



United Republic of Tanzania  
The Office of Vice President - Environment



SHELL EXPLORATION AND PRODUCTION TANZANIA

# Champions of Charcoal Alternatives (CCA)



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## PART 01: PROJECT JUSTIFICATION

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### WHY CHARCOAL ALTERNATIVES?

The single most important energy source for urban dwellers

“

*There is an urgent need to find sustainable alternatives to traditional wood charcoal, especially for urban households is compulsory*





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# 90%

Firewood & Charcoal

Firewood and Charcoal account for 90% of Tanzania's energy needs.

# 1 Million

Tons

Annual charcoal consumption by almost 90% of households driven by urbanization, high prices or scarcity of alternative energy sources.

# 100k -125k Climate

Hectares

Loss of forest to charcoal and firewood production annually.

Change

Accelerated by deforestation, forest degradation

## Innovation & Technology

*Can be used to make a change and offer alternative energy sources to charcoal.*



### Briquettes

One of Government interventions as energy source and improve charcoal production



### Improved Cookstove (ICS)

Improved Cooking Stoves (ICS) reduce charcoal consumption



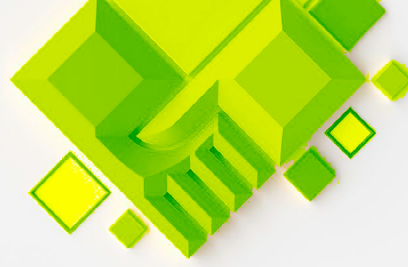
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PART 02: PROJECT OVERVIEW

# Champions of Charcoal Alternatives

National Competition



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**IMED Foundation**, partnered with the **Vice President's Office (VPO)** – Union Affairs and Environment invited with funding from **Shell Exploration** and Production Tanzania to organize a challenge to identify clean energy enterprises with potential to scale up production and sales of charcoal alternatives.

The Foundation was responsible for managing the challenge and the prize money as well as training, coaching and mentoring the three top winners (called Champions of Charcoal Alternatives) to improve skills, business systems and scale up production capacity and sales. The three companies have recorded significant improvements in compliance, production, premises, formal markets, community outreach and turnover. Among others, they are supplying to University of Dodoma, University of Dar es Salaam and Ubungo international bus terminal.





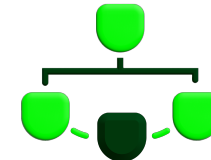
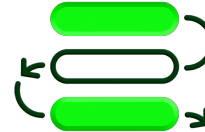
# CHAMPIONS OF CHARCOAL ALTERNATIVES

*Mashujaa wa Mkaa Mbadala*





# Alternative to Charcoal National Competition



## Project Initiator

Project initiated by then Minister of State for Environment in the Vice President's Office Hon. January Makamba (MP)

## Target

NGOs, individuals and businesses

## Objectives

Reduce rate of deforestation by promoting production and adoption of alternatives to traditional wood charcoal

## Selection Process

Panel of judges from VPO for Environment, SEP-T and Institute of Management and Entrepreneurship Development (IMED)

## Competition And Prize Awards Sponsor

Shell Exploration & Production Tanzania (SEP-T)

## Organizers

Project initiated by then Minister of State for Environment in the Vice President's Office Hon. January Makamba (MP)

### Implementing Partners

Institute of Management and Entrepreneurship Development (IMED)

### External Evaluator

60 Decibels



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PART 03: PROJECT PHASES

# Project Approach Stage

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## ALTERNATIVE TO CHARCOAL NATIONAL COMPETITION; APPROACH STAGES

STAGE 01



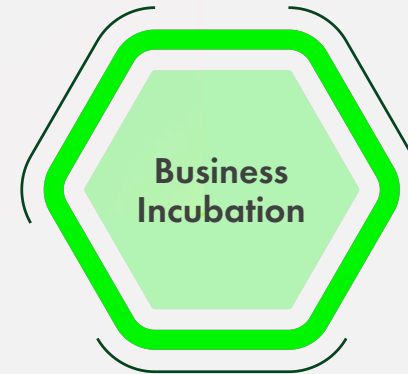
To select producers of alternative to charcoal with greatest potential for scaling up

STAGE 02



To winners to support scaling up of production capacity and business systems

STAGE 03



For winners to support competence development, business systems and sustainable scaling up





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PART 04: 2018 NATIONAL COMPETITION

