

Module 2

Country data profile –
Kenya

Guide

Kenya – Agriculture data country profile



This document is a learning resource for the Bill & Melinda Gates Foundation program officers that provides background information on the data policy and a wider context for agriculture projects in Kenya.

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Quick links

- Data and technology – capacity and infrastructure
- Wider political and technological trends
- Data regulation and laws
- Intellectual property laws and rights to data
- Agriculture law
- Resources

Data and technology – capacity and infrastructure

This section provides an overview of the data and technology capacity of the country and the infrastructure currently in place.

What is this country's access to technology and internet like?

- Known as the 'Silicon Savannah'¹, Kenya has seen its Information and Communications Technology (ICT) sector grow at an average of 10.8% annually since 2016, becoming a significant source of economic development and job creation with spillover effects in almost every sector of the economy.²
 - Kenya mobile phone-based financial services have enabled exceptionally high levels of financial inclusion, starting with the launch of M-Pesa in 2007.³
 - Kenya's Digital Startup scene is one of the most advanced in Africa. Over 38 startup incubators and accelerators are currently in operation, clustered around Nairobi and several secondary cities, and as of 2016, approximately 661 entrepreneurial software companies had been established in Nairobi.
 - Digital innovation is still on the margin of the manufacturing industry though, where technology adoption lags.⁴
- Kenya Vision 2030 is Kenya's strategy to be a newly industrialized middle-income country by the year 2030, aiming to establish Kenya as a globally competitive knowledge-based economy.⁵
 - As part of this, Kenya has ramped up investment in ICT infrastructure and digital skills development programs, with the aim of transforming Kenya into a knowledge-based economy and society.⁶

¹ Tech Crunch 2015. 'The Rise Of Silicon Savannah And Africa's Tech Movement.' Accessed November 2020, <http://tcrn.ch/1SF5JDZ>

² World Bank. 2019. "Kenya Economic Update : Securing Future Growth – Policies to Support Kenya's Digital Transformation." Accessed 19 June 2020 <http://documents.worldbank.org/curated/en/968481572468094731/Kenya-Economic-Update-Securing-Future-Growth-Policies-to-Support-Kenya-s-Digital-Transformation>

³ Ndung'u, Njuguna. 2019. "Digital Technology and State Capacity in Kenya." CGD Policy Paper 154. Center for Global Development. Accessed 19 June 2020 <https://www.cgdev.org/sites/default/files/digital-technology-and-state-capacity-kenya.pdf>

⁴ World Bank. 2019. "Kenya Economic Update : Securing Future Growth – Policies to Support Kenya's Digital Transformation." Accessed 19 June 2020 <http://documents.worldbank.org/curated/en/968481572468094731/Kenya-Economic-Update-Securing-Future-Growth-Policies-to-Support-Kenya-s-Digital-Transformation>

⁵ Government of Kenya. 2008. "Kenya Vision 2030". Accessed 19 June 2020 <http://vision2030.go.ke/>

⁶ World Bank. 2019. "Kenya Economic Update : Securing Future Growth – Policies to Support Kenya's Digital Transformation." Accessed 21 June 2020 <http://documents.worldbank.org/curated/en/968481572468094731/Kenya-Economic-Update-Securing-Future-Growth-Policies-to-Support-Kenya-s-Digital-Transformation>

- As of March 2019, the number of active mobile subscriptions in the country was 47.0 million, while mobile penetration was at 90%.
 - An estimated 46% of citizens had access to broadband connectivity at the end of 2018, with mobile broadband being the predominant means of internet access.⁷
- Kenya has a robust and competitive international connectivity infrastructure. Kenya is connected to the global internet infrastructure by four submarine cables, with total bandwidth capacity growing nearly 200% between 2015 and 2018.
 - Investments in networks have helped more Kenyans get online, but broadband infrastructure and market bottlenecks persist which reduce coverage, speed, reliability and affordability of services.⁸
- The Network Readiness Index 2019, ranks Kenya at 93 out of the 121 economies included, 4 against other economies in Africa and above average for lower-middle income countries.⁹
 - When comparing with 121 economies, Kenya ranks highly in a number of indicators including International Internet Bandwidth (6), Government procurement of advanced technology products (20), ICT use and government efficiency, publication and use of open data (35), and the ICT regulatory environment (43).¹⁰
 - Kenya scores less well in indicators such as tertiary enrolment (101), use of clean fuels and technology (109), internet users (114), and access to basic services (115).¹¹

⁷ *Ibid.*

⁸ *Ibid.*

⁹ Network Readiness Index. "Network Readiness Index – Kenya." Accessed 21 June 2020 <https://networkreadinessindex.org/>

¹⁰ *Ibid.*

¹¹ *Ibid.*

Is there existing capacity related to data management in this country?

- A key constraint for the further development of the digital sector in Kenya is a lack of digital talent.¹²
- Flagship initiatives such as the Digital Literacy Program (DLP) have sought to boost the integration of ICT in education, but gaps in access to adequate teacher training, digital content, as well as digital devices and connectivity beyond primary-level adversely affect training delivery and skills attainment.
 - Although 93.4% of public primary schools have now been covered by the DLP, only 36% of schools are using the equipment as intended.¹³
- Kenyan Technical and Vocational Education and Training (TVET) institutions and Universities offer advanced level IT-related courses. However, low enrollment in Science, Technology, Engineering and Mathematics (STEM) fields, low completion rates of related courses, and low quality and relevance of related training limit the pipeline of digital talent with advanced or high-end digital skills.¹⁴
- Kenya spends around 0.8% of its GDP on research and development (R&D) compared to the Sub-Saharan African average of 0.4%.¹⁵
- Government spending on agricultural research as a proportion of GDP has fallen steadily over the past decade.
 - Kenya has 1,158 full-time equivalent agricultural researchers, compared with 3,025 in Ethiopia.¹⁶
- Major Kenyan institutions involved in data management include:
 - **Kenya National Bureau of Statistics (KNBS)**
 - **Ministry of Agriculture**

¹² World Bank. 2019. "Kenya Economic Update : Securing Future Growth – Policies to Support Kenya's Digital Transformation" Accessed 21 June 2020 <http://documents.worldbank.org/curated/en/968481572468094731/Kenya-Economic-Update-Securing-Future-Growth-Policies-to-Support-Kenya-s-Digital-Transformation>

¹³ *Ibid.*

¹⁴ *Ibid.*

¹⁵ UNESCO Institute for Statistics. 2020. "R&D spending by country." Accessed 21 June 2020 <http://uis.unesco.org/apps/visualisations/research-and-development-spending/>

