



Science for prosperity

UGANDA NATIONAL ACADEMY OF SCIENCES

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**Trust in the Sciences: Policies and Practices
for Meaningful Livelihoods**



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Sciences For Prosperity

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UGANDA NATIONAL ACADEMY OF SCIENCES

The Uganda National Academy of Sciences (UNAS) is an autonomous and honorific service organization comprising diverse scientists from the physical, biological, social, and behavioural sciences. These scientists work together in an interdisciplinary and trans-disciplinary manner to achieve their main goal of improving the livelihoods, welfare and prosperity of the people of Uganda through the development and enhanced application of integrated knowledge in the sciences and humanities. The success of the Academy lies in the strength and expertise of its membership and its ability to mobilize scientific experts to advise government, policymakers and other stakeholders.

The membership includes Founding Members, Fellows of the Academy, Foreign Fellows and Honorary Fellows.

The organizational structure of UNAS consists of the General Assembly, Council, Standing Committees and the Secretariat.

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The Academy wishes further to appreciate the UNAS Standing Committee on Publications and Conferences under the Chairmanship of Prof. Philippa Musoke for overseeing the ASC event and ensuring that the proceedings met the minimum requirements of UNAS publications.

The Academy also wishes to acknowledge the UNAS staff for organizing the conference and ensuring the production of this conference report.

Special thanks go to the individual report reviewers who volunteered their time to provide candid and critical comments to ensure the report is accurate, effective and credible.

Gratefully acknowledged are the sponsors, the Fellows and Members of the Academy, who partly provided financial support for this activity.

PAPER REVIEWERS

All presenters at the conference have reviewed and approved their respective papers in this report for accuracy. In addition, the papers were reviewed in draft form by independent reviewers chosen for their diverse perspectives and technical expertise by procedures approved by the UNAS Council. The independent review aims to provide candid and critical comments that assist UNAS in making the published report as sound as possible and to ensure that the conference proceedings meet institutional standards, including those for objectivity and evidence. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

The Uganda National Academy of Sciences thanks the following individuals for participating in the report review process.

1. Prof. Samuel Sejjaaka, FUNAS, Principal, MAT Abacus Business School
2. Dr. Simon Peter Kibira, Senior Lecturer, College of Health Sciences, Makerere University

PREFACE

The Uganda National Academy of Sciences is committed to providing an autonomous forum through which scientists can exchange ideas, knowledge and experiences to generate, promote, share and use scientific knowledge, and give evidence-based advice to the government and society annually through various mechanisms, such as the Annual Scientific Conference. UNAS has held Annual Scientific Conferences since 2001 on themes ranging from “Sciences for Sustainable Development”, “Science Education for Development”, “Biotechnology for Development,” “Impact of Climate Change to National Development”, “Human Resource for National Development”, “Urbanization for Development”, “ National Resilience and Recovery: Pandemics, Emergencies, Crises and Opportunities, Uganda’s Health: Transcending Sectors, Looking to the Future ” among others.

The 22nd ASC was successfully held at Hotel Africana, Kampala, on October 28, 2022. The theme for the conference was “Trust in the Sciences: Policies and Practices for Meaningful Livelihoods”. Four sub-themes were presented at the conference, including: “Trust and Livelihoods: A Humanistic Approach”, “Integrating the Arts, Humanities, and Sciences to Realize Uganda’s Demographic Dividend”, “Contextually Relevant Policies and Practices to Maintain Trust in Uganda’s Education System”, “Understanding the Role of the Private Sector in Job Creation: The Case of the Private Sector Foundation Uganda-Lead Firm Structure Project” These papers were presented by individual scientific experts from the selected fields. During the session, papers were discussed by plenary, and after the conference, the authors revised their papers considering comments from the plenary and comments from independent reviewers. The ASC was attended by over 100 participants, including government officials, regional academies, academicians, and researchers, actors from the private sector and civil society, and development partners.

This report comprises two sections: Section 1 presents the papers by individual experts and other contents of the 2022 ASC. The views presented in Section 1 are those of the individual authors and not necessarily those of the Uganda National Academy of Sciences. Section 2 presents the profiles of distinguished Fellows who were inducted into the Academy Fellowship in 2022.

SECTION 1: CONFERENCE PAPERS

INTEGRATION OF SCIENCES, ARTS, AND HUMANITIES TO HARNESS UGANDA'S DEMOGRAPHIC DIVIDEND

By

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* Vincent Kayemba, Betty Kyanddondo

1.1 Background

Globally, Uganda ranks 5th in the world among countries, with the youngest population growing at a rate of 3.1%[1]. Countries with young populations have relatively high proportions of more than 40% of their population in the young age groups[2]. Uganda's population has been growing rapidly from 16.5 million in 1991 to 34.1 million in 2014 (*Table 1*) and to a current estimate of about 40. million people [1]. At a growth rate of over 3 per cent pa annum, the population is projected to be 66 million people in 2035 [1]. The country's age structure is predominantly of a young population, with over 47.9 % aged below 15 years, while 78% population are aged below 30 years (*figure 3*) [3]. The age structure is the cumulative result of past trends in mortality, fertility, and migration presented as proportions of males and females in every category [2,3]. The rapid population growth of many developing countries avails an immense opportunity for economic growth if efforts of harnessing the demographic dividend are well utilized [4].

2.1 The Demographic Dividend

The Demographic Dividend (DD) refers to the accelerated economic growth that may result from a decline in a country's mortality and fertility and the subsequent change in the population's age structure[4]. The dividend presents the potential economic gains for any society whose fertility and mortality declines and the ratio of the working population increases relative to the young dependent population [2]. According to Groth and May, when a country experiences a transition from high fertility and mortality to low levels for both, the outcome is an increase in the proportion of the working population compared to the dependents[1]. This is so because, with fewer births each successive year, a country's young dependent population grows more slowly than the working-age population (*figure 3*). Therefore, with fewer people to support, a country has a window of opportunity for diverting resources from education and healthcare-related expenditures towards promoting rapid economic growth and development [4].



Figure 1: Demographic Dividend Pillars

The proponents of DD suggest structured interventions in the respective pillars of education, health, economy, governance and demographic transition to harness the demographic dividend (Figure 1). For instance, a country could have specific interventions in health that are aimed at contributing to significant reductions in mortality and fertility (figure 2) including, improvement of child survival, increased use of family planning, increased urbanization and education of girls to completion [5].

2.2 National efforts and policy environment to harness the Demographic dividend

The country's Vision 2040 that aims at "transforming the Ugandan society from peasant to a modern and prosperous country" [6] hinges on several efforts and investments by different sectors. The National Planning Authority (NPA), through the National Development Plans (NDP), has, over the years, provided oversight guided the budgetary allocation and annual work plans to ensure that the country achieves the DD as reflected in the current NDP III [7]. The country has, through the National Population Council (NPC), provided the annual State of Uganda's Population Report (SUPRE), developed a Demographic Dividend Road map [5], and the Demographic Dividend Effort Index[8]. Further, the country is a signatory to international agendas, including the 2030 Sustainable Development Goals and Africa Agenda 2063, all of which aim at having healthy, prosperous populations.

The strengthening of human capital development [6]. Education is one of the avenues

through which this can be realized. According to [7], education can improve the quality of a country's labour force by improving skills and knowledge so that workers can ably use advanced technologies. Consequently, improving education levels in the country can facilitate the DD by reducing unemployment, underemployment and bringing more workers into formal employment, thereby increasing the nation's tax base [7]. Evidence shows that countries that harness the DD have benefited from an increased labor force, consequently leading to increased productivity critical for economic growth. Relatedly, there is evidence of increased rapid urbanization and industrialization stemming from the increased economic activities of the large working-age population, reduced fertility levels and dependency ratio in the country with increased levels of schooling in the population and skilled human resources.

The country can capitalize on the large population to harness the DD, which is not a given [3]. However, this is dependent on the share of the prospective labour force that the country's labour market can actively absorb. It is argued that a country can reap a demographic dividend if the size of its working population is greater than that of the dependent [4]. According to the annual labour force survey 2018/2019 [5], the working-age population in Uganda (14-64 years) increased from 19,333 in 2017/2018 to 20,219 in 2018/2019. However, the share of the working-age population decreased from 83% to 81% over the same period, while the labour force participation rate among the youth (18-30 years) decreased from 66% in 2017/2018 to 62% in 2018/2019 [5]. The country's human capital is also characterized by low labour productivity - 38% [6].

3.1 General understanding of Sciences, Arts & humanities

According to Louis Tay, Arts and Humanities play a crucial role in pursuing life, liberty and happiness as they enable us to understand the past and the future[9]. Arts help people to communicate in different forms and collectively influence the way of life for many people, which may translate into a culture. On the other hand as defined by the oxford dictionary, science is the intellectual and practical activities encompassing the systematic study of behaviour and structure of the natural and physical world through experiments and observations. The arts are architecture, philosophy, music, literature, religion, history, art, performing and cinema.

3.2 Importance of integrating Sciences and Arts/humanities to harness the DD

There is a growing drive to promote Sciences in Uganda's Education sector. Without disregard for the enormous role of sciences towards economic development, a similar drive needs to be done for the Arts and humanities. However, they are not exclusive fields

but instead focus on integrating different fields to develop a holistically skilled and professional labour force that is crucial to harness the DD.

Cognizant that harnessing the DD cannot be possible without massive investment in lowering fertility and changing the population age structure, integrating arts, humanities and sciences in a multi-disciplinary approach to achieve this. Working in multi-disciplinary teams is important in many industries, including health, engineering, manufacturing and environment [10]. This is common in all workspaces, in office and community settings. One of the strategies spelt out by Uganda's Third National Development Plan is to improve human capital development is the need to adequately invest in science, technology and innovation (STEI) so that the country's ratio of Science and Technology graduates to Arts graduates increases from 2:5 to 3:5 [6].

Double degrees or combining curricula is becoming more popular in the Western world because of its potential benefit for developing "transdisciplinary skills" that are highly valued by employers[10]. This untapped potential of combining curricula and the opportunities in preparing graduates for employment there is yet to be explored in the Ugandan context. Universities are increasingly considering combination degree structures because employers repeatedly point to the complex nature of the modern work environment and advise that they highly value graduates with the skills provided by a broad general education[10].

A study commissioned by UNICEF in 2020 examined the impact of a multisectoral approach to harnessing DD in Uganda. It showed the importance of increasing investments in social sectors, and the added value of leveraging strategic synergies from multisectoral interventions[11]. This calls for integration in all government sectors, for instance in agriculture, health and education .

Therefore, it is proper to integrate sciences with arts and humanities because the latter field can help individuals develop cognitively, emotionally, and culturally so that they are comfortable with situations where creativity is a problem-solving asset[12]. In Chan's research on the relationship of artistry with the sciences and nursing care asserts that artistic activities can enhance students' cognitive attributes and logical reasoning [13].

Further, there is evidence of how music, photography, drawing and other pursuits of the arts and humanities have been used in science to develop holistic professionals and achieve an outcome as a form of communication for learning[9]. A case in point is in the medical field. During the global pandemic of COVID-19 , countries offered musical tributes to

frontline workers; neighbourhood concerts were organized to mitigate the adverse effects of isolation, misconceptions and keep mental health in check[14]. Relatedly, evidence shows that integrating services among many health providers and multi-disciplinary teams is crucial to better reach underserved populations and communities with limited access to health care [15]. Some benefits include better health outcomes, increased client satisfaction, better use of resources, and a feeling of support for team members working with the clients. The integration of sciences and arts was documented in the medical field to support the patients and caretakers. In one study, the medical staff used artistic activities such as drawings and pictures to comfort patients, especially the mentally ill[9, 16].

