

TRANSFORMING FOOD SYSTEMS IN KENYA FOR A NEW ERA OF GROWTH AND PROSPERITY: RESEARCH-BASED RECOMMENDATIONS FOR THE NEW GOVERNMENT

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The new Kenyan Government faces a complex domestic and global environment, and it is widely expected to address key food and agricultural challenges with a new set of policies and programs. This policy brief provides research-based “food for thought and action” to support operationalizing the country’s Bottom Up Economic Transformation Agenda 2022–2027.¹

Rapid population growth and urbanization with limited structural transformation present major challenges to Kenya’s ability to achieve food security for all and become a higher-middle-income country in the medium term. The urban population is expected to constitute nearly 50 percent of the projected population of 80 million by 2050 (UNDESA 2018). With 75 percent of the population under the age of 35, a 40-year demographic dividend is expected by 2038, as the large youth population will rapidly expand the size of the labor force. As fertility rates decline, the labor force is expected to grow faster relative to the number of dependents in the economy, allowing for higher investment rates than at present (NCPD 2020). However, if recent economic trends are any indication, the country risks not having enough jobs to support the projected increase in the labor force, which could constrain the growing labor force’s ability to save and invest and could reduce Kenya’s likelihood of achieving the demographic dividend. Structural transformation usually

entails labor transitioning from less productive agricultural jobs in rural areas to more productive manufacturing jobs in urban areas (Hayami and Ruttan 1985). Although urbanization is occurring in Kenya, labor in cities is mostly concentrated in the low-productivity service sector (such as retail and wholesale), rather than the more productive manufacturing and more sophisticated service sectors (Lukalo and Kiminyei 2019).

Another key consideration for the Kenyan government is how to feed the country’s rapidly growing population in an increasingly volatile global environment. Food production is not keeping pace with population growth – maize yields, for example, have stagnated since the 1990s (FAO 2022) – and healthy diets are unaffordable for many (Ecker, Comstock, and Pauw, forthcoming). Climate change is further disrupting agricultural production, with temperature and rainfall variability expected to increase in the coming years. Droughts and locusts have plagued the country, particularly the arid and semi-arid areas, leaving an estimated 3.5 million people in need of assistance as of May 2022 (UNICEF 2022). The COVID-19 pandemic and the global commodity price crisis accelerated by the Russia-Ukraine war have similarly increased poverty and heightened food security and nutrition issues (Nafula et al. 2020; Breisinger et al. 2022).

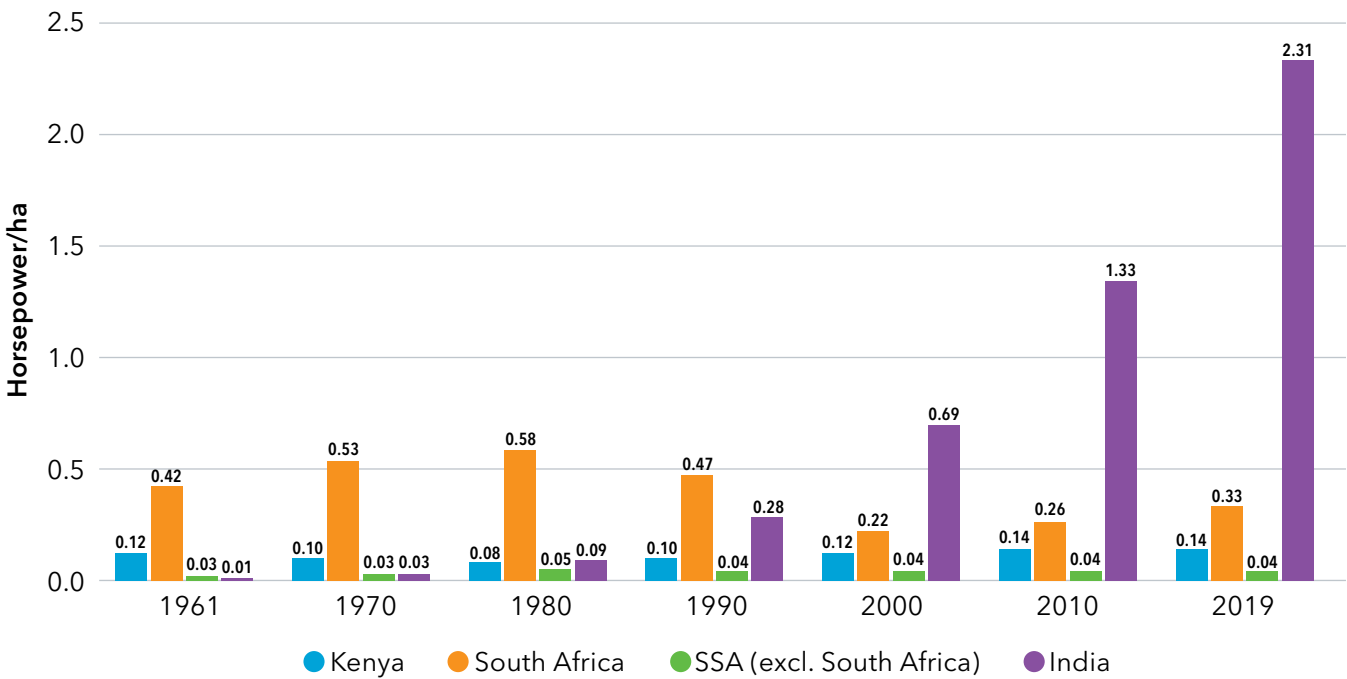
¹ <https://uda.ke/downloads/manifesto.pdf>