¹⁶ Birch, I. 2018. "Agricultural productivity in Kenya: barriers and opportunities." K4D Helpdesk Report. Institute of Development Studies. Accessed 21 June 2020 https://assets.publishing.service.gov.uk/media/5c70028ee5274a0ecbe9a1c2/483_Agricultural_Productivity_in_Kenya_Barriers_and_Opportunities.pdf

- Ministry of Health
- ICT Authority
- Africa Institute for Capacity Development (AICD)
- Agricultural Information Resource Centre (AIRC)
- Academic Model Providing Access to Healthcare (AMPATH)
- International Livestock Research Institution (ILRI)
- Kenya Agricultural and Livestock Research Organization (KALRO)
- Kenya Forestry Research Institute (KEFRI)
- Kenya Industrial Research Institute (KIRDI)
- Kenya Veterinary Vaccines Production Institute
- Kenya Medical Research Institute (KEMRI)
 - KEMRI – Wellcome Trust
- Kenya Marine and Fisheries Research Institute (KMFRI)
- National Crime Research Centre (NCRC)
- Tegemeo Institute of Agricultural Policy and Development
- The International Centre of Insect Physiology and Ecology (ICIPE)
- The World Agroforestry Centre (ICRAF)
- Pan African University Institute for Basic Sciences, Technology and Innovation (PAUSTI)
- iLabAfrica – a Centre of Excellence in ICT Innovation and Development at Strathmore University
- Jomo Kenyatta University of Agriculture and Technology

Wider political and technological trends

This section provides an overview of the wider political and technological landscape that may impact data collection and publication.

Has there been any recent political volatility or tension? Could this volatility be linked to land and borders, and therefore potentially impact agriculture data collection and publication?

- Interethnic conflict has occurred on a large scale during elections since the early 1990s, particularly in 2007–08. Political instability and violence also followed the 2017 election after the first result in favour of President Uhuru Kenyatta was annulled, and the second was boycotted by the opposition leader Raila Odinga. Cambridge Analytica reportedly mined voter data to aggressively exploit ethnic tensions.¹⁷
- Internal and cross-border conflict is also a significant source of risk for Kenyan agriculture and makes data collection difficult:
 - Political instability and conflict in neighboring Somalia disrupt agricultural systems in Northern Kenyan states, with rising incidence of attacks by jihadist Al-Shabaab fighters.
 - Customary land tenure systems are often a source of conflict particularly in the arid and semi-arid lands, either when disagreement arises within the system between different rights holders, or when members of a different ethnic group contest the rights of the first group to exclude strangers.¹⁸
- Drought, population growth, high unemployment and environmental pressures from climate change are worsening tensions.¹⁹

¹⁷ Moore, J. 2018. "Cambridge Analytica Had a Role in Kenya Election, Too." *New York Times*. March 20, 2018. Accessed 21 June 2020 <https://www.nytimes.com/2018/03/20/world/africa/kenya-cambridge-analytica-election.html>

¹⁸ D'Alessandro, Stephen P., Jorge Caballero, John Lichte, and Simon Simpkin. 2015. "Agricultural Sector Risk Assessment." World Bank Group Report Number 97887. Washington, D.C.: World Bank Group. Accessed 21 June 2020 <http://documents.worldbank.org/curated/en/294711467992513646/pdf/97887-REVISED-WP-P148139-PUBLIC-Box393257B-Kenya-Agricultural-Sector-Risk-Assessment.pdf>

¹⁹ Onguny, Philip. and Taylor Gillies. 2019. "Land Conflict in Kenya: A Comprehensive Overview of Literature" *The East African Review*, 53. Accessed 21 June 2020 <https://journals.openedition.org/eastafrica/879>

Has there been any technology recently introduced to the country that could affect the agricultural data landscape? Have any technologies been replaced or made obsolete or undesirable?

- The KALRO **ASAL K-Hub** is a platform promoting data exchange, sharing, learning, collaboration, and innovation for equitable access and utilization of agricultural knowledge within the arid and semi arid lands.
- **UjuziKilimo**, a Kenyan startup, uses big data and analysis to adjust irrigation and determine the needs of individual plants, hoping to transform farmers into a knowledge-based community, and improving productivity through precision insights.
- **Astral Aerial** is a drone operator providing up to date, problem-specific data to farmers using drones. A drone covers 1000 acres per flight, with sensors to detect crop health.

Data regulation and laws

This section provides an overview of the general data policy context.

To what extent is there an open data policy or data strategy for this country, including open data or data access?

- Under the new Kenyan Constitution (2010), the right to information is enshrined in the Bill of Rights.²⁰
 - Article 35 of the Bill of Rights states that an individual has a right of access to information held by the State; and to information held by another person required for the exercise or protection of any right or fundamental freedom. It further imposes a duty on the State to publish and publicise any important information affecting the nation.²¹

²⁰The Republic of Kenya, "The Constitution of Kenya 2010." <http://extwprlegs1.fao.org/docs/pdf/ken127322.pdf>

²¹*Ibid.*

- The Kenyan government launched the Kenya Open Data Initiative in 2011, making key government data freely available to the public through a single online portal.²²
 - Kenya Open Data is an initiative designed to make developmental, demographic, statistical and expenditure data available in a useful digital format for researchers, policymakers, ICT developers and the general public.²³
 - Users can view data sets at national, county and constituency levels in categories including agriculture, energy, water, infrastructure, health, education, population and governance, among others. Data can be visualised using the online platform and also downloaded in a wide range of formats, including CSV, CSV for Excel, JSON, PDF, RDF, RSS, XLS and XML.²⁴
- The Open Data Initiative is also supporting the digitalisation of government records and processes that will supply the portal in the future.²⁵
- There is no national open data policy.
- Supply of open government data is still identified as a challenge, and low quality data can hinder usage. These are primarily as a result of:
 - Unclear distinction between what can be safely shared
 - Lack of technical capacity to produce and curate open data
 - Lack of understanding of the exact mandate, as enshrined in law, for institutions to release data.²⁶
- The Access to Information Act (2016) sought to clarify some of the legal ambiguity regarding access to data by upholding the right to information provision of the constitution.

²² ICT Authority of Kenya. "Kenya Open Data Initiative" <http://www.opendata.go.ke/>

²³ *Ibid.*

²⁴ *Ibid.*

²⁵ ICT Update. 2017. "Kenya opens up agricultural data". Accessed 17 June 2020 <https://ictupdate.cta.int/en/article/kenya-opens-up-agricultural-data-sid0f5643cf1-33b5-4aba-9043-2ddc62f17c2a>

²⁶ Willmers, Michelle., Tobias Schonwetter, Francois Van Schalkwyk, Francois. 2015. "Licensing open data in developing countries: The case of the Kenyan and City of Cape Town open data initiatives." *African Journal of Information and Communication* -https://www.researchgate.net/publication/316499858_Licensing_open_data_in_developing_countries_The_case_of_the_Kenyan_and_City_of_Cape_Town_open_data_initiatives

It lays down the conditions to which the various organisations (government organisations, agencies or private organisations) that receive or use public resources, provide public services, exploit natural resources or hold information of public interest, are obliged to give the information out. The law obliges public bodies to:

- Proactively publish in the public interest information in its possession
- Detail the manner in which an application for information is to be made and the manner in which the application is to be processed
- Comply with parameters for non-disclosure of information.

