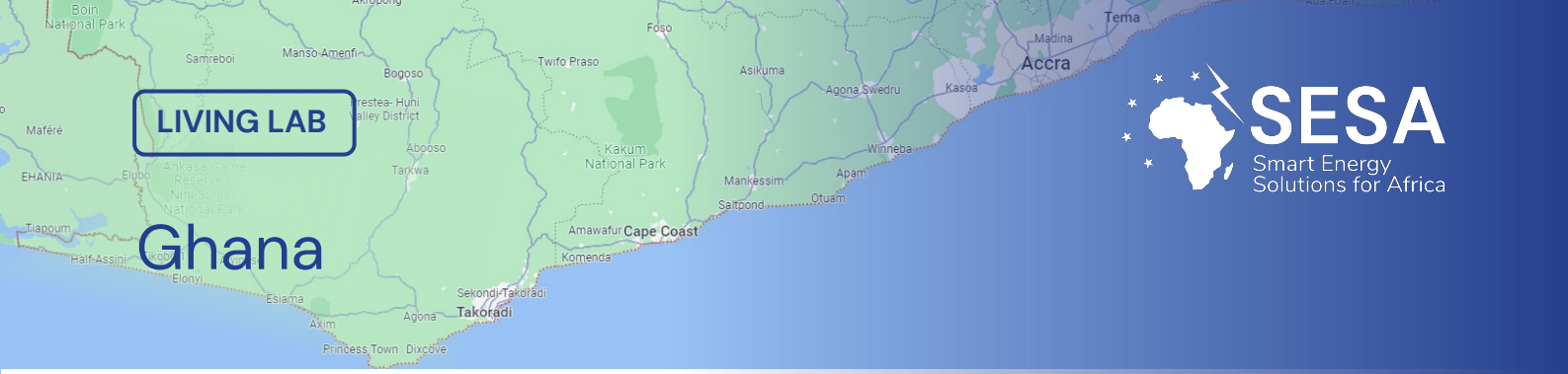
Living lab
Ghana



Clean cooking, second life batteries and off-grid solar system

The validation demo will explore clean cooking through waste-to-energy solutions and solar lighting. The demo actions comprise waste-to-energy bioethanol and stove for cooking in three schools, and solar micro grid systems with second life battery for lighting in rural communities and InfoSpots.

The solutions will encompass business models, capacity building on the construction and maintenance of the microgrid, and other activities to deliver a complete value chain. It is expected that the demonstration activities will help provide clean and reliable energy for cooking and ensure adequate availability of electricity for productive use in rural communities including lighting for night-time learning activities and illuminating streets to ensure security at night in rural communities. The free access to information through school portals will foster knowledge uptake on energy and support digital literacy. The demo action (Bioethanol stove) can be replicated in all Senior High Schools in Ghana and the micro grid solar system could be replicated in rural communities across Ghana and elsewhere in Africa.

Bioethanol for clean cooking and solar and second life batteries for solar off-grid system

Technologies tested

The Ghana living labs are developed in cooperation with two companies: Nastech and Econexus.

Econexus will develop three cook stove prototypes for testing at three high schools

Nastech will provide support and maintenance and further scale up of existing solar system at St. Johns Grammar School and Amasaman Day Senior High Technical School

Leading Partners

AKENTEN APPIAH-MENKA UNIVERSITY of Skills Training and Entrepreneurial Development

