Eja-iCe

Solar Powered Refrigeration & Cold Chain Services

2020 IMPACT REPORT

Executive Summary

1 out of 3 fishes never make it to the table! Of the 171 million metric tonnes of fish caught in 2019, 35% (58.9 million metric tonnes) went to waste and 65% (38.9 million metric tonnes) of that waste was due to lack of cold chain services (FAO). The total fish demand across Africa is 30 million metric tonnes and the question remains why do we waste this much of our limited nutrition supply?

Eja-Ice Limited is a solar powered refrigeration and cold chain indigenous company based in Lagos, Nigeria. We are poised to reduce the power deficits and its effect on cold chain infrastructure which contributes to food waste and profit loss for MSME's in Agriculture and Aquaculture sectors in particular in Nigeria and Sub-Saharan Africa.

In 2020, the world experienced the covid-19 pandemic, and for the first time, we had to go into a lockdown. This was challenging globally but locally vulnerable businesses usually owned by women was at the very verge of extinction due to disruptions across its supply chains; transportation, trade and labour.

At Eja-Ice, while supporting our primary customers across the fish and domestic markets, we identified new customer segments across the health, canteen & restaurants, SME's and mobility sectors. We will focus on serving these markets in 2021.

Yusuf Oladipupo Bilesanmi
Founder/CEO
Eja-Ice Limited

Impact is at the nucleus of our work. While we have focused on energy efficiency in our appliances, recently our attention has been drawn towards the green house emission of our refrigerants. Starting 2021, research, technical and logistics plans are being concluded to use natural refrigerants in 80% of our products and by 2023 run a 100% low energy and natural refrigerant operations. Below are the immediate impact of our solutions to businesses and the environment.

13,000 Tests

334, 400 Sold
137,760 Saved

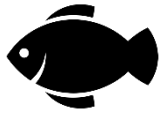
43,275 Litres of petrol

N7,139,875 cost of fuel

99,965.25 C02

The Problems

Nigeria Annual Fish Demand



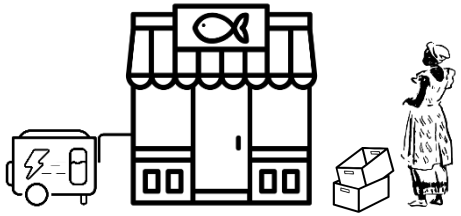
3.3 MMT

Import 2.1 MMT

Wholesale

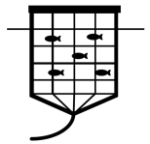
Frozen fish- Containerized
Fresh Fish- Trawlers
Cold Room Storage
Distributed to dealers and further traded to retailers.

Retail



Population: 200 Million
Coastline: 853km along Atlantic Ocean
Waters: Fresh, Mangrove Swamps, Creeks, Coastal Rivers, Estuaries, bays, Near and Offshore waters.
4th Largest importer of Fish.
Import countries: USA, Chile, Europe, Asia & Africa (Mauritania, Mauritius, Algeria etc.)
Import Product: Mackerel, Herrings, Horse Mackerel, Blue Whiting, Argentina Silus, Croaker etc.
Industrial Fishing is quite poor due to lack of vessels & equipment

Local Production 1.2 MMT



Aquaculture- 350,000MT **Fishing- 850,000MT**

Processing/ Wholesale

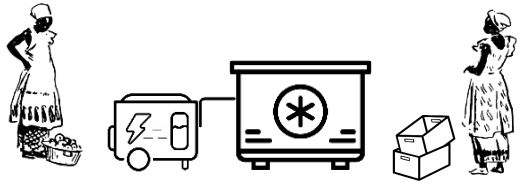
Export
Catfish & Shrimps

US Export Ban due to documentation 2019

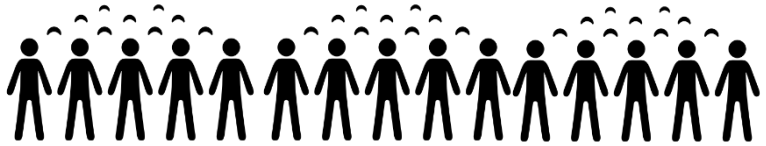
Local Trade

Fresh Fish
Dried Fish
Frozen Fish
Distributed to retailers.

Retail



Health Impact: Fish preserved by application of preservatives such as sodium tripolyphosphate (STTP) and formalin.



