



COUNTY PROFILES

Mapping the Innovation Ecosystem in Kenya

The Context

The African Centre for Technology Studies (ACTS), a pioneering development research think tank on harnessing applications of science, technology and innovation policies for sustainable development in Africa, in collaboration with the United Nations Development Programme (UNDP) and Konza Technopolis conducted a study to map out innovation ecosystem in Kenya with a view to generating evidence for accelerating its growth.

The study was meant to help identify opportunities for collaboration, learning and investment and to support the growth and development of local innovators across the country. The study exhaustively mapped the Kenyan innovation ecosystem by identifying its characteristics, organization (players and actors); challenges, and opportunities, identified its key levers and highlighted emerging themes and opportunities.

The study specifically focused on establishing the status of the Kenyan innovation ecosystem across the country: characteristics, organization (players and actors), challenges, and opportunities; identifying key levers and approaches on how to stimulate the sector for more economic growth towards achieving key development agenda items (SDGs, Vision 2030), including requisite skill sets, partnerships, and resources; and highlighting emerging themes and opportunities for collaboration, partnership and cross-learning.

In light of the above, these county profiles are meant to augment and supplement findings of the study by providing a deeper understanding of the various innovation ecosystems within specific counties. The counties were selected based mainly on their perceived development of the ecosystem and geographical location. The profiles illuminates the similarities and differences between the specific countries and the challenges and opportunities that exist within them.

In as much as Nairobi sets the benchmark for the innovation system in the country, other counties have not been left behind. On evidence of the information on these profiles, the innovation ecosystem in counties outside Nairobi are vibrant and growing, a clear indication of their potential.

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Executive Summary

These profiles are an in-depth examination of the current status of the innovation ecosystem of specific counties in Kenya. They are part of a wider study on mapping the Kenyan innovation ecosystem, which focused on all the 47 counties. The purpose of the mapping study was to map the Kenya innovation ecosystem and generate evidence that can support the growth of the Kenyan innovation ecosystem.

During the course of the study, it was realized that an in-depth examination of specific counties would provide a deeper understanding of the ecosystem and bring out the similarities and peculiarities in different parts of the country. This was particularly important in comparing the state of innovation ecosystem in different parts of the country.

Of course, Nairobi is setting the pace in the growth and development of the innovation ecosystem in Kenya. After Lagos, Nairobi is recognized as Africa's second-best start-up ecosystem and ranked second in the Middle East and Africa. The number of inexpensive and available co-working spaces is also increasing. Out of a total 186 hubs that were mapped 71 hubs are in Nairobi, translating to around 38% of the total. This clearly places Nairobi at the apex of the innovation ecosystem in Kenya.

Nevertheless, other major urban centres in Kenya are also keeping pace with Nairobi, Mombasa, Nakuru, Kisumu, Kakamega, Nyeri, Makueni, Uasin Gishu and Isiolo are showing positive trends in the development of their respective innovation ecosystems. This is illustrated by the increasing number of innovation hubs and related activities including innovation challenges, support from county governments and academic/technical institutions – all which serve to grow and strengthen the ecosystem.

These profiles shed light on the innovation ecosystem of selected counties with respect to the key actors, and their linkages, potential for growth, challenges and existing opportunities for innovators. They not only give a indication of the status of the innovation ecosystem but also highlight the potential that exists for growth in these counties.

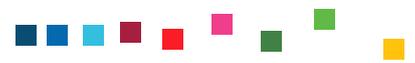
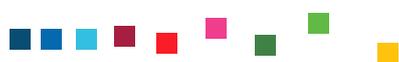
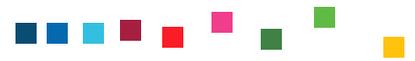


Table of Abbreviations

ACTS	African Centre for Technology Studies
AfDB	African Development Bank
ASME	American Society of Mechanical Engineers
BMGF	Bill and Melinda Gates Foundation
B2B	Business to Business
BSc	Bachelor of Science
CA	Communication Authority of Kenya
CEC	County Executive Committee
CISCO	Commercial and Industrial Security Corporation
CUEA	Catholic University of Eastern Africa
DANIDA	Danish International Development Agency
DUE	Directorate of University Education
DRST	Directorate of Research Science and Technology
EA	East Africa
EAIRO	East African Industrial Research Organization
EDGE	Enhanced Data for Global Evolution
GCI	Global Connectivity Index
GSMA	Global System for Mobile Communications Association
GDP	Gross Domestic Product
ICT	Information Communication Technology
IBM	International Business Machines Corporation
ICT	Information Communication and Technology
ICDC	Industrial and Commercial Development Corporation
ISHOW	Innovation Showcase
IoT	Internet of Things
IP	Intellectual Property
ITES	Information Technology Enabled Services
IIEC	Innovation Incubation and Entrepreneurship Centre
12C	Innovation and Incubation Centre
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KALRO	Kenya Agricultural and Livestock Research Organization
KEBS	Kenya Bureau of Standards
KENIA	Kenya National Innovation Authority
KIE	Kenya Industrial Estate



KIMBO	Kenya Industrial Management Board
KIRDI	Kenya Industrial Research and Development Institute
KYEOP	Kenya Youth Employment Opportunity Program
KU	Kenyatta University
MSMEs	Micro, Small and Medium Enterprises
MoE	Ministry of Education
MNO	Mobile Network Operators
MSc	Master's degree
MTP 3	Medium Term Plan
MMUST	Masinde Muliro University of Science and Technology
NACOSTI	National Commission of Science Technology and Innovation
NCST	National Council of Science and Technology
NETFUND	National Environment Trust Fund
NGO	Non-Governmental Organization
NRF	National Research Fund
NOFBI	National Fibre Optic Backbone Infrastructure
NGAAF	National Government Affirmative Action Plan
PhD	Doctor of Philosophy
RA	Research Assistant
SACCO	Savings and Credit Corporative Organization
SAP	Structural Adjustment Program
SDGs	Sustainable Development Goals
SGCs	Science Granting Councils
SGCI	Science Granting Councils Initiatives
SIDA	Swedish International Development Cooperation Agency
STI	Science Technology and Innovation
TVET	Technical and Vocational Educational and Training
UKAID	United Kingdom Department of International Development
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
USIU	United States International University
USF	Universal Service Fund
UoN	University of Nairobi
YEDF	Youth Enterprise Development Fund



1.0 Nairobi County

1.1 Background

According to the Global Start-up Ecosystem Index 2021, Nairobi is the second most vibrant innovation city in Africa after Lagos in Nigeria. The Start-up Ecosystem Index ranked 100 countries and 1000 cities by assigning scores based on three factors: quantity, quality and business environment. The quantity factor considers the number of start-ups, co-working spaces, accelerators, and start-up-related meetings. The quality parameter considers the number of staff per start-up, unicorns, global start-ups events, and the prevalence of global start-up leaders. The business environment includes ease of forming and conducting business, broadband speeds and freedom, English proficiency, R&D investment and patent per capita. Nairobi is number 2 in Africa, number 6 within the Middle East and African Region and ranked number 136 globally (Table 1.1).

Kenyan innovation ecosystem in general and that of Nairobi in particular:

- 1. Labour Market:** Nairobi is ranked second in the Middle East and Africa, according to Start-up Friendliness Index with a score of 91.73.¹
- 2. Market Environment:** After Lagos, Nairobi is recognized as Africa's second-best start-up ecosystem. Application development, Business to Business (B2B) solutions, software development; ICT solutions in the financial, health, agriculture, and education sectors, ICT training and community problem solving; and hardware are all areas where the digital innovation ecosystem offers market prospects.²
- 3. Hubs:** Nairobi is currently ranked sixth and eighth in the world in terms of the number of accelerators and incubators per capita. The number of inexpensive and available co-working spaces

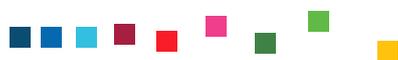


Fig. 1.1: Kenya's map showing location of Nairobi.

is also increasing, giving the city a slightly better score, placing it fifth.³ The government is promoting the ecosystem's development in cooperation with the World Bank through the "Kenya Industry and Entrepreneurship Project," which aims to impact 162 start-ups participating in an International Accelerator Programme.⁴

4. Activeness: The activity sub-domain includes indicators for events, the number of start-ups and whether there are high-equity situations. Nairobi receives a score of 60.13 on these factors, placing it at the top of the Middle East and Africa SFI. Nairobi presently has over 650 start-ups, far more than the regional average of around 100, putting the city foremost in this category.⁵

1 <https://www.enpact.org/wp-content/uploads/2019/08/print-nairobi.pdf>
2 <https://www.enpact.org/wp-content/uploads/2019/08/print-nairobi.pdf>
3 <https://www.enpact.org/wp-content/uploads/2019/08/print-nairobi.pdf>
4 <https://www.enpact.org/wp-content/uploads/2019/08/print-nairobi.pdf>



5. Internet access and infrastructure: The ICT sub-sector in Kenya is expanding faster. This is because of the dynamism of telecoms, the acceptance of e-commerce, and the widespread use of the internet.⁶ However, internet costs are higher than twice the regional average and internet penetration in Kenya is 42%.⁷ Hardware infrastructure has seen tremendous growth in Kenya, particularly with respect to mobile phone penetration and broadband connectivity including 4G, with 5G testing already ongoing with Mobile Network Operators (MNO). Kenya is considered a mobile first country, with mobile penetration level at 90%, the country has witnessed significant increases in international Internet bandwidth, mobile cellular subscriptions, and active mobile broadband subscriptions⁸

6. Policy and Regulation: Many regulatory and policy changes under the Kenya Vision 2030 have led to the growth of the economy and the development of the ICT ecosystem.⁹

These include the STI Act (2013), the STI policy (2020), the digital economy strategy (2021) and the start-up bill (2021).

7. Technology Diffusion and Adoption Systems: In 2006, the government of Kenya launched an e-governance system, which is an integrated system that helps all government agencies with all elements of their operations. All government entities, for example, are required to utilize IFMIS (Integrated Financial Management and Information System) a software for integrated financial management.¹⁰

1.2 Innovation Spaces and Facilities

Out of a total 186 hubs that were mapped (Figure 2.1), 71 hubs are in Nairobi, translating to around 38% of the total. Table 2.1 shows some of these facilities.

Table 1.1:
Ranking of Nairobi in the Middle East/Africa region.

Rank	City	Country	Global rank	Total score
1	Tel Aviv	Israel	8	27.084
2	Jerusalem	Israel	54	7.776
3	Dubai	United Arabs Emirates	67	6.883
4	Haifa	Israel	119	4.777
5	Lagos	Nigeria	122	4.693
6	Nairobi	Kenya	136	4.277
7	Cape Town	South Africa	145	4.047
8	Johannesburg	South Africa	152	3.864
9	Abu Dhabi	UAR	169	3.188
10	Cairo	Egypt	180	2.732

⁵ <https://www.enpact.org/wp-content/uploads/2019/08/print-nairobi.pdf>

⁶ <https://www.innovationagency.go.ke/uploads/php6EZ8II.pdf>

⁷ <https://datareport.com/reports/digital-2020-kenya>

⁸ https://fingo.fi/wp-content/uploads/2021/01/innovation-ecosystem-kenya_0.

