Journal of Sustainable Development Studies
ISSN 2201-4268
Volume 15, **2022**, 2

INFINITY PRESS
www.infinitypress.info

How Are SMEs with STEM Education Critical for a National Sustainability Development?

Abdisalam M Issa-Salwe
East Africa University, Somalia
abdisalamm@eau.edu.so

Abstract

A lack of comprehensive educational planning to help Somalia and the rest of the developing world achieve long-term economic development, improve inclusive growth, and reduce poverty is one of the most severe difficulties they confront. One area in which their educational programs fall short is science and technology development (in short, STEM- Science, technology, engineering, and mathematics).

In recent decades, the globe has witnessed a major scientific and technological explosion. On the other hand, Somalia and the rest of the developing world have fallen behind. Failure to include science and technology into their educational curricula is one of the significant causes of failing to stay up with global development and losing national sustainable development. Education can aid in developing the skills, talents, and capabilities necessary for long-term viability.

STEM education emphasises critical thinking and problem-solving skills as those with this skill set are more likely to be creative. Therefore, a country's ability to discover and produce new products is crucial to its economic prosperity and stability. To benefit from

STEM skills, an area that requires focus is how SMEs (Small and Medium Enterprises) with STEM may contribute to national sustainable development. SMEs are a solution for the country because they need less capital and have lower manufacturing costs.

Setting up a STEM-based education system to develop SMEs (Small and Medium Enterprises) has become increasingly important in modernising and developing national economies. As a result, significant changes have occurred in recent decades. On the other hand, some countries strongly emphasise science and technology education, while others lack the motivation to do so. As a result, Somalia, like many other African countries, is falling behind.

This research paper look will look at how Somalia's sustainability development program might benefit from SMEs with STEM backgrounds.

Keywords: STEM (Science, Technology, Engineering and Mathematics), SMEs (small and medium enterprises), Science, Technology and Innovation (STI), Curriculum Development, Economic Development, Vocational Training, Educational Sustainability Development.

Background

Somalia's educational system collapsed due to the country's collapsed state and subsequent civil war. As a result, a whole generation was denied access to primary education. In the ensuing decades, many areas in Somalia began to create schools, most of which are private. (Issa-Salwe, 1996)

Over decades of political and cultural turbulence, Somalia's educational system has started to be developed. During the 1970s and 1980s, the country was a centrally managed "scientific socialist" under General Siad Barre's military rule. (Issa-Salwe, 1996) In 1972, the Somali language was named the official language of instruction, and during that year,

a literacy program was launched to teach many Somalis to read and write.

For the first time in the country's history, students were taught in the same language and used the same textbooks. The languages of instruction in schools used to be English, Italian, or Arabic. The collapse of the military regime and the accompanying civil war disrupted the national economic strategy by wrecking most public buildings, including educational institutions.

Education as a Springboard for Future Generations

The potential contribution of science and technology to national development is well known. Scientific and technological competence have been two variables that have contributed to the economic expansion of industrialised countries. Furthermore, many emerging countries continue to adopt old-style industrial systems because they are averse to new technology innovation. (ibid.) The purpose of science is to enlighten humanity, but the goal of technology is to put present knowledge to use. In addition, science aids in generating new ideas, whereas technology aids in the resolution of problems. (Schuurman,1977)

According to the United Nations in its United Nations Conference on Trade and Development Technology and Innovation, “Technology and innovation, among other things, are important means of implementing the 2030 Agenda for Sustainable Development because of their potential to drive innovative entrepreneurship,"

It is vital to provide a favourable educational outlook to the next generation to achieve long-term economic growth. This could aid Somalia's overall development and poverty reduction efforts (World Bank Group, 2019). Therefore, the first stage is to encourage

young people to pursue careers as skilled employees in various sectors of the country's economy. Finally, education fosters the intellectual discipline required to solve problems and the civic virtues essential for effective governance.

