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**Keywords:** *water transportation, niger delta estuarine.*

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# Development of the Water Infrastructure in the Estuarine Part of Niger Delta to Ameliorate the Prevailing Transportation Problems

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**Abstract-** The problems facing the river transportation in estuarine region of Niger Delta were studied. The study revealed the problems, the effect of river transportation on the social-economic life of the communities, and the state of the terminals and jetties in those communities. The study also made some useful observation and recommendations were made. It is hoped that this study will assist in understanding, planning, operations and management of river transportation in estuarine region of Niger Delta. For researchers, the study will provide a useful insight into this aspect of transport systems which is relatively neglected in the past research efforts. The role of river transportation in the estuarine region of Niger Delta is felt to be very important, especially in those more remote places, which are unreachable, by land transportation. The potential of rivers transport, especially in serving access for people in remote area of Niger Delta is enormous. Nigeria has the second longest length of waterways in Africa. It has 8,600 kilometres of inland waterways and an extensive coastland of about 852 kilometres. Although river is a very important mode of transport, yet such is the case that this form of transport is not adequately harnessed for the socio-economic development of the people of estuarine Niger Delta. Another problem faced by rural water transport is safety caused by inadequate security measures, infrastructure decay and. Regulation and institutional concerns were important issues in three study areas. Recommendations were made to integrate river transport within intermodal transport systems and provide security for the system.

**Keywords:** water transportation, niger delta estuarine.

## I. INTRODUCTION

Transport is the cornerstone of civilization (Oni & Okanlawon, 2004). As the society and economic organizations become complex, the relevance of transport grows. Transportation is a requirement for every nation, regardless of its industrial capacity, population size, or technological development. Moving goods and people from one place to another is critical to fostering economic growth. A country's transportation system is comparable to the blood circulatory system in humans (NDES, 1997). An efficient transportation system facilitates the movement of goods and people cheaply and quickly which is vital in producing in a vibrant economy. The more efficient the transport system is, the lower the cost of transport, and invariably the lower the cost of goods and services (NDDC, 2006).

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The most common and effective transportation mode in the rural Niger Delta areas is by water in canoes, ferries and small boats (NDRDMP, 2000). River transport is a very significant means of transport in Niger Delta region of Nigeria, which are now usually used in movement over short distances and for fishing activities across several nautical miles (Daramola, 2003).

In recent times, emphasis has been placed on urban road transport; with less regard to rural transportation development, especially river transport - for example, modern jetties hardly exist - which is essential for the movement of the majority of the rural population (Fig. 1). As a result, there is immense difficulty of movement of people and goods in the estuarine part of the Niger Delta. Apart from a few State-owned transport companies, transport services are provided by private operators.



travelling. More so, it is the most convenient means of appreciating or gauging respondents' perception of the pertinent socio-economic variables as they relate to the study.

*b) Settings*

The study data were collected across the three states (i.e. Delta State, Bayelsa State and Edo State) that make up the Niger Delta region. Some identified communities namely: Ekeremor zion, Ijasan and Azama towns of Delta State; Aghoro, Toru-Ndoro and Odeama towns of Bayelsa State and; Ovia, Erenegbe and Gegele communities in Edo State. In each of these communities as shown in Fig. 2, where river was major means of transportation were approached for data collection. In all, a total of three communities were selected, thereby making up a total of nine communities across the three selected states of the Niger Delta Region. A total of 100 different people participated in the study per State.

*c) Procedure*

The study is an attempt to assess the problem of water transport in the estuarine of Niger Delta region in Nigeria. The core Niger Delta states are Bayelsa State, Delta State and Rivers State. In the year 2000, former President Olusegun Obasanjo's regime expanded the definition of Niger Delta region by incorporating some other states, including Abia State, Edo State, Imo State.

In all, three river line communities where river is the major means of transportation was selected in each state, thereby making up a total of nine communities for

the three states in the Niger Delta region. A total of 300 copies of the questionnaire were produced and distributed across the selected communities in the three states, with 100 copies of the questionnaire meant for each state. These copies were distributed as follows: 33 copies for each community, across the three communities. In order to encourage the study participants to respond to the questionnaire items freely, they were asked not to include their names. Essentially, the participants were asked to respond to the questionnaire items as sincerely as possible, and they were assured that their responses would be treated with utmost confidentiality.

