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Message from the Deputy Vice Chancellor, Research, Innovation and Enterprise

The Research, Innovation and Enterprise Division is happy to present the latest Policy Brief Publication of the University of Nairobi.

Policies are key instruments that guide the direction and decisions being taken in a country or institution. The role of research in influencing policy is often overlooked, yet when properly applied, research evidence through production of policy briefs could change processes and programmes in a positive way. Policy briefs are meant to address specific gaps in policy on a specific matter and raise a call to action by policy makers and stakeholders. In addition, Policy Briefs help to bridge the gap between theory and practice, and to bring research institutions closer to the industry and practice.

The policy briefs presented in the current issue aim to inform and inspire action, empowering decision-makers to shape policies and strategies that drive positive change.

May I take this opportunity to appreciate efforts of all the contributors and the Editor, Prof. Justus Munyoki, for working on this issue as well as our stakeholders, and partners for making this publication possible.

We are grateful to the Vice Chancellor of the University of Nairobi, Prof Stephen Kiama and members of University of Nairobi Executive Board for their dedicated support for the development and publishing of this Policy Briefs Edition.

Thank you all and we welcome feedback on the policy briefs.

Prof. Margaret Jesang Hutchinson
Ag. Deputy Vice Chancellor
Research, Innovation and Enterprise
&
Professor of Horticulture



Message from the Editor-In-Chief

The UoN Policy Brief series are published by the Office of the Deputy Vice Chancellor, Research Innovation and Enterprise on a quarterly basis, and we encourage authors to submit policy briefs for publication as a way of disseminating their research findings and informing policy. I take this opportunity to welcome you to Volume 1 2023 Policy Briefs, a set of 11 policy briefs covering diverse areas.

The current issue has focused on a diverse array of areas including Land use planning, Air transport safety, and taming hunger, starvation and poverty during pandemic situations, and urban-rural linkages.

I wish to congratulate all the authors and contributors who have participated in the current issue of the UoN policy briefs.

**Prof Justus M Munyoki,
Editor-In-Chief
UoN Policy Briefs**



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Livelihood Revitalization in Ewaso Oo'nkidongi through Rural Land Use Planning

Ng'ayu, M.M. and P. O. Olale

Key Messages

- **Climate change as manifested in prolonged droughts is continuing to jeopardize the ability of Arid and Semi-Arid Lands populations to benefit from natural resources.**
- **The County Government of Kajiado and development partners should deliberately address the challenges faced by people living in these areas by adopting participatory land use planning and implementation.**
- **Decisions in land use plans will guide future land management actions and subsequent site-specific implementation decisions.**

Context

About 80% of Kenya is characterized as arid and semi-arid lands (Wakhungu et al. 2014). Over the years, land use planning in rural arid and semi-arid lands (ASALS) has been insignificant, impaired by issues of inequity and inequality. These areas were often viewed as desolate lands lacking development potential therefore the focus of planning was primarily on lands considered to yield the largest net output thus favoring development in areas with abundant resources leading to increased social-economic disparities. The pastoral economy is the key driver of rural development in ASAL and is defined as a system that integrates economic, social and environmental values associated with livelihoods in the ASAL (Nyariki and Amwata 2019). It includes direct and indirect pastoral resources such as livestock; wildlife; people; natural products like gum, timber, honey, beeswax; and micro-organisms. These ASAL regions are host to 70% of the country's wildlife that supports the tourism industry, contributing to 12% of Kenya's Gross Domestic Product (GDP). However, the sustainable use of land resources within these areas continues to be limited by inadequate policy and institutional support thereby deepening the severity of poverty in the pastoral areas. This study assessed the land use needs of Ewaso Oo'nkidongi Ward, Kajiado West Constituency in Kajiado County. The key land uses critical for the enhancement of livelihoods in Ewaso Kedong include agriculture and primarily livestock rearing, commerce and public purpose such as health, government offices and security needs.

Currently agriculture covers an area of 115,251 HA against a projection of 153,25 HA, commerce takes up only 64 HA against a projected need of 645HA, while commerce activities covers 64HA against a projection of 186HA. In total, and according to the study's projections; the gap in land use needs is 131,072 HA.

Approach and Results

This study was conducted as part of the 2021-2022 second year Rural Planning Studio in Ewaso Oo'nkidongi Ward, Kajiado County with the aim of developing a rural land use development plan. The data collection methods and tools used included key-informant interviews, observation, focus group discussions, household socio-economic surveys and business survey. A total of 100 household questionnaires were administered to household heads in the villages and centers of Kimuka, Ewaso, Enajooli and Najile. The key informants included the chiefs, assistant chiefs, teachers, health workers, the ward administrator and land use planners.

Global Positioning System (GPS) was used to locate various points like water points, administration offices, education, health facilities, religious facilities and waste disposal sites.

The findings show that the area grapples with semi-arid conditions as manifested by low rainfall, high temperatures, poor access to basic infrastructure and social services. Rapid urbanization has led to many changes taking place in this livestock production area. The growth of merchant and salaried classes with new ideas and willing to try new systems of production was also evident. Other threats to sustainable land use in this area include land fragmentation, effects of climate change and social-cultural changes on people who have upheld pastoralism as their mainstay. Owing to the sparse distribution of households across the ward's spatial plane, access has proven to be one of the major hindrances in the provision and use of infrastructure and social amenities.



Ewaso Kedong Livestock Market

Policy Recommendations

Short term:

The County Government of Kajiado should:

- Prepare and implement a rural physical and land use development plan for the

Ward to guide current and future land use.

- Promote Mt. Suswa Conservancy as a tourist attraction site to create alternative employment opportunities. It should also identify wildlife migration routes and habitats and establish wildlife

conservation buffer zones to minimize human wildlife conflicts.

- Regulate sand harvesting and building stone mining to prevent conflict with other land uses and all mined areas should be rehabilitated.

Medium to Long Term:

The County Government of Kajiado should:

- Establish residential clusters in the Ward by adopting the neighborhood concept similar to the Masai Manyattas, but with improved housing where homes are located together. This should provide for a live, work and play environment within walking distance (500m to 2km) to infrastructure (such as permanent water supply) and social amenities for easier service provision while conserving agricultural land.
- Optimize natural resources use through zoning of land to describe the allowable land uses and their limitations in the various parts of the ward. In the case of mining, excavation limits and land rehabilitation minimums should be set to enhance sustainable mining.
- Enhance livestock keeping through controlled grazing by zoning agricultural land in two broad categories: one zone for enclosed and regulated grazing along the eastern region of the ward as it has a higher moisture content retention ability

and the other zone for open pasture grazing predominantly on the southwestern part of the ward.

Acknowledgement

Information for this policy brief has been extracted from the Rural Planning Studio Report of the Bachelor of Arts in Planning Year II Students of 2021/2022 Academic Year carried out in Ewaso Kedong Ward, Kajiado East Sub-County, Kajiado County. Instructors for the studio were Dr. Margaret Ng'ayu and Dr. Philip Olale. We appreciate the support of Dr. Fridah Mugo, Chair, Department of Urban and Regional Planning and all our respondents including the households, village elders, assistant chiefs, chiefs, county and national government officials.

References

- Nyariki, D. M and. Amwata D. A (2019). The value of pastoralism in Kenya: Application of total economic value approach. *Pastoralism: Research, Policy and Practice* (2019) 9:9 <https://doi.org/10.1186/s13570-019-0144-x>
- Wakhungu, J., Wesongah, J., Tura, G., Msalya, G., Grace, D., Unger, F. and Alonso, S. (2014). Pastoralism in Kenya and Tanzania: Challenges and opportunities in animal health and food security. Poster prepared for the 6th All Africa Conference on Animal Agriculture, Nairobi, Kenya, 27-30 October 2014. Nairobi, Kenya: ILRI.

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Education for Air Transport Safety: Reducing Incidents through Conformity with Aviation Training Standards

Angeline Mulwa, Nelson K. Mwikya, Dorothy Kyalo



Source: <https://unsplash.com/s/photos/air-transportation-images>

Key Messages

- **Safe air transport is essential for effective global Social economic interaction**
- **Basic and specialized qualification training improves performance of air transport**
- **Institutions and instructors who train aircraft maintenance Engineers should be approved by aviation regulators based on compliance to the set standards**

Introduction

The today's world economy depends on fast and reliable means of transport for goods and people across the globe. Air transport provides the needed connectivity on international and national scale with a view to enhance business, employment opportunities, tourism, and access to services. The success of air transport depends on the level of discipline exerted on operators by the regulatory bodies. Chang & Yeh (2004) and Liou et al. (2008) call for enhancement of safety for reduced accidents and successful operation of air transport industry. This requires intensive staff training, funding and high level technology Qing & Ye (2015). Bent & Chan (2010) established that training and adherence to the safety standards are basic to reducing accidents in the air transport. They proposed a system for recording training whose availability, ease of use and accuracy in tracking the crew's level of performance must be ascertained. The operator

should resolve as to which actions the crew should undertake to operate specified airplanes. The system should spell out the traits crew portray as well as the competences attained. (CAA, 2014). The issue of training and approval need to be given attention in policy and practice

to enhance performance of air transport. This policy brief seeks to address the gap in Conforming with Aviation Training Standards in Kenya which is necessary in enhancing safety in air transport.