⁹ https://fingo.fi/wp-content/uploads/2021/01/innovation-ecosystem-kenya_0. pdf

¹⁰ https://ahead-project.net/documents/14/NIS_Kenya_final.pdf

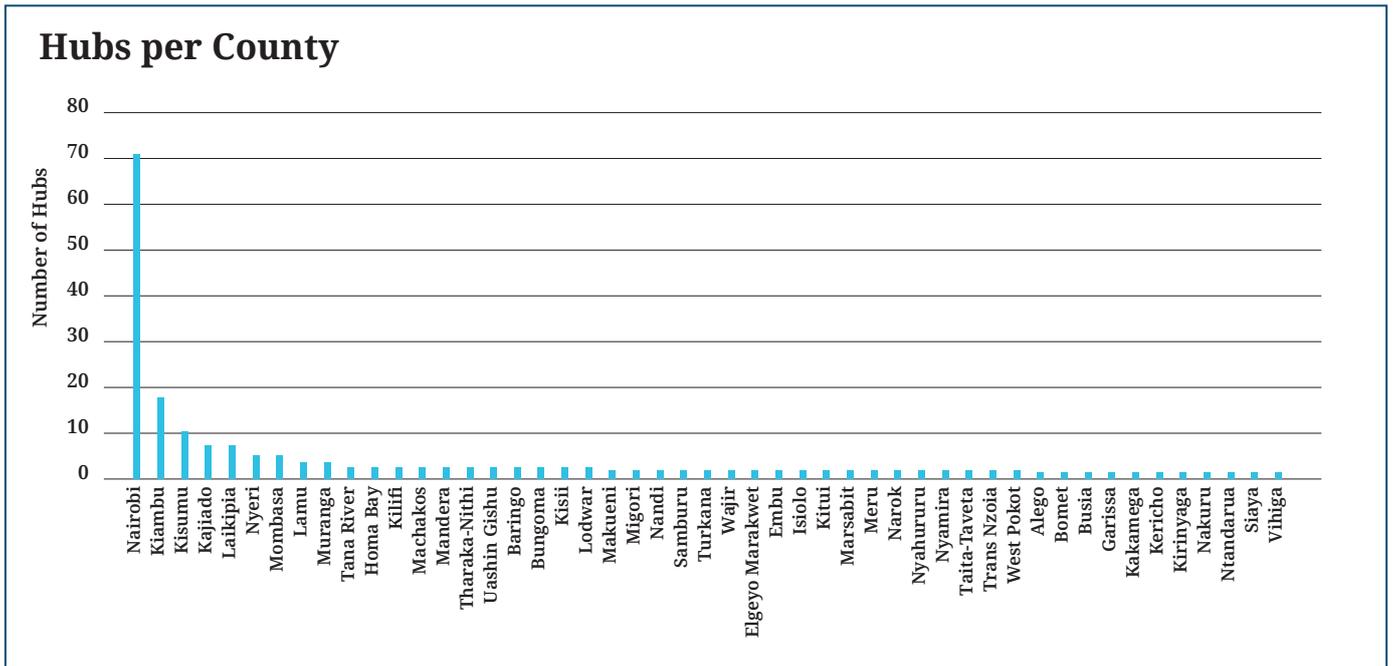
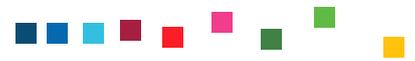
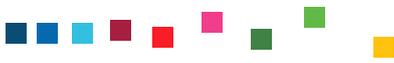


Fig. 1.2: Distribution of innovation hubs in the counties.

Table 1.2

List of innovation hubs, incubation facilities, accelerators, co-working spaces and makers spaces.

Hubs	Incubators	Accelerator	Co-working spaces
<ol style="list-style-type: none"> Makueni Innovation Hub: Makueni Mashinani Hub: Nyamira Mt. Kenya Hub (MHub): Nyeri iHub: Nairobi Pawa254: Nairobi Rift Valley Innovation Center: Baringo Ubunifu Hub: Nakuru Eldohub: Usain Gishu Lake Hub: Kisumu Wise Hub: Kisumu Border Hub: Busia Dlab Hub: Uasin Gishu Circular Innovation (CIH): Nairobi BitHub: Nairobi 	<ol style="list-style-type: none"> Startup Lions- Turkana Coelib Center- Nakuru Sote Hub (Voi): Taita Taveta Mt. Kenya Hub (MHub) Innovation Incubation & Entrepreneurship Center (IIEC): Nairobi The Entrepreneurship Hub: Nairobi GrowthHub: Nairobi IBizAfrica (Strathmore University): Nairobi Nailab: Nairobi Cisco EDGE Incubation Centre (UoN): Nairobi Chandaria BII (KU)- Nairobi Kenya Country Business Incubators (KeKoBi) 	<ol style="list-style-type: none"> Ubunifu Hub: Machakos Bay Hub: Homa Bay Pangea Accelerator: Nairobi The Entrepreneurs Hub: Nairobi Growth Hub: Nairobi mLab East Africa: Nairobi Sinapis Group: Nairobi Mara Launchpad Incubation Center <p>Marker-Spaces</p> <ol style="list-style-type: none"> Gearbox: Nairobi KIRDI Close the Gap Constituency Industrial Development Centers 	<ol style="list-style-type: none"> Nakuru Box: Nakuru Kikao64: Uasin Gishu Mt. Kenya Hub (MHub): Nyeri Nomad Lounges Limited: Nairobi Nairobi Garage: Nairobi Mombasa Works: Mombasa Nomadic Hub: Nairobi Totosci Holdings Ltd: Kirinyaga Coast Team Innovators (CTI): Mombasa Workable Nairobi: Nairobi IKIGAI: Nairobi The Twig: Nairobi



1.3 Examples of Hubs in Nairobi

Below is a brief description of selected hubs:

1. Iran House of Innovation and Technology (iHiT)¹¹

House of Innovation and Technology (iHiT) creates a suitable platform for Kenyan innovative idea owners, programmers, knowledge-based companies, startups and creative industries, to benefit from the technologies acquired from Iranian companies over the years. It also provides business owners and entrepreneurs with the space and facilities needed for a workplace. The center's ultimate goal is to further strengthen the bilateral relations between Iran and Kenya.

2. Nairobi Garage

Nairobi Garage is Africa's largest co-working space for new and growing businesses – created in response to the need for non-traditional, lean and flexible office space solutions. It is open 24/7 and provide an innovative and vibrant space for its diverse members – from SMEs, startups, entrepreneurs, independent professionals, and larger innovative companies¹²

3. iHub

iHub serves the IT community by linking enterprises and individuals, providing market-relevant solutions, and staying ahead of the curve of innovation. Over the years, iHub has inspired and helped over 450 entrepreneurs. They are raising a generation of company owners, leaders, and builders. Through the expansion 101 initiative, iHub seeks to provide information and context to startups looking to expand into new markets, as well as facilitate conversations relevant to the growth of the African IoT ecosystem through the Open IoT programme, build awareness about the work being done by various stakeholders, and be ahead of the curve of innovation.

4. Nailab

Nailab has over ten years of expertise building tailored training and acceleration programs with significant mentorship features. Through the Mwanzo virtual platform, they provide entrepreneurs with the ability to establish sustainable businesses that practically solve Africa's specific challenges through innovation, business mentorship and community support.

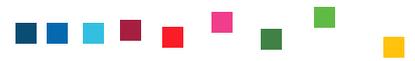
They also make seed capital available to entrepreneurs who want to take their ideas to the next level, give funds to help established businesses, and reward great African entrepreneurs.

5. Chandaria Business Innovation & Incubation Centre

Chandaria Business Innovation and Incubation Centre was established by Kenyatta University (KU) as a dedicated innovation and incubation centre. It strives to promote an innovation and entrepreneurship culture at Kenyatta University by establishing innovation and entrepreneurship programs with strong industry ties. The directorate also aims to improve R&D agenda coordination and eliminate duplications, as well as to drive more private R&D investments and to capitalize on synergies and complementarities in scientific and technological skills. This relationship also broadens the impact of Kenyatta University's research, promotes the commercialization of R&D products, and increases labor mobility between Kenyatta University and industry.

6. Gearbox

They provide training that allows mastery in industry leading tools for design including Autodesk software as well as traditional machinery, including automated (CNC) machining, 3D printing, and wood and metal working. Gearbox serves everyone, entrepreneurs, engineers, makers, students; with this endless list comes different schedules.



7. e.KRAAL Innovation Hub

The innovation initiative at e.KRAAL is dedicated to fostering cybersecurity ideas and novel techniques that will improve and strengthen the country's cybersecurity capabilities. They provide coaching, financing, and space for innovators to turn their ideas into forward-thinking cybersecurity products.

8. BitHub.Africa

With a focus on Africa, BitHub Africa is bringing together experts to support the development and use of Blockchain technologies. Providing blockchain training and advisory services to firms in Africa and the Middle East interested in using blockchain solutions. At our Nairobi hub, BitHub also trains and hosts blockchain developers, ensuring the best pool of talent.

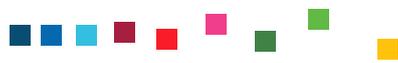
9. Nairobi Hub

The Nairobi Hub brings together a diverse group of highly driven individuals with backgrounds in business and investment, legal and finance, advocacy and campaigning, social enterprise, STEM and entrepreneurship. The Nairobi Shapers come from all walks of life but share a spirit of impact in the society through its 4 key pillars of: Innovation & Entrepreneurship; Education and Future of Work; Environment & Sustainable Cities; and Refugee rights.¹³

¹¹ <https://ihit.co.ke/>

¹² <https://nairobigarage.com/about-nairobi-garage/>

¹³ <https://www.globalshapers.org/hubs/nairobi-hub>



2.0 Mombasa County

2.1 Background

Mombasa County is located in the South Eastern part of the Coastal region of Kenya. It covers an area of 229.9 Km² excluding 65 Km² of water mass which is 200 nautical miles inside the Indian Ocean. It borders Kilifi County to the North, Kwale County to the Southwest and the Indian Ocean to the East. The County also enjoys proximity to an expansive water mass as it borders the Exclusive Economic Zone of the Indian Ocean to the East. According to the 2019 National Census, Mombasa has a population of 1,208,333. The population density is 5,495 persons per Km². The population distribution by sex is 50.5% Male, and 49.5% Female. (Kenya Population and housing census, 2019).¹⁴ The projected population of PWD in Mombasa stands at 15,295. (Kenya National Bureau of Statistics, 2018).¹⁵

Apart from being the second largest city in Kenya after Nairobi, Mombasa County is becoming the second most vibrant county after Nairobi in terms of innovation ecosystems. The county also hosts 10 university campuses, 3 TVETs, 7 colleges, 37 Technical and Vocational Colleges (TVCs), 5 Vocational Training Colleges (VTCs) and one research institution.¹⁶

2.2. County and National Government Innovation Programs

1. Mombasa Business Innovation and Incubation Hub Through its second county integrated plan (2018-2022), the county Government of Mombasa has planned CIDP plan report relevant to innovation to establish the Mombasa Business Innovation and Incubation Hub to be implemented by County Government of Mombasa. The hub would be located at the ICT HUB which is center for technology entrepreneurship development. ICT HUB's goal is to help technology-based entrepreneurs successfully

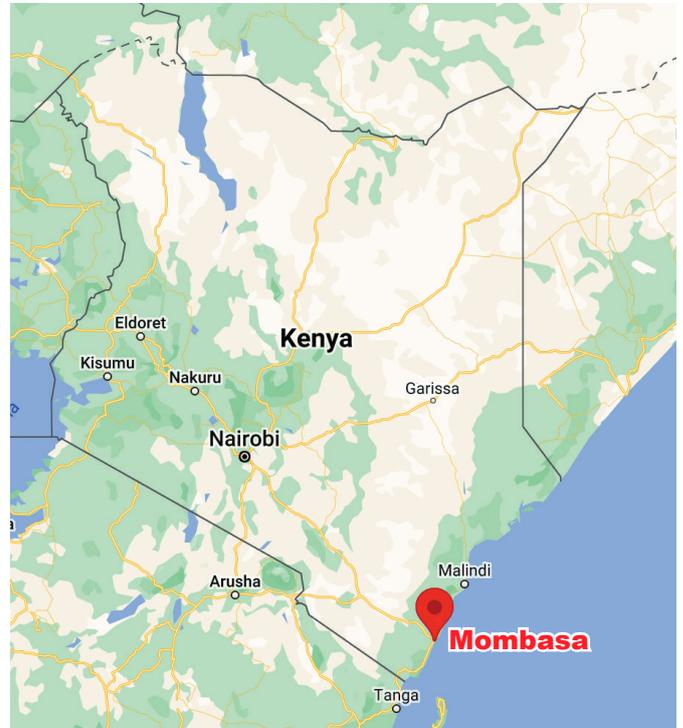


Fig. 2.1: Kenya's map showing location of Mombasa.

develop their product and enable them to transition into the financing stage and enter the market. To offer young people modern workspace and full mentoring, technical and infrastructural support so that they can turn their ideas into a successful business.¹⁷

2. Pwani Innovation Week

Mombasa County in collaboration with other coastal counties has established the Pwani Innovation Week (PIW) to create a widespread culture of innovation in the region. The third Edition of the innovation week, which is underway, is based on the theme, "Leveraging on Covid-19 opportunities to create a better future," will provide an opportunity for individuals and both public and private sectors to address challenges and solutions in business and other economic activities. The forum is being organized by the Swahilipot

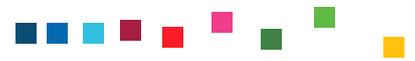
¹⁴ 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County - Kenya National Bureau of Statistics (knbs.or.ke)

¹⁵ 2018-2022 Mombasa County CIDP.pdf (kippra.or.ke)

¹⁶ Centres (ajiradigital.go.ke)

¹⁷ 2018-2022 Mombasa County CIDP.pdf (kippra.or.ke)

¹⁸ <https://constructionreviewonline.com/news/kenya/kenya-to-build-second-special-economic-zone-in-mombasa-county/>



Foundation Hub in collaboration with the Kenya National Chambers of Commerce and Industry (KNCCI), Mombasa County Government and other partners.

