INNOVATIONS

# Research Article on: The Implications of Grand Ethiopian Renaissance Dam for the Horn of African states

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**Abstract :**In the pursuit of economic development, Ethiopia has prioritized renewable energy production, emphasizing development of its hydropower potential. As part of this strategy, it is presently constructing the Grand Ethiopian Renaissance Dam (GERD) on the Blue Nile River, which has positive implications for the Horn of African states. In this paper, I argue that the GERD has economic, political and security implications for the Horn of African states. To this end, GERD could be symbol of unity and cooperation among the Horn of African states with good faith and sincerity will guarantee the optimal utilization of the GERD. GERD will also give positive response for the Horn of Africa`s need of additional water to reduce its increasing food import and will promote economic development. Moreover, GERD promised to provide better water storage facilities than the present one at region. Likewise, by building dams like the GERD in Ethiopia, huge hydropower potential could be tapped, enabling Horn of African countries to efficiently use the underground water as an alternative source of supply. These upstream dams could also help prevent silts and prolong the life of the downstream dams. Finally, the paper concluded that GERD has far-reaching diverse positive implications that may include altering economic problems, political disorder, unemployment and security issues in the region. It also provides a buffer against increasingly unknown challenges due to climate change, and potentially destroying ecosystems and traditional lifestyles in the horn of Africa.

**Keywords: 1**. Horn of African States **2.** GERD **3.** Hydropower **4**. Dams **5**.Sustainability **6.** Geopolitics **7.** Nile River.

**Introduction**

For the purpose of this research the Horn of Africa includes: Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, and Sudan most of the time these states have a history of political instability and conflict (J Cilliers, 2008). Most of the time this region is characterize by economically weak, politically unstable and volatile regions in the world (Medhane, 2004: 1; Leenco, 2004:101; Kidist, 2009: 7; Healy, 201:1). This fragility of Horn of African countries is attributable to different factors. For instance, the failure of states to pursue rational policies that brings social solidarity and the prevalence of poverty, porous borders as well as lack of resources (Medhane, 2004: 4 & Wasara 2002:39).

Moreover, having around population of 230 million people, of which some 80 percent are economically dependent on agriculture, this region is highly vulnerable to the impacts of climate change such as droughts and floods (United Nations Secretary General, 2010). These states mainly are being impacting compound many of the region's social, political and economic challenges. Countries in the Horn of Africa are facing issues with regard to a complex mix of limited or uneven access to natural resources, social tensions among groups in society, and poverty and economic inequalities (IGAD, 2019: 15). This caused by the inability of state institutions to provide physical security, including the basic good of the survival of citizens, in combination with corruption, has resulted in ineffective governance, undemocratic practices, limited confidence, distrust in state authority and legitimacy, and inability to the effective usage of the existing resources (United Nations Secretary General, 2010).

For that reason, a lot effort needs to be exerted to improve interstate cooperation and infrastructures thereby to better prevent and manage worsening livelihood conditions and related risks; to promote regional relations; and to find a multilateral response at the regional level. In this regard, Ethiopian current attempt to export power is a good sign post for fostering regional states economic integration, reducing security related issues and minimizing political tensions among horn of African states (International Rivers, 2012). To this end, Ethiopia is gearing up to export large amounts of clean power across East Africa in the coming years, starting with neighboring countries. This to happen, in 2005, the Government of Ethiopia made an aggressive twenty five year national energy master plan and is now undertaking large and small hydropower projects (UNIDO, 2009:4). Among others, since 2011, Ethiopia has started constructing the Grand Ethiopian Renaissance Dam (GERD), as a massive infrastructure project which aims to bring much-needed electricity, development, cooperation and to the nation and to the region as well (Mark Zeitoun and Jeroen Warner, 2006: 54).

The Horn's 230 million people are exposed to the impacts of economy, politics and security such as droughts, hunger, terrorism and conflict. These impacts compound many of the region's social,

political and economic challenges and result in increased migration and displacement as well as loss of life. These risks are domestic and transnational in character, and add to the probability of political tensions and violent conflict within and among countries. There is a need for countries in the Horn of Africa to better prevent and manage risks, and to find a multilateral response at the regional level. If not well managed, these problems could affect regional peace and security more. If Horn of Africa states are to bring development, they have to use their natural resources and one of these natural resources is water (Mahlet, 2016:33). Therefore, this paper attempts to analyze the political, security and economic implications of GERD for the region. So, the construction of GERD in Ethiopia can promote relations and cooperation among countries of the region.