In all, out of the 300 copies of the questionnaire, only 250 copies could be retrieved with the assistance of some residents in the community. While the remaining 50 copies could not be retrieved. Out of the 250 copies, only 225 were deemed fit and usable for data entry and analysis. The remaining 25 copies could not be used because some of the participants failed to indicate their gender or age or some other personal characteristics, while some other participants filled the questionnaire poorly in general.

*d) Statistical analysis*

The study utilized both the charts and descriptive statistics. The descriptive statistics were meant to obtain some summary information on some data such as percentages (%) and frequency. Specifically, the statistical package (SPSS) version 16.0 was utilized for data entry and data analysis.

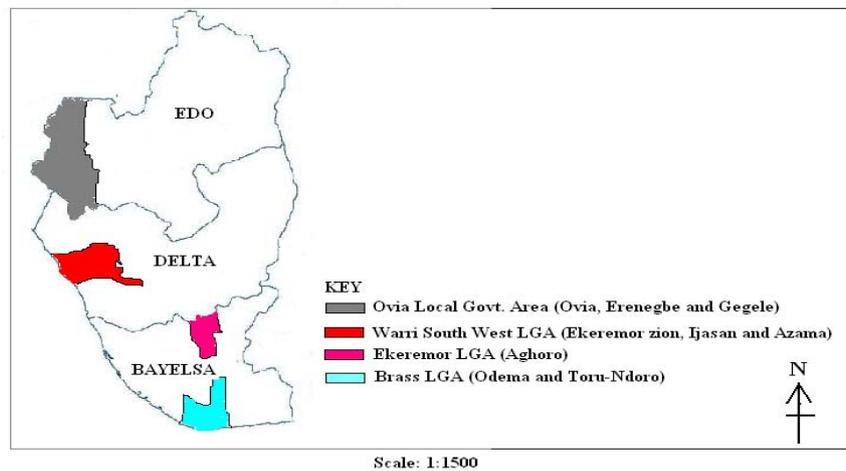


Fig. 2: Map showing the studied communities

Source: modified from UNDP, 2006

III. RESULTS

The results are presented in charts and descriptive statistical form for easy understanding of the existing situations of the area.

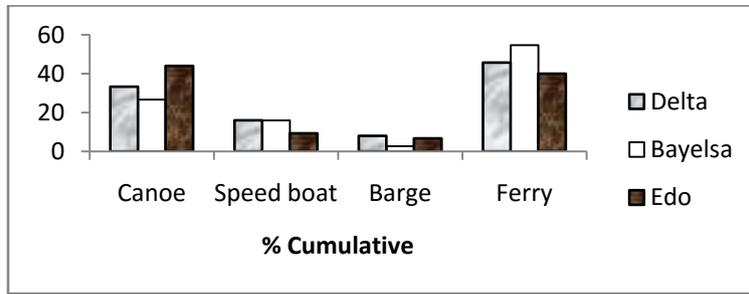


Fig. 3.1: Cumulative percentage of the respondent's major means of transportation

