Joint Workshops on tools for planning, scenarios and policy analysis of the water-energy-land nexus for equitable development in rural Africa

- RE4AFAGRI is an H2020-funded project within the LEAP-RE EU-AU initiative framework. As a consortium of 8 African and European organizations, we advance state-of-the-art of energy-water nexus modelling in rural areas of developing countries to bridge the current gap between large-scale and local-scale frameworks and agricultural and electrification modelling.
- World Resources Institute (WRI) is a global research organization that has been working in Africa for more than 30 years, supporting local partners and Africa governments to advance forest protection, landscape restoration and sustainable cities.

> **Two workshops to support African researchers, analysts and policy makers on topics relating to the water-energy-land nexus and rural development - focusing on models, data and content that is *open access* and *open source*, and how this can be used to support scenario analysis and policy design**

Hosted at the World Resources Institute offices in **Addis Ababa, 16-20th October 2023,** the workshops will convene approximately 30 experts from across sub-Saharan Africa.

	Workshop #1: 2 days	*Workshop #2: 3 days*
	Introduction to tools, assessment, and policy analysis of the water-energy-land nexus in SSA	*Technical course on WEL-nexus modelling tools*
Content	- Introductions to RE4AGRI & WRI projects - Lectures and hands-on activities on WEL nexus modelling approaches, GIS and web-based tools and data platforms, including: WRI Aqueduct, AgriAdapt, RE4AGRI Modelling Platform	Advanced tuition on 2 of the 5 models: GEP-OnSSET, M-LED, WaterCROP, NEST, WRI Energy Access Explorer
Target participants	Broad: policymakers, researchers, analysts, academics, working in assessment and planning in the water resources, agriculture, irrigation, and energy sectors. Typically those in mid-career stage and/or with Masters degree equivalent.	Specialist: As for #1, but requiring computer programming skills in a high-level language, e.g., Python, R, MATLAB, Julia, etc.
Learning outcomes	Learn about key linkages in WEL-nexus and how they are covered in analytical frameworks Understanding of how insights from different tools can be used to support scenario analysis and policy design	Understand model structures, basic setup, and how to apply to different national and regional contexts
When	16-17th October, 2023	18-20th October, 2023
Nexus networking event with local experts: 16th October 2023, evening (TBC)		

The application and registration is now closed.

Participation information. **Queries:** re4afagri-cb@iiasa.ac.at

Workshop coordination and hosting – IIASA & WRI
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Workshop and training course delivery – IIASA, WRI, University of Cape Town, Politecnico di Torino
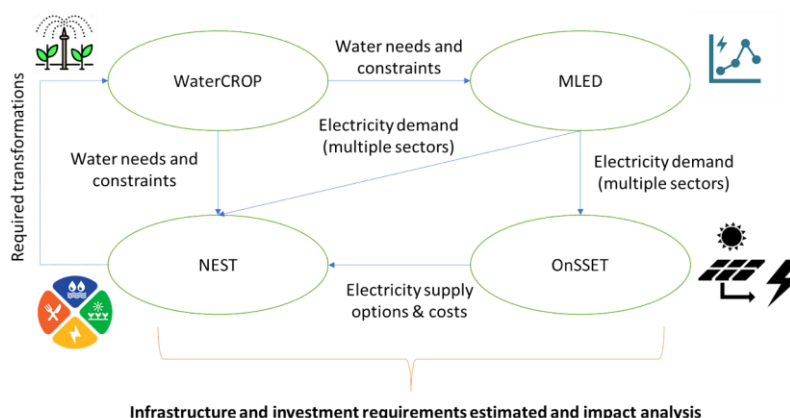
Realization and Funding support

WRI selected data platforms and models (for these Workshops)

- **Energy Access Explorer** is an online, open-source, interactive geospatial platform that enables clean energy entrepreneurs, energy planners, donors, and development-oriented institutions to identify high-priority areas for energy access interventions. Using spatial data to link energy supply with growing or unmet demand is essential to gaining a better picture of energy access and expanding energy services to those who need it the most. Furthermore, EAE functions as a dynamic Geographic Information System and data repository, reducing software engineering and data transaction costs for both data providers and users. More details
- **Aqueduct** is an online, interactive geospatial platform used to identify and evaluate water risks. More specifically, Aqueduct Water Risk Atlas is used to understand water-related risks and assess exposure to water risk across multiple locations and understand and identify current and future water risks to agriculture and food security. And Aqueduct Floods to identify coastal and riverine flood risks, and analyze the costs and benefits of investing in flood protection. More details
- **Agriadapt** (the Agricultural Adaptation Tool) is an online, interactive geospatial platform that helps agricultural businesses assess how climate change is impacting agriculture. More details

RE4AFAGRI models

- **WaterCROP** is an evapotranspiration model to estimate the crop water demand by source (rainfall plus irrigation) as a function of the soil moisture available in the soil and the potential for irrigation expansion (by source, surface water or groundwater bodies) based on current yield gap. More details

Infrastructure and investment requirements estimated and impact analysis

- **M-LED** is a Multi-sectoral Latent Electricity Demand geospatial data processing platform to estimate electricity demand in communities that live in energy poverty. The platform leverages big data and bottom-up energy modelling to represent the potential electricity demand with high spatio-temporal and sectoral granularity, with specific attention to the implications for water-energy-agriculture-development interlinkages. More details
- **GEP-OnSSET** (the Open Source Spatial Electrification Tool) is a GIS based optimization tool that has been developed to support electrification planning and decision making for the achievement of energy access goals in currently unserved locations. Training will be done on an OnSSET version of the Global Electrification Platform More details
- **NEST** (The NExus Solutions Tool) is a modeling platform that integrates multi-scale energy–water–land resource optimization with distributed hydrological modeling, providing insights into the vulnerability of water, energy and land resources to future socioeconomic and climatic change and how multi-sectoral policies, technological solutions and investments can improve the resilience and sustainability of transformation pathways while avoiding counterproductive interactions among sectors. More details