In order to address these challenges, the forthcoming book recommends several actions:

1. **Broaden the strategic and policy focus from a “food security”² to a “food systems”³ approach to support the economic transformation envisioned by Kenya’s Bottom Up Economic Transformation Agenda 2022–2027.** The food security lens used in the Medium Term III, Big 4 Agenda mainly focuses on staple food crops such as cereals and root crops, as these account for a large portion of agricultural landholdings and public investments. However, cereals and roots are among the least effective in reducing poverty, creating employment, and improving diets, while animal products and traditional export crops are the most effective (Diao et al., forthcoming). Within the food systems framework, policy priorities can be organized into five key areas: industrializing agrifood value chains, enhancing financial support to the agrifood sector, fostering digital innovation in food systems, promoting health and safety in food consumption, and transforming institutional approaches.

2. **Accelerate the industrialization and commercialization of food systems.** In the Kenyan food system, the value added from nonfarm activities (such as processing) is lower than in other low- and middle-income countries (Diao et. al, forthcoming). For output and employment to transition from primarily agricultural to nonagricultural parts of the food system and beyond, increased on-farm productivity and the creation of nonagricultural jobs need to go hand in hand. To support such a transition, emerging commercial farmers need to be integrated into domestic and export value chains, and agricultural products need to be processed before domestic sale and/or export. Supporting mechanization is also crucial, as Kenya lags behind other countries in this area (Figure 1). Globally, successful nationwide mechanization efforts have resulted from governments providing systems and support services based on economic demand, rather than governments providing machinery supply, finance, and machinery-for-hire services directly (Diao, Takeshima, and Zhang 2020). Because mechanization usually reduces the number of on-farm

FIGURE 1. Growth of major agricultural machinery inventories in horsepower per hectare of cultivated land in Kenya and other selected countries/regions



2 “Food and nutrition security refers to a situation where all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (Government of Kenya 2011, 7).

3 Food systems frameworks consider supply chains, the consumer environment, consumer behavior, external drivers, and policy while balancing outcomes for productivity, health, sustainability, resilience, and inclusion (de Brauw et al. 2019; IFPRI 2021; Njuki et al. 2021; HLPE 2017).

