



Demography, im(migration) and movement of labour: A case of oil and gas sector investments and its effects on natural resource bases in Bugoma landscape

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Executive Summary

The oil and gas sector has been a major driver for many economies over the years. With the seismic surveys and drilling on land and Lake Albert in the early 2000's, Uganda entered a prospective commercial phase of the oil and gas sector with its spiral effect on other sectors. This paper discusses the impacts of the oil and gas sector on the demography, Im(migration), movement of labour and pressure created on other investments that affect natural resource bases in the Bugoma landscape. It is based on available evidence in relation to frameworks such the NDP III, a primary development tool for Uganda, whose overall development strategy is hinged on the need for rapid industrialization based on increased productivity and production in agriculture, while nurturing the potential of the tourism, minerals, oil and gas sectors.

The impacts are discussed in relation to the demographic characteristics of the population, internal and international migration, labour factors and investment pressures with a focus on Bunyoro sub-region, the home of Bugoma landscape.

Evidence shows that the age-sex composition of Uganda's population portrays a young population with limited or no skills compounded with other limitations such as limited investment capital. This is a possible factor to the continuous severe reduction of forestry cover falling to a total of 1.9 million hectares in 2015 from 4.9 million hectares in 1990, a reduction of 60 percent over a period of 25 years. This population structure further underpins the locking of small and medium farm land sizes for sugar cane growing in Busoga and Bunyoro regions, as a highly likely contributor to the increase in poverty.

Information about migration is available from censuses and surveys conducted in the country as well as administrative records recognizing migration as one of the three components of population change, complementing fertility (births) and mortality (deaths).

The Bunyoro sub-region has also witnessed an influx of new businesses and migrants from non-oil districts that have come in search for the promise of better economic opportunities. The in-migration of both persons and businesses within Bunyoro has possible impacts on biodiversity resulting from settlement, planting, harvesting of fibre from wetlands, hunting, fishing, fuel wood collection, charcoal burning and increased stock numbers. Around the Bugoma Forest, land has been largely transformed for subsistence agriculture, resulting in increased pressure on the scarce natural resources, and illegal settlements in the forest reserves.

The observed influx of businesses may be surpassed by the influx of the population evidenced by Bunyoro sub-region having the least proportion of employed population at 36 percent in 2019/20. This implies that, of all persons aged 14-64 years (working age population) in Bunyoro sub-region, only 36% were engaged in work for pay or profit and majority (63%) engaged in subsistence agriculture. Based on the 2014 Industrial Baseline Survey (IBS) performed by IOCs, the development of oil fields in the Lake Albert region was anticipated to generate thousands of direct jobs in Uganda and big opportunities for employment and supply of services in the region which seem yet to be actualized. The oil and gas project within Bunyoro sub-region raised expectations of every stakeholder including the desire for greater stimulation to the local economy and increases in disposable incomes. Although, these may not be ruled out, the real impacts may be far reaching and nearly irreversible in relation to the natural resources bases such as forestry cover, wetlands and other natural resources. A detailed study would establish the depth of the impacts.

Introduction

1.1 Background

The Bugoma landscape located in Western Uganda has in recent years been synonymous with activities of oil and gas and related sectors. However, this has been a historical forest reserve landscape with a large proportion under central government protection characterized by broad hills and valleys but currently with patches of degradation. Generally, Uganda has been losing its forest cover from 24% in 1990 to 9% by 2015 with an annual loss of on average 122,000ha with most loss on private lands. The rate of afforestation does not match the current rate of deforestation. The current status stands at 12% indicating a slight improvement.

Bugoma Forest Reserve which was established into a Forest Reserve in 1932 sits on 40,100 square hectares landscape. “Under Legal Notice 251 of 1944, the forest area was increased to 41,144 hectares. However, it has recently been encroached upon by sugar barons, loggers and even cultivators”. For example, Hoima Sugar, the second major sugar factory in the Bunyoro sub-region launched in 2016 was given 22 square miles out of Bugoma Forest to expand its sugarcane estate. Another forest encroacher, MZ Agencies Limited, acquired with a title 2,000 hectares of the forest reserve for farming. On the other hand, it is estimated that six million tonnes of wood are annually transformed into 1.8 million tons of charcoal from Bugoma forest.

On paper, Government has made some commitments to restore and afforest the degraded areas. Such commitments were evident under the NDP II to restore up to 18% by 2020, 24% by 2040 and 21% by 2030 under the NDC/ National communication as required by the UNFCCC. Globally, Uganda committed to restore 2.5m ha by 2035 under the Bonn challenge at the Climate Change summit in NEWYORK in September 2014. Locally, civil society organisations (CSOs) together with government embarked on a Shs15 billion drive to restore at least 70,000 hectares of trees that were previously lost in the Albertine-rift region. In Bugoma 1,000 and 15,000 outside the protected areas with the communities is targeted.

Such targets however, cannot be achieved without concerted efforts of every stakeholder. This is evidenced as noted in NDP III of the severe reduction in the forest cover as well as wetland degradation and encroachment being one of the outstanding challenges. In the Bugoma landscape, stakeholders in oil and gas sector stand out as critical in the efforts to improve the degraded landscape.

Uganda made the first commercial discovery of a large amount of recoverable oil deposits in 2006 in Kaiseo Tonya, Hoima district by the Hardman Petroleum Pty (Petroleum Authority Uganda). The commercial discovery attracted more investments that led to drilling of 121 exploration and appraisal wells within Albertine Graben with success rate of over 80 percent. The effort to explore, develop and produce this extractive and non-renewable resource has been stepped up in the last fifteen years. Currently the preparation for production of discovered oil is in high gear for Tilenga project and Kingfisher Development area operated by Total Energies Uganda Limited and CNOOC Uganda Limited respectively.

Road improvements to be developed under the jurisdiction of UNRA to support the oil industry will partly traverse through Kaseeta Lwera via Bugoma Forest. On its approach to the Kabaale hub, the route crosses substantial areas of agricultural land and traverses the edges of both Bujaawe and Wambaya Forest Reserves. The government of Uganda has seen the discovery, among other factors, as a unique opportunity to transform the economy through infrastructure development and poverty alleviation which definitely implies encroachment on the forests to create room for such infrastural development.. This is well highlighted in the NDP III whose overall development strategy is hinged on the need for rapid industrialization based on increased productivity and production in agriculture, while nurturing the potential of the tourism, minerals, oil and gas sectors.

