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Contribution of Kenya

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implementation of the Sustainable Development Goals'

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THEME 1: NEW INNOVATION APPROACHES TO SUPPORT THE IMPLEMENTATION OF SDGs

Paper Title: The Role of Education, Science, Technology and Innovation in alleviating poverty in Kenya

By Titus Zakayo Ingana

Abstract

Poverty alleviation has been one of the most distressing factors that mankind has faced for a long time. In every country a lot of effort is put into addressing this situation. Of course the Education sector and utilization of science and technology in the sector toward poverty alleviation has become key to not only addressing this scourge but also understanding underlying issues involved.

This paper discusses how poverty has been alleviated through Policy in the Education, Science and Technology sector and consequently focuses on a quality graduate at every facet of education. Guiding values and principles of Education in Kenya include amongst others; The right of every child to free and compulsory basic education; Equitable access for the youth to basic education and equal access to education or institution; Promotion of quality and relevance; Encouraging independent and critical thinking; cultivating skills, disciplines and capacities for reconstruction and development; Imparting relevant knowledge, skills, attitudes and values to learners to foster the spirit and sense of patriotism, nationhood, unity of purpose, togetherness, and respect; Promotion of good governance, participation and inclusiveness of parents, communities, private sector and other stakeholders in the development and management of education; Promotion of innovativeness, inventiveness, creativity, technology transfer and an entrepreneurial culture; Provision of appropriate human resource, funds, equipment, infrastructure and related resources that meet the needs of students.

The government of Kenya has undertaken various initiatives in development and review of existing legal documents in Education. These include ECDE, Basic, TVET and University Education. In addition requisite bodies in charge of facilitating research and development, innovativeness and advising on such matters have been established. The Government endeavours to have a seamless academic movement by students from ECDE to University through both TVET and direct admissions. Finally within paradigms of a National Innovation system there is deliberate pursuance of Triple-helix type 4 in which Government, Private sector/Industry and Knowledge based institutions play a bigger role as they are facilitated by Arbitrageurs within ICT. Thus the country's poverty index has been reduced from was 52.3% in 1997, 45.9% in 2006 and was projected to be about 42 % in 2015.

MILESTONES ON SDG-POVERTY ALLEVIATION

- i. Establishing the laptop project in Primary schools (2016-Standard 1 and 2017- up to standard 3)
- ii. Providing bursaries to bright students from poor families/background
- iii. Providing resources to support technical training as well as research and technology to enhance the competitiveness of our economy
- iv. Rationalization of teacher utilization in both primary and secondary schools with a view to improve efficiency of education spending
- v. Integrating early childhood into primary education
- vi. Reforming secondary school curricula
- vii. Modernizing teacher training
- viii. Strengthening partnership with private sector
- ix. Developing key programmes for key learners with special needs
- x. Revising the curriculum for university and technical institutes to include science and technology, among others.

INTRODUCTION

What truly makes a person educated is that they are able to perceive accurately, think clearly, and act effectively according to self-defined goals and aspirations. Education is defined as a process of cognitive cartography (Thesaurus, 1995). A proper definition of education covers the following four important aspects:

- i. The necessity of having and manipulating knowledge, skills and information
- ii. The helpfulness of teachers, without requiring them
- iii. The constant need to see through the inherent illusions that arise from our unconscious thought processes, and
- iv. Our ability to influence our states of mind

According to Chaitin (2006), Any piece of knowledge which the student has himself acquired--any problem which he has himself solved, becomes, by virtue of the conquest, much more thoroughly his than it could else be. The preliminary activity of mind which his success implies the concentration of thought necessary to it, and the excitement consequent on his triumph, conspire to register the facts in his memory in a way that no mere information heard from a teacher, or read in a schoolbook, can be registered.

Research findings in Africa show that Education is nearly as valuable for the self-employed as it is for those in formal sector jobs. In Uganda and Ghana, education plays an important role in access to certain types of employment whereas in South Africa, the issue is access to employment. The returns to education are lower in the rural than the urban sectors. This makes it

likely that one of the effects of education is to encourage a shift towards the urban sector (Simon, 2001 and Francis, 2001). In South Africa, Geeta and John, 2001 noted that while a substantial part of the race gap in the incidence of unemployment in the mid-1990s was explained by inter-group differences in observed characteristics, there remained a residual that could not be explained in this way. The residual could have been due to employer discrimination or to racial differences in unmeasured determinants such as the quality of education. It was opined that poverty reduction in this context was inextricably linked to the creation of low-skill jobs.