The Data Protection Commissioner ensures oversight and enforcement functions on access to information issues as of Data Protection Act 2019.²⁷

Is the country a member of any international organisation that promotes a specific type of data access, use and sharing?

- The African Union has established Privacy and Personal Data Protection Guidelines for Africa as a blueprint for member states' data protection policies.²⁸
- The African Union Convention on Cyber Security and Personal Data Protection was adopted in 2014 to establish a 'credible framework for cybersecurity in Africa through organization of electronic transactions, protection of personal data, promotion of cyber security, e-governance and combating cybercrime.' The convention requires members to protect data security, and notify users of risks to their data and of data transfers to third parties.²⁹
 - Kenya is yet to ratify the convention

²⁷ The Republic of Kenya, "Access to Information Act 2016". Accessed 21 June 2020 <https://www.cuk.ac.ke/wp-content/uploads/2018/04/Access-to-Information-ActNo31.pdf>

²⁸ Internet Society and African Union. 2018 "Personal Data Protection Guidelines for Africa." Accessed 21 June 2020 https://iapp.org/media/pdf/resource_center/data_protection_guidelines_for_africa.pdf

²⁹ African Union, 2019 "African Union Convention on Cyber Security and Personal Data Protection." Accessed 21 June 2020 <https://au.int/en/treaties/african-union-convention-cyber-security-and-personal-data-protection>

- The Africa Data Consensus was adopted by the African Development Bank, African Union Commission and Economic Commission for Africa following the High Level Conference on Data Revolution in Addis Ababa in 2015. ‘A partnership of all data communities that upholds the principles of official statistics as well as openness across the data value chain, which creates a vibrant data ecosystem providing timely, user-driven and disaggregated data for public good and inclusive development’.³⁰
- The **African Statistical Yearbook** is part of the AfDB, AUC and UNECA’s quest to provide users with quality statistical information to inform Africa’s development initiatives
- **United Nations Global Geospatial Information Management: Africa** was established to develop common frameworks, standardization and compliance for interoperable geospatial information. Its action plan aims to enforce specific geospatial information policies in its member states so that national geospatial datasets are available, discoverable, better accessible, shareable, interoperable and reusable.
- The **Commonwealth Human Rights Initiative (CHRI) Access to Information Programme** advocates for the realisation of people’s basic human right to access information from government and other public bodies in Commonwealth countries.
- The **Health Data Collaborative (HDC)** was established to strengthen national health information systems to meet the challenge of monitoring the health and health-related UN Sustainable Development Goals and boost the development of robust sustainable national health monitoring systems.

³⁰ United Nations Economic commission for Africa, 2015. "African Data Consensus." Accessed 21 June 2020. <https://repository.uneca.org/ds2/stream/?#/documents/12a5221f-eba0-5763-ab08-3dee1cde89ba/page/1>

Membership organizations with open access policies include:

- **The Africa Information Highway (AIH)** was established as part of the African Development Bank's statistical capacity building program (SCB) in Africa. AIH is a mega network of live open data platforms (ODPs) electronically linking all African countries and 16 regional organizations. The overall objective is to significantly increase public access to official and other statistics across Africa, while at the same time supporting African countries to improve data quality, management, and dissemination.
- The World Bank Access to Information Policy is based on the concept that any information held by the bank should be publicly accessible, including a range of specific Kenya indicators and datasets.³¹ The policy allows for an exception for 'Information Provided by Member Countries or Third Parties in Confidence'. The World Bank also promotes open access policies amongst its members.
- The UN Food and Agricultural Organisation (FAOSTAT) provides free access to food and agriculture data for over 245 countries and territories and covers all FAO regional groupings. The data is subject to national confidentiality policies.

³¹ World Bank, 2010 "Access to Information Policy." Accessed 21 June 2020. <https://www.worldbank.org/en/access-to-information>

Research and academic organisations

- **World Association of Industrial and Technological Research Organizations (WAITRO)** is the largest global network of research and technology organizations (RTOs). It provides a wide range of services and programs to foster R&D capacities and facilitate the transfer of technologies around the globe. For members and partners, WAITRO creates incentives to collaborate and drive sustainable development.
- Health Level Seven International (HL7)³² is a not-for-profit, ANSI-accredited standards developing organization dedicated to providing a comprehensive framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information that supports clinical practice and the management, delivery and evaluation of health services.

³² Health Level Seven International, <https://www.hl7.org/>

³³ World Trade Organization, 1995. "The Agreement on Trade-Related Aspects of Intellectual Property Rights." https://www.wto.org/english/docs_e/legal_e/27-trips_03_e.htm

Trade agreements

- World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement).³³ Section 7 on the 'Protection of Undisclosed information' requires regulatory authorities in a country that have received data from a company for '...approving the marketing of pharmaceutical or of agricultural chemical products' not to release the data in a way that harms the commercial interests of the company.

What data protection laws apply in this country?

One trust Data Guidance (providing information on evolving privacy & security regulations around the world) offers a comprehensive [Kenya Data Protection Overview](#).

The Data Protection Act, 2019 (the Act) came into force on 25th November, 2019 and is now the primary statute on data protection in Kenya.³⁴ It gives further context to Article 31 (right to privacy) of the Constitution of Kenya, 2010.

Collection and Processing

- Section 25 of the Act determines that the processing of personal data must comply with the following principles. It must be:³⁵
 - processed in accordance with the right to privacy of the data subject
 - processed lawfully, fairly and in a transparent manner in relation to any data subject
 - collected for explicit, specified and legitimate purposes and not further processed in a manner incompatible with those purposes;
 - adequate, relevant and limited to what is necessary in relation to the purposes for which it is processed
 - collected only where a valid explanation is provided whenever information relating to family or private affairs is required
 - accurate and, where necessary, kept up to date, with every reasonable step being taken to ensure that any inaccurate personal data is erased or rectified without delay

³⁴The Republic of Kenya, "The Data Protection Act 2019". Accessed 21 June 2020 http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2019/TheDataProtectionAct__No24of2019.pdf

³⁵ *Ibid.*

- kept in a form which identifies the data subjects for no longer than is necessary for the purposes which it was collected
- not transferred outside Kenya, unless there is proof of adequate data protection safeguards or consent from the data subject.
- Section 30 of the Act recommends personal data be collected and processed lawfully and it is an offence to process personal data without a lawful reason. A lawful reason includes that the processing is necessary:
 - for the performance of a contract to which the data subject is a party or in order to take steps at the request of the data subject before entering into a contract
 - for compliance with any legal obligation to which the controller is subject
 - in order to protect the vital interests of the data subject or another natural person
 - for the performance of a task carried out in the public interest or in the exercise of
 - official authority vested in the controller
 - the performance of any task carried out by a public authority;
 - for the exercise, by any person in the public interest, of any other functions of a public nature
 - for the legitimate interests pursued by the data controller or data processor by a third party to whom the data is disclosed, except if the processing is unwarranted in any particular case having regard to the harm and prejudice to the rights and freedoms or legitimate interests of the data subject
 - for the purpose of historical, statistical, journalistic, literature and art or scientific research.