The exploration, extraction and refining of natural resources such as oil and gas need to be undertaken in a sustainable manner. The exploitation of one resource need not pose a danger to the existence of other natural resources. However, naturally conflicts are bound to arise such as environmental crisis and tremendous forest losses, predominantly driven by the resource (in this case the oil and gas) exploitation but also by secondary factors such as human activities in Agriculture, forestry and logging. Consequently, in the Bugoma landscape, it is important to examine possible conflict areas as impacted by the exploitation of oil and gas focusing on the demography, Im(migration), movement of labour and pressure created on other investments that affect natural resource bases in the area. This paper provides highlights on available evidence on the interplays between these factors.

1.2 Objectives

The objective of the study is to highlight impacts of the oil and gas sector on the demography, im(migration), movement of labour and pressure created on other investments that affect natural resource bases in the Bugoma landscape. Specically looking at:

- The demographic changes in the bugoma landscape over the years and compare before and after oil and gas activities
- Analyze in-migration and out-migration especially those related to movement of labour specifically due to oil and gas sector
- Analyze pressure created on other sectors (e.g. natural resource bases, agriculture, forestry etc.) in the Bugoma landscape
- Assess the cause and effects of movement of labour to both social-economic balance of the area and to natural resources.
- Explore impacts of in-movement and out-movement either willfully (local migrations) or un-willfully (refugees) in the area

1.3 Scope of the study

The study covered the Bugoma landscape that lies on the sub-region having the four districts of Hoima, Masindi, Kikuube and Bulisa. However, for a better understanding of the interplay between the identified growth sectors of oil and gas, demography, Im(migration) and movement of labour and how they impact on natural resource bases in the Bugoma landscape, the country at large was put into perspective. A wide array of information was collected with a focus on the Bugoma landscape with different time limits given that fact that some of the information was hardly available. The use of most current data from official sources was emphasized.

1.4 Pull out quotes

The planned projects also called for improvement in infrastructure in the region to ensure efficient project execution. This has led to, among others, road construction to improve accessibility which has improved service delivery to this region which previously had no access (PAU, 2018).

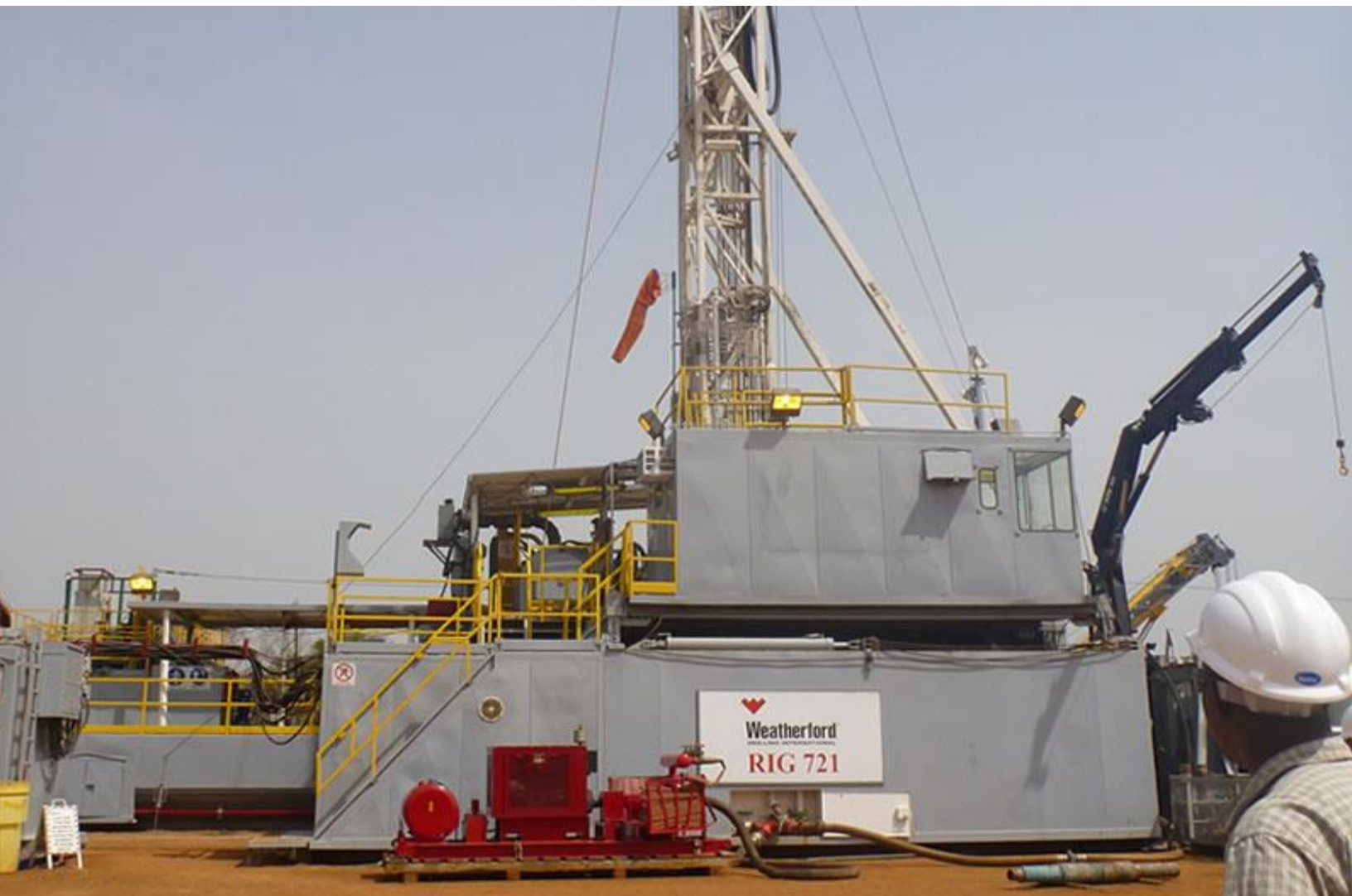
Whereas the project is considered a positive impact to the development of the region, the turn up of over 1000 personnel, willful displacement of people from their land and high demand of food and services are potential that may add pressure to community and natural resources in the region.

CNOOC Uganda Limited (CUL) (2018) summarised in their Environmental and Social Impact Assessment (ESIA) that the widening of the roads through the Bugoma Forest will affect biodiversity in an internationally recognised Tier 1 Critical Habitat, impacting on Nahan's Francolin and the Eastern Chimpanzee, the latter being an endangered species to which a high emotive value is attached internationally.

Petroleum Authority of Uganda (PAU) 2018 showed that a multi-Institutional Implementation committee has been formed under the supervision of the Cabinet Committee on oil and gas to implement the recommendations made by the SEA.