Likewise, currently Horn of Africa`s economy is increasing, however, its economy doesn`t supported by the greater amount of energy. Horn of Africa`s economy still, mostly, using the historical natural resources like that of wood or coal to produce energy commensurate with the corresponding stage of development (William J. Hausman, 1995: 280). Being conflict ridden region, with fast-growing economy, booming urbanization, increasing industrial development, and establishment of industrial parks; it seems hardly possible for horn of Africa to sustain its development without greater amount of energy. Indeed, the construction of the GERD is a direct response to the aforementioned vital issues in horn of Africa www.mfa.gov.et/-/the-reality-of-thegrand-ethiopian-renaissance-dam-gerd.)

Furthermore, the GERD is the largest dam under development on the continent, and with a potential of over 6,000 MWs of installed power, it boasts a generation capacity of 15,000 GWh of energy per year. As such, it is a result of past growth, but also serves the expressed interest of meeting future needs. GERD is also a political symbol of regional modernity, power, and identity. As I tried to discuss above, Ethiopia is not constructing the GERD for luxury life or as an entertainment, rather Ethiopia is constructing the dam in response to its survival, coupled with pressures from the climate change (Earth scan, 2000).

It is the paper`s key argument therefore that the GERD has positive implications for the Horn of Africa region. The GERD has far-reaching diverse positive implications that may include altering economic problems, political disorder, unemployment and security issues in the region. It also provides a buffer against increasingly unknown challenges due to climate change, and potentially destroying ecosystems and traditional lifestyles. To add more, I also argue, the GERD is an opportunity to bring general development benefits, such as electricity and common market, to the Horn of African states.

## 1. Materials and Methods

The study employed an exploratory research design and in-depth interviews were conducted with ten purposively selected key informants these includes: Ministry of Water, Irrigation and Electricity, Director General at Ministry of Foreign Affairs, Office of Grand Ethiopian Renaissance Dam, IGAD, embassy of Kenya, embassy of Djibouti, embassy of Somalia, embassy Eritrea, embassy of South Sudan, and embassy of republic of Sudan. These informants were selected purposively with a belief that informants have sufficient knowledge concerning the implications of GERD for the horn of African states. Furthermore, in conducting this study different codes have been given to the informants for the purpose of secrecy. Accordingly, the informants for in-depth interview represents by KI1, KI2, KI3, KI4, KI5, KI6, KI7, KI8, KI9, and KI10. Besides, secondary sources both published and unpublished on GERD were accessed to obtain secondary data. Data obtained by these methods were analyzed using narrative analysis by transcribing interview data and triangulated with secondary data. The data were also interpreted and analyzed with the utmost respect and care.

## 2. Results

### 2.1. Economic Implication of the GERD for The Horn of African States

It is hard to imagine a growing modern economy with limited access of electricity. Yet, just over-fifth of the population in the HoA has access to electricity, the lowest than any other region of the continent. The electric access rate in Africa is substantially lower than it could be, considering the level of income and the electric grid footprint. The lack of access to electricity imposes major constraints in the modern economic activities and quality of life (World Bank and IEA, 2015). The data obtained from KI4 indicated that having great potential in terms of accessibility of electricity, GERD could be brought golden economic opportunity for the HoA. In this regard, the realization of GERD is supposed to be one significant engine of the overall development of the country. The dam will boost the cooperation and mutual understanding between riparian countries, in particular between Ethiopia and neighboring states. Its completion will change the face of east African power infrastructure through regional integration and development (Cascou, 2009:12).

On the other hand according to interview data obtained from KI1, the emergent of Ethiopia's political and economic power are one factor that brings change in the region especially, relations to hydro-politics. Ethiopia is passing many challenges such as internal war, political instability, and hunger to reach for today's level GERD construction such historical barriers along with Egyptians historical claim to use the Nile unilaterally caused Ethiopia to be relatively disadvantageous in utilizing Nile water resource (Agwater Solutions, 2013). However, such power of Egypt has been challenged

because of Ethiopian's growing power in terms of political and economic spheres. Such growing of power enables Ethiopia to use its potential water resources for country's development by challenging the historic power of Egypt (Tedros, 2014:46). The major motive behind the Ethiopian government and Horn of African states hydraulic infrastructural development is resulted from the rapid economic growth that has been taking place in the region for the last decade. And, this rapid economic growth has led to the increase in energy demand, as the life style of the people changes.

