

Oludunsin Tunrayo Arodudu

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Office Address: Department of Geography, Rhetoric Office, Room 16, Maynooth University, Ireland

Educational background

2001-2005: BSc. Applied Geophysics (uncompleted due to change of program to the BSc. Geography Program) - Obafemi Awolowo University, Ile-Ife, Nigeria.

2005-2008: BSc. Geography- Obafemi Awolowo University, Ile-Ife, Nigeria.

2010-2011: EU Erasmus Mundus MSc. GEM (Geoinformation Science and Earth Observation for Modelling and Management-GEM) - Lund University, Sweden.

2011-2012: EU Erasmus Mundus MSc. GEM (Geoinformation Science and Earth Observation for Modelling and Management-GEM) - ITC, University of Twente, Netherlands.

2013-2017: PhD Geoecology (Dr.rer.nat.-Doctor of Natural Resources)-EU Marie Curie Sklodowska CASTLE (Careers in Sustainability Excellence) Doctoral ITN (Innovative Training Network) Fellowship, University of Potsdam, Germany.

Work experience

April 2017-Date- Postdoctoral Researcher at Maynooth University, Ireland

April 2013- March 2017- Research assistant at Leibniz Centre for Agricultural Landscape (ZALF)

April-July 2012- Volunteer researcher at ITC, University of Twente, Netherlands

March-August 2010- Researcher at Lime Associates, Nigeria

Publications

Thesis

Arodudu O.T. (2008) - Land Use Characterization of Ile-Ife. A dissertation submitted in partial fulfillment of the degree of Bachelor of Science (Geography), Faculty of Social Sciences, Obafemi Awolowo University, Ile-Ife. Pp 109. Unpublished

Arodudu O.T. (2012) - Analysis of bioenergy potential in the rural landscape of the Overijssel province using energy efficiency indices. A thesis submitted in partial fulfillment of the requirements for graduation for the EU Erasmus Mundus Master of Science in Geo-information Science and Earth Observation for environmental modelling and management (GEM) programme, Faculty ITC, University of Twente. Pp 59.
http://www.itc.nl/library/papers_2012/msc/gem/arodudu.pdf

Arodudu O.T., Helming, K., Wiggering, H., Voinov, A., Erb, K-H. (2017)- Sustainability assessment of agro-bioenergy systems using energy efficiency indicators. A thesis submitted in partial fulfilment of the requirements for graduation for the Doctorate of Natural Sciences (Dr.rer.nat.) degree in Geocology (Landscape management), Faculty of Sciences, Institute of Earth and Environmental Sciences, University of Potsdam, Germany.

Poster and speed talk presentation

Arodudu O.T (2012)- Land Characterization for City's environmental intelligence. A poster presentation presented on the 23rd of July, 2012 at a Workshop on Visualization Technologies to Support Research on Human–Environment Interactions at the National Socio-Environmental Synthesis Center Annapolis, Maryland, U.S.A

Arodudu O.T (2015) - Sustainability assessment framework for agro-bioenergy land use. A poster and speed talk presentation presented on the 21st of October, 2015 at the CASTLE Conference, Sant Pau Art Nouveau Site, Barcelona, Spain

Conference proceedings

Arodudu O.T, Voinov A., van Duren I. (2012) Assessing bioenergy potentials in rural landscapes. A conference paper presented on the 31st of May 2012 at the 32nd Annual conference of the International Association for Impact Assessment, Porto, Portugal.
<http://www.iaia.org/conferences/iaia12/uploadpapers/Final%20papers%20review%20process/Arodudu,%20Oludunsin.%20%20Assessing%20bioenergy%20potentials%20in%20rural%20landscapes.pdf>

Arodudu O.T (2013) - RS and GIS for City's environmental intelligence and precision planning. A conference paper delivered on the 18th of April, 2012 at the City 2020+ Conference, Human Technology Centre, RWTH Aachen University, Germany. Conference proceedings in: "Aachener Geographische Arbeiten" (AGA) Series, Heft. 50, S. 13-34

Arodudu, O. T., Helming, K., Erb, K.H, Voinov, A.A., Wiggering, H. (2015). Applying HANPP for sustainability assessment of agro-bioenergy ecosystem services. 9th IALE (International Association of Landscape Ecology) World Congress, July 5-10, 2015, Portland, Oregon, USA

Arodudu, O. T., Helming, K (2015). Reconstructing greenhouse gas balance indicators for agricultural bioenergy production. The 5th World Sustainability Forum (WSF), 7–9 September 2015, Basel, Switzerland

Arodudu, O. T., Helming, K., Voinov, A.A., Wiggering, H. (2015). Reconstructing energy efficiency of bioenergy from arable land. Joint Biennial Conference of the Canadian Society of Ecological Economics and the United States Society of Ecological Economics (CANSEE/USSEE), October 1-4, 2015, Vancouver, Canada

Arodudu, O. T., Helming, K., Voinov, A.A., Wiggering, H. (2015). Sustainability assessment of agro-bioenergy land use: Industrial agriculture vs. Ecological Agriculture. CASTLE Conference. October 21-23, 2015, Barcelona, Spain.