3. Industrial Parks

The Government of Kenya plans to construct a second Special Economic Zone in Mombasa County. The project comes after the recent launch of the construction of Dongo Kundu SEZ, which is located in Likoni. The Dongo Kundu SEZ is designed to be a multi-sectoral zone comprises of Industrial Parks, Free Trade Zones/Free Port, Dongo Kundu Port, Tourism Zone (MICE), Business Service Parks and Commercial and Residential Zone.¹⁸

- 1. Swahili Box:** Swahili Box was established in 2014. The Hub focuses on Information, and Communication Technology and related services and has a staff force of 10 people. To date it has supported more than 500 innovators.
 - 2. Mombasa Works:** This hub provides co-working spaces and resource mobilization for small and medium businesses. It was established in 2018 and currently has 3 staff.
 - 3. Close the Gap Hub:** This hub was established in 2019 and focuses on information Technology and related services.
 - 4. Swahili Hub:** Swahili Hub was established in 2017 and focuses on Information Technology, legal and business development services. It is an NGO, has around 36 staff and has supported over 100 innovators and entrepreneurs.
 - 5. YEPI:** Youth Empowerment Program Initiative (YEPI) was established in 2014, it is an NGO focusing on education and has supported over 2500 youths and created over 200 jobs. Some of the youths supported are innovators.
 - 6. AAA-Platforms Ltd:** The Platform was established in 2020. It is a limited liability company and is targeting EdTech. It is supporting innovators, students and youths in software development and has supported over 500 beneficiaries in the last 3 years.
 - 7. Heritage Training Institute:** This is a public institution under the National Museum of Kenya. It supports innovators in Art and Design and so far over 500 youths have benefited from their training programs.
 - 8. Techno-bridge Investment:** This is a privately funded hub, established in 2017 and focuses on international trade and development. It has supported over 80 entrepreneurs since its establishment, some of them innovators.
- The eight innovation hubs described above have supported more than 3000 entrepreneurs including

2.3. Hubs, Accelerators and Co-working spaces

The mapping has identified 5 innovation hubs, 2 networking and marketing hubs, 1 co-working space, six Ajira hubs, 10 university campuses and 3 TVETs (See Figure 2.1).

The hubs, co-working spaces and the networking and Marketing organizations are briefly described in Table 2.1.

2.4 Innovators and Start-ups

innovators. The current study has managed to identify 19 innovators and startups, whose innovations are addressing problems in circular economy, Agri-Tech, energy, and ICT (Table 2.2 below). The majority are in the digital space.

The following are the key challenges mentioned by the actors of the innovation ecosystem in Mombasa:

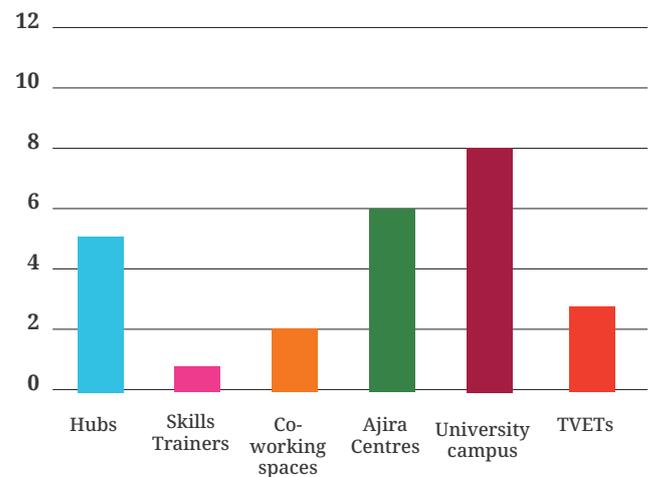


Fig 2.1: Hubs, skills Trainers, co-working spaces, Ajira Centres, Universities and TVETS

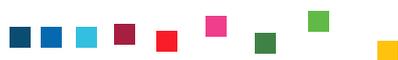


Table 2.2:
Some of the identified innovators and start-ups

No.	Innovators	Sector of Application
1	Swyft	ICT and BPO
2	Technical University of Mombasa	Environment
3	Tekizo Africa Ltd	Energy and Environment
4	Kencoco Ltd	Environment, Water and Sanitation
5	Baharini Fresh	ICT and BPO
6	M-Chota	ICT and BPO
7	Salu Solutions	Environment, Water and Sanitation
8	Kuza Cooler Ltd	Energy
9	The Circular List	Industry and Environment
10	Appetea	Food tech
11	HydraTech	Software and Data
12	Clikham IT Solution	Software and Data
13	MicroDam Telecom	Hardware and IoT
14	Osta Tech Ltd	Software and Data
15	Triplescreen.tv	Marketing and Sales
16	Studia Labs	Software Labs
17	Brace Technologies	Software and Data
18	Branche Technologies	Software and Data
19	M-Tiba	Healthcare

2.5 Challenges Facing Innovators and Hubs

The following are the key challenges mentioned by the actors of the innovation ecosystem in Mombasa:

1. Limited funding: Access to funding is the main challenges facing innovators for the commercialization of their innovations. It is also a major challenge mentioned by the hubs, accelerators, incubators and co-working spaces.

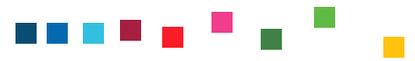
2. Skills gaps: Both the innovators and hubs managers have also identified lack of business, marketing and legal skills as a key challenge facing most innovators in their innovation commercialization efforts. Similarly, all the service providers have mentioned inadequate skills of their staff particularly legal skills has a challenge.

Furthermore, there are no training programs from the training institutions targeting the unique needs of innovations and hubs.

3. Collaborations: The hubs in Mombasa reported that they collaborate with government agencies, private sector players and education institutions in hackathons/events and legal advice in terms of business policies, plans and tax issues. However, collaboration amongst innovators and hubs is limited while collaboration with local and external investors is almost non-existence. Similarly, collaboration of innovators and hubs with research labs is weak.

4. Support from government agencies: Access to standards and certification, which is recognized as important for marketing, is also mentioned as a major challenge. The process is considered cumbersome by both innovators and hubs. Most of the hubs also indicated that there is limited training and guidance offered by government on certification.

5. Inclusive innovations: In terms of inclusivity, some hubs mentioned that there is limited information/sensitization on developing products that are disability inclusive therefore they are not able to cater for the needs of people with disabilities.



2.6. Opportunities

The following opportunities are available for innovators and hubs in Mombasa County to exploit.

1. Presence of knowledge generators

The presence of the public institutions including Technical University of Mombasa, Kenya Coast National Polytechnic, Coast Institute of Technology, is an important opportunity that should be tap to address the skills gaps experienced by innovators and hubs in this region. In addition, Technical University of Mombasa could support innovators and hubs to access specialized laboratories for analysis and product development if proper collaboration framework can be developed and implemented

2. Increasing international recognition

According to the StartupBlink Global Startup Ecosystem 2021, Mombasa has emerged as the second most preferred destination for startups after Nairobi. This is buoyed by the set up of digital companies in the county. The 2021 Global Startup Ecosystem report ranks Mombasa at number 756 amongst other global cities such as Francisco and London for the first.¹⁹ Mombasa county is therefore expected to continue attracting more investment and startups and boast the innovation ecosystem. Innovators, startups and hubs in Mombasa County should therefore prepare to take advantage of this opportunity.

3. Pwani Innovation Week

The Pwani Innovation Week (PIW) is a powerful networking and marketing opportunity for innovators, startups and hubs not only for Mombasa county but also for all the other coastal counties since it is organized in collaboration with them. The involvement of the Kenya National Chambers of Commerce and Industry (KNCCI), and other partners in an added advantage.

4. Mombasa Business Innovation and Incubation Hub

The planned establishment of the Mombasa Business Innovation and Incubation Hub, by County Government of Mombasa, will provide innovators and startups with a unique opportunity, to fill the skills gaps as well as address the other challenges faced by innovators such as mentorship and access to financing. Furthermore, opportunity should trickle down the other innovators and startups and hubs in other coastal counties.

5. Kenya Bureau of Standards Mombasa branch

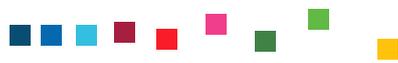
Mombasa hosts the regional office of the Kenya Bureau of Standards. Therefore, Innovators, startups and hubs from Mombasa County should find it easier to access certifications and standards services compared to those from other coastal counties. A collaboration agreement between hubs association and the Kenya Bureau of standards could help is reducing the challenges innovators and hubs in this region face. facility can provide support to innovators and hubs in matters related to standards and product certifications.

6. Blue economy

In March 2021, the six governors of coastal counties in collaboration with the Ministry of Devolution and the Blue Economy Secretariat and other international partners,²⁰ launched a four-year program aimed at protecting Kenya's coastal ecosystem while creating environmentally friendly jobs in a host of industries including recycling of wastes (circular economy), tourism and small-scale fishing, strengthening value chains and providing technical skills in blue economy. This provides a huge opportunity for innovators to develop innovations in the areas identified in this 25-million-euro program.

¹⁹ Mombasa emerges as Kenya's best hub for startups after Nairobi. Available at www.businessdailyafrica.com

²⁰ Go Blue Project: <https://www.unep.org>



3.0 Kisumu County

3.1 Background

Kisumu County is one of the 47 counties created through the devolved system of governance by the Constitution of Kenya (2010) delineated as County number 42. Kisumu County covers approximately 567 km² on water and 2086 km² land area, representing 0.36% of the total land area of Kenya's 580,367 km². According to the 2019 National Census, Kisumu County has a population of 1,155,574. The population density is 550 persons per Km². The population distribution by sex is 556,942 Male and 594,609 female, intersex 23 (2019 Kenya Population and housing census). The number of persons with disabilities according to the 2019 Kenya National Population and Housing Census was 39,929.