# Champions of Charcoal Alternatives

National Competition 2018



# National Competition 2018 Steps

STEP **01**  
Call for proposals

STEP **02**  
Establishment of  
evaluation panel

STEP **03**  
Shortlisting of 10  
applicants out of 93  
submissions

STEP **04**  
Selection of winners

STEP **05**  
Announcement of  
winners at the 2018  
National Environment  
day

# Competition Participants By Region

REGION	PARTICIPANTS
Dar es Salaam	35
Mwanza	8
Morogoro	7
Arusha	5
Iringa	5
Pwani	5
Mbeya	4
Kilimanjaro	3
Mara	2
Rukwa	2
Ruvuma	2
Tabora	2
Tanga	2
Manyara	1
Singida	1
Zanzibar	1

# Shortlisted Participants In The Competition

APPLICANT	TECHNOLOGY	LOCATION
NATURAL GAS		
Triangle Tanzania Ltd	Low Cost LPG Stoves And Cylinders	Dar es Salaam
Innocent Kazungu	Low Cost LPG Stoves And Cylinders	Dar es Salaam
BRIQUETTES		
Kuja na Kushoka Tools Manufactures Group	Briquettes, tobacco leaf driers, briquetting machines	Tabora
Mkaa Poa Halisi	Briquettes from sugarcane waste	Zanzibar
Mena Wood Briquetting Company Ltd	Briquettes using saw dust in Mufindi	Mafinga, Iringa
Natiro Briquette Group	Briquettes from general agriculture waste	Moshi (North)
Space Engineering Company Limited	Biomass briquettes and stoves	Dar es Salaam
Dar es Salaam Institute of Technology	Briquettes	Dar es Salaam
BIOGAS		
Biogas & Solar Co. Ltd	Mobile canvass based biogas digesters	Bagamoyo, Pwani
ICHI Renewable Energies Company Ltd	Mobile canvas biogas digesters and cook stove that uses agriculture waste	Dar es Salaam



Winners Of Previous Competition

# National Competition 2018 Winners

## 01st WINNER



**Kuja na Kushoka  
Tools Manufactures  
Group**

**Location;**

Tabora

**Award;**

300M TZS

## 02nd WINNER



**Space Engineering  
Company Limited**

**Location;**

Dar es Salaam

**Award;**

200M TZS

## 03rd WINNER



**Mena Wood  
Briquetting Company  
Limited**

**Location;**

Mafinga

**Award;**

100M TZS





## Investments And Results Made By Winners

01st  
WINNER

**Kuja na Kushoka  
Tools Manufactures  
Group**



### INVESTMENTS

1. Refurbished and furnished factory and office.
2. Acquired a 7 ton truck, lathe machine, a welding machine, a drilling machine, a trailer, chaff cutter machine, and an air compressor.
3. Opened distribution centres at Ubungo and Mbagala Zakhim.
4. Conducted community awareness campaigns. These included participation in over 10 radio and television talks, Uhuru Torch in Tabora in 2019 where 200 improved cook stoves were offered to food vendors and production of a documentary aired through television for 3 months repetitively.
5. Produced a user guide, marketing and branding materials.



01st  
WINNER

**Kuja na Kushoka**  
**Tools Manufactures**  
**Group**



## RESULTS

1. Increased briquetting machine production from 20 units in 2018 to 54 units in June 2020.
2. Increased production of briquettes from 0 tons in 2018 to 300.44 tons in 2020.
3. Secured markets for briquettes in refugee camps in Kigoma and Tabora Prisons.
4. Entered the contract with client from Bagamoyo to supply 3 machines and produce 300 MT up to Nov 2019 taking responsibility for marketing of the produced briquettes.
5. Improved business systems and practices including organization structure, job descriptions, use of petty cash, customer feedback, management and staff meetings.
6. He got a MAKISATU (Mashindano ya Kitaifa ya Sayansi, Teknolojia na Ubunifu) award (3rd winner) in the category of private enterprises during the incubation.



## Investments And Results Made By Winners

02nd  
WINNER

**Space  
Engineering Ltd**



### INVESTMENTS

1. Procured a mixer machine.
2. Erected the briquettes processing and storage building in Kongowe Kibaha.
3. Designed and fabricated a drier with capacity of 15MT/day.
4. Logo design and promotional materials.
5. Acquired 2 distribution trucks of 1.5 tons each.
6. Produced promotional materials and user guides.
7. Improved packaging materials (sacks) and branding.



