
Curriculum Vitae (Jul.2026)

Bedru B. Balana, PhD

☎ **Office:** +1 202.862.8122
📱 **Mobile:** +1 202.428.5356
📠 **Fax:** +1 202.862.5606
@ **Email:** b.balana@cgiar.org

🌐 **English** (proficient)
Amharic (native)

Current Business Address

International Food Policy Research Institute
AgriFood Innovation and Resilience (AIR) Unit
1201 Eye Street, NW
Washington, D.C. 20005, USA

Current Home Address

8201 16th Street. Apt. 1212
Silver Spring, MD 20910, USA

- Independent Thinker • Motivated • Committed •
- Team Player • Open Minded • Open Minded •
- Experienced Researcher • Project & Staff Management • Leadership • Mentorship •

About Me

I am an agricultural and natural resources economist with about 20 years post-PhD experience in applied research in natural resources and environmental management, agricultural development, and food policies in sub-Saharan Africa and Western Europe. My core research areas include natural resources management (land, water, and forest), economics of ecosystem services, agricultural water management (particularly the economics small-scale irrigation), agricultural technology adoption, climate-smart agriculture, rural livelihoods, food system analysis, and food security. I have extensive experience in leading and managing research-for-development projects, staff supervision, planning and implementing household surveys, stakeholders and donors engagement, knowledge dissemination, and delivering capacity strengthening trainings. I ensure timely implementation of project activities, analytical rigor and communication of research findings to relevant stakeholders to support investment and policy decisions for enhancing climate resilience, environmental sustainability, food security, and livelihood enhancement in low-and-middle-income countries. I supervise, mentor, and effectively communicate with research support staff, consultants, and collaborators to ensure timely completion of project activities. Methodologically, I mainly use quantitative research methods including micro-econometric models, environmental valuation (stated/revealed preferences methods) and causal impact analysis. Prior to joining IFPRI, I worked in different academic and development research organizations including the Mekelle University (Ethiopia), Macaulay Land Use Research Institute/James Hutton Institute (UK), and the International Water Management Institute (IWMI). I published more than 50 peer-reviewed articles in high impact-factor journals. My research and field experience spans Ethiopia, Great Britain, Kenya, Uganda, Tanzania, Ghana, Burkina Faso, and Nigeria.

[1]. Research Interests

Natural Resources and Environmental Economics, Agricultural Economics, Natural Resources Management (Land, Water, & Forests), Rural Livelihoods and Poverty, Food Security, Impact Evaluation of Policies Programs and Interventions, Climate Change, Adoption/Scaling (inputs, technology adoption, credit, small-scale irrigation), Environmental Valuation, & Economics of Ecosystem Services

[2]. Education

- PhD (Oct. 2007): Agricultural & Natural Resources Economics (Bioscience Engineering), Catholic University of Leuven (K.U Leuven), Belgium.

- MSc (Aug. 2000): Master of Science (Economics) (First Class).
- BA (July 1994): Bachelor of Arts (Economics), Addis Ababa University, Ethiopia.

[3]. Employment

- **International Food Policy Research Institute (IFPRI), Washington DC, USA**
 - Apr 2026– Present: Senior Research Fellow, Agrifood Innovation and Resilience (AIR) Unit
 - May 2025 – Mar 2026t: Research Fellow-II, Natural Resource and Resilience (NRR) Unit
- **International Food Policy Research Institute (IFPRI), Abuja, Nigeria.**
 - Feb 2025- Apr 2025: Research fellow II (NRR), Acting program Leader for IFPRI-Nigeria.
 - May 2024-Apr 2025: Research fellow II (NRR)
 - Jul 2023 – Apr 2024: Research Fellow II (Development Strategies and Governance (DSG) Unit)
 - Feb 2019 – Jun 2023: Research Fellow I (DSG), Acting Country Program Leader (IFPRI-Nigeria), Acting Chief of Party (USAID-Feed the Future Nigeria Agriculture Policy Project)
- **International Water Management Institute (IWMI), Accra, Ghana.**
 - 2014 – 2018: Researcher-Economics (water, land, natural resources and agricultural economics)
- **Macaulay Land Use Research Institute (MLURI)/James Hutton Institute (JHI), Aberdeen, Scotland, UK.**
 - 2008 – 2014: Agricultural/Environmental/Ecological Economist – EU common agricultural policy (CAP), EU water framework Directive (WFD) and projects in SSA on agricultural policy, environmental management and livelihoods and rural poverty in several projects in SSA (Ethiopia, Kenya, & Uganda).
- **Catholic University of Leuven (K U Leuven), Leuven, Belgium.**
 - 2003 – 2007: PhD Fellow at Dept. Agricultural Economics & part-time teaching staff at Mekelle University, Ethiopia
- **Mekelle University, Mekelle, Ethiopia.**
 - 1995 – 2002: Lecturer (Courses: Microeconomics; Natural Resources & Environmental Economics; Statistics for Economists; Introductory Econometrics)

[4]. Leadership and Management

(a) Program IFPRI Country Program Leader:

- I served as a Country Program Leader for IFPRI-Nigeria program (leading country program and supervising 20 staff). My major duties included Country program management, staff supervision, project management including Chief of Party (CoP) for a \$12 million, USAID funded Nigeria Agricultural Policy Project (NAPP), effective communication and reporting the donor (USAID), engagement with National stakeholders and research partners/collaborates.