Source: <https://www.istockphoto.com>

Methodology Used and Results of the Study

The researchers collected data from a sample of 224 participants drawn from 269 air worthiness inspectors and air operators that are registered in Kenya. Correlational survey design was employed and tools for field work were questionnaires, interview schedules, and observation guide and document analysis. For data analysis descriptive and Pearson's Product Moment Correlation was employed. The aviation standards for study included training, qualification, training resources, and studying environment. Indicators of safe air transport included number of air operators, number of recorded incidents, and compliance with scheduling charts, increase in airline fleets, oversight inspection rate, total run way incursion and the routine Audit of Approved Maintenance Organization (AMO).

The results indicate that 91.4% of air transport performance can be attributed to basic type training. The aviation staff working in operational areas for example engineers and pilots were found have experience and basic training with a composite mean of 2.6. The results indicate that 77.8% of KCAA personnel agreed to a very great extent there is a positive link between specialized qualification training on aviation safety standards and decrease in incidents in the air transport and also said that Kenya Civil Aviation Authority (KCAA) carries out sufficient examination process including skill based examinations before issuing licenses to aviation personnel as reported by 47.1% of the respondents. Further, findings showed that for one to be registered for training program , prerequisite entry qualification requirements were adhered to as indicated by 65.3% where as

57.0% indicated that the content and scope of the curriculum meet the KCAA regulations.

It was indicated by 53.1% of the KCAA participants that the program for training aviators in Kenya meet the International Civil Aviation Organization. The findings show that majority of KCAA staff respondents agreed that aviation training programs in Kenya meet international Civil Aviation Organization (ICAO) established standards, the content and the scope of the training modules meet the intended group of learners. Resources for training were fairly sufficient and study

environment in institutions that offer aviation training are favourable as indicated by 52.9% of the participants. Results indicated that basic Training, qualification, training resources and study environment are significantly correlated with performance of air transport in Kenya at 0.001 (99%). Further results indicated there is a strong and statistically significant relationship between qualification, basic training and performance of air transport in Kenya. Training resources and study environments related significantly with performance of air transport based on status of incidents.



Source: <https://www.google.com/search?q=aviation+training+facility>

Conclusion

Although the general training process of the Kenya air transport industry was rated as satisfactory by Kenya Civil Aviation Authority there were gaps in the specialized skills. There is need to review the training curriculum in line with the new developments in the air industry.

Policy Recommendations

Short-term

There is need to embark on drastic reforms on all aviation training schools to ensure compliance with aviation training standard stipulated in ICAO documents.

Management of aviation schools should be structured and trainers recruited by the government based on aviation standards criteria.

Medium-term

Research funds should be set aside to engage scholars for meaningful empirical studies in this field that seems which low research has output in Kenya.

Long-term

The curriculum for aviation training should be reviewed to include 21st century pedagogical skills and teaching methods that are digital in nature

Acknowledgements

We acknowledge the Aviation Safety inspectors and registered air operators for providing data.

References

Chang, Y. and Yeh, C. (2004). A new airline safety index. *Transportation research part B*, Vol. 38, Issue. 4, pp.370-379

Civil Aviation Authority- (2014). *Alternative Training and Qualification Programme Safety and Airspace Regulation Group Licensing and Training Standards*.

Kenya Civil Aviation Authority (KCAA), (2016). Kenya Civil Aviation Authority official website. *Rules of the air and air traffic control regulations*, [Online]. Retrieved <https://www.kcaa.or.ke/> accessed on 30/1/2023

<https://unsplash.com/s/photos/air-transportation-images>

<https://www.istockphoto.com>

<https://www.google.com/search?q=aviation+training+facility>(2022)

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Redefining Urban-Rural Linkages Based on Covid-19 Impacts on Soko Mjinga Market Centre and Rural Smallholder Communities of Kinale Ward in Kiambu County

Njambi R.G.; Mwaura, A. M.; Musyoka, R.M., Muketha, S.M. and F. W. Mugo

Key Messages

- **Covid 19 pandemic containment measures had various impacts on the study area: First, production decreased as reported by 58% of the farmers and this translated to fewer weekly sales at the market, which accounted for 55% of the sales. Second, 90% of food transporters lost their livelihood due to depressed demand and subsequent low food prices. Therefore, there was significant decrease in the number of lorries that ferried food produce from Soko Mjinga to Western Kenya, Coastal Kenya and other destinations. Third, increased post-harvest food wastage was experienced which was exacerbated by lack of cold storage facilities and value addition at the market centre. Against this background, exploitative middlemen took advantage of the pandemic and associated disruptions to exploit the farmers. There is therefore, need to forestall future post-harvest losses and exploitation by middlemen.**
- **The farmers are not organized into cooperatives that would give them a bargaining power and mitigate exploitation by middlemen.**
- **Farm production is not optimized due to lack of reliable extension services.**

Context

Globally, rural markets and their hinterland play a critical role in the urban-rural linkages continuum (UN-Habitat, 2020). The onset of the Covid-19 pandemic worsened an already bad situation through containment measures such as lockdowns, closure of markets and restriction of movement. This study explored the impacts of COVID-19 pandemic's containment measures on Soko Mjinga market centre and the rural smallholder farming communities in its hinterland of Kinale Ward. It was found that the market centre and the rural communities were vulnerable during the Covid-19 containment measures owing to lack of cold storage and value-addition facilities, which would have prolonged the life of farm products and stabilized farmers' incomes.



A lorry being loaded with bags of kales

Approach and Results

The study targeted all smallholder farmers in the four locations of Kinale Ward i.e. Kamae, Kamukombini, Kinale and Mukeu locations. It used a survey design and drew its sample from the traders who buy from the farmers, the drivers who transport food to different parts of the country and key informants that included chiefs, agricultural officers, market representatives and the county physical planner. The study conducted two focus group discussions with five community leaders and administered face-to-face interviews to ten households selected randomly from each of the four locations. A convenience sample of ten drivers based on their different destinations and a purposively sampled team of five key informants were also interviewed.

The findings show that the main rural land use in Kinale Ward was agriculture followed by forestry. There was no significant change in the land use due to Covid-19 containment measures. Up to 89% of the farmers did not change the crop they planted before Covid-19. Quantity of the farm produce reduced for 58% of the farmers while 35% did not experience any change. The study observed that agricultural land in Kinale area was diminishing through rampant

subdivision. This poses a threat to food security in the settlement scheme and to the country.

The number of times that residents of Kinale ward visited the market reduced to 4% and 22% for weekly and daily visits respectively. After relaxation of the Covid-19 pandemic containment measures, 63% of the population visited the market centre on a weekly basis, 33% on a daily basis while 4% did not visit the market centre at all. The negative impacts included reduction in demand and supply of farm produce, disruption in the food chain, reduced interaction between buyers and sellers, low prices for agricultural produce, increased number of brokers and increased food waste. There was, however, improved sanitation. About 93% of the population affirmed that their income greatly reduced because of low number of buyers and inability to undertake activities for off-farm income. Curfews prevented the normal hours of access to the market. Being a 24-hour market centre, the traders found it impossible to access it at any time within the stipulated curfew hours. This severely affected their ability to support themselves.

The measures had negative impacts on urban-rural linkages, through disruptions of the transport systems and to flows of information,

food, money and people both locally and to urban food markets in various parts of the country. The number of lorries that transported food from the market to Mombasa in a day before Covid-19 were about 20. This number reduced to about 2-5 during the Covid-19 pandemic's containment measures. This is a 90% reduction.

Policy Recommendations

Short-term

- The National Government should formulate a national strategy to ensure that fresh food is produced within or near consuming urban centres to minimize dependence on long distance transportation e.g. from Kinale to Mombasa. This calls for a strong urban and peri-urban agriculture programme in all the urban centres of the country.
- The County and National Government Ministries responsible for Cooperatives should assist farmers to form a strong farmer cooperative that could facilitate farm inputs procurement, supply and aggregation of produce to eliminate exploitation by middlemen.

Medium and Long-term

- The County and National Government Ministries responsible for industrialization should facilitate establishment of agro-processing industries in the rural food producing areas to add value to farm produce, increase shelf life of the produce, and assure farmers of markets for their produce.
- The County Government of Kiambu should also facilitate the farmers to specialize in

crops and livestock products such as Irish potatoes and milk that cannot be produced in sufficient quantities in urban and peri-urban areas so as to enhance trade.

