



LAST MILE DISTRIBUTION STRATEGY FOR SOLAR HOME LIGHTING SYSTEMS

CASE STUDY



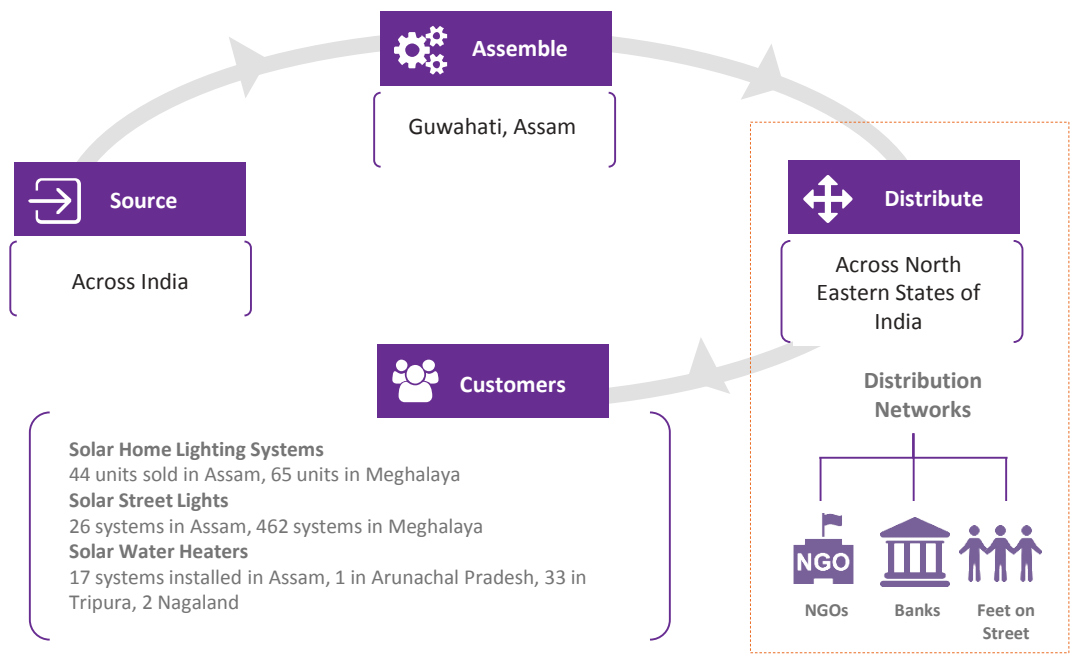
1.1

Company Overview

Eastern Envo Protect (EEP), a Guwahati based Environmental Engineering and Project Management firm established in 2004, works in various areas including renewable energy. Envo Solar, an initiative of EEP, established in 2012 with the intent of promoting clean energy based appliances, offers a wide range of systems and customized solutions that range from solar lanterns,

home lighting systems for households, street lighting systems, solar water heater systems, space heating and cooling systems to independent power plants that are both off-grid and grid connected. The company’s current operations are focused in the North-Eastern states of India including Assam, Meghalaya, Arunachal Pradesh, Tripura and Nagaland.