- Section 37 of the Act outlines the use of personal data for commercial purposes is prohibited unless the person undertaking this processing:
 - has sought and obtained express consent from a data subject
 - is authorized to do so under any written law and the data subject has been informed of such use when collecting the data from the data subject.

³⁶ Willmers, Michelle., Tobias Schonwetter, Francois Van Schalkwyk, Francois. 2015. "Licensing open data in developing countries: The case of the Kenyan and City of Cape Town open data initiatives." African Journal of Information and Communication https://www.researchgate.net/publication/316499858_Licensing_open_data_in_developing_countries_The_case_of_the_Kenyan_and_City_of_Cape_Town_open_data_initiatives

Transfer

- Part VI of the Act determined that transfer of personal data outside Kenya would be highly regulated. Prior to any transfer the data controller or data processor must provide proof to the Data Protection Commissioner on the appropriate safeguards with respect to the security and protection of the personal data including jurisdictions with similar data protection laws.
- The consent of the data subject is required for the transfer of sensitive personal data out of Kenya.

Data licensing

- Kenya does not have a national legal framework for open data provision, but KODI provides a platform on which user rights are entrenched in an open legal framework with the ICT Authority and KODI positioning themselves in line with the international open data movement.³⁶
 - Datasets have been published under:
 - Creative Commons — CC0 1.0 Universal Public Domain Dedication
 - Creative Commons Attribution – ShareAlike 4.0 International
 - A “Public Domain” statement

- Outside of KODI there is a lower level of understanding of the licensing frameworks for open use with Kenya National Bureau of Statistics sharing data on its website on full copyright basis with rights reserved.³⁷

³⁷ *Ibid.*

³⁸ Mweu, Nzilani. 2020 "Kenya – Data Protection Overview." One Trust Data Guidance, Accessed 21 June 2020 <https://www.dataguidance.com/notes/kenya-data-protection-overview>

³⁹ *Ibid.*

What rights are given to individuals, data creators, governments and citizens regarding data access, use and sharing?

- Under the DPA, the rights of individuals include the right to:³⁸
 - Be informed of the use to which their personal data is to be put
 - Access their personal data held by the data controller or data processor
 - Object to the processing of all or part of their personal data;
 - rectify false, inaccurate, incomplete, or misleading data
 - Seek the erasure of data where data is inaccurate, outdated, incomplete, or misleading
 - Be informed of automated decision-making
 - Data portability.
- Data controller responsibilities include:³⁹
 - The duty to notify
 - The obligation to process data in accordance with the provisions of the Act
 - The obligation to retain data only for as long as is necessary to satisfy the purpose of collection, with the consent of the data subject, or for historical, statistical, journalistic, literature, art or research purposes
 - The obligation to put in place protective measures for the processing of sensitive personal data

- To implement appropriate technical and organisational measures to safeguard data
- To ensure and provide sufficient protective measures with regard to the transfer of personal data outside Kenya.
- Government and regulator powers include:⁴⁰
 - Enforcement of the provisions of the Act including oversight and assessment of data processing
 - The maintenance of the register of data controllers and data processors
 - To investigate complaints on infringement of rights under the Act
 - To set the requirements for the appointment of data protection officers
 - To promote and act as a bridge for international cooperation in matters relating to data protection.

⁴⁰ Ibid.

⁴¹ The Republic of Kenya, 2010 "The Constitution of Kenya." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken127322.pdf>

⁴² The Republic of Kenya, 1998 "Kenya Information and Communications Act." Accessed 21 June 2020 [http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/KenyaInformationandCommunicationsAct\(No2of1998\).pdf](http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/KenyaInformationandCommunicationsAct(No2of1998).pdf)

What other laws apply in this country that might affect the use of data and agriculture data in particular?

- The Constitution of Kenya (2010):⁴¹
 - Article 2: commits Kenya's international obligations, such as its commitment to the Universal Declaration of Human Rights and International Covenant on Civil and Political Rights, which include privacy rights, as part of Kenyan domestic law.
- The Kenya Information and Communications Act, (1998) is the overarching law for the information and communications technology industry in Kenya.⁴² It outlines the requirements and compliance standards by which licensed information and communication service providers who are data collectors and controllers must abide, such as the requirement for anonymisation of

health-related data, before processing, and to have such data kept confidential. It has undergone a series of amendments and provisions including the below:

- The Kenya Information and Communications Act (2009)⁴³ and Kenya Information and Communications Amendment Act (2013)⁴⁴ penalises the unlawful interception of communications by service providers and disclosure of messages, interception of data held within a computer system, or obtaining information relating to the private affairs of any individual or to any particular business without their consent.
- Kenya Information and Communications (Consumer Protection) Regulations (2010)⁴⁵, states that: ‘a licensee shall not monitor, disclose or allow any person to monitor or disclose, the content of any information of any subscriber transmitted through the licensed systems by listening, tapping, storage, or other kinds of interception or surveillance of communications and related data.’
- The Computer Misuse and Cybercrimes Act (2018)⁴⁶ establishes offences including, among others, unauthorised interference or interception of computer systems programs or data, false publication of data, identity theft and impersonation, phishing, computer fraud, fraudulent use of electronic data.
 - The Act requires service providers to assist in investigation of offences by collecting and providing data to the investigation officers.
- The processing of financial data, including mobile money, is regulated under the National Payment System Act, 2011⁴⁷ and the National Payment System Regulations, 2014⁴⁸.