The county's strategic position serves as a gateway for Kenya into the rest of the African Great Lakes region. It is located on the shores of Lake Victoria and serves as the main commercial and transport hub for the Western part of Kenya and the East African region. The major economic activities of the residents are trade, farming and fishing. Kisumu County lies between longitudes 33° 20'E and 35° 20'E and latitude 0° 20' South and 0° 50' South. It is surrounded by the second largest freshwater lake in the World; Lake Victoria.²¹

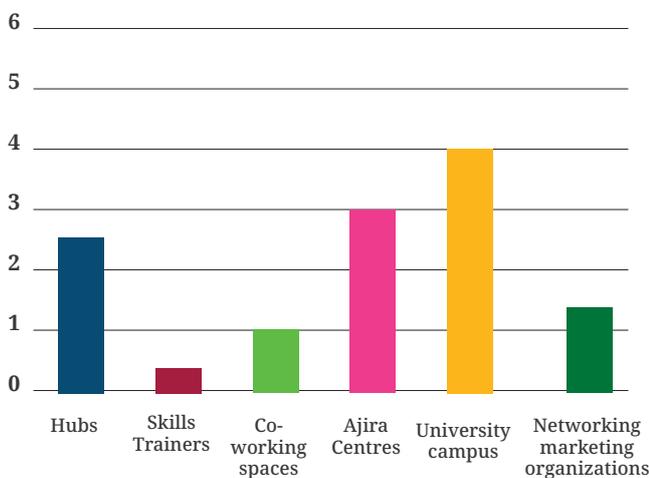


Fig. 3.2: Key actors in Kisumu's innovation ecosystem

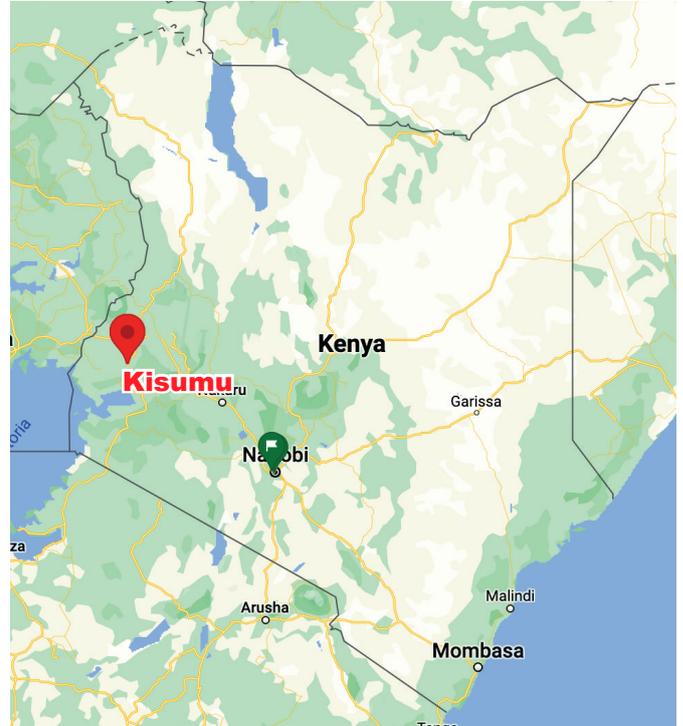


Fig. 3.1: Kenya's map showing location of Kisumu.

3.2 The Innovation Ecosystem

The study has so far mapped 6 Innovators, 5 innovation hubs, 2 skills trainers, 1 co-working space, 1 Network and marketing organization, 3 university, 5 university campuses, 1 national polytechnic, 1 medical training college and 1 Research Institution.²²

3.2.1. Hubs, networking organizations and co-working spaces

The mapping has identified five innovation hubs, 2 networking and marketing hubs and 1 co-working space.

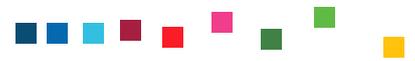
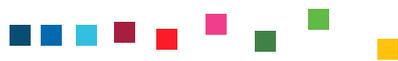


Table 3.1:
Hubs, networks organization and co-working spaces

Lake Hub	Lake Hub was established in 2013 by James Odede and Dorcas Owino. The Hub focuses on technology, software development, entrepreneurship, circular economy, business incubation and Training. Lake Hub is a private organization and currently has 24 employees.
Wise Hub	Wise (Women in Sustainable Enterprise) hub was established in 2016 by Caroline Odera as a Civil Society Organization and currently supports 35 innovators with 6 employees.
Fablab Winam	Was established in 2018 by Martin Oloo and Christine Kutwa. The hub focuses on manufacturing and education. It is a private organization, and it is currently supporting 20 innovators.
GulfHub	Gulphub was established in 2019 and focuses on Arts&Design, Fintech- and e-commerce. The hub has 7 employees and currently has 3 innovators while 15 have successfully graduated.
KIRDI	KIRDI Kisumu is the western Kenya branch of the Kenya Industrial Research and Development institute, a state agency under the ministry of trade and industrialization. It offers business incubation and technology transfer services in the areas of agriculture, environment, and leather processing.
Wise Hub Kenya	This is a networking and marketing organization established in 2015 and provide marketing, digital skills training and website design. Currently the organization has 35 innovators.
Ace Africa	This is also a networking and marketing organization established in 2003 and provides services in marketing strategy to entrepreneurs and innovators.
Lake Hub:	Lake Hub was established in 2013 by James Odede and Dorcas Owino. The Hub focuses on technology, software development, entrepreneurship, circular economy, business incubation and Training. Lake Hub is a private organization and currently has 24 employees.
Millennial Legacy Foundation	This is a limited liability company established in 2019 and provide co-working spaces to innovators and entrepreneurs in the areas of software development and market research.

21 Kisumu-County-CIDP-II-2018-2022.pdf

22 WHITE-CANE-DAY-NEW-FINAL.pdf (kisumu.go.ke)



The study identified 6 innovators in Kisumu County (see table 3.2 below)

1. Winam Capital.
2. Inolf arts Kisumu.
3. Kijenzi.
4. Rafode Ltd. The innovation focuses on enhancing access to renewable energy by low income earners in rural areas.
5. The Kisumu National Polytechnic. Several innovations, one targeting contact tracing for the management of covid 19 pandemics and another on water conservation.
6. City of Kisumu Urban Areas Association (CKUAA). Their innovation, agricity foods, is a regenerative technology aided urban farming and aims to ensure that urban households produce their own foods.

Their innovations are targeting the following sectors; wholesale and retail, financial services, manufacturing, agri-Tech and energy. These innovations are addressing the challenges related to access to renewable energy, conservation of water and hygiene, nutrition and responses to the Covid-19 pandemic. For example, Rafode Ltd innovation focuses on enhancing access to renewable energy by low income earners in rural areas, while the innovations from Kisumu National Polytechnic is on contact tracing for the management of covid 19 pandemics and another one on water conservation - City of Kisumu Urban areas Association (CKUAA). Their innovation, agricity foods, is a regenerative technology aided urban farming and aims to ensure that urban households produce their own foods.

3.3. Innovator Opportunities

1. Presence of tertiary institutions: The presence of the public institutions including Maseno University, Kisumu National Polytechnic, KIRDI West Kenyan Branch, Ramogi Institute for Science and Technology – provide innovators and have with opportunities to access tailor made skills for innovators, access to specialized laboratories for development and product testing.

2. Kenya Bureau of Standards Western branch: The facility can provide support to innovators and hubs in matters related to standards and product certifications.

3. Kisumu County and constituency Innovation policies

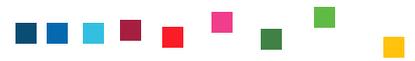
1. Policy on County Agriculture modernization, resource extraction and sustainable, resilient, and green infrastructure;
2. Policy for Establishing the appropriate macro-framework for encouraging investment and supplying capital through own resources;
3. Supporting capacity-building and indigenous innovation in the sectoral enabling environment;
4. Managing foreign investment through well-designed sectoral policies;
5. Strengthening the indigenous knowledge infrastructure, including absorptive capacity and fast-learning;
6. Strengthening policy transparency and effectiveness through natural resource accounting.

3.4. Kisumu County Industry

Lake Victoria contributes a very large part to the economy of the county since it supports the fishing and fish processing industry-the the County's main economic activity. Agriculture is a common economic activity with sugar industries such as Muhoroni, Chemelil, and Kibos employing a large number of County residents. The rice irrigation industries also employ large numbers of Kisumu County residents.

Equator Bottlers Company recently unveiled a Ksh1.5 billion bottling plant, and Jumbo Mattress Company established a factory in Ahero. Other new entrants into Kisumu are Foam Mattresses Company, Mayfair Holdings, and United Millers. The county has a total of 27 manufacturing industries, 16 bakeries, 12 Jua-kali associations, and 10,500 Jua-kali artisans.²³

²³ <https://kisumuinvestmentsconference.co.ke/wp-content/uploads/2021/07/KLDC-Investor-Handbook.pdf>



4.0 Nakuru County

3.1 Background

Nakuru County is located in the Rift Valley and it borders seven Counties; Laikipia to the north-east, Kericho to the West, Narok to the south-west, Kajiado to the South, Baringo to the North, Nyandarua to the East and Bomet to the West. The County covers an area of approximately 7,498.8 Km² and is located between Longitudes 35.41 ° East or 35 ° 24' 36" East and 36.6 ° East or 36 ° 36' 0" East and Latitude 0.23 ° North or 0 ° 13' 48" North and 1.16 ° South or 1 ° 9' 36" South. The County has 11 sub-counties/ constituencies namely; Naivasha, Nakuru Town West, Nakuru Town East, Kuresoi South, Kuresoi North, Molo, Rongai, Subukia, Njoro, Gilgil and Bahati.²⁴

According to the 2019 Kenya Population and Housing Census Report, Nakuru County is home to 1,047,080 people. The population density is 1,103 persons per Km². The population distribution by sex is 517,633 Male, 529,377 Female and 70 Intersex. The population of PWD is 12,425, 5,064 Male and 7,359 Female²⁵. There is one Public and Private University namely; Egerton and Kabarak with 13 university campuses, four teachers training colleges, 15 institute of Technology and two Technical training institutes. In addition to this, the County has 24 active youth polytechnics, 336 public secondary schools and 172 private secondary schools.²⁶



Fig. 4.1: Kenya's map showing location of Nakuru.

4.2. Economic and Innovation Activities

4.2.1. Naivasha Industrial Park SEZ and the Ajira Centre

Naivasha Industrial park SEZ is located in Nakuru County along the Nairobi - Naivasha Standard Gauge Railway (SGR) route at Mai Mahiu. It is situated on 404.7 hectares, approximately 1,000 acres of land at Kedong Ranch. The Naivasha Industrial Park is planned to include among other common user facilities Inland Container Depot, Railway Marshalling Yard, logistics zone and public utility area with supporting road network. The park will also offer state of the art transshipment facilities to allow the seamless interchange between SGR and Meter Gauge Railways (MGR), to handle the cargo destined for areas beyond Naivasha such as Eldoret, Kisumu, Uganda e.t.c. The SEZ will be served by the Nairobi–Naivasha SGR which is now 98% complete and 10km dual Carriage Road to the Park, access to Nairobi-Narok Road and Northern Corridor, Uganda, Rwanda, Burundi, Democratic Republic of Congo and South Sudan. The SEZ is next to source of affordable and clean Geothermal Power.

There are 8 Ajira Centres in Nakuru County.