Figure 1: Operating model of Eastern Envo for solar products

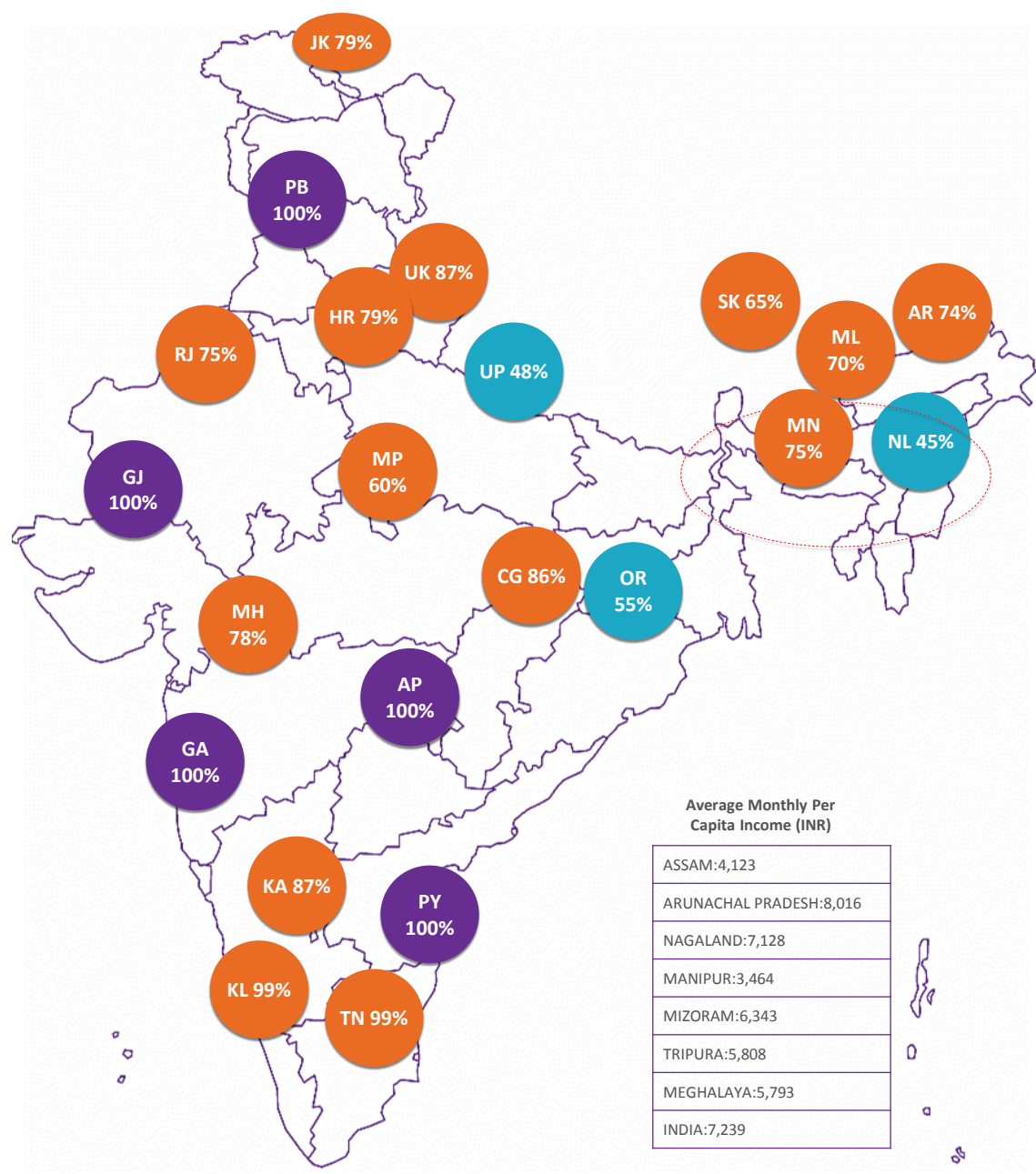


Source: Intellecap analysis, primary interviews with the senior management team at Eastern Envo

The firm’s choice of focus on India’s North Eastern states is because these states have a low electrification rate. For example, in Assam only 53% of rural households are electrified. There is a huge gap in this region that decentralized solar solutions can bridge. However, the lack of a supporting ecosystem is affecting the scale up of these solutions. The average annual per capita income in the state is INR 49,480, significantly lower than the country

average of INR 86,879. This indicates less disposable incomes for most of the population, with solar solutions nowhere on the must-have list of acquisitions. Further, poor financial inclusion in the North-Eastern states due to limited penetration of micro finance institutions (MFIs) and banks, limits consumers’ ability to access loans for purchasing quality products.

Figure 2: Household electrification rates across India and average monthly per capita income of North Eastern states



Source: GARV Dashboard, Ministry of Statistics & Programme Implementation 2015, Literature review

1.2

Key Challenges

Inadequate infrastructure such as poor road density and limited access to partners has led to relatively low penetration for Eastern Envo and the company currently has a limited customer base due to distribution related challenges.

The supply chain is not efficient due to factors such as difficult terrain, lack of proper infrastructure, and absence of local manufacturers. This increases the cost of sourcing high quality components from outside the region, which ultimately increases the net product cost. There is an urgent need to develop a thriving ecosystem for decentralized renewable energy solutions that can successfully address the issue of non-electrification in the region.

Lack of objective alignment and competition from cheaper substitutes that form a part of partners' product baskets have led to limited partnerships for Eastern Envo in the past. The slow penetration rates can be attributed to unsustainable partnerships and wide availability of low cost products made in China. Traditional channels such as Non-governmental Organizations (NGOs), MFIs, and corporate distributors generally prefer higher margins to sustain their operations. Poor awareness, among customers, of quality implications in solar home lighting systems, is another hurdle for small scale enterprises to bring partners on board.

