**2.5.1 South Sudan Bor Waterways Assessment**

**HQ to INSERT HERE navigable waterways map from GIS team in Rome.**

A large network of waterways connects southern, central, and northern areas in the country, the White Nile is the main river that flows through South Sudan, connecting the capital city Juba in the south with Renk and up to Gerger as the last port on the border with Sudan, in the north. The river is accessible throughout the year, and many of the river tributaries such as Zeraf (Po River), Sobat, and Naam, etc. are also accessible throughout the year, except for Sobat River, which may pose some access constraints during a short period (mid-February to mid-April) of the dry season.

The waterways stretch over 1500 Km in different directions and connect Bentiu in the west to Akobo on the Ethiopian border in the east, in addition to the White Nile that connects many towns located along the riverbanks, with the major ports of Juba, Mangala, Bor, Shambe, Adok, Malakal, and Renk that easily accessible to provide transport services, of which Bor and Malakal are main Logistics hubs for the river movement of WFP Food commodities and other relief cargo.

Due to the lack of capacity of the Ministry of Transport that is overseeing the river transport no maintenance and clearance is done, in addition to the nature of the wetland which is considered a large Sudd, the white Nile and other river beds are narrow and it does not allow the movement of the larger barge, and it is limited to movement of barge set that consists of one pusher attached to four barges along the White Nile and smaller ferry barge along Zeraf river.

Many river ports are nothing more than an easily accessible riverbank from which porters can load and offload cargo. Loading and offloading facilities, including access to equipment, remain a challenge and it is supported using external equipment as cranes and forklifts that can be deployed to the Port based on a request from a commercial operator or by UNMISS support based on MCDA (military and Civil Defense Assets) request.

Although navigational throughout the year, water levels fluctuate during the rainy and dry seasons. In some areas this results in the reduced cargo carrying capacity of barges with barge operators loading vessels according to seasonal draft and clearance requirements. Standard barges take around 400mt but at times during the dry season and in some sections as between Juba-Bor, the river is only navigable with 300mt. Over the past three years, WFP and other humanitarian actors conducted several assessment missions to explore new waterways that are accessible from main rivers to reach remote areas, expanding the river accessibility to locations in Ayod county in Jonglei state and by using other tributary waterways from Sobat River.

Passenger transport along the river has not been fully developed. No dedicated passenger barges are operating along the river and passenger transport is mostly done through boats, and allocated space on cargo barges. Several checkpoints along the waterways have been a great hindrance for barge/boat movement, transporters normally incur cost to clear passage in several checkpoints. this causes delays in the movement of cargo including creating insecurities where there is no agreement on clearance at the checkpoints and adding delays to river trip lead time.

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For more information on government contact details, please see the following link: **HQ staff will input a link to section 4.1 Government Contact List here.**

**Company Information**

Historically barge and boat operations were characterized by state-run agencies managed by Sudan. After The independence of South Sudan, river assets were shared and the assets are subcontracted to private companies for river movement, B & S is one the barge operators relying mainly on the South Sudanese shared assets, Nile Barges owns two Pusher and a number of barges, making to two operational barge sets, Keer Marine and MINCO are large companies currently operating on the river, in addition to Internet International and Mango tree are two companies that has one ferry barge each, this type of barge consists of one compact transport unit, with limited capacity to 500 MT, and they are equipped with a ramp that makes the barges suitable for the transportation of heavy machinery and light vehicles.

Private boat companies operate along the Nile and other tributary rivers and waterways, the capacity of boats varies from small boats of 50 Mt capacity to large boats of 350 MT. Boats of different sizes are available in large numbers, mainly in major ports such as Juba, Bor, and Malakal. The companies own few boats, and they rely on subcontracting from the market to meet the capacities for larger shipments, generally, competition amongst transporters is stiff.

For more information on waterway company contact details, please see the following link:**HQ staff will input a link to section 4.4 Port and Waterways Companies Contact List here.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Passenger Carrying Capacity** | | | |
|  | **COMPANY A** | **COMPANY B** | **COMPANY C** |
| **Number of**  **Passenger Vessels**  **< 20 Passengers** | N/A | N/A | N/A |
| **Number of**  **Passenger Vessels**  **< 50 Passengers** | N/A | N/A | N/A |
| **Number of**  **Passenger Vessels**  **< 100 Passengers** | N/A | N/A | N/A |
| **Number of**  **Passenger Vessels**  **> 100 Passengers** | N/A | N/A | N/A |

|  |  |  |  |
| --- | --- | --- | --- |
| **Boat Carrying Capacity** | | | |
|  | **Ludier** | **Internet International** | **Nile Barges** |
| **Boats** | | | |
| **Number of Boats** | 7 | 3 | 3 |
| **Tonnage / Volume**  **Carrying Capacity *(MT / m3)*** | Total Tonnage  1350 MT/1800 CBM | Total tonnage  750MT/ 900 CBM | Total tonnage  750MT/ 900 CBM |
| **Barges** | | | |
| **Number of Barges** | Nil | 1 | 2 |
| **Tonnage / Volume**  **Carrying Capacity *(MT / m3)*** | Nil | 500 MT/800 CBM | 1500 MT Each/3000 CBM |
| **Tugs** | | | |
| **Number of Tugs** | N/A | N/A | N/A |
| **Tonnage / Volume**  **Carrying Capacity *(MT / m3)*** | N/A | N/A | N/A |