(b) Project Management (examples):

- Project Co-Lead (with Prof Musa Tukur Yakasai): *Anticipatory action for Climate Resilience in Northern Nigeria*. This is a project funded by the International Rescue Committee (IRC) (Budget: \$150,000) (from 2023 -2024).
- Project Co-Lead: *Irrigation Technology Suitability Mapping and Tools*. Funded by the Gates Foundation (Budget: \$850, 000) (2025-2026)
- Principal Investigator (PI) for the World Bank funded ‘*Agro-Processing, Productivity Enhancement and Livelihood Improvement Support (APPEALS)*’ in Nigeria. I successfully managed the project until its completion. The project was completed in Jan 2020 and all project deliverables were successfully completed. (budget: \$300, 000)
- Project Leader: ‘*Supporting investment decisions in water and land management across the rural-urban continuum in the Volta - Niger focal region*’ – CGIAR WLE programme funded R4D project (budget: \$750, 000)

- Project co-Lead: ‘*Flood Recession Agriculture for food security in Northern Ghana*’ – USAID funded R4D project (budget: \$250,000).
- Co-PI and WP-Leader: ‘*ALTER - Alternative Carbon Investments in Ecosystems for Poverty Alleviation: below-ground versus above-ground opportunities for the restoration of ecosystem services*’ in Ethiopia and Uganda. ESPA programme (Jointly funded by ESRC, NERC, and DFID). (budget: GBP 2.5 million).
- Co-PI: Ecosystem services and poverty alleviation (**ESPA**) ‘*Building Ecosystem Research Capacity in SSA*’ implemented in (Kenya and Uganda). Jointly funded by ESRC, NERC, and DFID.
- Co-PI: ‘*Barriers and opportunities for use of payments for ecosystem services*’ and ‘*Cost curves for mitigation of soil compaction*’ both funded by the Department for Environment, Food and Rural Affairs (DEFRA- UK).
- Work package 3 Lead: *Adaptive strategies to mitigate the impacts of climate change on European freshwater ecosystems*’ (**REFRESH**) funded by European Union (EU) FP7.
- Co-PI: *Small scale biogas and poverty alleviation*’ funded by DFID, UK.

[5]. Expertise/skills, Merit Awards, Leadership

- **Analytical skills:** Survey design, Survey data analysis; micro-econometric modelling; cost-benefit analysis; cost-effectiveness analysis; Causal impact evaluation, Choice modelling; multi-criteria/conjoint methods; environmental valuation (stated and revealed preference methods); and mixed research methods
- **Computing/software:** MS Office, STATA, SAS, SPSS, GAMS (basic)
- **Institutional Capacity Strengthening Award (2024)** – this was an award by IFPRI for its staff member who significantly contributed in capacity strengthening of its partners in countries through training, continuous, engagement, workshops, Seminars, etc.
- Received IFPRI **best management performance award** in recognition of my performance in IFPRI-Nigeria country program management.
- Awarded the **UK Biological and Biotechnology Sciences Research Council (BBSRC)** 2010 ‘Performance Award’ at the James Hutton Institute (JHI). The ‘Award’ was granted in recognition for my achievements beyond the normal requirements of the job in particularly demanding situations.
- Leader, IFPRI-Nigeria country **Program Leader and Chief of Party (CoP)** for the FtF/USAID Nigeria Agriculture Policy Project (NAPP).
- Member of the JHI (UK) Research **Quality Management System (QMS - ISO 9001)**.
- Member of the Strategy Team member for the JHI (UK), Sustainable Production System (SPS)’ Research Theme.
- Serving as a reviewer for several peer-reviewed scientific journals such as Ecological Economics, Water Resource Management, Forest Policy and Economics, and Journal Environ. Management.
- Served as an Alternate Member of the IWMI’s **Institute Review Board (IRB)** which oversees research ethics and quality in IWMI.
- **Professional Membership:** International Association of Agricultural Economics (IAAE); International Society of Ecological Economics (ISEE); and Agricultural Economics Society (UK).

[6]. Publications

6.1 Peer-reviewed Journal Articles

- Amare, M., & Balana, B. (2026). Climate-induced agricultural productivity shocks undermine child nutritional outcomes: Evidence from Nigeria. *The Journal of Development Studies*. Advance online publication. <https://doi.org/10.1080/00220388.2026.2628673>
- Iraoya, A. O., & Balana, B. (2026). Uncovering bottlenecks and innovative solutions for scaling small-scale irrigation through a system approach and design thinking: Evidence from Nigeria. *Agricultural Systems*, **236**, 104742. <https://doi.org/10.1016/j.agsy.2026.104742>
- Amare, M., Andam, K., **Balana, B.** et al. (2025). Unpacking the Effects of Conflict on Fertilizer Use and Maize Yields: Empirical Evidence from Nigeria. *Agricultural Economics*, <https://doi.org/10.1111/agec.70078>
- Amare M. & **Balana B.** (2023): Climate change, income sources, crop mix and input use decisions: evidence from Nigeria. *Ecological Economics*, vol. 211, 107892: <https://doi.org/10.1016/j.ecolecon.2023.107892>
- Balana B. & Akudugu M. (2023). Economic analysis of public investment in alternative agricultural water management schemes: a case study from northern Ghana. *Water International*. 48 (1): 40–62. <https://doi.org/10.1080/02508060.2022.2156224>
- Balana, B., et al. (2023). COVID-19, food insecurity and dietary diversity of households: Survey evidence from Nigeria. *Food Security*. 15: 219-241. <https://doi.org/10.1007/s12571-022-01312-w>
- Balana B and Olanrewaju O. (2023). Climate induced shocks and household food security in Nigeria. *Sustainability* **2023**, 15(6), 5057 <https://doi.org/10.3390/su15065057>
- Balana et al. (2022). Demand and supply constraints of credit in smallholder farming: Evidence from Ethiopia and Tanzania. *World Development*. vol .159, (106033). <https://doi.org/10.1016/j.worlddev.2022.106033>
- Hyacinth, E., Mavrotas, G., & **Balana, B.** (2022). Land tenure security and preferences to dispute resolution pathways among smallholders in Nigeria. *Land Use Policy*. vol. 119, (106179). <https://doi.org/10.1016/j.landusepol.2022.106179>
- Balana et al. (2022). Improving livelihood outcomes through postharvest losses management: Evidence from Nigeria. *Food Security*. doi.: <https://doi.org/10.1007/s12571-021-01196-2>
- Takeshima, H., **Balana, B.**, et al. (2022). Subnational public expenditures, short-term household-level welfare, and economic flexibility: Evidence from Nigeria. *Agricultural Economics*. 53(5): 739-755. <https://doi.org/10.1111/agec.12710>
- Balana, B. & Oyeyemi, M. (2022). Agricultural credit constraints in smallholder farming in developing countries: Evidence from Nigeria. *World Development Sustainability*, vol. 1. (100012). <https://doi.org/10.1016/j.wds.2022.100012>
- Carr, G., Barendrecht, M., Balana, B., & Debevec, L. (2022). Exploring water quality management with a socio-hydrological model: A case study from Burkina Faso. *Hydrological services Journal*. doi : <https://doi.org/10.1080/02626667.2021.2020276>
- Boeke, **Balana**, Nimoh F. (2021). Social cost-benefit analysis of investment in rehabilitation of multipurpose small reservoirs in northern Ghana using an ecosystem services-based approach - *Ecosystem Services* (Journal). doi. <https://doi.org/10.1016/j.ecoser.2021.101329>
- Balana et al... (2021). Assessment of smallholder farmers' demand for and adoption constraints to small scale irrigation technologies: Evidence from Ethiopia Economics of irrigation water lifting technologies – *Agriculture Water Management* (journal). doi. <https://doi.org/10.1016/j.agwat.2021.106855>
- Balana et al. (2020). Economic and food security effects of small-scale irrigation technologies in northern Ghana. *Water Resources and Economics*, Vol. 9: 100141. <https://doi.org/10.1016/j.wre.2019.03.001>
- Smith, J.,... **Balana, B.**... (2020). A systems model describing the impact of organic resource use on farming households in low to middle income countries. *Agricultural Systems*, **184**. 102895.

