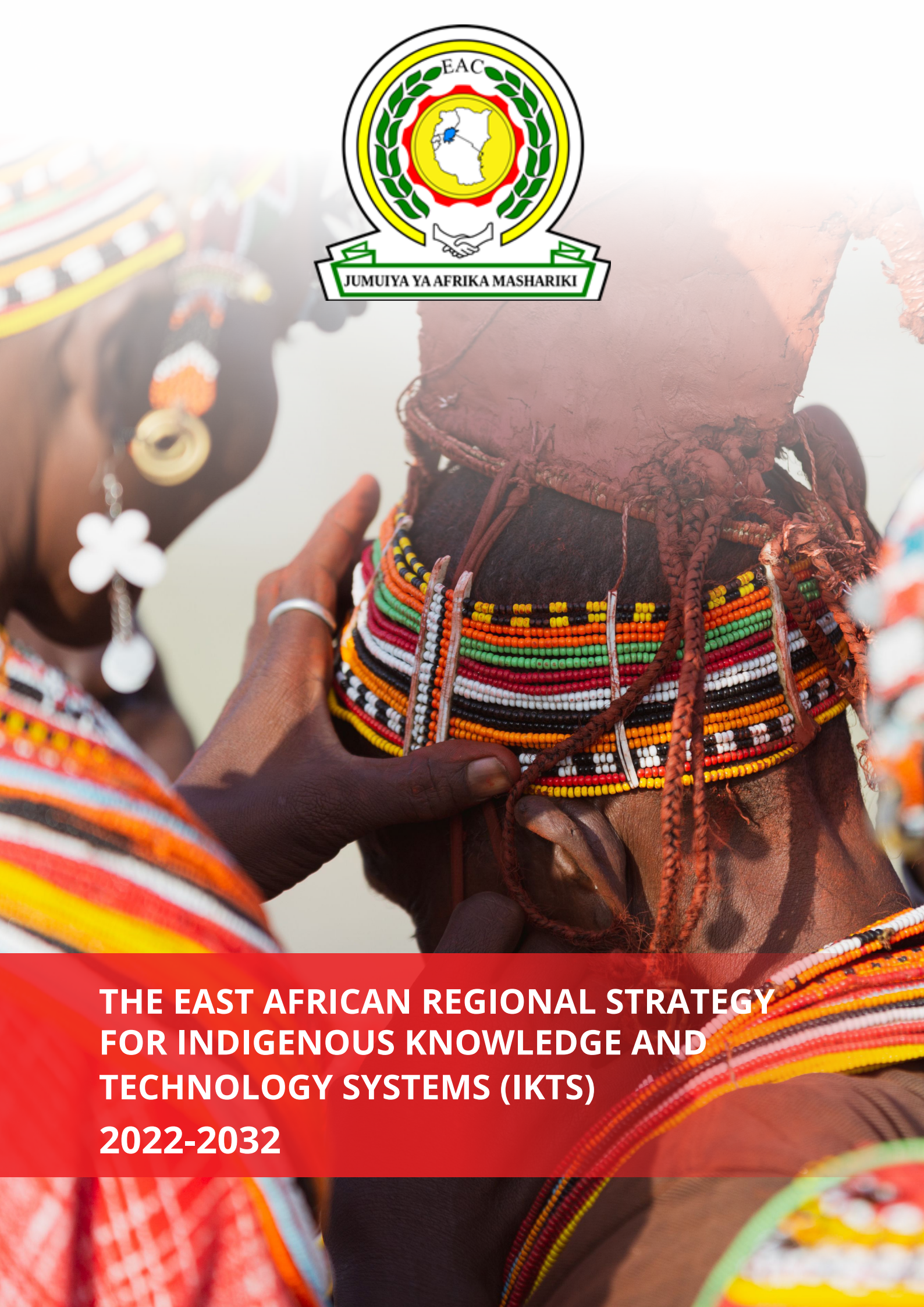

THE EAST AFRICAN REGIONAL STRATEGY FOR INDIGENOUS KNOWLEDGE AND TECHNOLOGY SYSTEMS (IKTS)

2022-2032

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FOREWORD

The East African Community (EAC) lays emphasis on developing policies and programs aimed at widening and deepening co-operation among the Partner States. Specifically, Article 5 (1) of the Treaty states the objectives of the Community as: "to develop policies and programs aimed at widening and deepening co-operation among the Partner States in political, economic, social and cultural fields, research and technology, defense, security and legal and judicial affairs, for their mutual benefit." To attain these objectives, the Partner States committed themselves to establish a Customs Union, a Common Market, a Monetary Union and ultimately a Political Federation.

The EAC Treaty provides an elaborate legal framework for cooperation in the areas of science and technology and Chapter 16 of the EAC Treaty provides for cooperation by the Partner States in the areas of human resources, science and technology. Also the strategic role of Science, Technology and Innovation (STI) in Africa's development has been elaborated in the Science, Technology and Innovation Strategy for Africa (STISA-2024), which EAC Partner States committed to in 2014, to guide the development and application of STI in Africa within the next ten years (to 2024). By the adoption of STISA-2024, the African leaders emphasized the crucial role of STI in addressing the development challenges facing the regional economic communities (RECS) and Member States.

Also, the overall objective of East African Science and Technology Commission (EASTECO) is to promote and coordinate the development, management and application of science and technology to support EAC regional integration and socio-economic development. One of the objectives of EASTECO is to develop regional science and technology policy frameworks and strategies, and to promote the use and development of indigenous knowledge and technologies (IKT). In EAC, the need to recognize indigenous knowledge and technology systems (IKTS) is considered crucial for economic and cultural empowerment of indigenous people in particular, and the world in general. Despite increased awareness about the role of IKTS in the socio-economic development of developing countries, the discipline is overshadowed by the wave and impact of current modernization and globalization processes.

The EAC Heads of State are determined to implement the necessary agenda as enshrined in EAC Vision 2050 to fulfil the rising aspirations and the continental and global expectations. However, such regional ambitions can only be attained on the wheels of a solid base of STI that recognises the role of indigenous knowledge and technology systems in socio-economic transformation. Thus, having indigenous knowledge systems interface with other knowledge systems provides critical opportunities for new products and services that cannot be under-estimated. For instance, Indigenous knowledge is used as an input into industries such as medical, pharmaceutical, botanical, cosmetics, agriculture and biological pesticides. Exploitation of Indigenous Knowledge (IK) is key to socio-economic development of the local communities. That is to say, IK is a key factor in social and economic development as well as cultural transformation. IK provides the basis for problem-solving strategies for local communities, especially the poor. Thus the Community is committed to the development and promotion of indigenous Knowledge and Technology Systems (IKTS) and its integration into the regional innovation system.

The East African Regional IKTS strategy therefore presents a unique opportunity to support various knowledge and technology initiatives in the region and enrich the regional research and innovation system as well as mainstream indigenous knowledge and technology into contemporary knowledge systems and harmonize the initiatives to harness IKT within the intricate regional STI system.

Chairperson of the EAC Council of Ministers

EXECUTIVE SUMMARY

The East African Community (EAC) is an intergovernmental organisation comprised of seven (7) Partner States including Burundi, Democratic Republic of Congo, Kenya, Rwanda, South Sudan, Tanzania and Uganda. The East African Science and Technology Commission (EASTECO) is a semi-autonomous institution of the EAC that was established by the fifth Extra Ordinary Summit of the EAC Heads of State on June 18, 2007. This was in accordance with the relevant provisions of the Treaty on the Establishment of the East African Community as set out in Chapter 16, Article 103 (a), where the Partner States undertook to promote co-operation in the development of science and technology within the EAC Partner States.

The overall objective of EASTECO is to promote and coordinate the development, management and application of science and technology to support EAC regional integration and socio-economic development. One of the objectives of EASTECO is to develop regional science and technology policy frameworks and strategies, and to promote the use and development of indigenous knowledge and technologies (IKT). Indigenous Knowledge and Technology refers to intricate knowledge and technology systems acquired over generations by communities as they interact with the environment. It encompasses technological, economic, philosophical, learning and governance systems. It is a body of empirical knowledge and beliefs handed down through generations of inhabitants of a specific locale, by cultural transmission, about the relationship of living beings with each other and their environment.

The legal framework for the protection of IK can either be through the existing intellectual property framework or a sui generis system of protection. When existing intellectual property regime does not offer an effective solution for the protection of IK, the alternative is to have a sui generis system of protection as set out in the African Union model law or the Swakopmund Protocol. The main aim of sui generis type of protection is to offer protection that is unique to IK systems, as well as to ensure that IK is preserved, is protected against misuse and misappropriation, and allows for access and benefit sharing. Defensive protection involves the creation of databases to ensure that information is not used for example to obtain patent protection without the authority of the rights holder. In this regard, cases to consider include the Traditional Knowledge Digital Library and the documentation of traditional knowledge in other forms.

The vision of the strategy is a Community that preserves, protects and economically exploits indigenous knowledge and technologies for socio-economic development of its people whereas the mission is to promote and develop indigenous knowledge and technology systems and uplift the wellbeing of the people and contribute to socio-economic development.

The priority areas of the strategy include: Development and promotion of IKTS, Promotion of Cooperation in IKTS, Integration of IKTS in education and the regional qualifications, Integration of IKTS in the regional innovation system, Integration of IKT in the regional research and development strategy, Human resource development and capacity building and Public understanding and awareness of IKTS.

The East African Regional Strategy for Indigenous Knowledge and Technology Systems is divided into five (5) sections namely,

(i) Section 1 Introduction. This covers background to EAC and indigenous knowledge and technology systems.

(ii) Section 2 Situational Analysis. This covers legal framework and institutional arrangements of indigenous knowledge and technology systems in the EAC, continental and global conventions, protocols and agreements related to IKTS, legal framework for the protection of IK through the existing intellectual property framework or a sui generis system of protection. It also covers defensive protection of IKT.

(iii) Section 3 EAC Strategy for indigenous Knowledge and Technology Systems. This covers rationale, strategic drivers, priority areas, vision, mission, aims, strategic objectives and strategies.

(iv) Section 4 Implementation Framework. This covers decision making organs, implementing institutions, EAC IKTS Regional Steering Committee, Implementation mechanisms, regional and international cooperation.

(v) Section 5 Monitoring, Evaluation and Learning (MEL) framework. This covers monitoring and evaluation implementation plan and integrated learning.

The EAC Heads of State committed themselves to implement the EAC Vision 2050 for the mutual benefit of the Partner States and enhance the quality of life of the people of East Africa. By 2050, the EAC Heads of State, expect EAC to have been transformed into an upper– middle income region within a secure and politically united East Africa based on the principles of inclusiveness and accountability. The East African Regional Strategy for Indigenous Knowledge and Technology Systems has been developed to ensure that EAC harnesses indigenous knowledge and technology for socio-economic development of its people.

DEFINITION OF TERMS

"Copyright" means an IP right pertaining to the exclusive legal right, given to an author or an assignee of a literary, artistic or scientific work.

"Indigenous/Traditional Knowledge" means traditional local knowledge existing within and developed around the specific conditions of a community indigenous to a particular geographical area.

"Indigenous Technologies" are technologies employed by the native inhabitants of a country/community and which constitute an important part of its cultural heritage.

"Intellectual Property (IP)" means a legal concept which refers to creations of the mind for which exclusive rights are recognized and these rights are conferred to a variety of intangible assets, such as musical, literary and artistic works; discoveries and inventions; ideas, words, phrases, symbols, and designs.

"Intellectual Property (IP) Rights" means the assignment of monopoly rights on the use of intellectual content for a specified period of time; through patents, copyright, trademarks, plant breeders rights, industrial designs, geographic indicators, utility models and trade secrets.

"Patent" means an IP right from a government authority or license conferring a right or title for a set period, especially the sole right to exclude others from making, using, or selling an invention.

"Sui Generis" is a Latin term meaning "of its own kind" or class and is often used to describe that which is unique or peculiar.

"Trademark" means an IP right pertaining to a symbol, word, or words legally registered or established by use as representing a company or product. Synonyms for trademark include; logo, brand, emblem, sign, mark, stamp, symbol, badge, crest, monogram, colophon.

"Trade Secret" means a formula, practice, process, design, instrument, pattern, or compilation of information which is not generally known or reasonably ascertainable, by which a business can obtain an economic advantage over competitors or customers.

ACRONYMS AND ABBREVIATIONS

ABS	Access and Benefit Sharing
ARIPO	Africa Regional Intellectual Property Organization
AU	African Union
CBD	Convention on Biological Diversity
EAC	East African Community
EASTECO	East African Science and Technology Commission
GR	Genetic Resources
ICESCR	International Covenant on Economic, Social and Cultural Rights
IK	Indigenous Knowledge
IKT	Indigenous Knowledge and Technology
IKTS	Indigenous Knowledge and Technology Systems
IP	Intellectual Property
IPR	Intellectual Property Rights
ITPGRFA	The International Treaty on Plant Genetic Resources for Food and Agriculture
NGOs	Non-Governmental Organizations
PCT	Patent Cooperation Treaty
RECs	Regional Economic Communities
RSA	Republic of South Africa
STI	Science, Technology and Innovation
STISA	Technology and Innovation Strategy for Africa
S&T	Science and Technology
TK	Traditional Knowledge
TCEs	Traditional Cultural Expressions
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UNEP	United Nations Environmental Program
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

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CHAPTER ONE: INTRODUCTION

1.1. BACKGROUND

The East African Community (EAC) is an intergovernmental organisation comprised of seven Partner States including Burundi, Democratic Republic of Congo, Kenya, Rwanda, South Sudan, Tanzania and Uganda. The East African Science and Technology Commission (EASTECO) is a semi-autonomous institution of the EAC that was established by the fifth Extra Ordinary Summit of the EAC Heads of State on June 18, 2007. This was in accordance with the relevant provisions of the Treaty on the Establishment of the East African Community as set out in Chapter 16, Article 103 (a), where the Partner States undertook to promote co-operation in the development of science and technology within the EAC Partner States.