3.3 Integration of Sciences, Arts and Humanities to harness the demographic dividend

As Uganda aspires to achieve rapid socio-economic transformation, this can only happen through critical investments in the youthful population, consequently changing it into a productive human capital in education and health that is pertinent for a country's economic growth[17].

Integrating sciences and humanities to facilitate harnessing the DD could mean the need to collaborate between artists and scientists to accelerate the achievement of DD in Uganda. This collaboration can be through research and education programs that link artists and scientists. Integration can also take the form of implementing artistic activities, including drawing, composing songs and writing poems into the scientific curriculum, approaches that harness the DD [12, 16]. Domesticating the DD into people's lifestyles in the form of the different disciplines of Arts/humanities would facilitate the conversation and need to change the misconceptions about having many children born[16]. These could be done using different approaches, such as painting, music, cinema, performing, religion, and arts.

The different disciplines or specialities under the prerequisites for harnessing the DD require integration of the sciences, arts, and humanities. Achieving the demographic transition calls for rapidly declining fertility and mortality. The factors affecting fertility and mortality in the Ugandan context are diverse and are potentially interactive; as a result, understanding fertility variation requires a multidisciplinary approach. For example, the causes and effects of early marriages and teenage pregnancies, which have contributed to the high fertility in the country, may be socio-economic but also scientific, with failure to adequately provide sex education, poverty, and negative socio-cultural factors. Whereas sociologists provide an understanding of factors that account for fertility changes over

time and the variation in fertility across individuals along the life courses of individuals and families[15], the scientists will explore the contraceptive requirements and ensure that all potential family planning clients are effectively served with contraceptives to reduce the unplanned pregnancies. The Ministry of Justice and Constitutional Affairs are the custodians of the Constitution of Uganda, which established a minimum age for marriage of 18 years for both girls and boys [18]. However, we know many girls, due to various reasons, most preventable, are legally married off with parental consent before they reach the minimum age. Upholding the girls' rights against early marriages is an issue under the purview of many players and disciplines, thus the justification for integration.

Aware that the economy cannot thrive with only scientists, the national development frameworks identified and prioritized the various pathways for boosting human capital development. The curriculum for Universal Primary Education (UPE), Universal Secondary USE and skills through technical and vocational training (TVET) are equally multisectoral, addressing a whole spectrum of sciences, arts, and humanities concurrently from primary through tertiary or advanced levels[6, 7]. The bedrock of Uganda's economy thrives mainly on agriculture and, to some extent, forestry, plumbing, mechanics, counselling, hairdressing, artisans, music, dance, and drama, which are all relevant for the job market and for increasing household income and thus productivity[6]. These require skills in sciences, arts, and humanities to be integrated. For the past few years, Uganda's economy has mainly relied on infrastructural development, with the NDP II and III prioritizing road construction. This area requires skills in infrastructure development, engineering, agriculture, social development, legal fraternity and many more. Thus, an interdisciplinary team must be on the ground.

3.4 Lessons from Asian tigers and how they achieved the demographic dividend; Hong Kong, Korea, Singapore, Taiwan

The success story of the achievement of the demographic dividend in the four Asian Tigers, including Hong Kong, Korea, Singapore and Taiwan, is attributable to different reasons and circumstances, as highlighted by Economic Policy Research Institute et al. [12] in their report on harnessing the demographic dividend in Uganda.

In Hong Kong, the first of the four to enter the demographic dividend period in 1965, the attainment of the DD is credited to a change in social behaviour and norms accompanying the rapidly growing country's economy[4]. The change in social behaviour and norms was witnessed through increased education levels and labour force participation. This

was especially the case for women, resulting in a decline in the proportion of stay home married women of childbearing age and a decline in the total fertility rate (TFR) of married women. Also, increased investment in health services and the one-way permit scheme were critical in increasing the proportion of working-age individuals. Singapore entered the DD period in 1970. By this time, the country's TFR was 3.1[19].

Consequently, the country witnessed a low population growth rate of 1.65% and increased demand for low-skilled labour. To achieve the DD, the country revised its migration policy to one which favoured skilled immigration and also adopted anti-natalist population policies for 21 years (1965 to 1986)[20]. Like Singapore, the Republic of Korea entered the DD period in the 1970s. Korea's demographic dividend is attributed to reduced birth rates, public health and family planning reforms, an export-oriented strategy and a more egalitarian schooling system, all of which contributed to improvements in education, health, increased female labour force participation, and accumulation of national savings and capital. Among the recent countries to register DD is Thailand which had a significant drop in TFR from 6.2 to 3.3 children per woman between 1960 and 1980. As a result, the country entered its DD period in 1975, much later than Hong Kong, Singapore and Korea. The success stories of the countries highlighted that the drop in fertility rates is owed to the prioritization of expansion of access to and use of voluntary family planning services like contraception and the changing social norms regarding having a large family size. Additionally, in all the countries, they prioritized growing the number of its citizens in higher education by developing and implementing an extensive vocational educational programme and creating open universities. All these policies led resulted in high levels of economic growth.

4.0 Conclusions and Recommendations

Integration of sciences, arts, and humanities to harness the demographic dividend provides an immense opportunity that could be exploited at different levels to ensure that different population groups appreciate the need for improved healthy lifestyles. These are geared towards the well-being of different communities, households and individuals.

The country has established a favorable policy environment that facilitates the introduction and engagement of stakeholders who are critical in ensuring that all multisectoral efforts to achieve the demographic dividend are utilized. Implying that strategies leading to improved proportions of young people engaged in gainful employment are critical in the country.

Domesticating and communicating the proposed strategies achieving the DD pillars, for instance, the importance of human capital development, which is critical for demographic transition, is critical in a population with high fertility levels. Including arts and humanities disciplines such as music, poetry, dance, history, religion, and drama among others, in communicating the need for small family sizes and improved education is a great opportunity that could have been missed.

The concerted interventions through government approaches, curriculum development and budgetary allocation to support science education should be monitored to ensure that all students from all the different programs are skilled young people with diverse information and can engage in work or initiate their businesses.

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List: Table and Figures

Table 1: Trends selected population indicators in Uganda (to include 1991 statistics)

Indicator	Census		WPP
	2002	2014	2021
Total population (‘000)	24.2	34.6	45.1
Life expectancy at birth (e ⁰)	50.4	63.3	62.7
	UDHS		WPP
	2011	2016	2021
Modern contraceptive prevalence rate (mCPR)	26%	35%	
Unmet need for family planning	34%	28%	
Maternal mortality ratio (per 100,000 live births)	438	336	
Contraceptive prevalence Rate (CPR)	24%	39%	
Infant mortality rate (per 1,000 live births)	54	43	30.4

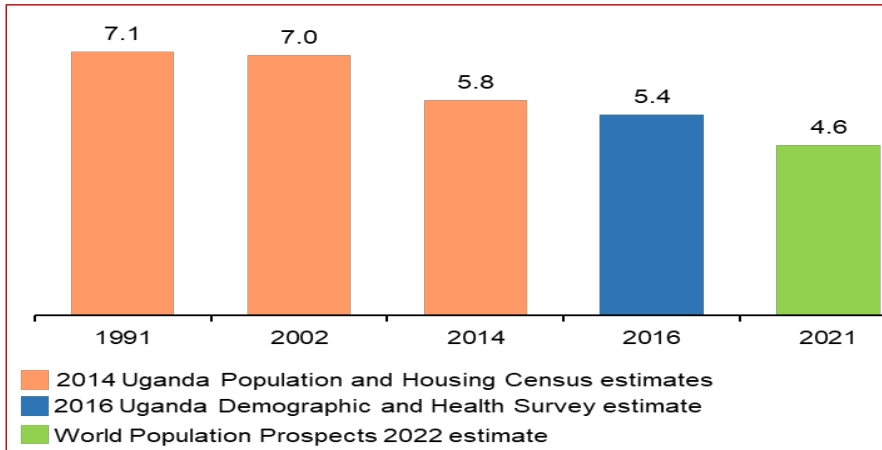


Figure 2. Uganda’s total fertility Rates for the period 1991-2021

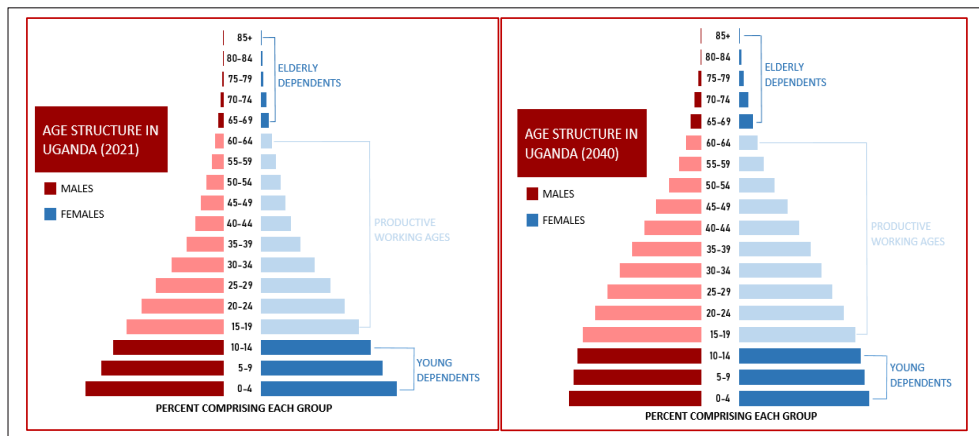


Figure 3: Projected Uganda’s age structure in 2021 and 2040: United Nations World Population Prospects 2022 data

CONTEXTUALLY RELEVANT POLICIES AND PRACTICES TO MAINTAIN TRUST IN UGANDA'S EDUCATION SYSTEM

By

Mary N. Okwakol, FUNAS, Executive Director, National Council for Higher Education

1.0 Introduction

Uganda is one of the African countries focusing on a science-led strategy to promote growth and development. One of the strategies is the science promotion policy, which started in 2005, and among other things, made learning and enrolling on science subjects (mathematics, chemistry, physics and biology) compulsory at the ordinary level of secondary school education.

Education is a basic human right. Education aims to provide Quality Education and Training policies to all Ugandans. The government has therefore continued to implement measures to address equitable access to affordable, quality, and relevant education in line with international, regional and national policies and legal commitments. The provision of quality education is a firm foundation for achieving middle-income status, as explained in the National Development Plan (NDP) III and Vision 2040. However, the quality of education largely depends on the quality of teachers, which remains a challenge.

This paper presents the relevant policies and practices that maintain trust in Uganda's education system and discusses Uganda's science policy implementation strategies.

2.0. Uganda's Education System

One of the aims of education in Uganda, as stipulated in the Government White Paper on Education of 1992, is "to eradicate illiteracy and equip the individual with basic skills and knowledge to exploit the environment for self-development as well as national development, for better health, nutrition, and family life, and the capability for continued learning."