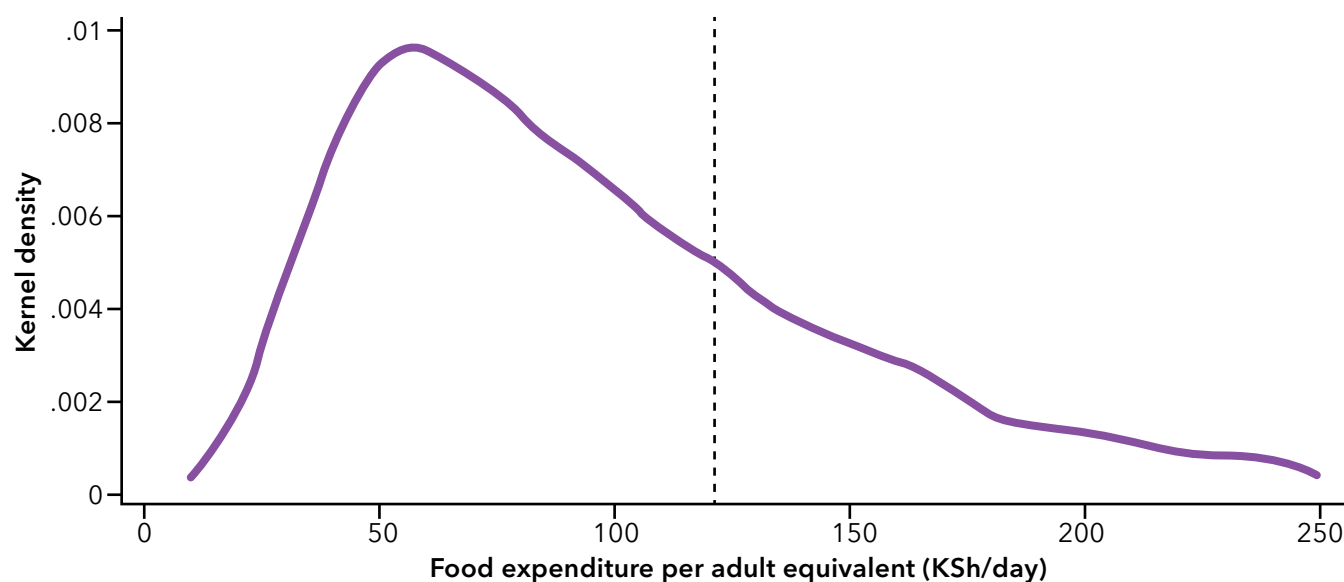
jobs, the food and agricultural sector needs to be industrialized across the value chain to create new, often higher-quality jobs (Lowder et al. 2016; Neven et al. 2009).

3. Expand access to food system activities for smallholders. The existing e-voucher system, piloted in 2014/15, can serve as a starting point for a better-targeted fertilizer subsidy system. In the short run, the system's distributional and administrative processes can be improved and simplified.⁴ Longer-term solutions may include supporting domestic fertilizer production to avoid import disruptions; reducing last-mile delivery costs; reducing price volatility of output markets; and promoting the use of alternative or additional fertilizer sources. In addition, policies are needed to protect smallholders against climate change and systemic shocks, such as drought, and provide enhanced access to credit. The use of formal insurance markets is a viable policy option because it transfers risk outside of households and thus protects their collateral. Bundling insurance with credit also minimizes the risk of default by smallholder borrowers; in turn, this abates financial risks that threaten lenders' business stability,

a common issue when rural agricultural production systems experience systemic shocks such as drought.

4. Build on Kenya's digital success to transform food systems. Kenya has made significant strides in the digital space by improving its mobile/internet infrastructure and supportive policies. Despite being Africa's leader in digital innovation for agriculture, Kenya's nascent digital ecosystem is still insufficiently transformative and sustainable – it faces difficulties in scaling up, and the private sector relies heavily on grants and investments from international development agencies. For digitally enabled transformation, digital infrastructure (such as network coverage) must be expanded, particularly in remote rural areas, and public-private partnerships with digital service providers should be pursued. Digital services can also reduce barriers to accessing insurance and credit. However, greater attention is needed to ensure that private digital service providers have sustainable business models. Hype must also be separated from reality in this burgeoning industry – systematic assessments of both successes and failures at different stages of piloting and scaling digital solutions should accompany and inform future efforts.

FIGURE 2. Healthy diets remain elusive for most Kenyans



Source: Ecker, Comstock, and Pauw (forthcoming), estimates based on 2015–2016 KIHBS data.

Note: Food expenditure distributions are truncated at 250 Kenyan shillings (KSh) per day. The x-axis depicts household food expenditures per adult equivalent per day (at 2015/16 prices), and the y-axis shows the distribution (Kernel density) of the household population. The dotted line at KSh 120 is the median cost of the EAT-Lancet healthy reference diet at local market prices and considering the typical item composition of Kenyan diets for the major EAT-Lancet food groups.