- Adams, A., **Balana, B.**, Lefore, N. (2020). Efficiency of Small-scale Irrigation Farmers in Northern Ghana: A Data Envelopment Analysis Approach'. *The Journal of Applied Economic Research*, 14(3): 332–352
- Adimassu, Z., **Balana, B.**,... (2020). The use of the wetting front detector as an irrigation scheduling tool for pepper production in the Upper East Region of Ghana: Evidence from field experiment and farmers' perceptions' *Irrigation and Drainage*, 1-18.
- Balana, B. et al., 2019. Assessment of flood recession agriculture for food security in Northern Ghana: An optimization modelling approach. *Agricultural Systems*, 173: 536-543. <https://doi.org/10.1016/j.agry.2019.03.021>
- Smith, Jo; ... **Balana, B.** et al. (2019). Treatment of organic resources before soil incorporation in semi-arid regions improves resilience to El Niño and increases crop production and economic returns. *Environment Research Letters* 14(8): 085004. <https://doi.org/10.1088/1748-9326/ab2b1bmeetings>
- Acheampong, D., **Balana, B.** et al. (2018). Assessing the effectiveness and impact of agricultural water management interventions: the case of small reservoirs in northern Ghana. *Agric Water Manag.* 209: 163-170.
- Tarfasa, S., **Balana B***, et al. (2018). Modeling Smallholder Farmers' Preferences for soil management measures: A case study from south Ethiopia. *Ecological Economics* 145, 410-419.
- Kabyanga M., **Balana B***, et al. (2018). Are smallholder farmers willing to pay for a flexible balloon biogas digester? Evidence from a case study in Uganda. *Energy for Sustainable Development*. 43: 123-129.
- Kabyanga M., **Balana B***, et al. (2018). Economic potential of flexible balloon biogas digester: A case study from Uganda. *Renewable Energy*. 120: 392-400.
- Houessionon & ... **Balana, B.**, 2017. Economic Valuation of Ecosystem Services... A Discrete Choice Experiment Approach. *Sustainability*, 9(9), 1672.
- Lwiza F. & others, **Balana, B.** (2017). Dis-adoption of Household Biogas technologies in Central Uganda. *Energy for Sustainable Development*. 27: 124-132.
- Byg, A., & others, **Balana B.**, 2017. Trees, soils, and warthogs – Distribution of services and disservices from restoration areas in southern Ethiopia. *Forest Policy and Economics*. 84, 112-119.
- Balana, B., Jackson-Blake, L., Martin-Ortega, J., Dunn, S. (2015). Integrated cost-effectiveness analysis of agri-environmental measures for water quality. *J. Environ. Manag.*, 161, 163-172
- W.C. T. Chamen, A. P. Moxey, W. Towers, **B. Balana**, P. D. Hallett, (2015). Mitigating arable soil compaction: A review and analysis of available cost and benefit data. *Soil and Tillage Research*. 146A: 10-15.
- Martin-Ortega, J., Perni, A., Jackson-Blake, L., **Balana, B.**, Dunn, S., McKee, A., Helliwell, R., Psaltopoulos, D., Skuras, D., Cooksley, S., Slee, B., (2015). A transdisciplinary approach to the economic analysis of the European Water Framework Directive. *Ecological Economics* 116, 34-46.
- Naik, L; Gebreegziabher, Z., Tumwesige, V., **Balana, BB**, Mwirigi, J., Austin, G., (2014). Factors determining the stability and productivity of small-scale anaerobic digesters. *Biomass & Bioenergy* 70: 51-57.
- Gebreegziabher, Z., Naik, L., Melamu, R., **Balana, B.B.** (2014). Prospects and challenges for urban application of biogas installations in Sub-Saharan Africa. *Biomass & Bioenergy* 70:130-140.
- Mwirigi, J., **Balana, B.B.**, Mugisha, J., Walekhwa, P., Melamu, R., Nakami, S., Makenzi, P., 2014. Socio-economic hurdles to widespread adoption of small-scale biogas digesters in Sub-Saharan Africa: a review. *Biomass & Bioenergy* 70:17-25.
- Subedi, M., Matthews, R.B., Pogson, M., Abegaz, A., **Balana, BB**, Oyesiku-Blakemore, J., Smith, J. (2014). Can biogas digesters help to reduce deforestation in Africa? *Biomass & Bioenergy* 70:87-98
- Whitehead PG, Crossman J, **Balana BB**, Futter MN, Comber S, Jin L, Skuras D, Wade AJ, Bowes MJ, Read DS. (2013). A cost-effectiveness analysis of water security and water quality: impacts of climate and land-use change on the River Thames system. *Philos. Trans: A Math Phys Eng Sci*. 371: 20120413. <http://dx.doi.org/10.1098/rsta.2012.0413>