The overall objective of EASTECO is to promote and coordinate the development, management and application of science and technology to support EAC regional integration and socio-economic development. One of the objectives of EASTECO is to develop regional science and technology policy frameworks and strategies, and to promote the use and development of indigenous knowledge and technologies (IKT). In EAC, the need to recognize indigenous knowledge and technology systems (IKTS) is considered crucial for economic and cultural empowerment of indigenous people in particular, and the world in general. Despite increased awareness about the role of IKTS in the socio-economic development of developing countries, the discipline is overshadowed by the wave and impact of current modernization and globalization processes. Although a number of policy and regulatory initiatives to mainstream indigenous knowledge and technology into contemporary knowledge systems are

being undertaken within the region, there is no regional strategy to harmonize the initiatives and to harness IKT within the intricate regional Science, Technology and Innovation (STI) system. There is a need therefore for a strategy for preserving and developing knowledge and technologies generated and perpetuated by local communities. The East African Regional IKTS strategy therefore presents a unique opportunity to support various knowledge and technology initiatives in the region to enrich the regional research and innovation system.

1.2. INDIGENOUS KNOWLEDGE AND TECHNOLOGY

Indigenous refers to originating or occurring naturally in a particular place; native. Whereas knowledge is the fact or condition of knowing something with familiarity gained through experience or association; or the acquaintance with or understanding of a science, art, or technique. When it comes to indigenous knowledge, there are various definitions in the literature. Indigenous knowledge (IK) can be defined as the traditional local knowledge existing within and developed around the specific conditions of a community indigenous to a particular geographical area. IK is sometimes referred to as traditional knowledge, indigenous knowledge system, traditional environmental knowledge, local knowledge, rural people's knowledge, folk knowledge, traditional wisdom, traditional science, indigenous technical knowledge or indigenous agricultural knowledge (Sillitoe, 1998; Senanayake, 2006). IK is a large body of knowledge and skills (Indigenous Knowledge Systems and Practices, Indigenous Technological Knowledge) that has been developed outside the formal educational system, and that enables communities to survive (UNESCO,1998). Noyoo (2007), Fortmann (2012) and Parrotta and Trosper (2012) broadly define IK as "a complex set of knowledge and technologies existing and developed around specific conditions of populations and communities indigenous to a particular geographic locality".

Gumbo (2014) defines Indigenous technology as the technological knowledge, skills, and resources transmitted or handed down from the past indigenous people to the present ones to meet their needs and wants by means of investigating, designing, developing, and evaluating products, processes, and systems within the community. Indigenous Technologies are technologies employed by the native inhabitants of a country/community and which constitute an important part of its cultural heritage.

Indigenous Knowledge Systems (IKS) are intricate knowledge systems acquired over generations by communities as they interact with the environment (Kwame, 2007). Thus, Indigenous Knowledge and Technology refers to intricate knowledge and technology systems acquired over generations by communities as they interact with the environment. It encompasses technological, economic, philosophical, learning and governance systems. It is therefore a body of empirical knowledge and beliefs handed down through generations of inhabitants of a specific locale, by cultural transmission, about the relationship of living beings with each other and their environment (Sillitoe, 1998). In most cases, Indigenous Technological Knowledge or Indigenous Technology is treated as a subset of Indigenous Knowledge. Across EAC Partner States, indigenous knowledge is treated as a subset of traditional knowledge (TK).

Indigenous knowledge (IK) can be characterized as follows (UNESCO,1998):

(i) IK is generated within communities

(ii) IK is location and culture specific

(iii) IK is the basis for decision making and survival strategies

(iv) IK is not systematically documented

(v) IK concerns critical issues of human and animal life: primary production, human and animal life, natural resource management

(vi) IK is dynamic and based on innovation, adaptation, and experimentation

(vii) IK is oral and rural in nature.

Thus IK is unique to a given culture, location or society and is embedded in community practices, institutions, relationships and rituals. There are various ways through which IK can be passed from generation to generation and they include word of mouth, socialization processes such as face-to-face interactions, family meetings and social gatherings and cultural activities such as trainings, cultural rituals and initiation rites during adolescent age. IK is generated and transmitted by communities, over time, in an effort to cope with their own agroecological and socio-economic environments (Fernandez, 1994).

IK is generated through a systematic process of observing local conditions, experimenting with solutions and readapting previously identified solutions to modified environmental, socio-economic and technological situations (Brouwers, 1993). Cultural diversity influences IK but it should also be noted that variations within community knowledge are influenced by gender, age, class, economic status and personal life experiences (Sillitoe, 1998; Somnasang and Moreno-Black, 2000). The different roles played by men, women and children in a homestead and community also bring about differentiation of IK within the community. Older people usually tend to know much more than the young about indigenous practices and it's the reason why IK is usually passed on from the old to the young generations. The indigenous knowledge systems in different cultures can be understood and compared by considering (i) different knowledge of similar things; (ii) different knowledge of different things; (iii) different ways of organizing knowledge and (iv) different ways of preserving and transferring knowledge (Senanayake, 2006).

IK is an important resource that contributes to social and economic needs, community sustainability and sustainable development. IK provides the basis for problem solving strategies for local communities especially the poor. IK is commonly used in agriculture, traditional medicine, health care, food preparation and conservation, education, natural resource management and a host of other activities in rural communities. In agriculture, IK is mainly used in pest and disease management, soil fertility management, and food and grain storage and preservation. IK also contributes to the identification of traditional food plants, entertainment (games, music, sports), and conflict management in families and communities (Gradé et al., 2009). IK is used in identification and use of natural resources in their environment for peoples' wellbeing (Tabuti, 2006). IK fosters employment opportunities and is able to contribute to poverty alleviation and the creation of enterprises. There are many artisans and Juakali who are employed in small cottage industries for making crafts, household implements or huts.

IK as an important resource that contributes to social and economic needs and should be conserved and preserved to avoid extinction. There are many different ways in which IK can be conserved and preserved. IK can be preserved through photographs, sound recordings, films and manuscripts, itineraries, cultural mapping, video recordings, and the preservation of artefacts in libraries and museums among others. The libraries can preserve local culture in digital and paper format and promote exchange of information in many countries. Libraries should help in collecting, preserving and disseminating indigenous knowledge and innovation. Librarians and information professionals should publicize the value, raise awareness on the contribution, importance and protection of indigenous knowledge to both non-indigenous and indigenous peoples. One important means of conserving, developing and promoting IK is by teaching it to the young in the communities and schools. Integrating

IK into an educational curriculum can help students feel ownership of the knowledge they bring to learning environments. This calls for documentation and generation of local and relevant case studies (Haverkort et al., 2002). Also, there is need to establish and strengthen national indigenous knowledge resource centres by strengthening the capacity of training, researching and developing IK networks and sharing for community development (Msuya, 2007). This will definitely strengthen the documentation of IK and exchange among communities at community level through establishment of community to community based IK resource centres in local government administrative units. It is important to empower the communities through capacity building to capture, store and evaluate the efficacy of IK for integration in the national development process. Capacity should also be built in IK documentation and information management at both national and EAC level through training of trainers, community leaders and other stakeholders through for example public seminars and field visits. This will enhance advocacy and awareness raising on IK and its role in economic empowerment of the communities.

1.3. INDIGENOUS KNOWLEDGE IN EAC

Every local community in EAC Partner States has some kind of indigenous knowledge. However most of this indigenous knowledge is not documented, protected, conserved and preserved. IK is largely preserved in human minds and thus it is disappearing at a high rate due to memory lapses and death of elders. Knowledge possessed by specialists such as healers or hunters is unique to them and is not easily passed on to other community members. Thus most indigenous knowledge is kept in secretive form and coupled with this secrecy, there is inadequate documentation and the absence of organising frameworks that would provide information to innovators on who needs the innovations, how to find the users and when to approach the users. Over time, IK disappears when its custodians die or migrate before their IK has been adequately passed on or documented (Tabuti and Damme, 2012).

In some instances, IK has been marginalised and threatened with extinction by modern knowledge, outside influence of western cultures, inadequate documentation and environmental degradation. Colonialism weakened IK and the process continues today under modernisation and globalization (Haverkort et al., 2002; Millar and Haverkort, 2006; Tabaro, 2009). African indigenous knowledge systems, including beliefs and practices, suffered much during colonialism when many forms of IK were considered inferior by colonialists. The colonized were forced to abandon their IK and adapt to western knowledge. This led to a lack of confidence in IK by its holders. In this way, innovation in Science, Technology and Innovation (STI) fields and the whole social fabric was undermined (UG-UNCP, 2006). Colonialism was further enhanced by globalization. Globalization, by promoting universal values and beliefs, encouraged people to abandon their IK while adopting western knowledge (Haverkort et al., 2002; Tabaro, 2009). Indigenous and local communities most of the time do not have strong traditions of ownership over knowledge that resembles the modern forms of private ownership. Traditions of custodianship over knowledge, and customary law guide who may use different kinds of knowledge at

particular times and places, and obligations that accompany the use of knowledge (Gupta, 2005).

Globalization reduces diversity in all aspects of human life and leads to the adoption of new values. Also traditional religions and spiritual practices including traditional healing practices were subdued by Christianity and Islam. Furthermore, the western education system undermined traditional education. In the western education system, young people are taught in schools to disregard almost all aspects of their heritage including their traditional language(s). Western education further weakened social contacts and opportunities to learn indigenous ways by keeping young people away from their homes and elders, who would have taught them indigenous knowledge and practices (Tabuti et al., 2004; Tabuti, 2006).

Indigenous Knowledge and Technology Systems (IKTS) exist in East Africa but such knowledge needs to be recorded and evaluated by people who possess appropriate backgrounds in anthropology, biology, ecology, resource management, the social sciences, and have the appropriate skills for translating cultural information for the comprehension by other cultures (Kwame, 2007). For example farmers (Mwadime,1996) use a combination of indicators that include appearance and behavior of flora and fauna like the flowering or sprouting schedule of key plants and the arrival and activity of birds, insects, frogs, and toads, wind patterns or changes in the direction of wind flow, and the position of constellations to plan and take decisions. Such indicators help farmers to detect changes in seasonal patterns, predict the rains, the end of seasons, identify soil fertility or monitor the state of the environment. The behavior of livestock and wildlife can indicate the nutritional value of the forage plants and the range; milk yields can indicate forage availability and quality. The mating frequency of animals, the texture and color of dung, or the condition of an animal's fur can reflect environmental quality.

1.4. INTEGRATING IK WITH OTHER FORMS OF KNOWLEDGE

Having indigenous knowledge systems interface with other knowledge systems provides critical opportunities for new products and services that cannot be under-estimated. For instance, Traditional knowledge is used as an input into industries such as medical, pharmaceutical, botanical, cosmetics, agriculture and biological pesticides. Exploitation of IK is key to socio-economic development of the local communities (Reinhard Woytek,1998). That is to say, IK is a key factor in social and economic development as well as cultural transformation. In addition, there is recognition of the important role of local communities in contributing their indigenous knowledge systems to enhance the sustainability of development programmes. IK provides the basis for problem-solving strategies for local communities, especially the poor. It represents an important component of global knowledge on development issues. Learning from IK, by investigating first what local communities know and have, can improve understanding of local conditions and provide a productive context for activities designed to help the local communities. Adapting international practices to the local setting should help improve the impact and sustainability of development assistance. Sharing IK within and across communities helps to enhance cross-cultural understanding and promotes the cultural dimension of development. Sharing IK

requires development of IK best practices. IK Best practices refers to examples and cases that illustrate the use of IK in developing cost-effective and sustainable survival strategies for poverty alleviation and income generation. The thinking behind the IK best practices is that they can and should be replicated, that ideas can and should be generated from them, and that they can and should contribute to policy and strategy development. Best practices of IK on poverty and social exclusion have the following four characteristics (UNESCO,1998): (i) they are innovative; (ii) they make a difference; (iii) they have a sustainable effect; (iv) they have the potential for replication.

In this era of knowledge economy, EAC should participate both as a contributor and user of (indigenous) knowledge. Therefore, greater efforts should be undertaken to strengthen the capacity of local people to develop their own knowledge base and to develop methodologies to promote activities at the interface of scientific disciplines and indigenous knowledge. The integration of IK into the development process is essentially a process of exchange of information from one community to another. The process of exchange of IK normally involves six steps (Reinhard Woytek,1998):

(i) Recognition and identification. Some IK may be embedded in a mix of technologies or in cultural values, rendering them unrecognizable at first glance to the external observer (technical and social analyses may, therefore, be required to identify IK).

(ii) Validation. This involves an assessment of IK's significance and relevance (to solving problems), reliability (i.e., not being an accidental occurrence), functionality (how well does it work?), effectiveness and transferability.

(iii) Recording and documentation is a major challenge because of the tacit nature of IK (it is typically exchanged through personal communication from master to apprentice, from parent to child, etc.). In some cases, modern tools can be used, while in other circumstances it may be appropriate to rely on more traditional methods (e.g., taped narration and drawings).

(iv) Storage in retrievable repositories. Storage is not limited to text documents or electronic format; it can include tapes, films, storytelling, gene banks, etc.

(v) Transfer. This step goes beyond merely conveying the knowledge to the recipient. It also includes testing the knowledge in the new environment. Pilots are the most appropriate approach in this step.

(vi) Dissemination to a wider community adds the developmental dimension to the exchange of knowledge and could promote a wider and deeper ripple impact of the knowledge transfer.