Arodudu, O. T., Helming, K., Wiggering, H., Erb, K.H, Voinov, A.A. (2016). Spatio-temporal assessment of agro-bioenergy systems-a Human appropriation of net primary production (HANPP) approach. US IALE (International Association of Landscape Ecology) Annual Meeting, April 3-8, 2016, Asheville, North Carolina, USA

Arodudu, O.T. (2017). Assessing the sustainability of using agricultural biomass flows for bioenergy. World Sustainable Energy Days (WSED) Conference, March 1-3, 2017, Wels, Austria

Arodudu, O.T., Foley, R., Brennan, M., Mills, G., Bradley, M., and Ningal, T. (2017). Green-Blue Infrastructures: A Health-Led Approach, Conference of Irish Geographers 2017, May 4-6, 2017, University College Cork, Cork, Ireland.

Arodudu, O.T., Foley, R., Brennan, M., Mills, G., Bradley, M. and Ningal, T. (2017). Green-Blue Infrastructures: A Health-Led Approach, 17th Medical Geography International Symposium, July 2-7, 2017, Angers, France.

ISI Journals

Arodudu O.T, Voinov A., van Duren I. (2013). Assessing bioenergy potentials in rural areas-A NEG-EROEI approach. *Biomass and Bioenergy*, 58, 350-364.
<http://dx.doi.org/10.1016/j.biombioe.2013.07.020>

Arodudu O.T, Ibrahim E.S, Voinov A., van Duren I. (2014). Exploring bioenergy potentials of built-up areas based on NEG-EROEI indicators. *Ecological indicators*, 47, 67-79,
[doi:10.1016/j.ecolind.2014.04.042](https://doi.org/10.1016/j.ecolind.2014.04.042)

van Duren I., Voinov A., **Arodudu O.T**, Firissa M.T. (2014). Where to produce rapeseed biodiesel and why? Mapping European RME energy efficiency in different agro-ecological conditions. *Renewable energy*, 74, 49-59, [doi:10.1016/j.renene.2014.07.016](https://doi.org/10.1016/j.renene.2014.07.016)

Voinov, A., **Arodudu, O. T.**, van Duren, I., Morales, J., Qin, L. (2015). Estimating the potential of roadside vegetation for bioenergy production. *Journal of Cleaner Production*, 102, 213-225,
[doi:10.1016/j.jclepro.2015.04.034](https://doi.org/10.1016/j.jclepro.2015.04.034)

Arodudu, O.T, Helming, K., Wiggering, H., Voinov, A. (2016). Bioenergy from Low-Intensity Agricultural Systems: An Energy Efficiency Analysis, 10(1), 29; [doi:10.3390/en10010029](https://doi.org/10.3390/en10010029)

Arodudu, O.T, Helming, K., Wiggering, H., Voinov, A. (2017). Towards a more holistic sustainability assessment framework for agro-bioenergy systems- a review. *Environmental Impact review*, 62, 61–75, [doi:10.1016/j.eiar.2016.07.008](https://doi.org/10.1016/j.eiar.2016.07.008)

Arodudu, O.T, Helming, K., Voinov, A., Wiggering, H. (2017). Integrating agronomic factors into energy efficiency assessment of agro-bioenergy production – A case study of ethanol and biogas production from maize feedstock, *Applied Energy*, 198, 426–439,
[doi:j.apenergy.2017.02.017](https://doi.org/10.1016/j.apenergy.2017.02.017)

Book chapters

Ogbodo, J. A., Egbuche, C. T., **Arodudu, O. T.** (2014). Detecting logging roads and clearcuts with TerraSAR and RADARSAT data. In: Lac, S., McHenry, M. P. (eds), Climate change and forest ecosystems. Nova Science Publishers, Hauppauge, NY, pp. 71-88.

Report

Contribution to information on the FoPIA (Framework for participatory impact assessment) tool: In: Scenario Development to Strengthen National Forest Policies and Programmes- A review of future oriented tools and approaches that support policy-making; **Forest Policy and Institutions Working Paper of the Food and Agricultural Organization (FAO) of the United Nations, Rome, Italy, 2014.**

Arodudu O.T (2015). Spatio-temporal analysis of LCA indicators for sustainability assessment of agro-bioenergy systems- An HANPP based approach. **IIASA Young Scientist Summer School 2015 Report, International Institute of Applied System Analysis (IIASA), Laxenburg, Austria.**

Research Trainings

6 May - 17 May 2013

Venue/Hosts: Mekrijarvi Research Station, Ilomantsi/ European Forest Institute (EFI), Joensuu, Finland.