The Ministry of Energy and Mineral Development (MEMD) and Ministry of Water and Environment (MoW&E) (2013) undertook the scenario analysis of the co-existence of petroleum development activities with other sectors (fisheries, tourism) and local communities, highlighting related impacts identified within the different sectors during the petroleum development activities and made recommendations on how they can be addressed.

These projects are expected to lead to greater stimulation to the local economy and increases in disposable incomes. The combination of influx and increased disposable incomes will likely exacerbate inflation pressures due to increased demand for local goods and services. Increase in food prices, farmland (to purchase and rent) and other farming inputs is likely to increase cash poor households' exposure to food insecurity (TEPU, 2019).



Methods and approach to the study.

2.1 Methods

This paper is based on desk research on published material in research reports and similar documents mainly available on authentic and trusted websites of government and none government agencies.

The available official was synthesized to narrow to the most relevant and applicable to the study. Several checks were made with related topics in journals, newspapers, and other publications.

During the analysis, having cleaned the data gathered of any errors, some were combined or recomputed to generate required information for the study. Where necessary, consultations were made with critical sources of information. The report was then Structured based on the findings to guide appropriate conclusions.

2.2 Approach

The study followed the a number of inter-related activities, including;

- Activity 1 Review of available information on the four growth sectors identified.
- Activity 2 Collection of data relevant for the study and analyzing it to identify key variables and indicators that lead related to the study
- Activity 3 Triangulating information by combining and re-computing using available statistical tools to provide relevant input.
- Activity 4 Synthesizing in a consultative manner the interplay between the growth factors and pressure created on other investments that affect natural resource bases in the study area.

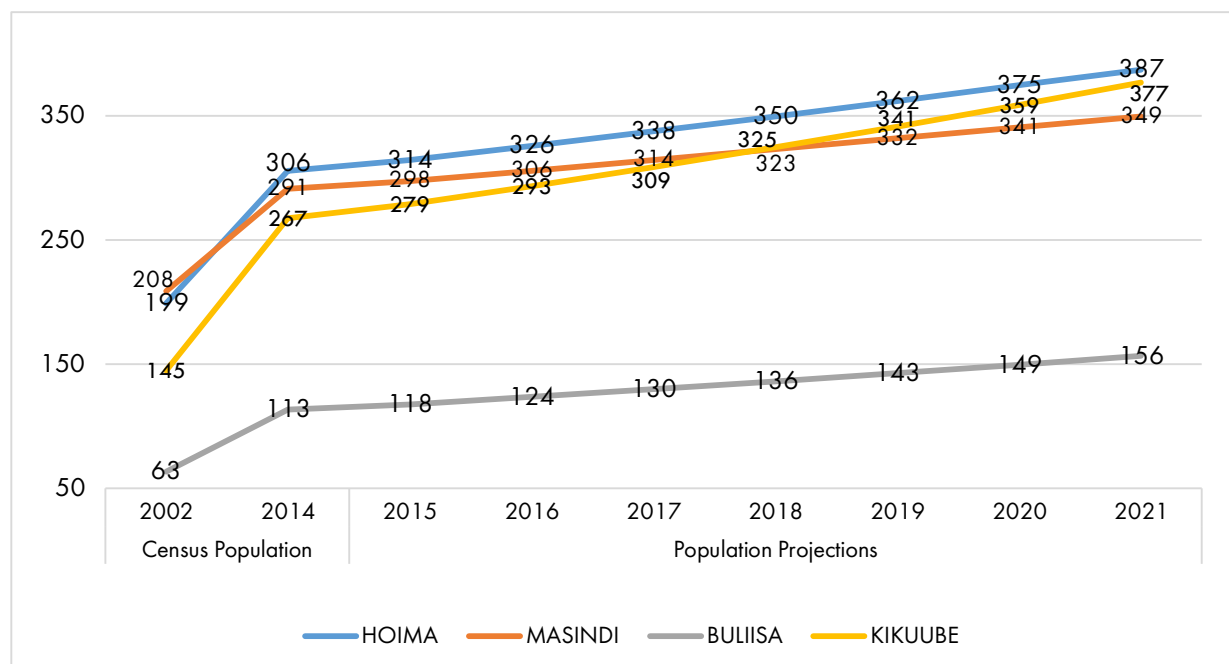
Understanding impacts of oil and gas in Bugoma landscape

3.1 Demography

3.1.1 General population analyses in the landscape

The population of Uganda has had an upward trajectory over the decades growing from 9.5 million in 1969 to 34.6 million in 2014 according to the official national population and housing censuses results. The average annual population growth rate was 3.0 percent between 2002 and 2014. The population was projected to be 41.6 million by mid-year 2020. Considering the Bugoma landscape, all four districts making up the landscape i.e Hoima, Kikuube, Masindi and Bulisa have had an upward growth over the years with Hoima district having the biggest population projected at 387 thousand by mid-2021 up from 306 thousand in 2014 as shown in figure 1.

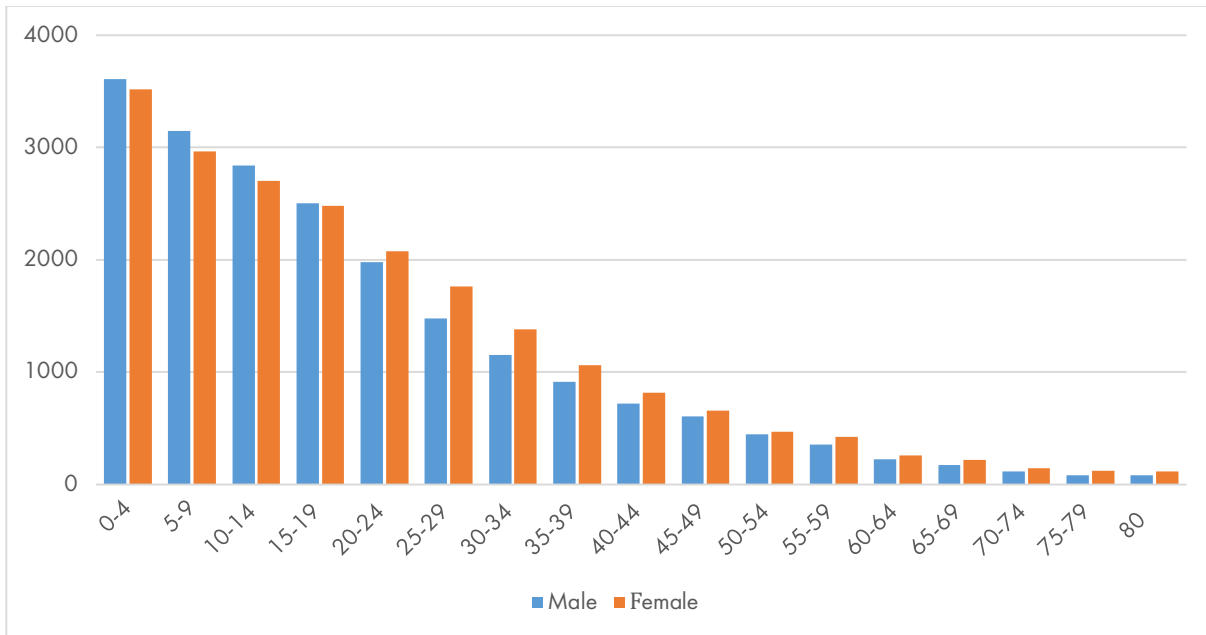
Figure.1: Total population for selected Districts of the Bugoma Landscape



