INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)

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Contribution by Kenya

to the CSTD 2020-2021 priority themes on "Using science, technology and innovation to close the gap on Sustainable Development Goal 3 on good health and well-being" and "Harnessing blockchain for sustainable development: prospects and challenges"

INPUTS ON CTSD PRIORITY THEMES FOR THE YEAR 2020 -21

COUNTRY: KENYA

PRIORITY THEME 1: Harnessing blockchain for sustainable development: prospects and challenges

1. Could you share specific examples, projects or initiatives that have used or plan to use blockchain technology for the SDGs in your country? What are the main challenges confronted while trying to implement these projects/initiatives? (Examples may include blockchain solutions for financial inclusion, trade facilitation, supply chains, health, energy, e-Government, etc.)

Projects: Kenya's land registry could make use of this temper proof technology

Kenyan firms Land Layby Group and Nurse in Hand are running blockchain trials according to a report by Liquid Telecom. Land Layby wants to apply blockchain technology in the storage of land records to prevent fraud and double ownership while Nurse in Hand has collaborated with Apla tech Company to apply the technology in the creation of an accident and emergency response platform. According to Its Blockchain, Land Layby "is implementing smart contracts based on the Ethereum blockchain for land registry processes and management in Kenya and Ghana."

Challenge: While initial steps have been made towards the digitisation of land records, most of Kenya's registries still operate manual records. It will take quite a while to digitise them. The use of blockchain would therefore find limitations for lack of comprehensive digital data.

1. National systems of innovation;
   a. Ecosystem of innovation in blockchain in Kenya
      Industries/specific sector that are pioneer in blockchain innovation in the country? . Kenyan firms Land Layby Group and Nurse in Hand are the 2 Firms Running Blockchain

      The following areas will be pioneer in blockchain;

i. Eliminate Corruption- blockchain offers transparency and immutability. Kenya can eliminate corruption by building immutable title systems on blockchain to prevent fraud and enable the banking industry to have confidence in land assets.

ii. Minimize National Debt Through Digital Asset Frameworks-The Kenyan Government should develop a digital asset framework to enable citizens to raise funds through Initial Coin Offers (ICOs) as a strategy to help local investors put their resources in cryptocurrencies underpinned by the utility of the local resources

iii. Strengthen Democracy and Elections- We could use blockchain in tallying presidential elections alongside the normal process to demonstrate that indeed blockchain can be used in tallying votes. This can be escalated elections to members of Parliament and of Members of County Assembly in order to build the much-needed confidence before it is used nationally for presidential vote tallying.

iv. Facilitate Financial Inclusion- The task force recommends the creation of a National Payment Gateway using a public-private partnership model. This payment gateway becomes the central point for all digital transactions/payments, whether mobile or not. This would create an ecosystem where all payment modes interact which each other i.e. ATMs, banks, mobile money and so on.

b. What are the key actors in the national ecosystem of innovation (entrepreneurs, development teams (firms), venture capital, Banks and financial services, academia, regulators)?

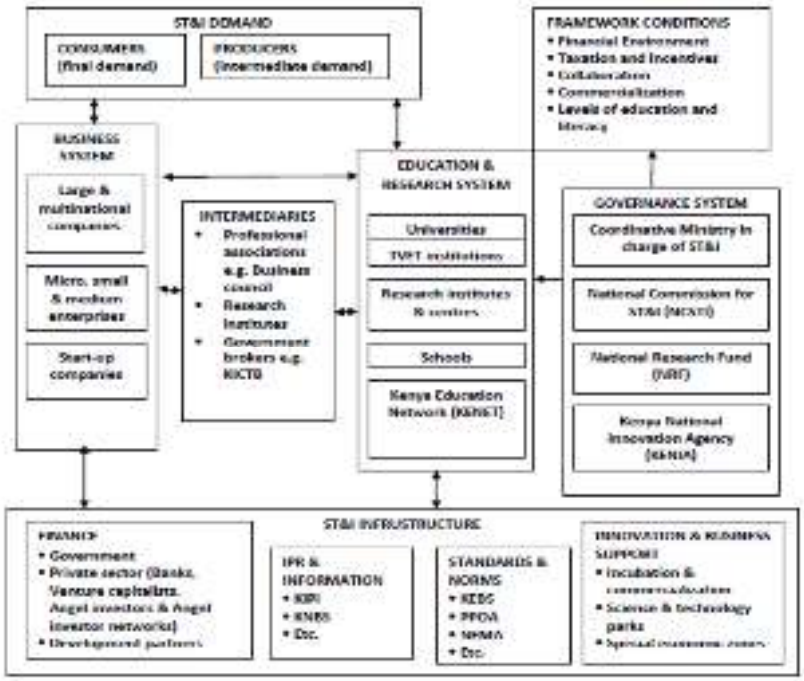

Figure 1: Major Components of the Kenya National Innovation System

c. What are the key networks of the ecosystem in your country (including online networks, innovation hubs, forums, etc)?