02nd  
WINNER

**Space  
Engineering Ltd**



## RESULTS

1. Increased production of briquettes from 1,036 tons in 2018 to 3,631tons in 2020.
2. Separation of business from personal transactions.
3. Procured file cabinet and Basic Kaizen application.
4. Improved business systems and practices including use of petty cash, Board, management and staff meetings.



## Investments And Results Made By Winners

3rd  
WINNER

**Mena Wood  
Briquetting Co. Ltd**



### INVESTMENTS

1. Repaired briquetting machine.
2. Rehabilitated truck and briquetting machines.
3. Improved business systems (business plan, record keeping, costing).
4. Opened a distribution centre at Nane-nane grounds in Dodoma.
5. Produced promotional and branding materials as well as user guides.
6. Secured a market for briquettes at Kibaha Women's Diary Group.



3rd

WINNER

**Mena Wood  
Briquetting Co. Ltd**



## RESULTS

1. Increased production of briquettes from 360 tons in 2018 to 530 tons in 2020.
2. Secured a market for briquettes at all 8 cafeterias at the University of Dodoma and installed 8 institutional cook stoves at 8 Cafeterias, serving 1600 students.
3. Secured a market for briquettes at Kibaha Women's Diary Group.
4. Improved business systems and practices including organization structure, record keeping, use of petty cash and staff meetings.
5. Reduced machine breakdown and downtime.



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PART 05: INCUBATION PROJECT ACTIVITIES AND TIMELINES

# Business Incubation Activities

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# Incubation Project Activities

BUSINESS INCUBATION	2017	2018	2019	2020	2021
Development of business plans and performance targets by each winner		■	■		
Training, onsite visit and coaching of winners				■	
Business planning		■	■	■	
Marketing and sales		■	■	■	
Basic Kaizen application		■	■	■	
Record keeping and financial management		■	■	■	
Briquette quality and standards		■	■	■	
Product quality testing				■	
Participation in exhibitions and other community sensitization activities		■	■	■	
Procurement of machinery, tools, safety gears			■	■	■





# Incubation Project Activities

DISBURSEMENT OF PRIZE MONEY	2017	2018	2019	2020	2021
Disbursement Of Prize Money			■	■	■

PROJECT MONITORING AND EVALUATION	2017	2018	2019	2020	2021
Briefing meetings with State Minister (Vice Presidents Office)		■	■	■	■
Field visits to incubatees by Steering Committee members			■	■	
Steering committee meetings			■	■	■
External evaluation				■	
Project closure					■



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# Technical Working Group

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NAME	TITLE	ORGANIZATION	DESIGNATION IN TWG
Dr. Deogratius E. Paul	Vice President's Office- Environment	Principal Environmental officer	Chairperson
Richard Jackson Ndila	Institute of Management & Entrepreneurship Development (IMED)	Principal Consultant	Project Officer
Dr Donath R. Olomi	Institute of Management & Entrepreneurship Development (IMED)	Director	Consultant
Rotildis P. Massawe	Institute of Management & Entrepreneurship Development (IMED)	Business Development Manager	Secretary
Msomisi Mbenna	Shell Exploration & Production Tanzania (SEP-T)	Senior Social Performance Advisor	Member
Wanjala John	Ministry of Natural Resources and Tourism	Head of forestry and bee keeping policy and legislation	Member
Emilian Nyanda	Ministry of Energy	Senior Energy Officer	Member
Arnold Mapinduzi	National Environmental Management Council (NEMC)	Senior Environment Management Officer	Member
Young Hamisi Zeni	Tanzania Forest Service Agency (TFS)	PFO	Member (current)
John Olomi	Tanzania Forest Service Agency (TFS)	Principal Forest Officer	Member (past)
Mathias Lema	Tanzania Forest Service Agency (TFS)	Principal Forest Officer	Member (past)