⁴³ The Republic of Kenya, 2009 “The Kenya Information and Communications Act.” Accessed 21 June 2020 <http://kenyalaw.org/kl/>

⁴⁴ The Republic of Kenya, 2013 “The Kenya Information and Communications Act.” Accessed 21 June 2020 http://kenyalaw.org/kl/fileadmin/pdfdownloads/AmendmentActs/2013/KenyaInformationandCommunications_Amendment_Act2013.pdf

⁴⁵ Republic of Kenya, 2010 “Kenya Information and Communications (Consumer Protection) Regulations.” Accessed 21 June 2020 <https://ca.go.ke/wp-content/uploads/2018/02/Consumer-Protection-Regulations-2010-1.pdf>

⁴⁶ Republic of Kenya, 2018 “Computer Misuse and Cybercrimes Act.” Accessed 21 June 2020 <http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/ComputerMisuseandCybercrimesActNo5of2018.pdf>

⁴⁷ Republic of Kenya, 2011 “National Payment System Act.” Accessed 21 June 2020 [https://www.centralbank.go.ke/images/docs/legislation/NATIONAL%20PAYMENT%20SYSTEM%20ACT%20\(No%2039%20of%202011\)%20\(2\).pdf](https://www.centralbank.go.ke/images/docs/legislation/NATIONAL%20PAYMENT%20SYSTEM%20ACT%20(No%2039%20of%202011)%20(2).pdf)

⁴⁸ Central Bank of Kenya, 2014, “National Payment System Regulations.” Accessed 21 June 2020 <https://www.centralbank.go.ke/images/docs/legislation/NPSRegulations2014.pdf>

- Prudential Guidelines for Institutions Licensed under the Banking Act (2013)⁴⁹ provide basic standards that financial institutions must implement to safeguard customer data.
- The Guideline on Cybersecurity for Payment Service Providers (2019)⁵⁰ requires risk assessments to address customer privacy.
- The Consumer Protection Act (2012) provides for protection of consumers of all services. The provisions of the Act are cross cutting in all sectors.⁵¹
- **The Protection of Traditional Knowledge and Cultural Expressions Act (2016)**⁵²: Matters relating to traditional knowledge or cultural expressions shall be guided by the national values and principles of governance set out in Article 10 of the Constitution. Where protected traditional knowledge is not being sufficiently exploited by the owner or rights holder, or where the owner or holder of rights in traditional knowledge refuses to grant licenses for exploitation, the Cabinet Secretary may, with prior informed consent of the owners, grant a compulsory licence for exploitation.
- **The Seeds and Plant Varieties (Amendment) Act (1972)**⁵³ provides proprietary rights to persons breeding or discovering new seed and plant varieties. The Act also grants plant breeders in plant variety exclusive rights to produce reproductive material of the variety for commercial purposes.

⁴⁹ Central Bank of Kenya, 2019, "Prudential Guidelines for Institutions Licensed under the Banking Act" Accessed 21 June 2020 <https://www.centralbank.go.ke/wp-content/uploads/2016/08/PRUDENTIAL-GUIDELINES.pdf>

⁵⁰ Central Bank of Kenya, 2019, "Guideline on Cybersecurity for Payment Service Providers." Accessed 21 June 2020 <https://www.centralbank.go.ke/wp-content/uploads/2019/07/GuidelinesonCybersecurityforPSPs.pdf>

⁵¹ Republic of Kenya, 2012, "Consumer Protection Act." Accessed 21 June 2020 <http://www.parliament.go.ke/sites/default/files/2017-05/ConsumerProtectionActNo46of2012.pdf>

⁵² The Republic of Kenya, 2016 "Protection of Traditional Knowledge and Cultural Expressions Act." Accessed 21 June 2020 <https://www.wipo.int/edocs/lexdocs/laws/en/ke/ke030en.pdf>

⁵³ The Republic of Kenya, 1972 "Seeds and Plant Varieties (Amendment) Act." Accessed 21 June 2020 <https://upovlex.upov.int/en/legislation/text/506145>

To what degree are data protection laws, and other laws that might affect the use of data, devolved, for example to regions, states, cities?

Kenya is a unitary state with a national government composed of 47 counties each with semi-autonomous administrations. The fourth schedule of the Constitution establishes the split in responsibilities between the National and County governments.⁵⁴

- Data protection laws, the judicial system and intellectual property law are the responsibility of the central government.
- Statistics collection is shared between the national and county governments, except for certain statistics functions, such as a population census, which are reserved for national administration.
 - The County Statistics Act (2016) provides the framework for the collection, compilation, analysis and dissemination of statistical information at county level.⁵⁵
 - The Statistics (Amendment) Bill (2019), provides more powers to the Kenya National Bureau of Statistics (KNBS) to lead development and maintenance of sampling frameworks.⁵⁶
- County governments have responsibility for land survey and mapping, though the national government has responsibility for land planning and coordination between counties.⁵⁷
- The national government sets agricultural and health policy, and manages national referral health facilities. County governments administer agricultural and health services.⁵⁸

⁵⁴ The Republic of Kenya, 2010 "The Constitution of Kenya." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken127322.pdf>

⁵⁵ The Republic of Kenya, 2016 "The County Statistics Act." Accessed 21 June 2020 <http://kenyalaw.org/kl/fileadmin/pdfdownloads/bills/2016/TheCountyStatisticsBill2016.pdf>

⁵⁶ The Republic of Kenya, 2019 "The Statistics (Amendment) Bill." Accessed 21 June 2020 <http://kenyalaw.org/kl/fileadmin/pdfdownloads/AmendmentActs/2019/StatisticsAmendmentAct2019.pdf>

⁵⁷ The Republic of Kenya, 2010 "The Constitution of Kenya." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken127322.pdf>

⁵⁸ *Ibid.*

What organisations are responsible for enforcing data protection laws, and other laws that might affect the use of data?

⁵⁹The Republic of Kenya, "The Data Protection Act 2019". Accessed 21 June 2020
http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2019/TheDataProtectionAct__No24of2019.pdf

Data protection Commissioner:

- Part II of the Data Protection Act⁵⁹ established the Office of the Data Protection Commissioner (DPC) (still to be set up at time of writing) whose mandate includes overseeing the implementation and enforcement of the provisions of the Act.
- The DPC is also tasked with the maintenance of the register of data controllers and processors, receiving and investigation of complaints under the Act, and carrying out inspections of public and private entities to evaluate the processing of personal data.
- The DPC has discretion to prescribe the thresholds for mandatory registration of data controllers and processors based on:
 - the nature of industry
 - the volumes of data processed
 - whether sensitive personal data is being processed.
- Data controllers have an obligation to notify the DPC of any breaches within 72 hours of becoming aware of a breach. Data processors are required to inform data controllers of any breach within 48 hours of becoming aware of such a breach.
 - The data controller must notify the data subject of any such breach without undue delay.

The provisions of the various sectoral laws are enforced by the respective sectoral regulatory bodies.⁶⁰

- The Communications Authority, established under Kenya Information and Communications

Act, is the oversight body in the technology and telecommunications sector.

