

## Dr Bedru Balana – Curriculum Vitae – March 2019

---

### I. Personal information

- Name(s): Bedru Babulo
- Surname: Balana
- Current Nationality: (British) United Kingdom
- Nationality by Birth: Ethiopian
- Current employer: International Food Policy Research Institute (IFPRI)
- Current work address: 6 Ogbagi St., Plot 1413, Gark-II, Abuja, Nigeria
- E-mail: [b.balana@cgiar.org](mailto:b.balana@cgiar.org)

### II. Education

---

- 2007 (October): Ph.D. in Agricultural Economics (Applied Bioscience Engineering), Katholieke Universiteit Leuven, Belgium.
- 2000 (August): Master's of Arts (MA): Economics, Panjab University-Chandigarh, India.
- 1994 (July): Bachelor's of Arts (BA): Economics, Addis Ababa University, Ethiopia.

### III. Expertise and Skills

---

- **Key areas of expertise/experience:** Agricultural Economics; Rural Development; agri-technology adoption; business models and market access; Poverty and livelihoods; Project management, monitoring and evaluation; multi-scale stakeholders engagement including donors; effective communication; and working with multi-disciplinary teams and multicultural environment.
- **Analytical skills:** Survey design and survey data analysis; farm household models econometric modelling/statistical analysis/methods; agricultural policy analysis; cost-benefit analysis; cost-effectiveness analysis; behavioural economics/Discrete choice methods; multi-criteria methods; environmental valuation; Optimization/ mathematical programming methods.
- **Computer skills:** Microsoft office (Word processing, Excel, Power point, Access); statistical and econometric software packages (STATA, EVIEWS, SAS); General Algebraic Modelling System – GAMS (basic); Risk Solver Platform for optimization and simulation (in excel); CDP plus (Multi-criteria decision analysis software)
- **Quality control :** I am certified in '*ISO 9001 Quality Management System (QMS)*' for internal performance auditing of organizations.

### IV. Work experience and employment history

---

1. Feb 2019- present: Research Fellow (Economist), International Food Policy Research Institute, Nigeria Strategy Support Programme (NSSP), Abuja.
2. **Sept. 2014- 2018:** Researcher (Agricultural Economist) at International Water Management Institute (IWMI), West Africa Office, Ghana, Accra. My duties and responsibilities in IWMI include:
  - (a) Provide leadership and strategic direction for other economic research activities in West Africa, including economic analysis agricultural water use and management for food security, livelihoods and the environment;

- (b) Conduct research to build an understanding of the economic implications of alternative agricultural water management and trade-offs;
  - (c) Identify new research trends and niches and develop new research proposals for projects addressing micro and macroeconomics agricultural investments including investment in agricultural water development and management in West Africa and other regions of Africa;
  - (d) Contribute to interdisciplinary research projects involving hydrologists, agricultural water management researchers and environmental scientists in the West Africa office and across IWMI offices in Africa;
  - (e) Contribute to relevant research portfolios of the CGIAR Research Program on Water, Land and Ecosystems (WLE), with particular reference to the economics of agricultural water use and management;
  - (f) Initiate, develop and maintain collaboration with research partners, governments and development investors in West Africa and elsewhere in Africa, as well in other parts of the world; and
  - (g) Prepare research reports, journal articles and other scientific manuscripts (e.g., policy guidelines and policy briefs) for uptake of research results.
3. **2008 – Aug. 2014:** Full time researcher as Agricultural and Environmental Economist at the Macaulay Land Use Research Institute and the James Hutton Institute, Scotland, UK. During my 7 years of Post-doc tenure at the James Hutton Institute (UK), I worked researched on issues ranging from agricultural policy to environmental management and livelihoods and rural poverty in several projects in SSA (e.g., in Ethiopia, Kenya, Uganda).
  4. **2003 – 2007:** PhD fellow at Katholieke Universiteit Leuven, Dept. of Agricultural and Resource Economics, Belgium and part-time teaching staff at Mekelle University, Ethiopia.
  5. **1995 – 2002:** Lecturer in Economics (taught various courses – Agric. Economics; Natural resource and environmental economics, microeconomics, econometrics, statistics, and population economics). Involved in various research and community services throughout my tenure at Mekelle University, Ethiopia.