- Balana, B.B.; Muys, B.; Haregeweyn, N.; Descheemaeker, K.; Deckers, J.; Poesen, J.; Nyssen, J.; Mathijs, E. (2012). Cost-benefit analysis of soil and water conservation measures: The case of exclosures in northern Ethiopia. *Forest Policy and Economics*, 15, 27-36.
- Balana, B.B., Catacutan, D., Mäkelä, M. (2012). Assessing the willingness to pay for reliable domestic water supply via catchment management: results from a contingent valuation survey in Nairobi City, Kenya. *J. Environ. Planning & Management*, 56(10): 1511-1531.
- Vinten, A.J.A.; Martin-Ortega, J.; Glenk, K.; Booth, P.; **Balana, B.B.**; MacLeod, M.; Lago, M.; Moran, D.; Jones, M. (2012). Application of the WFD cost proportionality principle to diffuse pollution mitigation: a case study for Scottish Lochs. *J. Environ. Management*, 97, 28-37.
- Bakam, I.; **Balana, B.B.**; Matthews, R.B. (2012). Cost-effectiveness analysis of policy instruments for GHG emission mitigation in the agricultural sector. *J. Environ. Management* 112, 33-44.
- Martin-Ortega, J.; **Balana, B.B.** (2012): Cost-effectiveness analysis in the implementation of the water framework directive: approaches, experiences and challenges. *European Waters* 37: 15-25.
- Balana, B.B., Lago, M., Baggaley, N., Castellazzi, M., Stutter, M., Slee, B., Vinten, A. (2011). Integrating economic and biophysical data in assessing cost effectiveness of buffer strip placement. *J. Environ. Quality*, 41, 380-388.
- Balana, B.B., Vinten, A., Slee, B. (2011). A review on cost-effectiveness analysis of agri-environmental measures related to the EU WFD: Key issues, methods, and applications. *Ecological Economics*, 70: 1021-1031.
- Balana, B.B., Yatich, T., Mäkelä, M., (2011). A conjoint analysis of landholder preferences for reward-based land-management contracts in Kapingazi watershed, Eastern Mount Kenya. *J. Environ. Management*, 92 (10): 2634-2646.
- Haregeweyn, N., Melesse, B., Tsunekawa, A., Tsubo, M., Meshesha, D., **Balana, B.B.** (2011). Sedimentation and its mitigating strategies: a case study of Angereb reservoir, northwestern Ethiopia. *Journal of Soils and Sediments*. 12, 291-305.
- Balana, B.B., Mathijs, E., Muys, B. (2010). Assessing the sustainability of forest management: an application of multi-criteria decision analysis to community forests in northern Ethiopia. *J. Environ. Management*, 91:1294-1304.
- Balana, B.B., Muys, B., Nega, F.; Tollens E., Nyssen, J.; Deckers, J., Mathijs, E. (2009). The economic contribution of forest resource use to rural livelihoods in Tigray, Northern Ethiopia. *Forest Policy & Economics*. 11(2): 123-131.
- Balana, B.B., Muys, B., Fredu, N., Tollens, E., Nyssen, J., Deckers, J., Mathijs, E. (2008). Household livelihood strategies and forest dependence. *Agricultural Systems* 98(2): 147-155.
- Balana, B.B., Muys, B., Mathijs, E. (2006). Economic Valuation Methods for Forest Rehabilitation in Exclosures. *Journal of the Dry lands* 1(2):165-170.

6.2 Manuscripts Under Review

- Balana et al: Anticipatory cash transfer for climate resilience: findings from experimental study in northeast Nigeria. (*Review of Statistics and Economics*, under Review)
- Balana et al: Scaling small-scale irrigation for climate resilience: Identifying constraints and innovative solutions using a human-centered design process in Nigeria (*Water International*, under review)
- (Balana & Olarewaju): Financial inclusion, agricultural inputs use and food security: Evidence from Nigeria (*Review of Development Economics*, under review)
- Amare, Balana et al. The Price of Fragility: Shocks, food security, and lessons from Nigeria. (*Journal of Rural Studies*, under review)
- Balana et al.) Challenges and opportunities to food systems transformation in conflict and climate prone areas in Nigeria: Implications for humanitarian and development interventions (*Global Environmental Change*, under review)
- Edgar, Balana, & Haile. The Effects of Weather Shocks on Farm Efficiency: Cross-country Panel Data Evidence from Africa (*Environment and Development Economics*, under review)

