

RURAL INFRASTRUCTURE STRATEGY IN SOUTH SUDAN

FWC BENEFICIARIES 2013, Lot 2 Transport & Infrastructures
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KEY INFORMATION AND MAIN RECOMMENDATIONS

1. The Context and Overview
 2. Update on Roads Programs in South Sudan and Donor Intervention in the Roads Sector (as of March 2015)
 3. Transport Options and Priorities: Methodological Standpoint for an Infrastructure Program
 4. Action Plan, Indicative Investment Plans: Goals and Objectives
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1. Context and Overview

Specific Objective

The specific objective of the ToR is to prepare and present a strategic vision of rural infrastructure needs in South Sudan alongside an analysis of current interventions (coverage, duplications, quality) with gaps between the two and identification of blockages (bottlenecks) to delivery.

The assignment should deliver a set of practical options outlining key transport investments required from a joint humanitarian and development perspective, depending on the different relative weights put on (i) (ii) and (iii) above.

The focus should include an estimated costing of both the initial capital outlay and also future maintenance expenditures, recommendations should be made on harmonised standardisation of intervention quality (including capacity building interventions around maintenance)

Brief Situation Analysis

In South Sudan, the Ministry of Transport, Roads and Bridges (MTRB) is responsible for overall transport sector policy and administration of road, air, rail and river transport. The establishment of the South Sudan Roads Authority (SSRA) to focus on the maintenance and management of road development projects has been developed while the creation of a Road Fund has been, in principle, accepted.

There is need to indicate the priority interventions to be undertaken within a harmonized approach among the members of the Steering Committee (European Union, World Bank, USAID, DfID), and with other donors involved in the roads subsector (both trunk and selected feeder roads) in the next 5 years (2016-2020).

Transport Sector in South Sudan

South Sudan has three modes of transport which are functional to a certain extent: river, road and air. The railway transport from Aweil to Wau had been repaired during the existence of the Multi-Donor Trust Fund (MDTF) but the bridges were damaged and the railway network has not been working since 2009/2010. Most of the goods within South Sudan are transported by road.

River transport was mainly by barge from Sudan to Juba. However, due to unresolved conflicts with Sudan, river transport from Sudan basically stopped and the little left is done by smaller boats within South Sudan only. Bigger barges are presently only used to transport food supply for WFP and fuel for humanitarian organizations.

The main airports are Juba and Rumbek both of which are declared as ‘international’ airports. Additionally, there are a few smaller airports, mainly connections to the other state capitals and major towns and about 2,100 airstrips. For the airports in Juba and Rumbek, contracts for improvement works have been signed by the Government of South Sudan.

After independence in 2011, most of the donors (except USAID and the World Bank which were involved in construction of trunk and feeder roads, including China, whose agreements for road construction were in progress) shifted the focus to rehabilitation of feeder roads with the aim of building up agriculture as the second economic pillar of the country.

This approach had a severe set-back in 2012 when oil production stopped due to disagreements about pumping fees and oil revenue went down. At the end of 2013, fighting erupted in Juba and quickly spread to other parts of the country. Consequently, donors, UN agencies and NGOs had to evacuate non-key staff and scaled down activities to a minimum. It took almost 6 months until activities fully resumed. The oil revenue did not recover any more due to reduced oil production coupled with the falling international oil prices. As a result, the government has since 2012 not been able to fulfil its commitments in regard to road maintenance.

Transport Institutional Policy

The ultimate goal of the institutional policy for the transport sector is to improve/re-engineer the administration of the sector in South Sudan on the basis of a new definition of respective roles of the government, specialized transport subs-sector authorities, and transport enterprises, improving the overall efficiency in the transport sector, with particular reference to roads (trunk and feeder roads), rivers, airports/airstrips and railways re-development.

The government should disengage itself from the operational activities, allowing private sector participation and market competition, opening room also for joint ventures in the construction industry. Therefore, for the medium-term interests of the sector, it is important to effectively separate, streamline and consolidate policy for the Ministry responsible for transport matters, regulation (for regulators) and operations (for operators).