The system of education in Uganda has a structure of seven years of primary education, six years of secondary education (divided into four years of lower secondary and two years of upper secondary school), and two to five years of post-secondary education. Education in Uganda is administered in English. The current education system is shown in Figure 1 below:-

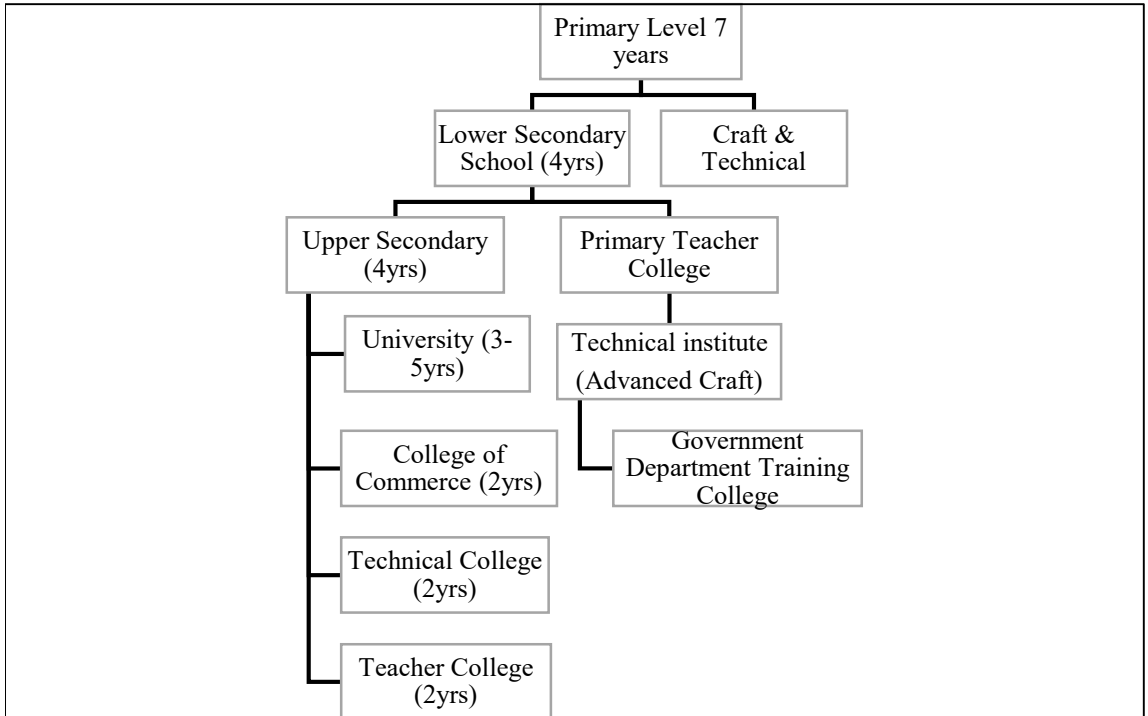


Figure 1: The Current Education System in Uganda

It should be noted that although the preprimary level is not mentioned, some primary schools especially those in urban settings, only admit children who have undergone 1-3 years of education at this level. The Ministry of Education and Sports is also beginning to regulate this level by standardizing its curriculum.

Primary education, however, is still considered the first level of formal education in which pupils follow a common basic curriculum. This is followed by a secondary cycle of six years (four at lower secondary and two and higher secondary) before proceeding to university education for three to five years, depending on the duration of the course offered.

Upon successful completion of primary school, the pupils can go either for secondary education; or take a three-year crafts course in technical schools. Those completing the Uganda Certificate of Education have three possible outlets: successful candidates can either proceed for an advanced certificate of education; join a two-year advanced crafts course in technical institutes; join a two-year Grade III primary teaching programme which is being phased out; or join any of the government's departmental programmes such as agriculture, health, veterinary, and cooperatives. After completing the advanced certificate of education, the students can either: proceed to university; join a two-year course leading to an ordinary diploma in teacher education, technical education; or business studies or join departmental programmes.

3.0 Relevant Policies and Practices to Maintain Trust in Uganda's Education System

3.1 The Government White Paper

The Government White Paper on Education (1992) highlighted the potential role of science and technology in enhancing development. It was argued that since obtaining independence from Britain in 1962, Uganda has largely promoted humanities subjects, producing large numbers of “white-collar” workers, such as lawyers, economists, and administrators. This explains the shortage of doctors, engineers, and agricultural researchers. The development of a modern civilization has a lot to do with the advancement of science and technology. This was the rationale behind the “strategic” government policy on science education, which aims to bridge the gap by training more scientists.

3.2 Uganda's Science Education Policy, 2005

The Government of Uganda has advocated and promoted science and technology for the last three decades. One of the ways of promoting science and technology was implementing a compulsory science-teaching policy in lower secondary schools (form one to form four). The science policy that started in 2005 made chemistry, biology, physics and mathematics, compulsory for all lower secondary school students.

The policy, which took effect in 2006, made the study of science subjects, namely: Physics, Chemistry, Biology and Mathematics compulsory for ordinary level secondary school students. Finally, the Government decreed that science students would receive 75% of the Government scholarships to public universities and tertiary institutions in Uganda. (Tinkamanyire, 2010; Wamboga-Mugirya, 2005). This has since been implemented by the Joint Admission Board (JAB)

The government's policy to give 75% of its scholarships to students offering science-based courses at public universities may be a good idea. However, it needs a serious rethink; it mostly benefits the rich and further marginalizes the underprivileged.

Whereas it is intended to address the shortfall in high-calibre scientists to spur national development, this policy may not achieve its objective because of the income inequalities and lack of a dependable pool of science teachers and teaching facilities in many secondary schools.

The faculties of Medicine, Engineering and Pharmacy in the various public universities have been dominated by students from schools whose fees are almost equivalent to or more than those charged by the local universities per semester.

To stand a chance of getting scholarships, even students whose O-Level science grades were poor are opting for science subjects at A-Level. Some parents also push their children to study sciences even when they know they lack the passion and ability to pursue sciences. This policy has stigmatized those pursuing careers in liberal arts/humanities.

Uganda's science policy implementation strategies include the government's effort provides resources such as laboratory equipment and science textbooks to government-aided schools. Government of Uganda has tried to facilitate science policy, the latest being the salary enhancement for scientists, including science teachers, by 300%; factors such as unresponsive curriculum content, shortage of qualified science teachers and inadequate laboratory equipment remain challenges to the otherwise sound policy.

3.3 Uganda Vision 2040

The Uganda Vision 2040 identifies Science, Technology Engineering and Innovation (STEI) among the key fundamentals required to achieve the Vision's aspirations. Over the Vision period, Uganda undertook to re-orient itself to make innovation the main driver of economic growth and the key pillar of competitiveness in trade. This necessitates a drastic change of approach to education and Science, Technology, Engineering, and Innovation (STEI) with full support from the government so that the linkage between STEI and economic development is strengthened.

Uganda Vision 2040 is aligned with the East African Vision 2050, which articulates that Science, Technology and Innovation (STI), embodied in human skills, capital goods or practices and organizations, is one of the critical drivers of economic growth and sustainable development. It is also aligned with Agenda 2063, which stipulates that by 2023, Africa's youth will not only be mobile across the continent, but 15 per cent of all new business start-ups will emanate from their ingenuity and talent acquired in part from the fruits of skills revolution driven by Science, Technology and Innovation (STI). Sustainable Development Goal (SDG), Goal 17 puts in place mechanisms for technology transfer and adoption as well as promotion of science and innovation by promoting North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation, and enhance knowledge sharing on mutually agreed terms.

The government invested heavily in its education system, focusing on Science, Technology, Engineering, and Innovation; and Research and Development as prescribed in the human resource section. The government also set up science and technology parks, engineering centers, technology and business incubation centers that meet international standards. These were expected to reduce the cost of product development and innovations.

However, Uganda has not adequately prepared to use STI to industrialize. This is because; i) there are no formal mechanisms put in place to facilitate technology transfer; ii) the country's investment in STI is currently minimal; iii) the country is yet to establish any incubation and technology parks to facilitate innovation and technology development; and iv) there are no formal established mechanisms linking universities and research institutions with industry to facilitate development and commercialization of innovation.

Developing a solid STI eco-system is critical to release the benefits of the 4th Industrial Revolution. developing This should be done through: incorporating science education in the curricula from primary to high school levels; encouraging research in universities; establishing partnerships between university research institutions and industry as a crucial driver of improving the overall ecosystem to make it attractive for human skills; broadening the culture of science, technology and innovation; making science and technology accessible to all levels of learning, including the public through the media to show how research can drive high technology innovation and wealth creation, and; knowledge sharing both nationally and internationally is critical.

3.4 National Development Plan III

NDP III emphasizes the need to streamline Science, Technology, Engineering, Mathematics and Innovation (STEM/ STEI) in the education system through i) providing early exposure to Science, Technology, Engineering and Mathematics and Innovation (STEM/STEI) to children (e.g. introduction of innovative science projects in primary

schools); ii) providing critical physical and virtual science infrastructure in all secondary schools and training institutions; iii) adopting science project-based assessment in the education curricular; iv) linking primary and secondary schools to the existing science-based innovation hubs; and v) promoting STEM/STEI focused strategic alliances between schools, training institutions, high calibre scientists and industry by:

- a) Prioritizing STEI/STEM for programme and institutional accreditation. National Council for Higher Education has supported Higher Education Institutions by developing and operationalising the quality assurance framework that provides minimum standards for science-based programmes and facilities.
- b) Prioritizing STEI/STEM admissions and financing at Higher Education Institutions. Government finances this through the students' loan scheme under Higher Education Students Financing Board (HESFB). To be eligible for the government loan scheme, a student must have passed the Uganda Advance Certificate of Education and should have gained admission to a university for science programmes. Notably, the loan scheme mainly supports science study programmes (80%) and the remaining (20%) is reserved for Arts/humanities Programmes and people living with disabilities.
- c) Prioritizing investment in STEI/STEM research and incubation to transform it into goods and services for national growth and societal well-being. Uganda Investment Authority (UIA) is in the process of setting up a mixed-use business incubation Centre at Kampala Industrial Business Park (KIBP) in Namanve to facilitate, support and nurture Micro, Small and Medium Enterprises (MSMEs).

The incubation Centre is planned to assist emerging companies in gaining access to mentors, training, shared space, professional assistance, capital, and other services that will move them onto the fast-track to success.

The business incubator provides shared facilities and offices for agro-processing, metal fabrication, furniture, leather and ICT, business assistance, mentoring, networking and other technical resources.

In addition, Small, Medium, Enterprises (SMEs) Division plans to establish at least 500 workspaces and common facility centers for small-scale industrialists in each UIA Industrial and Business Parks.

3.5 Education and Sports Sector Strategic Plan 2020/21-2024/25

The ESSP 2020/21-2024/25 is hinged on three major strategic objectives to improve equitable access to quality and relevant education in the country. These three strategic objectives are to: (i) achieve equitable access to relevant and quality education and training; (ii) ensure delivery of relevant and quality education and training; and (iii) enhance efficiency and effectiveness of education and sports service delivery at all levels.

The priority interventions for ESSP 2020/21-2024/25 that the Ministry plans to implement in the next five years are based on the 2016-2021 NRM Election Manifesto, NDP III Strategic Direction, International Policy Commitments and the Education and Sports Sector Analysis.

3.6 Higher Education Strategic Plan, 2003-2015

The performance of the Higher Education Sub-sector is based on the Higher Education Strategic Plans. The most recent was the Strategic Plan for Higher Education (HESP) 2003-2015, which was developed in 2004 to guide the development of the higher education sub-sector in Uganda. The HESP 2003-2015 aimed at ensuring equitable accessibility and provision of quality and relevant higher education to all qualifying applicants.

The draft HESP 2020/21-2024/25 emphasizes the need to streamline the Research and Innovation Agenda in Higher Institutions of Learning. Research and Development are critical to transforming Uganda from a peasant to an industrialized country. The National Development Plan has developed areas for the country to pursue from 2020 to 2025. It is Imperative, therefore, for Higher Education to align the Higher Education research for the transformation of the Country. The alignment will involve critical research segmentation in collaboration and partnership with the critical stakeholders in Uganda. The strategic area research segments are basic, applied, and innovative research per the critical areas identified in the National Development Plan III.

3.7 National Council for Higher Education Strategic Plan 2020/21-2024/25

National Council for Higher Education's (NCHE) 5-year Strategic aligns with Vision 2040, National Development Plan III (NDP III), Education Situational Analysis Report, 2019, and the Education Sector Strategic Plan 2020/21 – 2024/25. The plan explicitly states the desire and aspirations of the National Council for Higher Education (NCHE) within the mandate of NCHE as shrouded in the Universities in the Universities and Other Tertiary Institutions Act (UOTA 2001 as amended).

