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| **Title** |
| **National Data Science Network for Health, Agriculture, Environment and Education: A Flemish–Kenyan Partnership for Evidence-Driven Public Policy.**  ***Lead institution (Global south): Kenya Institute of Primate Research (KIPRE), Kenya***  ***Flemish partner Institution: Hasselt University (UHasselt)***  ***Duration: 5 years  Indicative budget: €300,000*** |
| **Context analysis** |
| The proposal now should aim to create a network of data scientists in Kenya, especially from the ministry of health (KIPRE and NPHI), agriculture (BVM) and the ministry of livestock ( WRTI or KWS) and evironment (NEMA) as well as mininstry of education through CEMA. The idea is all of this do manage or analyses data on Biomedical, Epidemiological, Ecological and translation life sciences. The capacity now should aim at building a network of data scientist through a data analytics centre that would form a powerful evidence based policy decisions for pandemic or other disease outbreak mitigations, early warnings, preparedness and interventions.  Despite the One Health approach being introduced in 2004 as a globally recognised framework to link human, wildlife, and environmental health, its practical implementation remains challenging. While it offers a noble vision to integrate biomedical, epidemiological, ecological, and translational (beet) research, operational feasibility is limited. Key barriers include fragmented datasets, siloed institutions, insufficient analytical capacity, and lack of coordinated data governance, which continue to hinder timely decision-making, outbreak preparedness, and evidence-based interventions.  This situation is not unique to Kena  Partner institutional context as well as organisational capacity building context   1. Sustainable development context- scope and identification, Causes, Interlinkages   The Kenya Institute of primate research (KIPRE) was established in 1958 and has been active in Biomedical, Epidemiological, Ecological and Translational (BEET) research ever since. Despite its over 6 decades of contributing to this crucial area of public health and policy, KIPRE does not have a functional data science and analytics Center. This limits its ability to leverage on large and complex BEET datasets it generates in facilitating evidence-based and timely decision making and interventions on public health matters.  This by extension affects the health policy makers negatively with lack of data driven insights especially on disease surveillance and early warning mechanisms as well as resource allocation and distribution to likely affected areas. On this still, the researchers and research teams are let down in conducting advanced analysis and simulations with lack of infrastructure and limited human capacity in data science and analytics. On the other hand, national and regional public health systems are left behind in adopting integrated predictive approaches for epidemic preparedness and one Health interventions.  The problem is mainly caused by the lack of an institutional framework for centralized data management, limited expertise (in biostatistics, bioinformatics, epidemiology and data science), fragmented datasets, lack of interoperability and insufficient infrastructure as well as limited standardized procedures for data curation, sharing and ethical use.  The lack of a functional data science and analytics centre has ripple effects across research, policy and public health sector. Particularly, the weak data integration undermines timely disease surveillance and one health approaches, leads to restricted translational research and generation of policy relevant evidence as well as insufficient collaboration and knowledge sharing hindering regional benchmarking and capacity development.  This project is Agenda 2030 aware and contributes to SDG 3 on Good Health and Well being through enhancement of disease surveillance, predictive analytics and evidence based interventions. SDG 9 on Industry, Innovation and Infrastructure through establishing digital infrastructure and fostering innovation through the Data science and analytics centre. SDG 17 on partnerships for goals through strengthening North-South and South-South collaborations in research and capacity development.   1. Partner institutional context- strengths and weaknesses, added value of the project   The long standing and expertise in BEET fields, established laboratories, field networks and historical and legacy datasets spanning six decades remains to be among the KIPRE strengths as a potential partner. However, limitations such as capacity in advanced analytics and computational research, fragmented and unstandardized data repositories as well as need for structured training programs in data science and analytics remain to be the bottlenecks in its endeavors.  This initiative will help establish a data center with modern infrastructure and skilled personnel, facilitate transfer of Flemish expertise from Uhasselt in computational methods and data governance. It will also promote institutionalization of the data driven decision making which will ensure KIPRE outputs inform national health and conservation policies.  Addition on previous engagements….   1. Individual and organizational capacity building context (ITP)- Capacity constraints, value addition   The absence of centralized data management systems, governance frameworks, and standardized analytical procedures as well as limited exposure to the personnel to advanced analytics and data pipelines remain to be the main constraints to KIPRE realising its full potential in this field.  This initiative will make available structured mentorship, hands-on training and an international academic exchange that will develop high level competencies in biostatistics, bioinformatics, epidemiology and data science. For KIPRE, the institutional data center will ensure sustainable integration of data science practices into research and policy workflows and will strengthen the institute's long term analytical capacity.   1. Integration of SDG principles, LNOB, Interconnectedness and indivisibility, Multi institutional and multi stakeholder partnerships   This project prioritizes inclusion of all research teams, policy makers as well as underserved indigenous communities that benefit from evidence driven interventions. The project will employ a gender sensitive approach which will help ensure equitable access to training, resources and decision making processes.  By linking biomedical , epidemiological and ecological datasets, the Data center will enable holistic research and this will address the research co-benefits and tradeoffs between health, environment and social economic outcomes.  The context analysis also incorporated perspectives of local actors, MoH, UHasselt and regional partners (...) that will ensure co-created relevant and sustainable solutions. |
| **Impact statement, ToC (Theory of Change) and Strategy** |
| 1. Impact Statement (The dream), primary beneficiaries, where change happens 2. Areas of change to realise the dream (Why?), institutional capacity, human capacity and skills, integrated and interoperatble data systems, strong data governance and ethical frameworks, improve research quality and uptake outputs, sustainable multi stakeholder partnerships. 3. Priority key areas of change the project can realistically influence (What?), functional DSAC, human capacity, integrated, interoprable data systems, improved dsac generated evidence, rationale for prioritisation 4. How the project will deliver change ( operational and methodological approaches)- Education, research, outreach and dissemination/uptake strategy, service to society, infrastructure and institutional strengthening, multi stakeholder partnership and networking   Integration of gender and environment   1. Coherence check (Summary narrative) |
| **Organisations** |
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| **Stakeholders and coherence** |
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| **Planning and Budgeting** |
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| **Risk management** |
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| **Monitoring and evaluation** |
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| **Learning and steering** |
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**Title:** **Project summary**