According to Poverty & Equity Global Practice, nearly a third of the Somali population lives in poverty (2017). Education has primarily relied on fee-paying schools since the state's disintegration. As a result, low-income students have been severely disadvantaged. Because public schools are few, those who cannot afford private school tuition have fewer options. Furthermore, private schools are frequently not an option because corporate entrepreneurs do not operate schools in low and impoverished regions.

Scientific education is one of the most important aspects of progress. As no country can achieve long-term economic success without significant investments in human capital, education boosts people's productivity and creativity while encouraging entrepreneurship and technical progress. "Improving education outcomes of the younger generation is key for enhancing productivity, sustaining economic recovery, boosting inclusive growth, and promoting poverty reduction in Somalia," according to the World Bank's Somalia Economic Update (SEU) (the 4th edition of the World Bank's Somalia Economic Update).

The country's next step is to commit to national sustainable development, which will support the formation of SMEs (small and medium enterprises). SMEs, rather than large-scale industries, are a solution for the country, as SMEs have grown in popularity in emerging countries in recent decades. Furthermore, using SMEs have the benefit of requiring less capital and lower production costs.

Somalia's education has not been geared toward severe economic development since it concentrates on broad knowledge patterns and tendencies that are not conducive to progress. For example, Somalia has nearly a hundred universities, many of which were only established after the state collapsed following the civil war in the 1990s.
Education has also become a private industry since the fall of the state, and as a result, the country's education has been steered in the wrong direction. Surprisingly, the only solution for Somalis to escape the challenge of underdevelopment is to establish a series of rigorous technical educational programs, ranging from primary to higher education.
Despite the country's numerous higher education institutions, their curricula do not include programs that would assist the country in development, aside from the much-needed education institutions (i.e. vocational training) that would significantly help the country in escaping poverty.

How May Scientifically Educated SMEs Contribute To A Country's Sustainability Development?

SMEs are well known for contributing to economic growth, employment creation, and development as they play a critical role in long-term economic development. The importance of the SMEs sector is generally acknowledged because of its significant contribution to several socio-economic goals, such as increased employment, output, export promotion, and entrepreneurial assistance. (Hobohm, 2000)

Small and medium-sized enterprises (SMEs) are critical for developing countries' innovation, competitiveness, entrepreneurship, and the development of an effective innovation system. Pletnev and Barkhatov (2016) estimate that SMEs account for roughly 56 percent of the gross domestic product (GDP) of numerous European countries (Muller et al. 2017). SMEs are widely recognised to play a crucial role in economic development

in general and industrial development in particular at all phases of development, according to Abdullahi et al. (2017). SMEs make up the backbone of the private sector, accounting for more than 90% of all businesses and 50 to 60% of all jobs worldwide.

The industrialisation has always been a significant driver of economic growth and modernisation. Therefore, its significance for developing and transitional countries has been maintained to this day, providing them with the major means of raising factor productivity. As a result, the groundwork is laid for a long-term and sustainable rise in living standards and a poverty reduction. (Sarwar, 2000) It's also important because of the benefits it brings to other parts of the economy, such as the fact that it is the foundation of a swing of companies that provide high-tech services to assist manufacturing.

The industrialisation has always been a vital driver of economic development and modernity, thanks to SMEs. Its significance for developing and transitional countries has been maintained to this day, providing them with the principal means of raising factor productivity. As a result, the groundwork is laid for a long-term and sustainable rise in living standards and poverty reduction. Industrial development is also essential for other aspects of the economy, such as agricultural production and agricultural processing products. It also serves as a springboard for the formatting of a slew of companies that provide high-tech services supporting of manufacturing.

SMEs are the critical source of employment, income growth, technological improvement, and broader economic development in developing countries like Somalia. As a result, the industry is likely to be the driving force behind economic development.