The Strategic Plan promotes science through its three key objectives; namely, it is guided by six strategic objectives: licensing and accreditation function of Higher Education Institutions and Programmes with a focus on STEM programmes; advancing the relevant research and innovation for higher education; and promoting the use of Information Communication Technology in all sectors of the Council and HEI's.

3.8. Technical Vocational and Training Policy (TVET) 2019

The TVET Policy aims, to support the creation of needed employable skills and competencies relevant to the national transformational labour market instead of just acquiring educational certificates. It targets all Ugandans in need of skills for employment. The Policy emphasizes flexible workplace-oriented (practical) delivery when side by side with the theoretical knowledge acquisition under the current general education system. It shifts TVET management from the government to Public- Private Partnerships (PPP) delivery.

According to The Uganda National Council for Science and Technology (UNCST), Uganda is among the East African countries currently experiencing an increasing national unemployment rate of national unemployment among graduates of university and non-university vocational, engineering, technical, and other science technology programme (UNCST, 2016). This was mainly attributed to a lack of relevant graduate skills that the country's labour market needs today. TVET aims to produce graduates with relevant skills in vocational engineering, technical and other science and technology courses needed in the labour market.

4.0. Conclusion

Uganda has relevant policies and, to a certain degree, practices maintain trust in the education system. However, government needs to address science education. For instance, the country lacks a critical mass of well-motivated science teachers. Many rural public schools need laboratories which are crucial in teaching sciences. In addition, many stakeholders require policy education and capacity building for policy implementation to address the challenges of poor coordination at all levels of the education system.

UNDERSTANDING THE ROLE OF PRIVATE SECTOR IN JOB CREATION: CASE OF PRIVATE SECTOR FOUNDATION UGANDA- LEAD FIRM STRUCTURE PROJECT

By

Dr Stephen Asiimwe, Chief Executive Officer – Private Sector Foundation Uganda¹.

1.0. Introduction

In 2022 there were estimated to be approximately 3.32 billion people employed worldwide [...] There was a noticeable fall in global employment between 2019 and 2020 when the number of employed people fell from 3.3 billion to 3.19 billion, likely due to the sudden economic shock caused by the Coronavirus pandemic. (Statista, 2022)

Africa's labour market attracts 10 to 12 million young people each year. However, only 3.1 million new formal jobs are being created². The Covid-19-related global economic downturn that led to the loss of employment correlates with the fact that most businesses laid off workers because of poor economic activity. The private sector provides about 90% of formal and informal employment in the developing world³. Thus, the private sector plays a central role not only in the delivery of goods and services and tax revenues but also in job creation. Furthermore, inclusive and/or sustainable growth is largely guaranteed by the private sector.

1.1. Uganda's Private Sector and Job Creation.

The economy of Uganda is predominantly agrarian 24.2%; industry 25.5%; and services

1 Private Sector Foundation Uganda (PSFU) is Uganda's apex body for the private sector. It comprises over 310 business associations, corporate bodies and the major public sector agencies that support private sector growth representing 12 sectors of the economy. Since its founding in 1995, PSFU has served as a focal point for private sector advocacy capacity building and continues to sustain a positive policy dialogue with the Government on behalf of the private sector. PSFU aims to strengthen Private Sector capacity for effective policy advocacy and market competitiveness nationally, regionally and internationally. Regionally, PSFU is the national focal point for the East African Business Council (EABC) and the COMESA Business Council (CBC).

2 AfDB (2016) 'Africa's Youth in the Labour Market', African Development Report 2015. Growth, Poverty and Inequality Nexus: overcoming barriers to Sustainable Development, Abidjan: African Development Bank.

3 William Robert Avis, 2016. Urban governance. <https://gsdrc.org/topic-guides/urban-governance/elements-of-effective-urban-governance/the-role-of-the-private-sector/> (seen; 07/10/2022).

50.3% sectors.⁴ The agricultural sector includes fisheries, animal husbandry, dairy, and crop sub-sectors. The Industrial sector includes manufacturing, construction, and electricity supply sub-sectors. The services sector comprises wholesale and retail trade, telecommunications, hotels and restaurants, transport and communications, tourism and professional sub-sectors. The professional services sector, which includes Lawyers, Architects, Engineers, and Public Relations experts among others and the culture and creative arts sectors are the most ignored in Uganda. Nevertheless, these contribute significantly to job creation, revenue collection and economic growth in general. They also facilitate other sectors, including but not limited to trade and commerce and tourism. The private sector in Uganda contributes slightly over 50% to finance the FY 2022/23 national budget through taxes and accounts for 90% of all non-farm jobs in the country. This does not consider that the private sector also pays back borrowed monies in the medium and long run. This private sector; is dominated by Micro, Small, and Medium Enterprises, which comprise about 93 for every 100 business establishments. Micro Enterprises comprise about 80 for every 100 business establishments. Regarding sector contribution to GDP, the projection is that Services contribute 41.5%, Agriculture 24%, and Industry 26% according to the FY 2022/23 budget.

Working population in Uganda is estimated to be 13.9 million people, of whom 56.8 % (7.9 million) are employed (UBOS, 2014). Approximately 49.1% are male, and 50.9% are female. The labour force directly employed by Government is only about 500,000. This, therefore, means that the private sector employs most of the labour force, making an economic earning. The table below indicates that the agriculture, forestry and fishing sector have the highest percentage of employees (34%), followed by trade (23%) and manufacturing (15%). Approximately 47.4% of the employed population are paid employees, while 52.6% are self-employed.

Among the sectors which significantly contribute to job creation is agriculture which accounts for over 70% of the total working population. The other sector is tourism which already “employs over 264,000 people directly and 403,220, indirectly accounting for 6.7% of total national employment”⁵. Though largely ignored, the services sector is also one of the major employers in Uganda. Moreover, the sector offers jobs to skilled, semi-skilled and unskilled labourers.

4 Government of Uganda, 2020. The Economy. <https://www.gou.go.ug/about-uganda/sector/economy> (seen, 08/10/2022).

5 Alon Mwesigwa, 2021. EPRC - Which Sectors Can Be Large-Scale Job Creators for Uganda?

1.2. Bottlenecks to Private Sector and Job Creation

As already noted, at least 12 sectors make up our economy, including manufacturing, agriculture, real estate and construction, professional services, oil, gas, minerals and extractives, tourism, trade and commerce, ICT and communication, culture and creative arts, transport and logistics, among others. These sectors have unique challenges that affect their growth and, job creation. This paper, will not dive deep into each of them. However, will highlight some vital cross-cutting bottlenecks to private sector growth and job creation.

First is the unpredictable nature of Uganda's tax regime. Whereas we have seen the government take a significant step, especially in the 2022/23 financial year budget, by not introducing new taxes (thanks to the efforts of PSFU), the tax regime in Uganda has been volatile. At least every financial year, new taxes get to be introduced. This significantly affects business planning and eventually scares the business community from investing in long-term ventures. This highly affects job creation. No wonder the unemployment levels in the country continue to increase. Uganda's 2020 estimates indicate that the country's unemployment rate is at 9.2%, while that of the youth aged 18-30 is at 13.3%.⁶

The effects of Covid-19 and geopolitical conflicts. As if this not-so-good performance was not enough, COVID-19 came to our land and containment and case management measures affected the economy, negatively impacting businesses and employment. According to a study by the Economic Policy Research Centre on the plight of MSMEs amidst COVID-19 dated April 2021, employment in the services sector was reduced by about 61% during the total lockdown, while the manufacturing and agriculture sectors were reduced by 27% and 43% respectively. The study further estimates that based on the monthly average employment recovery rate of 2.4%, it would take about 32 months (2 years and eight months) effective July 2020, for MSMEs to recover their pre-COVID-19 employment levels. As Uganda's private sector began recovering from the COVID-19 economic shocks, the Russia – Ukraine war came in⁷. This has devastated the global supply chains and contributed to the current food crop inflation of 16.4% and electricity, fuel, and utilities 17.2% as of July 2022⁸.

6 The Palladium Group 2020. Youth Unemployment in Uganda Has Been Misdiagnosed. <https://thepalladiumgroup.com/news/Youth-Unemployment-in-Uganda-Has-Been-Misdiagnosed->

7 EPRC 2022. The Socio-Economic Impact of Covid-19 on Business Enterprises in Uganda: Evidence from Micro Small and Medium-Sized Enterprises.

8 BOU, July 2022. Monetary Policy Statement.

High domestic borrowing/constrained fiscal space: Because of expanding expenditure without commensurate growth in domestic revenue, the fiscal space is limited, hence limited flexibility by Government. Consequently, domestic refinancing strategies through the sale of Treasury Bills (TBs) have been adopted and frequently used. Commercial banks invest more in TBs, which crowds out the private sector from the financial sector and undermines the import substitution strategy. This is because whenever financial instruments are raised through commercial banks; they attract foreign investors who pump forex into the economy. This makes imports cheaper, thus making domestically manufactured goods uncompetitive. The policy message is that these domestic investors shift from local production to imports, affecting the country's industrialization strategy.

Unconducive tax regime; the 12% excise duty on the internet is not realistic for a country aiming at attaining a middle-income status and investing in sciences. Equally, the tax is unsuitable for youth innovation and job creation. The cost of Digital Tax Stamps is also high for the manufacturers. The cost of Digital Tax Stamp (DTS) in Uganda is much higher than in Kenya, Tanzania and Rwanda, which compete with Uganda in the Democratic Republic of Congo (DRC) and South Sudan markets. The cost has also increased the cost of production, yet, manufacturers of DTS systems are already tax compliant.

Inadequate skills of most casual workers in Uganda. Because our casual labourers are not skilled and certified (for example, nannies) they are paid less, meaning fewer remittances back to Uganda. Thus, if the government invests in skilling through a Public Private Partnership, the pay for migrant workers will increase, increasing remittances by about 30%. That could bring in more revenue of about US\$ 360 million. This will also deal with unemployment and underemployment challenges faced by the youth in Uganda.

Limited implementation and enforcement of Local content provisions. The PPDA Guideline 1/2018 established, "A reservation shall apply to procurements for the supply of electric cables, conductors and bundle cables to providers that have manufacturing facilities in Uganda". (PPDA Guideline 1/2018 (4.1)). However, we see the PPDA Authority, Electricity Regulatory Authority and Actors such as Rural Electrification Agency continue not to enforce and implement the guideline respectively. This contravenes the provisions within and aspirations of the BUBU policy, the NRM Manifesto of 2021-2026 and Uganda Vision 2040. That is, it discourages local manufacturing, job creation and, local innovations in the long run.

Non-tariff barriers to trade. The regional market restrictions, including the Ban of Uganda's sugar, milk and Maize in Kenya, affect business growth and job creation. Kenya's ban

on Uganda's products, primarily in agriculture, greatly affected dairy and sugar farmers and manufacturers. Similarly, the recent tariffs on Ugandan trucks crossing to South Sudan (100 US\$ per truck per year and US\$ 60 per truck on every entry into South Sudan territory) affect cross-border trade.