Acknowledgements

Information for this policy brief has been extracted from a Master of Arts (in Planning) Research Project Report entitled, Urban-Rural Linkages: Covid-19 Impacts on Soko Mjinga Market Centre and Rural Smallholder Communities in Kinale Ward, Kiambu County. The research was conducted with financial support of the “Covid-19 Impacts on Transportation of Food and Related Commodities in the Urban-Rural Nexus (COVID-19 ITFCURN) Project” which was jointly implemented by the University of Nairobi and Global Solutions Division and Policy, Legislation and Governance (GSDPLG) Section of the UN-Habitat in collaboration with governments of Cameroon and Senegal, the State Government of Niger in Nigeria, and the University of Zimbabwe. The authors would like to thank Prof. Remy Sietchiping (Project Supervisor), John Omwamba, Grace Githiri and Fredric Happimangoua of GSDPLG –UN-Habitat for their technical support in the implementation of the project. Prof Isaac K. Mwangi (Project Leader), University of Nairobi is also acknowledged for research guidance and coordination of the project.

References

UN-Habitat. (2020). COVID-19 through the Lens of Urban Rural Linkages - Guiding Principles and Framework for Action (URL-GP). *Urban Rural Linkage Guiding Principle*, 1-3.

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Strategy for Strengthening Rural-Urban Linkages in Small and Medium Size Towns: Case of Butere Sub-County, Kakamega County, Kenya

Okerosi, D. M., Ayonga, J. N. and Mugo, F.W.

Key Messages

- **Agricultural productivity in Butere sub-county is very low at about 20% of the potential and this explains its' high levels of poverty (51.3%) and weak rural-urban linkages. Over 15 agricultural enterprises are farmed on a small average household land size of 1.2 acres that is rapidly reducing from generation to generation through sub-division for inheritance. There are no strong farmer cooperatives to facilitate optimum production and marketing.**
- **The sub-county lacks: (i) approved land use plans, (ii) land use zoning and development guidelines, (iii) minimum land size guidelines for different land uses, (iv) policy on optimal number of agricultural enterprises per household land parcel and (v) institutional arrangements for production and marketing of agricultural produce.**
- **Participatory formulation of sub-county land use plans, a minimum household land size with 3-4 enterprises and 3-4 matching agro-industries per land use system with corresponding production and marketing cooperatives, land use guidelines, coordinated implementation of clustered high-rise housing settlements in rural market centers can release land for agriculture and contribute to increased employment, food and livelihood security, hence poverty reduction in the sub-county.**

Context

Agergaard and Ortenbjerg (2017) highlight that rural-urban linkages are a medium through which rural and urban societies broaden their economies, transition dispersed villages to well-organized towns, and relay urban society ideologies. Strengthening these linkages is essential in ensuring that they support primary markets for rural ventures, supply development materials and extend urban services to the rural communities, as evident during the Covid-19 pandemic. Additionally, they are perfect foundation for fostering regional economic growth and eradicating poverty (IINAS, 2015). This brief summarizes urban and rural land uses in Butere sub-county, the nature of the linkages between Butere town and its rural hinterland, the challenges facing effective linkages, and proposed planning options for strong and sustainable rural-urban linkages. This policy aids achievement of Global 2030 Agenda and New Urban Agenda where urban-rural linkages have a clear role in 'ending poverty' (Goal 1); promoting sustainable communities and cities (Goal 11), and full and productive employment (Goal 8); 'reducing inequality (Goal 10); and taking urgent action to combat climate change and its impacts (Goal 13) (SDG:, 2030).



Plate 1: Maize Crop:
Source - Fieldwork, 2022

Approach and Results

The study was carried out in Butere sub-county in Kakamega County. It used a survey design. The target population consisted of urban and rural households, enterprises, key informants and community groups. A total of 380 households, 312 business respondents and eight key informants were interviewed. Three Focus Group Discussions consisting of 10 men, 10 women and 10 youth were conducted and observations also carried out. Document examination and case studies were used to gather secondary data. In addition, geographically provided shapefiles, self-created shapefiles, raster data sets as imageries via ArcGIS, Google Maps and Google Earth Pro were used to create maps and graphic displays.

Findings

The findings reveal that 76% of land is rural, 15% urban and 9% peri-urban. Up to 97% of the rural land is used for subsistence agriculture, while 3% is used for commercial farming. The area receives 1635-1882 mm/year of rainfall that supports rain fed agriculture. Maize and sugarcane were the main crops planted by most farmers (Plate 1 and 2). Other crops were sorghum, potatoes, beans, cassava, kales and sweet potatoes. Indigenous cattle and chicken were the most kept livestock, but some exotic breeds and fish were also kept. The sub-county had too many crop and livestock enterprises given the small average household land size of



Plate 2: Sugarcane Crop

1.2 acres and that 85% of households intend to sub-divide the land further among heirs. Production of maize was 6 bags/acre, 20% of the potential 30 (90 kg) bags/acre. Despite 90% of households relying on firewood for cooking, there was no coordinated growing of trees for firewood. The rural hinterland had no land use guidelines, with each land owner doing what they want, when they want and how they want.

There was more buying of manufactured goods by the rural people because of affordable prices in the town on market days. Food transportation was reported to be once a week and there was limited travelling to the town because most people were busy working on their farms. Roads were not very busy and road infrastructure development and maintenance did not attract much investment. The main challenges to effective linkages between Butere town and its hinterland were poverty that is attributed to poor farming methods, dependence on low yielding crop varieties and animal breeds, low levels of soil fertility, over dependence on rain-fed agriculture, high population density hence low natural capital, lack of financial capital for investment and poor entrepreneurial skills. Farms employed 64% of those living in urban areas, but 38% depended fully on wage employment earning Kshs. 150-200 a day. Education was the main driver of non-farm activities.

Policy Recommendations

Short-term

The study recommends that the County Government of Kakamega should:

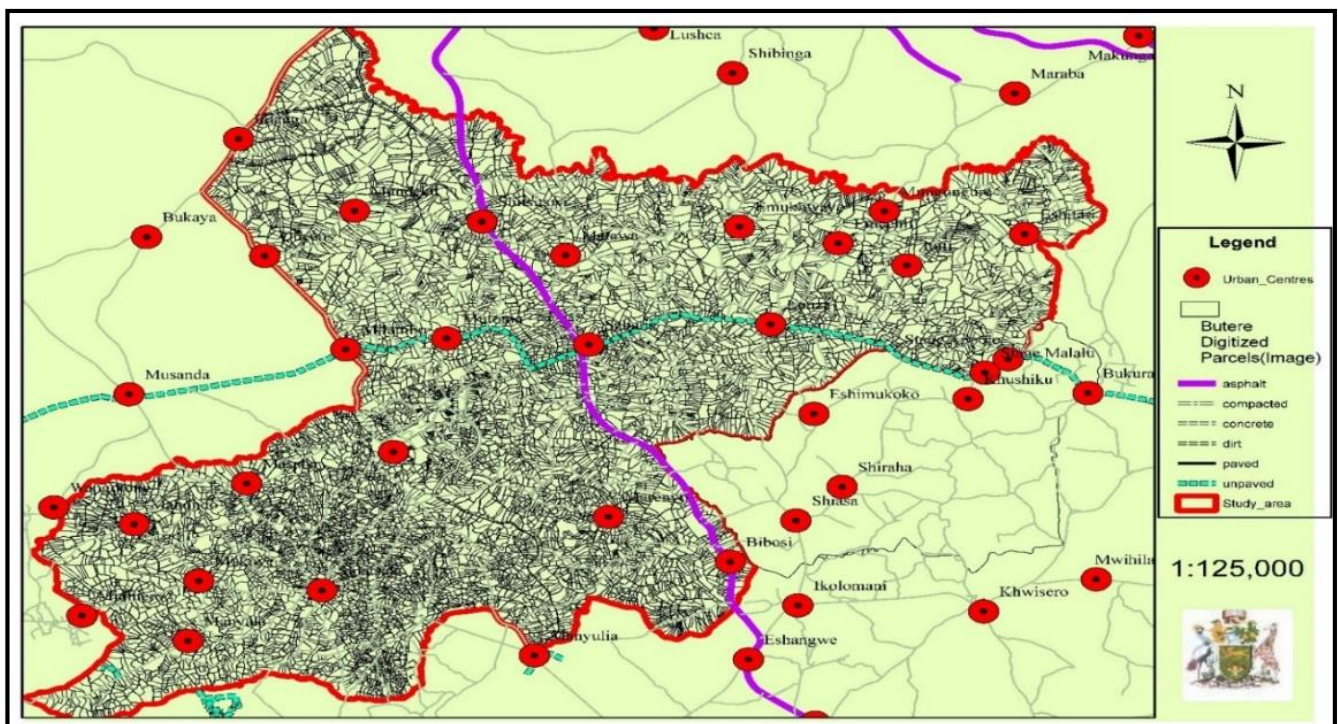
- Zone the rural land into different crop and livestock zones, review and explore ways of achieving the minimum land size that can sustain farming households, formulate and approve guidelines to guide rural land use and establish milk, maize and animal feeds processing plants.
- Reduce the number of crop and livestock enterprises per zone to a minimum of 3-4 and promote their optimal production. For example, maize as a food crop, sugarcane as a cash crop, poultry or dairy as livestock enterprises for protein and income in one zone.

- Strengthen agricultural farmer cooperative to provide farmer training, inputs, production coordination, processing, marketing, farmer payments, and savings to promote economic empowerment and reduce poverty.