In Kenya the incidence of poverty stood at 45.9% in 2006 down from 52.3% in 1997. The research showed that poverty was higher in the rural areas at 49.1% compared to urban areas at 33.7%. Based on the growth rate of 2010 and growth rates of 2015 and assuming that population rate remains the same at the level of 2.8-3% with significant reduction in income inequality, poverty level dropped to about 42 %. Thus Kenya did not meet its target of halving poverty by 2015-one of the commitments of the MDGs.

POLICY FRAMEWORKS

Kenya has developed legal frameworks at all levels of Education

A. Early Childhood Development and Education (ECDE) policy

The Government seeks for better opportunities and interventions that inculcate into the children readiness for school through not only their cognition but also their physical, emotional and social development. The main objective is to provide, promote and coordinate the delivery of quality Early Childhood Development and Education through access to inclusive, equitable and quality early childhood care, development and education by 2030.

B. Basic Education Act 2013

The government aims at promoting and regulating free and compulsory basic education (ECDE, primary, secondary and adult learning); by providing for effective and efficient accreditation, registration, governance and management. The system is structured to enable learners to access education and training at any level in a sequence, and at a pace that may be commensurate with the individual learner's physical, mental and intellectual abilities and the resources available.

C. Technical Vocation Education and Training Act 2013

The Act aims at amongst others; Increasing TVET opportunities through skills upgrading, flexible and appropriate curriculum choices and options, Mainstreaming informal and non-formal training programmes and trade test qualifications leading to the Master Craftsman and Mainstreaming the TVET path from ECDE to University with direct progression programmes developed and implemented at post primary and post diploma (Annex, Figure 1)

TVET graduates (Annex, Figure 2) are involved in manufacturing engineering spare parts for export to China (the case of three TVET institutions), Fabrication laboratories and engineering workshops, Establishment of Information Technology (IT) companies, Civil engineering works and related companies; national construction authority, Establishment of motor vehicle garages, Various employment opportunities including tourism, service, trading, retail markets etc industries. Of late they are key employees in Road construction, LAPSET project, SGR, Lamu Port, Oil pipeline etc.

D. University Education Act, 2012

Currently Kenya has 68 Universities; 21 public with 11 colleges and 36 private universities. Kenya manages University education in accordance to Universities Act, 2012. The universities were established to undertake the following:

- i. Advancement of knowledge through teaching, scholarly research and scientific investigation
- ii. Support and contribution to the realization of national economic and social development
- iii. Dissemination of the outcomes of the research conducted by the university to the general community
- iv. Fostering of a capacity for independent critical thinking among its students
- v. Promotion of equalization for persons with disabilities, minorities and other marginalized groups

Within this paradigm it is appreciated that Higher education attainment for a household head significantly reduces the likelihood of a household being poor. Likewise, the education level of mothers significantly affects the health status of the entire family.

E. How Science, Technology and Innovation Impact on Poverty

Agriculture: At macro level, the agriculture sector remains the backbone of the Kenyan economy, employing 70 per cent of the rural population and accounting for about 65 per cent of export earnings. Kenya's agriculture is predominantly rain fed and smallholder. Evidence shows that agriculture-led growth in Kenya is more than twice as effective in reducing poverty as growth led by industry. The overall objectives of the country's Agricultural Sector Development Strategy (ASDS) 2010-2020 are to achieve an agricultural growth rate of 7 per cent per year and to reduce food insecurity by 30 per cent by promoting an innovative, commercially oriented and climate-smart modern agriculture. By collaborating with the Donor community like IFAD, EU, FAO, USAID etc. Kenya aims at;

- i. Increasing productivity, commercialization and competitiveness of agricultural commodities and enterprises;
- ii. Developing and managing the key factors of production.