Topics covered: SIA Introduction and theory, SIA tools-FoPIA and ToSIA-value chains and topologies, MFA, Sustainability footprints of companies and products, Sustainability communication

25 June - 27 June 2013

Venue/Hosts: ZALF Müncheberg, Germany

Topics covered: PhD training: Coping with the challenges of a PhD

22 Jul - 7 Aug 2013

Venue/Hosts: Thünen-Institut for Rural Areas, Forestry and Fisheries, Hamburg, Germany

Topics covered: LCA in forestry, SRC, woodworking industry and buildings

17 October 2013

Venue/Hosts: ZALF Müncheberg, Germany

Topics covered: NetMap: Stakeholder network mapping for natural resource governance

4 Nov - 9 Nov 2013

Venue/Hosts: Congress and Educational Centre Floret, Průhonice/ IFER - Institute of Forest Ecosystem Research, Prague, Czech Republic.

Topics covered: LULUCF, Carbon accounting, and GHG Mitigation in the Forest Sector.

5 May – 9 May 2014

Venue/Hosts: Ekenäs mansion/Skogforsk, Swedish University of Agriculture (SLU), Uppsala

Topics covered: Forest operations and biodiversity, International and EU policies and agreements, Indirect sustainability impacts (land use change, global market reactions)

11 June - 13 June 2014

Venue/Hosts: ZALF Müncheberg, Germany

Topics covered: How to publish in peer-reviewed journal

30 June - 4 July 2014

Venue/Hosts: FCBA, Paris, France

Topics covered: GHG Emission accounting of forest products, Transport Sustainability, Bio-energy specific enterprise resource planning (ERP)

29 September - 3 October 2014

Venue/Hosts: BOKU, Vienna, Austria

Topics covered: MCA tools for sustainability assessment, information management skills

9 March - 13 March 2015

Venue/Hosts: ZALF, Müncheberg, Germany

Topics covered: Project Management Skills

26 October - 29 October 2015

Venue/Hosts: EFIMED (Mediterranean Regional Office of European Forest Institute)-Torres des Mas Dalt, Barcelona, Spain

Topics covered: Project Management Skills

15 February -19 February 2016

Venue/Hosts: VTT, Helsinki, Finland

Topics covered: Future and prospects of sustainability assessment; Career perspectives for researchers; Legal aspects and Intellectual Property Rights (IPR); Start-ups – from idea to profitability; and Writing the thesis summary

Teaching Experience

April 2009-February 2010- NYSC Nursery and Primary School, Bunza, Kebbi State, Nigeria, Primary Five Class, Subjects: Agricultural Science, Integrated Science, Social Studies, Computer Science

May 2013- Framework for Participatory Impact Assessment (FoPIA) training, Mekrijarvi Research Station, Ilomantsi, organized by the European Forest Institute (EFI), Joensuu, Finland, in the frame of the EU Marie Curie Sklodowska CASTLE (Careers in Sustainability Excellence) Innovative Training Network (ITN) Doctoral Programme.

April- July 2014- Introduction to GIS II-What is GIS (Geographical Information System), Digitization, Working with vector data (databases and operations), Model building, BSc. Geocology Class-University of Potsdam, Germany

May 2014- Indirect Sustainability impacts of agricultural based bioenergy- US Maize ethanol Case Study, Ekenäs mansion, organized by the Skogforsk, Swedish University of Agriculture (SLU), Uppsala, Sweden, in the frame of the EU Marie Curie Sklodowska CASTLE (Careers in Sustainability Excellence) Innovative Training Network (ITN) Doctoral Programme.

June 2014- Ecosystem services-Life Cycle Concepts for Ecosystem Services Assessment- GHG, HANPP and EROEI accounting frameworks, MSc. Geoecology Class- University of Potsdam, Germany.

Publication reviews

Resources, Conservation and Recycling (2), Applied Energy (3), Ecological indicators (2), Environmental Modelling & Software (1), Renewable and Sustainable Energy Reviews (1), Sustainable Cities and Society (1), Sustainability (1)

Seminars and Colloquium

December 2014- Sustainability assessment of agro-bioenergy production using EROEI based indicators, a talk delivered at the PhD Seminar of the University of Potsdam, Germany

August 2015- Spatial-temporal assessment of HANPP based LCA indicators for sustainability assessment of agro-bioenergy related ecosystem services, a talk delivered at the Final YSSP (Young Scientists Summer Program) Colloquium, at the International Institute of Applied System Analysis (IIASA), Laxenburg, Austria