Scope of Rural Transport Policy

The foremost need is for a thorough reappraisal of the role and scope of policy in the realm of rural transportation. This reappraisal should involve three key developments in strategic thinking:

- Recognition that the range of initiatives and policies which could be adopted is considerably greater than has generally been exploited to date in South Sudan. For instance, efforts to enhance off-road mobility could include the introduction and promotion of non-motorised modes of transport other than head-loading and, in many cases, the development of the footpath network.
- Broadening of the definition of the problem beyond ‘mobility’ to encompass the wider concept of ‘accessibility’. In other words, the core problem should be seen as the scale and nature of the transport task rather than the inadequacy of the transport system per se’. This apparently semantic point does, in fact, have important policy implications. It opens the door not just to policies to improve people’s mobility by making transport faster, less burdensome and cheaper, but also to those which reduce or obviate the need to travel, generally by the location of facilities and the delivery of services and goods closer to rural communities.
- Acknowledgement that policies appropriate to reducing the rural transport must be location-specific. That they must, in other words, respond more closely to the specific physical, cultural and socio-economic characteristics and needs of the target areas in South Sudan.

Calling for a move away from ‘project- based planning’ towards ‘area-based planning’ methods, for a more open-minded and imaginative response to rural transport takes local factors into account.

State Ministries of Physical Infrastructure (SMOPI)

The SMOPI are responsible for feeder roads within the States. They are not responsible for trunk roads as this responsibility lies with the MTRB/SSRA. State governments have a legal mandate set out in the Local Government Act (2009) to raise revenue from local taxation, land sales and any other means at their disposal. They also receive a proportion of general taxation from central government, although this has been negligible in this financial year. A majority of the revenue is allocated to security taking into account the current situation and currently (2014/15) no revenue is allocated to feeder road works other than for salaries of officials and staff.

2. Update on Roads Programs in South Sudan and Donor Intervention in the Roads Sector (March 2015)

Road rehabilitation programs in South Sudan started in 2005 with the initial aim of opening road corridors for distribution of food supply and later to import materials for development projects.

Since 2012 three main donors for the road subsector (EU, World Bank, USAID) are making efforts to improve the quality of works by

- insisting on investigations of the road alignment before construction works start
- submission of a detailed design before start of construction works
- construction works to be done according to the Low Volume Construction Manual

Classification of Existing Road Network

The existing road network in South Sudan is classified according to road type as Interstate (including International roads), Primary, Secondary, and Feeder road networks. The distribution of these roads is estimated to be as presented in the following Table.

Road Type	Length (km)
Interstate network	6,400
Primary network	1,451
Secondary network	3,822
Feeder network	7,400
Total	19,073

3. Transport Options and Priorities: Methodological Standpoint for an Infrastructure Program

From a methodological standpoint, South Sudan could develop a tentative infrastructure program 2016-2020. Such a program would have to be updated on yearly basis, taking into consideration the following two options:

1. **Option 1:** Concentration on reconstruction of existing road corridors to acceptable, higher quality standards, to maintain access to the main humanitarian distribution centers (e.g. Rumbek, Wunok, Bor), to maintain existing roads, which are built on higher standards (including those roads, which are fitting in the program of reconstruction of trunk main roads and new construction of feeder roads, which are funded by USAID). Less focus is laid on construction of new feeder roads and should concentrate mainly in the Green Belt area.
2. **Option 2:** Concentrating on keeping existing road corridors open so as to have year-round access to humanitarian distribution centers, maintenance of existing feeder roads which had been built on higher standards, and developing new feeder roads.

For river transport, no infrastructure investments are recommended in the short-term (2016 – 2020), due to the stoppage of river traffic from Sudan to South Sudan and the presently low river traffic, mainly caused by insecurity.

As a short-term measure, environmental studies are recommended e.g. to update existing water laws in regard to protection of rivers from pollution and cost-benefit analyses in regard to dredging. For airports, infrastructure improvement works for Juba (construction of new terminal and extension of runway) and for Rumbek (asphalting of runway, construction of terminal building) had been contracted by the Government of South Sudan. The aim for these two airports is to be fully recognized as international airports. The airport in Wau had been recently asphalted.

If the country recovers from the ongoing humanitarian crises, fewer aircraft, including operational set-ups are required outside Juba. If oil companies were to resume production, airports mainly would be used by these companies and therefore could contribute towards maintenance of airstrips / smaller airports.

For short-term interventions, assistance should be given to update agreements for facilitating movement of airplanes through South Sudan's airspace.

Comparing investment costs for roads and airports, with benefits in regard to humanitarian aid, there are more advantages in road investments due to the fact that costs for airlifting operations by humanitarian organizations could be reduced by far.

Institutional Strengthening

A short term (2016-2020) program of institutional strengthening and capacity building could be carried out, focused on the transport sub-modes and also within the MTRB (Ministry of Transport, Roads and Bridges).