²⁴ County Integrated Development Plan 2018-2022 Nakuru
²⁵ 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County - Kenya National Bureau of Statistics (knbs.or.ke)
²⁶ County Integrated Development Plan 2018-2022 Nakuru

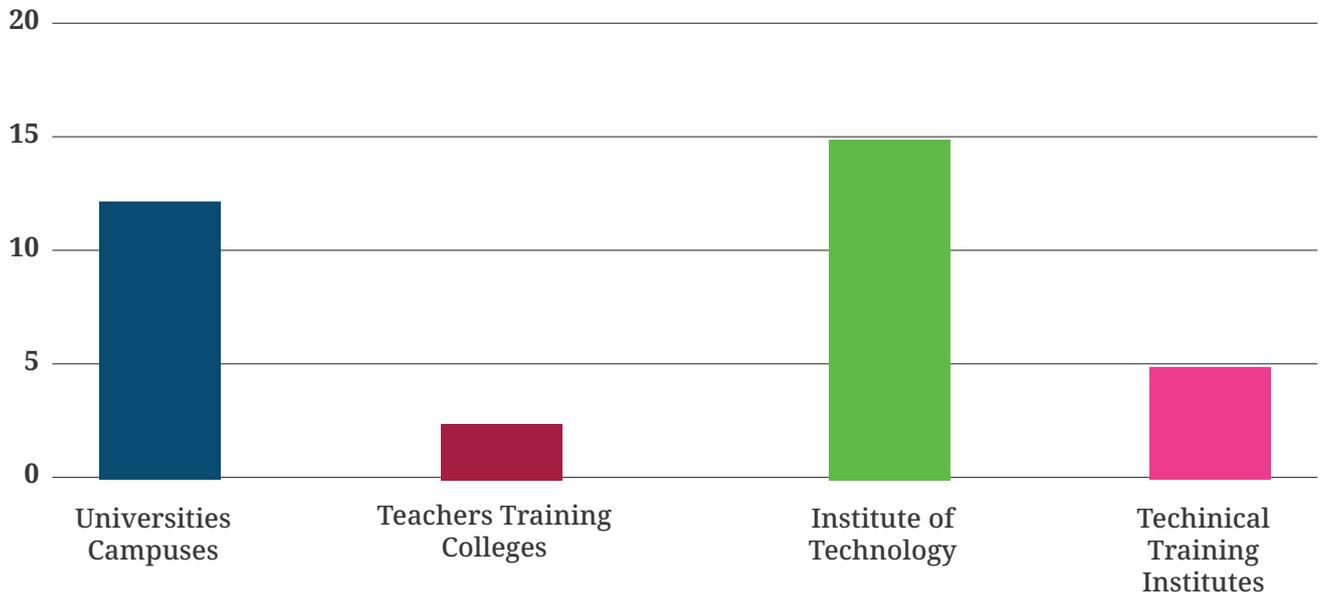
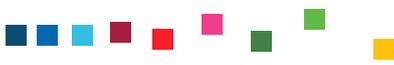


Fig. 4.2: Education institutions in Nakuru.

4.2.2. County Plans on Innovation

Under the ICT & e-government subsectors, Nakuru county plans to establish digital centres in the Sub Counties; improving information access through design and development of the County website and improving service delivery by acquiring ICT tools and equipment. The county has already successfully established 2 digital centres in Molo and Subukia aimed at promoting online public services and digital literacy within the County.

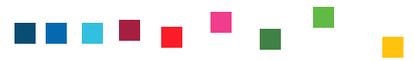
Furthermore, the County Treasury has implemented the automation and training of financial services through IFMIS, ZIZI, GPay and personnel services through the Integrated Payroll and Personnel Database (IPPD), acquired an asset management system for the County's assets and a vehicle tracking system for all County vehicles. The subsector also installed CCTV cameras at the County headquarters in a bid to enhance security systems within the county.²⁷

Under the entrepreneurship and innovation programme, there is a plan to promote youth participation through entrepreneurship and innovation in county and National development through development of a Youth Endowment Fund Bill, Conduction of training for the youth, Youth participating in national Youth week and development of the County Youth Magazine. Under the Business incubation centres programme, the objective is to empower & promote entrepreneurship among the SME's, youth and women and the output is Creation of new job opportunities and business innovations.

4.3. County Government Programs Relevant to Innovation

4.3.1 County committed to empowering young innovators

The County Government of Nakuru is committed to empowering the young people by imparting skills and giving them opportunities to improve their innovation and livelihoods across the Vocational training centers (VTCs) in the county.



At Njoro VTC, there is Samuel Mwangi and Peter Mwangi who are innovators of 3 machines: Malkia incu brooder, a nanotap which is a water purification system and a multiple vegetable cutter that automatically cuts vegetables.

Malkia incu-brooder is both an incubator and an automatic brooder. This machine can hatch eggs, brood chicks, or do both.

The temperature at the machine is controlled, the eggs turns automatically, automatic humidity control, and is easy to operate. With Malkia Incu-brooder, you will have a survival rate of 97% and hatchability of 85%. The survival rate is higher than the average survival rate of chicks in Kenya which is 70%. The administration is also set to establish an ICT hub in Njoro vocational training center. This will help youths in Njoro and neighboring areas to be computer literate and also do online jobs and online marketing.²⁸

4.4. Innovation Ecosystem

4.4.1 Innovation Hubs

1. Coelib Center-Egerton University is a hub space that builds on existing knowledge and capacity to foster innovation and business-oriented actions. The hub offers collaboration space, workstations, flex space, focus rooms. Studio for professional advancement, conference rooms, workspace and a café.

2. Nakuru Box supports startups to access affordable working space, training and mentorship, funding and access to network. It also provides support to innovators as a co-working space

3. Ubunifu Hub is a grassroots innovation hub dedicated to uplifting the communities in which they serve. The provide collaboration spaces, to internet access, to technology literacy courses

4. Agrosience Park, Egerton is a Vision 2030 Flagship project whose main goal is to entrench the need to develop education, science, technology and innovation in thus contributing to knowledge-based economic development of the country.

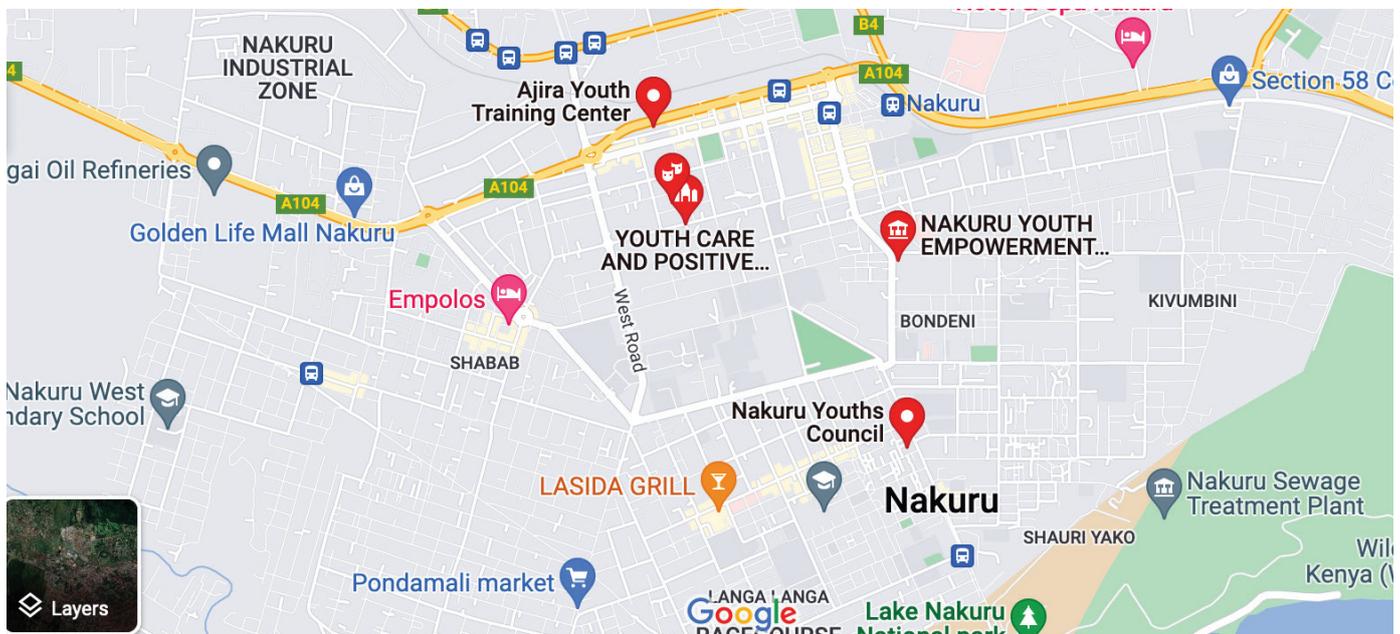
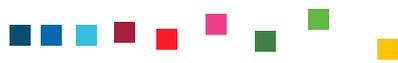


Fig 4.3: Ajira Centres in Nakuru County- Kenya

27 County Integrated Development Plan 2018-2022 Nakuru

28 County committed to empowering young innovators, says Education CECM Mwangi – Nakuru County Government



5.0 Kakamega County

5.1 Background

Kakamega County is located in the Western part of Kenya and borders Vihiga County to the South, Busia and Siaya Counties to the West, Bungoma and Trans Nzoia Counties to the North and Nandi and Uasin-Gishu Counties to the East. The County covers an area of 3,051.3 Km² and is the fourth populous County after Nairobi, Kiambu and Nakuru with the largest rural population. The county administrative units comprise 12 Sub-counties, 60 wards, 187 Village Units and 400 Community Areas.²⁹ According to the 2019 Population and Housing Census, the County has a population density of 612 persons per square kilometre, which is projected to increase to 626 persons per square kilometre by the year 2021.³⁰ There is a Huduma Centre in Kakamega town that is a one stop shop for all national government services.

5.2 The Innovation Ecosystem

The following are some of the main players in the innovation ecosystem:

1. Ajira Centres: Kakamega County has 12 Ajira Centres that empower young people to access digital job opportunities.

2. Kakamega Innovation Hub (KHUB): The hub empowers and supports young people to identify problems in their communities and to apply different technologies in their solutions. They incubate tech start-ups and we provide trainings on technology, entrepreneurship and agribusiness.

3. Masinde Muliro University of Science and Technology (MMUST) is implementing a project on a Model Implementation of an Internet of Things (IoT)- based Big Data Analytics System for Disaster Prediction and Management (Focusing on Flooding and Drought).³¹ The project aimed to investigate how

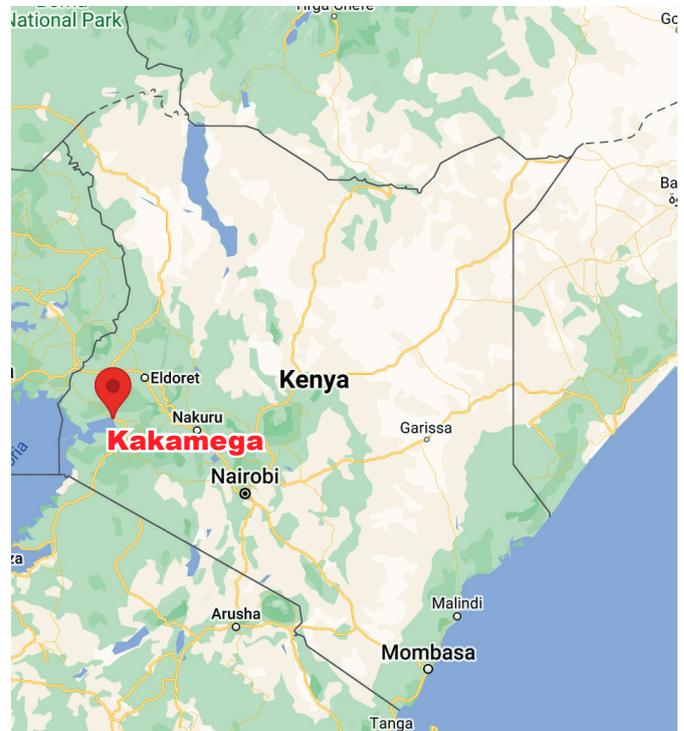


Fig. 5.1: Kenya's map showing location of Kakamega.

the two emerging technologies - Internet of Things (IoT) and Big Data technologies can be used to provide a digital platform for monitoring both flooding and drought disasters. Further, it also ventured to explore sensor-based collection of data to allow development of predictive algorithms for disaster prediction and management.

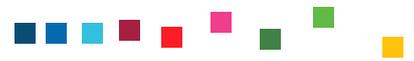
4. KALRO: Non-Ruminant Research Centre is an Institute under the Kenya Agricultural and Livestock Research Organization (KALRO) whose main focus is to develop improved technologies that support the upgrading and commercialization of the various non-ruminant value chains including poultry, pigs and emerging livestock.