### (h) Examples of funded projects (Please see the details from a separate file uploaded)

---

I have long experience in working and leading research projects funded by various funding agencies. Examples include:

- 1) 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.
  - 2) Project Leader: *'Flood Recession Agriculture for food security in Northern Ghana'* – USAID funded R4D project.
  - 3) Project 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).
  - 4) Researcher: Ecosystem services and poverty alleviation (**ESPA**) *'Building Ecosystem Research Capacity in SSA'* implemented in (Kenya and Uganda). Jointly funded by ESRC, NERC, and DFID.
  - 5) Researcher: *'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);
-

- 6) Researcher: 'Adaptive strategies to mitigate the impacts of climate change on European freshwater ecosystems' (**REFRESH**) funded by EU FP7.
  - 7) Co-PI: 'Small scale biogas and poverty alleviation' funded by DFID.
  - 8) Researcher: 'Afri-Flame project: Adaptation of small-scale biogas digesters for use in rural households in Sub-Saharan Africa' (in Ethiopia, Uganda and Cameroon) funded by African Union Commission (AUC).
- 

### (i) Awards and external academic engagements

---

- I was 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.
- I was a member of the JHI's Research Quality Management System (QMS - ISO 9001).
- I was a member of the Strategy Team member for the JHI's 'Sustainable Production System (SPS)' Research Theme.
- I am a member of the Editorial Board for the Ethiopian e-Journal for Research and Innovation Foresight (E-JRIF) and the Canadian based Journal of Sustainable Development (JSD)- (see: <http://ccsenet.org/journal/index.php/jsd/about/editorialTeam>).
- I have been 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.
- Currently at IWMI, I am serving as an Alternate Member of the IWMI's Institute Review Board (IRB) which oversee research ethics and quality in IWMI.

### (j) Publications

---

#### 1. Peer-reviewed scientific journal articles

- Balana, B., Sanfo, S., et al., 2019. Assessment of flood recession agriculture for food security in northern Ghana: an optimization modelling approach. *Jour. Agri. Sys. (in press)*
- Balana, B., Bizimana, J.C., et al. 2019. Economic and food security effects of small-scale irrigation technologies in northern Ghana. *Jour. Water Resources and Economics*.  
<https://doi.org/10.1016/j.wre.2019.03.001>
- 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. (*\*Corresponding author*)
- 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.  
(*\*Corresponding author*)
- 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. (*\*Corresponding author*)
- Kabyanga M., **Balana B\***, et al., 2018. Economic potential of flexible balloon biogas digester: A case study from Uganda. *Renewable Energy*. 120: 392-400. (*\*Corresponding author*)
- 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., 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
- Houessionon & others, **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.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., 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. Plann. Man.*
- 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. *Ecol. Econ.* 116, 34-46.
- 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.**
- 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. Environmental 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. *Journ. 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. *Journal of Environmental 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. *Journal of Environmental 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, north western 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. *Journal of Environmental 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 and Economics*. 11(2): 123-131.
- 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.
- 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. *Phil Trans R Soc. A* 371: 20120413. <http://dx.doi.org/10.1098/rsta.2012.0413>
- 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.

## 2. Book chapters and conference proceedings

Balana, Bedru Babulo., 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, Bedru Babulo., 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, 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., Lago, M., Vinten, A.J.A., Slee, B., Baggaley, N., Castellazzi, M., Guillem, E. Futter, M., Stutter M., 2010. Cost-effective targeting of buffer strips for phosphorus mitigation in Lunan catchment: the case of Rescobie Loch. In: Crighton, K. and Audsley, R. (ed.). *Climate, Water and Soil: Science, Policy and Practice*. SAC and SEPA Biennial Conference, Edinburgh.

Bedru Babulo, Muys, B., Tollens, E., Deckers, S., Nyssen, J., Descheemaeker, K., Fredu Nega, Mathijs, E., 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 Lemma, Bedru Babulo, 2004. Impacts and sustainability of dry land husbandry project – Ethiopia. In: Mitiku Haile, Diress Tsegay and Tegegne Teka (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.

Balana B B., Vinten, A., Lago, M., Castellazzi, M., Slee, B., 2010. How cost-effective are diffuse pollution measures in real agricultural landscapes?, *Policy/Science Brief, Knowledge Scotland*. online publication.

