REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

ADVISORY ON BUILDING HUMAN CAPITAL AND INFRASTRUCTURE FOR GENOMIC RESEARCH IN KENYA



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Genomic research is an emerging discipline with significant potential to advance Kenya's public health, precision medicine, agricultural resilience, biodiversity management, drug development and biosecurity. Realising these benefits requires sustained investment in specialised human capital and infrastructure to support the generation, processing, storage, protection, and responsible sharing of, and access to, genomic data.

The National Commission for Science, Technology and Innovation (NACOSTI), in partnership with Health Security Partners, assessed genomic data governance practices among institutions conducting life-science research in Kenya between February and April 2026. The sample included 31 out of 110 mapped institutions, comprising universities and academic laboratories, government research institutions, private laboratories, and a diagnostic laboratory. The assessment found that 71 per cent of the sampled institutions were actively generating or managing genomic data, suggesting that Kenya already has a meaningful operational base for genomic research. Genome sequencing equipment and expertise were also increasingly available in the country.

Kenya's genomic research capacity is distributed across the health, agriculture, livestock and biodiversity sectors, with institutions such as the Kenya Medical Research Institute, Kenya Agricultural and Livestock Research Organisation, Kenya Animal Genetic Resources Centre, Kenya Wildlife Service, universities, hospitals and other public and private laboratories and research institutions. Some institutions possess high-throughput sequencing platforms, including Illumina, Ion Torrent and Oxford Nanopore technologies.

Despite these capabilities, the assessment identified significant human-capital and infrastructure gaps that constrain Kenya's ability to derive full scientific, health and economic value from genomic research. The key gaps were as follows:

- Essential infrastructure, such as high-performance computing systems to support genomic data management, including storage and analysis, was lacking or inadequate. This may relate to the high demand for resources (financial, energy and specialised skills) required to maintain such systems.
- There is no national repository or human genome biobank, both of which are critical for ensuring equitable access to available data for research.
- There is a significant skills gap, especially in bioinformatics, data science, and computational biology, which are vital for genomic data management, as they underpin the ability to process, store, analyse and interpret large-scale datasets.
- Other contributing factors included weak physical and cyber security safeguards and inadequate, unsustainable national financing.
- Given the State Department for Science, Research and Innovation's mandate as the policy and coordination lead for the sector, NACOSTI advises the State Department to develop a national genomic research infrastructure and human capital investment plan to be funded by the national government. The plan, to be developed in the 2026/27 financial year, should be a coordinated national

programme that includes the following measures:

- Establish national centres of excellence for genomics. Government-funded centres should provide shared sequencing platforms, high-performance computing, secure data storage, bioinformatics services and technical support to universities, research institutions, hospitals and laboratories. Common technical and governance standards should enable secure data exchange, interoperability, quality assurance, traceability and responsible access across the health, agricultural and biodiversity sectors. Collaboration with industry through public-private partnerships could fast-track capital sourcing for new investments and infrastructure expansion.
- Develop a national genomic data repository and biobank network. The Government should establish nationally governed repositories and biobanks, supported by common standards for sample and data collection, storage, access, use, security, preservation and benefit sharing. Existing research and data centres such as the Kenya Medical Research Institute, the National Public Health Laboratories and Konza Technopolis could be considered for infrastructure expansion.
- Expand training in bioinformatics, biosafety, computational biology, and related bioscience and data disciplines through the postgraduate funding programme of the National Research Fund, as well as professional development, specialised fellowships, mentorship and institutional training programmes.

Deliberate and targeted investment in local skills and infrastructure is critical for the country to meaningfully influence, and take advantage of, the potential that genomic research presents. Strengthening these foundations will support scientific competitiveness, improve national stewardship of genomic resources, promote equitable collaboration and reduce dependence on foreign infrastructure.

The National Commission for Science, Technology and Innovation remains committed to providing technical guidance and participating in the design and implementation of this national programme when called upon by the State Department.