1.3. What the Government Should Do to Facilitate the Private Sector to Create Jobs.

Without sufficient policies in place to improve productivity at the firm and sector level, the “extremely unproductive” informal sector, with its typically poor-quality employment conditions, will remain a major employer for youth, particularly the less skilled and educated. (Quak and Flynn, 2019, pp. ii)

It is the role of the government to ensure that the tax regime facilitates revenue collection and private sector growth. This widens the tax base and contributes significantly to job creation. Thus, it is incumbent on the government to, for instance, revise the tax regime, especially on utilities, to facilitate private sector competitiveness and manage the commodity prices. Moreover, the current VAT rate is unfair as it affects consumption, especially among the poor. This is worsening the price situation, affecting people's living standards. We propose that VAT rate is aligned with Kenya, our leading trade partner, at 14% and that the VAT on utilities and essential products, as determined by the basket of goods under UBOs, be reduced from 18% to 12%. For instance, the recently passed VAT in Kenya reduced the applicable VAT rate on liquefied petroleum gas, including propane, from 16% to 8%. This will reduce commodity prices on essential products, increase consumption and generate more tax revenue on turnover.

Address financing constraints through requisite policies and establish de-risking mechanisms such as Risk Guarantee Schemes to increase available capital for investments and operations. Opportunities have opened in the Oil Sector. Without appropriate capital, local businesses may not participate.

Identification of Public Private Partnership (PPP) projects that shall be mainstreamed in line with the NDP III trajectory. Such projects should be named and published so interested private sector players can approach the PPP secretariat at the MoFPED to commence the PPP process in line with the PPP law. Through such projects, Uganda will be able to address the issue of the establishment of heavy industries that can aid the import replacement agenda and the local production of industrial inputs that are currently imported. Example: Uganda imports steel in-puts and clinker for cement production worth about USD 1.0 billion of 10% of the import Bill for FY 2022/23 stood in the region of USD 10 Billion,

yet Uganda has deposits of iron ore and limestone that can locally produce its steel and cement input needs.

Invest in Mineral development. Foreign and domestic investors are interested in investing in Uganda's minerals sector, valued at US\$ 620.5 billion. There is also a need for value addition to quadruple the projected value, which would grow the value to US\$ 2,482 Billion. On average, 99.4% of iron ore, gold, copper, cobalt and Nickel, Vermiculite and Rare Earth Elements are untapped reserves (New Vision Monday, August 9, 2021, p. 20). Therefore, the government should invest more money in mineral development and managing small-scale artisanal miners.

Expedite the enactment of the commercial laws and regulations required to support the business economy. These policies are used to grow GDP, yielding tax revenue that facilitates both Government and the Private sector. We commend the Parliament of Uganda, with which we are already engaging for reviving the debate on the Local Content Bill. However, we maintain that the enactment of the bill should be fast-tracked.

Invest in proper evaluation of government programs and adopt private sector-inclusive programming. Over the recent past, economic growth strategies have been developed to guide the budget, i.e. Public Investment for Agro Industrialization (PIMA) and Emona, among others. Unfortunately, several of these have been changed without proper evaluation of success and failures, and therefore we cannot draw lessons from their operations. The Parish Development Model has now been introduced in the 2022/23 FY. The challenge is, however, that the big aggregators were not consulted and/or involved to tap into the 93% of the producers at parish levels; the parish is a tiny market or production base for the small private sector players (aggregators) to make a meaningful contribution.

Invest in infrastructure that supports trade and industry. First, invest in Uganda Air Cargo. The cost of transporting cargo from Uganda to other market destinations by air and vice versa is still high given that there are, in some cases, no open routes for water transport and the cargo airlines are limited. Therefore, the private sector requests our governments to invest in air cargo to facilitate easy cargo movement even within the EAC especially DRC and Somalia, when it joins the community. Invest in the Standard Gauge Railway and Uganda's meter gauge railway system. Transporting cargo on the road from ports to Uganda is very expensive. Yet, Railway transport is the second cheapest means of cargo transport. Therefore, we implore the government to invest in galvanizing Uganda's railway system to facilitate cargo transportation from Kenyan and Tanzanian ports.

Facilitation of SMEs to embrace and conform to standards as a tool to guarantee market access, locally, regionally and internationally. Recently, a report by the Uganda National Bureau of Standards (UNBS) confirmed that at least 54% of goods traded on the local market are substandard. This is a significant major health and safety risk to Ugandans. In addition, producers of such items largely in the SME category are just life-supporting held into the next level of competition by preparing and facilitating them to meet required industry standards. Therefore, in FY 2023/24, GoU should avail a 50% reduction in certification cost for SMEs that can prove possession of production facilities for goods and services and compliance with tax obligations.

2.1. Case Study of PSFU Young Africa Works – Lead Firm Structure (LFS).

2.1.0. Background

Private Sector Foundation Uganda (PSFU), in partnership with MasterCard Foundation, anchoring Uganda’s Young Africa Works strategy . Under the Young Africa Works strategy by Mastercard Foundation, PSFU designed and are implementing the Lead Firm Structure (LFS) for Youth Employment in Uganda.⁹

The project’s strategy is based on a Lead Firm Model. The “Lead Firms (LFs),” prominent in the economy’s selected sectors, are supported to build value chains and create befitting jobs for the youth. The sectors considered under the project are Agriculture with 27 LFs on boarded, Tourism 3, Trade & Allied Services 5, Manufacturing 2 and Construction 2.

The project is premised on the following as a contribution to the lead firms that will facilitate job creation;

1. Improve households’ technical and enterprise capacity under the guidance of the Lead Firm.
2. Increase the capacity of MSMEs and Lead Firms to improve production and efficiency.
3. Increase the capacity of Lead Firms to access additional markets for increased production.
4. Increase the management and technical capacity of MSMEs and business leaders.
5. Address ecosystem policy challenges to ensure an investment-friendly environment.

Thus, the project helps lead firms to optimize linkages for the mutual benefit of value chain actors; policy advocacy and engagement; expansion of Lead Firm supply chain;

⁹ PSFU, 2022. Enhancing Lead Firm Structure for Youth Employment in Uganda. <https://www.psfuganda.org/projects/enhancing-lead-firm-structure-for-youth-employment-in-uganda.html>

capacity building; growth of incomes of households for effective demand. Thus, building value chains is the easiest way of creating more jobs in the private sector.

2.1.1. Achievements of LFS Project on Job Creation.

By the end of the quarter, the project had reached 46,261 new program participants, bringing the cumulative number of youths to 108,927. Overall, 38.63% of the project target on outreach has been achieved. The cumulative number of young people participating in the project currently stands at 108,927; 62.9% (65,518 participants) are young women. This is based on the fact that the project has a deliberate objective of targeting young women. The project aims at creating at least 300,000 youth jobs.

The agribusiness sector continued to supply the most significant number of opportunities, with 104,170 young people reached, followed by trade (2,965), tourism (1,396), and manufacturing (396). The construction is yet to roll out field activities with SM-Cathan, the only Lead Firm recently on-boarded under the sector, only setting up the project. The above indicators are in tandem with how sectors in Uganda's economy perform regarding job creation, as indicated in the literature above.

Table 1: Summary of Program Key Performance Indicators.

Measure	2022			Length of Project				
	Target	Achieved by June	% of Women	Target	Cumulative to date	% of Women	Refugees	YPWD
Youth Outreach	118,000	7,257	57.8%	281,961	108,927	62.2%	259	53
Youth in Work (Not yet earning)	30,000	1,638	58.45%	00	40,670	71.5%	00	14
Youth in Work (Already earning)	84,000	1,829	49.7%	281,961	9,737	52.5%	00	00
Geographical location	North, East, Central and Western Uganda							

Over 89.9% of the young people engaged are currently operating startup enterprises in the various sectors of project focus. Over 259 project participants are refugees from the Democratic Republic of Congo (DRC), and 53 participants (15 young women) are people living with a disability.

Distribution of Project Participants by Sector

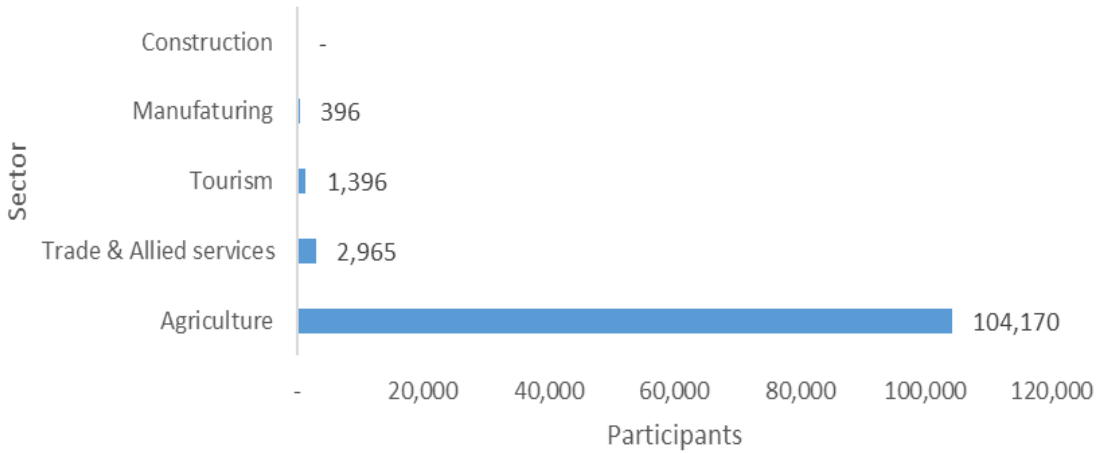


Figure 1: Youth Reached as of June 30, 2022

The agribusiness sector¹⁰ continues to be the leading driver for creating work opportunities for young people contributing two-thirds of the Lead Firms and 95% (104,000 of 108,927) of the overall number of youths reached by the end of Q2. Over 61% (65,500) of these are young women in sunflower, soya bean, maize, coffee cassava, mushrooms and bee products..

Table 2: Composition and Relative Contribution Sub-sectors in the Agribusiness Sector

Sub-Sector	Number of LFs	Youth Reached	Youth Engaged
Annuals Biennials & Horticulture Crops	17	90,898	41,297
Coffee & Perennials	5	12,733	7,868
Livestock	5	539	539
Total	27	104,170	49,704

As noted earlier, the jobs created are direct and indirect within the value chain. However, they are both quantifiable and traceable. For instance, African Mushroom Growers (AMG) participated in the DRC Business Summit as part of the project. They secured a deal that will see the company export three tons of fresh mushrooms to the country worth an estimated \$1.4 million. This has added and can sustain 1000 new jobs per year. From the market research, Ugandan mushrooms will be competitive as a kilogram will be landing at US\$ 9, which is way cheaper than the current landing price for mushrooms imported from Europe which is at US\$ 15.

10 The Agribusiness Sector comprises three sub-sectors, namely (1) Annual, Bilingual, and Horticultural Crops, (2) Coffee and Perennial Crops, and (3) Livestock.



Cassava products exhibited by Participating Lead Firms and other Lead Firm Structure actors.

Cassava products exhibited by Participating Lead Firms and other Lead Firm Structure actors.

Trade and Allied Services Sector; The Trade and Allied Services sector, as part of LFS project and concerning Uganda’s job market outlook, has remained the second most significant driver of new job opportunities created during the second quarter, with 2,965 youth reaching 433 new youth in work, and a total of 470 youth earning income from a total of four business partners (New Frontier Technologies, Nice House of Plastics, Movit Products Ltd, and Yuvraj International) comprising the portfolio. With new firms on boarded, many more jobs will be created, as shown below.

The project continues to onboard new Lead firms, achieving 20% of the target for onboarding new lead firms (2/10). Two new Lead Firms were added, and this has brought the total of work opportunities committed to 234,364 (161,351 Female), which is 83% of the project goal. Currently, the total number of Lead Firms’ on-boarded to 39.

Table 3: New Lead Firms On-boarded

No	Lead Firm	Sector	Project/value chain	Work Opportunities
1	Roykiems	Manufacturing	Auto-Spare parts & Mattresses	5,217
2	Kiira Motors	Trade & Allied Services	Mobility	7,700
Total				12,917

The potential number of jobs in the current pipeline stands at 160,000, which exceeds the onboarding gap of 47,597.