Medium-term

Kakamega County Government should:

- Establish and facilitate a sub-county level committee to facilitate participatory land use planning, formulation of land use and development control guidelines to guide land use and development in all the 27 market centres and their hinterlands.
- Promote coordinated urbanization by encouraging the rural populations to move to planned urban centres in phased clustered high-rise affordable housing settlements in the rural market centers as indicated in Map 1.



Map 1: Marama Hinterland (Aerial view of land subdivision and existing rural centres as at May, 2022) (Okerosi, 2022)

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Information for this policy brief has been extracted from a Master of Arts in Planning Research Project Report entitled: Options for Strengthening Rural-Urban Linkages in Small and Medium Size Towns: Case of Butere Sub-County, Kakamega County, Kenya. The research was conducted with financial support of the “Covid-19 Impacts on Transportation of Food and Related Commodities in the Urban-Rural Nexus (COVID-19 ITFCURN) Project” which was jointly implemented by the University of Nairobi and Global Solutions Division and Policy, Legislation and Governance (GSDPLG) Section of the UN-Habitat in collaboration with governments of Cameroon and Senegal, the State Government of Niger in Nigeria, and the University of Zimbabwe. The authors would like to thank Prof. Remy Sietchiping (Project Supervisor), John Omwamba, Grace Githiri and Fredric Happimangoua of GSDPLG –UN-Habitat for their technical support in the implementation of the project. Prof Isaac K. Mwangi (Project Leader), University of Nairobi is also acknowledged for research guidance and coordination of the project.

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References

- Agergaard, J., & Ortenbjerg, S. B. (2017). Urban transformations and rural-city connections in Africa. *Geografisk Tidsskrift-Danish Journal of Geography*, 117(2), 63–67. <https://doi.org/10.1080/00167223.2017.1367698>
- IINAS_2015_Urban-Rural_Linkages_Issue_Paper.pdf. (n.d.). Retrieved November 7, 2022, from https://www.zukunftsstadt-stadtlandplus.de/files/zukunftsstadt-stadtlandplus/lesetipps/IINAS_2015_Urban-Rural_Linkages_Issue_Paper.pdf
- Tacoli, C. (2017). *Why small towns matter: Urbanisation, rural transformations and food security*. London: International Institute for Environment and Development. <https://www.jstor.org/stable/resrep02594>.

Mitigating Negative Impacts of Covid-19 Containment Measures on Transportation of Food in the Urban-Rural Nexus in Senegal

Cheikh S. Wade, C.S and El Hadji Mamado Ndiaye

Key Messages

- **Strengthen agricultural production by organizing actors to access financing, agricultural inputs and professionalize the whole value chain.**
- **Build road infrastructure to open up rural and peripheral food production areas and support truck owners to access finances to improve fleet quality.**
- **Facilitate land reform for priority access to land for local farmers, including women, migrants and craftsmen and redefine the city-rural relations for more complementarity and better collaboration.**

Context

Regional development and spatial planning policies have taken on a new, strategic and integrative dimension of reforming borders and boundaries of administrative territories. Territorial planning becomes strategic and its regional dimension privileged. This evolution in the territorial approach produces a new grid for analyzing and appreciating the role of public authorities in the construction of sustainable and resilient territories, based on an efficient programming of well-territorialized public policies, producing territorial equity (Diakhate, 2011; 2020). The purpose of the study was to examine the relationship between urban and rural areas in the context of Covid 19 containment measures. This study aimed to analyze, among other issues, the socio-territorial changes of the Senegalese rural world in a context of vulnerabilities introduced by poor development and amplified by the effects of the health crisis created by the COVID pandemic -19 and the containment measures put in place. It also sought to identify and analyze public policies for the resilience of territories (regions). The problems diagnosed, broken down by: the objective weakness of the institutional and functional framework of decentralization for the promotion of territorial development; the lack of viability of local authorities and of valuing the development potential of territories, as well as the weakness of the regional planning policy limited by a rigid territorial architecture; the weakness of local governance accentuated by a multitude of actors with sometimes different logics and concerns and

the inconsistency and inefficiency of local development financing mechanisms, are more asserted and do not seem to redefine a more

promising territorial development profile (Wade and Fall, 2019)..



Plate 1: Onion Trade in Lompoul



Plate 2: Onion Seller at the Rural Market of Lompoul

Approach and Results

The study targeted areas where the links between production and transportation of food were clear and affected by Covid-19. It covered two different regions of Senegal, namely; the Syndicat market located in the suburbs of Dakar and the Lompoul-Potou axis located in the Louga region in the north of the country. A survey was conducted in the two sites. The target population included rural households owning small farms, food retail traders in selected rural food markets, food traders in selected urban food markets, urban informal food vendors in residential neighborhoods and urban households in residential neighborhoods.

Findings

The findings revealed that 57% of the rural small scale farm owners grow only one crop consisting of market garden products while 43% practice mixed farming that include cassava, cowpeas, rice, tomatoes, and onions. Up to 97% reported a rise in agricultural produce while 86% of respondents reported that COVID-19 pandemic influenced the types and diversity of products

grown and sold by small scale farmers. The need to process is important as producers are often forced to sell off their harvests when it comes to perishable products such as onions and potatoes in the Senegal River valley and in the Niayes. Storage and conservation capacities were lacking for most of the farmers. This constitutes invaluable loss of income which increases the vulnerability of producers and their dependence on credit organizations and intermediaries.

Eighty percent (80%) of food retail traders in rural food market indicated that the COVID-19 containment measures reduced their business volume and working hours and 77% reported reduced sales and customers of food products. Up to 73% reported an increase in operating costs of business, while 93% of respondents indicated that the COVID-19 pandemic determined the types and variety of food products bought and sold on the market. In the urban food market, 80% of the respondents reported that COVID-19 containment measures reduced business volume and working hours. Up to 73% reported an increase in operating costs while 77% indicated reduced sales and customer base of food products. Up to 97% of respondents

reported reduced daily life movements and spatial interactions of households in the city while 87% reported reduced household food access.

For 80% of the urban informal food vendors in residential neighborhoods, their main source of income and livelihood was their food business. COVID-19 containment measures reduced business and working hours, reduced sales volume and customer base of the food products and increased operating costs of 63% of the vendors. The wholesale and retail purchase prices of food products also increased. Up to 83% of the vendors reported that the types and variety of food products bought and sold was not determined by the COVID-19 pandemic.

Policy Recommendations

Short-term

- Identify and promote 2 to 3 high value farm enterprises for different regions for diversity and risk reduction, facilitate formation of farmer organisations for professionalization of the food value chains components such as financing, farmer training, mechanization, production, processing and marketing of farm produce.
- Rural and urban food vendors should form traders cooperatives or associations to stabilize cost of operation through economy of scale, savings, organized and skilled marketing including identification of export market for locally produced products.
- The government should in collaboration with farmer organisations establish appropriate processing industries in all territories (regions) to add value and eliminate waste of farm produce

Medium to Long-term

The Government should:

- Open up rural production areas through infrastructure development especially roads

and support transporters to access finance for renewal of food transport trucks and improve the management of urban-rural flows of people, goods, services and capital for more appropriate responses in times of pandemics and other disasters.

- Formulate land use regulations to protect agricultural land from encroachment by urbanization, facilitate land reform to enable access to land by smallholder farmers that include women, peasants, immigrants, workers and craftsmen, improve public policies on land governance, and accelerate the process of decentralization to ensure inclusive and sustainable economic, social and territorial (regional) development.
- Re-define urban-rural relations and facilitate balanced investment in the different territorial zones (regions) to correct socio-territorial and spatial disparities hence reduce dependency in all its forms.

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References

Diakhate, M. M. (2020), "Thinking, making, governing, territories: Senegal put to the test by territorial development", l'Harmattan/Sénégal, 418p.

Wade, C. S. & Diahou Y. A. (2020), Revisiting Urban-Rural Relations in a more urban

Africa. Dakar: University of Dakar Press. 600p

Wade C. S. & Fall A. (2019), "The village at the gates of the city: complementarities and conflicts in the rural-urban interface of the last generation municipalities of decentralization: Case of Méckhé and Koul in the Region of Thiès in Senegal", Journal of Geography of the Leïdi-ISSN laboratory 085-255-N°20, December 2018, PP 50-65.

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Taming Hunger, Starvation and Poverty During Pandemic Situations Such as Covid-19 in Niger State, Nigeria

Husaini. A; Adeleke, E.G.; Zubairu, M; and I. A. Ja'afaru

Key Messages

- **During During COVID-19 food production reduced for 88% of farmers due to unavailability and high cost of inputs while volume of food taken to the markets declined by 90. The result for all was hunger, starvation and poverty.**
- **Value chain organized production for standardized inputs supply, strategic food reserves in urban centres and digital links among the key institutions can contribute to stability in food production, accessibility to food during pandemic situations.**

Niger state should create strategic food reserves in urban centres and establish a coordinating agency for all the sub-components to ensure availability of food to all persons at all times including times of pandemics.