⁴ <https://vifaakenya.org/#/kenya/policy>

5. Improve nutrition through production and consumption policies. Malnutrition in Kenya is primarily a poverty problem, as the majority of Kenyans cannot afford a healthy, balanced diet (Figure 2). In addition to likely raising real incomes of producers and consumers through food systems development, diverse foods provide higher-quality diets with more micronutrients and give consumers a wider range of options when the prices of certain foods rise dramatically (such as maize flour). However, the promotion of more diverse diets must be accompanied by a more diverse food production base that reduces reliance on food imports and boosts domestic producers' incomes. To improve food safety, the government can monitor water sources used for irrigation, incentivize small and informal businesses to tackle food safety, implement frequent and thorough surveillance of high-risk foods, and leverage private sector capacity through self-monitoring and co-regulatory approaches. Building on successful responses to COVID-19, the government can continue encouraging the implementation of WASH infrastructure at markets and abattoirs. On the demand side, the government can provide infant and young child feeding recommendations for caregivers. These recommendations should be widely disseminated and easy to understand.

6. Improve animal health and disease control. The government can support the veterinary laboratory system by providing technical support for disease surveillance, diagnosis, and quality control. Efforts to improve veterinary services must also promote

equitable access to services (for example, vaccines), especially in value chains where women play a large role, such as indigenous chicken value chains. In addition, the State Department of Livestock and the Zoonotic Disease Unit under the Ministry of Health should work together to control zoonotic diseases using the "One Health" approach. Public-private partnerships for cross-county and transboundary infectious disease control need to be established. The private sector can also aid in the last-mile delivery of efficient and timely veterinary services. Finally, private and public sector initiatives should coordinate with Kenya Wildlife Services to control diseases at the livestock-wildlife interface.

7. Provide better opportunities for women to make food systems more productive. Women constitute the majority of food system actors, and their contributions must be harnessed to realize the full potential of the Kenyan food system. Overcoming gendered challenges is crucial to building healthier and more productive food systems. Women have low rates of land ownership, minimal participation in decision-making and food governance, challenges in obtaining resources to produce food, and weaker networks than men. Food systems policies must address these constraints and ensure that women reap the benefits of food systems transformation.

8. Allocate appropriate levels of domestic funding. Past budgets have fallen short of adequately supporting the food system, with only 2 percent of the





national budget dedicated to agricultural sector expenditures in the 2021–2022 fiscal year (Kenya Parliamentary Budget Office 2021). This expenditure remains below public agricultural expenditures in other sub-Saharan African countries and far below the Malabo commitment of 10 percent (AUC 2014; Pernechele et al. 2021). Shortfalls in expenditure have stalled 216 projects in the government’s agriculture, water, and environment sector – more than any other sector (Kenya Parliamentary Budget Office 2021). In addition, an estimated 83 percent of agriculture-related projects are externally funded (Kenya Parliamentary Budget Office 2021), which can jeopardize sovereignty in designing food policy.

9. **Build policy coherence by aligning policies across the food system; across ministries, departments, and agencies; across levels of government; and across development partners.** Kenya has attempted to build policy coherence by using mechanisms like the Agricultural Transformation Office to coordinate implementation of the Agricultural Sector Transformation and Growth Strategy, the Joint Agricultural Sector Steering Committee to coordinate between national and county government, the Council of Governors, and the Agriculture and Rural Development Partner Group to coordinate among donors. But a mechanism that would allow coordination of all food system actors is missing. A good starting point

would be an overall framework for food systems transformation with a clear vision; shared objectives, roles, and commitments; and a strong monitoring and evaluation system for regular progress reviews and assessments of results.

10. **Strengthen the science-policy interface for more effective, research-based policies.** Policymakers can provide support and coordination to enable operationally relevant and rigorous research that informs policy. Research spending should be considered an investment and as such, financial commitments to research should be increased. Public investments in universities must also be optimized to generate research and technologies and promote adoption. Policymakers should support making data open and easy to use. The push for open data can be worthwhile in the long run, though it will likely require coordination with relevant ministries and institutions, such as the Kenya Agricultural and Livestock Research Organization, Kenya National Bureau of Statistics, and Ministry of Information, Communications, and Technology. Policymakers can play an active role in coordinating Kenya’s fragmented research landscape, while research organizations coordinate their research activities and methodologies. Collaboration and coordination between national and international researchers can lead to more relevant, rigorous, and coherent research. In Kenya and other countries,

CGIAR's National Policies and Strategies Initiative⁵ is currently co-creating a science-policy interface in the form of a Community of Policy Practice, which can help bring together policy researchers and policymakers.