Socio-Economic Impact: Create jobs, stable businesses, financial inclusion, reduce import and improve export potentials

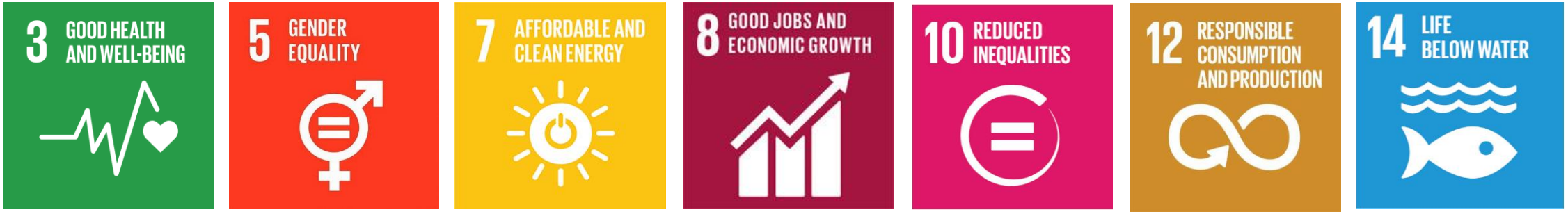
Our Solution

Power consumption	75W
Door	single
Input voltage(w)	DC12V/24V
capacity	218 Litre
insulation（mm)	70
Product size(mm)	1100*780*900
N.W. /G.W(KG)	76/78
inner light	no
Outside condenser	yes
inner fan	yes
Refrigerant	R600a
Temperature range	<=-22 degree
Colour	white
Defrost	manual
Cost	N400,000
Product Warranty	1 Year
Service Agreement	3 Years

Impact

- Has no Asset
- Financial Exclusion
- Operation Fluctuation
- Disorder & Extinction

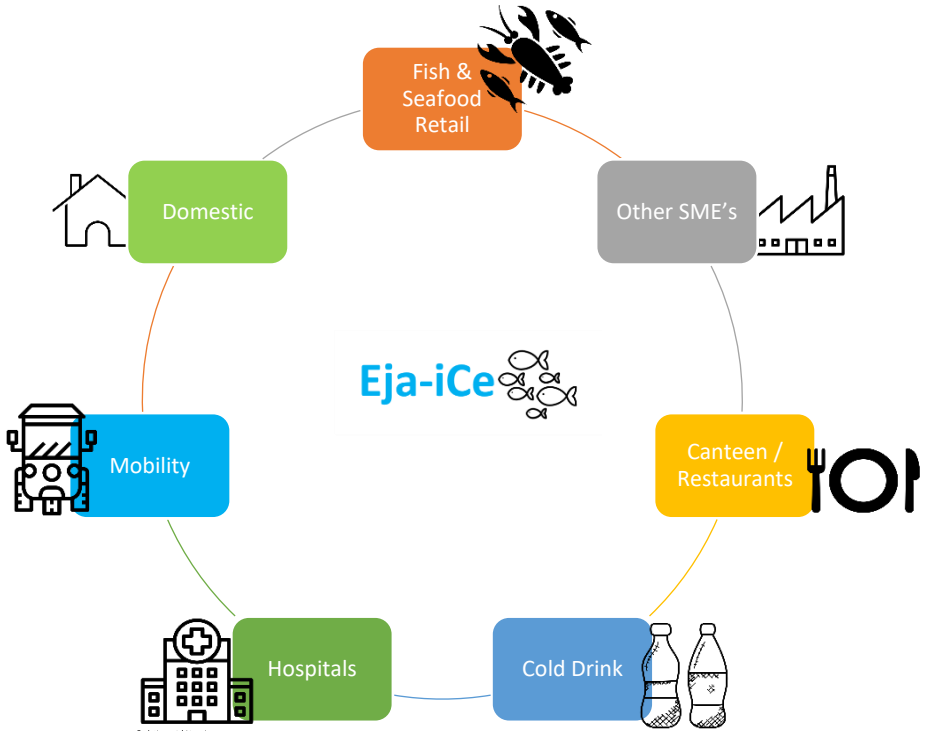
- Asset Owner
- Financial Inclusion
- Business Stability
- Continuation & Expansion