The main lines of action in the short term could be represented by the following elements, with particular emphasis on roads and only limited support to river transport and airports:

- River transport: updating of the inland water law and environmental protection as short-term measure. Depending on the development institutional strengthening, training of key staff and training courses on key issues shall be carried out on medium-term;
- Airports and air transport: new rules for competition on the internal and international market; updating of new agreements for opening the air space and for facilitating movements of airplanes through South Sudan's skies in the short-term; and training of key staff and training courses on key issues in the medium-term when the already started modernization/expansion of Juba international airport and related fleets will be completed;
- Airports: High landing and parking fees are collected by the authorities, which should be reinvested in maintenance of airport infrastructures;
- SSRA needs progressive reinforcing, giving it more financial and technical responsibility, strengthening the road maintenance component of key staff through training courses on key issues.
- MTRB: reinforcement of the key staff including some experts specialized particularly in the following areas:
 - a. transport economics, strategic planning and budgeting;
 - b. traffic forecasting;
 - c. transport and environmental issues;
 - d. information systems and data banking, e.g. for assets, human resources, etc.
 - e. training courses on selected key issues in multimodal transport, safety, PPPs, etc.

Top Priorities

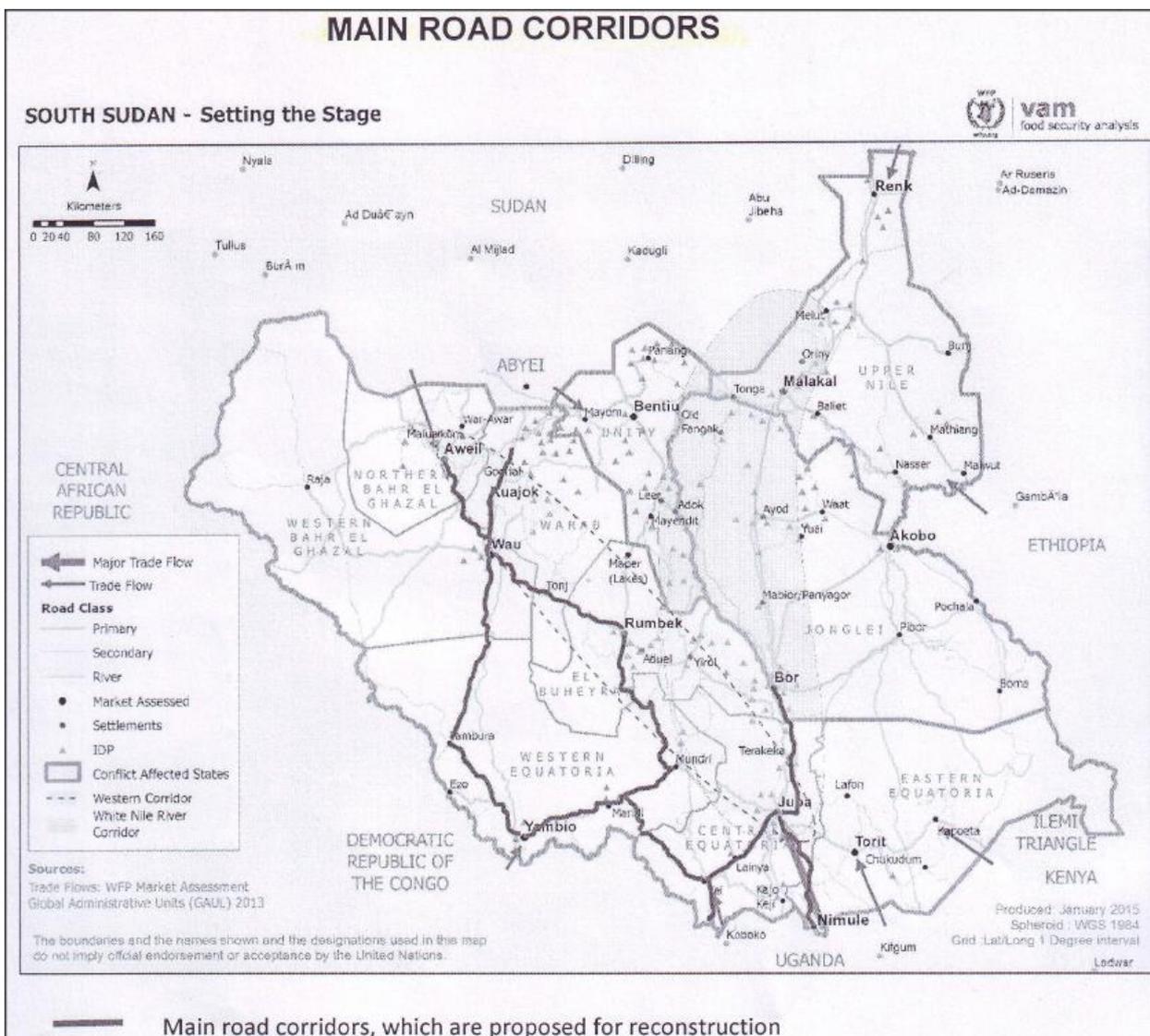
As far as the roads are specifically concerned, a program of investments should be pursued on a selective basis, with particular attention to (i) have all-year access to the main humanitarian distribution centers and better intra and inter-urban connections (particularly between Juba and the most important cities like Wau, Rumbek, Bor, etc.) and neighboring countries (Uganda, Kenya, Ethiopia); and (ii) to axes of rural penetration to the production and population areas in the Greater Equatoria, in order to facilitate social and economic development.