Source: UBOS 2022

Considering the age-sex structure of Uganda, as shown in figure 2 as of mid-year 2020, the population of younger males was higher than younger females up to age 19 years. After age 19, the population of females is more than males. This has bearing on pressures of activities commonly undertaken by different age and sex categories.

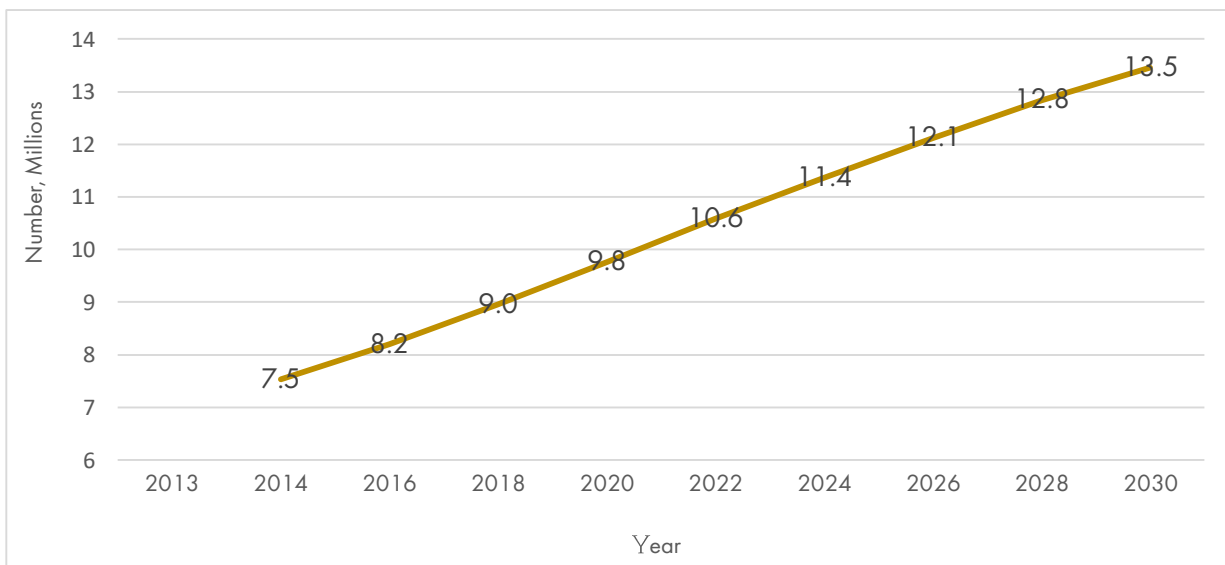
Figure 2: 2020 Mid-year population by age group



Source: UBOS 2022

The youth (18 – 30 years) is a significant segment of the population with potential to spur production. According to Figure 2.1, the youth population is projected to increase from 7.5 million in 2014 to 13.5 million in 2030. This indicates an annual growth rate of 3.6 percent, which is higher than the 3.0 percent for the general population.

Figure 2: Uganda’s Mid-year population projection of the youth (18-30) 2014-2030

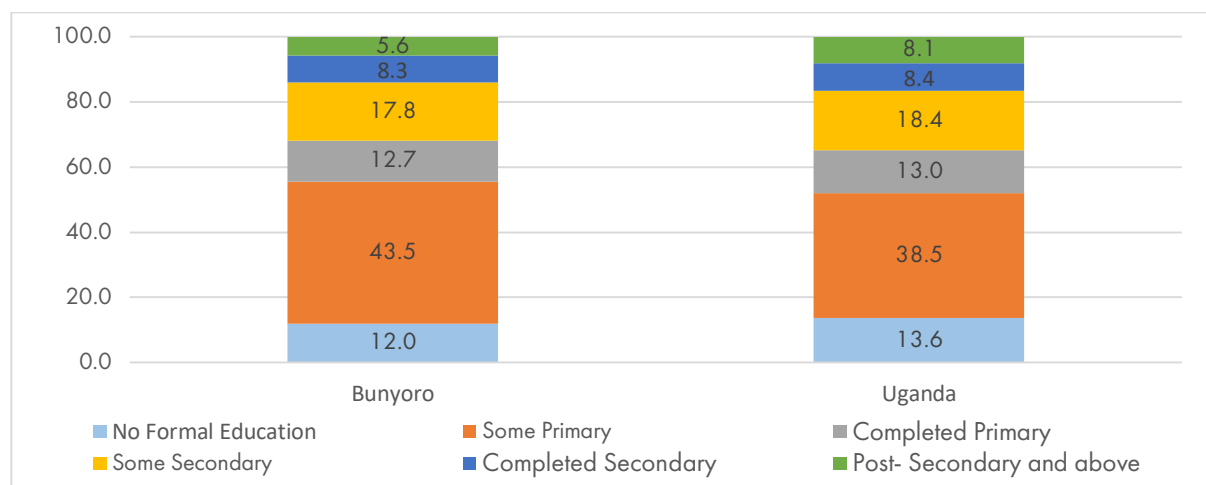


Source: Computed by Author based on UBOS Data 2022

Although the youth bulge can create an opportunity because of the potential demographic dividend from cheap labour and future demand, this must be properly harnessed to derive the dividends. Otherwise, the pressure of the youth bulge will push the young population to areas with potential opportunities, expertly the Bugoma landscape with oil and gas activities.

There is a much anticipated demographic dividend due to the young population of the country. However, this cannot be achieved without proper skilling of the young people to match with available jobs and occupations. Apparently, as revealed by the Uganda National Household Survey (UNHS) 2019/20, majority of Ugandans aged 15 years and above either did not have formal education (14%) or completed only some primary (39%) making a total of more than half (52%). This proportion is even higher for the Bugoma landscape represented by Bunyoro sub-region (56%) as shown in Figure 3.