Thus for IK to impact on the development process there should be a successful transfer and dissemination of IK. The community where an IK practice originates, the agent who transmits the practice, and the community that adopts and adapts the practice all should learn during the process. In order to integrate IK in the development process, EAC Partner States should raise awareness of the importance of IK, have in place national policies and strategies that support IK and integrate IK practices in national development programs / projects. There is need for multisectoral approach to IK at national level where sectoral policies and strategies provide for IK in addition to the national overarching policy and strategy on IK. The IKTS Strategy should be informed by sectoral strategies of sectors like health, environment and natural resource management, technology transfer, biotechnology, biological and genetic resources, agriculture and food security, culture, heritage, and education. In deploying economic potential of IKS, countries need to consider three main factors (RSA, 2004): The creation of incentive mechanisms to promote IKS innovation; The promotion of IKS in the context of sustainable development; and The promotion of IKS as an employment generator.

2. SITUATIONAL ANALYSIS

2.1. CURRENT STATUS OF LEGAL FRAMEWORKS AND INSTITUTIONAL ARRANGEMENTS OF INDIGENOUS KNOWLEDGE AND TECHNOLOGY SYSTEMS IN THE EAC

At East African Community (EAC) Level, EAC Partner States are obliged to implement the articles / chapters of the Treaty for the establishment of the East African Community (1999). The Treaty in Article 103 section 1 (c), commits Partner States to promote development and use of indigenous science and technologies. Article 118 (h) on Health also commits Partner States to promote the development of good nutritional standards and the popularization of indigenous foods. In the Treaty, Chapter 12 on Cooperation in Investment and Industrial Development; Chapter 16 on Cooperation in the Development of Human Resources, Science and Technology; Chapter 18 on Agriculture and Food Security; Chapter 19 on Cooperation in Environment and Natural Resources Management; Chapter 20 on Cooperation in Tourism and Wildlife Management; and Chapter 21 on Health, Social and Cultural Activities. These Chapters impact on indigenous knowledge. They are critical for cooperation at EAC level as IK is found in agricultural knowledge; scientific knowledge; technical knowledge; ecological knowledge; medical knowledge, including related medicines and remedies; and biodiversity-related knowledge among others.

In the EAC Regional STI Research and Development Agenda 2020-2030, the following research areas were prioritized under the research theme "Indigenous Knowledge and Technology":

(i) Traditional ecological knowledge and technologies

(ii) Farming and food systems including indigenous food processing

(iii) Medical, pharmaceutical and environment knowledge and technologies

(iv) Construction and infrastructure development technologies

(v) The IKTS shall be harnessed through the following processes:

(vi) Inventorization of ethnobotanical, ethnozoological and other forms of IKT Systems

(vii) Scientific validation of inventorized IKT Systems

(viii) Conservation and promotion of validated IKT Systems

(ix) Registration and mainstreaming of validated IKT through IP regimes

(x) Integration of IKT in curricula, R&D and Innovation Systems

Pursuit of research programs in IKT in the region will reignite the harmonization of modernization and development, in which the cultural and socioeconomic knowledge and technologies of indigenous peoples were lost.

The IKT System is closely affiliated to Intellectual Property (IP) in the sense that the creativity and innovations arising out of Indigenous Knowledge (IK) or Traditional Knowledge (TK) are, in many ways, similar to the characteristics of Intellectual Property. There are therefore instances in which IP legislation is considered sufficient in legally protecting TK, while other instances call for a unique legislation that covers TK. The legal frameworks and institutional arrangements analysis therefore covers how the respective EAC Partner States address protection of TK and the underlying challenges faced.

The EAC assigned responsibility over management of Intellectual Property and Indigenous Knowledge and Technology Systems to the East African Science and Technology Commission (EASTECO).

2.1.1. Burundi

(a) A highlight of the legal framework related to the IKT system in Burundi

The pieces of IP legislation in place are the Law relating to Industrial Property in Burundi, Law no. 1/13 of 2009, which protects Trademarks, Patents and Designs, and the Law relating to the Protection of Copyright and Related Rights in Burundi, Law no. 1/021 of 2005. These laws are in line with the 2018 Constitution of the Republic of Burundi.

Article 35 of the Constitution provides that the State shall assure the good administration and rational exploitation of the country's natural resources, all in preserving the environment and the conservation of these resources for future generations. Furthermore, Article 58 is to the effect that every person has the right to the protection of their moral and material interests coming from all scientific, literary, or artistic production of which they are the creator.

Traditional Knowledge is protected under the Law No. 1/13 of July 28, 2009, Relating to Industrial Property in Burundi. Title V of this law concerns Traditional Knowledge and Crafts objects. Articles 247 to 286 give detailed provisions as to how TK and Crafts objects can be protected. These include provisions on scope of protection, purpose of protection, registration of TK, customary practices, rights conferred upon registration, involvement of government agencies and so on. This is by far the most detailed legislation on the protection of TK within the EAC which other Partner States can draw on.

One of the outstanding provisions in the law that should be of particular interest to the EAC is Article 260 which states:

(i) A local community which occupies both part of the territory of Burundi and part of the territory of a neighbouring country may acquire rights in its traditional knowledge and enforce them in the territory of Burundi, in accordance with this Law.

(ii) If the community's traditional knowledge is also protected in the neighbouring country, the registration and protection of such knowledge in the territory of Burundi shall not prevent this same community from acquiring rights in the same traditional knowledge and enforcing them in the neighbouring country in question.

The law provides flexibilities in enabling the affected communities to choose in which country they would prefer to have their Traditional Knowledge (TK) and Traditional Cultural Expressions (TCEs) enforced instead of imposing specific legislation upon them.

(b) Government and Private Stakeholders directly involved in TK-related projects

The Burundian government assigned responsibility over Intellectual Property management to the Ministries of Culture, Youth and Sports for the management of copyright and related rights, and the Ministry of Trade and Industry for the management of Industrial Property. However, in January 2002, an Industrial Property and documentation Directorate was established to deal with all matters related to Industrial Property[1]. Trademark and Patent Applications are filed with the office of the Director of Industrial Property[2].

2.1.2. Kenya

(a) A highlight of the legal framework related to the IKT system in Kenya

Articles 260, 11(1), 11(2), 40(5) and 69(1) of the Constitution of Kenya 2010 provide for a basis for the creation of laws and policies for the protection, promotion, support, protection and preservation of traditional knowledge in Kenya. Specifically, the Constitution of the Republic of Kenya provides under Article 11(2) that the State shall: (a) Promote all forms of national and cultural expression through literature, the arts, traditional celebrations, science, communication, information, mass media, publications, libraries and other cultural heritage; (b) Recognize the role of science and indigenous technologies in the development of the nation; and (c) Promote the intellectual property rights of the people of Kenya.

Also the Constitution obligates the state to support, promote and protect the Intellectual Property Rights of the people of Kenya and to protect and enhance the Intellectual Property and indigenous knowledge associated with biodiversity and genetic resources of the communities. It also enjoins parliament to

[1]Saana Consulting, Factual Overview on Technical and Financial Cooperation for LDCs Related to TRIPS (2013) at 23. Online: https://www.wto.org/english/tratop_e/trips_e/ldc_overview_08.05.2013_ch3.pdf.

[2]See Adams & Adams eds., Adams and Adams Practical Guide to Intellectual Property in Africa (Pretoria: Pretoria University Law Press, 2012) at 75 and 79.

enact legislation, to ensure that communities receive compensation or royalties for the use of their cultures and cultural heritage, and to recognize and protect the ownership of genetic resources and associated knowledge by indigenous people.

Kenya's commitment to promote its IPRs, TK and TCEs is thus clearly evident in the Constitution. The promotion of all forms of "national and cultural expression" stipulated in Article 11(2)(a) of the Kenyan Constitution can be interpreted to include the establishment of effective domestic legislation that encourages IP innovation, enjoyment and exploitation of cultural practices, while curbing illegal usage. There is, however, currently no IP policy in place, though a draft policy has been under discussion since 2005. Kenya's Draft IP Policy feeds into Kenya's Vision 2030 which aims to make Kenya a fully-fledged middle income industrialized country by the year 2030.

The Protection of Traditional Knowledge and Cultural Expressions Act (2016) provides a framework for the protection and promotion of traditional knowledge and cultural expressions; to give effect to Articles 11, 40 and 69(1) (c) of the Constitution of Kenya; and for connected purposes. This law provides a framework for the protection and promotion of TK and Cultural Expressions among other matters. As of 2022, this makes Kenya currently the only East African country with a policy and legislation on TK and TCEs. The definition of genetic resources in this Act includes traditional animal breeds. However, there is no IP regime for protection of Animal breeds, making it hard to apportion benefits accrued from utilization of traditional animal breeds.

The National Policy on Culture and Heritage (2009) recognises the unique cultural innovations of the Kenyan people resulting from long-term interaction with the environment and nature. It also recognises culture as a repository of 'knowledge' and urges government to harness culture, heritage and TK in sustainable management, preservation and conservation of the environment. Furthermore, the Nagoya Protocol was pre-domesticated by NEMA legal notice no. 160 of 2006. The legal notice no. 160 is however being reviewed to fully domesticate Nagoya protocol. On disclosure of IK in patent applications, Kenya supports the review of article 29 of TRIPS Agreement. Furthermore, part IV and V of the Data Protection Act, 2019 provides for personal data protection and processing of sensitive personal data and this calls for harmonisation of the laws that concern personal data protection and use.

Since July 2009, Kenya has had a policy on TK and TCEs. This is known as the **National Policy on Traditional Knowledge, Genetic Resources and Traditional Cultural Expressions**. The National Policy on Traditional Knowledge, Genetic Resources and Traditional Cultural Expressions (2009) enhances the mainstreaming of Traditional Knowledge (TK) systems into national development planning and decision making processes at all levels, the policy requires the recognition, preservation, protection and promotion of the sustainable use of traditional knowledge.. It was created to preserve and at the same time develop culture, and to guide the promotion and dissemination of innovations based on the continuing use of traditional knowledge.

The **2009 National Policy on Culture and Heritage** recognizes the unique cultural innovations of the Kenyan people resulting from long term interaction with the environment and nature[3].

The other laws and policies that have a bearing on IKT include the Industrial Property Act, 2001; The Copyright Amendment Act No. 20 of 2019; the Science, Technology and Innovation Act, 2013; Trade Mark Act, 2012; Environment Management and Coordination Act, 2012; Environmental Management

and Coordination Regulations, 2006; National Museums and Heritage Act, 2009; Plant Protection Act, 2012; Fisheries Management and Development Act, 2016; Forest Conservation and Management Act, 2016; Wildlife Conservation and Management Act, 2013; The Health Act, 2017; The Seed and Plant Varieties Act, Cap. 326; and the Witchcraft Act, 2012.

Kenya does not have a National Strategy for Indigenous Knowledge and Technologies Systems. However the current legal framework is robust enough to protect, use and preserve indigenous knowledge and technologies.

(b) Government and Private Stakeholders directly involved in TK-related projects

IP administration and enforcement in Kenya is the responsibility of the Office of the Registrar General in the Attorney General's Chambers (under which the Kenya Copyright Board falls); the Kenya Industrial Property Institute (KIPI); the Customs Department of the Kenya Revenue Authority and the Kenya Bureau of Standards (KEBS).

In March of 2009, the Traditional Knowledge and Genetic Resources Unit (TK & GR – UNIT) was established at the Kenya Industrial Property Institute (KIPI) to specifically address issues of IP rights relating to TK associated with genetic resources for indigenous and local communities practicing traditional life styles, their traditional cultural expressions, access and benefit sharing issues, disclosure requirements and other related matters.

Among Kenya's ethnic groups is the Ameru people. These hold the njuri ncheke institution, which is the supreme decision-making organ among the Ameru people[4]. The elders among the Ameru people, are the custodians of Ameru TK, culture, customs and traditions. They have also developed a system of customs and practices for protecting their TK.[5]

Initiatives have also been taken up by private entities to stand out and protect their TK and TCEs from being misappropriated. For instance, the word Masaai is used as a brand name by various corporate entities worldwide. At the same time, the Maasai name is the paramount cultural identity of the Masaai who consist of over three million people across borders of Kenya and Tanzania. Although money is generated out of the use of Masaai Traditional Cultural expressions, the members of the community have hardly benefited economically from this cultural appropriation. Isaac ole Tialolo of the Masaai Intellectual Property Initiative (MIPI), a private entity established in Kenya to advocate for the rights of the Masaai, reported in 2013 that no one had ever bothered to seek their permission before using the name.[6] However, in 2018, the Masaai struck their first deal with Koy Clothing, a UK retail company, which agreed to pay a license of 5% towards local projects that benefit the local community in return for the use of Masaai-based designs in their clothing line. Koy Clothing has entered similar license deals with other East African ethnic communities such as the Luo, the Gusii and the Kamba.[7]

[3]See: Republic of Kenya (2009), The National Policy on Culture and Heritage, p.33

[4]See Charles Wanyoro, 'Secrets of Njuri Ncheke Shrine Revealed to Youths of Integrity' The Daily Nation (Nairobi, 11 January 2014).

[5]Kariuki Francis, Protecting Traditional Knowledge in Kenya: Traditional Justice Systems as appropriate sui generis systems, https://www.wto.org/english/tratop_e/trips_e/colloquium_papers_e/2019/chapter_7_2019_e.pdf (last accessed 5th April 2022)

[6]National Geographic, December 2013, Vol. 224, No. 6. See 'Culture Stock' at p. 21.