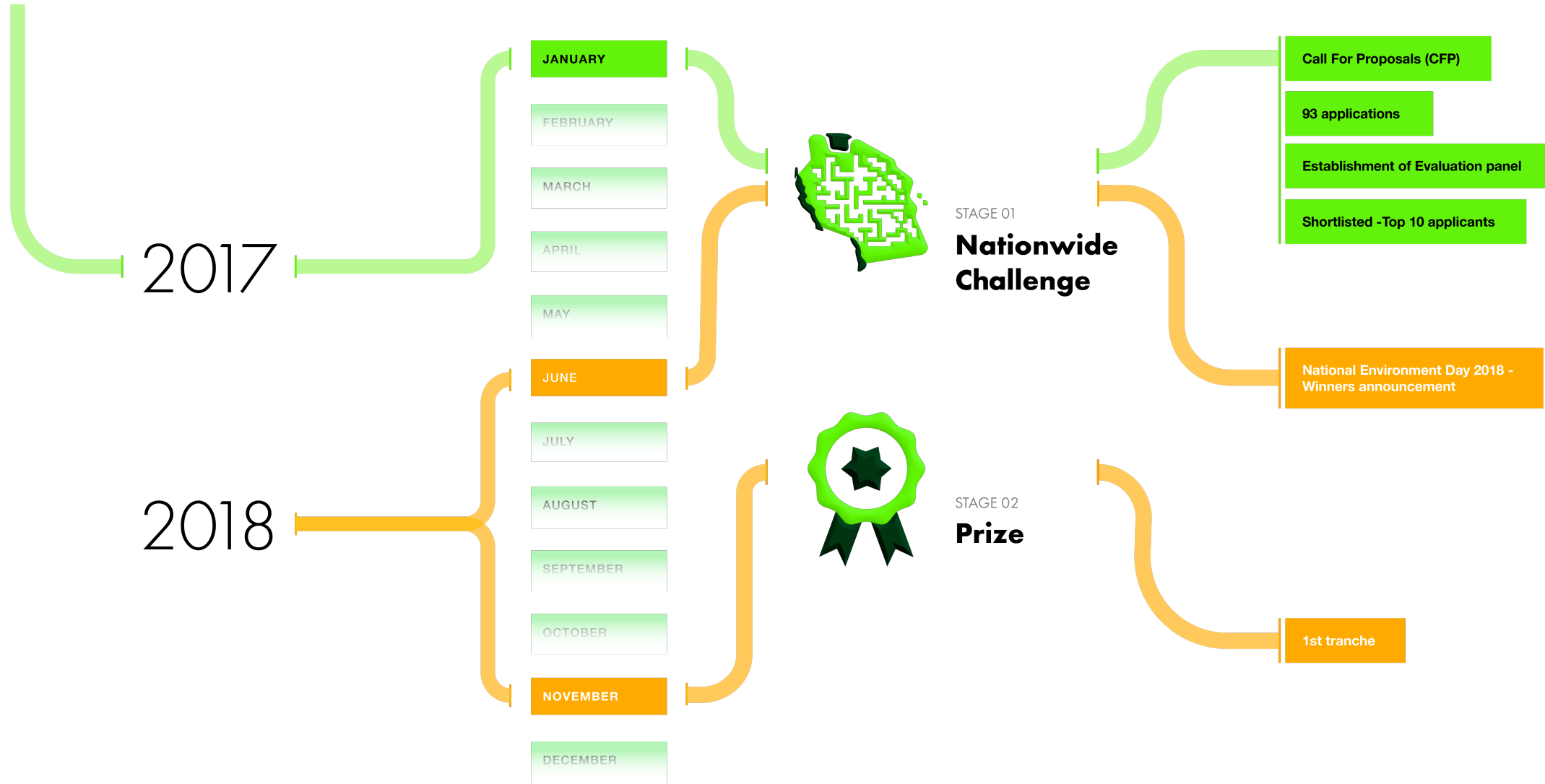
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PART 05: INCUBATION PROJECT ACTIVITIES AND TIMELINES