As it is possible to note from the above, top priority for the period 2016-2020 should be given to roads and river transport, and to airports on a selective basis.

As far as priorities are concerned, a parameter which should be taken into consideration is the overall development of the different regions of the country in such a way as to reduce social and economic imbalances.

Of course, population and production (mainly agriculture) in the different regions should be the key factors to take into consideration in establishing the criteria for overall development.

Map 1: Main Road Corridors



Concentration of Efforts in the Roads Sector

Due to the poor condition of most of the corridor sections, it is suggested that efforts be concentrated in keeping the existing main corridors open and start complete reconstruction of these roads in order to avoid recurrence of spot repairs which do not last long.

Reduction in Transport Costs

Keeping interstate and trunk roads passable all year round will reduce the transport costs for humanitarian supply as well as for development projects and the private sector.

Priority Roads Selection Criteria and Priority List

The main road corridors leading to humanitarian distribution centres are:

- Nimule – Juba
- Juba – Yei
- Kaya – Yei
- Yei – Faraksika
- Faraksika – Yambio – Tambura – Wau
- Faraksika – Mundri – Mvolo – Rumbek
- Rumbek – Wau
- Wau – Kuajok – Gogrial – Wunrok
- Wau – Aweil
- Juba - Bor

Therefore, it is essential for humanitarian relief suppliers to reconstruct these roads to ensure that they are passable throughout the year. These roads are also of utmost importance for development in rural areas, e.g. for feeder roads, constructed according to design standards and connected to these main roads.

4. Action Plan, Indicative Investment Plans: Goals and Objectives

Of course, for a comprehensive analysis and evaluation of the interventions to be developed and funded in the short term (2016-2020) and the medium to long term (10-20 years), the appropriate tool should be related to the definition and subsequent funding of a National Master Plan for Transport for the different transport modes (roads and bridges; river inland ports; airports and air transport; multimodal transport).

Given the limited time frame of this short assignment, an indicative and preliminary Action Plan with indicative Investment Plans is outlined.

Within the development of a Master Plan for the overall transport sector as a whole and for the specific sub-modes, a priority ranking procedure to set the most important projects/interventions should be developed. For some of them, (pre)feasibility studies should be carried out based on cost-benefit analysis and/or multi-criteria analysis. At this stage, it is not possible to be more detailed on the above.

Actions for the Short Term (2016-2020)

It is crucial to support infrastructure in the transport sector, including roads and bridges, inland river ports (particularly from Juba up to Malakal) and related access to them, and airports (particularly the state capitals and major towns) with complementary services and infrastructures.

It has to be taken into account that the transport system and infrastructure is necessary for mobility and accessibility across the country. Developing links to key areas of socio-economic development

is a vital short and medium to long term objective.

The main objective of the government in the short term is to restore and develop the key road network through reconstruction of the corridors essential for humanitarian aid supply and furthering rural development, or at least through measures to keep the main road corridors open and maintenance of the roads done according to design standards while in parallel constructing new feeder roads. In the medium term, the main inland river ports and airports should be upgraded.

The broad goals and objectives for roads and bridges could include the following.

Goal 1: Ensure that all main road corridors are passable year round and open up new / feeder roads around the country.