²⁹ <https://kakamega.go.ke/download/county-annual-development-plan-cadp-financial-year-2022-2023/#>

³⁰ 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County - Kenya National Bureau of Statistics (knbs.or.ke)

³¹ <https://www.mmust.ac.ke/directorates/projects/index.php>

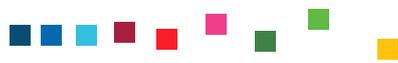
³² <https://www.mmust.ac.ke/directorates/spiic/index.php/about-us>



5. TVETS: Bushiangala Technical Training Institute offers Technical, Industrial, Vocational and Entrepreneurship Training. BUSTTI undertakes education and training in programmes, promotes research and technological development and dissemination of information on innovations.

6. Magharibi Incubation Hub: Magharibi Incubation Hub focuses on bringing to reality the products and services by simplifying the entrepreneurship skills and training thinkers. They offer incubation and co-working amenities. They offer dedicated and shared working space, internet access, meeting rooms and subsidized reprographic support services.

7. Masinde Muliro Science Park: The Directorate of Science & Technology Park and Industrial Linkages (STPIL) was established in 2005 with a mandate to start, develop and manage the University Science and Technology Park (STP) and incubation of innovations emanating from the research activities in the university. Part of its role also includes linking relevant industry to the science park through collaboration with both private and public sectors keen to incubate their business in the STPIL.³²



6.0 Nyeri County

6.1 Background

Nyeri County is located in the central region of the Kenya. It covers an area of 3,337.2 Km² and is situated between longitudes 36° 38" east and 37° 20" east and between the equator and latitude 0° 38' south. It borders Laikipia County to the north, Kirinyaga County to the east, Murang'a County to the south, Nyandarua County to the west and Meru County to the northeast.³³ According to the 2019 National Census, Nyeri has a population of 759,164. The population density is 228 persons per Km². The population distribution by sex is 374,288 Male, 384,845 Female and 31 Intersex.³⁴

6.2. Innovation Generating Institutions

The county has two public universities (Dedan Kimathi University of Technology and Karatina University), one private university campus (Kenya Methodist University), and two public university campuses (Kenyatta University and University of Nairobi). Nyeri has 23 Technical, Vocational Education and Training (TVET) institutions and 6 Vocational Training Centers/ Youth Polytechnics. The county hosts a number of private/faith-based TVET institutions such as the Consolata Training Institute and Little Flowers Training Institute among others.³⁵

6.3 County Plans on Innovation

Under the Industrialization sub sector, there is a development priority for revitalization of industrial zones; Establishment of financing schemes and Improving micro enterprise regulatory framework. The strategies in place are to promote establishment of industries; Infrastructure development; Support research and innovation; Capacity building; Establish institutional policy and regulatory framework. Under the Education, Science and Technology Department,



Fig.6.1: Kenya's map showing location of Nyeri.

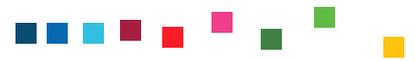
there is a project to develop a model innovation hub in all the sub counties. The objective is to provide workspaces and market spaces for innovations done in the County and the target is iHub. The activity is to construct and equip an innovations hub for use in developing and incubating innovations as well as providing workspace and internet for online jobs. The source of funding is the national and county governments.³⁶

33 CIDP-2018-2022.pdf (nyeri.go.ke)

34 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County - Kenya National Bureau of Statistics (knbs.or.ke) 35 CIDP-2018-2022.pdf (nyeri.go.ke)

36 CIDP-2018-2022.pdf (nyeri.go.ke)

37 Centres (ajiradigital.go.ke)



6.4 The Innovation Ecosystem

In Nyeri county, there are 20 Ajira Centres, 5 innovation hubs, 4 skills trainers and 1 co-working space. These are briefly described here below:

1. Ajira Centres: There are 20 Ajira Centres in Nyeri County³⁷. Distribution by constituency is as follows: Tetu 5, Othaya 4, Mukurweini 5, Kieni 4 and Nyeri Town 2.

Innovation hubs

1. Mt Kenya Hub is an innovation hub and mentorship space for the technology community in Kenya focused on building and supporting a strong, vibrant innovation ecosystem. It was founded in 2015 by Savio Wambugu, a software developer

2. Nyeri ICT Hub is a government led initiative that aims to address deficiencies hampering the operations of the Youth Empowerment Centers (YEC) to ensure that the youth employment agenda is on track.

3. Mukurweini ICT Hub is a Constituency Innovation Hub (CIH) which is one of the pillars of the Ajira Digital Programme. It aims to introduce young people to online work and provide them with the necessary tools, training and mentorship to enable them to work and earn a decent income.

4. DeHub supports its members to produce quality products, help the founders penetrate the market and equip them with skills and knowledge to remain relevant in the market. The hub helps start-ups apply information, imagination and skills in deriving greater or different values from resources and all processes by which new ideas are generated and converted into useful products. DeHUB team also acts as advisory to the start-ups and promoters of the invention to the market.

5. Mt Kenya Hub is an Innovation hub and mentorship space for the technology community in Kenya that was founded in 2015 by Savio Wambugu, a software developer.

Skills Trainers

1. Karatina Tvet is a training organisation which provides a high quality, flexible learning environment.

2. Mukurweini Technical Training Institute is the first government technical institute to be established Mukurweini subcounty, Nyeri. It offers various certificate, diploma and craftsmanship training to students in Kenya.

3. Ngorano Tvet- Ngorano Youth Polytechnic

4. Mathira TTI Mathira Technical & Vocational College is a middle level Government sponsored Vocational College focusing on transfer of technical skills, ICT, Business and Entrepreneurial skills to Kenyans from all walks of life.

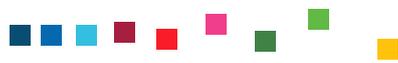
Co Working Spaces

1. Wera Space is a resourceful, reasonably priced, and contemporary co-working space designed to meet the diverse requirements of SMEs, freelancers, remote workers, entrepreneurs, startups, tech workers, writers, designers, and other professionals.

6.5. Areas of Collaboration

1. Private sector players. The hubs and innovation centers collaborate with non-state actors in terms of paying for utilities, (power/water/internet) installation of high speed internet. This has enabled the hubs to keep running with reduced challenges

2. County government. Some innovators have been granted waivers to showcase their innovation in public spaces by the county government. They are supported with transportation of by different county government agencies when they are called to exhibit in National and International events. Through this collaboration, they have successfully secure several orders of their innovation. The innovators wish that the collaboration lasts for about 5 years with follow ups so that a lot progress can be made on innovations to scale up.



6.6. Challenges

The following are the key challenges mentioned by the actors of the innovation ecosystem in Nyeri:

1. Limited funding: Access to funding is the main challenges facing innovators for the commercialization of their innovations. It is also a major challenge for the hubs, accelerators, incubators and co-working spaces to enhance their services to innovators.

2. Training: The innovators have also identified lack of business skills, certification of innovations and licenses as challenges in their innovation path. There are limited training programs from the training institutions targeting the unique needs of innovations and hubs. The innovators yearn for training especially on coming up with better business models for their innovations.

3. Collaborations: The innovators have pointed out having limited access to government support and major private entities as a challenge. Whereas the hubs are having some form of collaborations with different government and non-governmental organizations, these are mainly through payment of some of the utilities. Collaboration amongst government, innovators and hubs is limited.

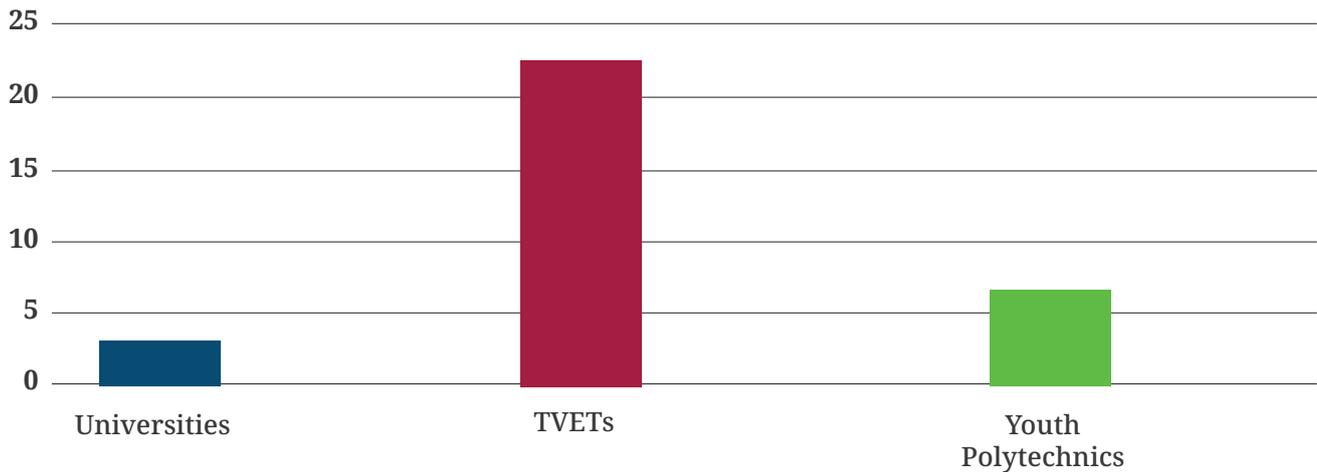


Fig. 4.2: Education institutions in Nyeri.

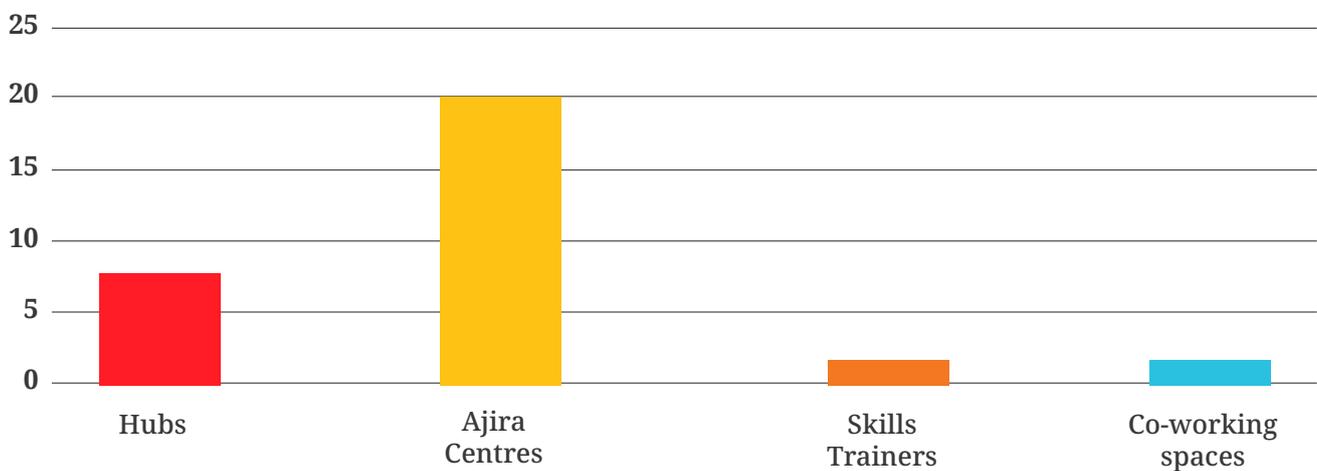
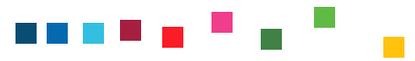


Fig. 4.3: Innovation Ecosystem



7.0 Tana River County

7.1 Background

Tana River County is located in the coastal region of Kenya. The county borders Kitui County to the West, Garissa County to the North East, Isiolo County to the North, Lamu County to the South East and Kilifi County and Indian Ocean to the South. The county straddles between latitudes 00 0'53" and 20 0'41" South and longitudes 380 30' and 400 15' East and has a total area of 38,862.20 Km². The county has a coastal strip of only 76 Km³⁸. According to the 2019 National Census, Tana River has a population of 315,943. The population distribution by sex is 158,550 Male, 157,391 Female and 2 Intersex. The population density is 8 persons per Km².³⁹ The county has 315 ECDE centers, 152 primary schools, 52 secondary schools and 2 special units. There are 5 Technical and Vocational Colleges and 23 Vocational Training Centers/ Youth Polytechnics, 4 youth polytechnics and 4 colleges in the county.⁴⁰