Figure 3: Highest level of Education attained, 15 Years and above



Source: UBOS, UNHS 2019/20 Main Report

3.1.2 Effect on social and economic balance

It is Notable that the oil and gas sector is a highly specialized sector that require advanced skills, short of which would lead to absorption of the population to other alternatives such as subsistence agriculture. Evidently, given the qualification gap of the general population, skills in oil and gas is limited. This implies that the

general population within the oil and gas investment area of the bugoma landscape will hardly benefit from the high skilled jobs with better remunerations. Thus, the population must contend with sustenance on subsistence and elementary jobs.

3.1.3 Effect on Natural Resources base

The high level of population growth is likely to exacerbate pressure already being placed on agricultural land by oil and gas project-related influx given that land is fixed. Additionally, over-

farming and greater fragmentation leads to soil degradation of farming areas (smaller plot sizes), all potentially resulting in reduced agricultural outputs (TEPU, 2019).

3.1.4 Implications on labour availability

The impact of a young population with little or no skills places a lot of social and economic pressure on the general population and the vulnerable natural resources such as forests and wetlands.

This, compounded with other limitations such as lack of start-up capital for enterprises and the limited skills, leaves few options for the young population to struggle for survival.

3.1.5 Implications on Natural Resources base

The country's population growth may explain the continuous severe reduction of forestry cover falling to a total of 1.9 million hectares in 2015 from 4.9 million hectares in 1990, a reduction of 60 percent over a period of 25 years. NDP III notices the locking of small farm land sizes for sugar cane growing in Busoga and Bunyoro

regions, as a highly likely contributor to the increase in poverty. Such plantation crops lock arable land for as long as the plantation exist which is seen as a driver to poverty given the heavy reliance on subsistence rain-fed mechanisms and use of rudimentary technology as the only economic activity.

3.2 In-migration (in to the landscape)

Although, no universally accepted definition exists for migration, the International Organisation for Migrants (IOM) provides some guide to the concept. Riding on the IOM concept, migration can be understood to refer to movement by a person away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons. The movements may be legally defined or not.

Information about migration is available from censuses and surveys conducted in the country as well as administrative records recognizing migration as one of the three components of population change, complementing fertility (births) and mortality (deaths). In Uganda's context, Migration is considered to be the geographic movement of people across a specified boundary of the country for the purpose of establishing a new residence which can be either internal or international.

The International Organisation for Migration (IOM) estimated around 281 million international migrants in the world in 2020, which equates to 3.6 per cent of the global population or one in every 30 people. Uganda is ranked fourth among the top 20 countries with the largest migrants proportional population change in Africa 2009–2019. Such proportional population change

resulting from migration has diverging demographic trends and patterns especially across developed and developing countries with various social and economic implications.

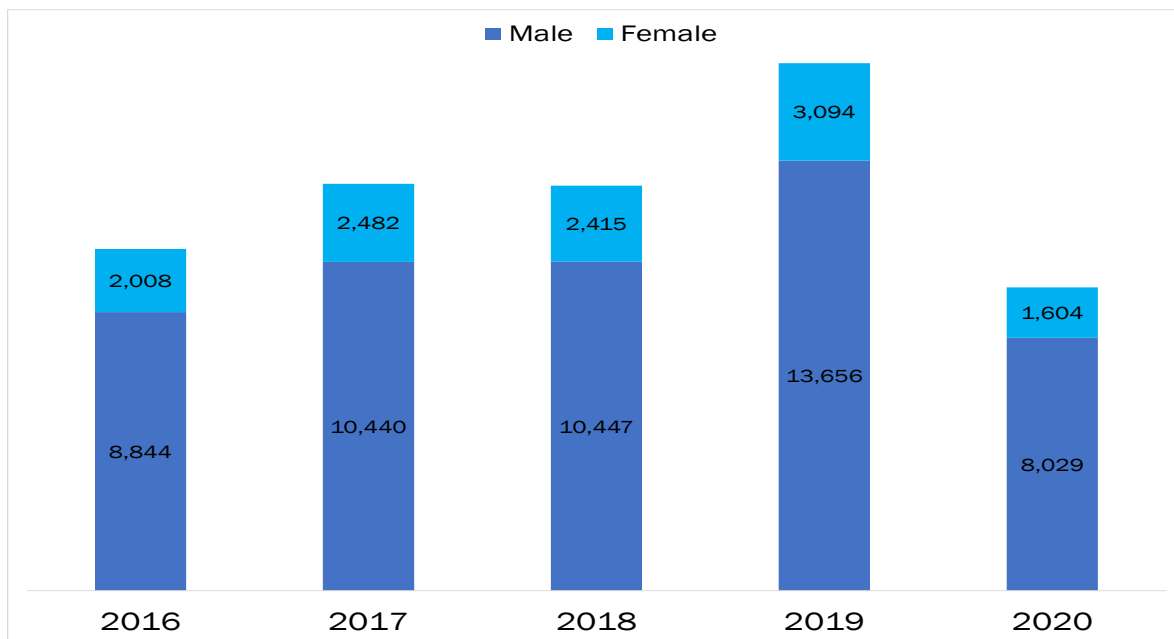
According to the Uganda 2014 National Population and Housing Census (NPHC), 11 percent of Uganda's population were migrants (10 % internal while 1% from other countries). Total migration by sub-regions showed that Kampala had the highest rate of 42% followed by Bunyoro sub-region representing the Bugoma landscape with 22 percent. This means that 22 percent of the population in Bunyoro as of 2014 migrated into the area (over 19% from other sub-regions and over 2% from other countries). The total proportion of the youth (18-30 years) that migrated across the sub-regions was 20 percent with the rate for Bunyoro sub-region at 33 percent.

On the other hand, in-migration rate was still highest in Kampala at 39 percent but with Bunyoro at 19 percent (more than double its out migration rate). Majority of internal in-migrants in Bunyoro were mainly from Kigezi, West Nile, Tooro and Ankole sub-regions in that order. Bunyoro had the highest net internal migration of 12 percent (that is the difference between in-migrants and out migrants), the highest across all the 15 sub-regions.

Considering the five year period leading to 2014, five percent of Uganda’s population were migrants with the proportions for Bunyoro sub-region being higher than national at nine percent. This meant that nine percent of the population in Bunyoro as of 2014 had moved into the area in the previous five years to 2014. This included both international and internal migrants. Of all recent internal migration, 11 percent were in-migrants in Bunyoro sub-region.