[7]Mona Ombogo (The Standard Digital, 27th February 2019): Makers of the Luo Jacket: Why we weave Kenya's tribes in our clothing line, https://www.standardmedia.co.ke/article/2001314587/koy-clothing-why-we-weave-kenya-s-tribes-into-our-fabric (last accessed March 20, 2019)

2.1.3. Rwanda

(a) A highlight of the legal framework related to the IKT system in Rwanda

Rwanda's National Intellectual Property Policy was unveiled in November 2009. **Article 29 of Chapter I in the Constitution of the Republic of Rwanda** guarantees respect for private property. There is no direct mention of IPRs or TK though their protection is construed as falling within the same article. The 2009 legislation on the protection of intellectual property covers patents, trademarks, industrial designs, unfair competition and copyright. There is also provision for the protection of geographical indications and trade names under **Law No. 31 of 2009 of 26/10/2009 on the Protection of Intellectual Property.**

Protection of TK and Folklore is provided for under the **Preservation of Cultural Heritage and Traditional Knowledge, Law No 28/2016 of 22/7/2016.** The country also has copyright tariffs for the lucrative use of works of folklore under **Presidential Decree No. 275/14,** but it is not clear as to how adequate this regulation is in the enforcement of rights to Folklore or TCE. **The Law on the Protection of Intellectual Property** simply provides under Article 289 that:

> The protection of discovery of plants, genetic resources, traditional knowledge and folklore is granted by a related special law.

The other laws with a bearing on IK include Biodiversity Law No. 70/2013 of 02/09/2013; Environment Law No. 48/2018 of 13/08/2018; Law n°005/2016 of 05/04/2016 governing seeds and plant varieties in Rwanda; Biodiversity Law No. 70/2013 of 02/09/2013; and the Environment Law No. 48/2018 of 13/08/2018.

Rwanda does not have a standalone National Policy or Strategy on Indigenous Knowledge and Technologies. However, various sectoral policies have addressed the issues of Indigenous Knowledge and Technologies. These include the following: The Intellectual Property Policy, 2018; Rwanda Biodiversity Policy, 2011; Rwanda Wildlife Policy, 2013; and the National Biodiversity Strategy and Action Plan (NBSAP), 2016, among others, address policy and strategy issues concerning Indigenous Knowledge and Technologies. Rwanda has also put in place a comprehensive guideline and Toolkit for Access and Benefit Sharing of Traditional Knowledge Associated with Genetic Resources in Rwanda.

(b) Government and Private Stakeholders directly involved in TK-related projects

The Rwanda Development Board (RDB) took over the administration of IP matters from the Ministry of Trade and Industry (MINICOM) which used to handle all IP policy-making and legislative matters, save for copyright matters which were originally handled by the Ministry of Sports and Culture (MINISPOC).

The appreciation of IP in Rwanda has remained relatively low. Available statistics show that since independence, less than 120 patents, less than 7000 trademarks, and less than 50 Industrial Designs have been granted.[8] Rwanda's limited capacity for handling patent examinations has led it to exploit its membership of ARIPO so as to benefit from examination, registration and protection of its patents across the membership base of ARIPO.

However, there are instances where TK has been utilized to its fullest extent with apparent benefits. In Rwanda's Musanze District, traditional ecological knowledge is an integral part of the local people for cultural purposes[9]. Important plant species have been sufficiently utilized by the local community in the region, using TK in the conservation of Buhanga sacred forest.

[8]Republic of Rwanda, Ministry of Trade and Industry, Rwanda Intellectual Property Policy (Kigali, Rwanda, November 2009) at 5.

2.1.4. South Sudan

South Sudan has a combination of statutory and customary law which have been poorly disseminated due to on and off political instabilities.

(a) A highlight of the legal framework related to the IKT system in South Sudan

South Sudan does not have a standalone National Policy or Strategy on Indigenous Knowledge and Technologies. There is need for a national strategy to be developed. However it has incorporated the IK issues in the multi-sectorial policies and strategies. Also the South Sudan Drug and Food Authority (DFCA) Act 37 (2012) makes provisions for promotion, control and regulation of traditional and alternative medicines practice. South Sudan also has a Pharmaceutical Strategy (2021-2026). The South Sudan Transitional Constitution (2011) provides for the promotion of culture and heritage and Article 33 of specifically provides for rights of ethnic and cultural communities. It stipulates to the effect that ethnic and cultural communities shall have the right to freely enjoy and develop their particular cultures.

The South Sudan National Vision 2040 is based on the Government's strong belief that South Sudan's national policies consider culture and national heritage as part of the keys to the country's sustainable development at large.[10]

In 2016, the Government ratified the **2005 UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions.** This Convention addresses contemporary cultural expressions that convey identity, values and meaning. These include products of cultural and creative industries and the new art forms.

The Country has a draft policy for protection, recognition and use of Indigenous Knowledge and technologies which is to be presented to the policy makers for approval and subsequent implementation. South Sudan is in the process of developing national framework for promoting and mainstreaming indigenous knowledge and technologies in national and regional knowledge, technology and innovation system. South Sudan also has a monitoring, evaluation and learning framework in the Ministry of Education for tracking the performance and promotion of National languages.

(b) Government and Private Stakeholders directly involved in TK-related projects

The Ministry of Culture, Museums and National Heritage, Youth and Sport is the lead agency for the promotion of culture. It carries the mandate of ensuring the implementation of all policy interventions in the area of indigenous knowledge. Its responsibilities include the following[11]:

(i) The development and enforcement of policies, regulatory mechanisms, standards and guidelines in all areas of culture;

(ii) Elaboration of appropriate enabling legislation;

(iii) Definition and implementation of overall government programmes concerning culture;

(iv) Ensuring that South Sudan accedes to and or respects relevant international instruments, declarations, recommendations, strategies and principles on culture; and designates national focal points for all ratified UNESCO Conventions in the field of Culture;

(v) Promoting Culture and cultural programmes and activities among the media;

(vi) Providing and maintaining appropriate cultural infrastructure, facilities and resources in order to

[9]Runyambo Irakiza et al, Assessment of traditional ecological knowledge and beliefs in the utilization of important plant species: The case of Buhanga Sacred Forest, Rwanda, https://koedoe.co.za/index.php/koedoe/article/view/1348/1893 (last accessed April 6th 2022)

[10]The National Cultural Policy of South Sudan, https://en.unesco.org/creativity/sites/creativity/files/qpr/cultural_policy_2020.pdf (last accessed April 6th 2022)

[11] Ibid

facilitate the realization of cultural programmes with the participation of relevant stakeholders

(vii) collecting cultural indicators (statistics) in order to demonstrate the contribution of culture to sustainable development in South Sudan;

(viii) administration, coordination and evaluation of all cultural cooperation programmes and activities;

(ix) establishing or strengthening of administrative structures and organs for facilitating the effective coordination and implementation of this culture policy and related programmes;

(x) supporting training and capacity building programmes for artists and cultural practitioners;

(xi) encouraging and supporting the formation of cultural networks and associations to enhance the coordination of relations with private sector and civil society cultural organizations;

(xii) providing technical and financial support to cultural associations or unions, taking into account their resources available;

(xiii) developing the principles and guidelines for cultural impact assessments of development policies and actions;

(xiv) providing technical advice and guidance to development agencies (in the public and private sector) in regards to the mainstreaming of cultural issues in their policies, strategies, programmes and projects;

(xv) developing and promoting the safeguarding of cultural and natural heritage sites, historic monuments and future museums with local community and private-sector participation;

(xvi) promoting research, documentation, information dissemination, sharing and exchange of local and national cultures and traditions;

(xvii) developing youth programmes and activities to encourage the appreciation of Southern Sudan's cultural heritage;

(xviii) promoting the participation of youth in the protection and promotion of the cultural heritage (tangible and intangible) in order to ensure the intergenerational transmission of knowledge related to heritage;

(xix) Devising innovative mechanisms for diversifying the sources of cultural financing in order to complement the traditional sources of public support.

Other key Government stakeholders are proposed to be engaged, but not limited, to the following:

1.	Ministry of Information, Communication Technology and Postal Services	Carrying out advocacy and awareness-raising activities for culture using various forms of the mass media; ensure that cultural diversity is facilitated by media diversity and freedom of expression
2.	Ministry of General Education and Instruction	Reviewing and up-dating educational policies and strategies with a view to ensuring that culturally relevant educational issues and concerns are fully integrated into the educational planning process, programmes, projects and the curriculum and content of education.
3.	Ministry of Health	Support efforts towards the establishment of a national association of traditional healers; establish an organ responsible for the study, development and propagation of traditional medical knowledge and practices; integrate traditional health care into the health care delivery system in mutually respectful and cultural sensitive manner
4.	Ministry of Land, Housing and Urban Development	Ensure the protection of cultural and natural heritage sites in physical planning and land allocation; ensure the cultural impact assessment of all energy, mining and large scale housing projects and other development on the land in view of safeguarding natural and cultural heritage sites in South Sudan.
5.	Ministry of Agriculture and Food Security	Review and update agricultural policies and strategies with a view to ensuring that cultural and natural heritage issues and concerns are adequately integrated; promote and disseminate research findings on TK and know-how in agriculture, fisheries and animal husbandry and forestry management; promote traditional methods or production, processing and preservation of cash and subsistence crops
6.	Ministry of Finance and Planning	Mainstream culture into national, state and local development policies, plans and strategies; ensure the assessment of the cultural impact of all development activities undertaken in Southern Sudan

7.	Ministry of Gender, Child and Social Welfare	Review and update gender policies, strategies and legislations with a view to ensuring that cultural issues are adequately addressed
8.	Ministry of Trade and Industry	Encourage and support the contribution of the private sector in the implementation of the cultural policy
9.	Ministry of Justice and Constitutional Affairs	Support the formulation and or revision of laws pertaining to the effective preservation, protection and promotion of South Sudanese Culture; advise on ratification of relevant international instruments in the field of culture
10	Ministry of Foreign Affairs and International Cooperation	Promote cultural cooperation between South Sudan, foreign countries, regional and international organizations
11	Local Government Boards	Review and update rules and regulations concerning local government administrations with a view to ensuring that the provision of the National Culture Policy and the Interim Constitution in relation to traditional authorities, are fully integrated.
12	Ministry of Wildlife Conservation and Tourism	Participate in the inter-ministerial World Heritage Committee and the implementation of its Action Plan for the protection and promotion of World Heritage in South Sudan.

The key challenge in protecting TK in South Sudan is that in many communities in South Sudan, there is a lack of respect for customary custodians of TK and expressions of folklore. There is also a decline in the customary use, transmission and exchanges of TK and expressions of folklore as a result of which, such practices are in a danger of disappearing.

2.1.5. Tanzania

(a) A highlight of the legal framework related to the IKT System in Tanzania

Tanzania's IP legislation is among the oldest in the region. Patents and Utility Models are currently governed by the **Patents (Registration) Act, 2002.** Trademarks and Service Marks are governed by the **Trade and Service Marks Act of 1986. Copyright protection is granted through the Copyrights and Neighbouring Rights Act, as amended by the Written Laws (Miscellaneous Amendments) (No. 3) Act, 2019** while Plant Varieties are protected by the **Protection of New Plant Varieties (Plant Breeders' Rights) Act of 2002.**

Alternative and Traditional Medicines Act (2002) makes provisions for promotion, control and regulation of traditional and alternative medicines practice, to establish the Traditional and Alternative Health Practice Council and to provide for related matters. Tanzania empowered The Muhimbili University Institute of Traditional Medicine to come up with a policy and procedures and use them to oversee consultancy, commercialization of herbal products and other professional activities in traditional medicine in the country.

The other legal and policy framework in Tanzania that is aligned with TK includes the following: The Foods, Drugs and Cosmetics Act, 2003; Trade and Service Mark Regulations, 2000; National Health Policy, 2007; Science, Technology and Innovation (STI) Policy (draft); Forest Policy, 1998; National Agriculture Policy, 2013; National Environmental Policy, 1997; National Trade Policy, 2003; and the National Intellectual Property Policy (draft).

Tanzania does not have a National Strategy for Indigenous Knowledge and Technologies; however it has incorporated the IK issues in the multisectoral policies and strategies. Also as noted above, IK issues are also captured in laws and policies for other sectors like agriculture, environment and natural resources management.

(b) Government and Private Stakeholders directly involved in TK-related projects

The key administrative office for IP in Tanzania is the Business Registrations and Licensing Agency (BRELA). This is a Government Agency which was established to administer intellectual property laws, among other things. It also plays the role of protecting the development of creativity in artistic, literary works, and expressions of folklore (or TCEs) by protecting such work in conjunction with rights owners.[12]

Tanzania is in the lead in the protection of Plant Breeders' Rights (PBRs) in the EAC region. Since the establishment of the Plant Breeders' Rights system in 2005, Tanzania has put in place policies and legislative frameworks to guide the country as it seeks to promote plant breeding and facilitate agricultural advancements[13].

Various communities in Tanzania are also benefiting from TK in Agricultural practices. For instance, it was established that the local Masaai community in the Simanjiro region of Tanzania, knew a total of 96 different plants that could be used to treat 81 diseases[14].