7.2 County Economic Activities and Opportunities for Innovation

Tana River County has 4% arable land and 96% non-arable. Farming and nomadic pastoralism are the main economic activities due to the dry conditions and erratic rainfall patterns experienced in the county. The Tana River is a major water source in the county. The county has the potential to use its wildlife and visitor attraction assets as leverage to improve the livelihoods of its people. The assets include the rare primates and aquatic animals at the Tana Delta, beach tourism along the Indian Ocean, water sports and game fishing. Other economic activities include mining with potential for gems such as Barite, Ilmenite, Iron Ore, Uranium and Gypsum.⁴¹

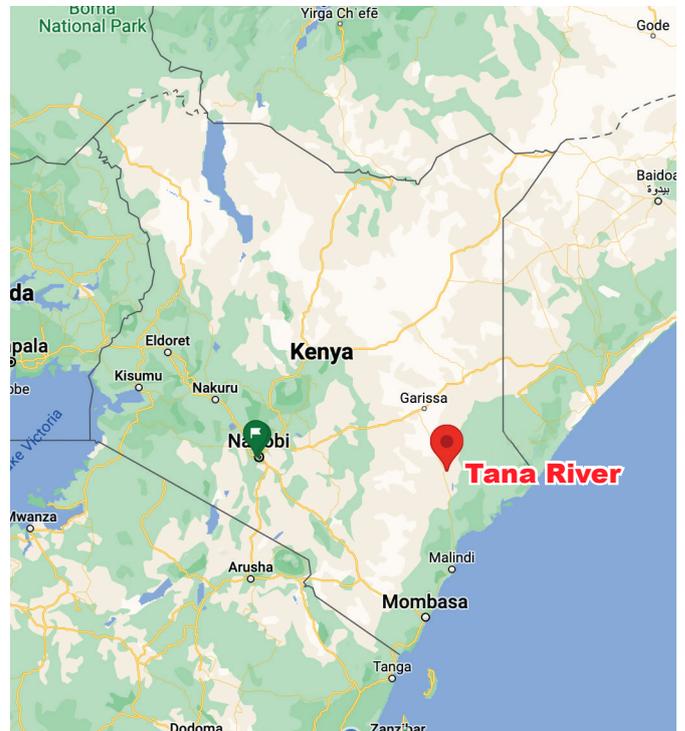
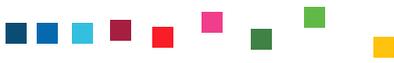


Fig. 7.1: Location of Tana River.

7.3 County government programs relevant to innovation

Tana River Youth Empowerment and Innovation Center Preparations are in top gear for the launch of the Tana River Centre for Innovation and Youth Empowerment in Hola. The centre is the first of its kind in the region and the second in the country after Isiolo's. Education Executive Abbas Kunyo said the launch will be the start of developing the centre that sits on 1,000 acres. It is expected to host 1,000 students in its boarding section and 125 tutors, who will live in their own quarters on campus. The centre will also have a media facility, hydroponic farms, fish ponds, and a fully equipped ICT Hub that will support technological innovations. Also planned is a 500-bed hotel for food processing, practicals and other dealings to boost the catering sector. Mr Kunyo also noted that the centre will have a fruit processing section, where the youth will be trained on value addition for the international market. Among partners who have taken interest in various sections at the centre is Huawei, which will equip the IT centre.



The United Nations Development Programme (UNDP) which has established a hydroponic farm. The county administration has also partnered with the Kenya School of Government, which will offer various courses.⁴²

7.4. Youth Empowerment Gains

Tana River County youth are the latest beneficiaries of the county's partnership with the United Nations Development Programme (UNDP), as the county received an assortment of Information Communication and Technology equipment to furnish the upcoming Empowerment and Innovation Center. The centre replicates the one in Isiolo County which was launched as a platform for knowledge, information dissemination and provision of a safe space for young people. Governor Dhadho Godhana has that indicated that the County Government is in the process of developing an action plan to accelerate implementation of skill growth development goals through the youth innovation centers.⁴³

7.5. Innovation Parks

The Government of Tana River plans to partner with the Ministry of ICT, Innovation and Youth Affairs to establish ICT parks in the county "Eco-Villages" clusters as part of Governor Dhadho Godhana's urbanization program. The goal is to make Tana River a Smart City, in partnership with ICT Authority and the Ministry of ICT. The Ministry of ICT is improving connectivity in the county. The improved connectivity and the establishment of the ICT parks will enhance service delivery. The "Eco-Villages" targets the development and settlement of people in urban centers and a higher ground away from flood prone areas.⁴⁴

Tana River Youth Innovation Centre

The Tana River Youth innovation Centre developed in partnership with the United Nations Development Program (UNDP), Kenya School of Government (KSG), National Youth Council (NYC) and Frontier Counties Development Council (FCDC) provides capacity building and ICT training on access to government procurement, creative economy, entrepreneurship, leadership skills and ICT.

38 Tana River County Integrated Development plan 2018-2022.pdf

39 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County - Kenya National Bureau of Statistics (knbs.or.ke)

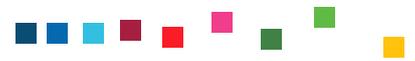
40 Education, Youth, Sports, Gender and Social Services - County Government of Tana River

41 Tana River County - Kenya County Guide

42 Admin, Author at County Government of Tana River

43 Youth empowerment gains as Tana River receives ICT infrastructure - County Government of Tana River

44 <https://www.pd.co.ke/news/tana-river-to-partner-with-ict-ministry-in-establishing-innovation-parks-84425/>



8.0 Makueni County

8.1 Background

Makueni County is one of the forty-seven counties in Kenya. It is situated in the South Eastern part of the country and borders the following counties: Machakos to the North, Kitui to the East, Taita Taveta to the South and Kajiado to the West. Makueni lies between Latitude 1° 35' and 3° 00' South and Longitude 37°10' and 38° 30' east and covers an area of 8,169.8 Km². The county is divided into six sub-counties which are also the parliamentary constituencies namely Makueni, Mbooni, Kibwezi East, Kibwezi West, Kaiti and Kilome⁴⁵. According to the 2019 National Census, Makueni County has a population of 987,653. The population density is 121 persons per Km². The population distribution by sex is 489,691 Male, 497,942 Female and 20 Intersex.⁴⁶

8.2. Innovation Support Institutions

Makueni County has 1300 ECDE centres, 997 primary schools, 375 secondary schools, 2 university campuses (Lukenya University and South Eastern Kenya University (SEKU)), 2 technical training institutions (Wote TTI and Kenya Medical Training College (KMTCC)), 16 Vocational Training Centers/ Youth Polytechnics, 25 TVETs, 8 Technical and Vocational Colleges (TVCs) and one community resource center (Kwamutula Youth Resource Centre).⁴⁷ In addition, there are 11 Ajira Centres in Makueni County. 3 in Kibwezi East and 8 in Kibwezi West.⁴⁸

8.3. County Government Programs Relevant to Innovation

Makueni Innovation Challenge 2021

The Government of Makueni County in collaboration with its partners run the Makueni Innovation Challenge whose aim was to catalyze the growth of startups, so as to amplify and consolidate the gains of the country's digital innovative ecosystem. For 2021, the theme was "Economic Recovery amidst COVID-19".⁴⁹ For 2022, the theme was "Unlocking the Digital Transformation Potential for Climate Action".

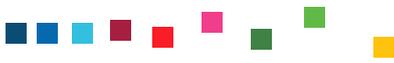


Fig. 8.1: Location of Makueni.

Startups from across Kenya that met the requirements were invited to participate in the challenge for an opportunity to win cash prizes and incubation in the Makueni Tech and Innovation Hub and associated hubs countywide.⁵⁰

Tusomeei Computer Nduani

Tusomeei Computer Nduani is an initiative by the Government of Makueni through the department of Education, Youth, Sports and ICT that allows youth access to free basic ICT training right at the village level. The program that is in its second year, has allowed for training of over 4000 youth through the established Community Information Centres located in various wards within Makueni.⁵¹



8.4. CIDP Plan Report Relevant to Innovation

Automating 70% of county government Services

The county government aims to enhance service delivery through modernizing business processes and enhancing electronic interaction between government agencies and increasing citizens' access to e-government services conveniently at their preferred location and time. The automation will focus on: revenue administration; Government procurement process (e-procurement process); Citizen Engagement (civic education, public participation and feedback mechanisms); Complaint handling mechanism; Digitization of land records (mapping/GIS based system/ remote sensing); Agricultural extension services; Statistics, Monitoring and Evaluation System; Health care services (telemedicine) and marketing. The components in the programme will include investment in the prerequisite infrastructure, training and capacity development, technology transfer and development of an innovation/ IT hub. Under the Socio-economic development: Health thematic area, there is a strategy for Development of health care services and financing partnerships with the enhancement of health research and innovation as one of the project description and activities.

8.5 The Innovation Ecosystem

Makueni Innovation Hub

Makueni Tech and Innovation Hub is geared at fostering and scaling-up innovation in Makueni County. The hub aims at allowing enterprise creation, supporting employment and competitiveness by providing open spaces where entrepreneurs, startups, young innovators and programmers can find training, mentoring, technical expertise to design market solutions to local challenges.

Ajira Centre

Makueni will be taking place at the CIC centres. The centres which offer basic ICT training and E-government services to the citizens, allow youth opportunities to access ICT training right at the grass roots. The centres participating in the training are Wote, Matiliku, Mulala, Tawa, Nunguni, Kasikeu, Kikima and Kalawani. The program aims at bridging the gap between skills.

45 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County - Kenya National Bureau of Statistics (knbs.or.ke)

46 Makueni CIDP 2018-22.pdf

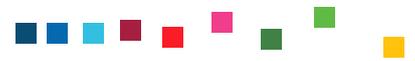
47 Technical and Vocational Education Training, TVETs, institutions in Makueni County; Contacts, Fees, How to join and Requirements - Newsblaze.co.ke

48 Centres (ajiradigital.go.ke)

49 Makueni Innovation Challenge 2021

50 Makueni Innovation Challenge 2.0. - Apply By Feb 28, 2022

51 Tusomeei Computer Nduani - Government Of Makueni County



9.0 Uasin Gishu County

9.1 Background

Gishu County was created in 2010 upon the promulgation of the Constitution of Kenya. Uasin Gishu County has its headquarters in Eldoret town. The County extends between longitudes 34° 50' east and 35° 37' east and latitudes 0° 03' South and 0° 55' North. The County shares common borders with Trans Nzoia County to the North, Elgeyo Marakwet County to the East, Baringo County to the South East, Kericho County to the South, Nandi County to the South West and Kakamega County to the North West. It covers a total area of 3,345.2 Km². The county has a population of 1,163,186. 580,269 Male, 582,889 Female and 28 Intersex. The population density is 343 persons per sq.km.⁵²

9.2. The Innovation Ecosystem

The following are some of the key innovation hubs in the county:

1. EldoHub⁵³

EldoHub is an education, innovation and technology organization targeting youth and women, with an aim of preparing them to benefit from the opportunities the emerging ICT industry offers and close the skills gap in Africa’s job market. The Hub provides STEM education, job matching and digital work. The hubs also runs entrepreneurship and incubation programs.

2. Kikao⁶⁴

Kikao64 is a flexible and creative coworking space – an incubator for Eldoret’s new high-tech community of entrepreneurs, start-ups, nonprofits, freelancers, creatives and athletes⁵⁴.