Kure Market in Minna

Context

Within the first quarter of 2020, Covid-19 pandemic struck the world as a public health crisis, with severe and devastating effect on the human race and economic activities globally. Since its outbreak, several preventive and control measures were put in place. In Nigeria, they included a travel ban, closure of land borders, total lockdown, mandatory screening of vehicles and cargo drivers, overnight curfews, and reduction of public transport occupancy. The hygiene and sanitation measures implemented included social distancing, use of nose/mouth mask, practice of hand washing, and use of hand sanitizers. In the High Level Panel of Experts on Food Security and Nutrition Report (HLPE 2020), COVID-19 and its preventive measures was considered a huge threat to food-security and supply chain logistics. A survey was carried out in Niger state to assess the actual impact of Covid 19 on food supply systems. The focus of this study was on food supply chain within the geographical scope of rural farms and markets of Beji and Gwada to urban households in Minna. However, in addition to an existing challenge of access to food in the state, the study also addresses the issue of disruption in food supply chain through appropriate policy instruments with a view to ensure continuous access to food by urban and rural household during and beyond pandemic period.



Beji Market in Minna



Cereals in Gwada Market

Approach and Results

The primary data was obtained through the use of a questionnaire from a random sample of 239 actors in the food value chain drawn from rural farming households, food transporters, market officials, food retail traders (at the rural market, urban market and within urban neighborhoods), public transport operators, transport policy makers and urban households. Secondary data was obtained through the review of policy documents, legislations, pamphlets, newspaper articles, internet sources, and Government documents on Covid-19 containments measures in Nigeria and Niger State.

Results show that Covid 19, containment measures had severe impact on food supply in Niger State. Up to 88% of the farmers reported reduced food production due to increase in the cost of farm inputs, such as pesticides and herbicides while there was a reduction on cost of labour resulting in reduced productivity. Marketing difficulties led to a decline in sales and returns on investment for all actors in the food supply chain. Up to 85% of the farmers

experienced a decline in the sales of farm produce because of lack of transport and the subsequent reduction in prices. For instance, in Gwada Town, one (1) Kworia (100 tubers) of yam was sold for N100, 000 prior to COVID-19 but the price dropped by 60% to N40, 000 during Covid-19”.

The volume of food commodities to Beji market reduced by 94% from 160 to 10 tonnes before and during Covid-19. Similarly, the volume of food commodities to Gwada market for sale declined by 85% from 160 to 24 tonnes before and during Covid-19. The average daily sales at the Urban Supermarket fell by 80%, from N750, 000 to N150, 000 before and during covid-19. There was a 50% reduction in hours for food marketing from 12 to 6 at Beji market before and during Covid-19.

At Gwada market, the average volume of food transported by each transporter was 15, 6 and 8 bags before, during and after covid-19 respectively on each market day, a reduction by 60%, while at Kure market the average volume of food transport by each transporter was 50, 8, and 25 bags before, during and after covid-19 respectively on each market day. This is a decline of 84% during Covid-19 and increased by 33% after. Up to 82% and 90% of the retail food traders in the rural market and urban market respectively reported fluctuating prices of food commodities. Majority (75%) of the households reported limited access and availability of food commodities, while 56 % experienced a decline in consumption of healthy and nutritious food in terms of frequency, quantity and quality during covid-19. e.g. from yams to rice. Niger State government applied innovative and locally preventive measures to cope with the pandemic and also ensure continuous flow of commodities and access to food.

Policy Recommendations

Short-term

- Niger state should facilitate formation of farmer cooperatives or associations to coordinate inputs supply, production,

processing and marketing of food in different zones of the state. Agro-industries will be the market outlets for farmers in the rural areas. They do not have to depend on transporters from urban centres.

- Formulate a policy to promote planned urban agriculture for fresh produce, within and near urban areas to reduce transportation of fresh food between rural and urban areas.
- Create strategic food reserves in urban centres, form a coordinating agency and establish a digital platform for all the sub-components of the food value chains to ensure availability of food to all persons at all times including times of pandemics.

Medium and Long-term

- Create more food marketing emergency areas within communities so that residents will have unlimited access to food;
- Farmers and agro-investors should be provided with incentives to engage in large scale development of the various subsectors of agriculture (food and cash crops, livestock and fisheries) through a value chain approach;
- Provision of necessary infrastructure, such as clean energy, as well as improved transportation and storage facilities to support the agro-value chain.

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References

HLPE. (2020). Impacts of COVID-19 on food security and nutrition: developing effective policy responses to address the hunger and malnutrition pandemic. Rome. <https://doi.org/10.4060/cb1000en>.

Urban-Rural Linkages and their Potential on the Growth of Kavunyalalo Rural Market Centre in Kilifi County, Kenya

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Key Message

- **There is underutilization of rural agricultural land and other natural resources in Kavunyalalo Settlement. Only 23% of households grow crops and 17% keep livestock, however a majority (58%) are involved in small scale trade.**
- **The housing infrastructure in Kavunyalalo where 84% of households live in mud walled houses and 45% live in grass thatched houses is unacceptable.**
- **Irrigated agriculture using dammed flood water from river Sabaki and investment in commercial and tourism infrastructure can spur socio-economic dynamism of Kavunyalalo and its hinterland.**

Context

According to projections by the UN Habitat (Steinberg, 2014), small towns will form part of the rapidly growing urban populations the world over, by the year 2050. The mega cities are projected to hold an additional 270 million people in addition to the current populations. This is however much less than the number expected to be attained by secondary cities and small towns, which are anticipated to carry an additional 460 million people between the same time periods 2010-2025 (Steinberg, 2014). In trying to create conventional cities and urban areas, such as techno-cities, silicon valleys, and smart cities, there is danger of policy makers becoming blind to the importance and the role of small towns, both in rural and urban settings (Denis and Zerah, 2014). This could create gaps in policy making, which may lead to leaving out such areas from planning. Such a situation could therefore easily spiral into the formation of disorderly informal settlements which lack critical services and amenities. The draft Kilifi County Integrated Development Plan 2023-2027 proposes formulation of 75 human settlement plans over a period of 5 years, it however, does not indicate the specific settlements and possible policy directions for the settlements. This policy brief identifies Kavunyalalo as one of the settlements that require planning and provides the policy direction for the Settlement.



Plate 1: 45% live in grass thatched houses



Plate 2: 51% live in iron sheets roofed houses

Approach and Results

This study adopted a cross-sectional design. The target population included all the households and enterprises in Kavunyalalo settlement in Kilifi County in Kenya. A total of 168 households, 54 enterprises and 14 key informants were interviewed. One focus group discussion was held with (nyumba kumi) village elders. The findings reveal that Kavunyalalo settlement and its hinterland have enormous under exploited natural resources that include river Sabaki that traverses the settlement from West to East, the Arabuko Sokoke forest, which is on the boundary of the settlement, a vast agricultural land, a forest within the agricultural land which has been cleared significantly for agriculture, four wetlands and some low lying hills and valleys, all of which have great production and tourism potential.

The findings further reveal that 23% of the households grow crops consisting mainly of vegetables and maize and 17% keep livestock consisting of cattle, goats, poultry and pigs. Farmers in the area used to produce a lot of vegetables for urban areas but stopped because of destruction by flood waters from river Sabaki. Damming of the flood waters for irrigated agriculture can revive production in the settlement. Majority (58%) of the households are involved in small scale trade but they lack appropriate infrastructure such as decent stalls as reported by 94% of the traders. Up to 94% trade within Kavunyalalo settlement only while 6% trade with other urban centres. This is a reflection of poor urban-rural linkages. Up to 84% of the households live in mud walled houses, 45% live in grass thatched houses while 51% live in iron sheets roofed houses as indicated in Plate 1 and 2. Up to 52% of the residential houses have earthen floors while 48% have cemented floors a situation begging for improvement.

Policy Recommendations

Short-term

The County Government of Kilifi should:

- Prepare a land use plan for Kavunyalalo settlement that deliberately promotes: (i) planned irrigated agriculture along River Sabaki (to increase food production with emphasis on vegetables and fruits), (ii) tourism targeting the natural resources of the settlement and (iii) trade and commercial infrastructure that facilitates entrepreneurs to invest for economic enhancement and dynamism of the settlement.
- Formulate and implement a production forest programme (e.g. half acre per household) for fuelwood, poles, and timber supply in order to save the natural Arabuko Sokoke Forest from encroachment and also contribute to climate resilience of the settlement.
- Initiate a cooperative led and also private developer led housing schemes with an in build solid waste management system

and identify investors to construct decent and affordable housing for the people of Kavunyalalo for example leveraging on alternative building materials and technology such as the compacted interlocking blocks made by the ‘Makiga’ Machine/Technology, bricks, iron sheets through self-help groups, Savings and Credit Cooperative Societies (SACCOs).

Medium-term

The County Government of Kilifi should:

- Construct dams along River Sabaki to curb perennial flooding and use the water for expanding irrigated agriculture.
- Scout for investors to develop the tourism potential of the planning area to ensure optimal exploitation of all the natural resources.
- Establish appropriate value addition to farm produce, agro-processing industries, a business incubation centre within Kavunyalalo settlement and empower traders with relevant knowledge, entrepreneurship skills and affordable financing for job creation and sustenance.