- The Central Bank of Kenya regulates all financial service providers as well as payment systems providers.
- Health institutions are under the regulation of the Director of Medical Services at the Ministry of Health.

To what extent are data protection laws and other laws that might affect the use of agriculture data enforced?

The Data Protection Act is still in the process of being implemented. Areas where enforcement may be affected:

- Ensuring sufficient financial resources, skills and capacity within the Data Commission, judiciary and industry regulators will be key to the successful enforcement.
 - Privacy International, a registered charity working at the intersection of modern technologies and rights, have expressed concern that the establishment of the data commissioner as a State Office rather than a Statutory Commission does not provide the necessary institutional and financial independence to execute its mandate effectively under the new law.
- Generally there is a low level of awareness of laws by citizens and understanding how effective it can be in addressing some of the issues which affect them directly.⁶¹
- Privacy International have also highlighted loopholes in the DPA provisions⁶²:
 - Firms can collect personal data without notifying users in instances where the information is publicly available (but where consent has not explicitly been given or there is no other legal basis for further

⁶⁰ Mweu, Nzilani. 2020 "Kenya – Data Protection Overview." One Trust Data Guidance, Accessed 21 June 2020 <https://www.dataguidance.com/notes/kenya-data-protection-overview>

⁶¹ Kakah, Maureen., 2019 "Access to public information an uphill struggle in Kenya despite law." Business Daily <https://www.businessdailyafrica.com/datahub/Access-to-public-information-an-uphill-struggle-in-Kenya/3815418-5002502-osnfrgz/index.html>

⁶² Privacy International 2020 "Analysis of Kenya's Data Protection Act, 2019". Accessed 21 June 2020 https://privacyinternational.org/sites/default/files/2020-02/Analysis%20of%20Kenya%20Data%20Protection%20Act%2C%202019_Jan2020.pdf

processing) or where a user has authorised its collection from a third party.⁶³

- Users' consent can also be waived in cases where the information being sought will help detect or prevent crime or threat to national security, providing potential leeway for security agencies to carry out blanket surveillance and data collection under the guise of national security.⁶⁴
 - According to Privacy International, Kenyan security agencies routinely work with mobile service providers to carry out surveillance on users outside the confines of the law.
- The law should also provide for collective redress given the significant power imbalance between individuals and those controlling their personal data.⁶⁵

⁶³ *Ibid.*

⁶⁴ *Ibid.*

⁶⁵ *Ibid.*

⁶⁶ The Republic of Kenya, 2017 "The Copyright Act." Accessed 21 June 2020 <http://www.parliament.go.ke/sites/default/files/2018-09/COPYRIGHT%20%28AMENDMENT%29%20BILL.pdf>

Intellectual property laws and rights to data

What do laws and regulations say about protecting intellectual property, including copyright, trademarks, design rights and patents, in the country?

- The Copyright Act (2001 as amended up to 2017)⁶⁶: provides copyright protection for work original in character and reduced in form in literary, musical and artistic works, audio-visual works, sound recordings, broadcasts and for connected purposes. Protection period for copyright work depends on the type. This applies to software.
- Registration is not required for copyright protection as it accrues once the work to be copyrighted is established in material and permanent form, though registration provides proof of ownership.

- The Kenya Industrial Property Act (2001 as amended up to 2017)⁶⁷: Patents in Kenya provide government granted exclusionary rights for an ‘invention’, lasting for a period of 20 years. Patenting of plant varieties are expressly prohibited and inventions contrary to health and safety or environmental conservation.
- Kenya is a signatory to the Trade-Related Aspects of Intellectual Property Rights including national treatment, most-favoured-nation treatment, protection of trade secrets against unlawful acquisition or disclosure by third parties.⁶⁸
- The Science, Technology and Innovation Act (2013)⁶⁹: Makes it mandatory for universities to have IP and technology transfer rules addressing issues in the act. The definition of “innovation” in the act also provides for innovations such as business methods (eg. M-Pesa) which may be excluded from protection under the Industrial Property Act.
- The law also attributes to the National Commission for Science Technology and Innovation the power to 6(2) (c) “acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country”
- The **Amendment Act (2012)**⁷⁰ established the Centre for Plant Genetic Resources with the function of protecting the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics associated indigenous knowledge and its use by the communities of Kenya.
- The Trade Mark Act⁷¹ provides for the protection, promotion and registration of trademarks. The Act defines a mark to include

⁶⁷ The Republic of Kenya, 2017 “Kenya Industrial Property Act.” Accessed 21 June 2020 <https://www.wipo.int/edocs/lexdocs/laws/en/ke/ke032en.pdf>

⁶⁸ World Trade Organization, 1995. “The Agreement on Trade-Related Aspects of Intellectual Property Rights.” https://www.wto.org/english/docs_e/legal_e/27-trips_03_e.htm

⁶⁹ The Republic of Kenya, 2013 “Science, Technology and Innovation Act.” Accessed 21 June 2020 [https://absch.cbd.int/api/v2013/documents/6F5CB0ED-8011-2AC7-8F6C-8EAB145E20D7/attachments/Science%20Technology%20and%20Innovation%20Act%20No.%2028%20of%202013\(1\).pdf](https://absch.cbd.int/api/v2013/documents/6F5CB0ED-8011-2AC7-8F6C-8EAB145E20D7/attachments/Science%20Technology%20and%20Innovation%20Act%20No.%2028%20of%202013(1).pdf)

⁷⁰ The Republic of Kenya, 2012 “Seeds and Plant Varieties (Amendment) Act.” Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken122296.pdf>

⁷¹ The Republic of Kenya, 2012 “Trade Marks Act.” Accessed 21 June 2020 <https://www.wipo.int/edocs/lexdocs/laws/en/ke/ke025en.pdf>

a distinguishing guise, slogan, device, brand, heading, label, ticket, name, signature, word, letter or numeral or any combination there of whether rendered in two dimensional or three-dimensional form.

- The Act specifically incorporates marks that are protected under the Paris Convention or the WTO Agreement's Trade Related Aspects of Intellectual Property including Trade in Counterfeit Goods, 1994.⁷²
- Trade marks in Kenya are registered by Kenya Industrial Property Institute (KIPI).⁷³

⁷² *Ibid.*

⁷³ Kenya Industrial Property Institute, <https://www.kipi.go.ke/>

⁷⁴ The Republic of Kenya, 2012. "The Agricultural Act." Accessed 21 June 2020 <http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/AgricultureActCap318.pdf>

Agriculture law

The next section gathers any agriculture specific context that would need to be considered for a project.

What types of laws exist in this country that affect agriculture more widely, and any specific area the investment is looking into, and what organisations are involved?

