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the resources to govern. What does self-determination mean for the North? What for the South? What are the expectations of the South over the North and vice versa? What is the meaning of the "New Sudan vision" today? The Referendum is a right that Southern Sudanese have fought for in the last 60 years and the opportunity shall not be missed. Priority in the last months before the Referendum should be given to dialogue and reconciliation starting from the leaders, to transform the plebiscite into a positive move. The international community should help the Parties promote dialogue (e.g. South-South dialogue, North-North dialogue) to adapt the New Sudan vision to the post-CPA situation and local reconciliation efforts, with the participation of the very leaders perpetuating insecurity on the ground.


Mustafa M. Khatib

INTRODUCTION

While thinking about and writing this paper, the author recalled the days when he was a pupil at Wadi Halfa Secondary School, Omdurman, and had to travel from Dongola to Khartoum, by canoe to Karima and then by rail to Khartoum. This was a trip that lasted a complete 8 days from a Wednesday morning until the following Wednesday evening. At times during the rainy season washouts could lengthen the journey up to 13 days. Thanks to road transport the journey is now a matter of hours. The failure of the railway network to provide a suitable and timely service led to much frustration, but it was not until 1989 that the policy laid down in 1930, whereby roads were seen as essentially a means of transport of goods and people to the nearest railway station, was finally challenged. It was not until 1986, after a new political regime had taken power that a new policy was put into effect. Nevertheless, the rail network was a vital factor in development in the Sudan and must be examined first.

THE RAILWAY NETWORK (figure 1; Table 1)

For over 70 years railways were the main means of transport in the Sudan. Their introduction began with the building of some short lines connected with the Anglo-Egyptian invasion which led to the establishment of the Condominium. The first really important line was the single narrow gauge track (1066mm) from Wadi Halfa to Khartoum North. The last day of the Nineteenth Century saw the official inauguration of this line which was mainly for the transport of passengers and equipment. Later on, however, this line and
others such as the ones to Port Sudan (1906) and El Obeid (1912) combined with military and economic purposes.

When the Sudan became a self-governing country in 1951 it had a skeleton railway system of about 3164km of main line. The national government, eager to embark upon a programme of national unity and economic development built 3 new lines; a shorter one from Sennar to Rossett, a longer one for the building of the dam at Abu Simbel, and a third southwards from Bahariyya to Wadi Halfa. Thus the length of main line was increased to 4588km. Table 1 shows the development of the rail network from 1951 to 1995. In addition, the railways ran two major river valley services in the Sudan, namely from Dongola to Karima and from Khartoum to Juba with seasonal services to Mocha and up the River Sobat. It also ran a river service from Wadi Halfa in Sudan to Assuan, south of Aswan, in Egypt.

The impact of this network on the economy, politics and national unity was great:

1. It played a vital role in the economic development of the Sudan, for without the railway development schemes such as the cotton where about 250,000 fields of long-staple cotton were cultivated annually and the crop exported, would not have been possible. Further, the railways provided a great incentive to traditional farmers of the savanna region, to accelerate the production of subsistence crops with commercial farming.

2. The railway as a modern means of transport made the mobility of people comparatively easy, and regions served by the railway became, to some extent, integrated with the centre of the country and with other parts of the Sudan. However, regions away from the railway, such as Darfur and the South, fell isolated, and this was a source of discontent and led to active political representation.

Figure 1: Sudan Railway Network, 2003
[Seminar to Kasala line is currently out of use]
Table 1: Sudan Railways: Date of construction, and length of lines.