There are no “silver bullet” policies that can transform the food sector overnight, and the idea of a food systems “revolution” is a misnomer. Previous “revolutions” (such as the second Agricultural Revolution and the Green Revolution) were not abrupt changes, but slow,

decades-long transitions with committed policymaking and steady progress. Today, improved technology and access to information make it easier than ever to drive transformation through evidence and innovation. Seizing this opportunity will require enlightened, coherent, and evidence-based policy. Kenya is a land of great natural and human potential – and the new government has the chance to set an example for other countries on successful food systems transformation.

*This policy brief presents key recommendations from a forthcoming book, “**Food Systems Transformation in Kenya: Lessons from the Past and Policy Options for the Future**,” in order to make them available prior to the book’s publication. The book is edited by Clemens Breisinger, Michael Keenan, Juneweenex Mbuthia, and Jemimah Njuki, with contributions from Florence M. Wambugu, Nehemiah M. Mugutha (Africa Harvest Biotech Foundation International); Pascal Kaumbutho (Agrimech Africa); Victor Mugo, Ivy Kinyua (Alliance of Bioversity and CIAT); Hugo De Groote (CIMMYT); Calum G. Turvey (Cornell University); Mequanint B. Melesse, Eric Manyasa (ICRISAT); Gashaw T. Abate, Kibrom A. Abay, Dolapo Adeyanju, Kwaw Andam, Clemens Breisinger, Juneweenex Mbuthia, Michael Keenan, Xinshen Diao, Karl Pauw, Jenny Smart, James Thurlow, Olivier Ecker, Andrew Comstock, Vivian Hoffmann, Alejandro Nin-Pratt, David J. Spielman, Hiroyuki Takeshima, Martin Paul Jr. Tabe-Ojong, John M. Ulimwengu, Lensa Omune, Berber Kramer, Liangzhi You, Mulubrhan Amare (IFPRI); Sirak Bahta, Francis Wanyoike, Leonard Kirui, Charles Mensah, Dolapo Enahoro, Joseph Karugia, Isabelle Baltenweck, Silvia Alonso (ILRI); Bekele Shiferaw (IITA); Yohannis Mulu Tessema (Independent); Willis Owino, Mary Abukutsa-Onyango (Jomo Kenyatta University of Agriculture and Technology); Jane Kabubo-Mariara (Partnership for Economic Policy); Lilian Kirimi, John Olwande, Jackson Langat, Timothy Njagi, Mercy Kamau, Gideon Obare (Tegemeo); Apurba Shee, Michael Ndegwa (University of Greenwich); Salome Bukachi, Mariah Ngutu, Dalmás O. Omia, Mercy M. Musyoka, Erastus Kang’ethe, Jane Ambuko (University of Nairobi); Jemimah Njuki (UN Women); Judith K. Chemuliti (KALRO); and Isaac K. Nyamongo (The Co-Operative University of Kenya).*

5 <https://www.cgiar.org/initiative/27-national-policies-and-strategies-for-food-land-and-water-systems-transformation/>