- The Agriculture Act (2012):⁷⁴
 - The Act provides rules relative to good agricultural practice in general, and in particular, rules for the use of agricultural land, its development and preservation, including soil and fertility conservation.
 - A district agricultural committee is established for each district and a provincial agricultural board shall be established for each province. A Central Agricultural Board shall be established so as to advise the Minister on all matters of national agricultural policy and to coordinate agricultural policy on matters affecting more than one province.

- For purposes of preservation of the soil and its fertility, the Minister may issue Land Preservation Rules and the Director of Agriculture or the Minister may issue Land Preservation Orders.
- The Seeds and Plant Varieties Amendment Act, (2012):⁷⁵
 - Established the National Plant Genetic Resources Centre and regulations for the carrying out of national performance trials and matters regarding protected varieties and relative rights.
 - The newly established Centre is responsible for the conservation and sustainable utilization of plant biodiversity in Kenya. It shall, among other things:
 - Protect the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics, associated indigenous knowledge and its use by the communities of Kenya
 - Carry, out inventories by evaluating and mapping plant genetic resources distribution in the country
 - Conserve plant genetic diversity by devising and implementing management procedure, including ex-situ and in-situ maintenance
 - Ensure safe custody and accessibility of all plant bred and naturally occurring germplasm.
- The Agriculture, Fisheries and Food Authority Act, (2013):⁷⁶
 - The Act provides for the establishment of the Agriculture, Fisheries and Food Authority, the administration of matters of agriculture and the preservation, utilization and development of agricultural land and related matters.

⁷⁵ The Republic of Kenya, 2012 "Seeds and Plant Varieties (Amendment) Act." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken122296.pdf>

⁷⁶ The Republic of Kenya, 2013. "Agriculture, Fisheries and Food Authority Act." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken122137.pdf>

- Amongst other other things, the Authority, in consultation with the county governments, shall:
 - Collect data and maintain a database on agricultural and aquatic products excluding livestock products
 - Determine the research priorities in agriculture and aquaculture.
- The Cabinet Secretary shall, on the advice of the Authority, and in consultation with the National Land Commission, provide general guidelines applicable in respect of any category of agricultural land, to be implemented by the respective county governments.
- In a like manner, the Cabinet Secretary shall make general rules for the preservation, utilization and development of agricultural land and aquatic resources and prescribe national guidelines for soil conservation.
- The Crops Act (2013):⁷⁷
 - Sets out functions of the Agriculture, Fisheries and Food Authority established under the Agriculture, Fisheries and Food Authority Act, 2013, and county governments.
 - The Act seeks to accelerate the growth and development of agriculture, enhance productivity and incomes of farmers and the rural population, improve investment climate and efficiency of agribusiness and develop agricultural crops as export crops.
- Kenya Agricultural and Livestock Research Act (2013):⁷⁸
 - The Act provides an administrative framework and promotion and coordination for agricultural research in Kenya.

⁷⁷The Republic of Kenya, 2013. "The Crops Act." Accessed 21 June 2020 <https://www.ecolex.org/details/legislation/crops-act-2013-no-16-of-2013-lex-faac122138/>

⁷⁸The Republic of Kenya, 2013. "Kenya Agricultural and Livestock Research Act." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken122139.pdf>

- It established the Kenya Agricultural and Livestock Research Organization (KALRO) and sectoral research institutes. It also establishes a Scientific and Technical Committee. The Organization shall:
 - Promote, streamline, coordinate and regulate research in crops, livestock, marine and fisheries, genetic resources and biotechnology in Kenya
 - Promote, streamline, coordinate and regulate research in crops and animal diseases
 - Expedite equitable access to research information, resources and technology and promote the application of research findings and technology in the field of agriculture.
- The Protection of Traditional Knowledge and Cultural Expressions Act (2016):⁷⁹
 - The Act concerns the protection of traditional knowledge, including knowledge relating to agriculture and the environment, and cultural expressions in Kenya. It concerns, among other things, definition and management of rights in this respect and civil remedies.

⁷⁹The Republic of Kenya, 2016. "The Protection of Traditional Knowledge and Cultural Expressions Act." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken160885.pdf>

At a high level, what are the respective roles of the public, private and third sector in the agriculture sector?

- The public sector provides policy, law and regulations for the agricultural sector in Kenya, as well as spending on research and development and extensions.
- Government spending on agricultural research in Kenya has fallen steadily as a proportion of GDP. By 2016 it was at 0.48%, approximately one-third of its value in 2006 and well below the African Union target of 1%.

- A number of international bodies take on responsibilities related to the investment and coordination of efforts to support agricultural growth in Kenya as part of larger economic development agenda, including multilateral institutions and private philanthropic groups, though this has not been able to sustain growth in crop yields.
- Major private sector players also provide significant investment with large multinational companies dominating, focusing on the commercialization of higher yielding varieties of a handful of major crops.⁸⁰
- Agricultural extension, the relaying of information and techniques for improving productivity, exhibit the roles played by the public, private and third sector in the agriculture sector.⁸¹
 - Government extension services are provided by public agencies who predominantly bear the cost of accessing them. They are long term in nature and reach many farmers enhancing the services' impact. However, they are sometimes inconsistent because they are constrained by bureaucracy and inadequate funds.
 - Private for-profit extension services are provided by commercial companies, and often target literate farmers with relatively high incomes because they can afford them. Consequently, they are well funded and efficient but tend to only cover limited geographic areas and reach only a few selected farmers, excluding poor farmers.
 - NGOs, community-based and faith-based organizations help to provide more affordable extension services and cover a wider geographic area compared with private extension services. However, they tend to be based on short term projects

⁸⁰ Birch, I. 2018. "Agricultural productivity in Kenya: barriers and opportunities." K4D Helpdesk Report. Brighton, UK: Institute of Development Studies. https://assets.publishing.service.gov.uk/media/5c70028ee5274a0ecbe9a1c2/483_Agricultural_Productivity_in_Kenya_Barriers_and_Opportunities.pdf

⁸¹ Mwololo, Henry Muli., Jonathan Makau Nzuma, Cecilia Nyawira Ritho & Antony Aseta (2019) Is the type of agricultural extension services a determinant of farm diversity? Evidence from Kenya, *Development Studies Research*, 6:1, 40-46, Accessed 22 June 2020 <https://rsa.tandfonline.com/doi/full/10.1080/21665095.2019.1580596#XqigS5NKhQI>

which end when their funding stops, limiting their impact on target farmers.

⁸² The Republic of Kenya, 2012 "Seeds and Plant Varieties (Amendment) Act." Accessed 21 June 2020 <http://extwprlegs1.fao.org/docs/pdf/ken122139.pdf>

Who is involved in, or shapes, the collection, use and sharing of agriculture data in this country?