aamusted.edu.gh

ECONEXUS VENTURES

econexusventures.net

Nastech POWER SOLUTIONS

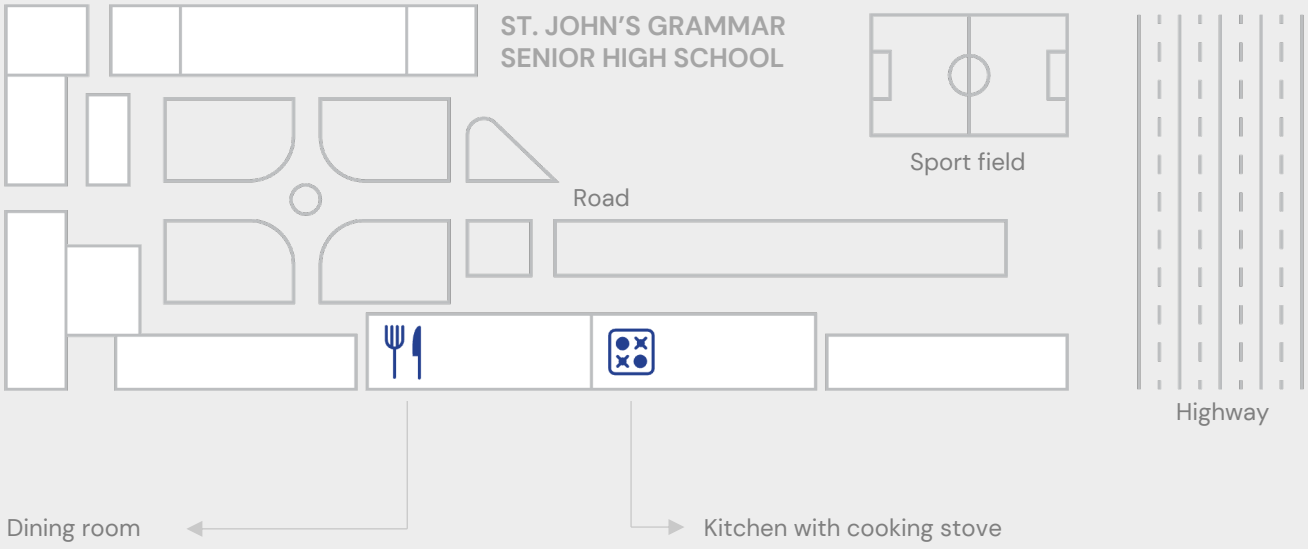
nastechpowersolutions.com

LIVING LAB

SESA
Smart Energy Solutions for Africa

GHANA
Schools (Accra & Atwima)

Organic waste streams (green, 2 locations) are shipped to the Econexus distillery. From here, the biogels and biofuels are shipped (grey) To 1 school in Accra (visual below) and 2 schools on the left side of Kumasi

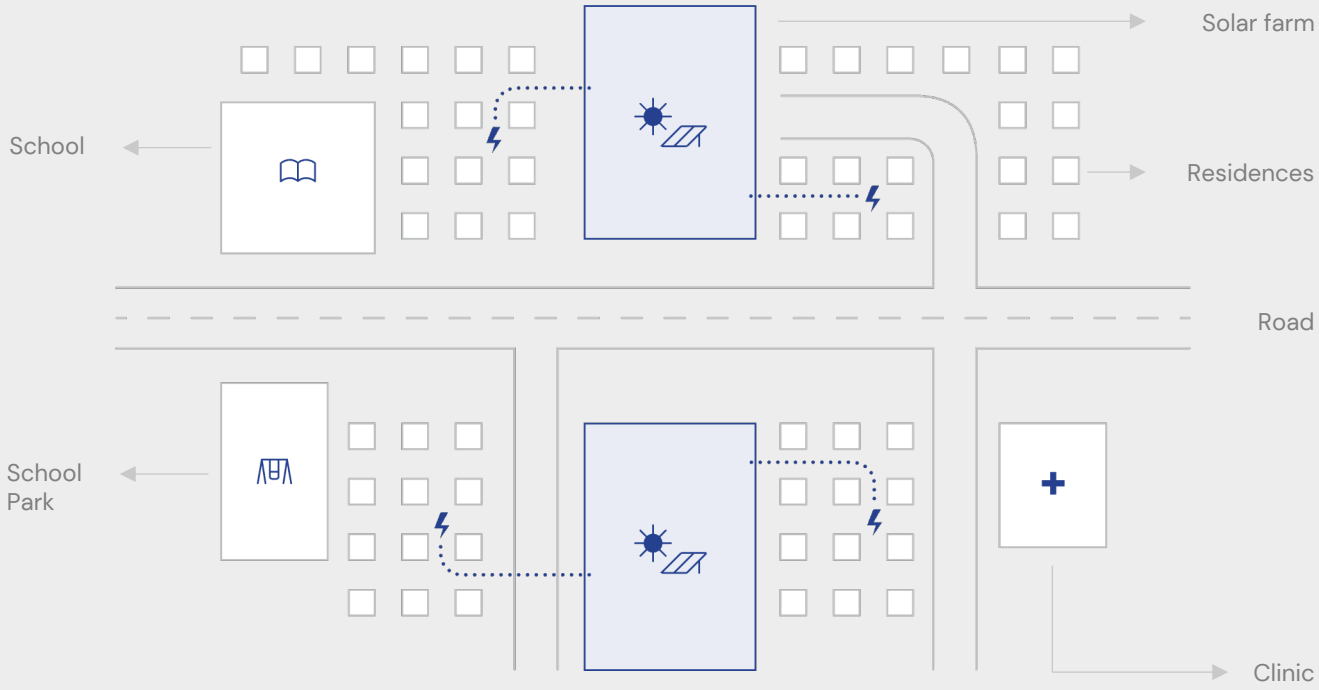


Local organic waste (pineapple and other feedstock) is collected at the Econexus Facility. At this facility, industrial cooking stoves are manufactured and a distillery to produce biogels and biofuels. These fuels are supplied to one school in Accra, and two schools in Kumasi.

LIVING LAB

SESA
Smart Energy
Solutions for Africa

GHANA
Rural communities



Asset(s)	Total number	Specifications
Microgrids		
Solar plant	—	20 kWp
Battery Storage	—	30 kWh
Inverter	—	20 kW

Three villages (Beposo, Bedabour and Kwame Daah), will get a microgrid, including solar system, and a battery storage. These microgrids will supply energy to a number of individual homes.