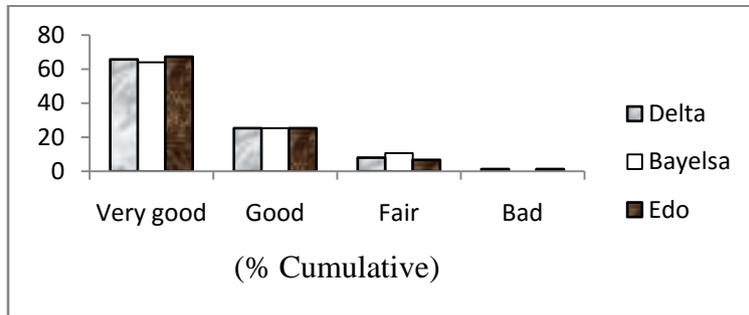


Fig. 3.2: Cumulative percentage of the efficiency of river transportation

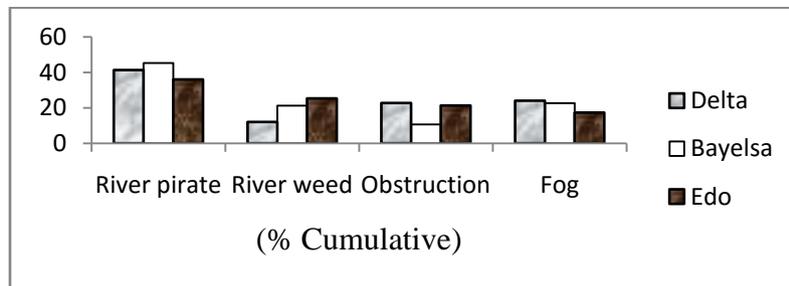


Fig. 3.3: Cumulative percentage of major problem of river transport

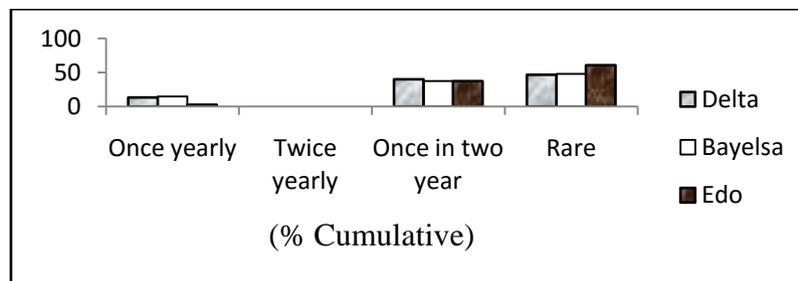


Fig. 3.4: Cumulative percentage of the number of times the river is dredged

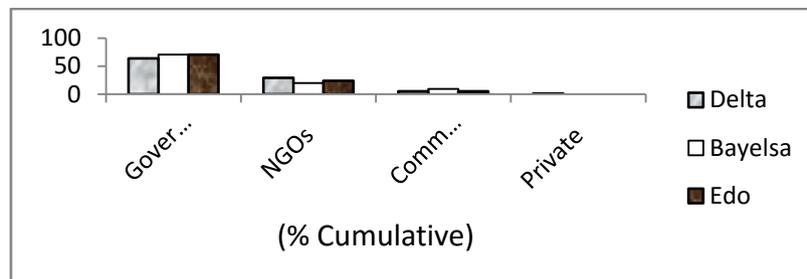


Fig. 3.5: Cumulative percentage of the organ responsible for river dredging

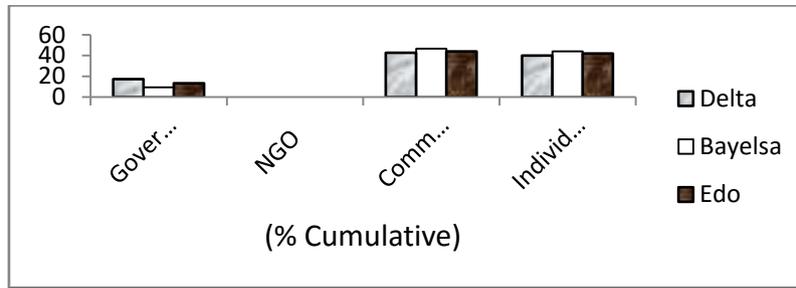


Fig. 3.6: Cumulative percentage of the organs responsible for operation of the Jetties

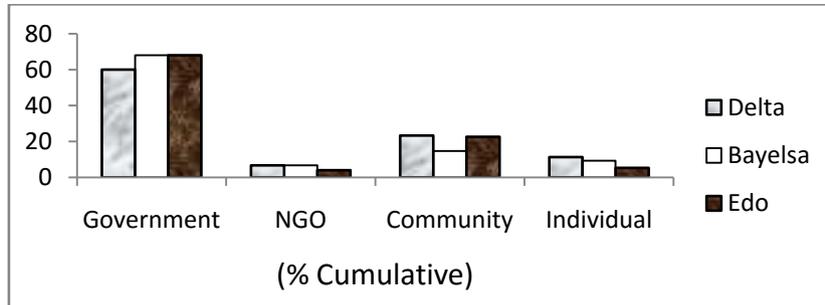


Fig. 3.7: Cumulative percentage of organs responsible for the development and maintenance of Jetties