[12]See Samuel Wangwe et al., Commission on Intellectual Property Rights: Country Case Study for Study 9: Institutional issues for Developing Countries in IP Policy-Making, Administration and Enforcement (Economic and Social Research Foundation, Dar es Salaam, Tanzania). Online: www.iprcommission.org/papers/text/study_papers/sp9_Tanzania_case_study.txt. (last accessed 4th April 2022)

[13]Patrick Ngwediagi, Establishment of Plant Breeders' Rights System in Tanzania: Achievements and Challenges, A Case Study under the Ministry of Agriculture Food Security and Cooperatives, Tanzania – CAS-IP NPI Collaboration Project. Online: http://www.wipo.int/edocs/lexdocs/laws/en/tz/tz010en.pdf. (last accessed 4th April 2022)

[14]Adolfo Mascarenhas, Forum to assess development policies of Tanzania: Indigenous Knowledge, Livelihood and Development, Paper presented at the Inaugural Tanzanian Biennial Development Forum, 24th – 25th April 2003 at the Golden Tulip Hotel, Dar es Salaam, Tanzania. http://www.tzonline.org/pdf/indigenousknowledgelivelihood.pdf (last accessed 5th April 2022)

2.1.6. Uganda

(a) A highlight of the legal framework related to the IKT system in Uganda

Uganda does not have a national policy or strategy for indigenous knowledge and technologies. However, the government is in the process of developing a policy for indigenous knowledge and technologies. There is need for a national strategy to be developed for mainstreaming IK and technologies in development actions. In 2020, Uganda Registration Services Bureau published the Intellectual Property – related national action plan on protection of traditional knowledge, genetic resources and traditional cultural expressions in Uganda.

Currently, the 1995 Constitution of the Republic of Uganda provides for the promotion of culture. Objective XXIV of the Constitution states that cultural and customary values that are consistent with the fundamental human rights and freedoms, human dignity and democracy and with the Constitution of Uganda, may be developed and incorporated in all aspects of Ugandan life. In addition, Objective XXV mandates the State and citizens to preserve and promote public property and Uganda's heritage. Uganda's diverse cultural heritage is represented by 65 indigenous communities (The Constitution of Uganda- Schedule 3). This diversity contributes to a wealth of indigenous knowledge, languages, folklore, customs and traditions and products that can be harnessed for development. Even within the same culture there are variations and for each tribe in Uganda there exists a diversity of clans which greatly add to the diversity in IK[15].

Since 2005, the Ugandan government has made considerable efforts in the improvement of its Intellectual Property (IP) legal framework. Although there is no constitutional provision that directly addresses TK or IP, Article 26, clause 1 of the 1995 Constitution of the Republic of Uganda, is to the effect that every person has the right to own property either individually or in association with others.

The current IP legislation in Uganda, includes, in descending order, beginning with the most recent, the **Industrial Property Act, 2014** (for Industrial designs, Utility Models, Patents and Technovations); Plant Variety Protection Act, 2014 (for Plant Varieties); **Geographical Indications Act, 2013** (for Geographical Indications); **Trademarks Act, 2010** (for trademarks); **Trade Secrets Protection Act, 2009** (for trade secrets); and **Copyrights and Neighbouring Rights Act, 2006** (for copyrights and other related rights). However, although synergies in the protection of TK can be drawn from some of the provisions in these legislations, the current IP legal framework does not sufficiently address the connection between IP on the one hand, and TK on the other. The Intellectual property regime, for instance, does not sufficiently protect knowledge relating to the medicinal uses of plants, reproductions of communal works, traditional cultural practices, or spiritual rituals. This is because much of this knowledge is not new or cannot be identified as having been created by a particular individual[16]. On the other hand, IP is essentially a personal right and usually has limited duration in protection, while TK is a communal right and is known to exist for time immemorial. This thus leaves the law still wanting, with respect to regulation of Traditional Knowledge.

As a country with communities that are quite appreciative of their cultural heritage, the local utilization of TK is quite high in Uganda. Nonetheless, there is limited awareness and appreciation as to how

[15]Katende, A.B. and Kityo, R.M. 1996. The role of clannism and totemisim in resource use and conservation with particular reference to Buganda, central Uganda. In: Kabuye, C.H.S. (Ed.). Ethnobiology and Conservation of Cultural and Biological Diversity: Proceedings of the 5th International Congress of Ethnobiology. National Museums of Kenya, Nairobi, Kenya, 132-134 pp.

[16]J. Janewa OseiTutu (2013). A Sui Generis Regime for Traditional Knowledge: The Cultural Divide in Intellectual Property Law.

TK can be integrated into the IP legal system for protection or utilized alongside IP in bringing about socio-economic development. **The 2006 Uganda National Cultural Policy** provides strategies for the integration of culture into development, which are inclusive of capacity building; research and documentation; collaboration with stakeholders; and mobilization of resources for culture. Section 7.3 of the Uganda National Cultural Policy (UG-UNCP, 2006) covers development and promotion of indigenous knowledge. However, this policy has no direct reference to TK as a value system and portrays inadequate research, documentation or effective utilization of Uganda's culture with a view towards generating socio-economic development. Similarly, the **Uganda National Cultural Centre Act, Cap. 50,** does not have any provision on the protection, preservation or utilization of TK. Its focus is on the administrative nature of the Cultural Centre by providing for matters related to a Board of Trustees. More importantly, the **Institution of Traditional or Cultural Leaders Act (No. 6 of 2011)**, under Section 9, mandates the Traditional or Cultural Leader with the role of promoting the development, preservation and enrichment of all people in the Community under him or her. This provision should have been strengthened to cater for the utilization of TK as a tool for such communities in their development, preservation and enrichment.

On a related note, **the 2007 National Environment Management Authority (NEMA) Guidelines for Accessing Genetic Resources and Benefit Sharing in Uganda** are helpful in drawing out an understanding as to how to utilize GRs associated with TK. These guidelines are in harmony with **section 62 of the National Environment Act, No. 5 of 2019 and Regulation 8(c) of the National Environment (Access to Genetic Resources and Benefit Sharing) Regulations of 2005(No. 30 of 2005).** These legal provisions mandate the National Environment Management Authority to develop guidelines for access to and export of genetic resources. The guidelines therefore give simplified conditions for the utilization of genetic resources in line with the principles enshrined in international instruments that Uganda has ratified such as the **Convention on Biological Diversity**. It is noteworthy that these guidelines and the aforementioned regulations provide for access and benefit sharing with custodial communities in the utilization of GRs.

Institutions such as Uganda National Council for Science and technology (UNCST) are currently relying on the 2007 National Environment Management Authority (NEMA) Guidelines (for Accessing Genetic Resources and Benefit Sharing in Uganda) in the utilization of GRs associated with TK, with particular regard to the Sandalwood tree. Nonetheless, such provisions need to be strengthened further to ensure that custodial communities benefit as a whole from the utilization of the GRs associated with their TK.

Furthermore, on 14th September 2020, the President of Uganda assented to the **Traditional and Complementary Medicine Act, 2019**. According to the short title of this Act, the law defines traditional and complementary medicine in relation to modern medicine; establishes a Council to control and regulate the practice of traditional and complementary medicine; creates mechanisms for the registration and licensing of practitioners, among other matters. As such, this law looks more at administrative mechanisms in TK. It regulates traditional practitioners as opposed to the practice

of traditional medicine. This is in the sense that it does not look at traditional medicinal practice in the perspective of a cultural right of which its utilization should be subjected to matters of Prior informed consent or Access and Benefit Sharing. The Act has no provision for TK or the actual practice of traditional medicinal knowledge in the health sector. Furthermore, the law has been criticized by concerned Civil Society Organizations as being one-sided in its understanding of traditional medicine. It is said that traditional healers fall under five different categories: Herbalists; Bone Setters; traditional birth attendants; spiritualists/diviners; and mental specialists. The Act, however, appears to focus on herbalists and disregards the other categories . The Act therefore has an imbalance in overseeing how TK associated with medicinal practice is to be administered.

Key international instruments ratified by Uganda provide some form of guidance as to how to utilize TK in Uganda through the Patent system. For instance, **Article 15 (sub-article 3) of the Convention on Biological Diversity,** as well as **Article 6 of the Nagoya Protocol,** provide for a consideration of the country of origin in terms of provision of prior informed consent as well as access and benefit sharing mechanisms in the utilization of GRs associated with TK. In harmony with these provisions, **Section 21(8) of the Industrial Property Act, No. 3 of 2014,** provides for disclosure of origin to be given of genetic or biological resources collected in Uganda, or any element of TK associated or not with such resources, that was used in the making of an invention. However, this provision under the Industrial Property Act does not go further to provide for access and benefit sharing mechanisms as part of the disclosure of origin stipulations under the Convention on Biological Diversity and the Nagoya Protocol. Similarly, the **Industrial Property Regulations No. 12 of 2017,** which are meant to bring out the practical aspects of the Act, are totally silent on the disclosure of origin or any other TK-related aspects under the Act. The protection of Utility Models, Industrial Designs and Technovations in the Act, are also silent on any relationship with TK.

Furthermore, besides the limitations due to the disclosure requirements, protection of TK through the Patent system is disadvantaged by the term of duration for patents, which is twenty (20) years. Ideally, if TK is protected through the patent legal regime, there would be no legal control over its usage after a twenty-year period and any member of the public would be free to use it as they deem fit. This can lead to abusive usage and cultural devaluation.

The Trade Secrets Protection Act No. 2 of 2009 can be considered in the protection of TK of medicinal value or of a technical nature, which is secretly held by communities. However, the challenge in relying on the Trade Secrets legislation, is that as an IP law, it is focused on secrets which are of commercial value to the custodian of the secret. This is not always the case with TK holders because they hold and utilize such secrets basing on cultural values and not commercial values. On that basis alone, the relevance of the Trade Secrets Protection Act in the protection of TK, is watered down.

On the other hand, the **National Intellectual Property Policy (NIPP),** which was passed in May 2019, has limited synergies between IP and TK. The NIPP in Objective 3(b) provides for the promotion of IP-driven indigenous technology development and commercialization. Under this objective, Policy Statement 3(b) is to the effect that:

[17]Civil Society, Traditional Health Practitioners – Concerns and views on the Indigenous and Complementary Medicine Bill, Presented to Parliamentary Committee on Health, on May 29th 2018.

The Government of Uganda will, through an enabling environment and appropriate incentives, promote IP-driven indigenous technology, development and commercialization, in order to ensure effective utilization of home-grown innovations.

Some of the key actions pointed out in the NIPP towards the implementation of the aforementioned objective, are the development of a framework to protect TK, as well as the creation of a digital database of TK.

Nonetheless, the aforementioned government policy and legislative frameworks, affect the following areas of TK in the country:

i) TK in Medicinal Practice

More than 60% of Ugandans depend on traditional medicine[18]. A number of entities carry out traditional medicinal practice and advocacy work related to such practice without an existing legislative structure to guide their practice or sanction those that abuse the practice. These include Traditional and Modern Health Practitioners Together Against AIDS (THETA Uganda) which focuses on the improvement of health and access to health care through collaborations between traditional and biomedical health care systems; PROMETRA – Uganda (Promotion of Traditional Medicine) which promotes various forms of traditional medicine and its use; Cross-Cultural Foundation of Uganda (CCFU) which generally works on promoting the role of cultural institutions in governance; and Uganda Herbalists and Cultural Association whose membership includes herbalists, spiritual healers, traditional birth attendants and bone setters.

ii) TK in Agricultural practice

This is practiced in most regions in Uganda and is mainly in the areas of pest and disease management; food/grain storage and preservation; and soil fertility management[19].

iii) TK in Animal Breeding practice

Ethnic communities in most regions of Western, Southern and North-eastern Uganda, are customarily cattle keepers. Such communities have traditionally practiced TK methods in breeding of their cattle, bringing about a number of socio-economic benefits to the communities. Scientists have proven, for instance, that the milk and beef derived from the Ankole Long-horn cattle, are healthier and more nutritious than the products from the exotic and hybrid breeds[20]. President Ramaphosa of South Africa has been profiting immensely from his breed of the Ankole Longhorn Cattle. In September 2019, four embryos from his cattle breed were sold at the South African Stud Game Breeders auction for a record-breaking R102, 500 (One hundred and two thousand five hundred South African Rand)(equivalent

[18]Cross Cultural Foundation: Promoting Herbal Medicine in Uganda, Culture in development Series: HIV/AIDS https://crossculturalfoundation.or.ug/Downloads/promoting_herbal_medicine_in_uganda.pdf (last accessed 26th August 2019)

[19]Kaddu, S. & Haumba, E.N., Documenting and disseminating Agricultural Indigenous Knowledge for sustainable food security in Uganda, RUFORUM Working Document Series No. 14(2): 221-230, at p.226 see: http://repository.ruforum.org (last accessed August 27, 2019)

[20]Katushabe E., (March 2014), Reviving the Ankole Longhorns of Uganda, See: https://www.penhanetwork.org/blog/2014/04/14/reviving-ankole-longhorns-uganda (last accessed August 28, 2019)

[21]Agri-Orbit: Ankole Embroys sell for record price in South Africa, See: https://www.agriorbit.com/ankole-embryos-sell-for-record-price-in-south-africa/ (last accessed June 26, 2020)

to United States Dollars Five thousand nine hundred and fifty nine [USD 5,959.6])[21]. Local Communities in Western Uganda as well as Organizations such as the Ankole Longhorn Cattle Cow Conservation Association and Cow Protection Conservancy Uganda, thus stand to gain more from effective utilization of the TK related to the breeding of such animals if a legal structure is established to guide such process.

iv) TK in Environmental Use Management

Studies conducted in Rakai (Southern Uganda) and Busia (Eastern Uganda) on the use of skills associated with TK in wetlands for water, hunting, grazing and fishing, have shown that these practices resulted in sustainable land use in the 1940s under low population densities. This situation changed negatively in the 1990s with high population growth and decline in traditional methods of land management. The previous TK practices associated with environmental use were based on activities that did not have an adverse effect on the ecosystem and its productivity unlike the current trend where environmental TK is no longer being applied.

v) Genetic Resources Associated with TK

A number of communities in Uganda obtain benefits from tree barks using GRs associated with TK. Various trees serve a number of benefits, such as the Mutuba tree (Ficusnatalensis) and Laliya tree for making bark-cloth; the Prunus Africana tree – its bark is useful in the development of a drug against prostate enlargement – a condition that can lead to prostate cancer[23]; and the Warburgia ugandensis (also known as Ugandan greenheart), which is an evergreen tree that is useful in the treatment of pneumonia, malaria and bacterial infections.[24]

vi) Traditional Cultural Expressions

The culture of music, dance and drama amongst Ugandan traditional communities has been significantly commercialized by individuals and is ably portrayed through various traditional dance troupes. These include the Ndere Dance troupe; Crane Performers; Kika Troupe; Fontes Cultural troupe, and many others. The dance troupes fall under a number of umbrella organizations which include the Uganda Development Theatre Association (UDTA) and the Uganda Pioneer's Association Cultural Troupe (UPACT). This is a nonprofit organization which aims at empowering disadvantaged youth through engaging them in dance and music performances based on folklore. The Ganda Boys, a UK-based music band comprised of two Ugandans and a UK musician, staged a successful concert in Kampala in April 2013, in which they raised £10,000 (Ten Thousand British Pounds). The music of the Ganda Boys is purely drawn from folklore or traditional cultural expressions of the Baganda community.