6.3 Book Chapters

- Balana et al (2023): The Russia-Ukraine Crisis Presents Threats to Nigeria's Food Security, but Potential Opportunities for the Fertilizer, Energy Sectors. https://doi.org/10.2499/9780896294394_32
- Balana, B. (2016). Information for Micro Decisions and Livelihood Improvement: Outreach as a Key Challenge in Ethiopia. In Desta, A., Mengesha, M., and Muchie, M., (eds.). "Putting Knowledge to Work: From Knowledge Transfer to Knowledge Exchange". Trenton, New Jersey. Africa World Press. pp.101-114. [ISBN:978-1-5690248-0-5]
- Balana, B. (2016). The Role of Innovation in Development: Could Lessons be Drawn for Ethiopia? In Muchie, M., Desta, A., and Mengesha, M. (eds.). "Science, Technology, and Innovation for Sustainable Future in the Global South". Trenton, New Jersey. Africa World Press. pp.47-58. [ISBN: 978-1-5690243-9-3]
- Bekoe, E. O.; Andah, W.; Logah, F. Y.; **Balana, B.** (2016). Water-food-energy nexus and hydropower development. In Williams, Timothy O.; Mul, Marloes L.; Biney, C. A.; Smakhtin, Vladimir (Eds.). The Volta River Basin: water for food, economic growth and environment. Oxon, UK: Routledge - Earthscan. pp.161-178.
- Kizito, F.; **Balana, B.** (2016). Ecosystem services in the Volta Basin. In Williams, Timothy O.; Mul, Marloes L.; Biney, C. A.; Smakhtin, Vladimir (Eds.). The Volta River Basin: water for food, economic growth and environment. Oxon, UK: Routledge - Earthscan. pp.181-198.
- Balana, B.B., et al. (2010). Cost-effective targeting of buffer strips for phosphorus mitigation in Lunan catchment: the case of Rescobie Loch. In: Crichton, K. and Audsley, R. (ed.). *Climate, Water and Soil: Science, Policy and Practice*. SAC and SEPA Biennial Conference, Edinburgh.
- Bedru B. et al. (2009). Valuing soil and water conservation effects of exclosures: a case study in Douga-tembein district of Tigray, Ethiopia. In: Malhotra, G. (ed.), *Environmental Growth: A global perspective*. Macmillan publishers, pp.127-138.
- Mamusha L. & **Bedru B.** (2004). Impacts and sustainability of dry land husbandry project – Ethiopia. In: Mitiku Haile, Diress Tsegay and Tegegne Tekla (eds.). *Research and Development on Dry land Husbandry Project (DHP) in Ethiopia*. OSSREA-Ethiopia. Pp55-66.
- Stockman, J.A.; Langan, S.J.; Stutter, M.; Vinten, A.J.A.; **Balana, B.** (2011). Managing riparian areas for multiple benefits. In: *Biodiversity and Farming (ed. Pakeman, R.J.). A Summary of Research Outputs from the Scottish Government's Environment - Land Use and Rural Stewardship Research Programme*. Macaulay Land Use Research Institute, Aberdeen, pp16-17.

6.4 IFPRI Discussion Papers

- Balana, B. et al. (2025). *Food systems in conflict-prone and climate-affected areas of Northern Nigeria: Humanitarian and development challenges*. IFPRI Discussion Paper 2376. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/177848>
- Amare, Mulubrhan; Andam, Kwaw S.; Balana, Bedru; Olanrewaju, Opeyemi; and Omamo, Steven Were. 2025. Conflict and agricultural inputs: Impacts on maize yields in Nigeria. IFPRI Discussion Paper 2378. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/178034>
- Balana, Bedru; Abba, Aminu; Iraoya, Augustine Okhale; Yakasai, Musa Tukur; Yakasai, Bello; et al. 2025. Bridging the gap: How human-centered design can help unlock bottlenecks in the diffusion of small-scale irrigation in Nigeria. IFPRI Discussion Paper 2380. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/178299>
- Amare M.; Omamo, S.W. **Balana, B.**; et al. (2025). *The price of fragility: Shocks, food security, and lessons from Nigeria*. IFPRI Discussion Paper 2371. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/177382>

- Balana, B., Mekonnen, D.; Arega, T.; Ringler, C.; Bryan, E.; et al. (2024). *Do public works investments in watershed rehabilitation and small-scale irrigation improve nutrition and resilience? Evidence from bureau for humanitarian assistance interventions in support of Ethiopia's productive safety net program*. IFPRI Discussion Paper 2308. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/168643>
- Balana, B. & Opeyemi, O. (2024). *Financial inclusion, agricultural inputs use, and household food security evidence from Nigeria*. IFPRI Discussion Paper 2293. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/162588>
- Ambler, Kate; **Balana, Bedru**; Bloem, Jeffrey R.; Maruyama, Eduardo; and Olanrewaju, Opeyemi. 2024. *Take-up of cash loans vs. agricultural input loans: A pilot study*. Rethinking Food Markets Initiative Project Note September 2024. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/152224>
- Ambler, K., Bloem, J., Maruyama, E., **Balana, B.**, Olanrewaju, P., Adewumi, B., Essien, E., Alabi, S. and Ogundare, M. 2024. *Supplemental cash loans to boost productivity in Nigeria: IPSR Innovation Profile*. First edition, September 2024. Brief. Montpellier: CGIAR System Organization. <https://hdl.handle.net/10568/159693>
- Balana B. et al (2023). *Anticipatory cash transfers for climate resilience: Findings from a randomized experiment in northeast Nigeria*. IFPRI Working Paper: <https://doi.org/10.2499/p15738coll2.136812>
- Amare M. and **Balana B.** (2023). *Climate change, income sources, crop mix and input use decisions. Evidence from Nigeria*. IFPRI Discussion paper. <https://doi.org/10.2499/p15738coll2.136717>
- Balana et al. (2023). *The Russia-Ukraine crisis presents threats to Nigeria's food security, but potential opportunities for the fertilizer, energy sectors*. [access](#)
- Amare M., **Balana B.** & Onilogbo O. (2023). *Enhancing climate resilience in Nigerian agriculture: Implications for sustainable adaptation and livelihood diversification*. IFPRI Policy Brief. [access](#)
- Takeshima H.,... **Balana B.** & others (2023). *Innovations for inclusive and sustainable growth of domestic food value chains: Fruits and vegetables value chains in Nigeria*. Scoping Report. IFPRI working paper. [access](#)
- Xie H...., **Balana** & others (2023). *Unlocking the potential of farmer-led irrigation development in central and northern Nigeria: What does it take?* IFPRI Brief. [access](#)
- Blana B. and Fasoranti A. (2022): *A historical review of fertilizer polies in Nigeria*. IFPRI Discussion Paper No. 02145. [access](#)
- Balana B. et al (2021). *Have Households' Livelihoods and Food Security Rebounded from COVID-19 Shocks in Nigeria? Results from a Follow-up Phone Survey*. IFPRI Discussion paper #02059. Washington DC, USA [access](#)
- Carr, G., Barendrecht, M., **Balana, B.**, & Debevec, L. (2021). *Integrating institutions into a socio-hydrological model: An example for water quality management in Burkina Faso*. EUG Conference paper. [access](#)
- Balana, B., and Oyeeyemi, M., 2020. *Credit constraints and agricultural technology adoption: Evidence from Nigeria*. IFPRI-NSSP Working Paper, No.64. [access](#)
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- Balana et al (2020). *Are Smallholder Farmers Credit Constrained? Evidence on Demand and Supply Constraints of Credit in Ethiopia and Tanzania*. IFPRI Discussion paper No.01974. [access](#)