REFERENCES

- AUC (African Union Commission). 2014. Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods. In The Malabo Summit. http://www.turkeyafricaagri.org/links/31247-doc-malabo_declaration_2014_11_26.pdf
- Breisinger, C., X. Diao, P. Dorosh, J. Muthia, L. Omune, E.O. Oseko, A. Pradesha, J. Smart, and J. Thurlow. 2022. *Kenya : Impacts of the Ukraine and Global Crises on Poverty and Food Security*. IFPRI Global Crisis Country Series, Brief 1. Washington, DC: International Food Policy Research Institute (IFPRI). https://www.agrilinks.org/sites/default/files/media/file/IFPRI_Kenya_Brief_061722%20final_0.pdf
- de Brauw, A., M. van den Berg, I.D. Brouwer, et al. 2019. "Food System Innovations for Healthier Diets in Low and Middle-Income Countries." IFPRI Discussion Paper 1816, International Food Policy Research Institute (IFPRI), Washington, DC. <https://hdl.handle.net/10568/100337>
- Diao, X., K. Pauw, J. Smart, and J. Thurlow. Forthcoming. "Kenya's Agri-Food System: Overview and Drivers of Transformation." In *Food Systems Transformation in Kenya: Lessons from the Past and Policy Options for the Future*, edited by C. Breisinger, M. Keenan, J. Muthia, and J. Njuki. Washington, DC: IFPRI.
- Diao, X., H. Takeshima, and X. Zhang, eds. 2020. *An Evolving Paradigm of Agricultural Mechanization Development: How Much Can Africa Learn from Asia?* Washington, DC: International Food Policy Research Institute.
- Ecker, O., A. Comstock, and K. Pauw. Forthcoming. "Kenyan Diets: Quality, Affordability, and Preferences." In *Food Systems Transformation in Kenya: Lessons from the Past and Policy Options for the Future*, edited by C. Breisinger, M. Keenan, J. Muthia, and J. Njuki. Washington, DC: IFPRI.
- FAO (Food and Agriculture Organization of the United Nations). 2022. FAOSTAT Crops and Livestock database.
- Government of Kenya. 2011. *National Food and Nutrition Security Policy*. Nairobi. <http://repository.kippira.or.ke/handle/123456789/1620>
- Hayami, Y., and V. Ruttan. 1985. *Agricultural Development: An International Perspective*. Baltimore, MD: Johns Hopkins University Press.
- HLPE (High Level Panel of Experts). 2017. *Nutrition and Food Systems*. High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome. <https://www.fao.org/3/i7846e/i7846e.pdf>
- IFPRI (International Food Policy Research Institute). 2021. *Global Food Policy Report: Transforming Food Systems after COVID-19*. Washington, DC. <https://doi.org/10.2499/9780896293991>
- Kenya Parliamentary Budget Office. 2021. Unpacking the Estimates of Revenue and Expenditure for 2020/2021 and the Medium Term. Nairobi. <http://www.parliament.go.ke/sites/default/files/2020-05/Estimates%20of%20Revenue%20and%20Expenditure%20for%20202021.pdf>
- Lowder, S. K., J. Scoet, and T. Raney. 2016. "The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide." *World Development* 87: 16–29. <https://doi.org/10.1016/j.worlddev.2015.10.041>
- Lukalo, D., and F. Kiminyei. 2019. Promoting Structural Transformation for High Productivity Jobs in Kenya. Policy Brief 53. Nairobi: The Kenya Institute for Public Policy Research and Analysis (KIPPR). <https://repository.kippira.or.ke/handle/123456789/3070>
- Nafula, N., D. Kyalo, B. Munga, and R. Ngugi. 2020. "Poverty and Distributional Effects of COVID-19 on Households in Kenya." Working Paper. African Economic Research Consortium, Nairobi. https://aercafrica.org/wp-content/uploads/2020/12/03_Kenya-Covid-19-Nov-29.pdf

- NCPD (National Council for Population and Development). 2020. *The State of Kenya Population 2020*. Nairobi. https://kenya.unfpa.org/sites/default/files/pub-pdf/state_of_kenya_population_report_2020.pdf
- Neven, D., M.M. Odera, T. Reardon, and H. Wang. 2009. "Kenyan Supermarkets, Emerging Middle-Class Horticultural Farmers, and Employment Impacts on the Rural Poor." *World Development* 37 (11): 1802-1811. <https://doi.org/10.1016/j.worlddev.2008.08.026>
- Njuki, J., S. Eissler, H.J. Malapit, R.S. Meinzen-Dick, E. Bryan, and A.R. Quisumbing. 2021. "A Review of Evidence on Gender Equality, Women's Empowerment, and Food Systems." Food Systems Summit Brief, Center for Development Research (ZEF) in cooperation with the Scientific Group for the UN Food System Summit 2021, Bonn. <https://dx.doi.org/10.48565/scfss2021-1q69>
- Pernechele, V., F. Fontes, R. Baborska, J.C. Nkuingoua Nana, X. Pan, and C. Tuyishime. 2021. *Public Expenditure on Food and Agriculture in Sub-Saharan Africa: Trends, Challenges and Priorities*. Rome: Food and Agriculture Organization of the United Nations. <https://doi.org/10.4060/cb4492en>
- UNDESA (United Nations Department of Economic and Social Affairs Population Division). 2018. World Urbanization Prospects: The 2018 Revision. New York: United Nations. <https://population.un.org/wup/publications/Files/WUP2018-Report.pdf>
- UNICEF. 2022. Kenya Drought Situation. Report 1 (April 1-May 31, 2022).

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