Figure 3: Challenges with traditional last mile distribution partnerships



Source: Intellect analysis, primary interviews with senior management team at Eastern Envo

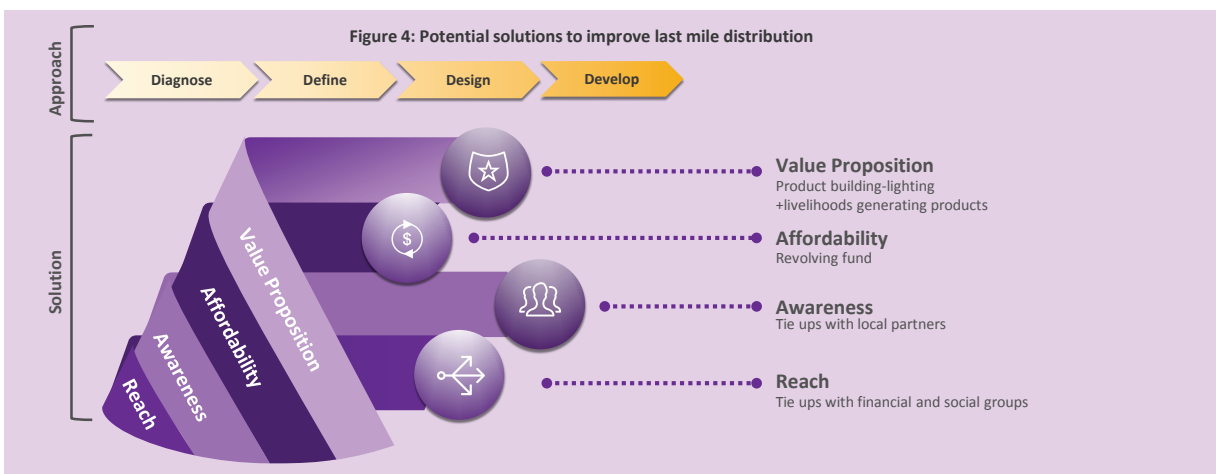
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Solution Themes

The team diagnosed existing challenges that inhibit the last mile distribution of solar home lighting systems, designed solution themes, and helped Eastern Envo pilot some of these interventions to achieve a scalable distribution strategy.

The recommended solutions were categorized into four broad areas: reach, awareness, affordability, and value proposition. The approaches were:

- Partnering with relevant networks to potentially resolve the issues related to reach and building awareness.
- Providing access to financing options through local financing institutions to augment the purchasing capabilities of the low-income population.
- Bundling solutions to support livelihood generation to increase the value proposition of the solutions, thereby resulting in an increase in uptake.



Source: Intellect analysis



Improving reach and building awareness levels

Partnerships with financial institutions and social groups would ensure reach to a larger customer base; such partnerships could also support in improving awareness levels.

Considering the market dynamics, the team proposed that the enterprise establish distribution partnerships with financial institutions. Financial institutions such as MFIs and Regional Rural Banks (RRBs) would bring reach, capital, and distribution network to penetrate rural areas to address the challenges listed above. Social groups such as NGOs, SHG networks, and faith based organizations can act as influencers in their respective areas of operation, hence partnerships with them would bring in desired results. For instance, Bosco Reach Out, a community network has the potential to support the promotion and sale of solar home lighting systems across more than 23,000 SHG members in around 900 villages.