Uganda is also a major destination of international migrant labour. Figure 4 provides trends in legal labour migration into Uganda measured by the number of work permits issued by sex from 2016 to 2020. The figure shows that the number of permits issued increased by 19.1% in 2017. Although it stagnated in 2018, work permits issued greatly increased by 30% in 2019. In 2020, the number of permits issued declined considerably by 42.5% perhaps due to the covid-19 pandemic.

Figure 4: Number of work permits issued by gender 2016-2020



Source: UBOS (2021)

3.2.1 Causes of in-movements

Immigration can be caused by a number of factors ranging from economic, social, political or environmental factors. Economic factors may arise due to major investments. In the Bungoma landscape, the oil and gas investments including significant infrastructure development such as road

construction works is a major driver for immigrants into the area. Also, having a base for refugees means continuous flow of immigrants from other countries who latter integrate within the communities.

3.2.2 Effect on social and economic balance

The Bunyoro region (location of Bugoma landscape) has witnessed an influx of new businesses and migrants from non-oil districts that have come in search for the promise of better economic opportunities (EPRC, 2015).

These activities may attract their early entry into economic activities at the expense of their social development activities such as education resulting into detrimental effects like child labour.

A study by UBOS on child labour in Hoima and Buliisa areas in 2019 showed that 26 percent of total children aged 5-17 years were involved in Child Labour. The study which included a qualitative module revealed that child labour could be one of the barriers towards achieving the objectives of SDG 4 in the study area resulting from absenteeism, late school reporting, cumulative fatigue leading to lack of concentration in class, poor grades which may result into drop outs among others. It may be necessary to scale

The direct and indirect jobs usually have social impacts on the population as well as environmental consequences. Children are normally vulnerable to the social impacts of economic activities.

up social protection schemes to prevent vulnerable households from having to resort to child labour as a solution against negative shocks. Child labour can destroy a child's future, resulting into social vulnerability and societal marginalisation, and can permanently impair productive potential of the child.

Major developments are also likely to lead to influx into the main urban centres within the region, particularly Hoima town, Masindi town, Biiso town, and Pakwach town. These potential cumulative impacts are likely to lead to increases in regional demand for social services (TEPU, 2019).

3.2.3 Implications on labour in oil and gas sub-sector (and in other sectors)

Although the size of international migrants was low, according to 2014 NPHC, 99 percent of those in Bunyoro sub-region was from within African region. Further disaggregation showed that Southern Sudan, Democratic Republic of Congo and Rwanda combined contributed to 77 percent of the recent international immigrants enumerated in Uganda in 2014.

Based on the 2014 Industrial Baseline Survey (IBS) performed by IOCs, the development of oil fields in the Lake Albert region would specifically generate thousands of direct jobs in Uganda, with a peak of about 13,000 workers in the

construction phase and a plateau at 3,000 people in the operation phase. Out of the total manpower required, 15% are expected to be engineers and managers, 60% would be technicians and craftsmen and 25% unskilled workforce. Beyond direct jobs that are to be created on site, oil and gas activity is also expected to have a potential to generate 100,000 to 150,000 indirect and induced jobs. This will contribute to not only to increase in employment in the region but also population growth on the eastern side of Lake Albert since many in the specialized jobs will likely come from outside the region.

3.2.4 Implications on Natural Resources base (forest resources)

Firewood and charcoal combined remains nearly the only source of energy for cooking in the country, used by 94 percent of the households according to the UNHS 2019/20 with the

proportion for Bunyoro at 98 percent. Increased use of firewood and charcoal imply more pressure on the forest cover.

3.3 Out-migration (out from the landscape)

Considering internal migration (movement across 15 sub-regions within the country) until 2014, the highest out migration rate by sub-region was from Kampala at 28 percent with the rate for Bunyoro at only seven percent.

3.3.1 Causes of out-movements

As mentioned, immigration into area puts pressure on social-economic factors. As a consequence, the resident population looks for alternatives. This is the case with the Bugoma landscape. Persons

searching for opportunities and cannot find within the landscape and naturally displaced by the immigrants due to pressure on socio-economic resources.

3.3.2 Effect on social and economic balance

The recent upgrade of a section of the Hoima-Buhuka Road and the construction of the road down the escarpment onto the Flats has encouraged settlers in search of opportunities related to fishing to the Flats (CUL, 2018). While

some people are benefitting financially, the in-migration is contributing to pressures on community infrastructure and services, including schooling, health and welfare services, emergency services and water supply.

3.3.3 Implications on labour in oil and gas sub-sector (and in other sectors)

Major oil and gas companies such as CNOOC project job creation in the EPC (Engineering, Procurement and Construction) and drilling contracts would ramp up to between 1,000 and 2,000 at peak. Although CNOOC's casual labour policy reserves at least 60% of casual jobs for local communities in the areas of its operations, it can be noted that this refers to residents which in effect attracts immigrants within the region of

activities. Layoff of most of the local casual construction workers is projected to accelerate as construction reaches an end expected to result into temporary job losses between 1,000 and 1,500. Given the immigrants into the sub-region as a result of the attraction by either the direct or indirect jobs created by these investments, the job losses definitely must be replaced by alternatives which may be in different sectors such as agriculture.

3.3.4 Implications on Natural Resources base (forest resources)

The in-migration has impacts on biodiversity resulting from settlement, planting, harvesting of fibre from wetlands, hunting, fishing, fuel wood collection, charcoal making and increased stock numbers. Around the Bugoma Forest, land has been largely transformed for subsistence agriculture, resulting in increasingly scarce natural resources, and people have illegally settled in the forest (now evicted) (CUL, 2018). These pressures will increase with increasing settlement. Without mitigation, impacts caused by in-migration will be of high significance. An article in the Monitor Publication by Francis Mugerwa (2014) reported that due to untimely compensation in the refinery area, some affected residents were settling in

forest reserves in Kabwooya and Kyangwali Sub-County to attain survival.

Immigrants are attracted to the Budongo-Bugoma landscape precisely because of the existence of land under natural vegetation (forests, bush lands, grasslands, wetlands) which is 'not used' and Immigrants are attracted to the Budongo-Bugoma landscape precisely because of the existence of land under natural vegetation (forests, bush lands, grasslands, wetlands) which is 'not used' and available for conversion.

There are comparatively less such lands available in other parts of Uganda (Forest trends and Katomba Group, 2010).