This initiative will strengthen biomedical research, conservation, and disease outbreak and pandemic preparedness at the Kenya Institute of Primate Research (KIPRE) through institutional capacity building and Flemish–Kenyan collaboration.

By establishing a functional Centre for Data Science and Analytics (DSAC), building human resource capacity, and implementing robust data governance, KIPRE will be able to collect, manage, and analyze high-quality datasets to guide public health policies and interventions locally and internationally.

Over the 3–5 years, the initiative will support applied data analytics in drug and vaccine development, epidemiology, tropical and neglected diseases, and non-communicable disease modelling. Key outputs include staff training, secure and integrated datasets, predictive models, dashboards, and joint research and training exchanges with Flemish institutions.

The initiative will ensure sustainability by embedding DSAC within KIPRE’s operations and fostering a culture of evidence-based decision-making. Ultimately, KIPRE will become a regional hub for biomedical data science, driving innovation and policy advisory in Kenya and beyond.

**Background**

The Kenya Institute of Primate Research (KIPRE) has been conducting pioneering evolutionary, biomedical, and translational research since 1958, contributing significantly to national, regional, and international health priorities. Over the decades, KIPRE has evolved into a regional center of excellence in pre-clinical and translational research, making major contributions in reproductive health and biology, tropical infectious and neglected diseases, and non-communicable diseases, while also advancing environmental and animal conservation through applied research and sustainable management of non-human primate (NHP) populations.

In recent years, KIPRE has broadened its scientific scope to include molecule discovery and drug development, particularly through bioprospecting partnerships with local indigenous communities. These collaborations focus on identifying, validating, and developing bioactive compounds of medicinal value, effectively linking traditional knowledge systems with modern biomedical innovation. This approach advances scientific discovery while promoting community empowerment and benefit sharing, aligning with the global call for inclusive and ethical research practices.

In 2023, through a Government reorganization Order, the institute, formerly known as the Institute of Primate Research (IPR) under the National Museums of Kenya (NMK), was delinked and reconstituted as a Semi-Autonomous Government Agency (SAGA), guided by legal notice 207 of 2018, under the Ministry of Health (MoH). Historically, IPR’s mandate centered on advancing human medicine through studies on NHP evolution and biomedical relevance. Under its new legal and institutional framework, KIPRE now operates within the Department of Public Health Policy and Professional Standards, with an enhanced mandate to generate policy-relevant scientific evidence and provide advisory services to the Ministry on matters of public health policy and professional standards.