- iii. Improving natural resource management that is gender-responsive, climate-resilient, sustainable and community-based
- iv. Improving access to productivity-enhancing assets, technologies and services for vulnerable rural women, men and young people in target areas
- v. Enhancing, sustainable access to markets for smallholder farmers, agro-pastoralists and rural entrepreneurs.

Health: Interventions include up-scaling of Community Health High Impact Intervention, Constructing model level 4 hospitals, availing Health Care Subsidies for Social Health Protection. Improving Access to Referral Systems. re-engineering Human Resource for Health, Mainstreaming Research and Development in Health and Undertake medical tourism.

Energy: The government has been improving the energy infrastructure network by undertaking to increase electricity installed capacity by 5,538 MW in 2017 include Diesel Plants; Hydropower; Geothermal Resources; wind, coal and liquefied natural gas.

Water: Leveraging new technologies to provide an adequate supply of “safe” water in urban and rural areas to all users in a growing-wealthier population: households, agriculture and industrial through Water Resources Management Programme

Environment: In order to sustain the environment Kenya has been strengthening environmental governance.

Economic Growth: Science and technology are strategically important to economic opportunity and growth. Within the context of the knowledge economy framework, the “interaction between technology and skill is critical in determining growth, productivity and the distribution of earnings. In this regard the government anchored Science and Technology in the current Constitution

F. How Kenyan Innovations help alleviate Poverty

National surveys on innovation carried out 2012 and 2015 showed that indeed innovations are helping alleviate poverty. Applied research is used to deliver goods, services and conditions, which improve the lives of individuals and societies. Examples include the provision of clean drinking water, electricity, houses etc. Basic scientific research is important in knowledge generation and maintaining educational standards since it provides a crucial link to the international scientific environment based on established international agreements. On the other hand social science research has generated new for facilitating democratic consolidation, protection of human rights and fostering the accountability of public authorities. Results of the survey show that;

- i. All four types of innovations; product, process, organization and marketing are used to create employment

- ii. Innovations are sold within Kenya and exported to the region as well as overseas
- iii. Collaboration and linkages between firms and KBIs are at minimum levels due to lack of trust but growing

The innovation survey reports show that Kenya has an Innovation system (Annex, Figure 3) which is a set a set of functioning institutions, organizations and policies, which interact constructively in the pursuit of a common set of social and economic goals and objectives.