Moreover, as of the data from KI6, Ethiopia and Djibouti have good potential to cooperate economically as Ethiopia is endowed with abundant water resources and Djibouti retains long coastline. Producing electricity in Djibouti through oil-fired generators has been expensive and electricity costs have been a major obstacle to growth (African Economic Outlook, 2011). As a result, to meet the overriding energy demand, Djibouti has been developing its plan to promote its economic integration with regional states. Similarly as of KI4, the 283-km Ethiopia-Djibouti transmission line was officially inaugurated in October 2011. The 230-kV line, enabling Djibouti to import up to 60 MW of electricity, is estimated to be earning Ethiopia at least $1.5 million per month, and has eased Djibouti's reliance on fossil-fuel power plants and generators. Accordingly, the Ethiopia-Djibouti Power Interconnection Project was the first interconnection system in the region and is pivotal to both Ethiopia and Djibouti (African Development Bank Group, 2013). After its connection to Ethiopia`s electricity grid in 2011, therefore, Djibouti is getting cheap power supply and witnessed domestic improvements specially in reducing inflation and the cost of imported oil (Development Bank Group, 2013; AECOM, 2012; and African Economic Outlook, 2012).

Furthermore, the interview data obtained from KI9 indicated that though Ethiopia is relatively politically instable in the Nile basin states: there is the driving force that Ethiopia and Horn of African states concentrates its financial resources for development areas such as poverty eradication program and water resource developments (United Nations Environment Program, 2013). According to KI3, the GERD has potential resources that enable to generate hydroelectric power and agricultural irrigation, which brings economic growth. Such growth of hydro-power construction enables HoA to start developing water resource projects (Raiwa, 2018:117).

Even though, most of Ethiopia`s populations rely on subsistence agriculture and foreign aid; yet Ethiopia is amongst the fastest growing non-oil economies in the world. The current government`s reforms also succeeded in opening the economy to foreign direct investment and resulted in expansion of commercial agriculture and manufacturing industry (World Bank, 2016). Despite the current economic crisis, the World Bank reported that there is a change in Ethiopia's and the neighboring states hydro-political relations because of Ethiopia's constructing the GERD by its own

economic capacity. Through sharing the above concepts, KI1 expressed that Ethiopia`s economic growth enables Ethiopia to develop water resource projects by its own finance. In turn this leads to the Horn of African states to have confidence on their own economic capacity as well as decision making power. Ethiopia is able to fund development projects without resorting to international donor agencies, such as the World Bank. Moreover, according KI5 the increased national commitment towards the level of filling the GERD has allowed the country to concentrate its financial resources in the development areas other than defense. This is the good example for the horn of African states in terms of economic growth through enabling them to develop mega projects in the Blue Nile (Raiwa, 2018:118).

On the hand, wider plans are gathering speed, with the 296-km, 230-kV Ethiopia-Sudan transmission line now being tested. Ethiopia expects to sell up to 100 MW of electricity to Sudan, according to KI1. The power exports will be managed so as not to jeopardize Ethiopia's domestic power supply, and the price for the electricity will be cheap. The $41million project, funded by the World Bank, started in 2008 and has three sections of transmission lines in Ethiopia which will connect with a line in the Sudanese border city of Gedaref. KI10 said the project is long overdue, and will help foster economic ties between the two countries.

Furthermore, the data obtained from KI7 revealed that the GERD can be an indicator of economic development of Ethiopia and the Horn of African states that can make the region a low carbon dependent and middle income economy. With the completion of the GERD project Ethiopia can surely aspires to integrate economically as well as politically with its neighboring countries. Such fact will give horn of Africa economy leverage in the Basins Hydro-politics by becoming the power house region (Elias, 2009:110). In support of this KI8, argue that the GERD is a result of the growing demand of power in Ethiopia and the region as well. It will also allow the region to import cheap electricity to region. Adding more, the data from KI6 shows that Ethiopia is using its fortune of huge hydro power potential to produce electricity and began exporting to those who are in short of producing it while it is importing oil and petroleum that it cannot easily produce. This in turn will have a positive effect on regional integration and development (Healy, 2011: 35).