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6.5 Selected Technical Papers/Reports

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- Ambler, K.; **Balana, B.** et al. (2025). Credit access, demand, and repayment among smallholder farmers in Nigeria: A follow-up analysis. IFPRI Project Note July 2025. Washington, DC: IFPRI. <https://hdl.handle.net/10568/175654>
- Balana, B. et al. (2024). Solar drying technology for post-harvest loss management of horticulture products: Findings from baseline survey in Nigeria. Technical Report. Washington, DC: IFPRI. <https://hdl.handle.net/10568/169151>
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6.6 Policy Briefs and Blogs

Blogs (recent)

- (1) Balane & Others (2026): [Nigeria's fuel, fertilizer, and food prices feel the strain of the Iran conflict | IFPRI](#)
- (2) Balana & Others (2026): [When climate shocks reduce harvests, children pay the price: Evidence from Nigeria | IFPRI](#)

[Bridging the gap: Unlocking intermediary bottlenecks for small-scale irrigation through human-centered design in Nigeria](#)

- (3) (Balana et al 2025): [Bridging the gap: Unlocking intermediary bottlenecks for small-scale irrigation through human-centered design in Nigeria](#)
- (4) (Balana et al. 2025): [Overcoming policy, finance, and technology supply constraints to unleash small-scale irrigation in Nigeria](#)
- (5) Kirui, Oliver K.; **Balana, Bedru**; Olanrewaju, Opeyemi; Edeh, Hyacinth O.; and Nwagboso, Chibuzo. 2025. SAA's extension model: Scaling sustainable farming in Nigeria. Enabling Environment Success and Failure Stories 7. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/180316> Brief. <https://hdl.handle.net/10568/180316>
- (6) (Balana et al 2025): [Integrating gender and nutrition into climate policy: Insights from the GCAN Initiative in Nigeria](#)
- (7) (Balana et al. 2023): [The Russia-Ukraine crisis presents threats to Nigeria's food security, but potential opportunities for the fertilizer, energy sectors](#)
- (8) (Balana 2023): [Enhancing climate resilience in Nigerian agriculture: Implications for sustainable adaptation and livelihood diversification](#)
- (9) (Balana 2023): [Building Smallholders' Climate Resilience in Nigeria: Research Findings Dissemination Workshop in Yola, Adamawa, Nigeria](#)
- (10) [CGIAR NPS Initiative: Stakeholder Workshop on Policy Coherence in Food, Land and Water Systems in Nigeria](#) *Coherence on Food, Land and Water System in Nigeria. (Event Blog)*
- (11) **Balana (2023):** [Building Smallholders' Climate Resilience in Nigeria: Research Findings Dissemination Workshop in Yola, Adamawa, Nigeria](#) *(Event Blog)*

Policy Briefs

- (1) Kirui, Oliver K.; Fasoranti, Adetunji; Bamiwuye, Temilolu; **Balana, Bedru**; Glauber, Joseph W.; et al. (2026). Effects of the Iran conflict on fuel, fertilizer, and food prices in Nigeria. NSSP Policy Note 58. Washington, DC: International Food Policy Research Institute. <https://hdl.handle.net/10568/183398>
- (2) Omamo, S. **Balana, B.** et al. (2025). Navigating Nigeria's food system challenges in the face of inflation and reform. *IFPRI Policy brief*: <https://hdl.handle.net/10568/174326>
- (3) Osei-Amponsah, ... Balana, B. (2024). Building policy coherence into Nigeria's agri-food system: options for more effective coordination and integration. Policy Guidance Brief No. 6. <https://cgspace.cgiar.org/items/22e23a43-4c3f-4b55-8651-0e92e53a0f02>
- (4) Amare, Mulubrhan; Andam, Kwaw S.; Balana, Bedru; Olanrewaju, Opeyemi; and Omamo, Steven Were. Unpacking the effects of conflict on fertilizer use and maize yields: Empirical evidence From Nigeria. Agricultural Economics. Article in press. First published on November 13, 2025. <https://doi.org/10.1111/agec.70078>
- (5) Amare & **Balana** (2023): Enhancing climate resilience in Nigerian agriculture: Implications for sustainable adaptation and livelihood diversification. *IFPRI Policy Brief*: <https://doi.org/10.2499/p15738coll2.136942>
- (6) **Lefore N. Balana B. & Ringler C.** (2021). [The two-faced challenge of the credit constraints limiting smallholder farmers' irrigation investments | IFPRI : International Food Policy Research Institute](#)
- (7) **Balana, B.,** Oyeeyemi, M., & Benson, T., 2020. *Do Credit Constraints Affect Agricultural Technology Adoption? Evidence from Nigeria. IFPRI Policy Brief.* No. 53. [access](#)
- (8) **Balana** et al (2016): How women's access to small reservoirs can improve household livelihoods in northern Ghana. *WLE Policy Brief - Women and Small Reservoirs - WEB2.pdf*

[7]. Selected Conferences and Knowledge Disseminations (2019-2025)

2024/25:

