MAY 2022

POLICY BRIEF

Co-Management of Fisheries shared between Ethiopia and South Sudan (Baro-Akobo-Sobat) transboundary river basin

The Baro-Akobo-Sobat River Basin (BASEB) contributes 48% of the flow of the White Nile where these river systems join downstream of Malakal Town of South Sudan. More than 119 fish species have been described in the basin (Getahun, 2017).”

CONTENTS

Sobat River on the edge of Nasir (South Sudan). Source: atlas.nilebasine.org.

Where this Policy Brief has come from?

The policy brief is prepared from the outcome of the assessment study, commissioned by IGAD, on the contribution of fisheries to rural livelihoods, food and nutrition security, local economies and resilience of fishing in arid and semi-arid lands (ASALs) communities in Baro-Akobo-Sobat River Basin in 2019. The draft fisheries baseline study was discussed by the fisheries experts of both Ethiopia and South Sudan during the validation meetings organized by IGAD in 2019 and reviewed and validated through the ECOFISH project. The governmental, non-governmental organizations and research/academia also participated in the meeting and discussed the issues. The participants from both countries sharing the fish resources recommended the need for policy on fish biodiversity management sustainable utilization in Baro-Akobo-Sobat River transboundary basin shared between Ethiopia and South Sudan.

Purpose

Aims of this policy brief:

- highlight the fishery potentials of Baro-Akobo-Sobat transboundary river both in Ethiopia and South Sudan
- identify alternative opportunities to earn income from the underdeveloped fisheries resources of the Baro-Akobo-Sobat basin;
- analyze the fisheries importance on livelihood and food/nutrition security of the attendant communities;
- identify the major existing challenges to manage and sustainably utilize the fish resources in this shared water (river) body;
- sensitize the importance of framing policy to establish fisheries co-management system in both countries sharing the resource;
- provide recommendation to policy makers of both countries on the importance of establishing a technical advisory body such as bilateral fisheries coordination platform for the Baro-Akobo-Sobat River Basin.

Key Messages

The Nile Basin, the longest river in the world, due to its size and varying climate, hydrology, topography and demography, constitutes one of the most complex and unique river basins globally. The Baro-Akobo-Sobat River Basin (BASEB) contributes 48% of the flow of the White Nile where these river systems join downstream of Malakal Town of South Sudan. More than 119 fish species have been described in the basin (Getahun, 2017). The rough fish production potential estimate in Ethiopia is between 15,00 and 17,000 tons/ year while the actual catch is below 400 tons/ year. Which is less than 4% is utilized. The fish production potential estimate for South Sudan from the river and its associated wetlands is 40,000 tons/ year but currently the country is generating less than 4,000 tons/year, which is about 10% of the potential (IGAD, 2019). Thus, the fisheries are underperforming. Management of Baro-Akobo-Sobat River Basin (BASRB) fisheries in both countries was found to be largely community based with little or no intervention from local, state or federal government level. Thus, almost it is an open access resource. Although there are some reports on localized overexploitation due to concentration of returning Internally Displace Persons (IDPs) in only some particular areas of the basin in South Sudan, most of the BASRB fisheries was reported to be pristine and still naturally vegetated. Lack of awareness combined with remoteness and poor infrastructure development are the key challenges to utilize the fish resources in the basin. Hence, this needs urgent policy attention.

Figure 1: Map of the Baro-Akobo-Sobat Basin (Source: Multinational Eastern Nile Technical Regional Office of the Nile Basin Initiative, 2012)

Baro-Akobo-Sobat Basin

The transboundary Baro-Akobo-Sobat River basin covers 186,275 km2 that stretches from south-western Ethiopia to south eastern and central South Sudan (Figure 1). About 80% of the Sub-basin is in South Sudan with the rest in Ethiopia. The basin's transboundary nature and its high importance to Ethiopia and South Sudan give the basin high geopolitical importance in the region. Despite its high geopolitical and hydrologic importance, for its remoteness and inadequate access, the BASRB is poorly documented in the published literature. The river is most of the time turbid and filled with high suspended solids as a result of soil erosion, but also because of the high sediment load owing to the rugged high sloppy terrain surrounding the BASRB rivers,

that is compounded by the typically high intensity but short duration type of rains and increasing deforestation in the basin.