# Project Timelines

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2019

- JANUARY
- FEBRUARY
- MARCH
- APRIL
- MAY
- JUNE
- JULY
- AUGUST
- SEPTEMBER
- OCTOBER
- NOVEMBER
- DECEMBER



STAGE 02  
**Prize**



STAGE 03  
**Incubation**



STAGE 04  
**Project Close**

2nd Tranche

3rd Tranche

UDom -Field visit Mena Wood customers

Tabora - Field Visit Kuja Na Kushoka Workshop

Media Publicity

VPO Environment - Courtesy meeting with State Minister for Environment

Iringa - Field visit to Mena Wood

Bagamoyo - Field visits to Kuja na Kushoka

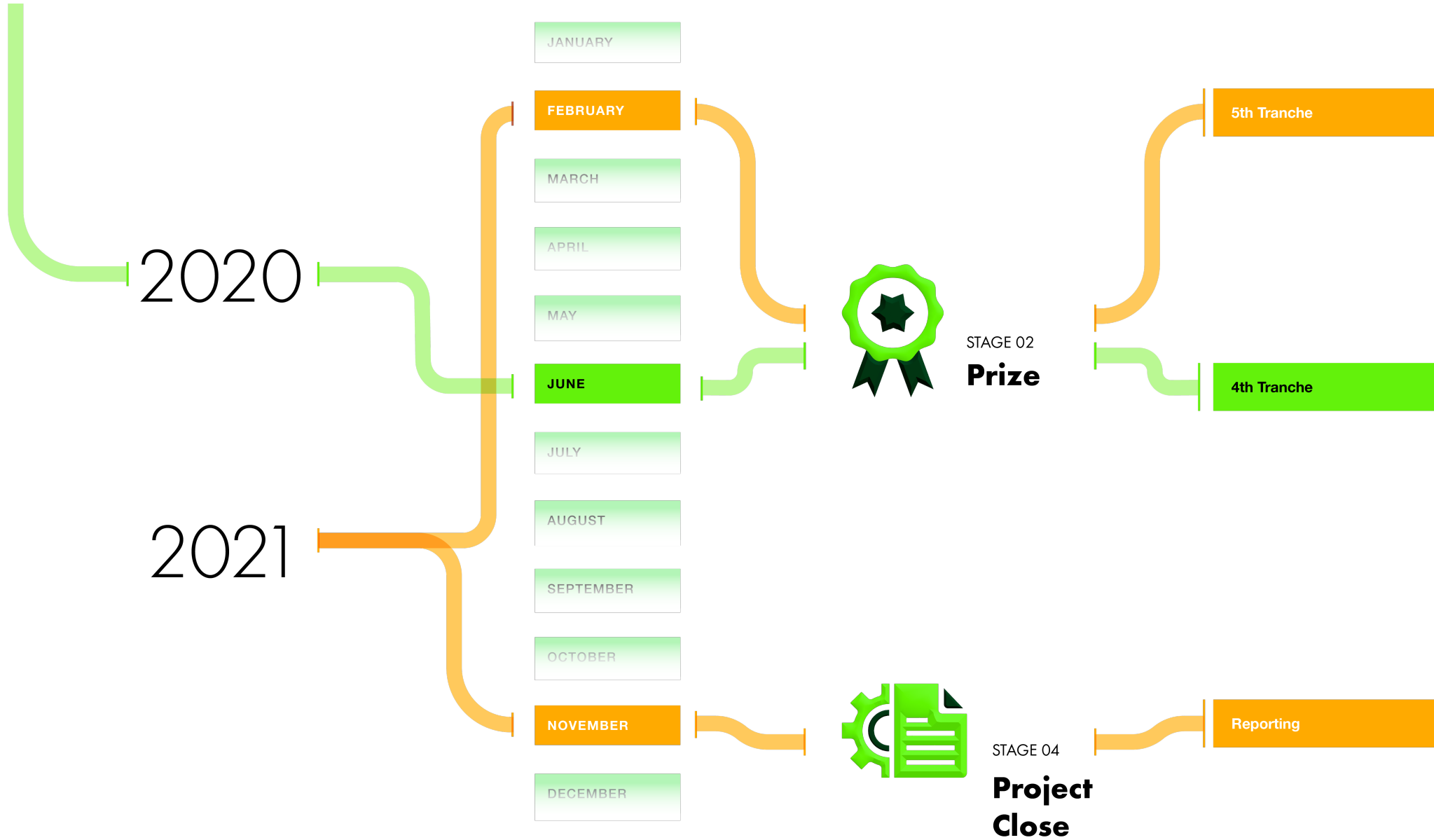
Tabora - Field visits Kuja na Kushoka workshop

Kibaha - Field visit Space Engineering production site

Ubungu Bus Terminal - Field visit Kuja na Kushoka distribution center

Kibaha - Field visit Space Engineering production site

Reporting









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PART 06: PROJECT RESULTS

# Performance of Supported Enterprises

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# Champions of Charcoal Alternatives