<table>
<thead>
<tr>
<th>Name of the line</th>
<th>Date of Construction</th>
<th>Length of line, km</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Halab - Abu Hamid</td>
<td>1898</td>
<td>330</td>
</tr>
<tr>
<td>2 Abu Hamid - Abu Soheir</td>
<td>1900</td>
<td>244</td>
</tr>
<tr>
<td>3 Alwa - Kristin</td>
<td>1909</td>
<td>373</td>
</tr>
<tr>
<td>4 Akarta - Port Sudan</td>
<td>1906</td>
<td>474</td>
</tr>
<tr>
<td>5 Sudan No. 16 - Khartoum</td>
<td>1913</td>
<td>271</td>
</tr>
<tr>
<td>6 Khartoum - Kerma - El Obeid</td>
<td>1912</td>
<td>669</td>
</tr>
<tr>
<td>7 Haya - Kouroum</td>
<td>1924</td>
<td>347</td>
</tr>
<tr>
<td>8 Kassala - Kazah</td>
<td>1928</td>
<td>238</td>
</tr>
<tr>
<td>9 Gedaref - Sennar</td>
<td>1929</td>
<td>227</td>
</tr>
<tr>
<td>10 Sennar - El Obeid</td>
<td>1934</td>
<td>220</td>
</tr>
<tr>
<td>11 Arto - Baharka</td>
<td>1957</td>
<td>360</td>
</tr>
<tr>
<td>12 Baharka - Nyala</td>
<td>1959</td>
<td>85</td>
</tr>
<tr>
<td>13 Baharka - Wadi</td>
<td>1965</td>
<td>146</td>
</tr>
<tr>
<td>14 El Obeid - El Fasher - El Gash</td>
<td>1967</td>
<td>70</td>
</tr>
<tr>
<td>15 Medug - Alar Gobra</td>
<td>1965</td>
<td>52</td>
</tr>
<tr>
<td>16 Shantel, Oil Yield</td>
<td>1965</td>
<td>10</td>
</tr>
<tr>
<td>17 El Obeid - Railways</td>
<td>1995</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Sudan Railways Records

Table 2: Passengers and goods transported by rail.

<table>
<thead>
<tr>
<th>Period</th>
<th>Tons (millions)</th>
<th>Passenger (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1925/5 - 1934</td>
<td>2.09</td>
<td>2.2</td>
</tr>
<tr>
<td>1935/5 - 1959</td>
<td>1.44</td>
<td>2.1</td>
</tr>
<tr>
<td>1960/6 - 1989/90</td>
<td>0.71</td>
<td>0.8</td>
</tr>
<tr>
<td>1990/10 - 1995</td>
<td>0.41</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Source: Mohammed Omar Al Kheder

3. The railways played an indirect though effective role in delaying the construction of terminal roads in the days when motor transport began to compete with railways for the transport of goods and passengers. The railway authorities did not like the emerging competition from road transport and succeeded in convincing the Sudan Government of the need to curtail this competition. So in 1934 an Ordinance was issued by the Governor General in Council giving the railways a complete monopoly of traffic from the port to the interior of the country. In practice, that also applied to traffic from inside the country to the port. In effect, the Ordinance prohibited the building of any major roads. Preliminary roads to the railway were not prevented but remained as sand, clay or gravel tracks.

4. As a result of their monopoly the railways made handsome profits, but later the rail system faced great operational losses.

5. The railways encouraged agricultural production, but as time passed and especially after the construction of the railway to Nyala traffic increased to such an extent that the railway could not cope with the quantities of goods to be transported. The main problem arose from the seasonality of agricultural production which led to sharp peaks in demand especially from November to March.

The railway authorities argued that an increase in capacity and facilities might solve the peak demand problem, but it would create quantities of capacity that would not be used for 6 to 8 months of the year and that would lead to considerable financial losses. The logic was not convincing to businessmen who actually saw this money they paid into buying crops was tied up for 4 to 6 months of the year as contingencies remained at the railway stations or in stores during all that time. They also argued that existing railway policy was bound to reduce their ability to compete with other regions and others, Sudan producing the same kinds of crops. The same kinds of complaints also came from those
engaged in importing goods. Here there were no peak seasons, but the railways singly failed to cope with the quantity of goods at any time of the year, so that goods remained in the port for months causing unnecessary losses and congestion. The Government and the newly formed Railway Authority tried to improve matters but without success.

The reasons behind many of the shortcomings could be summarized:

1. Mismanagement: The World Bank, through the consulting firm SOGREH, pointed this out as a major factor as far back as 1974, but the report was shelved.

2. Lack of maintenance of rolling stock and other equipment

3. Widespread corruption: The railway authorities, seeing that there were many businesses dependent upon them, realized that it was impossible to serve all at once and the same time and to be free to all developed a policy of tolerance, who came first to be served first and registration books were to be kept at the various railway stations. In practice there was no system of accountability and the door was opened wide for corruption.

4. Frequent strikes: Strikes were frequent and the trade unions acting irresponsibly creating many delays.

5. Political problems with the USA: Over 80% of the railway equipment was of USA origin and when the USA declared economic sanctions against the Sudan, the railways suffered badly.

With these failures both the Railway Authority and the Government came under severe pressure. Many scholars thought that the problem of transport could be solved by building new roads, not only to serve the economy, but also because roads were looked upon as the sign of a modern state.