3.0. Conclusion

As noted earlier, the private sector is a critical employer world over. However, the ability of the private sector to create jobs depends highly on how developed it is. The development and growth of private sector enterprises hinge on capital availability and the business environment, including the tax regime and facilitating infrastructure.

This paper's findings indicate that developing value chains is a precursor to private sector growth and job creation. However, the findings further indicate that developing value chains largely takes a top-down approach, especially by empowering the lead firms to mobilize and organize other players in the value chain.

Thus, for the private sector to create jobs, there has to be a favourable environment for them to grow and be competitive. Therefore, the government has to put in place a favourable and/or conducive legal, policy and infrastructural environment for the private sector to grow. Moreover, there has to be a deliberate policy to facilitate startups to grow into small, medium and large enterprises. Furthermore, there is a need for deliberate policy and interventions to integrate informal enterprises into a formal economy.

SECTION 2: INDUCTED FELLOWS

This section presents profiles of distinguished scientists inducted into the Academy Fellowship on October 28, 2022, during the Annual Scientific Conference. Prof. Joseph Obua, the Chairperson of the Fellows and Membership Committee of the UNAS Council presented the following rigorously selected candidates to the President.



DR. ANNE MARGARET AKOL is an Associate Professor of Entomology in the Department of Zoology, Entomology and Fisheries Sciences at Makerere University (Uganda). Since 2015, she has researched honeybee health and insect pollinator biodiversity in Uganda. Before that, her research involved the management of insect pests and medical vectors and the assessment of insect biodiversity. Dr Akol holds a PhD in Agricultural Entomology, from Kenyatta University (Kenya), with research undertaken at the International Centre of Insect Physiology and Ecology (*icipe*), an MPhil in Applied Biology (University of Cambridge, England), a BSc degree in Zoology and Botany (Makerere University). She

also holds postgraduate qualifications in pedagogy. She is a founding member of the Entomological Association of Uganda, which draws together professional entomologists in Uganda, has served as a science role model for the Uganda National Council for Science and Technology, and is an Ambassador for the Makerere University Retirements Benefits Scheme.



DR BETTY AKULLU EZATI is an Associate Professor of Education with vast experience in teaching, research and outreach that has promoted higher education leadership and management in Uganda, the Eastern and Horn of Africa. She has played a crucial role in promoting higher education by providing significant inputs into the strategic policies for harmonizing education programmes in Eastern Africa. She has contributed exceptionally to the design, reviewing and implementation of educational curricula in the country and served as the immediate past Chairperson of the National Curriculum Development Centre. She has been part of the team of experts that has pioneered the design and rolling out of

online teaching, learning and assessment that has been embraced and scaled up during the COVID-19 pandemic. As part of her contribution to the education sector, she provides technical support to different government agencies. She has won research grants and undertaken research studies that have contributed to the existing body of knowledge on university leadership, head teachers' management skills and capacity, pedagogical skills of university academic staff, building the capacity of teachers in post-conflict areas and improved learning of the visually impaired students among others. She is the current Chair of the task force mandated to establish the Uganda National Institute for Teacher Education, a degree-awarding institution for teacher education. Dr Betty Akullu Ezati has immensely contributed to capacity building in education and has supervised 15 PhD and over 40 masters students to completion.



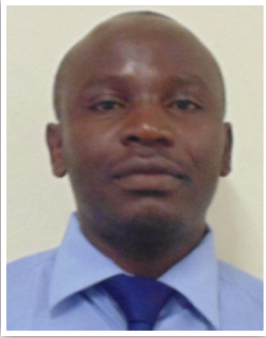
DR DANIEL J. KYABAYINZE (PhD) is a Clinical Epidemiologist, Public Health Practitioner, and Medical Doctor currently working for the Ministry of Health as Director of Health Services-Public Health and National Vaccination Commander for COVID-19. He is a researcher interested in Infectious Diseases and Global Health Leadership. He is a graduate of Mbarara University, Makerere and the University of Antwerp, Belgium, with fellowships from the University of California and a Post Graduate Diploma in Organizational Leadership from Southeastern University (USA)/ Watoto Christian Halls. He has authored a book and contributed to over fifty scientific publications. Daniel models and practices

character-based self-leadership. He is result-oriented and able to collaborate with persons from diverse backgrounds. He is a Christian, married parent, and parent to four teenagers. Daniel is interested in social development and raising future leaders. He supports the Uganda Swimming federations as a Team physician. He is a founding member of the CEDAR investment group and a past committed member of the YSAVE multipurpose cooperative. These groups teach and encourage young adults to save and provide financial literacy. As a member of Watoto Church, his family contributed to looking after orphans and widows affected by AIDS and wars in Uganda. He also supports pre-marital counselling free services in the community. He is a frequent guest, and many radio and TV health promotion shows, provide public health messages. Daniel oversees the deployment of over forty million doses of six vaccine antigens. His focus is to promote vaccine uptake, especially among the elderly and persons with co-morbidities. One of his pass time hobbies is football and game-watching.



PROF. DAVID MWESIGYE TUMUSIIME has contributed to the advancement of science, particularly in Environment and Development Studies, where he has conducted research and shared findings with national and international audiences, including peer-reviewed journals. His studies on Protected Areas and People in Uganda generated valuable knowledge that has been shared globally. He has co-edited a book on Conservation and Development in Uganda, published by Routledge. The book skillfully combines a case study of conservation and development in Uganda with insightful theoretical and methodological perspectives, interdisciplinary and epistemological reflections, and

a hybrid of knowledge in conservation science and development. He has supervised over 20 graduate students to completion in forestry, environment and development and served as external examiner of graduate theses for several African and European universities. He has rendered consultancy services to the Norwegian Agency for Development Cooperation (NORAD), the Danish Ministry of Foreign Affairs, the United Nations Food and Agriculture Organisation (FAO) Uganda Office, the FAO Djibouti Office, the Ministry of Water and Environment of the Republic of Uganda, and the Great Virunga Transboundary Collaboration (GVTC), Rwanda. He is also the Director of the Makerere University Biological Field Station, where he coordinates and oversees research in Kibale forest management and conservation.



DR. DIRIISA MUGAMPOZA is a Food Scientist/Food Microbiologist with a B.Sc. Food Science and Technology (Makerere University, 1999), M.Sc. Food Science and Technology (Makerere University, 2003) and a PhD in Food Microbiology (University of Nottingham, UK, 2013). He has served Kyambogo University since the Uganda Polytechnic Kyambogo days in 2000, up to date. He is currently the Dean of the Faculty of Science and an Associate Professor of Food Science and Technology. He teaches courses in Food Microbiology and Food Hygiene and Sanitation at the graduate and undergraduate levels. Before becoming the Dean of the Faculty of Science, he served as Manager for the Business Incubation

Center, Graduate Coordinator in the Department of Food Science and Technology (2016-2021). His primary research interests are food microbiology, food safety/quality, and the formulation of novel functional foods. He is a Committee Member (food additive standards) at UNBS. He is also a country member of Uganda on the Codex Electronic Working Group (CCFH-STEC2020-Control of Shiga Toxin-Producing *E. coli*). He has won one research grant from the EU worth 320,000 Euros. He has published 20 original Journal papers and is a reviewer for five Journals in Food Science and Technology. He has supervised to completion of two PhD and nine MSc candidates. He has examined three PhDs and eleven MScs. He is an external examiner for Makerere University Department of Food Technology and Nutrition and Islamic University in Uganda's Food Science and Nutrition Department.



DR. ISA KABENGE has been an academic at Makerere University since October 1998. He has since progressed to Associate Professor and is Head of the Department of Agricultural and Bio-Systems Engineering. He is also the current Alternate Chair of the Grants' Management Committee that manages the Research and Innovations Fund of UGX30, 000,000,000 annually, supported by the Government of Uganda. He has systematically developed capacity and mentored future researchers, including 22 undergraduate students, 14 masters' students, five (5) doctoral students and two (2) post-doctoral fellows. Isa has published over 40 peer-reviewed articles with 758 citations. He has been an

internal examiner (12 master's students) and an external examiner for six (6) graduate students from Busitema University and the University of Cape Town. Isa designed and installed an irrigation demonstration system at Makerere University Agricultural Research Institute at Kabanyolo (MUARIK) in 2021. The system has provided experiential learning opportunities for students, farmers, and local government personnel from 16 Districts and Central Government personnel to acquire hands-on irrigation training. This is especially beneficial and impactful in Uganda, where most of the land is under rain-fed agriculture, the rainfall distribution cycle is increasingly uncertain, and farmers are vulnerable to even mild drought conditions. Isa is renowned for designing research that addresses community challenges and provides lasting impact. The research to valorize waste plastics through slow pyrolysis contributed to solving the challenges of plastic waste management and environmental degradation and provided a potential alternative income stream for the communities involved.



DR. PATRICE KASANGAKI is a Senior Research Officer and Program Leader for Livestock Entomology Research at NaLIRRI, Nakyesasa, Wakiso District, Uganda. Before joining NARO, Dr Kasangaki worked as an Entomologist in Masindi and Kibaale District Local Governments and later as Senior Entomologist. He is a results-driven, self-motivated and resourceful scientist with a proven ability to develop and strengthen teams to maximize outputs and create clear strategies for their accomplishment. Dr. Kasangaki has contributed significantly to Uganda's beekeeping development through research and extension services. He conducted his PhD

study focusing on "Characterization of honeybee (*Apis mellifera* L) races and studies on some aspects of their behaviour in Uganda" at the University of Nairobi, Kenya. Dr Kasangaki has led a team that successfully domesticated stingless bees in Uganda and is a PI and Co-PI of several development projects. He has published at least 17 scientific papers during his 09 years of academic service. He chaired the NaLIRRI science committee From January 2017 to December 2018 and was also a member of the NaLIRRI disciplinary and mentoring Committee he currently chairs. Dr Kasangaki has also contributed enormously to academics by teaching, supervising and examining students. He has also done peer reviews for several journals and published widely. Dr Kasangaki was President of the Entomological Association of Uganda (EAU) from 2017 to 2021. He is also a member of the UNBS technical team for apiculture.



DR. PETER WAISWA is a global maternal, newborn, and child health research expert. He has published over 160 articles in peer-reviewed journals. He is ranked among the world's top 0.1% researchers of infant mortality (<https://expertscape.com/au/infant+mortality/Waiswa%2C+P>) <https://scholar.google.com/citations?user=yIpprowAAAAJ&hl=en> These papers come from mostly novel implementation research and other innovative projects that often inform scale up and policy influence. Dr Waiswa frequently advises international maternal, newborn and child health organizations, including the WHO, UNICEF, the Bill & Melinda Gates Foundation, the International Pediatric Association, the

East African Community, and the African Academy of Sciences. More recently, he was appointed by the WHO Director-General to the WHO Strategic and Technical Advisory Group of Experts for Maternal, Newborn, Child and Adolescent Health and Nutrition. Africa capacity building and policy influence: Dr Waiswa has mentored and created centers of excellence supporting emerging policy and maternal newborn health scholars in Uganda and Africa. The platforms he has made include the Makerere University Maternal Newborn and Child Health Centre of Excellence (www.mnh.musph.ac.ug) and IN-DEPTH Network Maternal Newborn and Child Health Working Group (www.indepth-network.org/). He started the Makerere University Maternal Newborn and Child Health Centre of Excellence and the IN-DEPTH Network Maternal, Newborn and Child Health Research Group. The former advances MNCH issues mainly in Uganda, whereas the latter worldwide. IN-DEPTH is a network of over 54 Health Demographic Surveillance Sites (HDSS) in over 25 countries in Africa and Asia. I helped start both groups from scratch, but I was able to employ my leadership and management capability to develop a shared understanding and strategic agendas and used them to influence works in and outside the

individual countries. He provided agile leadership and empowerment to motivate and lead teams to deliver superior performance while encouraging collaboration internally and externally. Our networks now span Africa, Asia, Europe, the USA, and Canada.