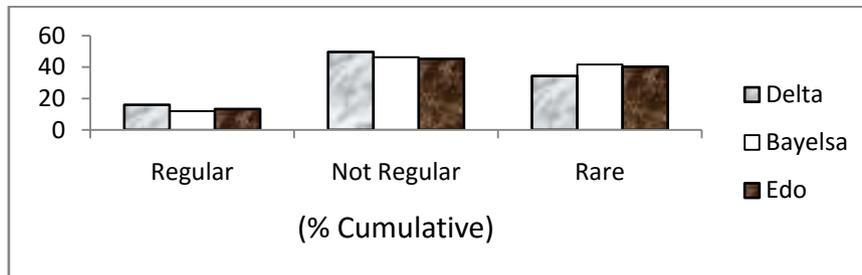


Fig. 3.8: Cumulative percentage of occurrence of accident in river transportation

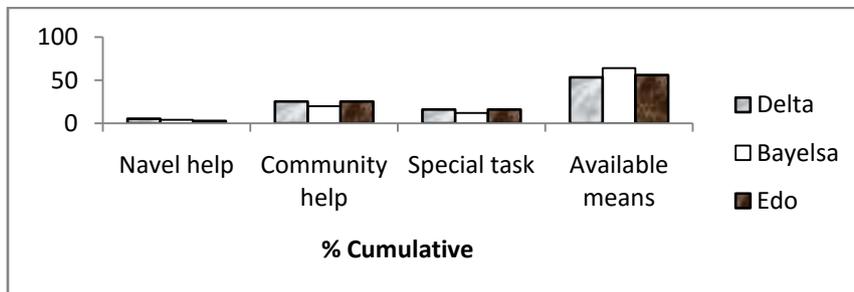


Fig. 3.9: Cumulative percentage of management of accident cases

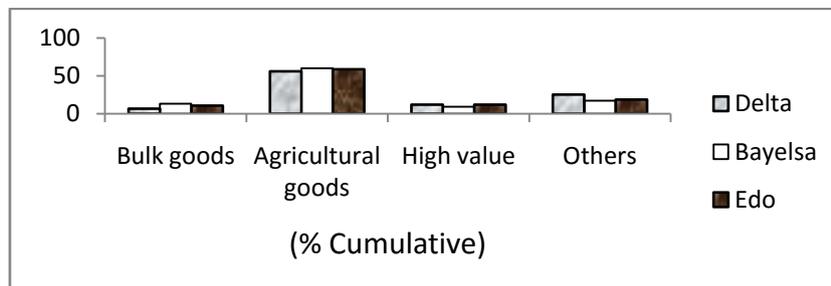


Fig. 3.10: Cumulative percentage of major goods transported

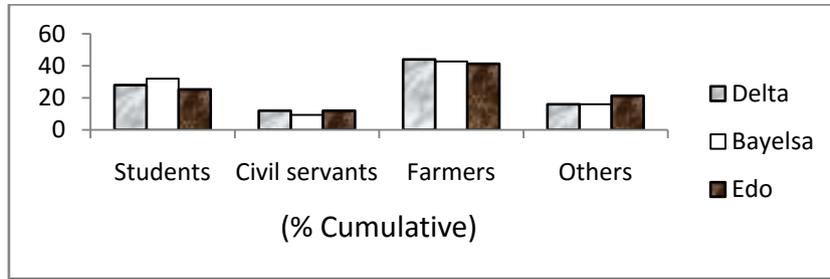


Fig. 3.11: Cumulative percentage of major users of river transport

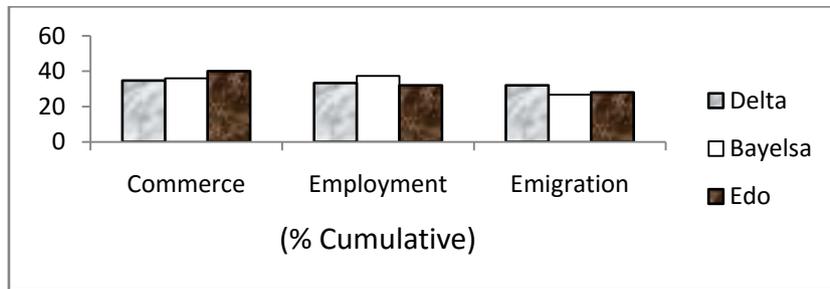


Fig. 3.12: Cumulative percentage of development through river transportation

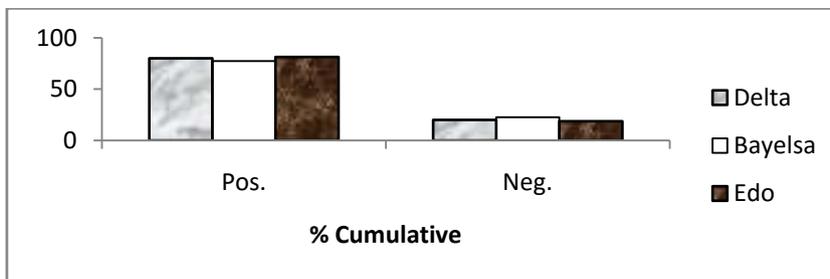


Fig. 3.13: Cumulative percentage on effect of river transportation on intercommunity relationship

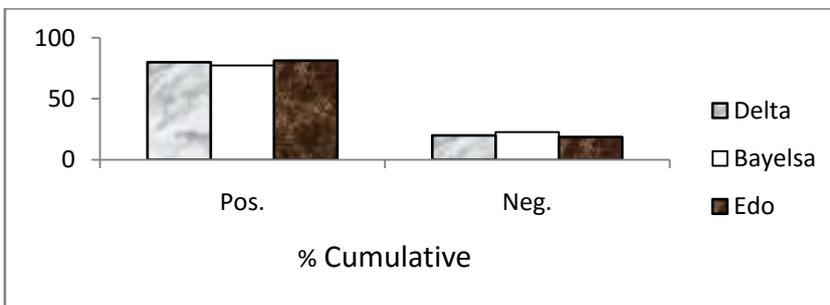


Fig. 3.14: Cumulative percentage of the effect of river transport on the economy of the area

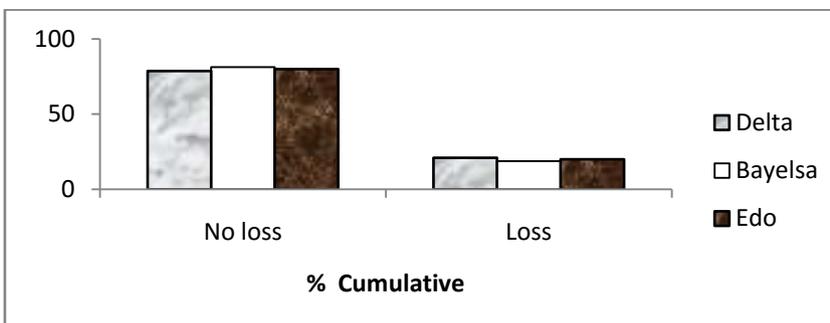


Fig. 3.15: Cumulative percentage of the loss by the community through river transport

#### IV. DISCUSSION

In the communities studied within the estuarine part of the Niger Delta. It could be deduced that the River-based passengers' movement is mainly by Ferry in Delta and Bayelsa State as shown in Fig. 3.1, where the cumulative percentage was 42.7 and 54.7% respectively. While in Edo State (cumulative percentage: 44%) the use of Canoe was favoured compare to other means of river transportation.

The organisation of river transportation in the Niger Delta was high with cumulative percentage of 65.7, 64 and 67.3% for Delta, Bayelsa and Edo State respectively are shown in Fig. 3.2. This level of organisation could be attributed to the seemly private ownership of the passengers vessel and there desire to maximize profit.

The major problem militating river transportation in the estuarine region of the Niger Delta as shown in Fig. 3.3. Majorly, River pirate has a cumulative percentage of 46.7, 48 and 60.7% for Delta, Bayelsa and Edo State respectively. This however revealed that the percentage of River pirate was highest in Edo communities followed by Bayelsa communities. This was followed by Fog as indicated in the Fig.3.3.

The frequency of clearing and dredging of the river channels was shown in Fig. 3.4. The result indicated a cumulative percentage between 46.7 to 60.7% few and far between in clearing and dredging of the river. As a result of failure to dredge or clear the river, it is reported that the least average depth for River Niger between Warri and Jebba is one metre whereas the least average depth for commercial navigational operation should not be less than 1.5 metres (Ogah and Odita, 2009).