In the UN context, science and technology (sometimes known as science, technology, and innovation, or STI) have long been seen as one of the most important sources of productivity growth and a vital long-term lever for economic growth and prosperity. STI

is an integral part of the Means of Implementation for Sustainable Development Goal 17, as well as a cross-cutting instrument for accomplishing multiple sect oral Goals and Targets (Giovannini et al. 2017)

According to Giovannini (et al. 2017), achieving SDGs will require unprecedented collaboration in areas such as enabling policy environments, developing human skills capacities, mobilising and effectively using public finance, stimulating trade, driving transformative change through science, research, technology, and innovation, mobilising the private sector and capital, harnessing the positive effects of migration, monitoring accountability, and so on. Accordingly, it is necessary to restructure education to create social development engines. Another crucial area is Technical and Vocational Education and Training (TVET), which can assist young people in transitioning to long-term development. (Tikly and colleagues, 2020)

SMEs, according to Hobohm (2000), are critical contributors to a country's long-term growth for the following reasons:

1. SMEs employ more people than larger corporations, resulting in similar revenue distribution. As a result, they play a critical role in job creation and poverty alleviation by frequently providing employment opportunities at acceptable pay rates to workers from low-income families and women who have few other options.
2. In developing countries, SMEs aid in the more efficient allocation of resources. They are more prone to employ labour-intensive manufacturing techniques, which more accurately reflect resource endowments in developing nations where labour is plentiful, but capital is scarce.
3. SMEs aid in the absorption of adequate resources at all levels of the economy and contribute forming of dynamic and robust economic systems integrated between small and large firms, which helps create systemic productive capacity. They are also

more geographically dispersed than larger enterprises, which encourages the development and distribution of entrepreneurial spirit and abilities while helping to reduce economic disparities between urban and rural areas.

For the Early Childhood Education: The Need for Technological and Science Curriculum

Science aims to enlighten humanity, whereas technology's goal is to put current knowledge to good use. (UNESCO, 1983) The first place a premium on investigative abilities, whereas the second place a premium on ability combined with expertise.

Reforming educational curricula by incorporating and improving science and technology programs at the primary, secondary, and higher education levels is a critical first step since science and technology knowledge may impact and transform a country's economy to achieve sustainable development. The number of students enrolling in scientific classes will rise due to this activity. Providing the necessary tools for implementing the new curriculum is also crucial. (Giovannini et al. 2015)

It is critical to combine science and technology from an early age to create an environment that will promote science and technology education in the country. This can be paired with establishing plans and indicators in the planner to evaluate the scientific education supply. Following that, a system that can help identify how to measure the impact of science education on human resource development could be developed..

Several essential components of development are linked to technology and scientific education. It is one of the most fundamental elements of the curriculum and a critical medium for developing Somalia's human resources and general development. Only a

few examples include health, food, agriculture, energy resources, industry and technology, the environment, etc. Scientific progress is the most practical factor that will help Somalia join the modern technology and trade mainstream.

Conclusion

Knowledge of science and technology have helped industrialised countries' economic prosperity, as has the potential contribution of science and technology to development. (Bhaneja et al,1978) Technology has taken over the world nowadays. As a result, educational institutions must concentrate on preparing students for employment in science and technology. Science and technology education is a worldwide prerequisite for personal growth. As a result, priority must be given to science and technology education.

Education, as previously stated, is a key component of a country's growth since it determines how a country develops. It also acts as a conduit for any nation-building effort, as it equips people with the skills they need to flourish and prosper.

Because science and technology are not a high priority in Somalia's education, design education must be prioritised in order to increase educational delivery capacity.

Despite the growth of private schools in Somalia, these institutions are more business-oriented, thus, bringing obstacles to education quality and standards. Local and national governments can aid in renewing the national economy by providing a solid foundation in higher education institutions beginning in elementary school. This policy will help the country develop in the long run. Another critical area is the transformation of higher education (HE) to support social learning processes in civil society and among policymakers to address sustainability challenges in cities and rural areas. (Tikly and colleagues, 2020)

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