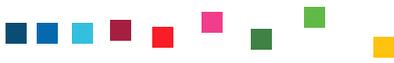
3. Tumaini Innovation Center

Tumaini Innovation Center is a Community Based Organization (CBO) that seeks to address the unique challenge of vulnerable children and youth. Street connected children and youth are a vulnerable population who miss their opportunity for education, training, and lack access to health care or other rehabilitation services.



Fig. 9.1: Kenya’s map showing location of Uasin Gishu

The Tumaini Center seeks to engage vulnerable youth in a revolutionary new educational model that breaks down educational barriers faced by street youth and other vulnerable youth in a changing society, leverage their inherent resourcefulness, resilience, and independence, and equip them with the knowledge and skills they need to not only get off the streets but to have successful and productive careers in their community. The program empowers them with hope, knowledge, skills, opportunities, and resources necessary for them to earn a positive livelihood off the streets. These livelihood opportunities include learning vocational skills like Motor Vehicle Mechanics, Metalwork and Fabrication, Carpentry, Masonry, Electrical & Solar Power Installation, Hairdressing & Beauty Therapy, Catering, Life Skills and Entrepreneurship Skills, enabling them to access employment, or start a business, reunite with their families, live communally or independently.⁵⁵



EldoHub Programmes

- Eldohub provides STEM Education that is industry-specific and blends technical education with soft skills development and experiential learning so learners can thrive in the ever- changing digital world. The Hub teaches coding and latest tools and technologies including entrepreneurship.
- Supporting startups to bring ideas to live and linking them to funding opportunities as well as supplying talent to work for them.
EldoHub in collaboration with 21CSkillsafrica offers you training programs to upscale your digital skills in #DataScience and #ArtificialIntelligence.
- Sasakazi is a mobile and web platform that helps local enterprises access a pool of vetted digital talents to work on their digital transformation journey, digitization and digitalization.
- Through Ecohost hosting platform, the hub supports businesses and individuals through mobile and web solutions in partnership with Kenic.
- EldoHub in partnership with Thunderbird School of Global Management (Arizona State University) supported by the UK-Kenya Tech Hub places junior tech professionals in businesses to work on specific digital projects for three months while receiving mentorship from experienced professionals.

4. Mara Launchpad Incubation Center

Center. It targets to strengthen capacity in Education excellence, development impact, establishing partnership with industries, innovation and transfer of technology and supporting business incubation up-to commercialization stage. The Center shall transform ideas into products through; research and incubation, excellent training, mentorship and offering necessary infrastructure, services and resource support.⁵⁹

Co-Working Spaces

64 Office Suites

Sixty Four Office Suites offers a fun and professional co- working platform for start-ups and seasoned businesses. We have a range of membership options tailored to suit business needs based on client preferences.⁵⁷

Number of education institutions

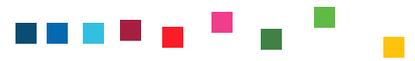
There are 609 Early Childhood Development Education (ECDE) centers, 492 public and 246 private primary schools, 184 secondary schools, 2 special need schools, 5 public and 3 private universities have campuses in the County. There are 6 public tertiary institutions, 11 Vocational Training Centres (VTCs) and several private commercial colleges.⁵⁸

Education and Innovation

MU Technologies Digital Assembly plant based within Moi University's Rivatex Complex in Eldoret town develop premium ICT devices and ICT technology support.

PTRE Incubation Centre

Moi University under the ACEII-PTRE Project applied for the IUCEA call in collaboration with other partners and won the award of the grant US \$ 250,000 to host an Incubation Center. It targets to strengthen capacity in Education excellence, development impact, establishing partnership with industries, innovation and transfer of technology and supporting business incubation up-to commercialization stage. The Center shall transform ideas into products through; research and incubation, excellent training, mentorship and offering necessary infrastructure, services and resource support.⁵⁹



Special Economic Zones

Africa Economic Zones

Africa Economic Zones Ltd (AEZ) is a licenced Private Multi Sector Special Economic Zones located in Eldoret, Uasin Gishu County. This landmark project demonstrates AEZ's commitment to Kenya's industrialization agenda and has the support of the Chinese government through its "One Belt One Road" initiative. The project will attract over \$2 Billion of investment into the region as well as creating over 40,000 direct jobs and up to 150,000 indirect jobs once it is fully operational. The zone will have a significant positive impact on the local and national economy generating production revenues in excess of \$3 Billion per year.⁶⁰

Ajira Centers

There is one Ajira Centre in Uasin Gishu County.

CIDP Plan report relevant to innovation

The County Integrated Development Plan (2018-2022) has several ideas to promote the innovation ecosystem.

- Establishment of ICT Innovation hubs and training centres;
- Establishment of Intellectual Property Rights (IPR) Desk whose main objective is to preserve and protect ideas, Innovations, and Inventions;

- Development of policies to encourage growth of industries through Public Private Partnership (PPP);
- Setting up of SME incubation centres to promote innovations amongst the youth.

9.3 County programmes relevant to innovation

Kenya Climate Innovation Centre

The Kenya Climate Innovation Center (KCIC), through the AgriBiz program, held a forum in December 2021 in Eldoret town, Uasin Gishu, to engage county stakeholders on catalyzing opportunities for women and youth in Agribusiness. The third of its kind, the initiative collaborates with stakeholders such as the county government officials and local farmers. The main agenda of the forums is to create a platform for dialogue to ensure that challenges faced by the farmers are aired and addressed in regards to the agro economic state of affairs in the county. The forum provided an opportunity for the government to showcase the support offered to the farmers to ensure a vibrant economy and positive environment.

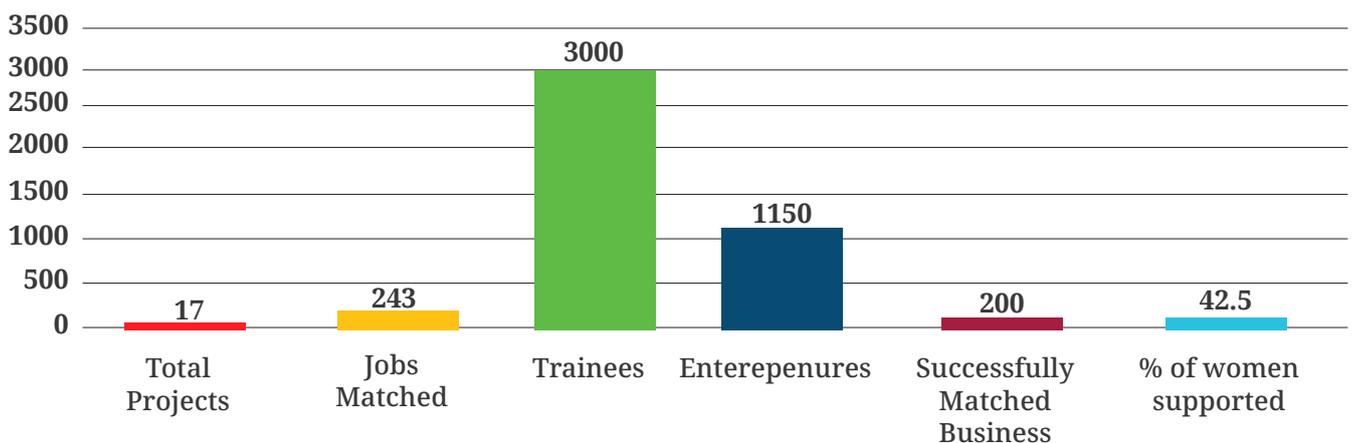


Fig. 9.2: EldoHub in Numbers.

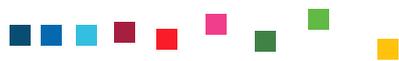
55 <https://www.somo.co.ke/about-tumaini-innovation-vocational-training-cen-ter-sm1-376>

56 <https://www.smefinanceforum.org/post/mara-foundation>

57 <https://www.coworker.com/kenya/eldoret/sixtyfour-office-suites>

58 [Uasin-Gishu-County-CIDP-2018-2022.pdf](https://www.uasin-gishu-county-cidp-2018-2022.pdf) (kippra.or.ke)

59 <https://excellencecenter.mu.ac.ke/index.php/category/ptre-incubation-centre/> 60 <http://www.aez.co.ke>



10.0 Isiolo County

10.1 Background

Isiolo County is located in the Upper Eastern Region of Kenya and is one of the Arid and Semi-Arid Lands (ASALs) in Northern Kenya covering approximately 25,700 square kilometers. It is located between Longitudes 36° 50" and 39° 50" east and latitude 0° 05" south and 2° 20" north. Given its huge size, the county borders Meru and Tharaka Nithi counties to the South West, Marsabit County to the North, Samburu and Laikipia Counties to the West, Garissa County to the South East, Wajir County to the North East and Tana River and Kitui Counties to the South. Its economic mainstay is pastoralism but blended with crop farming, beekeeping, and recently fish farming.⁶¹ According to the 2019 National Census, Isiolo has a population of 268,002. The population density is 11 persons per Km². The population distribution by sex is 139,510 Male, 128,483 Female and 9 Intersex.⁶²

10.2 Number of Education Institutions

There are 160 ECDE centres, 125 primary schools of which 108 are public and 17 are private, 25 secondary schools, 2 operational youth polytechnics in the county (St. Joseph Polytechnic which is privately owned and Uhuru Youth Polytechnic), 3 tertiary institutions (Kenya Medical Training College, St. Marys Secretarial College and Isiolo ECD Training centre), 2 Technical and Vocational Colleges (Karma Training institute and Prasol College of Professional Studies) and 2 vocational training centres (Uhuru in Isiolo and Merti in Merti Sub-County).⁶³

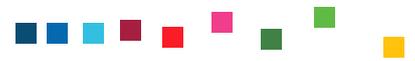


Fig. 10.1: Kenya's map showing location of Isiolo.

10.3 County Programs Relevant to Innovation

Isiolo Youth Innovation Centre

The centre was established through a partnership between the Isiolo County government, Kenya School of Government, United Nations Development Programme (UNDP), Department for International Development (DFID) and the Norwegian Embassy in 2020. Huawei Kenya equipped the centre with high internet connectivity. Young people interested in drawing income online receive training on mobile and computer applications, film making among other fields. The Kenya school of government (KSG) offers trainings at Isiolo Youth Innovation Centre.⁶⁴



CIDP Plan report relevant to innovation

- Under the new project proposals, there are plans to: Establish a business incubation and innovation hub at ATC. The objective is to improve institutional capacity for efficient and effective service delivery. The source of funding is the National Government, the Isiolo County Government and development partners.
- Establish an ICT innovation and technological centre at Isiolo town. The objective is to promote technological innovation. The source of funding is the National Government, the Isiolo County Government and development partners.⁶⁵

11.5: The innovation ecosystem

Isiolo Youth Innovation Centre

The Joint UN Devolution Programme (Consolidated Gains and Deepening Devolution in Kenya project), which is funded by the Governments of Sweden, Finland and Italy. Norway funds also supported the activities in IYIC through Strengthening Devolved Governance in Kenya project. To establish the Youth Innovation Centre, the County Government provided space which was refurbished by KSG while UNDP provided the ICT equipment and furniture and the Centre's branding. The Centre was formally launched in October 2020.⁶⁶ The center activities includes Computer Literacy Courses, Film production classes, Certified Hydroponic Farming Training and Computer Networking and Security Training.

⁶¹ 2018-2022 Isiolo County CIDP.pdf (kippra.or.ke)

⁶² 2019 Kenya Population and Housing Census Volume I: Population by County and Sub-County - Kenya National Bureau of Statistics (knbs.or.ke)

⁶³ 2018-2022 Isiolo County CIDP.pdf (kippra.or.ke)

⁶⁴ Isiolo County launches its first youth innovation centre (kbc.co.ke)

⁶⁵ 2018-2022 Isiolo County CIDP.pdf (kippra.or.ke)

⁶⁶ <https://maarifja.cog.go.ke/223/isiolo-youth-innovation-centre-centre-excellence-providing-safe-spaces-for-talent-skills-competency-development/>



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