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ANNEX

Figure 1: Kenya TVET Structure

TIVET STRUCTURE

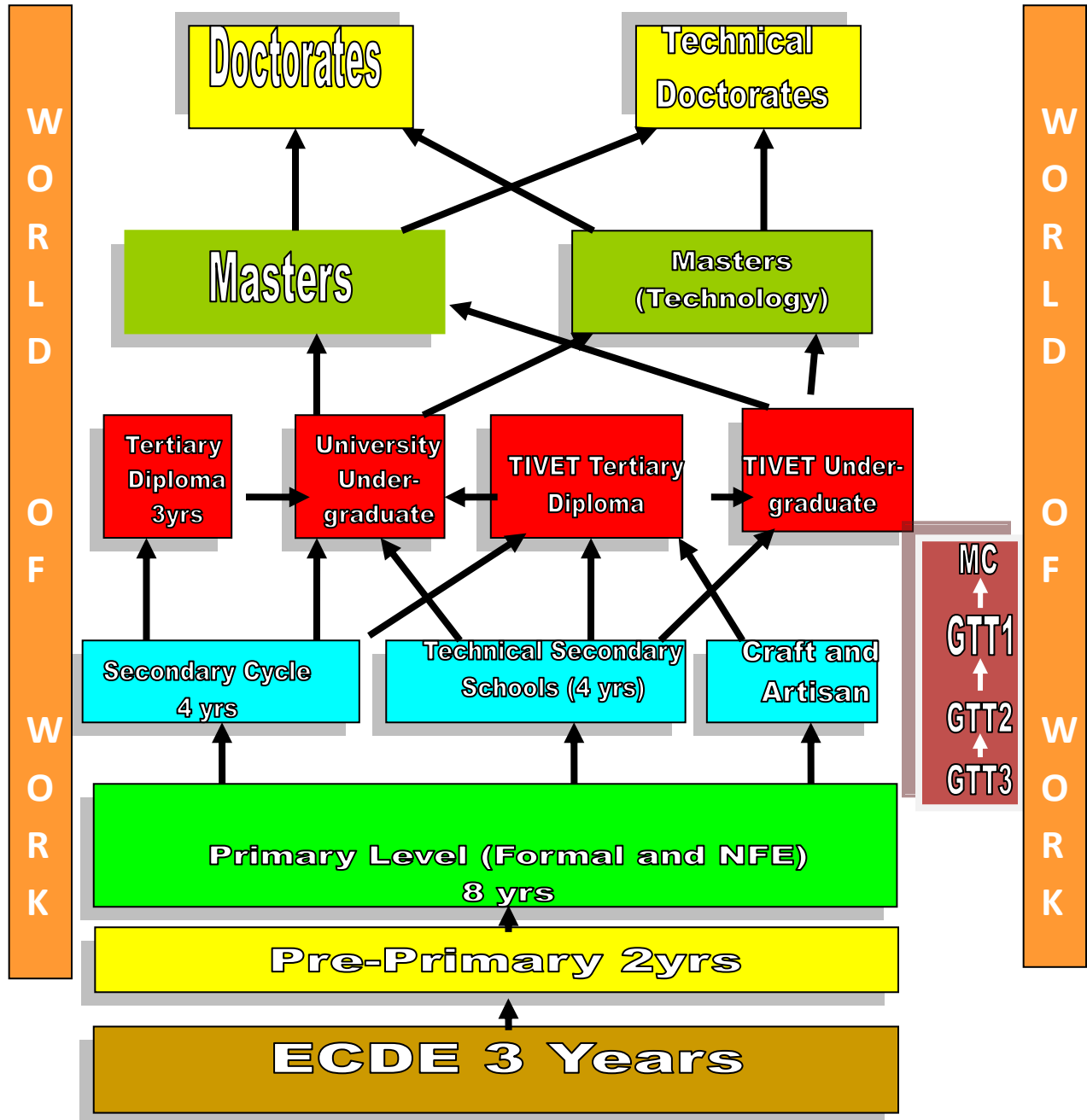