Bugoma Forest is facing several threats such as human encroachment, illegal timber harvesting and charcoal burning as well as several agricultural activities including sugarcane growing (Francis Mugerwa, 2021). According to Federica Marsi (2021), the UN agency found commercial agriculture to account for about 40 percent of tree cover loss on a global scale. In Africa, FAO

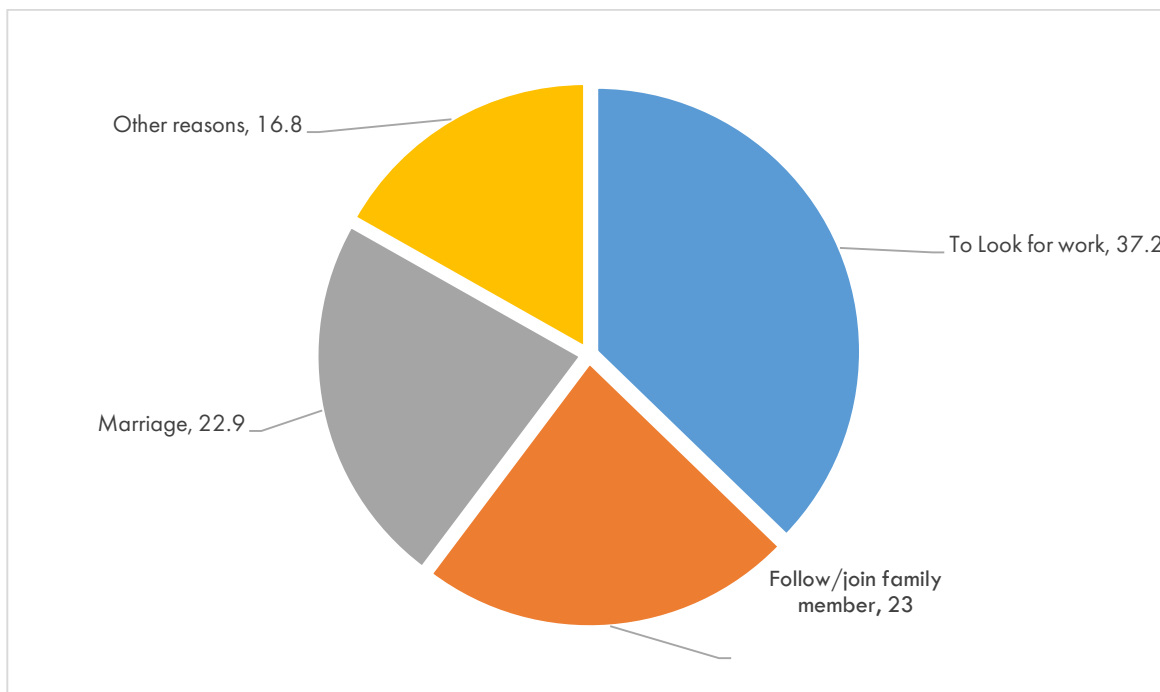
estimates sugar production will increase by 40 percent by the end of 2029, due to an increase in output in sub-Saharan countries. Globally, the total global sugarcane production has risen fourfold since 1965, in line with population growth and a rise in demand for sugar-rich products and drinks.

3.4 Labour opportunities in the landscape

In recent years, studies have been conducted to determine the status of migration in the Country with the most recent at national level being the Uganda National Household Survey (UNHS) 2019/20. According to the UNHS 2019/20, recent migration (five years leading to 2019/20) for Uganda was at a rate of five percent similar to the rate in 2014. However, the rate for Bunyoro in 2019/20 was lower than the national average at two percent of which, more than one third (37%) migrated to look for employment as shown in Figure 4 below.

The International Labour Organisation (ILO) defines Employment comprising work performed for others in exchange for pay or profit¹. It excludes work performed mainly or solely for own or household consumption such as subsistence agricultural production work.

Figure 4: Reasons for migration to Bunyoro Sub-region in 5 years to 2019/20.



Source: UBOS, UNHS 2019/20

3.4.1 Main labour opportunities available in the landscape

According to the UNHS 2019/20 and considering the working age population (14-64 years), the proportion of Uganda's population that was employed was 52 percent. By sub-regions, Kampala had the highest proportion of 98 percents while Bunyoro had the least proportion of 36 percent. This implies that, of all persons aged 14-64 years (working age population) in Bunyoro sub-region, only 36% were engaged in work for pay or profit with majority (63%) engaged in subsistence agriculture.

Notably, although the proportion of the employed population was low (36%), Bunyoro employed the second highest proportion of professionals (10%) higher than the national average of 6% and only second to Acholi sub-region that had 11%.

High proportion of professional occupations in the region may be explained by significant investment in economic activities that require specialised

occupations as a result of oil exploration and hence driving attraction of workers with high skills. For example, CNOOC Uganda Ltd, the operator of Kingfisher Oil Development project, planned significant activities such as the proposed construction of the production facility at Buhuka flats with supporting infrastructure including flowlines from the well pads to the Central Processing Facility (CPF), access roads, an upgraded jetty, a water abstraction station on Lake Albert, temporary and permanent personnel camps, a materials yard, underground power cables from the CPF to other infrastructure, truck buffer yard, drilling storage yard, airfield / helipad etc and a safety check station at the top of the escarpment. All these activities are expected to have started in 2019 with the centre of activities happening in and around Hoima and Masindi districts and as such the greater Bunyoro region.

3.4.2 Employment and overview of remuneration of labour (in the landscape)

Reflecting on the UNHS 2019/20 occupations of the employed population, the total proportion for Uganda engaged in commercial agricultural occupation was 25% and 35% for Bunyoro. In addition, the proportion of persons employed as services and sales workers was 18% in Bunyoro with an additional 18% in elementary occupation. These may be indirect jobs linked to investment activities happening in the area such as foods and

restaurant sales activities. However, it can be highly anticipated that with direct casual job losses in the investment activities, more of the population may turn to agricultural, forestry and fishery work to earn living. Such work may include crop farming, charcoal burning, tree felling as well as elementary jobs such as street and related sales and services work.

3.4.3 Implications on livelihoods (living standards)

The emerging petroleum sector in Uganda has a high potential to contribute significantly to the economy, industrialisation and wealth creation plans (PAU, 2018). Undertaking of oil and gas projects in Albertine Graben has brought about big opportunities for employment and supply of services in the region. The planned projects also called for improvement in infrastructure in the region to ensure efficient project execution. This has led to, among others, road construction to improve accessibility which has improved service delivery to this region which previously had no access (PAU, 2018). The Buhuka area in general is experiencing rapid economic development since

the opening of the escarpment road into the Flats (CUL, 2018).