BASRB has total catchment area of about 481,000 km2. The basin includes a complex system of rivers and large wetlands both permanent and seasonal. Large seasonal marshes formed by spills from the Akobo, Baro, Sobat and other smaller rivers characterize the system along the border between Ethiopia and South Sudan. These floodplains and wetlands were in most cases more productive and have higher productivity and production than the rivers themselves. Wetlands are typically important for fish breeding, nursing and feeding grounds; and are also known, especially in South Sudan, as an area where women are most likely directly involved in fishing since the fisheries there are to an extent based on foot and use of basket and other local traps. According to Robelo and McCartney (2012), these wetlands though not fully exploited are under increasing threat and require better and integrated planning and management to continue delivering the vital ecosystem services.

Figure 2: Gillo River in Nuer Zone (Gambella region), one of the tributaries of BASRB (Photo credit: Abebe Getahun)

Fisheries in the Baro-Akobo-Sobat River Basin

The network within the Baro-Akobo-Sobat River Basin (BASRB) in Ethiopia is formed by four major rivers: the Baro, Alwero, Gilo, and Akobo, and their associated tributaries. These rivers are big enough (Figure 2) and have high fisheries potential. Fisheries is a major livelihood for a large majority of rural people living in floodplains and around tributaries of the Baro-Akobo-Sobat basin that is shared between South Sudan and Ethiopia. The rivers and associated floodplains and wetlands of the Baro-Akobo-Sobat basin have great fisheries potential especially for rural communities living within the basin as a means for both supply of dietary animal protein for household consumption and as a means of economically transforming rural fishing communities through production, processing and trading fish resources. The field survey made by IGAD as part of this Baseline Study of the BASRB fisheries established that youths whose main preoccupation has been raiding cattle, have resorted to fishing activities as it is less risk to their lives and brings faster returns in terms of income. The youths reported that now they understand the importance of fisheries and the need for sustainable management of this important resource.

> *"FIsheries is a major livelihood for a large majority of rural people living in floodplains and around tributaries of the Baro-Akobo-Sobat basin that is shared between South Sudan and Ethiopia. The rivers and associated floodplains and wetlands of the Baro-Akobo-Sobat basin have great fisheries potential"*

Seasonality of Fishing

The monthly trend in production in terms of fish landed shows that in Ethiopia the yearly fish production trend is relatively flat throughout the year and only picks up slightly from September to March (Figure 3). Fishing is highly seasonal in the BASRB part of Ethiopia (Baro, Gillo, and Alwero Rivers), taking place mainly in the dry season (between the months of October and May), while it continues in the wet season in some areas. Flooding between the months of June and October prevents most fishers operating in the deep water bodies.

In the South Sudanese part of BASRB fishing high fish catch is mostly from August to December, October is the peak (Figure 2). South Sudan encompasses the largest freshwater wetland in Africa, the Sudd, which includes the White Nile system's Bahr al-Jabal section, between Bor and Malakal. The wetland consists of lakes, swamps and peripheral, seasonally flooded grasslands (Figure 2). The main river system in the country is that of the White Nile which originates from Lake Victoria. The Sudd area includes 8,300 km2 of permanent swamps and over 80,000 km2 of inundated area during the flood season. The shallow floodplains (referred to locally as toich) flood during July to September and recede in the dry season, leaving a number of lagoons and deep pools that make up a major fishery. The highest fish catch is observed during the flooding and post flooding periods (Figure 4).