Generally, from this trade exchange all are mutually being benefited and securing most favorable advantage. Sales of electricity to the region will garner $1.3 to $1.5 million per month for Ethiopia (www.businesssweden.se). Further, according to data from KI9 the Ethio-Kenya-Tanzania power line is currently under construction, and once completes, is expected to deliver more than 2,000 MWs of capacity (Bekele. B, 2018). As such, there are clear incentives to continuing the GERD. The dam is not

only instrumental to future economic ventures, it is essential to sustaining current economic cooperation between HoA states.

**The Political Implications of the GERD for the Horn of Africa**

According to Weber (2005), a hydro power does not only bring economic benefits, it brings political benefits as well. Indeed according to interview data obtained from KI9, in addition to the positive economic implication, the construction of GERD also tied up with a solution to long history of political disagreement on water resource in the region. Most notably, access to the electricity is a vital component of the national security of almost all the Horn of African region (Teferi, 2014:180). The data obtained from KI8, the construction of the GERD can indeed change the political and security dynamics of the water regime in this Horn of Africa. For most of the states in the region the GERD is embedded as a strategic component of their foreign and defense policies. Several Nile river analysts agree that the social stability and economic prosperity of the Nile states (including the horn of African states) depend on continuous access, both by households and by large-scale industries, to its waters. Therefore, GERD could provoke political stability for the countries in the region (ibid: 181).

Another the interview conducted with KI1 revealed that Ethiopia and Kenya have cordial historical relations. Currently, too, one notable smooth relations and cooperation Ethiopian has with the regional countries is with Kenya. Both politically and economically, the two countries are now on the process of being interdependent. To this happen the informant added that Ethiopia has planned to export electricity to Kenya up to 500 MW (Gilgel Gibe Affair, 2008:7). Moreover, according to KI5 Kenya is also requesting 400-500 MW hydro electric power from Ethiopia though it is waiting for the completion of GERD. Ethiopia has already connected its power grid to Kenya and currently exporting 60 MW (Tesfa-Alem, 2014). From this one can take to mean that both countries are in need of the generation of electricity from Ethiopia`s hydro dams so that the realization of such dams as well as production and export of electricity to Kenya will hasten the two countries relations.

Moreover, according to KI10 the GERD accomplishment seems to have eased some of the tensions surrounding the region. It could provide cooperation in regard to the water needs of the region. Not only this but also, once complete, the GERD will transform the region. It will bring much-needed electricity to region's urban and rural communities. With-out an assured supply, the population continues to leverage biomass fuel for everyday life. While hydropower is the region's leading source for the generation of electricity, it is greatly underutilized. More than 45,000 MWs of potential

capacity exists within region, but only 2,300 MW has been exploited thus far (Robert H Jackson and Carl G. Rosberg, 2016).

In addition to the above explanation, GERD will bring coordination through benefit sharing in the region. The dam could bring economic development benefits to all HoA, more flow of water to HoA, and electricity provision to HoA (Tawfik, 2016). Expansion of electricity services in HoA has been insufficient. In region, a concerted effort to increase access through grid expansion and densification and off-grid solutions has resulted in an average of one million new connections annually for the next few years. Seeing as the next few years, energy access in the region will be grown from approximately 50 percent to 75 percent (World Bank, 2021).

Furthermore, GERD could bring political stability through increasing tax revenues by more than 4 percent per year solely by resolving issues related to the reliability of electricity of Countries in Horn of Africa. It also promised to a provision of quality infrastructure services, such as reliable electricity, through which governments in developing countries can enhance tax revenues. As the interview data obtained from KI3 it also promised that connection to the GERD can potentially signal government's commitment to the provision of social infrastructure and services and thereby reinforce the sense of an implicit fiscal pact between states of the horn. Generally, in the long run, the hydro dam constructions and production of electric energy will also produce political integration Horn of Africa countries.