[22]Iyango, L and Ors., Traditional wetland practices in rural communities in Uganda, Lake Victoria Environmental Management Project Phase I (LVEMP I), EAC IRC Repository, 2005 http://repository.eac.int/bitstream/handle/11671/822/Traditional%20wetland%20practices%20in%20rural%20communities%20in%20Uganda.pdf?sequence=1&isAllowed=y (last accessed 26th August 2019) at p. 3

[23]WIPO & ABS Capacity Development Initiative (2018): A Guide to Intellectual Property Issues in Access and Benefit-Sharing Agreements, WIPO Publication No. 1052E at p. 61

[24]Olila D, Olwa-Odyek, Opuda-Asibo J. Antibacterial and antifungal activities of extracts of Zanthoxylum chalybeum and Warburgia ugandensis, Ugandan medicinal plants. Afr Health Sci. 2001;1(2):66–72.

(b) Government and Private Stakeholders directly involved in TK-related projects

Various stakeholders are involved in TK-related activities, with varying challenges, as reflected in the table below:

1.	MoSTI	The Directorate of Science, Research & innovation is coordinating the promotion of research and development of indigenous innovations so as to facilitate indigenous knowledge systems. In 2019, MoSTI embarked on a feasibility study on enhancing R&D in Indigenous Knowledge.
2.	URSB	1) It established a TK Division which, in February 2020, developed an Action Plan on protection of TK in Uganda. 2) Its focus is also on awareness creation & capacity building of stakeholders on TK (since 2017); documentation of existing TK through a national digital recordal system to enhance proper grant of patents based on inventions using TK; establishment of mechanisms on TK protection for benefit of rights holders & protection of TK from misappropriation by 3rd Parties; establishment of mechanisms for use of TK to enhance creativity & innovation for socio-economic development. 3) In July 2019, it held a workshop on IP-related TK Action Plan, bringing together a wide variety of Stakeholders who agreed on the need for a sui generis TK regulation in Uganda.
3.	BIRDC (formerly PIBID)	1) Undertaking research & publication of a book on Bananas. One of the book chapters explores the various cultural aspects of bananas. 2) It directs some of its R&D efforts into utilizing TK to develop banana products that match modern times, e.g., using parts of the banana pseudo stem for making sanitary pads.
4.	UNCST	Works to ensure that TK custodians receive a share of benefits with researchers and other counterparts interested in developing products using GRs associated with TK.
5.	NCRI	Works on research and validation of traditional medicines.
6.	Private agencies, e.g., THETA-Uganda & CCFU	Involved in researching and documenting TK-related activities.

Key:

- MoSTI – Ministry of Science, Technology and Innovation. This is formally an independent Ministry but now falls under the Office of the President;
- URSB – Uganda Registration Services Bureau. This is an autonomous office under the Ministry of Justice and Constitutional Affairs. It is the Government IP Office responsible for registration of IP in Uganda.
- BIRDC – Banana Industrial Research and Development Centre, formally Presidential Initiative on Banana Industrial Development (PIBID);
- UNCST – Uganda National Council for Science and Technology;
- NCRI - Natural Chemotherapeutics Research Institute;
- THETA – Uganda: Traditional and Modern Health Practitioners Together Against AIDS;
- CCFU - Cross-Cultural Foundation of Uganda

2.2. GLOBAL AND CONTINENTAL LEGAL FRAMEWORKS

Globally, policies, protocols and agreements which include the protection and use of indigenous knowledge and technologies through intellectual property systems, have been developed by several intergovernmental organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO); World Intellectual Property Organization (WIPO); World Trade Organization (WTO); United Nations Environmental Program (UNEP) and the United Nations Conference on Trade and Development (UNCTAD). There is also a legal framework for IK that has been put in place at continental and regional economic community level.

In the table below, we indicate the legal framework at regional, continental and global levels:

S/N	Legal Document	Burundi		Kenya		Rwanda		South Sudan		Tanzania		Uganda	
		Signa-tory	Rat-ified	Signa-tory	Rati-fied	Signa-tory	Rati-fied	Signa-tory	Rati-fied	Signa-tory	Rati-fied	Signa-tory	Rati-fied
1	Convention on Biological Diversity (CBD)		Yes		Yes		Yes		Yes		Yes		Yes
2	Nagoya Protocol		Yes		Yes		Yes		Yes		Yes		Yes
3	Swakopmund Protocol						Yes						
4	The Patent Cooperation Treaty (PCT)				Yes		Yes				Yes		Yes
5	The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)		Yes		Yes		Yes		Yes		Yes		Yes
6	The Hague Agreement concerning the international registration of industrial designs		Yes		Yes		Yes		Yes		Yes		Yes
7	Berne Convention for the Protection of Literary and Artistic Works		Yes		Yes		Yes		Yes		Yes		Yes
8	UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Contents and Artistic Expressions		Yes		Yes		Yes		Yes		Yes		Yes
9	Cartagena Protocol on Biosafety to the Convention on Biological Diversity (2003)		Yes		Yes		Yes		Yes		Yes		Yes

10	The UNESCO Convention on the Protection of the World Cultural and Natural Heritage		Yes		Yes		Yes		Yes		Yes		Yes
11	Paris Convention for the Protection of Industrial Property		Yes		Yes		Yes		Yes		Yes		Yes
12	World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)		Yes		Yes		Yes		Yes		Yes		Yes
13	Madrid Agreement for the Repression of False and Deceptive Indications of Source on Goods		Yes		Yes		Yes		Yes				Yes
14	Lisbon Agreement for the Protection of Appellations of Origin and their International Registration		Yes		Yes		Yes		Yes		Yes		Yes
15	African Union Model Legislation for the protection of the rights of local communities, farmers and breeders, and for the regulation of access to biological resources	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
16	Charter for African Cultural Renaissance		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
17	Convention for the Safeguarding of the Intangible Cultural Heritage (2009)		Yes		Yes		Yes		Yes		Yes		Yes
18	The Treaty for the establishment of the East African Community (1999)		Yes	Yes	Yes		Yes		Yes	Yes	Yes	Yes	Yes

There are several issues concerning protection of IKT. One major issue is on how does one define an innovation and a beneficiary in local communities, given the need to prove novelty and non-obviousness? Also there are groups within communities, such as traditional healers and crafts people who mediate and develop IK among themselves, rather than the broader community. There are also cases where the same or similar IK is used by different communities across the world. These issues may be reconciled by working within the framework of World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) using different forms of intellectual property rights. These include geographical indications, the notion of community-based rights and sui generis forms of protection. The national laws on geographical indications can be further enhanced by international instruments such as: The Paris Convention for the Protection of Industrial Property, 1883; Madrid Agreement for the Repression of False and Deceptive Indications of Source on Goods, 1891; and the Lisbon Agreement for the Protection of Appellations of Origin, 1958. Furthermore, Article 27 (3) (b) of TRIPS (1994) has enabled member states to consider protection of genetic resources using existing intellectual property systems, as well as geographical indications and sui generis forms of protection. On disclosure of origin of genetic resources and/or associated traditional knowledge, article 29 of the TRIPS Agreement popularly known as TRIPS 29 bis should be reviewed.

Also in order to prevent IK that is already in the public domain from being patented as a new invention in another country, it is vital to provide written documentation of such practices. This way, indigenous communities can challenge Intellectual Property Rights being granted to others for practices that are traditionally their own. In addition, the creation of national, regional and international registries of IK could support benefit sharing among industry and local communities. In order to secure rights to knowledge, a recordal system needs to be put in place where communities and other IK holders can record their knowledge holdings in order to support their interest in future economic benefits and social good, based on IK. In addition, the use of Information Transfer Agreements (ITAs) and Material Transfer Agreements (MTAs) that conform to a minimum standard should be required for all researchers in the field of IK to ensure a basis for future benefit sharing in the absence of a recordal system (RSA,2004).

Below we briefly describe other protocols, conventions and agreements with provisions on Indigenous Knowledge and Technologies:

(i) The Convention on Biological Diversity (CBD) that came into force on 29 December 1993 affirms that states hold sovereign rights over their biological resources and countries have the right to regulate or grant access to genetic resources (GR) inside their territorial boundaries. The Nagoya Protocol was developed to implement legal measures in user countries to ensure compliance with the CBD objective on fair and equitable sharing of benefits arising out of the utilization of genetic resources. The Nagoya Protocol establishes a legal framework for access and benefit sharing (ABS) that requires countries to develop and apply systematically a set of procedures for access and sharing of benefits from use of Genetic Resources (GR), and to ensure that users comply with provider country ABS laws. The Nagoya Protocol recognizes the values of indigenous and local communities and the knowledge associated to the use of genetic resources in research and development activities. All the six (6) EAC Partner States ratified the CBD and the Nagoya Protocol and thus have rights to determine who can collect biological material that contains genetic resources and what users are allowed to do with those genetic resources. Also Principle 3 of the Nagoya Protocol is on Traditional Knowledge Values, which essentially: Recognizes the

contribution of indigenous and local communities to the conservation and sustainable use of biodiversity as Natural resources managers; Recognizes their skills and techniques because they are the most concerned as they are on field; and Recognizes traditional values for industry and modern agriculture, products such as medicines, agricultural, sanitary and cosmetic herbs that are derived from traditional knowledge. The Nagoya Protocol was adopted on 29 October 2010 in Nagoya, Japan and entered into force on 12 October 2014.

In an effort to provide guidance to the implementation of the Nagoya Protocol, Ahrén et.al. (2012) developed an explanatory guide to the Protocol on access and benefit-sharing whose main goal is to facilitate the understanding of the legal obligations of the Parties under the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (CBD). Rwanda followed suit and developed its own Guideline and Toolkit for Access and Benefit Sharing of Traditional Knowledge Associated with Genetic Resources in Rwanda (REMA, 2019).

(ii) Cartagena Protocol on Biosafety to the Convention on Biological Diversity (2003) - Contributes to ensuring an adequate level of protection in the field for the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements.

(iii) The key global mechanism for intellectual property protection is the World Intellectual Property Organisation (WIPO). The main objectives of WIPO are to protect and promote intellectual property (IP), and to build Member State capacity to derive economic benefit from their intellectual property.

(iv) The Hague Agreement concerning the international registration of industrial designs (1925) is an international registration system which offers the possibility of obtaining protection for industrial designs in a number of States and/or intergovernmental organizations (both referred to as "Contracting Parties") by means of a single international application filed with the International Bureau of the World Intellectual Property Organization (WIPO). Thus, under the Hague Agreement, a single international application replaces a whole series of applications which, otherwise, should have been effected with different national (or regional) Offices.

(v) EAC Partner States are members of the Africa Regional Intellectual Property Organization (ARIPO)[25], an inter-governmental organization which aims to facilitate cooperation among its Member States in intellectual property matters by pooling financial and human resources, and seeking technological advancement for economic, social, technological, scientific and industrial development. They are also party to the Harare Protocol, which is a legal instrument that seeks to protect traditional knowledge and associated patenting rights. Rwanda ratified ARIPO's 2010 Swakopmund Protocol on the Protection of Traditional Knowledge and Expressions of Folklore, which encourages Member States to use and refine the protocol to develop laws, guidelines and instruments to protect traditional knowledge at national level. Rwanda's law on Preservation of Cultural Heritage and Traditional Knowledge (2016) is informed by Swakopmund Protocol.

(vi) The Patent Cooperation Treaty (PCT) (1978) assists applicants in seeking patent protection internationally for their inventions, helps patent offices with their patent granting decisions, and facilitates public access to a wealth of technical information relating to those inventions.

[25]http://www.fao.org/3/i0510e/i0510e.pdf

(vii) Article 5 of The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)[26] (2009), supports the promotion of in situ conservation of wild crop relatives and wild plants for food production, including in protected areas, by supporting, inter alia, the efforts of indigenous and local communities. All EAC Partner States are party to ITPGRFA.

(viii) Berne Convention for the Protection of Literary and Artistic Works (1886) deals with the protection of works and the rights of their authors. It provides creators such as authors, musicians, poets, painters etc. with the means to control how their works are used, by whom, and on what terms. It contains a series of provisions determining the minimum protection to be granted, as well as special provisions available to developing countries that want to make use of them.

(ix) UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Contents and Artistic Expressions (2005) is a legally-binding international agreement that ensures artists, cultural professionals, practitioners and citizens worldwide can create, produce, disseminate and enjoy a broad range of cultural goods, services and activities, including their own. It was adopted because the international community signaled the urgency for the implementation of international law that would recognise:

(a) The distinctive nature of cultural goods, services and activities as vehicles of identity, values and meaning;

(b) That while cultural goods, services and activities have important economic value, they are not mere commodities or consumer goods that can only be regarded as objects of trade.