ROAD BUILDING: During the first half of the 20th century most roads were built in Khartoum and in a few other towns outside such urban centres the roads were sand and gravel tracks following the lines the animal movements and human walking had created. When lorries were introduced they followed such narrow lines and in spite of such shortcomings they were able to compete with the railways. After the Second World War the number of working lorries increased significantly and discussions began. No doubt there were papers by Forrest in Sudan Notes and Records strongly in favour of road building. In 1957 the Sudan asked for technical advice from the United Nations. This led to the Campbell Report which suggested the building of 3,100 miles (4,560 km) of national and provincial roads. Nothing materialized due to opposition from Sudan Railways and because of the economic problems facing the Sudan from 1958 to 1961. In 1964 USAID suggested that two highways in particular should be built: Khartoum to Port Sudan via Wad Medani (to serve the Rahad Scheme) and Khartoum to El-Ghald via Kosti. In the end only two short highways were built: Khartoum to Wad Medani (189 km) and Khartoum to Gelli (331 km).

The failure of the railways led to the saving of billions of dollars from the 1934 Ordinance and carrying goods to and from Port Sudan. But plans for a road network did not start until a new political regime took over in 1956. The first question asked was how to pay for a new road network? The advent of oil revenue has helped economically. So far five long highways have been constructed to give the Sudan a skeleton network. These are:

1. The highway suggested by USAID from Khartoum to Port Sudan via Wad Medani and Kasala.

2. Usayd Highway from Khartoum to Port Sudan via Atbara.
3. The Western Ingaz Highway from Khartoum to El Obeid via Kosti and since extended to Nyala with work underway to reach El Fasher. This is now to have a branch from Kosti to Malakof.

4. The Northern Ingaz Highway from Omdurman across the Bayuda Desert to Dongola and Merowe.

5. On the west bank of the Nile, a highway from Kurma to Dongola and Old Halfa with a link to the Khartoum-Port Sudan Highway.

**BRIDGE CONSTRUCTION**

The first bridges were constructed for the railways. They were narrow with side tracks for the use of pedestrians and animals. Later they were made accessible for small cars and light commercial vehicles. The main railway bridges were:

1. Over the River Arbaa, 1897.
2. Over the Blue Nile linking Khartoum with Khartoum North, 1908.
3. Over the White Nile at Kosti, 1911.
4. Over the White Nile linking Khartoum and Omdurman, 1924.

The main new road bridges (outside Greater Khartoum) are:

1. The new Alnaka Bridge to allow Tibesti Highway traffic to proceed to Port Sudan.
2. A new bridge at Kosti for the Western Ingaz Highway.
3. Khartoum Bridge over the Blue Nile for the Khartoum-Port Sudan road via Wad Medani and Karima.

And most recently:

Greater Khartoum has had a series of new bridges across both White and Blue Niles. Their main intention has been to allow traffic to proceed without having to go through the centres of Khartoum, Khartoum North and Omdurman, thereby reducing congestion:

1. The Armed Forces bridge, Khartoum to Khartoum North;
2. Scambio Bridge linking Khartoum North with Omdurman;
3. Al Fatish Bridge linking Khartoum with Omdurman, 1985
4. And most recently:
   4. Al Mantehiya Bridge linking Gereif West and villages east of the Blue Nile with Khartoum, 2008
5. Al Mok Nira Bridge linking Khartoum North with Khartoum, 2009;

Other new bridges are in the pipeline including one to improve access to the new airport which is now under construction.

**IMPACT OF THE NEW ROAD NETWORK**

(Tables 2 & 3)

So far the length of time since the development of the road network has been too short for a full evaluation. Nevertheless, some significant effects can be noted. The railways have clearly lost out badly to roads in passenger traffic. Over the 25 years 1970 to 1995 the number of passengers carried annually fell from 3.2 million to 300,000.

The preference for travelling by road is clear. The modern buses are comfortable, much more comfortable than the railways. The services are frequent and booking is not required and they have aboard the accessories. Bus fares are less than half those for First and Second Class on the railways and the bus journey time is much less than that by train. For example, the train takes 27 to 30 hours from Khartoum El Obeid or Khartoum to Port Sudan, whereas buses take only 6 to 9 hours. Similarly, the train takes 6 hours for the journey from Karima to Wad Medani compared with just over 2 hours by bus. It is now possible by bus to go as far as Scenar or
Kosti from Khartoum and return the same day. Khartoum to Dongola by bus takes only 5 hours these days compared with the steamers and rail journey of 8 days in the past.

