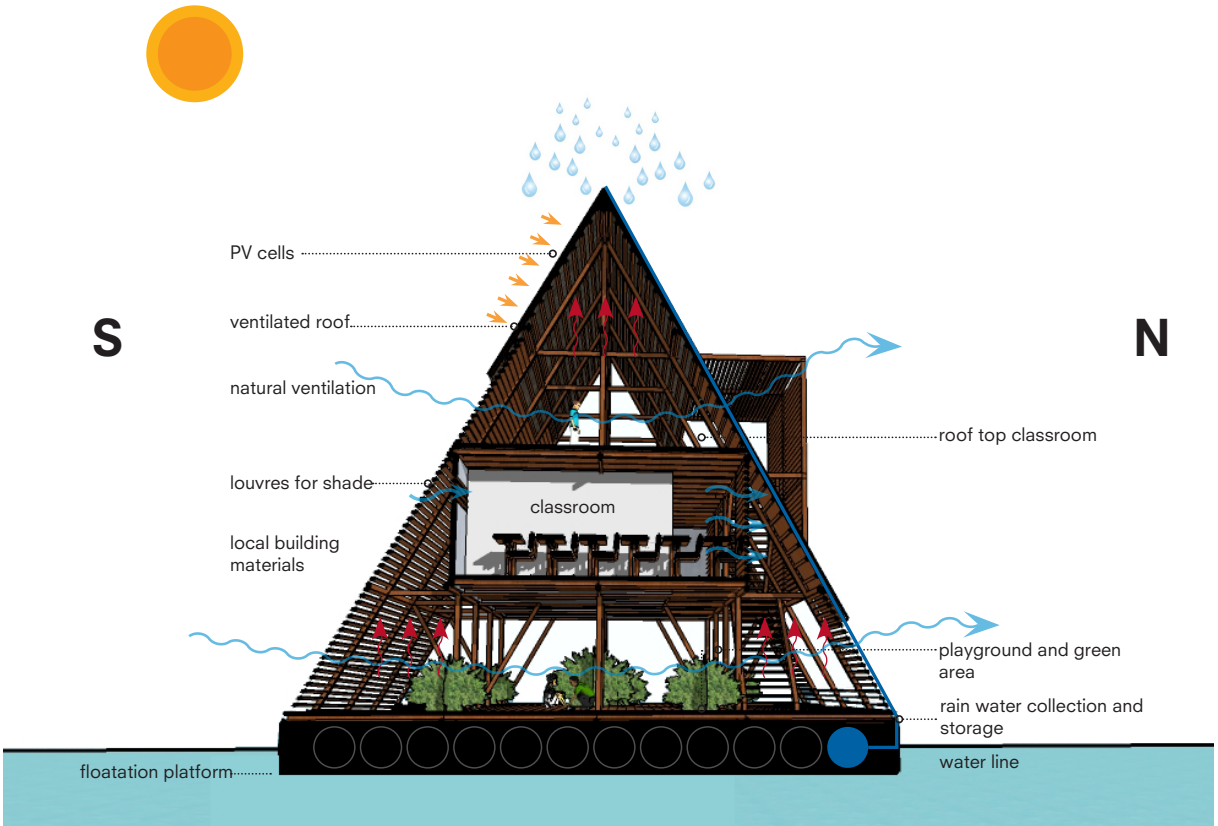
2E ALTERNATIVE/REUSABLE ENERGY SYSTEMS AND INSTALLATION

Photography:
NLÉ

ENERGY AND ENVIRONMENT



MAKOKO ENERGY SUPPLY

Apparently Makoko has a power connection to the national grid although the supply is erratic and very few of the houses are serviced with installed meters. It is speculated that about 5% of the community obtains electricity by paying those on land with electric meters to draw electricty from the main power grid, while 19% use generators, and the rest use candles and lanterns. At the same time, illegal connections are rampant in Makoko community.

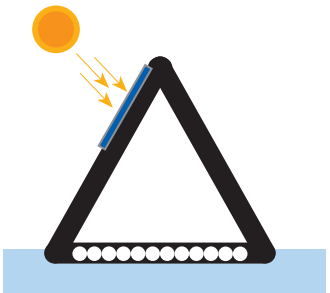
The following investigation examines different possibilities. The main focus is on renewable energy sources and particularly sunlight, wind and rain. In this case tidal energy is not appropriate due to the fact that Makoko is located in inland waters.