This governance transformation has positioned KIPRE at a strategic interface between research, innovation, and policy, providing an opportunity to translate research evidence into actionable national, regional and potentially international health strategies. Its expanded mandate now covers a broad spectrum of translational science activities, including:

* Drug discovery and development, focusing on pre-clinical evaluation of vaccines and therapeutics for neglected and emerging diseases;
* Disease surveillance, mapping, and modelling within a One Health framework integrating human, animal, and environmental health;
* Conservation research on endangered animal species, particularly NHPs essential for biomedical studies; and
* Snakebite research and antivenoming development, addressing a neglected tropical health challenge in sub-Saharan Africa.

Despite this strong scientific and institutional foundation, KIPRE lacks a fully functional Data Science and Analytics Section, a critical gap that limits its ability to harness modern data-driven approaches such as biostatistics, bioinformatics, and machine learning. In the current era of data-intensive research and digital transformation, the absence of an integrated data science infrastructure constrains the institute’s ability to manage complex biomedical datasets, generate predictive insights, and provide high-quality evidence for policy formulation and implementation.

Establishing a Data Science and Analytics Capacity Building Unit (DSA-CBU) within KIPRE would therefore be **t**ransformative. The unit would enable the institute to systematically integrate advanced analytics, biostatistical modelling, and digital infrastructure into its core programs; enhance the reproducibility, transparency, and visibility of its outputs; and strengthen north–south and south–south collaborations aligned with international scientific and public health research standards**.**

Furthermore, this initiative directly supports the aspirations of Kenya’s Vision 2030, the Kenya Universal Health Policy 2020–2030, and the Ministry of Health Digital Health and Innovation Strategy, which all emphasize data governance, technology adoption, and human resource development as drivers of sustainable health outcomes.

Through this proposed investment in data science and analytics capacity strengthening, KIPRE seeks to build institutional resilience, cultivate advanced analytical and computational skills among its scientists, and contribute to a national ecosystem of evidence-based health research and innovation. This initiative also aligns with the VLIR-UOS TEAM 2026 focus on institutional capacity building, equitable partnerships, and locally relevant solutions, thereby positioning KIPRE as a strategic partner in driving data-enabled biomedical innovation in Kenya and the wider East African region.

**Partner institutions and their roles**

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| **Partner/ Institution** | **Role** |
| **KIPRE** | 1. This will be the lead and project hosting institution 2. Will provide institutional leadership, project coordination, and overall implementation oversight. 3. Will establish and operationalize the DSAC including infrastructure, procurement and staffing. 4. Identify and enroll local scientists and technical staff for training and mentorship under the program. 5. Lead data collection, digitization, and integration of biomedical and environmental datasets. 6. Ensure ethical and regulatory compliance in all data related activities in line with Kenyan and International standards. 7. Translate research outputs into policy-relevant evidence for the MoH and other stakeholders. 8. Sustain project outcomes through institutional policy adoption,, resource allocation, and staff retention. |
| **Hasselt University(Uhasselt)** | 1. Will be the Flemish Partner and facilitate North-South collaborations. 2. Provide technical and academic mentorship in biostatistics, bioinformatics, quantitative epidemiology, machine learning, and AI-driven data analysis through joint training programs, workshops, and short-term exchange initiatives. 3. Co-design the data science and analytics curriculum, training modules, and research frameworks tailored to KIPRE research priorities. 4. Facilitate joint supervision of postgraduate trainees and short-term research fellows under the project. 5. Support development and implementation of data governance protocols, aligning KIPRE practices with FAIR and GDPR principles. 6. Collaborate in joint publications, grant applications, and dissemination of results at international scientific platforms. 7. Contribute to long-term sustainability through capacity transfer, mentorship networks and institutional linkages. |
| **Africa Collaborating Partners(to be confirmed)** | 1. KEMRI: To align project outputs with national health data systems and support integration into Kenya health research ecosystem. 2. APHRC: Provide guidance on ethical data governance, community engagement, and evidence translation. 3. Makerere University/ Ardhi university/University of Rwanda: (i).Participate in co-training and benchmarking regional biomedical data science initiatives. (ii). Facilitate regional knowledge sharing and south-south collaboration to enhance the visibility and sustainability of the project outcomes. |

**Objectives**

The main aim of this project/ initiative is to strengthen the institutional capacity of the KIPRE in data science and analytics to enhance multidisciplinary research, improve evidence generation, and promote the translation of scientific knowledge into public health policy and practice in Kenya and the wider region.