- (1) **Abuja, Nigeria:** African Regional Conference on Irrigation and Drainage (**ARCID**): co-organized side session-I on “*Irrigation Policy and Investment under the Auspices of CAADP- Kampala Declaration*”. Apr 2025. [IFPRI Sessions – ARCID](#)
- (2) **Abuja, Nigeria:** African Regional Conference on Irrigation and Drainage (**ARCID**): Co-organized side-session-II on “*Irrigation Technology suitability Mapping Tools*”. April 2025. [IFPRI Sessions – ARCID](#).
- (3) **New Delhi, India:** *IAAE-2024 conference*: What role does conflict play in fertilizer use and maize yield response in Nigeria? Presented at the International Conference of Agricultural Economists. August 3, 2024. <https://iaae.confex.com/iaae/icae32/meetingapp.cgi/Paper/22417>
- (4) **New Delhi, India:** *IAAE-2024 conference*: Can participation in agricultural programs improve youth agribusiness performance? Insights from the Enable Programme in East Africa. 32nd International Conference of Agricultural Economists Conference, August 2-7, 2024. <https://hdl.handle.net/10568/151516>
- (5) **Kano, Nigeria:** Co-organized *GCAN Net-Map workshops - three workshops* (Adamawa, Kano, and Abuja) Blog post: [Stakeholder Net-Map Workshop on Understanding the Interconnectedness of Climate, Gender, and Nutrition Landscape in Nigeria \(ifpri.info\)](#)
- (6) **Abuja, Nigeria:** Presentation a paper at the *FAO's Regional Workshop for Anticipatory Action for flood risk in the Sahel*, held 27-28 March, Abuja, Nigeria.
- (7) **Abuja, Nigeria:** Co-organized a workshop on the *Implementation Framework for National Dairy Policy– FMAFS*: Drafted an implementation Plan for the policy; Validation workshop; and adoption of the framework, Abuja)
- (8) **Kigali, Rwanda:** Co-organized a side event @*AGRF - Africa Food Systems Forum - Side Events Application 2024 - AGRF on Irrigation Policy and Investment post-Malabo* (Rwanda 2 Sept 2024).
- (9) **Abuja, Nigeria:** Organized a stakeholders’ workshop for scaling of the ‘*Rethinking Food Markets*’ interventions/innovations in Nigeria. [Food crisis: Nigeria rethinks food waste and losses \(youtube.com\)](#)
- (10) **Bangkok, Thailand:** Attended and presented at WFP workshop on ‘*Impact evaluation community of practice & climate evidence workshop*’ in Bangkok, Thailand. docs.wfp.org/api/documents/WFP-0000161421/download/
- (11) **Germany /Virtual:** Seminar on research findings on ‘*Anticipatory Action to Climate Resilience*’ to the International Security and Development Centre (ISDC) (Germany).

2023:

- (12) **Washington DC, USA:** Panelist at the closing event of the USAID/FtF Innovation Lab for Small scale irrigation (ILSSI) program. The title of the event was: “*Expanding investment in sustainable, small-scale irrigation for agricultural-led growth, resilience and well-being: Lessons from 10 years of research*”. My talk focused on the role of small-scale irrigation on livelihoods and economic growth in SSA.
- (13) **Lincoln, Nebraska, USA:** Participated and Panelist at the 2023 *Water for Food Global Conference*, organized by The Daugherty Water for Food Global Institute, university of Nebraska. <https://waterforfood.nebraska.edu/news-and-events/events/2022/07/2023-water-for-food-global-conference>
- (14) **Addis Ababa, Ethiopia:** Presented a paper on the *impacts of Productive Safety Net Program (watershed management intervention by the USAID – Bureau of Humanitarian Affairs (BHA)*. Also served as a panelist on the economic impacts of the program on smallholders.
- (15) **Abuja, Nigeria:** Co-organized a stakeholders knowledge dissemination and validation workshop on Policy Coherence on *Food, Land and Water System in Nigeria*. This was part of the CGIAR National Policies and Strategies (NPS) Initiative Activities in Nigeria. <https://nssp.ifpri.info/2023/09/28/cgiar-nps-initiative-stakeholder-workshop-on-policy-coherence-in-food-land-and-water-systems-in-nigeria/>

- (16) **Durban, South Africa:** Presented a paper at the *7th African Association of Agricultural Economics (AAAE) conference*. The paper provided useful insights on the design of randomized experiments and its field implementation on anticipatory actions for researchers and students interested in similar studies. web link: <https://www.aaae2023.org/>
- (17) **Yola, Adamawa, Nigeria:** Organized and presented research findings on *climate resilience and local capacity to stakeholders*. The workshop aimed at disseminating the research findings and local capacity in climate risk and conflict-prone communities. <https://nssp.ifpri.info/2023/11/02/building-smallholders-climate-resilience-in-nigeria-research-findings-dissemination-workshop-in-yola-adamawa-nigeria/>
- (18) **Rome, Italy:** Presented a paper on *Anticipatory cash transfer for climate resilience* and served as a panelist on 'Anticipatory Actions in Humanitarian Sector' at the **Impact Evaluation Forum** organized by the WFP: web link: [WFP Impact Evaluation Forum 2023 | UN World Food Programme](https://www.wfp.org/publications/impact-evaluation-forum-2023).

2021/22:

- (19) **Abuja, Nigeria:** Panel member at **IFPRI seminar** on '**The Ukraine crisis – Unraveling the impacts and policy responses in low- and middle- income countries.**'
<https://www.ifpri.org/event/unraveling-impacts-and-policy-responses-ukraine-crisis-low-and-middle-income-countries>
- (20) **Stockholm, Sweden:** Paper presentation at the Stockholm World Water Week 2022.
<https://www.ifpri.org/event/world-water-week-2022>
- (21) **Leuven, Belgium:** Paper presentation (in-person) at the 96th Annual Conference of the Agricultural Economics Society, K U Leuven, Belgium
- (22) **Antwerpen, Belgium:** Paper presentation (virtual) – at the [2022 HDCA Conference – Antwerp, Belgium | Human Development and Capability Association \(hd-ca.org\)](https://www.hdca.org/)
- (23) **Virtual** (travel restriction due to Covid-19): Paper presentation (virtual) at *International Association of Agricultural Economics* (31st IAAE conference)
<http://iaae.confex.com/iaae/icae31/papers/papers/index.cgi?steponly=1&username=19529&password=383591>
- (24) Paper presentation (virtual) at **European Geosciences Union -2021 (vEGU21: Gather Online)** at the '**Advances in Socio-hydrology**' session. <https://meetingorganizer.copernicus.org/EGU21/session/39096>
- (25) Paper presentation (virtual) at **RISE-2021 – On 'effects of COVID-19 on food security in Nigeria'**