The Ministry of Energy and Mineral Development (MEMD) and Ministry of Water and Environment (MoW&E) (2013) undertook the scenario analysis of the co-existence of petroleum development activities with other sectors (fisheries, tourism) and local communities, highlighting related impacts identified within the different sectors during the petroleum development activities and made recommendations on how they can be addressed. The report listed several concerns which emerged during the Strategic Environmental Assessment (SEA) process.

This included among others; Occupational Health and Safety issues and HIV/AIDS, Urbanization and Public Health issues, increased demand for social infrastructure, Land issues including adequate compensation planning and livelihood restoration in the event the personal properties are affected, etc. all these issues if not addressed may cause a lot of pressure to natural resources existing in the area.

Petroleum Authority of Uganda (PAU) 2018 showed that a multi-Institutional Implementation committee has been formed under the supervision of the Cabinet Committee on oil and gas to implement the recommendations made by the SEA.

CNOOC Uganda Limited (CUL) (2018) summarised in their Environmental and Social Impact Assessment (ESIA) that the widening of the roads through the Bugoma Forest will affect biodiversity in an internationally recognised Tier 1 Critical Habitat, impacting on Nahan’s Francolin and the Eastern Chimpanzee, the latter being an endangered species to which a high emotive value is attached internationally. The report further suggested that the key mitigation measure to reduce impacts on the Bugoma Forest Reserve is to delist the R5 from the proposed oil road upgrades and for CUL to use the P1 as the major haul road during the construction phase and, if upgraded in time, the R7.

Figure 5: Map showing the proposed road upgrades around Bugoma forest reserve (CUL, 2018)



As indicated in Figure 5 above, the cumulative and synergistic impacts of transport improvements, including upgrades to the roads constructed for the oil and gas industry has enhanced the ability to transport fish from Lake Albert to key markets. This is likely to further increase demand through increasing the availability and supply of fisheries products to key markets. This would further exacerbate pressure on fish stocks in Lake Albert leading to reduced fish catch and inflation in the price of fish (TEPU, 2019).

These projects are expected to lead to greater stimulation to the local economy and increases in disposable incomes. The combination of influx and increased disposable incomes will likely exacerbate inflation pressures due to increased demand for local goods and services. Increase in food prices, farmland (to purchase and rent) and other farming inputs is likely to increase cash poor households' exposure to food insecurity (TEPU, 2019).

3.5 Refugees and their settlements

3.5.1 Movements and settlements

The bugoma landscape hosts one of the largest refuge settlements in Uganda. The Kyangwala settlement camps host refugees from neighboring

countries and beyond. Once settled, the refugees and integrated within the communities.

3.5.2 Effect on social and economic balance

Whereas major undertakings in oil and gas project is considered a positive impact to the development of the region, the turn up of over 1000 personnel, willful displacement of people from their land and high demand of food and services are potential that may add pressure to community and natural resources in the region. For instance, in 2013, government evicted more than 60,000 people from

a contested land for the resettlement of Congolese refugees.

Cultural institutions play a unique role in preserving languages and the cultural norms of the people in area. However, this becomes challenging with an influx of refugees diluting the norms and culture of the community since they are integrated within the communities.

3.5.3 Implications on labour

Refugees and asylum seekers often struggle to find jobs in their host communities, even when they have unrestricted right to work. Employers may be reluctant to hire a refugee due to a possible belief that a refugee has lower productivity or is more costly to screen compared to a local worker, and language barriers and other information frictions

may affect refugees' job search behavior and attaining a job. In Uganda, refugees are free to work and engage in gainful employment in their host communities. This in a number of occasions have a led to refugees unemployment and at times most they offer better competitive services whenever employed.

3.5.4 Implications on Natural Resources base

According to the Office of the Prime Minister, Uganda currently hosts more than 1.25 million refugees, most of whom rely on natural resources in and around refugee settlements for domestic fuel, construction and livelihoods. According to the UN High Commissioner for Refugees (UNHCR), Uganda's refugees consume at least 1.1 million tonnes of firewood every year, as fuel wood is the primary source of energy security. Each individual in the refugee community is estimated to consume up to 1.6 kg firewood per day, compared with host community members who consume up to 2.1 kg per

day. This puts a strain on the availability of wood, grass and other resources in refugee-hosting districts.

The impact is not only environmental – it also fuels increased competition over natural resources between refugees and the Ugandan host community. While the latter continue to show considerable generosity in hosting refugees, they rely on the same trees, grass and water sources as refugees. As scarcity increases, so do tensions over access to, and management of, natural resources. And this can lead to violence.

Conclusions and Recommendations

The impacts of the oil and gas sector is varied with a number of factors identified to have possible interplay requiring an integrated approach to possible policy direction. These factors may require further interrogation to their depth to identify empirical evidence to the real impact of the activities within the oil and gas and subsidiary sectors.

Generally, the population of Uganda is a young population. Although this may promise a demographic dividend, their limited or no skills places a lot of social and economic pressure on the small proportion of the supporting population and to the vulnerable natural resources such as forests and wet land. The pressure may be placed on agricultural land by project-related influx population, which may result in over-farming and soil degradation and greater fragmentation of farming areas (smaller plot sizes), all potentially resulting in reduced agricultural outputs. This, compounded with the locking of medium and small farm land sizes for sugar cane growing may highly likely contribute to the increase in poverty within the sub-region.

Internal migration is a notable factor contributing to the influx within the Bugoma landscape. The Bugoma Landscape (reflected by Bunyoro region) has witnessed an influx of new businesses and migrants from non-oil districts that have come in search for the promise of better economic opportunities. The in-migration has impacts on biodiversity resulting from settlement, planting, harvesting of fibre from wetlands, hunting, fishing, fuel wood collection, charcoal making and increased stock numbers. Bugoma Forest is facing several threats such as human encroachment, illegal timber harvesting and charcoal burning as well as several agricultural activities including sugarcane growing.

Bunyoro employed the second highest proportion of professionals (10%) higher than the national average of 6% and only second to Acholi sub-region that had 11%. High proportion of professional occupations in the region may be explained by significant investment in economic activities that require specialised occupations as a result of oil exploration and hence driving attraction of workers with high skills. However, there is high anticipation of job losses in the investment activities which may drive more of the population to agricultural, forestry and fishery work to earn living.

The oil and gas project is considered a positive venture to the development of the region and the country at large with the turn up of over 1000 work force. However, willful displacement of people from their land coupled with high demand for food and services have potential to pose too much pressure to the community and natural resources in the region. The extent to which such pressure can be mitigated or suppressed to avoid long term negative impact requires timely thorough investigation to recommend interventions that work.

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