In Fig.3.5, it was inferred that the government was solely responsible for the dredging and clearing of the rivers in the Niger Delta region.

The organ responsible for the operation of the Jetties is presented in Fig. 3.6. The result revealed that the communities have the responsibility of Jetty operation with cumulative percentage of 42.7, 46.7 and 44% Delta, Bayelsa and Edo respectively.

Fig.3.7 shows the government is responsible for the development and maintenance of Jetties. (NDDC, 2005).

Fig. 3.8 show the occurrence of accident in river transportation. The result indicated that river transport does not have high incident of water mishap.

Fig. 3.9 shows how incident of water accident is managed. The result indicated that the river transportation in the Niger Delta region does not have any special arrangement to rescue accident victims rather the system depend on any available means to rescue survivals. Water transport safety is felt to still be lacking, because some of the passengers rely only on

their ability to swim and thus rely on themselves (GRSL, 1995).

Fig. 3.10 show the major goods transported by the communities using river transport. The result indicated a cumulative percentage of 56-60% for Agricultural products. This was followed by others. Type of goods which are transported by water is bulk material such as rice, wheat, oil and woods which produced from the forest along the river (Jansen *et al.*, 1985).

Fig. 3.11 Show the major users of river transportation. Most of the passengers use water transportation majorly for farming and moderately for school. Most of the residents are farmer, therefore the need for agriculture equipment such as fertilizer, seeds and tools (PT, 1995).

Fig 3.12 shows communities' development through river transportation. This indicated a cumulative percentage of 34.7, 36 and 40% in Commercial activities for Delta, Bayelsa and Edo State respectively. This was also followed by employment across the three State and their communities.

Fig. 3.13 shows the effect of river transportation on intercommunity relationship. The result indicated a cumulative percentage of 80, 77.3 and 81.3% in favour of better intercommunity relationship through river transportation.

Fig. 3.14 shows the effect of river transport on the economy of the communities. The result indicated a positive effect on the economy of the communities. Indication of an improvement on the communities through river transportation and there were no loss by the community as a result of river transport as there were increase in commercial activities and employment for the people in the localities.

Fig.3.15 shows the loss incurred by the community through river transport. From the response of participate, there were no lost by the communities as a result of river transportation.

#### V. CONCLUSION AND RECOMMENDATION

Some of these problems are inability of the authorities to upgrade and maintain the available Terminals and Jetties in these river line communities, lack of adequate security for the passengers on board the boats travelling in the Niger delta communities, lack of modern river transportation vessel for the navigable river channels in the Niger Delta communities and the inability of the authorities to clear/dredge the river channels.

Generally speaking, years of government's insensitivity and unresponsiveness to the plight of the people of the Niger Delta has led to a deterioration of the water infrastructures whereby the cost of living in these areas was highly unbearable. From all indication the water channels in the area are navigable and there is urgent need for the government to pay attention to the

development of the water infrastructure in the estuarine part of Niger Delta to ameliorate the prevailing transportation problems as indicated in this study.

In other to alleviate the identified problems in the river transportation in the estuarine region of Niger Delta the following solutions are recommended:

1. The government should encourage private investment in the river transportation system by giving soft loans to the people as a means of empowerment and Job creation.
2. Modern boats for river transportation should be introduced to these estuarine communities for rapid movement of cargo and passengers to their destinations.
3. The dredging and clearing of river channels should be done at least once in a year; this is to allow easy movement and travel using the river ways without obstruction and accident due to collision.
4. The communities should be encouraged to invest in river transportation by forming cooperative in order to raise fund and purchase a modern vessel that is capable to river transport.
5. The upgrading and maintenance of the Jetties should be made priority by the government, so as to encourage the participation of private organization in river transportation.
6. The local and State Government should take up the responsibility of providing safety of passengers by arranging on alert rescue team in case of emergency. This should also involve the use of modern communication gadgets to give signal and information to the authorities in case the need arises.
7. Night navigation facilities should be provided to the estuarine Niger Delta navigable rivers, so that passengers travelling in the night may find it comfortable and safe; and thus improve the average turnaround time of the boats.

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