November 2015- Sustainability assessment of agro-bioenergy production using net greenhouse gas balance indicators, a talk delivered at the PhD Seminar of the University of Potsdam, Germany

Scientific research visits

February 2014: Institute for Social Ecology, Vienna, Austria-Month-long exposure to the HANPP-MFA accounting

June-August 2015: Young Scientist Summer Program (YSSP), International Institute of Applied System Analysis (IIASA), Laxenburg, Austria- Three months experience with the EPIC (Environmental Policy Integrated Climate) Model

Fellowships, Awards and Travel Grants

November 2008: Best Final Year Dissertation, Department of Geography, Obafemi Awolowo, University, Ile-Ife, Nigeria

July 2012: SESYNC Travel Grant, National Socio-Environmental Synthesis Center Annapolis, Maryland, USA

April 2013- October 2016: EU Marie Curie Sklodowska CASTLE (Careers in Sustainability Excellence) Innovative Training Network (ITN) Doctoral Fellowship,

May 2013-IAIA Top 30 Under 30 Wall at the 33rd Annual conference of the International Association for Impact Assessment, Calgary, Canada

June-August 2015- Young Scientist Summer Program (YSSP) Fellowship at the International Institute of Applied System Analysis (IIASA), Laxenburg, Austria

July 2015- US IALE Foreign Scholar Travel Award at the 9th IALE (International Association of Landscape Ecology) World Congress, Portland, Oregon, USA

July 2015- NASA/MSU Professional Enhancement Award by the National Aeronautics and Space Administration and the Michigan State University, at the 9th IALE (International Association of Landscape Ecology) World Congress, Portland, Oregon, USA

October 2015- USSEE Bursary Support at the Joint biennial Conference of the Canadian Society of Ecological Economics and the United States Society of Ecological Economics (CANSEE/USSEE), Vancouver, Canada

April 2016-US IALE Travel Award at the United States-International Association of Landscape Ecology (US-IALE) 2016 Annual Meeting, Asheville, North Carolina, USA

March 2017-World Sustainable Energy Days (WSED) Conference Grant, WSED Conference 2017, Wels, Austria

September 2017-Yale Sustainability Leadership Form Scholarship, Yale university, USA

Research interests

Landscape/Land use studies: Land use planning and risk assessments, Future cities, Urban ecology, Green and Blue Infrastructure and human health interface, Geographic Information System (GIS), Remote sensing (RS).

Bioresource and ecosystem mapping: Biomass/Bioenergy potential, Food systems (agricultural production systems), Ecosystem valuation and mapping, energy efficiency analysis, energy system analysis, sustainability evaluation of bioenergy resources, optimization of raw materials for biogas production.

Impact Assessment and sustainable development: Sustainability Science, Sustainable development, Impact assessment, Sustainability Impact Assessment (SIA), Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), Tool for Sustainability Impact Assessment (ToSIA), Footprinting (Ecological, Carbon, Water, human and Land use footprinting), Human Appropriation of Net Primary Production (HANPP), Life Cycle Assessment-LCA, Material Flow Analysis (MFA), Energy return on energy Invested (EROEI or EROI) analysis, Net Energy analysis, Greenhouse gas balance analysis, Framework for Participatory Impact Assessment (FoPIA), Multi-criteria Assessment (MCA) Tools, Health Impact Assessment

Professional affiliations

International Society for Photogrammetry and Remote Sensing and (ISPRS)

International Association of Impact Assessment (IAIA)
Ecosystem Services Partnership (ESP)
Society for Toxicology and Environmental Chemistry (SETAC)
International Association of Landscape Ecology (IALE)
International Society of Ecological Economics (ISEE)
International Society of Industrial Ecology (ISIE)

References

Associate Prof. Dr. Katharina Helming

Head, Sustainability Assessment Research Group, Institute of Land Use Systems
Leibniz Centre for Agricultural Landscape Research (ZALF)
Eberswalder Straße 84, 15374 Müncheberg, Germany
Email: helming@zalf.de; Phone number: +493343282155

Associate Prof. Dr. Hubert Wiggering

Associate Professor, University of Potsdam
Institute of Earth and Environmental Resources, Faculty of Natural and Mathematical Sciences,
University of Potsdam, Karl-Liebknecht-Str. 24-25, 14476 Potsdam OT Golm, Germany
Email: hubert.wiggering@uni-potsdam.de, Phone number: +491702217701

Prof. Alexey Voinov

Professor, Department of Geo-information Processing (GIP)
ITC, Faculty of Geoinformation Sciences and Earth Observation
University of Twente, Enschede, the Netherlands
Email: a.a.voinov@utwente.nl; Phone number: +61295149272, +61426065150

Prof. Francis Adeyinka Adesina

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Obafemi Awolowo University, Ile-Ife, Nigeria
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