DR. TERRY PILOYA WERE is a Senior Lecturer and paediatric endocrinologist Department of Paediatrics Makerere University. She has clinical and research experience in Child Health and paediatric endocrinology. She is the founding faculty member of the 1st public Paediatric Endocrinology Clinic at Mulago National Referral Hospital, the teaching hospital for Makerere University, in 2013. This Endocrinology clinic has treated over 700 children with other childhood endocrine disorders other than diabetes (DM). She has also supported the growth of paediatric diabetes management in this country. With approximately 300 children at Mulago with DM, but provides outreach clinical mentorship services to the over

3000 children and adolescents registered with DM throughout the country. Her primary research areas include infectious diseases, non-communicable diseases and child health. She has been a principal / co-investigator and mentor in several research grants, with publications impacting clinical care. As an expert in paediatric endocrinology, she has supported teaching, clinical care and research for medical students, graduate students and Endocrinology fellows at Makerere University and global collaborative institutions. Research output in paediatric diabetes has grown in the institution with more diabetes research that has greatly informed the management of paediatric diabetes in the country with improved quality of life for children with DM. She has significantly established paediatric Endocrinology infrastructure in Africa through the African Society of Paediatric Endocrinology. She is effective at leading and coordinating teams. Her current position as an academic scholar puts her in an excellent place to advance the goals of UNAS fellows in positively impacting governance and equitable societal development in Uganda and beyond.



DR. WILLIAM OLUPOT has conducted diverse research projects inside and outside Uganda's protected areas focusing on taxa such as mammals, birds and plants, and conservation on land use change, human-wildlife conflict and habitat restoration. From this research, he has published 18 journal articles as a senior author, seven as a co-author, seven book chapters, and two books. His research on grey-cheeked mangabey monkeys helped to unify theories on primate sociality and increased understanding of primate dispersal. He studied the threats to Grey Crowned Crane, Uganda's national bird, in 2005 and 2014. The results contributed to upgrading the species' IUCN Red List status from "Vulnerable" to "Endangered"

and supported preparing its global and national action plans. His ongoing research in the Mabira forest has deepened his international understanding of forest restoration using scientific tools and approaches. He pioneered research on Socio-Ecological Production Landscapes in Uganda's drylands, selected agroecosystems, and developed a framework for integrating biodiversity into livelihood systems outside protected areas. Dr Olupot organized the first-ever global scientific conference of the International Primatological

Society in Uganda and Africa in 2006, which brought together more than 700 primatologists worldwide. He is a member of the IUCN Species Survival Commission and the Scientific Commission of the United Nations Great Apes Survival Partnership. He has been an external examiner of MSc and PhD theses for Makerere University and a reviewer of several research grants and journal manuscripts.

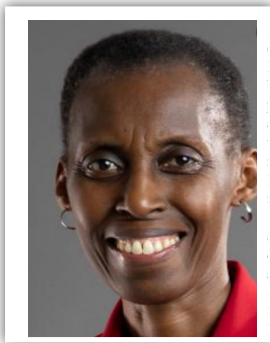


PROF. KAZIBA ABDUL MPAATA is a Professor of Business Administration, Research Coordinator and Consultant at the Faculty of Management Sciences, Busitema University. He is also a Committee Member on Inclusion and Equity for National Development at the Uganda National Academy of Sciences. Before, he served as Deputy Vice-Chancellor (Finance and Administration) and Professor at the Faculty of Management Studies Islamic University in Uganda. He specialized in Business Management Psychology for his PhD, which he earned with a distinction in 1998 from Indonesia. He has presented and published papers locally and internationally; more than forty-two (42) articles have appeared in prestigious international journals. Professor Mpaata is also the author of several books on business economics, education leadership and service integrity in the public service sector in Uganda. Professor Mpaata is a Senior Management Consultant trained by the United Kingdom-based Crown Agents in Country Capacity Building and Training of Trainers (TOT). He is the chairperson of the board for various educational institutions and the chairperson of Skyper Management Consultants. Professor Mpaata has previously worked as a consultant to the Ministry of Public Service in developing a Training Needs Analysis (TNA) for the Uganda Public Service Managers and the Uganda Management Institute (UMI). He has performed competency profiling for several public and private organizations in Uganda. He is also currently a member of the National Council for Higher Education (NCHE) Quality Inspection task force and the Public Procurement and Disposal of Assets (PPDA) in charge of developing basic minimum standards for procurement education and training in Uganda. Professor Mpaata also works as one of the chairpersons of the Inter-University Council for East Africa expert team to different Universities in the region on quality assurance in the area of Business Administration.



PROF. JOHN FRANCIS MUGISHA is the Vice Chancellor of Cavendish University Uganda (CUU), which he joined in 2016 from Uganda Martyrs University (UMU), where he had served as Dean of the Faculty of Health Sciences for six years. His experience in Higher Education spans over 18 years in which he has conducted research, published widely and developed curricula for Public Health and Health Services Management programmes. He has researched and contributed to knowledge in areas of health planning and management, which include costing hospital services, determining workload-based staffing requirements for hospitals, which he pioneered in Uganda; effects of reducing and flattening user fees by Mission-based hospitals on equity and sustainability; funding mechanisms for health training institutions etcetera. Of late, his research has

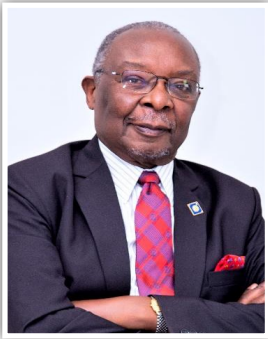
focused on improving maternal and reproductive health - focusing on incentives for maternal referral, improving antenatal care services and rehabilitation of obstetric fistula patients before and after repair. As a member of the National Council for Higher Education (NCHE) and Vice Chairman of the Uganda Vice Chancellors' Forum, Prof Mugisha has contributed to improving standards for teaching and learning, research and innovation in universities. After the shutdown of educational institutions due to Covid-19, he quickly transitioned his university to online study using a learning platform he had installed in 2017. He helped to design standards for Online, Distance and e-Learning (ODEL) that assisted other universities. His university was the first to conduct Virtual and Scientific Graduation in Uganda. He developed guidelines to help other universities in doing so. As a member of the National Immunization Technical Advisory Group, he contributed to decisions on priority groups to benefit from vaccinations and selecting the types of vaccines to come into the country. His contributions to Education and Public Health were recognized when he received a Presidential Medal award in 2018. He is, therefore, fit for a Fellowship award by the UNAS.



PROF. MONICA BALYA CHIBITA holds a D. Litt. et Phil. (Communication), an MA in Journalism and a BA in Education. Her primary area of research has been the interface between media, regulation and democracy. She has over 20 peer-reviewed and industry publications, has co-edited a book and is working on another. Her work has contributed to understanding the political economy of the media and media regulation, mainly focusing on the role of indigenous languages and media. Her course on indigenous language media in Africa has been adopted by UNESCO (see <http://journalismschools.unesco-ci.org/pg/pages/view/12053/>) and used widely across Africa. She has been Associate Editor of the Journal of African Media Studies (JAMS) since 2009 and serves on the

editorial boards of NORDICOM Review, *Communicatio*, African Journalism Studies and Journalism Studies. She was the Principal Investigator on the “National Electronic Media Performance Study” (2004), which informed Uganda’s first National Broadcasting policy. Since joining the Uganda Christian University in 2012, she has led the Mass Communication Department’s transition into a Faculty. She has led teams that won several large capacity-building grants, including SIDA-SAREC, QUOTA Programme, NORHED I and NORHED II. These have transformed the capacity at Makerere and UCU, with major spin-offs for research, including several Masters and 11 PhD scholarships. She has served on several Boards, including Uganda’s Broadcasting Council, the New Vision Printing and Publishing Corporation, the African Centre for Media Excellence, the East Africa Communication Association, AMREF Health (Africa), World Vision Uganda and World Vision International. <https://orcid.org/0000-0002-8398-138X?lang=en>

MR. STEPHEN LWANGA KAGGWA worked for over 20 years with WHO until



his retirement in 2000, guiding health information development in WHO member countries. He contributed significantly to developing and updating the “30 x 7” immunization coverage cluster survey methodology and published sampling procedures for health studies (see the attached list of his publications). After retiring from WHO, Stephen supported (a) Nigeria, Swaziland and Uganda with their Service Availability Mapping activities; (b) Viet Nam to provide expert statistical and analytical advice on the Workforce Indicators of Staffing Needs (WISN) methodology; (c) Ministry of Health, Libya to identify health indicators for monitoring the health sector; (d) North Korea assess its immunization programme. Stephen Lwanga helped Eretria, Ethiopia, Swaziland, and Zimbabwe prepare their proposals for various Global Fund funding rounds. He established the Uganda AIDS Commission and Secretariat as its first Director General (1991-1993), preparing the first national multi-sectoral AIDS control policy and strategy. As a statistic teacher, he developed and published, under the auspices of WHO, a statistics core curriculum for medical undergraduates; he established the teaching of statistics at the School of Medical Sciences, Benin City, Nigeria, in 1975. (Stephen’s publications are shown in the attachment.) Stephen Lwanga was a member of the WHO AFR Regional Immunization Technical Advisory Group (RITAG) for six years up to November 2018 and Management Sciences for Health (MSH) country representative (2012-2014). He is a Fellow of the Royal Statistical Society and a Rotarian (Major Donor).

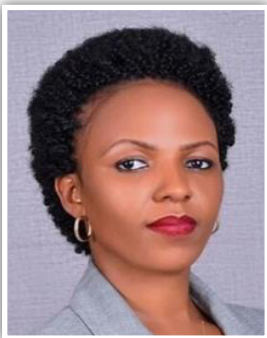
ANNEX 1: SPEAKER BIOGRAPHIES



Zohra is the author of “Take it with a grain of salt,” released in May 2021. The book shares lessons Zohra learned through experiences like a divorce, losing a parent, navigating her self-worth, managing a disability, creating a feeling of belonging, and more. While writing is Zohra’s passion, her purpose revolves around enhancing people’s experiences through scalable programs, strategies, and initiatives. Her portfolio of experiences spans as a people leader, coach, program builder, board advisor, and leader who devises Diverse, Equitable, and Inclusive plans that enable us to improve the lives of our professionals by adding meaning to experiences. Zohra has

worked for almost two decades in building meaningful experiences in the workforce (US & Global) and has worked at companies as small as ten professionals to as large as 250K+ people. Zohra has worked in industries ranging from Consulting, Technology, Education, and Manufacturing. Some companies she worked at are; Deloitte, Ernst & Young (EY), Meta, and Newsela. While the experiences that Zohra has gathered vary, the concepts utilized in each line of work have been using a growth mindset, embracing a diversity of ideas, and keeping people’s holistic well-being as the highest priority.

Zohra holds a BA in Economics and Sociology from the University of Southern California, an MBA from Texas & M, and is currently pursuing a Doctor of Education (Ed.D) from Vanderbilt, focusing on learning and leadership within organizations. She aims to take learnings from this degree and bring transformative changes that create higher productivity and meaningful experiences that enable people to bring their whole selves forward.