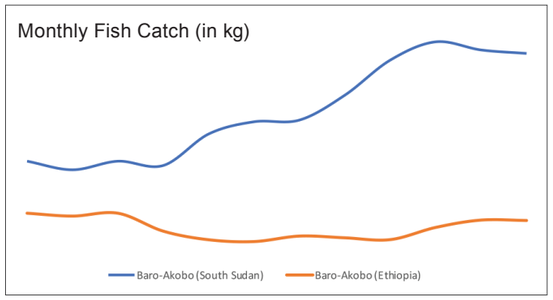

Figure 4: Annual fish catch trend from January (left end) to December (right end) in Baro-Akobo-Sobat River Basin in Ethiopia and South Sudan

Figure 3. Sobat River on the edge of Nasir (South Sudan). Source: atlas.nilebasine.org.

> *"Poor preservation practices are common, resulting in an estimated loss of about **40%** of total fish production."*

Fish Processing and Post-Harvest Losses

While fisheries can play an integral role in both countries in terms of job creation, food security and nutrition, the capacity of the sector is limited, among others, by transportation, infrastructure and post-production handling constraints. Access to markets and quality fishing equipment is low. The sector is further constrained by weak government institutions, extension services; poor fishing and post-harvest technologies coupled with movement restriction along fish trade routes due to insecurity (especially in South Sudan).

Generally, the fisheries baseline assessment study (IGAD, 2019) showed that in both countries sharing the basin, poor preservation practices are common, resulting in an estimated loss of about 40 percent of total fish production. Cold chains to preserve fish are almost missing in all the fishing areas of the basin.

The main species targeted for processing in South Sudan is Nile tilapia (Oreochromis niloticus) and in Ethiopia it is African catfish (Clarias gariepinus). The most commonly used methods of fish preservation are salt and sun-drying in South Sudan and sun-drying in Ethiopia. In a week, most processors are able to do two or three cycles drying. Fishers in the two countries sell processed fish to the final consumers and also to traders selling away from the landing sites. Most of the dried fish from Baro-Akobo Rivers of Gambella region (Ethiopia) is exported to neighbouring such as Sudan (Figure 5).

Gender in the BASRB Fisheries Management

The fisheries baseline assessment showed that men and women do not have the same access or control over productive resources or benefits accruing from them in BASRB. This gender-based inequality will have implications on the existing interventions and programmes in the basin, and will need to be addressed in designing and implementation of the fisheries management and development plan for the Basin.

The Baseline Study established that women are not involved in fisheries management, a fact that seriously impacts on the women's output in the fisheries sector. There is an urgent need to strengthen women collective fishery organizations, including producers' and traders' associations, cooperatives, and workers' organizations, in order to promote their voice in fisheries sector, and also to empower them to negotiate better prices and conditions with powerful players; agree and enforce sustainable fisheries resource management; and fight for the labour rights of women wage workers. There should be deliberate efforts to include women and youths in the fisheries management committees and/or fisheries co-management units.

> *"There is an urgent need to strengthen women collective fishery organizations, including producers' and traders' associations, cooperatives, and workers' organizations, in order to promote their voice in fisheries sector, and also to empower them to negotiate better prices*

Figure 5: Mixed catch of sundried packed by traders and transported for export to Sudan from Baro-Akobo of Gambella region (Ethiopia). Photo source: Mr. Cheng, Fishery Expert of Gambella Region.

Current Fisheries Management

According to the findings of the fisheries baseline study, fisheries production and exploitation in South Sudan is almost an open access, with no controls on numbers of fishers or entry and yet the legislation covering fisheries is very weak. The current legislation dates from the 1950s. It is contained in the Freshwater Fisheries Act 1954 which applies to all freshwater rivers and lakes in such parts of Sudan. Currently, there is a draft Fisheries Bill that was prepared in 2006 and has now been re-edited as the draft Fisheries Bill 2012. The bill is based on a template from elsewhere, and requires thorough revision to contextualize with the existing reality in the country and contemporary fisheries management sciences.