**Travel Time Matrix**

**Travel matrix between Bor-Adok to Malakal with barge is 4 days from Bor to Adok and 4 days from Adok to Malakal.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Travel Time from Main port to other major Ports on Barge** | | | | | | | |
|  | **Total** | **Adok** | **New Fangak** | **Canal** | **Malakal** | **Melut** | **Renk** |
| **Bor** |  | 4 | 6 | 8 | 9 | 11 | 14 |
| **Adok** | 4 |  | 2 | 4 | 5 | 7 | 10 |
| **New Fangak** | 6 | 2 |  | 2 | 3 | 5 | 8 |
| **Canal** | 8 | 4 | 2 |  | 1 | 3 | 6 |
| **Malakal** | 9 | 5 | 3 | 1 |  | 2 | 5 |
| **Melut** | 11 | 7 | 5 | 2 | 2 |  | 3 |
| **Renk** | 14 | 10 | 8 | 5 | 5 | 3 |  |

**Key Routes**

**INSERT data into the below table regarding key routes.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Key Route Information**  **Domestic / International** | | | |
|  | **From: Bor**  **To: Adok** | **From: Adok**  **To: Malakal** | **From: Malakal**  **To: Renk** |
| **Total Distance *(km)*** |  |  |  |
| **Width *(m)*** | Broadest: 100 m Narrowest: 50 m | Broadest: 100 m  Narrowest: 50 m | Broadest: 100  Narrowest: 60 m |
| **River Flow**  ***(m³ / second)*** | the peak flow is approximately 1,218 m3/s (43,000 cu ft/s) in October and the minimum flow is about 609 m3/s (21,500 cu ft/s) in April | the peak flow is approximately 1,218 m3/s (43,000 cu ft/s) in October and the minimum flow is about 609 m3/s (21,500 cu ft/s) in April | the peak flow is approximately 1,218 m3/s (43,000 cu ft/s) in October and the minimum flow is about 609 m3/s (21,500 cu ft/s) in April |
| **Seasonal Effects** | Low Water Levels in some sections, during the dry season, can have an impact on the movement of large vessels | Low Water Level in the Dry season, no direct impact on accessibility. | No seasonal effect on accessibility. A few locations away from |
| **Maximum Weight and**  **Size of Vessels** | Excluding the Vessel Weight, the Dead weight is estimated to be 1700 MT for large Barges. The size is about 100 m Length x 70 MT width for a large barge set consisting of one Pusher attached to 4 barges. | Excluding the Vessel Weight, the Dead weight is estimated to be 1700 MT for Barges. The size is about 100 m Length x 70 MT width for a large barge set consisting of one Pusher attached to 4 barges. | Excluding the Vessel Weight, the Dead weight is estimated to be 1700 MT for Barges. The size is about 100 m Length x 70 MT width for a large barge set consisting of one Pusher attached to 4 barges. |
| **Regular Traffic**  **Passenger / Cargo** | No Regular movement. It is rather based on a request for the movement of commercial or relief cargo.  The same applies to passenger traffic moving to nearby locations by boat. | No Regular movement. It is rather based on a request for the movement of commercial or relief cargo.  The same applies to passenger traffic moving to nearby locations by boat. | No Regular movement. It is rather based on a request for the movement of commercial or relief cargo.  The same applies to passenger traffic moving to nearby locations by boat. |
| **Companies Operating**  **Along the Route** | Multiple companies operate boats along this route.  Fewer companies operating barges (estimated to 7 companies) | Multiple companies operate boats along this route.  Fewer companies operating barges (estimated to 7 companies) | Multiple companies operate boats along this route.  Fewer companies operating barges (estimated to 7 companies) |
| **Security Concerns** | Yes | Yes | Yes |
| **Main Ports** | Bor | Adok | Malakal |

**Port Information**

|  |  |  |  |
| --- | --- | --- | --- |
| **Key Port Information** | | | |
|  | **Bor** | **Malakal** | **Renk** |
| **Location** | 6.20423, 31.55344 | 9.540595, 31.644587 | 11.747553, 32.789049 |
| **Contact Information** | TBC | TBC | TBC |
| **Connections with Other**  **Transport Means** | Connected by road for offloading and delivery to storage facilities located within Port or at approximately 20 KM away. No direct connection to the airfield. | Connected by road for offloading and delivery to storage facilities located within Port or at approximately 20 KM away, no direct connection to Malakal airport. | Connected by road for offloading and delivery to storage facilities located within Port or at approximately 10 KM away. No direct connection to the airfield. |
| **Storage Capacity *(m2 and m3)*** | In Adok: 1760 m2/ can accommodate about 2000 MT/ 2500 CBM | In Malakal: 8640nm2/10000 MT/12000 CBM. | No Data available |
| **Handling Equipment** | Not available | Not available | Not Available |
| **Customs Clearance Available** | No | No | No |
| **Other Comments** | N/A | N/A | N/A |