In a similar manner the railways have lost a great deal of freight traffic. From 2.56 million tons on average for 1971-77 to 0.7 million tons average for 1985-90. The increase since then seems to be mostly due to heavy goods connected with oil industry development. Nevertheless, the railway still plays a significant role in the transport of bulky, low value items. Some traders are much more interested in high value products, especially where the distances are relatively short.

Air transport has also suffered from road developments. Air transport is much more expensive and inconvenient. For example, it costs £25.10 to travel by air from Khartoum to Dongola compared with 50p by bus and you have to report at the airport three hours before the scheduled time of take-off. It is therefore hardly surprising that Sudan Airways is incurring financial difficulties with some of its internal services. The Khartoum to Dongola service used to run 3 times a week, but is now reduced to one a week and this flight is nearly full.

Table 3. Percentage of goods transported by rail, road, river and air.

<table>
<thead>
<tr>
<th>Period</th>
<th>By railway</th>
<th>By airways</th>
<th>By river</th>
<th>By air</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971-1972</td>
<td>7.4</td>
<td>12.9</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>1978-1983</td>
<td>9.6</td>
<td>15.7</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>1980-1985</td>
<td>13.1</td>
<td>18.5</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>1993-1994</td>
<td>23.2</td>
<td>11.9</td>
<td>1.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Sudan Airways

The improved network of tarred roads has also had an impact on rural land use. In the past farmers were very hesitant over the production of high value crops such as fruit because of fear that it would be ruined because of the poor quality of the roads and because of the length of time of getting the commodity to the market. Farmers are cautious about change and it takes some time for there to be an impact. Nevertheless, the Khartoum - Port Sudan road has now been in existence for some time and has had a significant effect on the market. Here the production of full and vegetables has increased significantly for the Khartoum and Port Sudan markets and some businesses have established cold storage facilities to cope with the expanding production, and for similar reasons there has been an expansion in poultry production.

It should be noted that in the Khartoum markets you can now find fruit, especially mangoes, from the Nuba Mountains and fish from the delta in Khartoum. There are also the first indications of return to the rural areas due to the improved road network as some people can now see that a good living can be made from agricultural production.

The roads have not only increased mobility for social and family events but have also led to increased migration particularly to urban areas. So that whereas the Three Towns, comprising the capital, had only a quarter of a million inhabitants and was established in the 1950s by a limited range of 'Northerners', today it is truly cosmopolitan with a population of about 2 million, including large numbers of folk from the east, west and south of the Sudan.

THE FUTURE

In 2009, it was stated that government policy is to try to revitalise the railways as it is plain that rail transport is the best way of moving bulky products, often of low value compared with weight, over the long distances involved in the Sudan. Khartoum to Fays is 1400km, Khartoum to Wau is 1500km and Khartoum to Port Sudan is some 900km. One of the reasons given besides the economic was political. In November 2009 there was a meeting in Khartoum to discuss a proposal for a rail link from Dakar to Port
Sudan. This is reminiscent of the colonial plan, which never materialized, to link the Nile to Cairo and Djibouti to Dakar.

So far, the road network is very much a skeleton one. It is plain that many roads are still only served by dirt roads of questionable quality with many often unusable during the rainy season. It is plain that priority needs to be given to road transport serving some of the marginal and often potentially very productive areas such as Darfur, the Blue Nile Mountains, Jungauna Hills and virtually the whole of southern Sudan.

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23 August 2010

Professor Mustafii M Khogali,
Institute for Management of Disaster and Refugees,
P O Box 8300,
Amarat,
Khartoum,
Sudan.

Dear Mustafii,

Sudan Studies 42

Please find enclosed a copy of Sudan Studies 42 which contains your article entitled, The Demise of the Railways and an Era of Road and Bridge Construction in Sudan (1980-2000). We hope that you will approve of the production. As we do not supply off-prints, please be informed that you have our permission to make up to 25 copies provided that you make reference to this publication. If you need more than 25 copies please ask our permission. If you would like further copies of this issue of Sudan Studies, these may be obtained for £2-00 each including postage.

As editor, I thoroughly enjoyed reading your paper and I am sure that many other readers will too. If you would like to send us further items for consideration for publication in Sudan Studies, we would be pleased to receive them.

I am sorry to send you this rather formal letter! We trust that Shama, yourself and the family are all well. In particular we trust that you are able to get around better than you were.

Gwyneth joins me in sending you all our best greetings.

Yours sincerely,

H R Davies
Editor, Sudan Studies