### 2.2. The Security Implication of GERD for the Horn of Africa

The GERD can be an integrative opportunity for creating interdependence among the Horn of Africa countries (Salman M.A, 2013). While the envisaged GERD and any other hydroelectric project on the river could be considered as integrative factors and could effectively enhance opportunities for geopolitical interdependence. This geopolitical interdependence in turn may creates consequence of partially attribute to relative stability and development the region to the major powers in the. Not only but also Ethiopia's influence on the regional and continental agenda (by extension its global role) will increase drastically so that it will become a major ally of the great powers (Power-technology, 2013). Additionally, a cumulative effect of the GERD will brought a slight shift of vision by the international community, particularly in regard to GERD`s role in bringing peace and other sources of developmental investment in various urgent projects such as infrastructure in the region. Assertiveness within the Horn of African countries will surge significantly. This will also resolve tensions and instabilities in the region (Zerihun. A, 2014).

On the other hand, according to KI1, horn of Africa aims to transition from islanded national power systems to a fully interconnected system in the next five years. Approximately 5000 MW of interconnection capacity is currently under implementation and expected to come online within the next five years (the World Bank, 2021). This implies that by 2025 most countries in the region will be interconnected through high voltage transmission lines. GERD is one of the main projects that can play vital role this to happen. HoA countries need to focus both on developing hard infrastructure and actively participating in the development and adoption of soft infrastructure. This, according to the interview data obtained from KI2, can allow countries with lagging power sectors to leapfrog, enabling a faster development trajectory. This initiative can also enhance the prospect of regional integration within HoA countries (African Economic Outlook, 2011).

Furthermore, it is important to note Ethiopia is already exporting electricity to Djibouti and Sudan, with connections that support a maximum power flow of 90 MW and 250 MW respectively (Johannesburg, South Africa, 2016). This, for KI6, will not only limited to the above mentioned rather it will be expanded to the rest of horn of African states. This in turn will introduce a number of other major changes in the region. It will further increase the importance of self-reliance that will gives to supporting disarm of countries in the Horn of Africa. Again, with regard to regional security the GERD will facilitate the cooperation and peaceful co-existence among the horn of African states (International Panel of Experts, 2013).

Moreover, Horn of African leaders have always accorded high priority to regional cooperation and integration as a means to achieve peace and stability. Apart from ensuring regional security, sub-regional cooperation and integration is considered as a vehicle for peace. The quite often rational is that, the future development of African countries depends on their ability to pool their natural endowment including their water resources. Accordingly, many institutions for regional integration and cooperation is created, often without much planning and preparation, soon after countries will gain their independence. Therefore, in doing so, the GERD will be a footstep stone for the future peaceful and secured horn of Africa (Deborah, 2021).

## 3. Conclusions

This paper has mainly focused on the economic, political and security implication of GERD for the horn of African states. Accordingly, it has been revealed that having the capacity to produce 6,000MW, GERD can have a significant and steady supply of electricity. Working as a base load power source, it can serve the demand of cities and industrial areas of the horn of African states. All of this at a relatively low cost: as of today GERD can constitutes the cheapest option for electricity

production on large scale in horn of Africa (International Renewable Energy Agency 2018). Furthermore, the GERD promised seemingly divergent access to the reliable electricity. This in turn will be a backbone of the modern economy and it could be also more important with the digital revolution. If economic planning works out as scheduled, by 2030, the GERD will not only serve the domestic populace, but enable Ethiopia to produce surpluses of electricity which will be enough for export throughout the region.

Furthermore, after its completion, GERD can be the largest hydroelectric power plant and one of the largest reservoirs in Africa. Water is vital for energy production and a delimiting factor for food production, economic development, and poverty reduction in Ethiopia and the Horn of Africa. The GERD will generate 6000 MW per year and store a maximum of 74 billion cubic meters of water (mean annual inflow to the Aswan dam is ~84 billion cubic meters of water). In so doing the GERD will offers an opportunity. The data revealed that GERD has the potential to foster cooperation by offering regional socio-economic benefits through the coordination and management of hydraulic infrastructure in the basin for an improved water regulatory regime. These improvements in turn may greatly assist in addressing the uncertainties that climate change will bring to the basin. Coordination over the operation of GERD may also prove to be a catalyst for additional benefits beyond water, such as a greater integration of markets and trade.