(x) The UNESCO Convention on the Protection of the World Cultural and Natural Heritage (1972) links together in a single document the concepts of nature conservation and the preservation of cultural properties. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two. It is one of the most important global conservation instruments whose primary mission is to identify and protect the world's natural and cultural heritage considered to be of Outstanding Universal Value. It embodies a visionary idea – that some places are so important that their protection is not only the responsibility of a single nation, but is also the duty of the international community as a whole; and not only for this generation, but for all those to come. Its implementation is facilitated through the Operational Guidelines, which define the procedures for new inscriptions, site protection, danger-listings, and the provision of international assistance under the World Heritage Fund. In addition, Article 27 of Universal Declaration of Human Rights (UDHR)(1948) and Article 15 of International Covenant on Economic, Social and Cultural Rights (ICESCR) (1966) recognise everyone's right to freely participate in cultural life.

(xi) Paris Convention for the Protection of Industrial Property (1883) applies to industrial property in the widest sense, including patents, trademarks, industrial designs, utility models, service marks, trade names, geographical indications and the repression of unfair competition. This international agreement was the first major step taken to help creators ensure that their intellectual works were protected in other countries.

[26] http://www.fao.org/3/i0510e/i0510e.pdf

(xii) Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods (1891) provides that all goods bearing a false or deceptive indication of source, by which one of the Contracting States, or a place situated therein, is directly or indirectly indicated as being the country or place of origin, must be seized on importation, or such importation must be prohibited, or other actions and sanctions must be applied in connection with such importation.

(xiii) Lisbon Agreement for the Protection of Appellations of Origin and their International Registration (1958) provides for the protection of appellations of origin, that is, the "geographical denomination of a country, region, or locality, which serves to designate a product originating therein, the quality or characteristics of which are due exclusively or essentially to the geographic environment, including natural and human factors".

(xiv) Convention for the Safeguarding of the Intangible Cultural Heritage (2009) - Is the international community's first binding multilateral instrument intended to safeguard and raise the profile of Intangible Cultural heritage. Its goal is to incite countries to care about and look after the Intangible Cultural Heritage present on their territories. It promotes protection of the practices, representations, expressions, knowledge and know-how, transmitted from generation to generation within communities, created and transformed continuously by them, depending on the environment and their interaction with nature and history.

(xv) At continental level, the African Union (then Organization of African Unity) in 2000 adopted the African Model Legislation for the protection of the rights of local communities, farmers and breeders, and for the regulation of access to biological resources. The model law, among other things recognises the rights of local communities over genetic resources, traditional knowledge, farmers' rights, local innovations and practices, customary law, the collective rights of the local communities, and the need for prior informed consent. Also, this model law provides a strong basis for the formulation of national and regional laws on the protection of indigenous knowledge.

(xvi) Charter for African Cultural Renaissance (2006) Replaced the African Union's Cultural Charter for Africa (1976). It provides for preservation and promotion of African cultural heritage; integration of cultural objectives in development strategies; promotion of in-country popularization of science and technology including traditional knowledge systems as a precondition for better understanding and preservation of cultural and natural heritage.

2.3. PROTECTING IK OUTSIDE THE EXISTING INTELLECTUAL PROPERTY REGIME: SUI GENERIS AND DEFENSE PROTECTION OF IK

(i) Sui Generis System of Protection of IK

The legal framework for the protection of IK can either be through the existing intellectual property framework or a sui generis system of protection. When existing intellectual property regime does not offer an effective solution for the protection of IK, the alternative is to have a sui generis system of protection as set out in the African Union model law or the Swakopmund Protocol. The main aim of sui generis type of protection is to offer protection that is unique to IK systems, as well as to ensure that IK is preserved, is protected against misuse and misappropriation, and allows for access and benefit sharing.

(ii) Defensive Protection.

Defensive protection involves the creation of databases to ensure that information is not used for example to obtain patent protection without the authority of the rights holder. In this regard, cases to consider include the Traditional Knowledge Digital Library and the documentation of traditional knowledge in other forms (Ouma,2014):

(a) The traditional knowledge commons. The traditional knowledge commons is based on the idea that there is continual movement and growth in knowledge for the benefit of those who generate it as well as society at large. A commons allows for the protection and preservation of traditional knowledge and access by third parties within a certain framework, taking into account the existing cultural norms and practices.

(b) The Traditional Knowledge Digital Library. Another way of guarding against misappropriation by third parties is to ensure that traditional knowledge and traditional cultural expressions are well documented. The digital library provides an avenue for dissemination, as well as cross-checking any applications that may be based on traditional knowledge. This helps in eliminating the grant of patents that do not fulfil the requirements of novelty.

(c) Other forms of documentation. The documentation of traditional knowledge is important as it ensures that knowledge, initially handed down by oral tradition is documented and preserved, eliminating the risk of the knowledge holder taking it to the grave.

The traditional knowledge digital library and the documentation of culture, all require a sound legal regime that controls access to the works and ensures that prior informed consent is obtained where necessary and provides for equitable benefit sharing. Also the traditional community's secret or sacred place may be protected defensively. Under defensive registration, the community may register a symbol or name as a trade mark or design so as to prevent use by third parties.

3. EAC STRATEGY FOR INDIGENOUS KNOWLEDGE AND TECHNOLOGY SYSTEMS

3.1. RATIONALE

The Strategy shall complement, promote and strengthen the EAC development goals and objectives. The strategy shall inform other regional sectoral strategies, projects and programmes. In particular the strategy shall:

(i) Support the role of indigenous knowledge and technology systems in development;

(ii) Promote the documentation, preservation and protection of indigenous knowledge and technology systems;

(iii) Guide academia to research on and advocate for indigenous knowledge and technology systems;

(iv) Guide the design and implementation of projects and programmes on indigenous knowledge and technologies.

3.2. STRATEGIC DRIVERS

Strategy drivers shall include:

(i) Practical measures for the development of services provided by IK holders and practitioners, with a particular focus on traditional medicine, agriculture, natural resource management, indigenous technologies and folklore;

(ii) Underpinning the contribution of indigenous knowledge and technology to the economy with special emphasis on the role of indigenous knowledge and technology in employment and wealth creation; and

(iii) Interfaces with other knowledge systems, for example use of indigenous knowledge with biotechnology in the pharmaceutical sector.

3.3. STRATEGIC ORIENTATION

3.3.1. Priority Areas

S/N	Priority Area	Key Interventions	Timelines	Budget/USD
1	Development and promotion of IKTS	(a) Facilitate the setting up of organising frameworks for researchers and innovators in IKTS; (b) Research, document and preserve indigenous knowledge and technologies; (c) Establish a mechanism to support institutions involved in indigenous knowledge and technology development; (d) Evaluate indigenous knowledge and technology for its efficacy and use; (e) Facilitate the integration of indigenous knowledge system with other knowledge systems; (f) Promote the utilisation of indigenous knowledge and technologies in formal and informal institutions; (g) Disseminate indigenous knowledge and technologies.	(a) Jul 2022 - Dec 2022 (b) Jul 2022 - Jun 2032 (c) Jul 2022 - Dec 2022 (d) Jul 2022 - Jun 2032 (e) Jul 2022 - Jun 2032 (f) Jul 2022 - Jun 2032 (g) Jul 2022 - Jun 2032	(a) 5,000 (b) 1,000,000 (c) 5,000 (d) 200,000 (e) 100,000 (f) 50,000 (g) 50,000

2	Promotion of Cooperation in IKTS	(a) Promote mutual benefit, respect, understanding, shared values, enrichment and peaceful co-existence among diverse IKT communities; (b) Develop and enhance mechanisms for internal and external IKTS cooperation and exchange; (c) Facilitate and encourage the participation of civil society and private sector in the promotion of IKT cooperation and exchange at national, regional and international levels; (d) Implement and domesticate international conventions, protocols and agreements on IKT; (e) Promote collaboration in capacity and institutional development in IKTS at national, regional and international levels; (f) Promote sharing of IKT expertise and sell of IKT goods and services at national, regional and international levels.	(a) Jul 2022 - Jun 2032 (b) Jul 2022 - Dec 2022 (c) Jul 2022 - Jun 2032 (d) Jul 2022 - Jun 2023 (e) Jul 2022 - Jun 2024 (f) Jul 2022 - Jun 2023	(a) 10,000 (b) 5,000 (c) 12,000 (d) 20,000 (e) 100,000 (f) 60,000
3	Integration of IKTS in education and the regional qualifications framework	(a) Review the regional qualifications framework to incorporate IKTS issues; (b) Design educational modules on IKTS and make them part of the minimum requirements in the formal education system.	(a) Jul 2022 - Jun 2023 (b) Jul 2023 - Jun 2025	(a) 20,000 (b) 100,000

4	Integration of IKTS in the regional innovation system	(a) Promote innovation and diffusion of indigenous technology, tools and knowledge; (b) Establish IKT innovation and transfer centres; (c) Integrate IKT strategies in the regional Innovation Strategy; (d) Promote and support the development and use of appropriate indigenous technologies; (e) Provide for IKTS in the regional industrial development strategy.	(a) Jul 2022 - Jun 2032 (b) Jul 2022 - Jun 2024 (c) Jul 2022 - Jun 2023 (d) Jul 2022 - Jun 2032 (e) Jul 2022 - Jun 2024	(a) 120,000 (b) 250,000 (c) 10,000 (d) 1,000,000 (e) 10,000
5	Implementation of IKT Research as part of the EAC regional STI research and development agenda 2020 -2030	(a) Implement research areas in Subsection 2.5 Theme 5 on Indigenous Knowledge and Technology in the EAC regional STI research and development agenda 2020-2030; (b) Set up a regional IKTS sub-fund within in the East African Research and Technological Development Fund (EARTDF); (c) Provide for IKTS grants and graduate scholarships.	(a) Jul 2022 - Jun 2033 (b) Jul 2022 - Jun 2023 (c) Jul 2022 - Jun 2033	(a) 5,000,000 (b) 5,000 (c) 400,000

6	Integration of IKT in the regional development strategy	(a) Review the regional development strategy to ensure it addresses IKT as a crosscutting issue; (b) Review and integrate IKT in sectoral strategies for sectors where IKT is applied such as health, environment and natural resource management, technology transfer, biotechnology, biological and genetic resources, agriculture and food security, culture, heritage, education.	(a) Jul 2022 - Jun 2024 (b) Jul 2022 - Jun 2024	(a) 10,000 (b) 50,000
7	Human resource development and capacity building	(a) Assess and plan for the IKT human resource needs in the region; (b) Integrate IKT into the Regional Human Resource Development (HRD) Strategy and the Regional Skills Development Strategy and ensure provision of a holistic education and training and entrepreneurship experience with integrated research, development innovation and commercialisation; (c) Design and implement (executive) trainings for IKT holders, practitioners and trainers of trainers; (d) Design and implement capacity building programmes.	(a) Jul 2022 – Jun 2023 (b) Jul 2023 - Jun 2024 (c) Jul 2023 - Jun 2033 (d) Jul 2023 - Jun 2033	(a) 10,000 (b) 20,000 (c) 200,000 (d) 150,000

8	Public understanding and awareness of IKTS	(a) Enable citizens to fully understand and appreciate the impact of IKTS on their daily lives through various communication channels; (b) Organise public awareness and advocacy events on IKTS; (c) Promote IKT on social media, print and electronic media; (d) Promote IKT goods and services in the communities.	(a) Jul 2022 - Jun 2033 (b) Jul 2022 - Jun 2033 (c) Jul 2022 - Jun 2033 (d) Jul 2022 - Jun 2033	(a) 60,000 (b) 100,000 (c) 40,000 (d) 100,000

3.3.2. Vision, Mission

3.3.2.1. Vision

A Community that preserves, protects and economically exploits indigenous knowledge and technologies for socio-economic development of its people.

3.3.2.2. Mission

To promote and develop indigenous knowledge and technology systems and uplift the wellbeing of the people of East Africa and contribute to socio-economic development.

3.3.3. Aims, Strategic Objectives and Strategies

S/ N	Aim	Strategic Objectives	Strategies
1	Assess, identify, catalogue, protect, recognise and use indigenous knowledge and technologies	(a) To assess indigenous knowledge and technologies	(i) Collect qualitative data from focus groups (ii) Collect quantitative data from household interviews (iii) Conduct key informant interviews (iv) Collect secondary data (v) Analyse the data in (i) to (iv) and produce assessment report (s).
		(b) To identify and recognize indigenous knowledge and technologies	(i) Conduct baseline surveys to establish the current status of IKT (ii) Collect IKT through interviews, field works, observations, published and unpublished documents, databases, videos, photos, museums and exhibits (iii) Include indigenous knowledge and technologies contributors on manuscripts or publications (iv) Acknowledge the source of indigenous knowledge / technology by country (v) Recognise IKT through development of Local and Indigenous Knowledge Systems (LINKS)

		(c) To research, document and maintain a recordal system of indigenous knowledge and technologies	(i) Promote and Commission research on indigenous knowledge and technologies (ii) Carry out development activities to enhance innovation using IKT (iii) Publish research on indigenous knowledge and technologies (iv) Bench-mark best practices from other jurisdictions that have shared values with EAC Partner States (v) Encourage Library professionals to design collection development policies for IK in collaboration with ethnographers, anthropologists, botanists, zoologists, oral historians and other related professionals to collect, organize and document IK (vi) Maintain a digital database / recordal system of researched documentation (vii) Record IK by using sources and methods that include Definition, Vernacular name, Characterization of the method, Purpose, Materials, Value, and Notes (viii) Document IKT with sound recordings, video recordings, photographs, tapes, films, manuscripts (text documents or electronic format), itineraries, cultural mapping, taped narration, drawings, gene banks (ix) Document IK in the form of: Descriptive texts such as reports; Taxonomies; Inventories (For example, lists of plant species, tables listing remedies and their preparations, etc.); Seasonal pattern charts; Maps; Matrices; Decision trees; Audiovisual forms, such as - photos films, videos, or audio cassettes; Dramas, stories, songs, etc.; Drawings; Daily calendars. (x) Carry out inventorying of IKT

		(d) To catalogue indigenous knowledge and technologies	(i) Classify each indigenous knowledge / technology with a unique identifying number and array it by country, region, and the source that furnished the information (ii) Identify and separate useful IKT through particularisation (iii) Test and validate IKT (iv) Index and abstract IKT (v) Catalogue and archive IKT (vi) Undertake Indigenous Knowledge Organization (IKO) that involves the processes and systems for organizing and representing Indigenous library and archival materials in all formats—traditional and electronic that includes considerations of Indigenous cataloguing standards and metadata.
		(e) To protect indigenous knowledge and technologies	(i) Put in place policies, legislations and administrative measures to protect IKT (ii) Apply Defensive protection to ensure that information is not used for example to obtain patent protection without the authority of the rights holder and this includes creation of the traditional knowledge commons, the Traditional Knowledge Digital Library, and other forms of documentation. (iii) Apply the legal framework for the protection of IK either through the existing intellectual property framework or a sui generis system of protection (iv) Domesticate agreements on the protection of indigenous knowledge and technologies through intellectual property systems that have been developed by several intergovernmental organizations such as United Nations Educational, Scientific and Cultural Organization (UNESCO); World Intellectual Property Organization (WIPO); World Trade Organization (WTO); United Nations Environmental Program (UNEP); the United Nations Conference on Trade and Development (UNCTAD), African Union (AU); Africa Regional Intellectual Property Organization (ARIPO) E.g.