Scenario 1- Objectives

- Keeping the 1,412 km trunk roads open until these roads are completely reconstructed to facilitate movement of persons and delivery of goods and services to all States of South Sudan
- Reconstruct 1,311 km of all-weather trunk roads in the period 2016-2020 to facilitate year-round access to state capitals (preferred scenario)
- Reconstruct and rehabilitate 820 km of feeder roads nationwide to enable farmers deliver their produce to market efficiently. This will help boost the economy, provide empowerment and sustained growth.
- Carry out maintenance of 2,339 km of trunk and feeder roads which had been reconstructed according to design standards (mainly roads which had been constructed from 2013 onwards)

Scenario 2 - Objectives

- Keeping 1,412 km trunk roads open (long term exercise) to facilitate movement of persons and delivery of goods and services to all States of South Sudan by placing heavy machinery and equipment at strategic locations to be able to pull out stuck or broken down vehicles and carry out only recurrent spot repairs.
- Reconstruct and rehabilitate 1,152 km of feeder roads nationwide to assist farmers with efficient delivery of their produce to market to boost the economy, provide empowerment and sustained growth
- Carry out maintenance of 1,690 km of roads which had been reconstructed according to design standards

Goal 2: Develop safety pamphlets to promote safety.

Objectives:

- Conduct road safety initiatives in cooperation with the safety department at ministerial level
- Provision for procurement of weighbridges, which should be placed at strategic locations

Goal 3: Build capacity for sustained and adequate maintenance and develop a long-term strategy for capacity to enhance the maintenance of roads and bridges.

Objectives:

- Support the government in building human capacity by identifying tailor-made trainings (although feeder road programs might not start immediately in all States, the capacity should be gradually built)
- Support the government to create an asset register for machinery and equipment, already available, and evaluate the condition of this equipment to reactivate major equipment

- Identify other assets of the government, e.g. existing training centres or road camps and evaluate the condition for possible reactivation

Goal 4: Assist in initiating an environmental study for river protection and carry out a cost-benefit calculation for river dredging.

Objectives:

- Support the government in preparing ToR for an environmental study with the aim of updating water laws in regard to river protection, taking into account that more than 100 million people between South Sudan and Egypt depend on the waters of the Nile. Carry out a cost-benefit analysis and EISA (Environmental Impact Statement Assessment) for river dredging.

Goal 5: Updating existing rules in regard to air and airport safety.

Objectives:

- Support the authorities at Juba airport in developing new systems and rules in regard to airport safety to achieve international standards.

Budgets for each of the two Scenarios

The planned budget includes:

- Road reconstruction
- Support for safety initiatives in the road sector and provision for supply of weighbridges
- Support for airport authorities to develop new systems and rules in regard to airport safety
- Environmental/Social study for river transport and cost-benefit analysis
- Support the Ministry in charge to build capacity with regard to road construction and maintenance

As shown in the overall budgets in 2 tables below, the main focus is laid on road reconstruction.

Table 1: Scenario 1 – Overall Budget

Activity	US\$
Improvement of road network option 1	370.865.850,00
Support for safety initiatives and provision of weighbridges at strategic points	1.500.000,00
Support for airports to improve aviation regulations (e.g. safety regulations, etc.)	1.500.000,00
Environmental/Social study for river transport and cost/benefit analysis for river dredging	500.000,00
Institutional support to Ministry in charge with regard to construction and maintenance	4.500.000,00
TOTAL estimate	378.865.850,00

Table 2: Scenario 2 – Overall Budget

Activity	US\$
Improvement of road network option 2	360.668.850,00
Support for safety initiatives and provision of weighbridges at strategic points	1.050.000,00

Support to airports for improving aviation regulations (e.g. safety regulations, etc.)	1.500.000,00
Environmental/Social study for river transport and cost/benefit analysis for river dredging	500.000,00
Institutional support to Ministry in charge with regard to construction and maintenance	4.500.000,00
TOTAL estimate	368.218.850,00

Scenario 1 is the preferred scenario of reference. Reconstruction/rehabilitation in Scenario 1 is focused first on reconstruction of sections of main corridors which are essential for humanitarian supply but also for rural development, and which are not passable during rainy seasons. Simultaneous (only for a short period of time, when reconstruction of impassable sections is not completed) spot repairs have to be done at sections, which are not passable during rainy seasons.

Feeder road reconstruction will continue on a limited scale, mainly focused on areas in the Greater Equatoria and in areas where the yield / ha is expected to be higher.

Maintenance activities shall be carried out for those roads (feeder roads and trunk roads), which had been rehabilitated according to design standards.