This distribution partnership combination allows

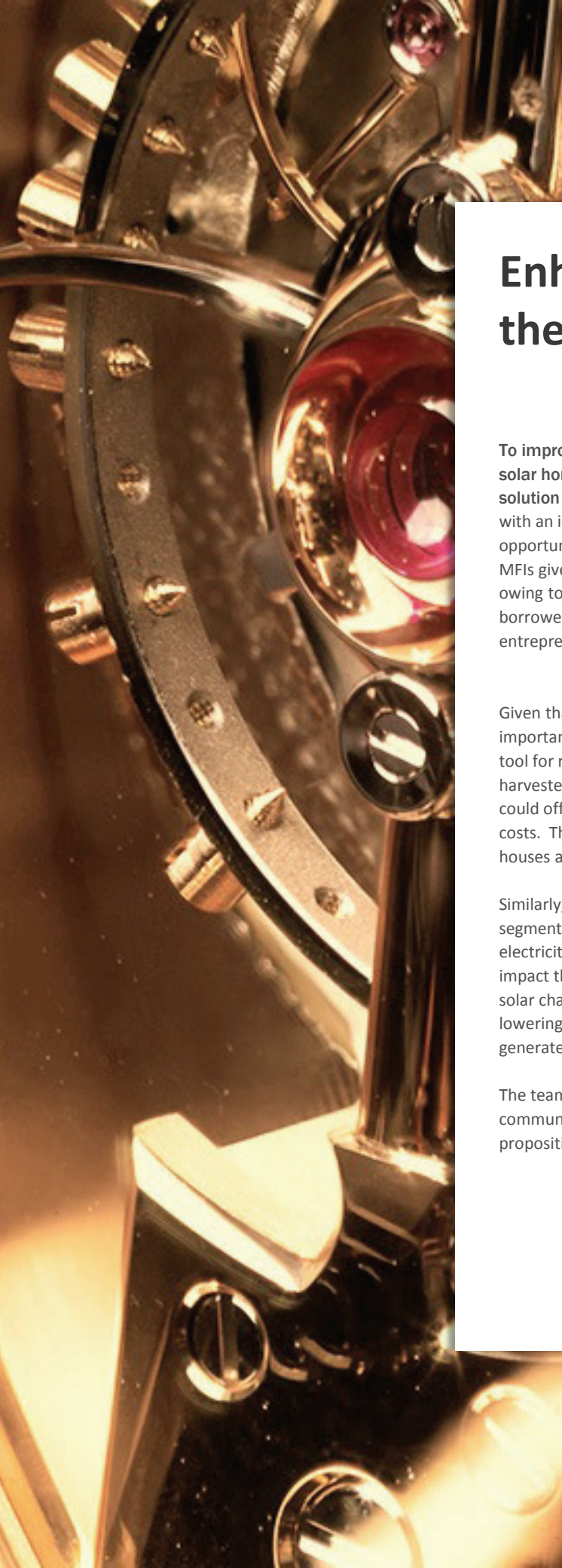
- (i) Access to a pre-existing credible network
- (ii) Increased acceptability of products with more information about the products at consumer's door-step
- (iii) Reduced market risk through shared responsibilities. Further, tying up with partners to promote awareness is an aspect that can be leveraged in the future to drive changes in consumer behavior and improve adoption rates. It can enable access to a larger customer base and delivery of solar home lighting solutions to remote locations if two critical areas – financing (to mitigate challenges in paying upfront) and value proposition (beyond lighting) are addressed.

A close-up photograph of a hand holding a stack of coins on a wooden surface. The coins are stacked in two piles, with the top coin of the larger pile clearly visible, showing a profile of a person. The background is blurred, showing more of the wooden surface and the hand.

Consumer financing to improve affordability

In order to address the absence of consumer financing for access to energy, it was proposed that the enterprise consider setting up a user-financing facility – a revolving fund – which would provide access to finance for the region's unbanked population. Suggested sources of capital for this fund were the parent company, equity investors and donors. It was suggested that certain percentage can be charged on the payments, which can then be ploughed back into the fund. In an alternate scenario, the enterprise could partner with an organization such as an NGO, to contribute capital in to the fund, which would reduce the cost of the loan for the consumers. This could be setup in partnership with local NGOs who would finance end user related operations.

In this scenario the NGO, instead of Eastern Envo, could collect payments from the users of the solar home lighting systems and the NGO's fee could be included in the rate of interest. This solution would not only address the financing challenge for large numbers of unbanked customers, but also ease working capital constraints of the enterprise.



Enhancement of the value proposition

To improve the overall value proposition re-bundling of the solar home lighting system with a livelihood generating solution was proposed. Bundling of solar home lighting systems with an income generating asset would open up financing opportunities from financial institutions such as MFIs and RRBs. MFIs give 95% of their loans for income generating activities, owing to a higher probability of timely repayment from the borrowers along with the broader objective of promoting entrepreneurship amongst low income communities.

Given that in the areas of operations rice was one of the important crops, a solar based product that would function as a tool for rice cultivation, would be a relevant solution. Solar rice harvesters with lights were proposed as one of the solutions that could offer the farmer a combination of lower labor costs and fuel costs. The power generated could provide lighting to fields or houses at night, if combined with suitable storage technologies.

Similarly, weaver communities were identified as another segment within the target population. Lack of access to reliable electricity and absence of equipment modernization were seen to impact their livelihoods negatively. Possible offerings such as solar charkhas could increase yarn production, provide savings on lowering the need to use polluting fuels, along with helping generate higher incomes by increasing the working hours.

The team suggested that the enterprise could target specific communities/ customer segments with targeted value propositions.