Specific objectives include:

1. Establish a functional DSAC unit at KIPRE.

This will be achieved through developing institutional structures, staffing, and infrastructure (Hardware, software, and secure data repositories) to support data driven research and decision making across all KIPRE programs.

1. Build Human Resource Capacity in data science and analytics

This will be achieved through training a core team of scientists, biostatisticians, bioinformatistician, epidemiologists and ICT officers in advanced data analysis, machine learning, bioinformatics, and geospatial analytics through targeted workshops, mentorships, and academic exchanges with University of Hasselt.

1. Digitize, curate and integrate research data.

This will be done through consolidating legacy datasets from biomedical, environmental, and primatological studies into standardize digital databases, enabling efficient data sharing, and reproducibility and cross-disciplinary analysis.

1. Develop and implement data governance and ethical frameworks.

Through development and establishing institutional policies and protocols on data collection, sharing and stewardship in compliance with FAIR data principles, research ethics and Kenya digital health strategies.

1. Apply data analytics to priority research area

This will be done to demonstrate the utility of data science approaches in selected flagship projects that may include disease modeling, drug discovery or one health surveillance, to generate actionable insights for the MoH and partners.

1. Strengthen collaborative networks and knowledge exchange

This will be achieved through fostering partnerships between KIPRE, Uhasselt and regional data science hubs to co-develop research tools, exchange expertise, and co-supervise trainees in data analytics.

**Expected Medium term outcomes**

* A fully operational DSAC unit at KIPRE supporting research work.
* At least 20 KIPRE staff trained in core and advanced data science skills, with sustainable mentorship program in place.
* Standardized digital databases integrating KIPRE research archives and new data streams for open and reproducible science.
* Operational data governance framework aligned to national and international ethical and legal standards.
* Pilot data driven studies completed and informing MoH policies or research interventions.
* Sustained institutional collaborations with Uhasselt and regional research institutions in East and Central Africa.

**Work Packages (Activities)**

**Management and Governance**

**Budget outline, overview and justification**

**Project timeline (5 years)**

**Sustainability**

**Concept note format**

**VLIR-UOS TEAMs Concept Note (2026 Call)**

**Project title: Strengthening the Centre for Data Science and Analytics for Research, Conservation, and Disease Surveillance: A Flemish-Kenyan Capacity-Building Initiative**

**Lead Institution (Global South): Kenya Institute of Primate Research (KIPRE), Ministry of Health, Kenya**

**Flemish Partner Institution: Hasselt University (UHasselt)**

**Duration: 5 years  Indicative budget: €300,000**

**1. Problem Statement and Context (max. 250 words)**

The Kenya Institute of Primate Research (KIPRE) is a leading biomedical and translational research centre recently restructured as a Semi-Autonomous Government Agency (SAGA) under the Ministry of Health (MoH). Since its establishment in 1958, KIPRE has advanced research in tropical and neglected diseases, non-communicable diseases, reproductive health and biology, and biodiversity conservation. Despite this long-standing scientific contribution, KIPRE currently lacks a dedicated Data Science and Analytics Centre (DSAC) capable of managing, integrating, and analysing the rapidly expanding biomedical and ecological datasets it generates.

This gap limits KIPRE’s ability to harness data-driven approaches including biostatistics, bioinformatics, and machine learning which are indispensable for advancing modern biomedical research, disease mapping and modelling, and strengthening public health surveillance and interventions.

Establishing a functional Data Science and Analytics Centre (DSAC) will bridge this gap by enabling KIPRE to systematically digitize and integrate biomedical and ecological datasets, apply predictive analytics, and generate policy-relevant evidence to guide decision-making within the MoH.