We have the STI&R Network, several innovation hubs including C4DLab is an R&D and Startup Incubation Hub situated at the University of Nairobi, Chandaria Business Innovation & Incubation Centre at Kenyatta University.

What are the national strategies, policies, laws and regulations (in place or preparation) related to blockchain?

Absence of domestic regulatory framework has undermined the development of blockchain in Kenya although we have models proposed by Kenyan universities.

2. What are the challenges that your government have faced or may face for promoting innovation and competence building in blockchain in your country, to contribute to national development priorities and accelerate the progress towards the SDGs?

Biggest challenge is regulatory.

Blockchain technology poses a challenge with regard to compliance with know-your-customer (KYC) provisions. Practical recommendations would include:

- outsourcing the data validation function to external entities that can certify or validate the data being put into the blockchain, while responsibility and corresponding liability for compliance remains with the regulated entity; and
- using blockchain explorer software.

However, the Proceeds of Crime and Anti-money Laundering Act is silent on whether KYC due diligence obligations can be outsourced to third parties. That said, it does specifically prohibit the outsourcing of KYC due diligence obligations when transacting with jurisdictions that have been designated as high risk or are otherwise monitored by the Financial Action Task Force.

3. What are the actions that the international community, including the CSTD, can take to contribute to harnessing blockchain for sustainable development.
   Development capacity and creating awareness of potential of blockchain technology

4. Could you suggest some contact persons of the nodal agency responsible for projects/policies and international collaboration in this context as well as any experts (from academia, private sector, civil society or government) dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.
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5. Do you have any documentation, references, technological assessments, future studies or reports on the priority theme in your country or region?

   Yes, we have Kenya National Research Priorities for 2018-2022. We are currently developing Science, Technology and Innovation priorities for 2020-2030.

   For documentation kindly visit **https://www.nacosti.go.ke**

PRIORITY THEME 2: Using science, technology and innovation to close the gap on SDG 3, good health and well-being

1. Can you give examples of projects/policies in your country aimed at using science, technology, and innovation for early warning, risk reduction and management of national risks? What are the main outcomes? And What are the main challenges confronted while trying to implement these projects/policies in your country or region?

a. Projects/policies aimed at using science, technology, and innovation for early warning, risk reduction and management of national risks?
Policies;
i. Kenya has a National Disaster Risk management Policy which integrates disaster risk management in planning and budgeting
ii. Disaster Management Policy, 2017 and 3. National Environmental Management Act (NEMA) revised 2012

Projects:
i. **Integrated Drought Early Warning Systems (EWS) project:** provide promising solutions related to the use of technology for social media and crowd sourcing data-some of which are already being used in Kenya in social and political spheres-have the potential to be incorporated into early warnings systems for hazards. Application of these recommendations in the EWS process in Kenya will ensure that impact of disasters on vulnerable groups is minimized. Earthquake monitoring at Kilimambogo can detection capability of the International Monitoring System of the CTBTO.

ii. **Kenya Meteorological Service in Weather Early Warning in Kenya**; Early warning in weather forecasting entails provision of timely and effective weather information that allows individuals, organisations, or communities exposed to likely weather hazards to take action that avoids or reduces their exposure to risks. Various sectors have developed different ways to mitigate the effects of climate anomalies.

b. What are the main outcomes?
- Early actions should protect vulnerable households, particularly in exposed areas.
- Preserving livestock assets alone is not enough. It has to run alongside encouraging livestock owners to produce and sell animals for the market, and to sell early while prices are still high.

c. What are the main challenges confronted while trying to implement these projects/policies in your country or region?
- **Inadequate policy, legal and institutional frameworks**: Owing to lack of a coordinated policy framework, to give strategic guidelines on Disaster Management, the existing Institutional framework for Disaster Management is heavily weighted towards emergency response. Therefore, systematic approach to planned Disaster Management is inadequate.
- **Inadequate finances, human resources and equipment**
- **Inadequate information and data**
- **Inadequate integration and co-ordination**
- **Poor Monitoring and Evaluation:** Past Disaster Management performance in Kenya reveals poor monitoring, evaluation and research, including poor data recording systems, inefficient evaluation, inconclusive research, ignored disaster types, and a general unpreparedness for systematic, effective disaster management.
- **Poor Governance and Lack of Political Will**: Lack of political will has slowed down the process of putting in place an effective Disaster Management system. This has hindered the formulation and implementation of disaster related policies and legal frameworks.