2019/2020:

- (26) **Washington DC.** Paper presentation (virtual) at **RISE-2020 – On 'credit constraints and agricultural technology adoption'**
- (27) **Abuja, Nigeria:** Local organizing committee • **6th African Conference of Agricultural Economists**
<https://www.ifpri.org/event/6th-african-conference-agricultural-economists>

[8]. Research Projects (past & present)

No.	Project Title	Donor	Start	End	Roles/Activities
CGIAR Science Programs					
[32]	Scaling for Impact (S4I SP: AoW2/AoW3	CGIAR	2025	2030	Research/Scaling (solar powered small-scale irrigation with IWMI (AoW2) & Institutional readiness Assessment of School Feeding Program in Nigeria

[31]	Food Frontiers & Security (FSS SP): AoW3	CGIAR	2025	2030	Research (Nature-Based Solutions with IWMI)
[30]	Policy Innovation (PI SP): AoW4/AoW5	CGIAR	2025	2030	Research/publications (food systems analysis Nigeria, & tariff waiver of irrigation equipment (Ethiopia)
Current (On-going) – Bilateral Projects					
[29]	Irrigation Technology Suitability Mapping Tools	Gates Foundation	2024	2026	Co-lead (research/analysis & data for tool development)
[28]	Ghana Shea value chain and Gender empowerment	Japan	2025	2026	Research/publication
[27]	Sasakawa Africa Association (SAA) Impact Evaluation (Eth., Uganda, NGA, and Mali)	SAA	2025	2026	Project lead & research
[26]	AI-assisted Food Quality Assessment and Bundled Innovations in Conflict-affected Northeast Nigeria	Japan	2026	2027	Research/publications
[25]	Gender, Climate, Change and Nutrition	Gates Foundation	2023	2027	Research & Coordination (Nigeria activities)
Completed/past projects					
[24]	Analysis of food supply systems in northern Nigeria	WFP	2024	2025	Project Co-leader (with Kwaw Andam and Were Omamo)
[23]	Rethinking Food Markets and Value Chains for Inclusion and Sustainability	CGIAR Initiative	2022	2024	Research & coordination (WP2 and WP3 activities in Nigeria)
[22]	National Policies and Strategies for Food, Land and Water Systems Transformation (NPS)	CGIAR Initiative	2022	2024	Research (Nigeria)
[21]	Fragility, Conflict, and Migration	CGIAR Initiative	2023	2025	Research (WP1/2, Nigeria)
[20]	Anticipatory cash transfer for climate resiliency, Nigeria	International Rescue Committee	2022	2023	Principal Investigator
[19]	Nigeria Agricultural Policy Project (NAPP)	USAID	2015	2020	Chief of Party (CoP)
[18]	Agro-Processing Productivity Enhancement and Livelihood Improvement Support Project (APPEALS) Baseline Study	World Bank	2019	2020	Project Leader
[17]	Supporting investment decisions in water and land management across the rural-urban continuum in the Volta - Niger Focal Region	CGIAR WLE Programme	2015	2017	Project Leader (Works in Ghana and Burkina Faso)
[16]	ILSSI – Innovation Lab for Small scale irrigation- Ghana	USAID	2014	2018	Research/publication
[15]	Scoping study to understand and identify viable options for interventions to improve climate resilient agricultural systems in northern Ghana	DFID -UK)	2016	2017	Project Co-Lead (with Timothy Willamis, former IWMI Africa Director)
[14]	Technical and economic assessment of small reservoirs, fuel and electricity powered pumps for irrigation in northern Ghana	USAID	2017	2017	Project Leader
[13]	Flood Recession Agriculture for food security in Northern Ghana (R4D)	USAID	2014/15	2016/17	Project Leader

[12]	ALTER - Alternative Carbon Investments in Ecosystems for Poverty Alleviation: below-ground versus above-ground opportunities for the restoration of ecosystem services in Ethiopia and Uganda.	Ecosystem Services and poverty Alleviation Program	2013	2017	Work Package Leader
[11]	Adaptation of small-scale biogas digesters for use in rural households in Sub-Saharan Africa' (Ethiopia, Uganda and Cameroon)	AUC (African Union Commission)	2014	2016	Researcher
[10]	Restoration, protection and management of European Fresh water ecosystems in a world of global change	EU Framework Programme 7	2010	2014	WP 6 coordinator
[9]	Barriers and opportunities for use of payments for ecosystem services	DEFRA (Dept. for environment, food & Rural Affairs), UK	2010	2011	Research/publication
[8]	Economics analysis of soil compaction mitigation measures	DEFRA	2011	2012	Research/publication
[7]	Potential of small-scale biogas digesters to improve livelihoods and long-term sustainability of ecosystem services in SSA (Phase II)	DFID- UK	2011	2012	WP3 co-leader
[6]	Studies to inform policy development with regard to soil degradation	DEFRA	2011	2012	Research/publication
[5]	Managing and Restoration Blanket Bog to Benefit Biodiversity and Carbon Balance	SNH (Scottish Natural Heritage)	2010	2011	"
[4]	Development of soil guidance - Scoping study	SNH (Scottish Natural Heritage)	2010	2011	"
[3]	DFID Biogas project in Africa (Phase I)	DFID	2010	2011	"
[2]	Restoration, protection and management of European Fresh water ecosystems in a world of global change	EU FP7 (EU Framework Programme 7)	2010	2014	WP 6 coordinator
[1]	Analysis of Trade-offs and Synergies between Ecosystem Services: Tools to Link Resilience Science to Policies for Poverty Alleviation	NERC -ESPA programme	2008	2009	Research/publication

References

- Available upon request