Table 3: Road Rehabilitation Budget for Scenario 1

Activity	Distance (km)	Total Cost Estimate (US\$)
Keeping roads open (short term)	1,412	20,000,500
Complete reconstruction to keep main hubs open for humanitarian supply and development	1,311	206,690,000
Complete reconstruction; second priority, feeder roads in Green Belt / agricultural development	820	124,500,000
Rehabilitation / Maintenance of Juba - Nimule road (including bridge)	192	1,500,000
Maintenance	2,147	18,175.350
Total Cost Estimate		370,865,850

Scenario 2: Continue to focus on feeder road construction on a larger scale but including provisions for keeping trunk roads open in form of recurrent costs. Additionally, this scenario also has the provision for maintenance of all roads (feeder and trunk roads) constructed according to technical specifications.

Table 4: Road rehabilitation budget for Scenario 2

Activity	Distance (km)	Total cost estimate (US\$)
Keeping roads open	1,412	164,370,500
Complete reconstruction, second priority, feeder roads in Green Belt / agricultural development	1,152	180,940,000
Rehabilitation/Maintenance of Juba - Nimule road (including bridge)	192	1,500,000
Maintenance	1,498	13,858,350
Total cost estimate		360,668,850

5. Main Recommendations

There has been and continues to be significant activity and investment in the broader roads sector and unanimous support for road maintenance.

- (i) Given this momentum, the solid overall justification for investment in roads generally, and given the opportunity that the feeder roads project provides employment at the national, state, county and payam levels, our recommendation is that the feeder roads programme should proceed. Further, because of the trunk road works planned for the stretch between Juba and Wau, and due to the existence of the complementary EU feeder roads project, this is a unique opportunity to exploit the economies of scale that these combined investments create.
- (ii) The World Bank's idea of a pool fund for road maintenance run by a donor-appointed agency needs support. The pool fund should be administered by an agency appointed jointly by all participating core donors and should have representatives from the relevant ministries of Transport, Roads and Bridges and Agriculture, Forestry, Cooperatives and Rural Development, Finance and Planning, SSRA and SMOPI.
- (iii) In particular, SSRA and SMOPI need strengthening through capacity building.
- (iv) The role of WFP and UNOPS in road construction and/or maintenance needs to be rethought and updated.
- (v) The Government of South Sudan (GOSS) needs to be supported to generate additional revenue through user fees. This will include supporting/coordinating with the World Bank, who, in the first quarter of 2015, commissioned a study to look into the likely nature, scope and structure of a pool fund.
- (vi) A pool fund is not the same as a road fund. The latter is usually generated from charging user fees or a fuel levy.
- (vii) The GOSS, in collaboration with donors should:
 - Undertake an economic and political economy study to determine the economic viability and political sense of a fuel levy. Some work has been undertaken to date in this regard by others;
 - Monitor opportunities to exploit local on-going success stories and upscale successful pilot projects such as EU's and USAID's/Tetrattech's capacity development pilot in Yambio. These should be monitored and rolled out across a wider number of projects adapted as appropriate to suit local conditions;
 - Set out a plan to investigate ways to reduce road construction and maintenance costs with a view to increasing available capital maintenance;
 - Assess opportunities to extend the service delivery framework exemplified in the FROMA2B project;
 - Consider utilising existing mechanisms or creating a new pooled funding mechanism for the roads sector for purposes of allocating additional capital to the sector and to do so in a manner that strengthens Central and State Government processes. The Consultants do not feel that such a fund needs to be managed by the World Bank but could be complementary to and supported by the Bank in addition to its ongoing operations; and
 - Look for formal ways to identify linkages between projects, share lessons and progress, with a view to harmonizing the general approach to road maintenance across South Sudan.
- (viii) In order to improve the working attitudes and sense of responsibility for state and government employees, the following is also recommended:

- Creation of job opportunities and descriptions for different positions within the state/national departments.
 - Involvement of state and national government employees in each process with regard to road construction and maintenance activities
 - Establishment of an asset register in each state, including description of the assets and their value
 - Creation of a database for the staff available within the different state/national departments, and educational qualifications
 - Summarizing the responsibilities of different national and state departments in road construction and maintenance and the linkages with other departments.
- (ix) It is of paramount importance to develop in the near future:
- Priorities and gap analysis
 - Regulatory framework analysis
 - Infrastructure conditions inventory
 - Initiate M&E exercises