2. Can you provide examples of policies/projects/initiatives aimed at strengthening national health innovation systems? For example, how does your country build innovative capabilities through investments in R&D and human capital? What institutional and regulatory arrangements are in place to stimulate healthcare innovation and effectively address safety, ethical and other concerns?

Policies/projects/initiatives:

- Kenya has come up with National Research priorities for period 2018-2022 which is in tandem with the Constitution provisions on matters of science and technology development, the Kenya Vision 2030, its Medium Term Plans and the Big Four Agenda. The Government's " Big Four Agenda"" has health specifically attaining Universal Health Coverage by 2022. To ensure universal health is attained, the country is looking at a number of e-services to meet the needs of a population with limited spending power and poor access to formal health care facilities given the large penetration of mobile in the country.
- Kenya is implementing ST&I Act, 2013 which among other initiatives is to increase funding to R&D for research and infrastructure to the tune of 2% of GDP. We have not attained the 2% but progressively we aspire to attain it.
- Kenya is participating on the pilot STI roadmap for the SDGs project and has selected to pursue three sectors of the Big Four – manufacturing and agriculture with ICT as cross cutting and Health. Universal health coverage will be integral to achieving SDG 3,

ending poverty and reducing inequalities. Kenya has been selected as one of the five countries for the pilot phase of the UN Interagency Task Team (UN-IATT) Global Pilot Programme on Science, Technology and Innovation for SDGs Roadmaps.

- Kenya Health Policy 2014–2030 and several others eg. Cancer policy 2020. Several projects/initiatives include: Research Chairs programme; Linda Mama Services-is Free Maternity Scheme; E-Health Strategy comes at an important time when the health sector is implementing far reaching reforms to achieve universal coverage.
- Institutional and regulatory arrangements: to assure quality in health research the National Commission for Science, Technology and Innovation has come up with Guidelines for Accreditation of Ethics Review Committees in Kenya (hereinafter referred to as Guidelines) provide Institutional Ethics Review Committees (IERCs) and the respective appointing authorities with the minimum requirements for accreditation.
- Biological sciences (Biosciences) and related advances in biotechnology are opening up new opportunities to increase food production, stem environmental degradation, fight such diseases as malaria, HIV/AIDS and tuberculosis, and add value to natural resources as well as promote industrialization in Kenya. Biosciences and Biotechnology research have advanced the development of drugs and disease diagnosis in very profound ways. Combined with advances in imaging technology and sensors, medical practitioners are able to use genomic approaches to diagnose many diseases and offer early treatment, development of therapeutic and related biopharmaceuticals

3. Could you share case studies of regional and international cooperation that have strengthened health capacities, particularly in developing countries? Can you provide success stories involving regional or global cooperation in academic research networks, STI diplomacy, or initiatives to make healthcare innovations accessible for all?

Case studies in regional and international cooperation that have strengthened health capacities; Kenya's Field Epidemiology and Laboratory Training Program's (KFELTP) experience in implementing frontline public health worker training to transfer knowledge and practical skills that help strengthen their abilities to detect, document, respond to, and report unusual health events. This study was 1 year (May 2014-May 2015) and concluded that local, national, and international partnerships are critical for improving local public health response capacity and workforce development training in an African setting.

Regional or global cooperation in academic research networks, STI diplomacy, or initiatives to make healthcare innovations accessible for all?.: Kenya has implemented a 5 year Research Chair programme by NACOSTI (National Commission for Science, Technology and Innovation) with assistance of IDRC (INTERNATIONAL DEVELOPMENT RESEARCH CENTRE (IDRC-CRDI), " A System Approach to Improving Maternal and Child Health Care Delivery in Kenya: Innovations at Community Level and Primary Care Facilities". The project improved access and the quality of Maternal and Child Health (MCH) care through a predesigned Enhanced Health Care system (EHC) and community owned initiatives including CBOs and IGUs.

4. Could you suggest some contact persons of the nodal agency responsible for projects/policies, related technologies and international collaboration in this context as well as any experts (from academia, private sector, civil society or government) dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.

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5. Do you have any documentation, references, or reports on the specific examples on the priority theme in your country or region?

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