Figure 2: Kenya TIVET Achievement Scorecard - 1

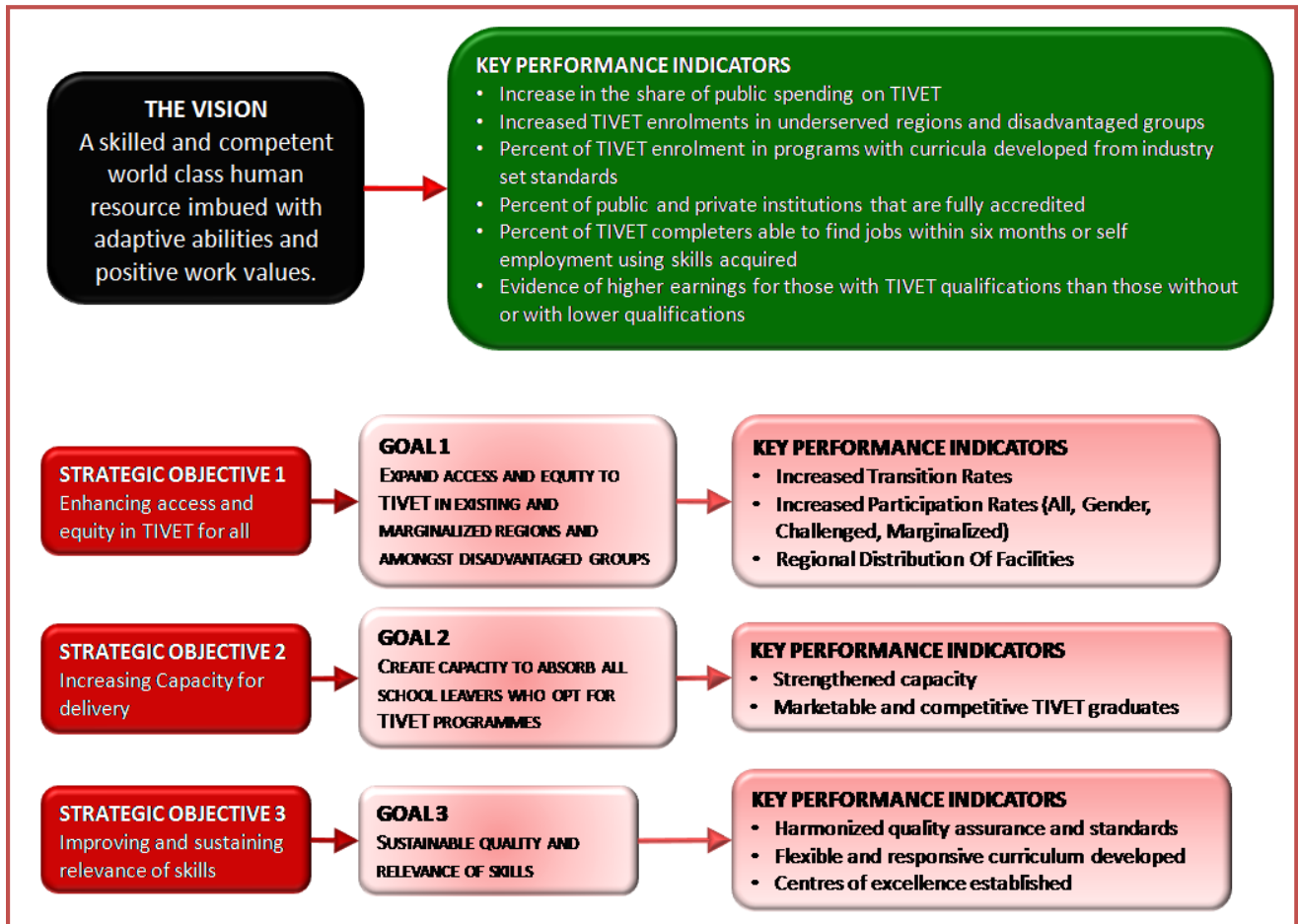


Figure 2: Kenya TIVET Achievement Scorecard - 2

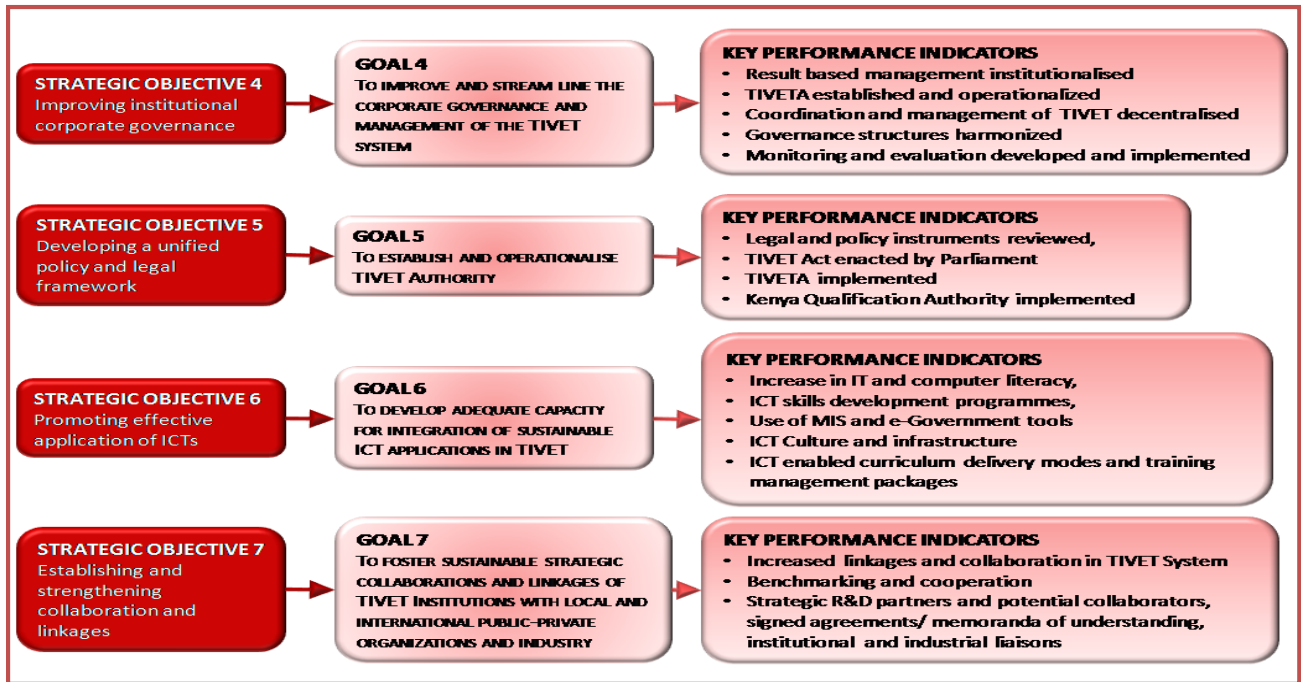