Covid-19 Response

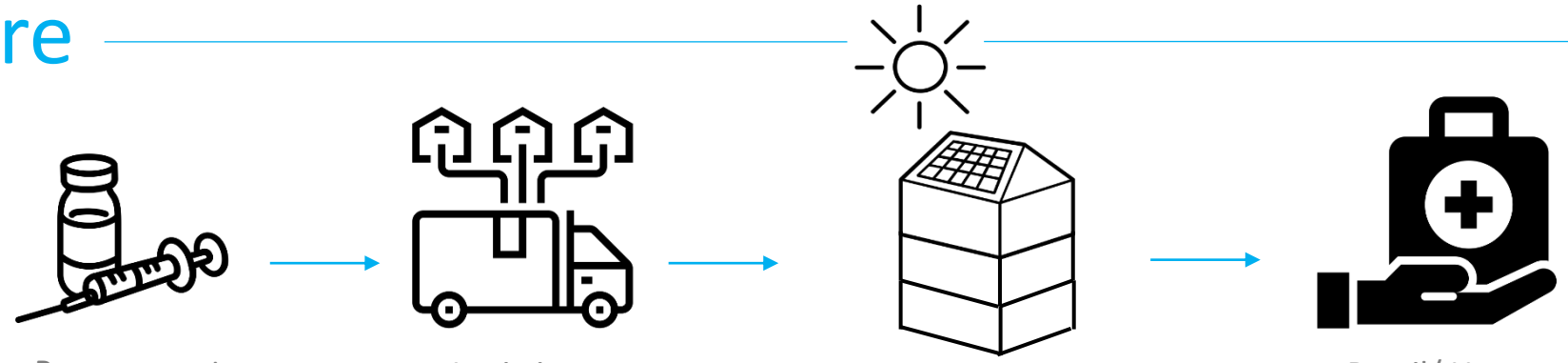
Our response to Covid-19 was to take our expertise beyond the fish sector and serve other critical markets such as; Hospitals, Domestic, Cold Drinks & beverages, etc., which require refrigeration and cold chain services to operate.

Arrive Alive Diagnostic Centre (Surulere), Lagos



Healthcare

Value Chain-



Procurement

Logistics

Temperature Controlled Storge
Covid-19 Molecular Lab

Retail/ Usage

Case Study-

In order to cater for patients during covid-19 pandemic, hospitals and diagnostic centres set up covid molecular labs to offer tests to patients. To carry out the test, institutions need to procure reagents which is in high demand globally. Used biological reagents including enzymes and antibodies need to be refrigerated between 2ºC to 8ºC. Within this temperature range, most reagent samples experience minor, but acceptable temperature swings. Due to the cooling demand, we worked with Arrive Alive Diagnostic Centre Surulere, Lagos. The centre required constant power supply to mitigate loss of reagents. We offered a 9.6kWh solar powered battery solution. This offers 48hrs power supply at 50% depth of discharge to keep the molecular lab of the centre running .

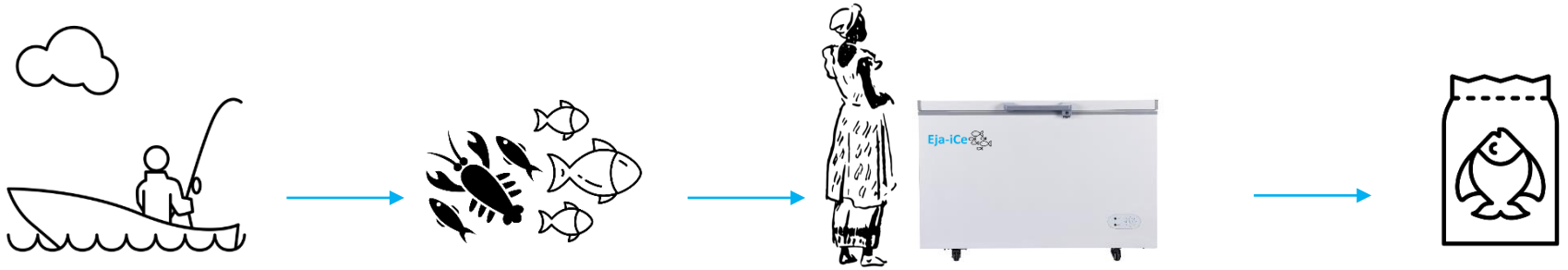
Impact-

- Zero loss of reagents
- Significant reduction in fuel cost
- Operational efficiency
- Profitability

13,000 tests carried out
Cost of Fuel- N165 x 13ltr x 150 = **N321,750**
Fuel Quantity- 13 ltr x 150 = **1950 ltr**
C02 Emission- 2.31lk/ ltr = 1950 ltr x 2.31= **4,504.5 kg**