	PRODUCTS	TYPES
Kuja na Kushoka Tools Manufactures Group	Briquetting Machines	3MT 1.5MT 0.8MT
	Energy Efficient Stoves	Domestic – For households & food vendors Commercial – For academic institutions, the military
	Carbonized Biomass Briquettes	
Space Engineering Company Limited	Energy Efficient Stoves	Domestic Commercial
	Carbonized Biomass Briquettes	
Mena Wood Briquetting Company Limited	Energy Efficient Stoves	Domestic Commercial
	Carbonized Biomass Briquettes	



# Technical Working Group (TWG)

DESIGNATION	ORGANISATION
Chairperson	Vice President's Office (VPO)
Secretary	Institute of Management and Entrepreneurship Development (IMED)
Member	Shell Exploration and Production Tanzania Limited (SEP-T)
Member	Ministry of Natural Resources and Tourism (MNRT)
Member	Ministry of Energy (MoE)
Member	Tanzania Forest Services (TFS) Agency
Member	National Environment Management Council (NEMC)



# KPIs, Performance & Volume Production

	PRODUCTS	YEAR	TARGET VOLUME	ACTUAL	%
Kuja na Kushoka Tools Manufactures Group	Briquetting Machines	2019	100 MT	31 MT	31%
		2020	50 MT	23 MT	46%
	Carbonized Biomass Briquettes	2019	NO TARGET	116 MT	N/A
		2020	200 MT	184.4 MT	92%
Space Engineering Company Limited	Carbonized Biomass Briquettes	2019	4,025 MT	2,157 MT	53%
		2020	4,608 MT	1,474 MT	32%
Mena Wood Briquetting Company Limited	Carbonized Biomass Briquettes	2019	1,020 MT	284 MT	28%
		2020	540 MT	246 MT	46%

# Performance of Supported Energy Enterprises

ENTERPRISE		BASELINE SURVEY (2018)	ACTUAL PRODUCTION (JUNE 2021)
Kuja na Kushoka Tools Manufactures Group	Briquetting Machines - Pcs	20	71
	Carbonized Charcoal - MT	0	343.46
Space Engineering Company Limited	Carbonized Charcoal - MT	1,036	4,262.40
Mena Wood Briquetting Company Limited	Non-Carbonized Charcoal - MT	360	707.25

# Volume Production

CHAMPION	PRODUCTS	YEAR	TARGET VOLUME	ACTUAL	%
Kuja na Kushoka Tools Manufactures Group	Briquetting Machines	2019	100 MT	31 MT	31%
		2020	50 MT	23 MT	46%
	Carbonized Biomass Briquettes	2019	NO TARGET	116 MT	N/A
		2020	200 MT	184.4 MT	92%
Space Engineering Company Limited	Carbonized Biomass Briquettes	2019	4,025 MT	2,157 MT	53%
		2020	4,608 MT	1,474 MT	32%
Mena Wood Briquetting Company Limited	Carbonized Biomass Briquettes	2019	1,020 MT	284 MT	28%
		2020	540 MT	246 MT	46%

# Sales Performance

CHAMPION	PRODUCTS	YEAR	TARGET SALES	ACTUAL	%
Kuja na Kushoka Tools Manufactures Group	Briquetting Machines	2019	700M	304 M	43%
		2020	410M	73 M	18%
	Carbonized Biomass Briquettes	2019	NO TARGET	52 M	N/A
		2020	100M	54.27 M	54%
Space Engineering Company Limited	Carbonized Biomass Briquettes	2019	2.03 M	838.4 M	41%
		2020	2.61 M	617 M	24%
Mena Wood Briquetting Company Limited	Carbonized Biomass Briquettes	2019	428.4 M	113.5 M	26%
		2020	261	199 M	46%

## Low Performance Attributes

### Baseline Survey

Set inaccurate KPI estimates higher than champions production and sales capacities

### COVID 19

Pandemic disrupted project affecting revised KPIs indicating decrease in performance due to temporary closure of academic institutions which are main customers of Mena Wood Briquetting Company Limited and Space Engineering Company Limited