DR. ALLEN KABAGENYI, PhD, MDemo. BA Educ. is a Demographer/Population Scientist with a PhD in Population Studies, a degree she pursued at the School of Statistics and Planning Makerere University, in collaboration with the University of Cambridge, UK. She has over ten years of working experience in population and reproductive health, specifically maternal health, focusing on family planning, HIV/AIDS, fertility and related reproductive health issues. Dr Kabagenyi is a Ministry of Health Maternal and Child Health Technical Working Group and National Demographic Dividend Steering Committee member. She recently

led the development of an *Operations Manual for Integrating Gender and Demographic Dividends into National Plans, Policies and Programmes* for African countries. She was also a Lead Editor of *The Roadmap for Harnessing Uganda’s Demographic Dividend Report*. She has led multiple research projects, published widely, and mentors students at both master’s and PhD levels. She is a KISH Fellow, research and academic affiliate of the University of Michigan. She is a Fellow of Wolfson College, University of Cambridge and a PRB Policy Communication Fellow. Allen was the 2019 winner of Demography Top 40 Under 40 for exceptional work by Vision Media Group and; the 2017 award

winner of the 120 Under 40: The New Generation of Family Planning Leaders, awarded by the Bill and Gates Foundation and Gates Institute for Population and Reproductive Health. She was also the 2017 American Psychological Foundation (APF) Henry P. David Reproductive Health Award winner. She is leading efforts to establish a Research Ethics Committee at COBAMS, Makerere University. She is the Principal Investigator of; “*Accelerating Covid-19 Vaccine Acceptance and Uptake in Uganda: Snapshot Study*” and “*Adolescent Motherhood, Vulnerability Assessment and Newborn care practices, in Eastern Uganda (AMNEP)*”. Dr Allen Kabagenyi was inducted as a Fellow of the Uganda National Academy of Sciences in the Physical Sciences category.



PROF. MARY JN OKWAKOL is the founding Vice-Chancellor of Busitema University, a public University in Uganda focusing on science and technology. She holds a B.Sc in Botany/Zoology, M.Sc and a PhD in Zoology from Makerere University, with further training at the University of Aberdeen, UK. She is a Fellow of the Royal Entomological Society of London and a Fellow of the Uganda National Academy of Sciences. In March 2010, she was awarded an Honorary Doctorate. “Doctor Honoris Causa” degree by Josai International University (Japan) recognizes her global leadership in Education and Research. In December 2011, she received the

Africa-India Partnership Educational Excellence Award for her outstanding contribution to Education. Before becoming Vice-Chancellor of Busitema University in 2006, she served as Deputy Vice-Chancellor of Gulu University, where she spearheaded the development of a unique Bachelor of Agriculture Programme and participated in developing the Bachelor of Medicine and Bachelor of Surgery programmes, among others. Professor Okwakol is one of the few women scientists in Uganda who have contributed immensely to the advancement of science, and she stands out as an icon of science. She has served on many Boards and Councils at community, national, regional and international levels. At the African regional level, Professor Okwakol has served as a member of the Council of the African Soil Science Society, Liaison Officer of the African Network of Tropical Soil Biology and Fertility, Vice Chairperson of the Governing Council of the East African Wild Life Society, and the Forum for African Women Educationalists Regional Executive Board as Honorary Secretary. At the global level, she served as Chairperson (1998-2001) of the International Board of Management of the Tropical Soil Biology and Fertility Programme (TSBF) and Chairperson of the Global Steering Committee 2004-2005 of the GEF/UNEP funded project on Below Ground Biodiversity for Sustainable Land Production, implemented by seven Tropical countries, and also as a member of the project’s Global Advisory Committee. Professor Okwakol is a lady of many “firsts” in her life, besides being the first girl born to her parents. She is the first woman Vice Chancellor of a public University in Uganda; the first Vice Chancellor of Busitema University; the first Deputy Vice Chancellor of Gulu University; the first woman Professor of Zoology at Makerere University; the first Professor in the Faculty of Science at Makerere University; the first woman member of the Board of Trustees of Uganda National Parks in 40 years; and the first woman Chairperson of the International Board of Management of the Tropical Soil Biology and Fertility Programme, among others.



Dr Stephen Asiimwe is the Chief Executive Officer (CEO) - Private Sector Foundation (PSFU). Stephen is among the most highly skilled, talented, versatile, honest, multi-disciplined, accomplished, and experienced business managers in the Eastern African region. Dr Asiimwe is a pioneer regional media practitioner, an accomplished businessman, manager, marketer, lecturer, speaker, and statesman. Before joining Private Sector Foundation Uganda, Dr Asiimwe was the Chief Executive Officer (CEO) of the Uganda Tourism Board (UTB), where he took over leadership as Uganda's chief tourism marketing and promotional chief from February 2014-February, 2019. With his qualification and experience as a manager, marketer, lobbyist, strategist, writer, editor, teacher, trainer, international faculty, and speaker, Stephen has served as one of the most influential persons to serve as the country and board's external contact and spokesperson with the local, regional and international media and travel trade. His influence has made a difference in bringing the tourism sector as the top forex earner at US\$1.35 billion and 10% of GDP. Dr Asiimwe graduated from the Development Associates International (DAI) Post Graduate Programme at Uganda Christian University (UCU) and was awarded a Master's in Organizational Leadership and Management. He is also a graduate of Makerere University with a BA in Social Sciences (Political Science and Sociology). He also holds several postgraduate diplomas and certificates in Education, Management, Marketing, Media and Communication.

ANNEX 2: CONFERENCE AGENDA



Sciences for Prosperity

UGANDA NATIONAL ACADEMY OF SCIENCES

2022 ANNUAL SCIENTIFIC CONFERENCE

Trust in the Sciences: Policies and Practices for Meaningful Livelihoods in Uganda

09:00 HRS – 15:00 HRS

Friday, October 28, 2022

Kibz Hall, Hotel Africana

Kampala, Uganda

PROPOSED AGENDA

SESSION ONE: Presentations Based on the Theme of the Conference

Moderator: Philippa Musoke, FUNAS, Chair, UNAS Publications and Conferences Committee

The Annual Scientific Conference (ASC) provides a neutral platform for the exchange of ideas, knowledge, and experiences on topical issues that foster national development.

- | | |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 09: 00 - 09:15 | Welcome from the Academy
Peter N. Mugenyi, President, Uganda National Academy of Sciences |
| 09: 15 – 09:30 | Official Opening of the Conference
Pamela Mbabazi, Chairperson, National Planning Authority, Kampala, Uganda |
| 09:30 – 10:00 | Trust and Livelihoods: A Humanistic Approach
Zohra Damani, Director, Diversity, Equity, Inclusion, and Belonging, Newsela, New York, NY |

- 10:00 – 10:30 **Integrating the Sciences, Arts, and Humanities to Realize Uganda’s Demographic Dividend**
Allen Kabagenyi, FUNAS, Lecturer, School of Statistics and Planning, Makerere University, Kampala, Uganda
- 10:30 – 11:00 **INTERACTIVE DISCUSSION**
- 11:00 – 11:30 **BREAK**
- 11:30 – 12:00 **Contextually Relevant Policies and Practices to Maintain Trust in Uganda’s Education System**
Mary N. Okwakol, FUNAS, Executive Director, National Council for Higher Education (NCHE), Kampala, Uganda
- 12:00 – 12:30 **Understanding the Role of Private Sector in Job Creation: Case of Private Sector Foundation Uganda- Lead Firm Structure Project**
Steven Asiimwe, Chief Executive Officer, Private Sector Foundation of Uganda, Kampala, Uganda
- 12:30 – 13:00 **INTERACTIVE DISCUSSION**
- 13:00 – 13:05 **Key Takeaways form Session One and Transition to Session Two**
Philippa Musoke, FUNAS, Chair, Publications and Conferences Committee

SESSION TWO: Induction of New Fellows of the Academy

Moderator: Joseph Obua, Chair, UNAS Fellows and Membership Committee

The Academy inducts eminent scientists into the Fellowship of the Academy at the Annual Scientific Conference. These scientists are nominated, shortlisted, and vetted through a rigorous process by the Fellows and Membership Committee and a Select committee that makes recommendations to Council. In this session, the successful candidates (Inductees) will be inducted into the Academy Fellowship and join high-level independent distinguished experts of the country who serve voluntarily. The Inductees are from both within and outside the country.

- 13:05 – 14:05 **Induction Process**
- The activities below apply to each Inductee:**
- Introduction by the Nominator
 - Oath taking by the Inductee

- Signing of the register by the Inducted Fellow, the Nominator, and the Secunder
- Acceptance Remarks by the Inducted Fellow

14:05 – 14: 10

Closing Remarks

Peter N. Mugenyi, President, Uganda National Academy of Sciences

ANNEX 3: LIST OF PARTICIPANTS

No	Name	Designation & Organization
1	Prof. Peter N. Mugenyi	Past Immediate President, Uganda National Academy of Sciences
2	Prof. Mary J.N. Okwakol	Executive Director, National Council for Higher Education (NCHE)
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10	Ms. Maria Ndibalekera	AfriChild Centre
11	Ms. Juliet Kasule	Centre for Disease Control (CDC) Uganda
12	Ms. Barbara Namyalo	Journalist, Bukedde Television
13	Dr. Primrose Nakazibwe	Director, Research & Innovation, Ndejje University
14	Mr. Ssali Andrew	National Planning Authority
15	Mr. Mahago Robert	Ministry of Public Service
16	Prof. Oswald Ndolereiire	Kabale University
17	Prof. John Mugisha	Vice Chancellor, Cavendish University
18	Prof. David J. Bakibinga	Professor of Commercial Law, School of Law, Makerere University & Former Secretary General, Uganda National Academy of Sciences.
19	Mr. Samuel Kakoolwa	National Planning Authority

20	Ms. Achen Zeridah	Southern and Eastern Africa Trade Information and Negotiations Institute (SEATINI)Uganda
21	Dr. Betty Kyaddondo	Director, Family Health, National Population Council
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27	Dr. Allen Nambooze	Makerere University
28	Ms. Betty Twesiime	Private Sector Foundation of Uganda
29	Dr. Cissy Kityo	Executive Director, Joint Clinical Research Centre (JCRC)
30	Mr. Kiggundu Brian	Ministry of Local Government
31	Mr. Steven Mwiru	ULG ASS
32	Mr. Gilbert Sendugwa	Executive Director, African Freedom of Information Centre
33	Prof. Maria G.N. Musoke	Deputy Vice Chancellor, Academic Affairs, Kyambogo University
34	Ms. Esther Nakkazi	Founder, Health Journalists Network Uganda
35	Prof. Wilson Okaka	Kyambogo University
36	Prof. Peter Baguma	Makerere University
37	Prof. Edward Bantu	Kabale University
38	Prof. Betty Nanyonga	College of Natural Sciences, Makerere University
39	Ms. Juliet Naluwemba	Uganda National Teacher's Union (UNATU)
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41	Dr. Martha Nalweyiso	Ministry of Health
42	Dr. Ronald kayiwa	Makerere University
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47	Dr. Mary Gorreti Nakabugo	Vice President, Uganda National Academy of Sciences
48	Prof. Monica Chibita	Uganda Christian University
49	Ms.Imelda Namagga	UHSS

50	Dr. Kabweru Wilberforce	Mulago National Referral Hospital
51	Mr. Felix Oketcho	Smart 24 Television
52	Mr. Twinomujuni Kafunjo	Uganda Registration Bureau of Services
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54	Ms. Patience Martha Amongin	Makerere University
55	Dr. Geoffrey Ochwo	Cavendish University
56	Ms. Nalusiba Halima	Bilal Islamic Centre
57	Dr. Daniel Kyabayinze	Director Public Health, Ministry of Health
58	Dr. Twaha Ali Basansa Ateenyi	Makerere University
59	Dr. Patrice Kasangaki	National Agricultural Research Organization (NARO) Uganda
60	Justice Mike Chibita	Judicial Training Institute
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