Fish Retail

Value Chain-



Fishing | Wholesale | Temperature Controlled Storage | Retail

Case Study-

Fish is one of the main sources of animal protein in many developing countries, providing over 50 percent of the animal protein consumed in some areas, according to the Food and Agriculture Organization. However, over 40% of our fish catch go to waste due to lack of viable cold chain solutions. Across the value chain, the fish retail sector is the most vulnerable as the fish retailers spend more time with the fish than anyone else and their inability to sell early enough will result in the fish rotting and renders it inedible. The fish retailer sector is led 99% by women whose incomes are open to risk where temperature-controlled storage is lacking. We offer our DC solar powered freezers to fish retailers through a lease to own scheme enabling them transition to asset owners, mitigate fish waste and optimize their profits.

Impact-

- Asset Ownership
- Financial Inclusion
- Business Stability
- Continuation & Expansion

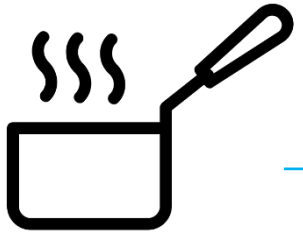
Freezers Sold-11
Fish sold- 334,400 fish, seafood and chicken sold (160/r*190 days*11)
Waste Reduction- 133,760 saved from waste (40% of sold fish)
Generator Use - N165*5ltr*190 days* 11= **N1,724,250/ 10,450 ltr**
C02 Emission- Petrol- 2.31kg/ltr* 10,450 ltr= **24,139.5 kg**

Domestic

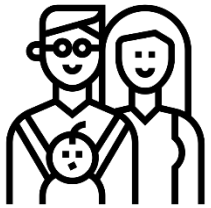
Value Chain-

Food

Temperature Controlled Storage



Cooking



Healthy Meal, Happy Family

Case Study-

As countries went into lockdown to curb the spread of covid-19, family members got stocked together despite being unprepared. Access to markets were restricted and food supply chains broken, hence demand was high and supply, low. Panic buying became rampant despite limited storage. Power supply was limited which made it difficult to preserve food. As you can imagine, indoor air quality and thermal comfort must have been difficult in most homes with poor ventilation which makes up most of the building.

Impact-

With the use of our solar powered freezers, our customers are able to stock their homes and preserve cooked meals for later consumption without a need for fuel powered generation.

Food preservation
Cold drinks
Well being

Freezer sold- 20
Cost of fuel- 165 x 6.5 ltr x 190 x 20= **N4,075,500**
Fuel Quantity- 6.5 ltr x 190 x 20 = **24,700 ltr**
C02 Emission- 2.31kg/ltr = 22,800 ltr x 2.31 kg = **57,057 kg**

SME's

Value Chain-

Production | Distribution | Temperature Controlled Storge | Distribution | Retail

Case Study-

The lockdown also resulted in income loss for most families. Teachers, amongst many others were home without any earning through 6 months (March – October 2020) when schools remained in lockdown.
A teacher decided to bargain with the manufacturer of a yogurt beverage to represent the business in one suburb in Lagos State. The manufacturer offered to sell to her on credit and she repays after the sale. However, due to lack of power supply, she was spending all her profit on fuelling her generator to preserve the quality of the yogurt before it was delivered to retail outlets. She reached out to us and benefitted from our lease to own scheme. Thereafter, she was able to run her business with our solar powered freezer, which eliminated her cost of fuelling generators and sustained her profit.

Impact-

Food Preservation
Job Creation
Trade

Freezer sold- 5
Cost of fuel- 165 x 6.5 ltr x 190 x 5 = **N1,018,875**
Fuel Quantity- 6.5 ltr x 190 x 5 = **6,175 ltr**
C02 Emission- 2.31 kg/ltr = 4560 ltr x 2.31 kg = **14,264.25 kg**

Community Social Responsibility

We will dedicate 5% of our profit to R&D to support two critical subject areas concerning ;

Preliminary research work to gather relevant data on the condition of the ocean from local fishermen. We intend to share that data with various institutions working globally to improve the state of the ocean.

We intend to work with local boat manufacturers to improve the design of the boat to ensure its fit for purpose and develop new finance options to ensure its affordable to market. We intend to look at 2 key areas- new materials and fishing operation.

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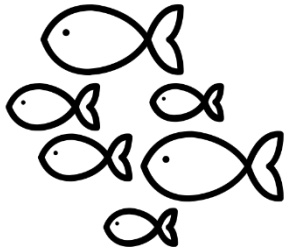

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Trust | Partnership | Opportunity

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