			• Framework of World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) using different forms of intellectual property rights • The Patent Cooperation Treaty (PCT), 1978 • The Paris Convention for the Protection of Industrial Property, 1883 • Madrid Agreement for the Repression of False and Deceptive Indications of Source on Goods, 1891 • The Lisbon Agreement for the Protection of Appellations of Origin, 1958 • Convention on Biological Diversity (CBD) • Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 2003 • Convention for the Safeguarding of the Intangible Cultural Heritage, 2009 • Nagoya Protocol • Harare Protocol • Swakopmund Protocol • The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) • The Hague Agreement concerning the international registration of industrial designs • Berne Convention for the Protection of Literary and Artistic Works • UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Contents and Artistic Expressions • The UNESCO Convention on the Protection of the World Cultural and Natural Heritage • African Union Model Legislation for the protection of the rights of local communities, farmers and breeders, and for the regulation of access to biological resources • Charter for African Cultural Renaissance (2006) • The Treaty for the establishment of the East African Community (1999)
			(v) Apply the Partner States Legal Frameworks on Indigenous Knowledge and Technologies through the Intellectual Property System and a sui generis system.

		(i) To develop and promote usage of indigenous knowledge and technologies	(i) Develop indigenous knowledge and technologies (IKT) through research and innovation that involves indigenous communities or IKT holders (ii) Encourage indigenous communities to continue interacting with their natural surroundings and IKT holders (iii) Incorporate IKT education in the curriculum from primary school to University level (iv) Encourage IKT holders to be creative and experimental and constantly incorporate outside influences and inside innovations to meet emerging IKT needs (v) Disseminate indigenous Knowledge practices through video, website, print media, direct mail, public lectures, exhibitions and displays, and exchange (vi) Provide access to IKT through online databases (vii) Disseminate IKT through Electronic networking (viii) Document and disseminate IKT through pamphlets and newsletters and journals; video and radio broadcasts in local languages; telecentres for two-way knowledge flow from the local communities outward (indigenous practices) and from the global community inward (international practices)
2	Create awareness about IKTS	To promote networking and collaboration structures for IKTS	(i) Develop digital databases for IKT (ii) Develop promotional materials for IKT (iii) Apply ICT tools in networking and collaboration for IKTS (iv) Organise networking and promotional events (v) Conduct massive awareness campaigns to sensitize the communities on the value of and need to safeguard IKT
3	Have in place flagship regional projects and programmes in IKT	To develop and implement flagship regional projects and programmes in IKT	(i) Identify priority areas (ii) Constitute regional teams to develop detailed flagship regional projects and programmes in IKT (iii) Use existing institutional structures to implement the flagship regional projects and programmes in IKT
		To monitor and evaluate flagship regional projects and programmes in IKT	(i) Have in place Monitoring and Evaluation (M&E) Implementation Plans for flagship regional projects and programmes in IKT (ii) Conduct Integrated Learning (iii) Develop targets and performance indicators

4	Develop funding mechanisms for IKTS	(a)	To set up a regional IKTS sub-fund within in the East African Research and Technological Development Fund (EARTDF)	(i)	Review the legal framework for East African Research and Technological Development Fund (EARTDF) to provide for regional IKTS sub-fund
		(b)	To mobilise financial resources for IKTS	(i) (ii) (iii) (iv) (v)	Appropriate funds for IKTS at both EAC and Partner State level Raise funds from global partners and global funding agencies Raise funds through Public Private Partnerships (PPPs) Raise funds through Civil Society and Private Sector Organizations Attract funding through development of fundable / bankable projects and programs in IKT

4. IMPLEMENTATION FRAMEWORK

4.1. DECISION MAKING ORGANS

The Heads of State Summit, the Council of Ministers and the East African Science and Technology Commission (EASTECO) Board shall be the main decision-making organs.

4.2. IMPLEMENTING INSTITUTIONS

The EASTECO shall be responsible for coordination and implementation of the EAC Strategy for IKTS. It shall undertake this through the EAC IKTS Regional Steering Committee, Regional IKTS centres of excellence and national IKTS reference centres.

4.2.1. EAC IKTS Regional Steering Committee

The roles of the EAC IKTS Regional Steering Committee will include:

(i) To develop guidelines for establishment of regional IKTS centres of excellence

(ii) To designate regional IKTS centres of excellence based on guidelines for establishment of regional IKTS centres of excellence

(iii) To develop guidelines for establishment of national IKTS reference centres to be followed by the Partner States when establishing national IKTS reference centres

(iv) To mobilize engagement of stakeholders and advocate for IKTS

(v) To promote and support scholarship for IKT

(vi) To oversee management of regional IKTS projects including selection of grant awardees, scholarships, Infrastructure support etc.

The membership of the EAC IKTS Regional Steering Committee will consist of:

(i) A member of EASTECO Board as Chairperson;

(ii) One Representative from the national agency responsible for IKT in EAC Partner States; and

(iii) Such a number of representatives of IKT holders, practitioners, researchers and innovators as may be determined by EASTECO Board.

4.2.2. Regional IKTS centres of excellence

The roles of the regional IKTS centre of excellence shall include:

(i) To collect, document, and disseminate information on various components of indigenous knowledge;

(ii) To develop cost-effective and reliable methodologies for recording indigenous knowledge;

(iii) To conduct training programmes and design materials on IKT for development workers in IKTS, practitioners and holders;

(iv) To establish mechanisms for the nature and extent of relationships between IK holders and the research community, and the regulation of standards for information and material transfer agreements related to the IK;

(v) To consider application for intent to access IK and IKS and conditions of fair and equitable benefit sharing;

(vi) To conduct interdisciplinary research on IKTS;

(vii) To promote the establishment of IKT regional resource centers;

(viii) To assist in the formulation of policies and design technical assistance programmes based on indigenous knowledge and technologies.

4.2.3. National IKTS reference centres

The National IKTS Reference Centres shall be established within existing structures such as universities, community centres, etc. and act as a facilitating and enabling mechanism, and their services, programmes, and projects shall involve broad participation and collaboration of members of local and indigenous communities. These centres will focus their activities on preserving and using the indigenous knowledge of indigenous people within EAC. The centres working in close proximity to local communities will be dedicated to facilitating collaboration between tertiary institutions, NGOs and IKTS holders and practitioners working in development and promotion of IKTS.

The roles for national IKTS reference centres will include:

(i) To collect, document, and disseminate information on various components of indigenous knowledge;

(ii) To develop cost-effective and reliable methodologies for recording indigenous knowledge;

(iii) To conduct training programmes and design materials on IKT for development workers in IKTS, practitioners and holders;

(iv) To conduct interdisciplinary research on IKTS;

(v) To advise indigenous communities on matters of dispute;

(vi) To contribute to the formulation of policies and design technical assistance programmes based on indigenous knowledge and technologies.

4.3. IMPLEMENTATION MECHANISMS

The strategy will be implemented at regional, national and local government levels. At each level, programs will be co- designed, validated, implemented, communicated and evaluated. Partner States shall provide national leadership to secure participation and contribution from the public, private, research and innovation stakeholders to design and implement IKT initiatives. Development partners will collaborate with other stakeholders, including civil society and the media to support successful implementation of the strategy by providing financial and technical assistance and aligning current and future initiatives. They will also participate in popularizing the importance of IKT in East Africa's development. On the other hand, the private sector will work closely with the public, IKT centres of excellence and IKT reference centres to contribute to the implementation of the strategy.

4.4. REGIONAL AND INTERNATIONAL COOPERATION

A number of partnerships in Science, Technology and Innovation (STI) within the EAC are managed by EASTECO. EASTECO should manage bi-lateral and multi-lateral cooperation in IKTS. EAC has potential to promote collaboration and cooperation among the Regional Economic Communities (RECs) and promote mutually beneficial South - South and North – South cooperation to implement this strategy. This will require that all participating and contributing partners ensure that such cooperation is primarily anchored around the East African STI agenda with special focus on EAC Strategy for IKTS. The Partners will be encouraged to apply to research and innovation calls under international research and innovation funding programs under the coordination of EASTECO. Through these smart partnerships, the stakeholders / partners will be able to jointly engage regional and international research and innovation development partners and mobilize funds for bilateral and multilateral projects and programmes.

5. MONITORING, EVALUATION AND LEARNING (MEL) FRAMEWORK

5.1. OVERVIEW

The East African Science and Technology Commission (EASTECO) places a lot of emphasis on Monitoring and Evaluation as a key tool for guiding the implementation of its activities and more specifically the East African Regional Strategy for Indigenous Knowledge and Technology Systems.

In addition, Monitoring and Evaluation will also be a feedback tool for improving EASTECO's performance and accountability. The Strategy will be guided by a Monitoring and Evaluation (M&E) system that will allow decision makers at all levels to understand how resources have been utilized, measure results and identify solutions to implementation problems. It will provide a systematic means for periodic assessment of the relevance, effectiveness, efficiency, adequacy, equity and sustainability of resultant outcome and impact.

5.2. MONITORING AND EVALUATION (M&E) IMPLEMENTATION PLAN

5.2.1. Annual Audit

This will be in line with the East African Science and Technology Commission (EASTECO) financial year that always will depend on the funding cycle. Thus at the end of every year, there will be a comprehensive external audit of all undertaken projects by EASTECO in that fiscal year with a view of establishing the extent to which the strategic objectives were achieved.

5.2.2. Annual Evaluations

At the end of the defined time frame, full evaluation of the achievements of the East African Science and Technology Commission (EASTECO) strategic directions and annual work plans and budgets will be subjected to a review. These reviews will include routine (monthly/quarterly/yearly) reporting to the East African Science and Technology Commission (EASTECO) Board on the tasks that were undertaken and their contribution to the attainment of the planned overall objectives. Hence at the conclusion of every programme/project there will be an external evaluator to assess the achievements and lessons learnt from the program/project activities.

5.2.3. Staff Performance Reviews

Staff appraisals will be conducted twice a year to determine the contribution of each staff member and evaluation reports filed and reviewed at the end of every year to determine their performance and inform programming including rewards and sanctions towards strengthening East African Regional Strategy for Indigenous Knowledge and Technology Systems (IKTS).

5.2.4. Quarterly Reviews

The East African Science and Technology Commission (EASTECO) will convene quarterly review meetings with the critical stakeholders among the six partner states including Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda and other development partners. This will enhance quality feedback and controls on the programme output.

5.2.5. Mid-Term Review

A mid-term review of the performance and the fitness of the entire EASTECO in respect to the indigenous knowledge and technology systems strategy within the established strategic time frame. This will involve critical stakeholders among the six partner states including Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda and other development partners. This will enhance quality feedback and controls on the programme output. Furthermore, assessing the extent to which EASTECO is moving towards achievement of the overall objective of promotion, coordination and management of indigenous knowledge and technologies (IKT). The mid-term evaluation will be undertaken by an experienced consultancy firm or individual consultant to support a critical assessment of the achievements, challenges, lessons and make appropriate strategies for achievement of the strategy.

5.2.6. End – Term Evaluation

At the end of the five years of implementation, the strategy evaluation will be undertaken.

5.3. INTEGRATED LEARNING

The strategy will adopt both formal and informal integrated strategy for learning in the implementation of the indigenous knowledge and technology systems strategy. Integrated learning will be incorporated in overall strategy through integration of short-term, mid-term and long-term strategies.

For the purposes of this strategy, monitoring and evaluation will be done internally and externally by a reputable Consultant. Internally, there shall be an institutional level review geared at improving its M&E tool including investing in personnel charged with this function. External assessment shall be undertaken by a competent external evaluator who will be able to broadly establish the impact of programme's interventions on the grass root institutions and community members. The products of these twofold reviews will not only be used to generate learning but also go a long way in strengthening EASTECO's interventions in relation to indigenous knowledge and technologies.

Partner States and critical stakeholders' participation in monitoring of EASTECO's activities will be crucial to ensure that resources are used efficiently and that emerging community needs are taken into account during periodic and ad hoc planning sessions. EASTECO will also work with its stakeholders to develop practical and measurable indicators that will be used to evaluate the progress of the programme.

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