The initiative aligns with Kenya’s Vision 2030, the Universal Health Policy (2020–2030), and the Digital Health and Innovation Strategy, all of which emphasize data governance, capacity strengthening, and digital transformation as key enablers of sustainable health outcomes.

By integrating Flemish expertise from UHasselt in quantitative and computational methods, the project will elevate KIPRE’s analytical capacity, advance equitable North-South and South-South collaborations, and position KIPRE as a regional hub for biomedical data science in East Africa.

**2. Overall and Specific Objectives (max. 150 words)**

**Overall Objective:**

To build a sustainable institutional framework for data science and analytics at KIPRE to support innovative biomedical research, integrated conservation efforts, and data-informed public health policies.

**Specific Objectives:**

1. Establish a fully functional Data Science and Analytics Centre (DSAC) equipped with modern digital infrastructure and staffed with competent data scientists, analysts, and ICT professionals.
2. Enhance human capacity in data science, biostatistics, and bioinformatics through targeted training, mentorship, and academic exchanges between KIPRE and UHasselt.
3. Digitize, curate, and integrate legacy and ongoing research datasets into standardized, interoperable repositories to enable efficient data access and reuse.
4. Develop and institutionalize data governance, ethics, and security frameworks consistent with FAIR (Findable, Accessible, Interoperable, Reusable) and GDPR principles.
5. Apply advanced data science and modelling approaches to priority research domains including disease mapping and modelling, One Health surveillance, and drug discovery.
6. Strengthen collaborative partnerships and networks for knowledge exchange, joint research, co-supervision of trainees, and regional benchmarking in biomedical data science.

**3. Expected Outcomes and Outputs (max. 150 words)**

* A fully operational Data Science and Analytics Centre (DSAC) will be established and institutionalized within KIPRE, serving as a national hub for biomedical and ecological data integration.
* At least 20 scientists and ICT officers will be trained in advanced data analytics, bioinformatics, and machine learning through structured mentorship and exchange programs.
* A comprehensive data governance and ethics frameworkconsistent with FAIR and GDPR principles will be adopted.
* Legacy and ongoing research datasets will be digitized, standardized, and integrated into interoperable repositories.
* The project will generate flagship data-driven studies supporting evidence-based policy and public health interventions for the MoH.
* Sustained collaboration between KIPRE, UHasselt, and African partner institutions (University of Nairobi, Ardhi University, and Makerere University) will enhance regional research visibility and position Kenya as a data-enabled Centre of excellence in health and conservation science.

**4. Added Value of the Flemish–Kenyan Partnership (max. 150 words)**

The partnership leverages UHasselt’s technical excellence in biostatistics, bioinformatics, and AI-driven analytics to strengthen KIPRE’s capacity for biomedical and ecological data integration and advanced research.

UHasselt will co-design the DSAC training curriculum, provide mentorship in data-intensive modelling, and support the development of governance and ethics frameworks aligned with international standards.

KIPRE will host the Centre, coordinate implementation, and ensure that analytical outputs inform national health and conservation policies.

The collaboration promotes equitable capacity strengthening: Flemish researchers gain access to unique African biomedical and ecological datasets, while KIPRE scientists acquire advanced analytical and computational skills.

Through joint supervision, collaborative research, and shared innovation, the partnership will build a sustainable data science ecosystem that enhances evidence generation, informs policy, and positions Kenya as a regional hub for integrated data-driven research and decision-making.

**5. Sustainability (max. 150 words)**

The DSAC will be institutionalized within KIPRE’s organizational structure, with dedicated personnel, infrastructure, and operational budgets integrated into the institute’s long-term strategic plan.

The MoH will reinforce sustainability through policy adoption, budgetary support, and integration of DSAC outputs into national health information systems.

A structured mentorship and training framework with UHasselt will facilitate continuous skill transfer, ensuring technical capacity is retained and expanded beyond the project’s duration.

Regional collaborations with the University of Nairobi (Kenya), Ardhi University (Tanzania), and Makerere University (Uganda) will foster South–South cooperation through joint proposals, shared data infrastructure, and collaborative research.

By embedding digital infrastructure, data governance, and human capital development within KIPRE’s institutional framework, the project will enable the DSAC to evolve into a self-sustaining national and regional Centre of excellence for biomedical and ecological data science.

Modules