Long-term

The County Government of Kilifi should:

- Provide for and establish appropriate and sufficient community, administrative and social facilities to the settlement according to the physical planning recommendations.
- Construct secondary roads measuring 18 metres to link the settlement to the hinterland and other neighboring urban areas, 9 metre roads linking the 18 metre roads to the 6 metre access roads for intra-linkages within the settlement.

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References

- Denis, E. and Zerah, M.H. (2014). *Rural-Urban Linkages: India Case Study*. Santiago, Chile: Latin American Centre for Rural Development. *Working Paper Series Document No. 124, pp. 4-27*. Working Group: Development with Territorial Cohesion.
- Steinberg, F. (2014). *Rural–Urban Linkages: An Urban Perspective*. Santiago, Chile: Latin American Centre for Rural Development. *Working Paper Series Document No. 128, pp. 4-29*. Working Group: Development with Territorial Cohesion.

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Beneficiary Monitoring and Implementation of Entrepreneurship Projects Funded by Youth Enterprise Development Fund

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Key words: beneficiary monitoring, entrepreneurship projects, youth fund

Context

With a bludgeoning population of just about 14million, Kenyan youths represents the greatest asset to the country's economic growth if put to good use. According to the Kenya population census of 2019, the population of Kenyan youths aged 18-35 stood at 13.8 million as of 2019 (Youth Enterprise Development Fund, 2020/21-2023/24). Due to this 'youth bulge' commonly described as a large group of individuals between the ages of 15 and 24. Entrepreneurship projects are promoted both locally and worldwide as the "saving grace" for unemployed youths (Mboya, 2022).

The Kenyan government established a Youth Enterprise Development Fund in December of 2006 to diminish youth unemployment (Youth Enterprise Development Fund, 2020/21-2023/24). The primary function of YEDF is to offer financing and business expansion services, linking small and medium youth enterprises with established businesses, marketing of youth expertise and products both locally and globally, and broker employment of youth internationally through the international labor market. As it was underscored during this research, the high unemployment rate among the youths has been linked to limited number of white color jobs even as thousands of youths' graduate from universities every year to the limited opportunity in the job market.

Even though the youths represent a potential for a larger workforce, increased revenue, and wealth creation, Ssewamala (2015), maintain that a larger youthful population does not automatically translate to economic growth especially in sub-Saharan Africa where many youths are undereducated and unskilled. Therefore, clear structures focused on implementation and governance of youth programmes must be put in place and the labour market ought to be well established and well-coordinated (Harper, 2017). This study sought to address an existing gap in knowledge about the influence of beneficiary monitoring on the implementation of youth entrepreneurship projects funded by YEDF in Siaya County).

Approach and Results

A descriptive survey research design was used to investigate the effect of beneficiary monitoring on successful implementation of entrepreneurship projects funded by Youth Enterprise Development Fund (YEDF) in Alego Usonga sub-county, Siaya County. Even though the study focused on youth entrepreneurship in Alego Usonga Sub-County, Siaya County, Kenya, it offers suggestions for practical improvement on implementation of entrepreneurship projects countrywide through monitoring.

A sample of 123 respondents was drawn from different stakeholders involved in youth entrepreneurship projects in Alego-Usonga sub-

county, Siaya County. The study target population included youth group officials, ward administrators, fund managers at the ward level, County and ministry officials purposively chosen due on the fact that they have information on the research topic and therefore add credibility to the research findings. Data was collected through structured questionnaires which the respondents filled on their own as well as well as through direct interviews to a select group of respondents.

By means of the Pearson's product moment correlation, the study noted a strong positive correlation between beneficiary monitoring and implementation of youth entrepreneurship projects funded by YEDF, ($r=0.628$; $p<0.000$). The implication here reveals that beneficiary monitoring has a positive strong influence on implementation outcome of YEDF funded entrepreneurship projects. This is so probably because, through beneficiary monitoring the funds will be put into the intended use and any shortfalls in the beneficiaries' capacity to undertake any process will be identified and corrected in time.

Policy Recommendations

Short-term

- Youth Enterprise Development fund beneficiaries should be actively involved in the projects' life cycle, including planning , implementation, monitoring and evaluation. The study found that consultative, and participatory beneficiary engagement is positively linked to better implementation of youth entrepreneurship projects.
- Beneficiary monitoring is a significant determinant to the implementation of youth entrepreneurship projects funded by Youth Enterprise Development Fund. Therefore, a comprehensive beneficiary monitoring plan should be put in place prior to allocation of the funds to ensure

allocated funds are used for the intended purposes.

- Youth Enterprise Development Fund managers at the Ward, County and National (ministry) levels should provide capacity building on administration of the youth enterprise development fund as it was established that this is not sufficiently done.

Medium-term

- To ensure sustainability of entrepreneurship projects funded by Youth Enterprise development Fund , the government should put in place beneficiary management systems, which should be reviewed yearly to ensure the funds are appropriately used.
- The Kenyan government should prioritize the development and implementation of proper beneficiary empowerment strategies, policies, and programmes to train and build capacity of Youth Enterprise Development Fund beneficiaries to utilize the fund effectively and work towards achieving the objectives set out in Kenya Vision (2030).
- The government to put in place stringent regulatory measures to ensure the fund is only utilized in commercially viable youth entrepreneurship projects.

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Reference

Harper, Sarah. Harnessing the youth bulge. (2017). *Asian Management Insights*. 4, (1), 16-23. *Asian Management Insights*

Mboya, Risper. (2022). *Monitoring approaches and Implementation of Entrepreneurship Projects funded by Youth Enterprise Development Fund in Alego-Usonga Sub-County, Siaya County, Kenya*. <http://erepository.uonbi.ac.ke/handle/11295/162470>

Ssewamala F. M. (2015). Optimizing the 'demographic dividend' in young developing countries: The role of contractual savings and insurance for financing education. *International journal of social welfare*, 24(3), 248–262. <https://doi.org/10.1111/ijsw.12131>

Youth Enterprise Development Fund. (2020/21-2023/24). *Youth Enterprise Development Fund Strategic Plan - 2020/21 - 2023/24*. Nairobi: Youth Enterprise Development Fund

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Towards Sustainable Water Availability in Turkana County of Kenya: Evidence Based Policy Brief

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Pascalina Kagwara, Bonface Wanguba, Martha Mugo*

Key Messages

- **Rainfall trends are positive with a likelihood of more water becoming available. This indicates potential for rain water harvesting**
- **Rainfall is highly variable, tending towards frequent severe storms leading floods and moderate to severe droughts. This calls for development of early warning systems to enhance predictability and future planning**
- **There is a shift in seasonal distribution of rainfall with the second season becoming more prominent in terms of rainfall volumes. This calls for sensitization of the community to realign their livelihoods to the new climate reality**

Context and Importance of Problem

Biophysical water availability is arguably the most critical determinant of food security. Its availability is a function of several factors but the two most dominant ones are climate and land surface characteristics. A change in either of the two factors affects water availability in one way or the other. Climate variability affects the distribution of water in both time and space while climate change intensifies variability in terms of frequencies and magnitudes. On the other hand, land cover changes, driven by the need to feed and settle the ever-growing population as well as by climate change, also has an impact on water availability and hence food security. This study addressed challenges of biophysical water availability for sustenance of livelihoods in the drylands using Turkana County, which has often experienced significant disruptions of livelihoods brought about by rainfall extremes as outlined in the county's CDIP (2018).



Photo showing children fetching water from a scoop hole in Turkana South Sub-county (Courtesy of BRECCIA-UoN)

Study Approach and Results

This study addressed shocks associated with variability of water availability for dryland livelihoods. Among the three aspects of water availability, biophysical, demand and access, this study looked at the first aspect which focuses on the movement of water from the atmosphere to the Earth's surface where it becomes available as surface and groundwater. It is mainly influenced by climate and land cover characteristics, which determine how rainfall, the ultimate source of water, becomes available as water in the rivers and wells. Therefore, climate variability and change, coupled with changes in land cover characteristics, strongly influence the water available from rainfall episodes; this is more pronounced in the drylands. This study assessed how climate variability, climate change, and land cover changes affect water availability for livelihood systems in Turkana County using two types of data; primary and secondary.

Primary data, focusing mainly on community perceptions of climate variability, climate change, land cover changes, and water

availability, were gathered using household survey, focus group discussions and key informant interviews in Turkana Central, Turkana South and Loima sub-counties. Secondary data comprised of observed monthly rainfall supplemented by satellite rainfall from 1981 to 2020, future scenario rainfall from, from 2022 to 2095; four Landsat satellite images: 1980s, 1990s, 2000s, and 2010s; observed streamflow supplemented with model-simulated discharge running on the Soil and Water Assessment Tool (SWAT). Rainfall data were statistically analysed to identify signals of climate variability and change. Satellite images were analysed to generate land cover maps which were used to establish changes in land cover characteristics. Discharge data were analysed to determine variability and long-term changes in streamflow and hence water availability from rainfall.

