.					
Land Acquisition Loss of land predominantly under agriculture by owners of acquired land	Minimize land acquisition; Adequate compensation; Demining underway.	GRSS	Project Project GROSS	Household farm size	Annually	Provided in the RAP
Loss of shade for community meetings and income as a result of felling of numerous trees dominated by mango trees on road side	Planting of shade and fruit trees in the resettlement sites; Minimise unnecessary felling of fruit trees	GRSS	Project Project	Number of new trees planted	Annually	Provided in the RAP
Public health and occupational safety	Sensitization campaigns on HIV/AIDS and STDs in the communities along the project site Monitor solid waste disposal and collection Monitor waste water management Provide clean water to the project worker			Reports with pictures on sensitization program.	Annually	Provided in the RAP

Decommissioning Phase

The project does not envisage any decommission at all. However construction works camps, bitumen mixing plant will be dismantled after completion of the project. On the other hand the contract will consider donating the premises that will be used as office and workmen houses for other uses such as putting up a health centre/hospital to benefit the locals.

9.0 LESSONS LEARNED

The need to build sustainable institutions at grassroots can never be overemphasized, since they are crucial for the delivery of service and the attainment of project objectives.

The project implementation will obtained outcomes were highest where local implementation structures were established, nurtured, and sustained through targeted capacity building work, and proper reward and incentive schemes were put in place right from traditional to Boma and County levels. Moreover, the active engagement of traditional leadership in project management was found to be vital to the success of the project in implementation of the RAP and managing of other concerns of PAPs as experienced in the Juba Nile Bridge Project.

10.0 POTENTIAL IMPLEMENTATION RISKS AND CHALLENGES

The capacity to coordinate, facilitate, and implement RAP activities may be reasonably adequate at Boma and County levels. This is, however, thought to be lacking at high implementing levels (Project Management Team); state and grassroots levels (County and Boma).

When project affected individuals are denied land during project RAP implementation due to lack of communal right over the land they are occupying cases of vulnerability include which indicated that women, wounded soldiers, widows and orphans in Narus; due to lack of communal right over the land they are occupying.

During road construction HIV/AIDS is likely to be a major challenge. The establishment of construction camps will increase the chances of transmission of HIV/AIDS to the local people.

If the PAPs are made aware of Compensation prior to the commencement of the project; it may create panic and social back lash;

11.0 RECOMMENDATIONS AND CONCLUSION

The primary objective of the study on the Nadapal – Juba road was to identify the most appropriate economically justified up grading and periodic maintenance or strengthening solutions for this road in South Sudan. It is anticipated that in the long term there will be considerable economic benefit accruing to the areas of influence of the project roads due to stimulated economic and social activities and improved traffic flow. In this project the environment along the road have been considerably altered during the wars in South Sudan. This resulted to complete neglect and deterioration of the structures along the Nadapal – Juba Road. Additional disturbances due to construction will therefore be relatively minor.

The proposed Nadapal–Juba Road upgrading work will lead to a variety of changes in the local and wider environment. Many of the effects will be beneficial, particularly the impact at a state and local level of increasing the reliability of road transport and the potential to develop the local economy through improved infrastructure and employment opportunities. The potential beneficial impacts associated with project implementation are also expected to lead to much improved quality of life, particularly for those communities who live on or close to the road.

At this detailed design stage, no adverse environmental impacts of significant magnitude are foreseen that would hinder the proposed upgrading of the road to Bitumen standards. The road project will not harm any sites that are historically or environmentally sensitive. The most important negative impact will result from soil erosion during earth works and construction of structures along the road especially in the road section between Nadapal - Kapoeta

Soil erosion is also likely to occur, particularly as a result of excavation of gravel pits; but this can be mitigated. Pollution due to air, dust, noise, and sediments will occur during construction and continue during operation. Workmen's camps should preferably be located at the major centres along the roads. In addition, the camps must not stress local natural resources (fuel wood and water supplies) at the expense of the local population. The project roads are to be designed for higher speeds, which pose a danger to non-motorised traffic. The provision of shoulders and installation of road signs will help to mitigate these impacts.

The findings of the Socio Economic Impact assessment conclude that the impact of upgrading of the Nadapal – Juba road will have a positive impact on the socio-economic environment of the entire South Sudan. The social management measures proposed are generally straight forward. The majority of the measures relate directly to sound operating practices both during the construction phase and subsequently over the operational life of the road. Provided that the road is upgraded with due attention to the mitigation and management measures outlined, the project will have a positive impact on the socio-economic environment of the project area. In summary, the potential positive impacts of the proposed project road by far outweigh the potential negative impacts.

This study concludes that there will be no major ecological impact that will negatively affect the upgrading of the Nadapal-Juba road. In support of the huge acceptability shown by our survey, it is recommended that this project proceeds and that the proposed mitigation and monitoring measures are enforced in full. The project has no serious negative environmental impacts and we recommend implementation as proposed, while ensuring implementation of the proposed Environmental Management and Monitoring Plan.

Recommendations

Successful implementation of environmental safeguards in a manner consistent to World Bank and National policies and guidelines the team recommends that:

1. The mitigation measures identified in this report be incorporated, as far as is practically possible, within the design details, specification, and contract documents, to be drawn up for the project road.
2. The local people must be informed of the details and progress of the project, particularly those who will be affected by the proposed realignment and extension of the road so that they can plan for the future accordingly.
3. A Resettlement / Compensation Action Plan needs to be prepared by the GRSS to address issues such as amount of payment, methods of payment to genuine cases of the affected people.
4. Diligence on the part of the contractor and proper supervision by the Supervising Engineer during construction and the initial operation period is crucial for mitigating impacts. However all mitigation measures need to be specified in tender and contract documents, and must be included in the Engineering Drawings, Specifications and Bills of Quantities.
5. During operation, maintenance of the road is a key factor in protecting the environment. For example, if the project roads are always in motorable condition, vehicles would not have to drive off-road, thereby destroying vegetation, road structures, and posing a danger to pedestrians, cyclists and livestock.
6. It is strongly recommended that the mitigation measures proposed in this report be incorporated, as they are reasonable and implementable.
7. To develop and adopt as a strategy for income restoration, relocation options and socio-economic support measures for PAPs especially vulnerable groups.
8. Since land is communally owned, communities agreed to reallocate an equivalent of land for free to the PAPs to be resettled. The project was only asked to compensate in cash or in

kind there location and reconstruction costs. So that their way of production, living and social relationship can be maintained.

9. It is further recommended that a result based monitoring and evaluation program should be drawn and documented as an integral component of the Social Management Plan.
10. Environmental monitoring allows measures to be implemented in order to prevent or avert negative impacts. The MTRB and Directorate of Environment must ensure that monitoring does take place and oversee environmental compliance in all road related activities.