

Transport, Technology, and Energy Inefficiencies in West Africa's Small Holder Farms: Implications for Food Security and Socio-economic Development

Ezechi, Kingsley Chukwuka^{1*}

¹Department of Political Science, Alex Ekwueme Federal University, Ndufu Alike-Ikwo

*Corresponding author: Ezechi Kingsley Chukwuka; Email: ezechikingsley@gmail.com; kezechi@gouni.edu.ng

Received 1 July 2022; revised 25 July 2022; accepted 20 August 2022

Abstract

The paper examines the inefficiencies of transport, technology and energy in West Africa's small-holder farms, with implications for food security and socio-economic development. Particularly, the paper, focused on how efficient transport system, precision and climate smart agriculture can be leveraged through the technology-energy mix to reduce post-harvest food loss and waste (PHFLW), poor production output, and mitigation of climate change challenges on small holder farming in West Africa. By employing documentary method of data collection and Transformation Theory, the study found that there is need for radical and fundamental change of government policies and actions regarding technology, transport and energy sectors in West Africa, particularly in rural areas where small-holder farmers still rely on crude and traditional methods of farming that are unsustainable. The study also found that if the current methods small farm holders employ continues, West Africa will not be able to feed its teeming population that is said to rise to 540million by 2030. The study therefore concludes and recommends that small holder farmers must be adequately educated and sensitized to jettison crude agricultural practices and certain belief systems that are antithetical to agricultural productivity and socio-economic development.

Keywords: Post Harvest Food Loss and Waste, Transport, Energy, Technology, Small Holder Farms, Food Security

1.0 INTRODUCTION/PROBLEMATIQUE

The United Nations Sustainable Development Goals (UNSDGs) 1(No poverty), 2(Zero hunger), 3(Good health and wellbeing), 11(Sustainable cities and communities), and 12(Responsible consumption and production) are all directly linked to a sustainable agriculture practices, aimed at guaranteeing food security and to foster socio economic development of nations across the world. In the light of this, several research endeavours from different institutions and scholars (Food and Agriculture Organisation [FAO], 2021, Trendov, Varas and Zeng, 2019; FAO, 2015a; Beyene, 2014; International Fund for Agriculture Development [IFAD], 2013), have considered the agricultural inputs of small holder farm as very crucial, with particular respect to their ability to reduce Post Harvest Food Loss and Waste (PHFLW). According FAO (2015a), 90% of the more than 570million farms globally, are owned and managed by small farm holders, who rely on individual and family labour for input and productivity (United Nations Development Programme [UNDP], 2021; United Nations Conference on Trade and Development [UNCTAD], 2017). These farms are responsible for 80% of food grown and consumed in both Asia and Sub Saharan Africa. Small holder farms are characteristically situated within or less than 2 hectares of land (FAO, 2015b, Beyene, 2014). In terms of job creation in West Africa, small farm holders employ about 32% of the region's workforce. It is also responsible for 35% of regional Gross Domestic Products (GDP), with two out of every three individuals employed, depend on it for their livelihood (Sahel West African Club

- Stathers, et al (2020). A scoping review of interventions for crop postharvest loss reduction in sub-Saharan Africa and South Asia. *Nature Sustainability*. Vol 3: 821-835
- SWAC/OECD (2021). Food system transformations in the Sahel and West Africa: implications for people and policies, Maps & Facts, no. 4, April 2021.
- Trendov N. M, Varas, S, and Zeng, M. (2019). Digital technologies in agriculture and rural areas. FAO, Rome.
- Tröger, K., Lelea, M. A., Hensel, O., & Kaufmann, B. (2020). Re-framing post-harvest losses through a situated analysis of the pineapple value chain in Uganda. *Geoforum*. Vol 111: 48–61.
- UNCTAD (2017). The role of science, technology, innovation in ensuring food security by 2030. United Nations, New York and Geneva.
- UNDP (2021). Precision agriculture for small holder farmers. UNDP Global Centre for Technology, Innovation and Sustainable Development, Singapore.
- USAID (2022). Clean and efficient energy; accessed on 27/5/2022. <https://www.usaid.gov/west-africa-regional/clean-and-efficient-energy>
- USAID (2021). South Africa: Power Africa Fact Sheet; accessed on 30/4/2022, [https://www.usaid.gov/powerafrica/south-africa#:~:text=According%20to%20the%20Ministry%20of,\(MW\)%20from%20all%20sources](https://www.usaid.gov/powerafrica/south-africa#:~:text=According%20to%20the%20Ministry%20of,(MW)%20from%20all%20sources).
- USAID (2018). Climate risk profile: West Africa; accessed on 29/4/2022, https://reliefweb.int/sites/reliefweb.int/files/resources/West_Africa_CRP_Final.pdf
- World Bank (2021). Climate smart agriculture; accessed on 24/4/2022, <https://www.worldbank.org/en/topic/climate-smart-agriculture>
- World Bank (2021). World Bank Group provides \$465million to expand energy access and renewable energy integration in West Africa; accessed 28/4/2022, <https://www.worldbank.org/en/news/press-release/2021/06/10/world-bank-group-provides-465-million-to-expand-energy-access-and-renewable-energy-integration-in-west-africa>
- World Bank (2020). Nigeria: Food smart country diagnosis. International Bank for Reconstruction and Development, Washington DC.
- World Bank (2017). Ghana: Transport sector improvement project; accessed on 27/5/2022, <https://documents1.worldbank.org/curated/en/823991496973636658/pdf/Ghana-PAD-05172017.pdf>
- World Food Program (2022). West Africa food security highlight, January, 2022; accessed on 15/7/2022, <https://reliefweb.int/report/burkina-faso/west-africa-food-security-highlights-january-2022>
- World Wildlife Fund-UK (2021). Driven to waste: The global impact of food loss and waste on farms, accessed on 15/7/2022, https://wwfint.awsassets.panda.org/downloads/wwf_uk_driven_to_waste_the_global_impact_of_food_loss_and_waste_on_farms.pdf
- World Wildlife Fund-US (2021). Food waste, accessed on 15/7/2022, <https://www.worldwildlife.org/initiatives/food-waste>
- Yin, K.R. (2014). Case study research design and methods. Sage, CA, USA