- Ministry of Agriculture, Livestock, Fisheries and Cooperatives
 - The Agriculture and Food Authority is the regulatory authority for agriculture data.
 - The State Department for Agricultural Research is mandated to promote agricultural research and facilitate the agriculture sector for socio-economic development and industrialization.
 - The **Agricultural Research Ecosystem** of the State Department for Agricultural Research includes major Kenyan and international research institutions, universities, NGOs and donors.
- The **Kenya Agricultural & Livestock Research Organization (KALRO)** was established under the Kenya Agricultural and Livestock Research Act 2013, and merged with the **Kenya Agricultural Research Institute (KARI)**, Coffee Research Foundation, Tea Research Foundation and the Kenya Sugar Research Foundation. It has oversight of 16 sectoral research institutes:⁸²
 - Agricultural Mechanization Research Institute
 - Apiculture Research Institute
 - Arid and Range Lands Research Institute
 - Beef research Institute, Biotechnology Research Institute
 - Coffee Research Institute
 - Dairy Research Institute
 - Food Crop Research Institute

- Genetic Resources Research Centre
- Horticulture Research Institute
- Industrial Crop Research Institute
- Non-Ruminant Research Institute
- Sheep and Goat Research Institute
- Sugar Research Institute
- Tea Research Institute
- Veterinary Science Research Institute
- Originally established under KARI, The Kenya Forestry Research Institute, the Kenya Marine and Fisheries Research Institute, the Kenya Industrial Research and Development Institute, the Kenya Seed Company (KSC), and the National Irrigation Board continue to operate separately.
- International bodies active in conducting agricultural research and coordination efforts include the Consultative Group International Agricultural Research (CGIAR), the United Nations Food and Agriculture Organization (FAO), and the United Nations Development Programme (UNDP), as well as countries such as the UK and USA, and private philanthropic groups such as the Rockefeller Foundation and The Bill & Melinda Gates Foundation.
- The major private sector players include those large multinationals dominating the agricultural innovation ecosystem, historically active in agricultural chemicals, such as Monsanto, BASF, Bayer Crop Science, Syngenta and Dow AgroSciences .
- This shift from a public and nonprofit system, and the corresponding slowdown in the growth of public research funding, has seen a shift in the character and focus of that research.
 - Industry research is aimed, for the most part, at adding recoverable value to the seeds of major commercialized crop species (maize, cotton and potatoes) by

giving them the ability to overcome specific problems such as disease, pests or weeds.

- Many fundamental areas of research such as plant breeding, plant pathology and entomology, which often operate on very long time scales, have lost ground dramatically as funding has shifted to research aimed at commercializing near-term products.⁸³

⁸³ Nyagena, Wilfred., Paul Guthiga, Maurice Ogada, and Geophrey Sikei, 2017 "Agricultural Sector Policies and Climate Change in Kenya: Nexus between Research and Practice", The Kenya Institute for Public Policy Research and Analysis (KIPPRA) Working Paper No. 20., Accessed 22 June 2020 https://www.uneca.org/sites/default/files/uploaded-documents/ACPC/annex_5_-_working_paper_on_climate_change_policies_nexus_between_policy_research_and_practice_.pdf

Have there been any high profile failures or successes related to the collection, use and sharing of agriculture data?

- Financial inclusion tools have been particularly successful in Kenya, exploiting the widespread use of mobile phones and mobile money, with these tools generating a large volume of farm and farmer data that can be used to create economic identities and improve financial inclusion for farmers. These include:
 - Digital tools that replace manual processes with mobile-based solutions that digitise transactions (i.e. procurement payments, digital receipts etc.) and streamline communication between smallholder farmers and agribusinesses. Examples include Virtual City and DigiFarm for Enterprise.
 - Market linkage tools that formalise agricultural value chains by allowing crop producers and buyers to connect through a mobile-based online platform. Examples include Twiga and Tulaa.
 - Direct-to-farmer hubs as 'one-stop shops' through which third-party agricultural service providers offer their services directly to farmers registered on the hub, while farmers can take orders directly from buyers. The most prominent example of this kind of solution is **DigiFarm** .

- Despite the volume of farm and farmer data generated by digital agriculture tools, data sharing for farmer financial inclusion generally remains fragmented and limited. GSMA field research identified concerns over entrusting data to third parties, while the lack of best practice on how to share data, such as a centralised data exchange hub, has restricted data exchange to bilateral agreements.⁸⁴
- Public provided systems developed by KALRO include:
 - The **Agro-Weather Tool** is a web and mobile-based information system that incorporates climate information and good agricultural practices for farmers.⁸⁵
 - The KALRO **ASAL K-Hub** is a platform aiming to promote data exchange, sharing, learning, collaboration and innovation for equitable access, and utilization of agricultural knowledge and information within the arid and semi arid lands.

⁸⁴ Raithatha, Rishi., "Digital agriculture in Kenya: How is it enabling financial inclusion for farmers?", GSMA., Accessed 22 June 2020 <https://www.gsma.com/mobilefordevelopment/blog/digital-agriculture-in-kenya-how-is-it-enabling-financial-inclusion-for-farmers/>

⁸⁵ Food and Agricultural Organization, "Agro-Weather Tool for Climate Smart Agriculture." Accessed 22 June 2020 <http://www.fao.org/e-agriculture/news/agro-weather-tool-climate-smart-agriculture#:~:text=In%20order%20to%20support%20Kenyan,good%20agricultural%20practices%20for%20farmers.>

Are there any developments, pressures or opportunities not specific to the sector that may affect the collection, use and sharing of agriculture data, and any specific area the investment is looking into?

- The political situation discussed may continue to cause difficulties in collection of data in certain areas and boundary zones
- COVID-19 has imposed travel restrictions across the world and in country lockdowns. Data collection will be severely affected while the pandemic lasts. The economic resources and institutional capacity required to fight the virus may also impact on future project implementation.

- Internal and cross-border conflicts discussed will continue to impact on data collection, use and sharing. These issues are likely to be aggravated by climate change and increasing populations.
- Kenya's position as a world leader in digital communication, exhibited by the success of M-Pesa, and high mobile penetration rates will continue to provide opportunities for innovative new digital agricultural products.

Resources

Collect here all the useful places to look into to update the country profile.

- WIPO Lex <https://wipolex.wipo.int/en/legislation/profile/KE>
- DLA Paper <https://www.dlapiperdataprotection.com/index.html?t=contacts-section&c=KE>
- Development Initiatives <http://data.devinit.org/spotlight-on-kenya>
- One Trust Data Guidance <https://platform.dataguidance.com/notes/kenya-data-protection-overview>
- KICTANet <https://www.kictanet.or.ke/>
- Kenya law <http://kenyalaw.org/kl/>

Data Sharing Toolkit



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