Key insights for solar home lighting systems players



Setting up a Solar Revolving Fund (SRF) in partnership with NGOs as a financing mechanism for end consumers who lack access to formal banking channels



Redefining SHS product offerings into livelihood supporting or income generating assets would enable partnerships with MFIs, and increase willingness of consumers to invest in these products



Establishing market linkages with industry players could lead to increase in income and further aid adoption of SHSs

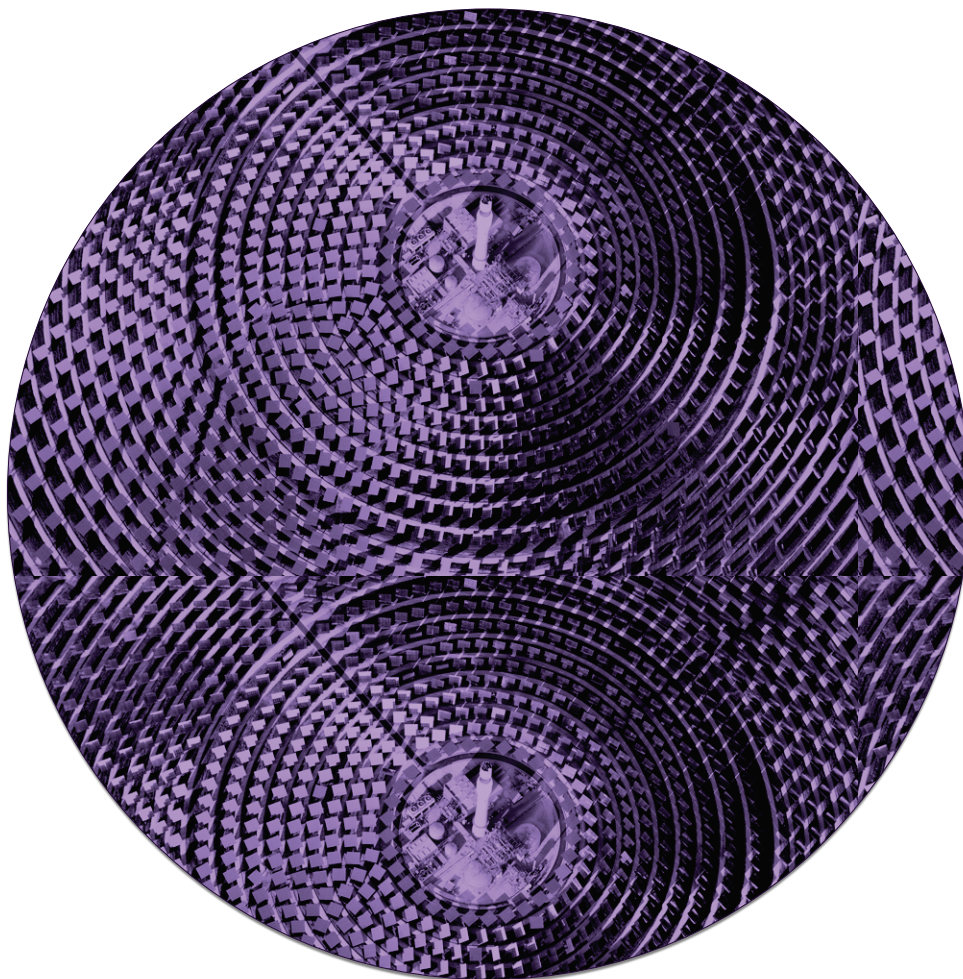
1.4 Looking forward

Eastern Envo plans to implement the recommendations in phases to reach a larger number of consumers and attain sustainability over the next few years.

It has already partnered with one of the leading foundations to develop the revolving fund. It has also identified around 84 households in remote locations as potential consumers for solar home lighting systems. It plans to sell more than 200 solar home lighting systems this year with the expected turnover to cross a crore.

EEP has started focusing on solutions and communities to promote livelihoods through

solar products. In discussion with one of the leading incubation centres of India, EEP plans to support solar powered potter wheels to support the potter community in areas that receive less than six hours of electricity in a day. Automated Teller Machines (ATMs) in remote locations is another opportunity that EEP foresees. The company is in discussions with banks to support these besides implementing solutions for over 20 ATMs for the State Bank of India. EEP also plans to work with NGOs and donors to provide viability gap funding to reduce interest rates charged by MFIs and ensure affordability.



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“Eastern Envo now aims to create a successful case study for the banking industry to showcase solar home lighting systems as an attractive product segment for financing”

Fazle Illahi, Co-founder of Eastern Envo Protect