Figure 2: Kenya TIVET Achievement Scorecard - 3

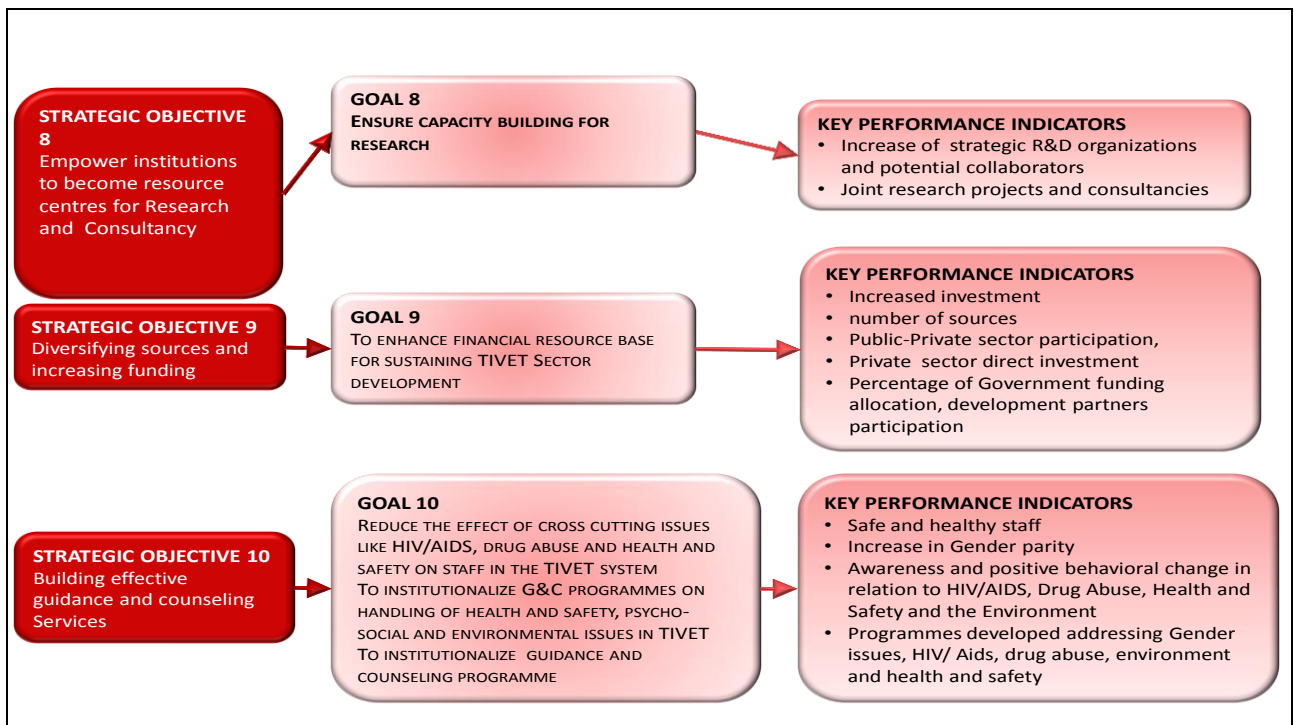


Figure 3: Kenyan National Innovation System