The Government of Ethiopia has Fisheries Development and Utilization Proclamation (Proclamation No. 315/2003) at the Federal Level. Some regional states of Ethiopia such as Amhara and Tigray have their own fisheries proclamations. However, Gambella region, where Baro-Akobo Rivers located, has no regional fisheries proclamations. Local fishers and villages administrative units and cooperatives exist in and around which fishing communities can organize for development but there is little government engagement with most of the local management arrangements in both countries sharing the basin in general. One of the initial steps to management of fisheries resources is establishing status and/or improving the assessment of biological production to enable science-based management (SPC, 2008). This intervention is aimed at getting accurate and complete information about fishery production, which is currently sub-optimal for BASRB fisheries. Generally, there is little or no attention paid to BASRB fisheries by both Government of Ethiopia and Government of South Sudan. Through fisheries co-management, mainly the fishers (resource users) and Government develop fisheries co-management plans and upgrade fish cooperatives as fisheries co-management units with clearly defined responsibilities of both the fishing communities and the Government. Careful management is needed to maximise the sustainable yields of fish from basins to narrow the gap between the production required for food security and the harvests available from coastal fisheries (Bell et al., 2011; Figure 6).

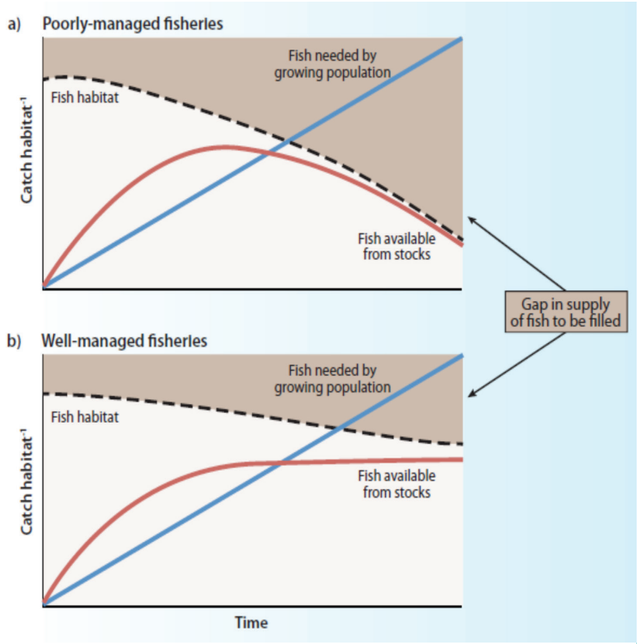

Figure 6. In a poorly managed fishery (graph a), fish stocks and catches (red line) decrease, and fish habitat (light blue area) deteriorate over time. In a well-managed fishery (graph b), fish stocks and catches remain at a sustainable level. Well-managed fisheries minimize the gap between the production required by rapidly growing human populations and sustainable harvests of fish (SPC 2008; Bell et al. 2011).

Suggested Priority Policy Actions

- Baro-Akobo-Sobat River Basin has high fish production potential, thus, there is a need to promote more fish production (sustainably) for food security, nutrition and livelihood diversification, consequently resilience building in the ASALs pastoralist and fishing communities.
- Develop joint fisheries co-management plan by the two bordering countries.
- Conduct fisheries socio-economic and frame survey assessments.
- Conduct capacity need assessment and develop training modules.
- Develop harmonized data sharing protocols.
- To maintain the sustainability of the fish resources in the basin, establishing gender responsive, fisheries co-management system is very essential.
- The fish post-harvest loss is very high (>40%) since the area is arid and semi-arid, coupled with very poor infrastructure development, therefore, capacity building in fish post-harvest loss management (PHLM) and value addition should be a priority action.
- The fish market linkage is in the basin in both countries is very weak and requires strong intervention.
- Develop the infrastructure in the landing sites.
- The area has very huge aquaculture potential for investors and it needs to be promot

Further reading

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Published by IGAD Agriculture & Environment Division
Funded by the African Development Bank (AfDB), European Union
With the support of E€OFISH - www.ecofish-programme.org