## 3. Other publications: technical reports; policy briefs, ...

Balana, Bedru; Appoh, Richard; Addy, Paulina S.; Ashitei, Gideon; Odonkor, Elsie; Nimoh, Fred; 2016. How women's access to small reservoirs can improve household livelihoods in northern Ghana. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). 4p. WLE BRIEFING SERIES NO. 09. [WLE Brief - Women and Small Reservoirs - WEB2.pdf](#)

Balana B., Martin-Ortega J., Perni A., Slee B., Helliwell R., Jackson-Blake L., Cooksley S., Dunn S., 2013. Deliverable 6.12: Cost-effectiveness analysis report for the Dee sub-catchments (Scotland) including analysis of disproportionality. REFRESH Project Technical Report.

Martin-Ortega J., Balana B., Perni A., Slee B., 2013. Deliverable 6.12: Cost-effectiveness analysis report for the Thame sub-catchment including analysis of disproportionality. REFRESH Project Technical Report.

---

- Jackson-Blake L., Dunn S., Hershkovitz Y., Sample J., Helliwell R., Balana B., 2013. Deliverable 5.3: Biophysical catchment-scale modelling in the River Dee catchment, Scotland. REFRESH Project Technical Report.
- Hallett, P., Balana, B., Towers, W., Moxey, A., Chamen, T., 2012. Studies to inform policy development with regard to soil degradation: Cost curve for mitigation of soil compaction- Final report for Defra SP1305 project.
- Balana, B.B.; Ibiyemi, A.; Slee, B. 2011., Sub catchments selection and characterization in River Dee catchment, Scotland. *Technical Report for FP7 REFRESH Project WP6 (on Sub-catchment Identification and Characterization)*.
- Balana, B.B. 2011. A guidance note on approaches to the implement CEA at the demonstration sub-catchment. *Technical report for FP7 REFRESH Project WP6*.
- Artz, R.R.E.; Donnelly, D.; Andersen, R.; Mitchell, R.; Chapman, S.J.; Smith, J.; Smith, P.; Cummins, R.; Balana, B.; Cuthbert, A. 2011. Managing and restoring blanket bog to benefit biodiversity and carbon balance - a scoping study. *Scottish Natural Heritage Commissioned Report*.
- Beesley, L.; Cuthbert, A.; Balana, B.; Towers, W.; Chapman, S.J.; Bruneau, P. 2011. Development of soil guidance - Scoping study. *Scottish Natural Heritage Commissioned Report*.
- Balana, B.B.; Holen, S.N.; Kontolaimou, A.; Mashkina, O.; Svejdarova, H., 2010. Cost-effectiveness analysis of environmental compliance: Review of methods and applications. *Technical Report for FP7 REFRESH Project WP6*.
- Balana, B.B.; Ibiyem, A.; Slee, B., 2010. Profiling the demonstration catchments: River Dee catchment, Scotland. *Technical Report for FP7 REFRESH Project WP6*.
- Balana, B.B.; Ibiyem, A.; Slee, B., 2010 - Profiling the Demonstration Catchments: River Thames Catchment, England. *Technical Report for FP7 REFRESH Project WP6*.
- Slee, B.; Balana, B.B.; Glenk, K.; Lago, M.; Nijnik, M.; Pajot, G.; Urama, K. 2009. Public good valuation at Macaulay: an introduction. Paper presented at a workshop with Pack Enquiry Team on options for Single Farm Payment, Macaulay Institute, Aberdeen.
- Zaid, N., Fredu, N., Kidanemariam, G, Abebe, E., Mihret, B, Nyssen, J., Bedru Babulo, Deckers, J, Tollens, E., 2006. *Manual for participatory rural appraisal (PRA) in villages of Tigray: Tigray Livelihood Papers No.1. VLIR-Mekelle University IUC Programme. Mekelle, Ethiopia.*
- Zaid, N., Fredu, N., Kidanemariam, G, Abebe, E., Mihret, B, Nyssen, J., Bedru Babulo, Deckers, J, 2006. *Participatory rural appraisal report of selected villages in Tigray. Tigray Livelihood Papers No.2. VLIR-Mekelle University IUC Programme. Mekelle, Ethiopia.*
- 

## (k) References

1. Dr George Mavrotas, Head of IFPRI-NSSP, Senior Research Fellow. [g.mavrotas@cgiar.org](mailto:g.mavrotas@cgiar.org). Nigeria, Abuja
2. Dr Olufunke Cofie, Head of Office, International Water Management Institute (IWMI), West Africa- Ghana, Accra. [O.Cofie@cgiar.org](mailto:O.Cofie@cgiar.org)