The ideal solution is to choose a stand-alone sustainable and efficient system in order to generate light, and power water pumps and even small appliances.

Source:
"Episode 2".Welcome to Lagos.BBC Two. Dir Gavin Searle. 22 Apr 2010. Television.

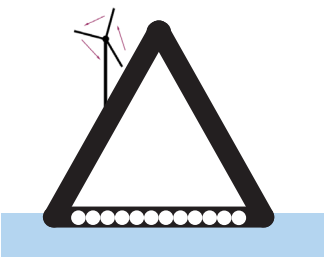
Photography:
NLÉ

AVAILABLE RENEWABLE RESOURCES



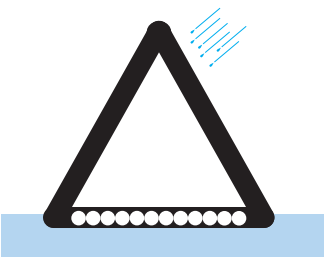
SOLAR

SUNSHINE ALL YEAR ROUND



WIND

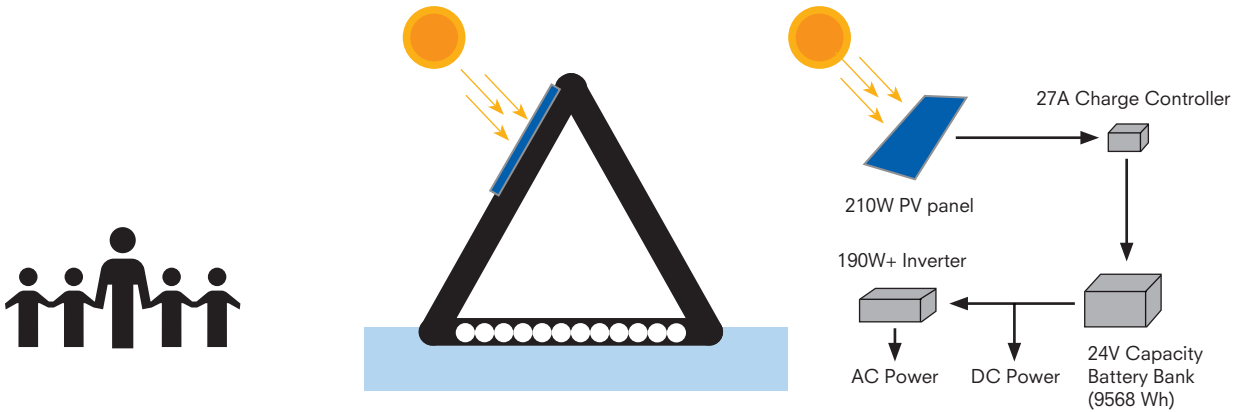
NORTH EAST AND SOUTH WEST WINDS



RAIN

RAINFALL MOST OF THE YEAR

OPTION A: SOLAR ENERGY



DEMAND
2000Wh per day

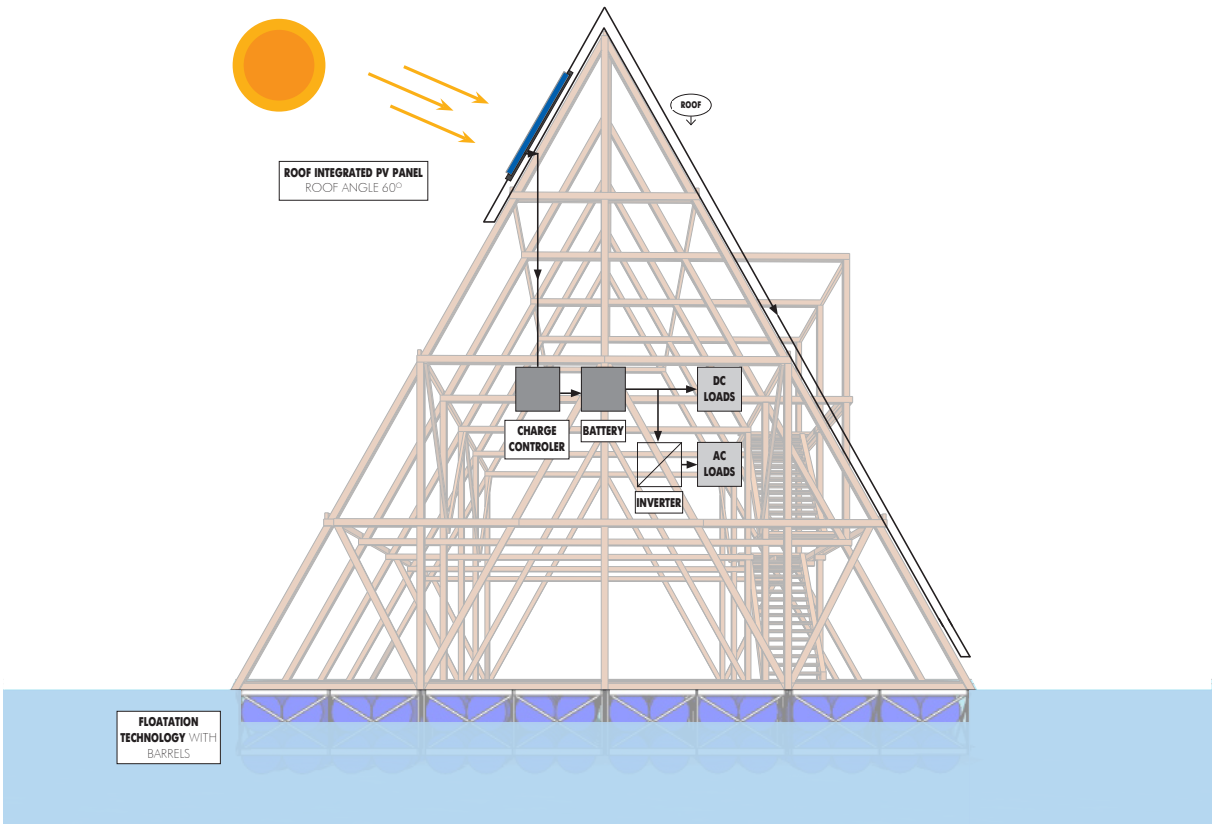
ENERGY COLLECTION
565W of total PV capacity needed

STORAGE / DISTRIBUTION
565W / 210W = 2.6 modules

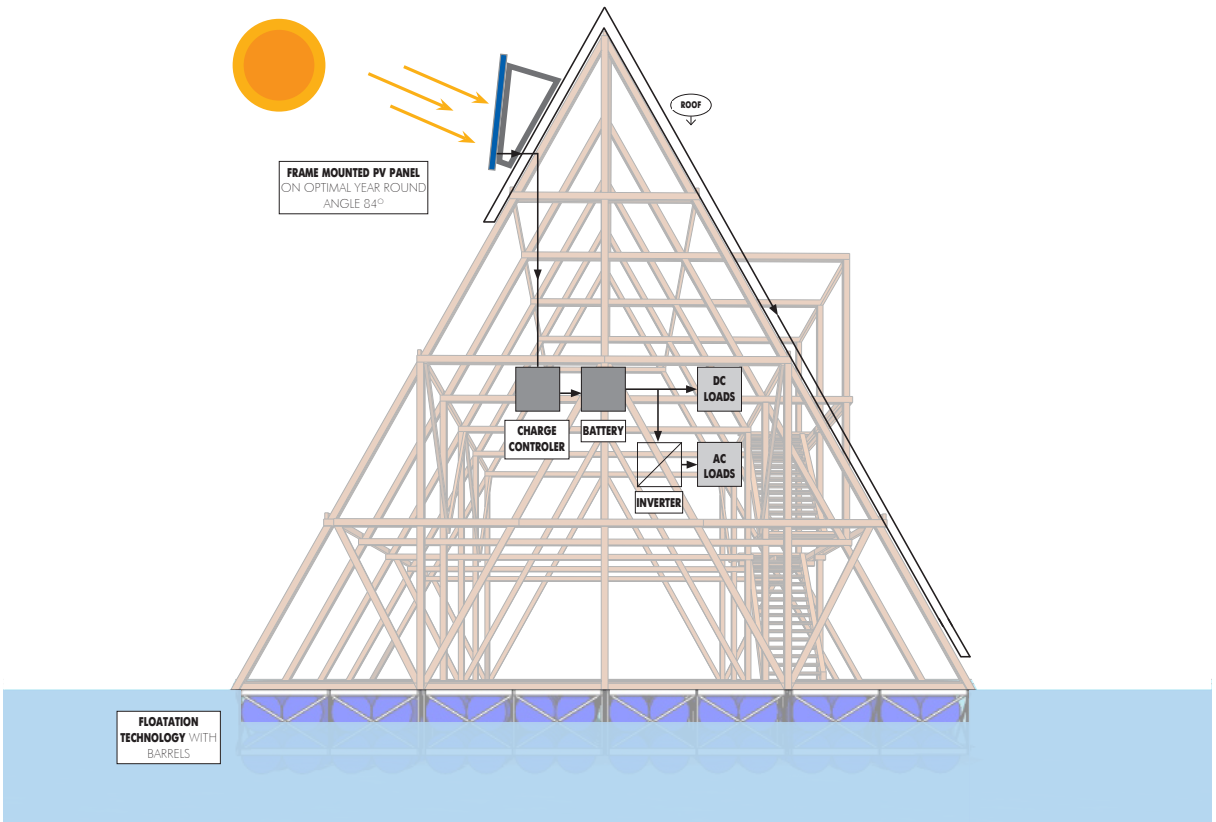
This demand accounts only for lighting and small appliances