Results revealed that there was evidence of climate variability, climate change, land cover changes and streamflow changes. Rainfall is on an increasing trend and highly variable; fluctuating between severe floods and droughts with higher rainfall variability being

experienced in the central compared to the northern and southern parts of the county. Future rainfall also shows an increasing trend accompanied by higher variability than in the past. Streamflow patterns fluctuated in line with rainfall patterns, an indication that rainfall is the main determining factor of water availability. Land cover has changed with land under browse and forage decreasing. These results were in agreement with perceptions of the community and stakeholders on issues of climate variability, climate change, and land cover changes. Changes in rainfall patterns have significantly affected the main livelihoods, pastoralism and agro-pastoralism, by way of decrease in fodder and low farm yields. This was in agreement with the land cover changes identified from satellite image analysis where land under browse and forage is diminishing while the open/bare land is increasing.

As a result of rainfall variability, households are adopting some coping mechanisms to cushion themselves from rainfall extremes. Among the main coping strategies adopted by the households are food aid, reduction on expenses of none essentials, and sale of livestock among others; all of which are unsustainable. Given that future rainfall is also highly variable it is important to have more sustainable coping mechanisms in the face of a changing climate.

Policy Recommendations

Short-term

- Increasing rainfall trends call for design and implementation of policies that support rain water harvesting to improve water availability. Concerted community sensitization is necessary in order to ensure acceptance, and hence sustainability of these programs.
- Given the high rainfall variability, leading to its high unpredictability, it is necessary to develop an Early Warning System for a water availability resilient community.

- From the observed changes in land cover leading to the diminishing of browse and forage, thus negatively affecting pastoralism, there is need to encourage and strengthen sustainable community-led diversification of livelihoods.

Medium-term

- Given that pastoralism, the main livelihood activity, is under negative pressure as shown by the diminishing land under browse and forage and the increasing land under agriculture and other developments, there is need to capacity-build the community to embrace sustainable community-led diversification to cushion the impacts of climate change on livelihoods.
- Given that selling of livestock and dependence on food aid are two of the major coping strategies, there is need for support in the formation of community groups to access funding for livestock off-take programs from such funding agencies like: Youth Development Fund, Women Enterprise Fund, and Financing Locally Led Climate Action (FLLoCA) Program.

Long-term

- Given the future trends in rainfall, forecasts and projections, supported by the Kenya Meteorological Department, would help to plan for future water harvesting under a changing climate
- Given the future variability in rainfall, an efficient and responsive early warning system, supported by the National Drought Management Authority in conjunction with the County Government through the Ministry of Agriculture, Pastoral Economy and Fisheries, would help to support the future sustainability of livelihoods.

Reference

- Arnold, J.G., R. Srinivasan, and R. S. Muttiah, J. R. Williams (1998): Large Area Hydrologic Modelling and Assessment-Part 1: Model Development. *J. Am. Water Resour. Assoc.* 34 (1), 73-89
- Asfaw, A, B. Simane, A. Hassen, A. Bantider (2018): Variability and time series trend analysis of rainfall and temperature in northcentral Ethiopia: A case study in Woleka sub-bas
- MoEF, (2019): Technical Manual for Land cover and land cover change mapping in Kenya
- Opiyo, F. O., Wasonga, O. V., & Nyangito, M. M. (2014). Climate Variability and Change on Vulnerability and Adaptation among Turkana Pastoralists in North-Western Kenya, Nairobi.
- Turkana County Government (2018). County Integrated Development Plan. Lodwar: Turkana County Government
- Winchel M., R. Srinivasan, M. Di Luzio, J. Arnold (2013): ArcSWAT Interface for SWAT 2012; User's Guide, Grassland Research and Extension Centre, Texas Agrilife research, 720 East Blackland Road-Temple, Texas 76502 490

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Delivering Food and Livelihood Security for Kiminini and Saboti Communities of Trans-Nzoia County, Kenya

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Key Messages

- A county A county level strong Multipurpose Farmer Cooperative can optimize inputs supply, production, processing and marketing of agricultural produce and help the county to increase revenue collection through digitization of all financial trans-actions.
- Allocation of a minimum of 3.5 acres of land for intensive maize/beans (2 acres) and 2 dairy cows (1 acre) or 500 meat/egg birds and 500 trees (0.5 acres) can sustain an average household of 4 persons with an estimated income of Ksh. 65,000 per month.
- Construction of a maize, milk, poultry meat, dairy feeds and poultry feeds processing factories in each of the sub-counties will create market outlets for farmers produce and create local employment.



Recommended key enterprises for Kiminini and Saboti Sub-counties

Context

Agriculture is the dominant economic activity in Trans-nzoia County, with 63% of its land being under agricultural land use. The sector employs over 80% of the county's rural population while a sizeable number of the residents are employed in the few small scale agro-processing industries. Commercial maize growing is the main agricultural activity (County Government of Trans-nzoia, 2018). Despite the importance of maize in the county and nationally, productivity has stagnated and is only about 3.7 tons/ha. This is a threat to County and National food security. This study examined the land use characteristics of Kiminini and Saboti sub-counties with a focus on land utilization efficiency.

Approaches and Results

A study was conducted by 13 Second Year Masters students from the Department of Urban and Regional Planning, of the University of Nairobi under the theme "Delivering Sustainable Food and Livelihood Security through Efficient Land Utilization and Agro-Industrial Development in Kiminini and Saboti Sub-counties of Trans-Nzoia County." The study identified key challenges of agricultural land use, analyzed current and potential economic activities that can optimize land productivity and employment creation in the two sub-counties and has proposed policy interventions for accelerated development of the region.

The survey was conducted in Kiminini and Saboti sub-counties of Trans-nzoia County in September 2021. A total of 100 randomly sampled households, 26 enterprises and 16 motorcycle riders were interviewed from the two sub-counties. In addition 13 purposively sampled key informants from the County Government of Trans-nzoia and National government were interviewed. Numerous documents on theories of regional development, global and regional policies, national legislations and studies on the thematic area

were reviewed. Two focus group discussions were conducted with youth groups and observations carried out during two transect walks. Numerous photographs were taken as evidence of observed data. Mapping was also done and base maps generated for the two sub-counties.

The study revealed that agriculture was the dominant land use in the county. The main crops grown were maize, beans, potatoes and assorted vegetables. Maize was planted by 72% of the farmers and was normally intercropped with beans. The key challenges of the agricultural land use included low productivity of maize estimated at 18-36 (90 kg) bags per acre (4-8 tons/ha) against the potential 56 bags per acre (12 tons/ha) (KALRO, 2022). This is only 32% - 64% suggesting a loss of 68% - 36% as a result of many factors that include poor timing of planting, poor quality seed, poor land preparation, inadequate use of fertilizers, poor or complete lack of extension services, limited or complete lack of value addition, in-optimal distribution (Njeru, 2019) and lack of a proper marketing system leading to low prices and exploitation of farmers by middlemen as reported by 40% and 41% of the respondents respectively. The harvest for intercropped beans was only 2 (90 kgs) bags per acre (30%) compared to the potential 6-10 bags.

The dominant livestock enterprises were dairy cows with 91% of them being high yielding exotic breeds such as the Friesian, Ayrshire, Guernsey and Jersey. This was followed by poultry (broilers, indigenous breeds and layers) for meat and eggs. Both enterprises have great potential to improve food, nutrition security and income but are constrained with limited supply of feeds and poor production, processing and marketing strategies. There were no large scale agro-industries for value addition of farm produce despite the enormous potential of raw material supply. A total of 25% of the respondents reported to belong to a cooperative but there was no single maize cooperative. Due

to land sub-division for inheritance, the average household land size is now 2.2 acres for small scale farmers. This is a threat to agricultural production and also reduces opportunities for tree growing. The later contributes to climate variability.

Policy Recommendations

Short-term

The County Government of Trans-Nzoia with support from the national government should:

- Facilitate formation of a strong multipurpose county level farmer cooperative to organize production, processing and marketing of maize, beans, milk, eggs, poultry meat, dairy feeds, poultry feeds and multipurpose trees.
- Build capacity of the farmer cooperative to be able to organize farmers into production groups and provide them with all the required inputs such as tractors, certified crop seeds, livestock breeds, fertilizers, pesticides, specialized extension and veterinary services and credit, for optimal production of maize, beans, milk, eggs and poultry meat. All farmers must be registered with the cooperative.
- Support the cooperative to construct a maize, milk, poultry meat, poultry feeds and dairy feeds processing plant in each of the two sub-counties to add value to farm produce, provide feeds for livestock and create local employment. All agro-industries and SMEs should also form SACCOs for efficiency in operation.