The findings of the study revealed that the soon-to-be completed GERD, undoubtedly, the GERD promised be vital for energy production and a key factor for food production, economic development, and poverty reduction in the region. To add more, access to reliable electricity is a prerequisite for the economic transformation of economies in Horn of Africa, especially in a digital age. Yet the electricity access rate in the region is often substantially low, households and businesses with access often face unreliable service, and the cost of the service is often among the highest in the world (World Bank, 2019). This situation imposes substantial constraints on economic activities, provision of public services, adoption of new technologies, and quality of life. Therefore, the study revealed that once completed the GERD could resolve the so mentioned problems.

What's more, the finding of the study shows that the GERD coupled with political, economic and security can lead to a net surplus of electricity, infrastructure, enhanced substations, and available for export to neighboring countries. The GERD also has opportunities for the project owner, Ethiopia and the neighbors, including the downstream countries, Sudan and Egypt. At the regional level, it has opportunities to raise the regional water storage capacity, the annual GDP, to expand industries and attract investments, to provide clean and affordable energy, generating additional hard currency and to facilitate the integrated market regionally and elsewhere. Moreover, the dam would have

environmental benefits, such as improving the status and suitability of the new ecosystems, water quality, reducing greenhouse gas and carbon emission and its related impacts. Social benefits expected are the empowerment of gender equality, reduction of poverty, protecting resources based livelihood, increase the accessibility of sustainable energy and water supply (Teodoru, et al., 2016). In this regard, the dam completion with the application of sectoral integration and institutional cooperation; indeed, it has the potential to provide sustainable energy, water, food and ecosystem services to the horn of African states.

Generally, the GERD project has huge potential to be a massive source of sustainable energy production for energy-starved Ethiopia and the Horn of African states as well. This will certainly help to facilitate economic development not only in Ethiopia, but also in the region. It also helps to break the long-lasting stalemate of security, political and economic problems in the region. Ethiopia is trying its best to bring peace, development and self-reliance in the region, but for the successful prosperity the cooperation and collaboration of all Horn of African states is critical.

## 4. Recommendations

Based on the finds of the study the researcher tried to recommend as follows:

- The government of Ethiopia should rightly explain the main objectives of the GERD for neighboring countries and for the world as.
- The government of Ethiopia should make interdependent policies in addition to GERD so that the neighboring countries clearly understand the intention of Ethiopia.
- Neighboring countries should work on making the horn of Africa region more interdependent.
- Generally, the horn of African states should work on mutual benefits.

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**Appendix**

Profiles of key informants in this study are listed under the following tables. For the purpose of collecting the necessary data in-depth interview and focus group discussion were used.

**A: Profile of the Key informants of the Study**

**Guiding Questions**

1. What do you think about the political implication of GERD for HoA states?
2. What is the economic implication of GERD for HoA states?
3. What is the security implication of GERD for HoA states?

**Profiles**

| No | Code | Sex | Age | Place of interview | Date of interview | Occupation |
|---|---|---|---|---|---|---|
| 1 | KI1 | M | 45 | In their office | 15/07/2021 | Ministry of Water, Irrigation and Electricity |
| 2 | KI2 | M | 55 | Office Ministry of foreign affairs | 18/07/2021 | Director General at Ministry of Foreign Affairs |
| 3 | KI3 | F | 41 | Office | 25/07/2021 | Office of |

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|---|---|---|---|---|---|---|
| | | | | Ministry of foreign affairs | | Grand Ethiopian Renaissance Dam |
| 4 | KI4 | M | 45 | In their office | 28/07/2021 | Office of IGAD |
| 5 | KI5 | F | 38 | Office of Ministry of foreign affairs | 02/08/2021 | Embassy of Kenya |
| 6 | KI6 | M | 50 | Embassy Djibouti | 04/08/2021 | Embassy Djibouti |
| 7 | KI7 | M | 46 | Embassy of Somalia | 06/08/2021 | Embassy of Somalia |
| 8 | KI8 | M | 51 | Embassy of Eritrea | 07/08/2021 | Embassy of Eritrea |
| 9 | KI9 | M | 42 | Embassy of South Sudan | 09/08/2021 | Embassy of South Sudan |
| 10 | KI10 | M | 55 | Embassy of Republic of Sudan | 12/08/2021 | Embassy of Republic of Sudan |