Actual requirement:
Three x 210W PV modules
(1650 x 992 x 50 mm per module)

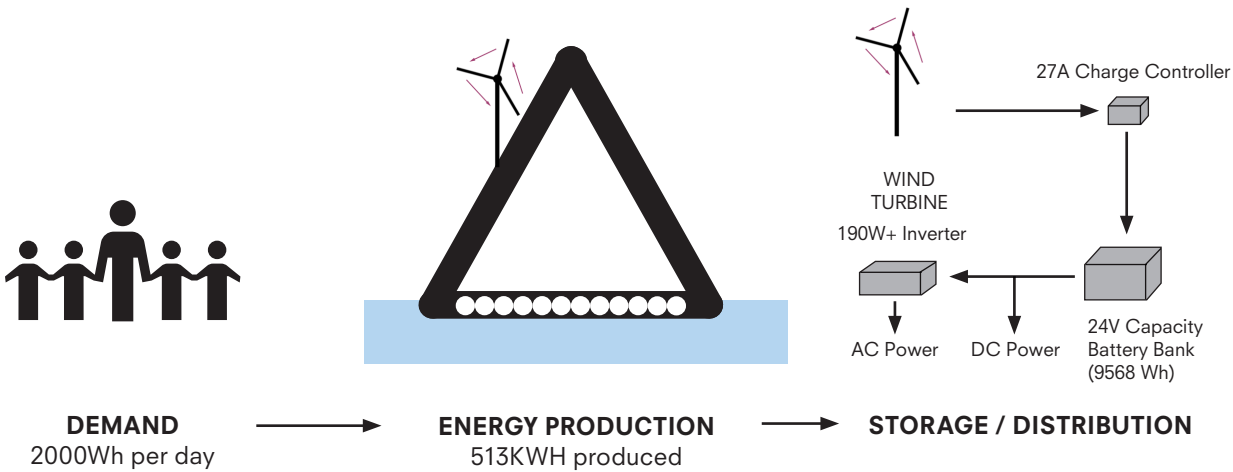
SOLAR ENERGY ROOF INTEGRATED PV PANEL



SOLAR ENERGY FRAME MOUNTED PV PANEL



OPTION B: WIND ENERGY



DEMAND
2000Wh per day

ENERGY PRODUCTION
513KWH produced

STORAGE / DISTRIBUTION

e.g
1kW Roof-Mounted Wind Turbine
Rotor Diameter 1.75m
Mean wind speed 4m/s

ROOF MOUNTED WIND TURBINE