Medium to Long-term

The Ministry of Lands, Public Works, Housing and Urban Development; NLC and the Department of Physical and Land Use Planning should:

- Formulate a strategy to facilitate allocation of a minimum land size of 3.5 acres per household for maize, beans, dairy or poultry and multipurpose trees. This should be able to generate and sustain the household with a monthly income of Kshs. 65,000.
- Review the land rights transfer regulations to eliminate agricultural land fragmentation through inheritance.
- Together with Trans-Nzoia County Government, review the rural and urban human settlement patterns in the County, formulate and implement programmes to eliminate conversion of agricultural land to rural and urban housing by preparing spatial plans for all the urban centres in the county, formulating and enforcing land use guidelines and ensuring compact development and enforcement of the land use guidelines.

Acknowledgement

Information for this policy brief has been extracted from the Regional Studio Report of 13 Master of Arts in Planning Students of 2021 from the Department of Urban and Regional Planning. University of Nairobi. The study was carried out in Kiminini and Saboti Sub-Counties of Trans-Nzoia County. The students were: L. Ayao; L. Ouya; R. Mwai; C. Mogire; C. Nyonje; K. Odongo; A. Kinuthia; G. Momanyi; R. Muchue; M. Gichobi, K. Masia; J. Wainaina and F. Kiprotich. The Study Coordinators were: Dr. F. Mugo; Planner C. Osengo; Dr. R. M. Musyoka and Planner B. Nyaila. We also appreciate the support provided by residents of Kiminini and Saboti Sub-counties; the Agricultural Team from KARLO led by Dr. Joyce Maling'u; Ministry of Agriculture Trans-nzoia County; and Trans Nzoia County Physical Planning Department.

References

County Government of Trans-Nzoia. (2018). Trans-Nzoia County Integrated Development Plan 2018-2022. County Governor's Office. Kitale, Kenya.

KALRO. (2022). MAIZE. Accessed at <https://www.kalro.org/maize/> on 2/01/2023.

Njeru, T.N. (2019). Understanding the political economy of maize in Kenya. The Conversation. Accessed at <https://theconversation.com/understanding-the-political-economy-of-maize-in-kenya-120336> on 02-01-2023.

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Resettlement of Farmers in Clustered Affordable Houses to Release Land for Food and Livelihood Security in Kirinyaga East Sub-County

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Key Messages

- **As a result of dispersed settlement pattern and land fragmentation due to land inheritance culture, average household agricultural land size in Kirinyaga East sub-county has reduced by 85% from 7.20 to 1.09 acres in one generation. With no intervention, in 20 years, this will have reduced to 0.6 acres. This is a threat to food and livelihood security for these rural communities.**
- **Proportionate and phased construction of 5,000 (1000 houses/Ward) affordable houses of 2 to 4 bedrooms in selected urban centres of the Sub-county and resettlement of farming households in the same can preserve agricultural land for food and livelihood security hence lead to attainment of the County's goal of sustainable agricultural productivity**
- **A minimum of two and half (2.5) acres of land under either tea, coffee, or bananas and dairy or poultry meat/eggs can sustain a household of 3-5 persons with an income of over Ksh. 65,000 per month.**

Context

Agriculture is the backbone of Kenya's economy contributing 33% direct Gross Domestic Product (GDP) and 27% indirect GDP through linkages with other sectors. It employs 40% of the total population and is a source of livelihood for over 70% of the rural population in Kenya (FAO, 2022). In Kirinyaga County, agriculture is the most important economic activity with 87% of the total population deriving their livelihood from the sector and accounting for 72% of household income (KCISP, 2018). The County Integrated Development Plan 2018-2022 aimed to enhance agricultural productivity through commercially oriented and competitive agriculture. However, at the current rate of land fragmentation, this may be unattainable.



Proposed four storied 2-4 BR Affordable Houses in Clustered Settlements in the Sub-County's 35 Urban Centres

Approach and Results

A study was conducted by fourteen Second Year Masters students from the Department of Urban and Regional Planning (DURP), of the University of Nairobi, to determine the land use status in Kirinyaga East Sub-county. The specific study objectives were to: (i) analyze the distribution and utilization efficiency of the natural and physical resources of the sub-county; (ii) review the population, demographic trends, human settlement patterns and their potential for accelerating development of the region; (iii) analyze the current and potential economic opportunities for sustainable development of the sub-county; (iv) evaluate the capacity of existing physical and social infrastructure to support enhanced development of the sub-county; (v) examine the capacity of institutional and governance systems to support development of the region and (vi) propose planning interventions for accelerated and sustainable regional development of Kirinyaga East Sub-county.

Literature on regional development theories, policies, legislations and regulations was extensively reviewed from numerous documents. A total of 162 randomly sampled households and 172 enterprises were interviewed face to face using household and enterprise questionnaires respectively. Fifteen focus group discussions were held in the sub-

county. Three in each ward for 7 elderly men, 7 elderly women and 7 youth. Thirty two (32) purposively sampled key informants were interviewed using sector tailored key informant interview schedules. Observations were made using observation checklists in all the five wards and numerous photographs taken. All the 35 market centres were mapped using the GPS devices.

The findings indicated that there is high and underutilized agricultural and agro-forestry potential in the sub-county with agricultural productivity estimated at 60%. The average household land size for the sub-county was 1.09 acres compared to 7.2 acres of the previous generation which is a reduction of 85% within one generation as a result of population increase, land sub-division among heirs and the dispersed human settlement pattern of homesteads. In 20 years, this will reduce to 0.6 acres per household. The cash crops grown are tea, coffee, bananas, avocado, macadamia nuts, maize and assorted vegetables. The livestock reared are dairy cows, poultry for meat and eggs, pigs, bees, goats and sheep.

There is limited value addition to agricultural produce with only tea leaves being processed locally in Kimunye and Thumaita tea factories. The study also revealed high unemployment of 19% especially among the youth and low institutional capacity and efficiency especially

as a result of low funding for public services and under-developed revenue collection from the many possible revenue streams in the sub-county. The study recommends re-settlement of all farmers in clustered settlements in the sub-county's urban centres to release land for agriculture. However, the farmers should continue farming their current land and strategies should be formulated to increase the minimum household land size to 2.5 acres from the current 1.09 acres. The farmers should be allowed a minimum of two and half (2.5) acres of land for farming with each farmer growing one acre of tea or coffee or bananas as a cash crop and one acre of fodder for two (2) high yielding dairy animals or 500 birds for meat or eggs. Each farmer should also be allowed to grow at least 0.25 acres of food crops and 0.25 acres of production forest. At 2022 production and market prices, these farm enterprises should be able to sustain an average farming household of 3-5 persons with an income of about Ksh. 65,000 per month. This is expected to be sufficient for the basic needs of the households including paying for the houses through a check-off system managed by the farmer cooperatives.

Policy Recommendations

The study has proposed policy and planning interventions for accelerated development of the sub-county. The key proposals include the following:

Short-term

- The Kirinyaga County Government and the National Government should form a Land Reform Task Force to create consensus among leaders, professionals and the public on how to implement recommendations from various studies on protection of agricultural land in the County.
- The County and National Governments should design, phased proportionate construction of 5,000 (1,000/Ward) 2-4 BR affordable houses per year for 20

years in the sub-county's urban centres and re-settle farmers in the same to release land for agriculture.

- The County Government should formulate a strategy to allocate a minimum of 2.5 acres of land to farming households for cash crop (1 acre), livestock (1 acre), food (0.25 acre) and forest (0.25 acre). Once allocated, sub-division should not be allowed.

Medium to Long-term

- The county government should facilitate establishment of agro-industries in the following urban centres Baragwi Ward – Milk, Coffee, Avocado, Macadamia factories in Kianyaga; Karumandi Ward – Milk Factory at Karumandi; Kabare Ward: Milk Factory at Kimunye, Poultry Meat Factory at Kabare, Banana Wine and Fibre Factories at Lukenya: Ngariama Ward – Milk Factory and Njukiini Ward - Vegetable Factory.
- The county and national governments should build capacity of agricultural cooperatives for inputs procurement and supply, extension service provision, purchase of farm produce, value addition, savings and credit provision.
- An air tight digitized revenue collection system should also be developed to ensure that all the revenue that belongs to the county and national governments is captured and channeled appropriately.

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Information for this policy brief was extracted from the Kirinyaga East Sub-county Regional Studio Report on “Transformation of Agriculture through Re-organizing of Human Settlements in Kirinyaga East County” by Second Year MA Planning Students of 2022. Masters in Planning Students from the Department of Urban and Regional Planning, University of Nairobi. We acknowledge the

Students: M. Mbatha; P.Mwangi; I. Karimi; P. Kori; D. Muthee; J. Karagai; B. Ngugi; R. Wawire; D. Ukerosi; H. Kitonyi; V. Mwavishi; E. Soletei; W. Tikwa and R. Njambia.

References

County Government of Kirinyaga. (2018). County Integrated Development Plan 2018-2022. County Governor's Office. Kerugoya

Food and Agricultural Organization (2022). Kenya at a glance. Accessed at <https://www.fao.org/kenya/fao-in-kenya/kenya-at-a-glance/en/#:~:text=Agriculture%20is%20key%20to%20Kenya%27s%20economy%2C%20contributing%2033,than%2070%20per%20cent%20of%20Kenya%27s%20rural%20people>. On 28-03-2023 at 10 am.

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