# Award

## PRIZE MONEY ALLOCATION

Purchase Of Machines And Tools	Construction Of Workspace	Marketing/Communication/Awareness Campaigns	Community support /CSR	Training, exhibitions and meetings
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DISBURSEMENT TABLE; TARGET VOLUME	1ST TRANCHE	2ND TRANCHE	3RD TRANCHE	4TH TRANCHE	5TH TRANCHE	TOTAL
<b>CHAMPION</b>	20-Nov-18	04-Jul-19	11&12-Nov-19	04-Jun-20	22-Feb-21	
Kuja na Kushoka Tools Manufactures Group	50,000,000	50,000,000	100,000,000	50,000,000	50,000,000	<b>300,000,000</b>
Space Engineering Company Limited	33,333,000	33,333,000	66,667,334	33,333,000	33,333,000	<b>200,000,000</b>
Mena Wood Briquetting Company Limited	16,670,000	16,663,334	33,333,333	-	33,333,333	<b>100,000,000</b>
	<b>100,003,000</b>	<b>99,996,334</b>	<b>200,000,667</b>	<b>83,333,333</b>	<b>116,666,666</b>	<b>600,000,000</b>



# Milestones

CHAMPION	MILESTONES
Kuja na Kushoka Tools Manufactures Group	Briquetting machine production- Increase
	Briquette production - Increase
	New distribution center – Ubungo bus terminal, Dar es Salaam
	New Briquette markets – Kigoma refugee camps, Tabora prisons
	Tabora Community sensitization – Uhuru torch race provision of 200 improved cooking stoves for food vendors
	Basic Kaizen implementation
Space Engineering Company Limited	Briquette Production - Increase
	Bank loan – TZS 48.3m secured from CRDB bank
	Business Accounting – System Improved
	Basic Kaizen Implementation
Mena Wood Briquetting Company Limited	Briquette sales - Increase
	New Improved Cooking Stoves – Installation at 8 UDom cafeterias
	Improved Business systems
	New Briquette Market- 8 UDom cafeterias
	New distribution center – Nane Nane, Dodoma



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**PART 06: PROJECT RESULTS**

# Customer Feedback

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# Customer Feedback/ Response

## Cost Reduction

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Almost  $\frac{3}{4}$  (75%) of customers say they spend less on energy now. They attribute this decrease to affordable prices of products, long lasting nature of their products and efficiency.

## Quality & Durability

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Customers loved the quality of the cook stove and the durable, clean nature of the briquettes. Almost all customers would be disappointed to some extent if they could no longer use their product.

## Improved Quality of life & sustainable livelihoods

The products have led to improvements in the quality of life for 77% of the customers. The top three outcomes reported are improvements in savings, increased business efficiency and decreased business costs for customers.

## Product Availability & Efficiency

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Customers would like to see an improvement in quality of products, expansion of distribution channels and improved product efficiency.



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PART 07

# Challenges & Lessons

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# Challenges

## COVID 19

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Covid-19 disrupted winners' operations, delivery of training, coaching and steering committee meetings.

Some meetings had to be held online. Most of the winners' clients are education institutions and closure due to covid-19 severely affected their businesses.

## Lack Of Briquettes Awareness

Awareness of briquettes as alternatives to charcoal as well as knowledge of how to use briquettes correctly are still very low and these pose challenges to adoption.

## Small number and scale of producers

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The number and scale of producers to alternative to charcoal is still small compared to the need, and this makes it difficult for policy makers to restrict use of charcoal users to switch to alternatives.

# Key Lessons

This project generated some lessons regarding the agenda of supporting the transition from charcoal alternatives as follows:-

## Large Scale Production

Many more producers are needed in the market to bring the impact on reduction in charcoal use,

## Providing Technology

Providing technology (e.g. briquetting machines) to persons or groups with no business orientation/skills is a burden to them - some could not find customers or sustain operations after procuring briquetting machine.

## Promoting Adoption

Promoting adoption of alternatives to charcoal is a challenge that requires multi-stakeholder efforts from the government, private sector, community of which cannot be addressed by just one project.

## Sustainable Scaling

Sustainable scaling up of production and sales is best done gradually as companies learn and develop the right market knowledge and systems.

## Government

While government entities (e.g., education, health, and security institutions) can easily switch to charcoal alternatives such as briquettes and serve as role models, procurement regulations do not provide enough flexibility for the transition

## Government Policy Measures

Government can make a big difference through policy measures (e.g., gradually declare some markets or types of institutions charcoal free and invest in raising awareness of charcoal alternatives through media campaigns)



# Key Lessons

This project generated some lessons regarding the agenda of supporting the transition from charcoal alternatives as follows:-

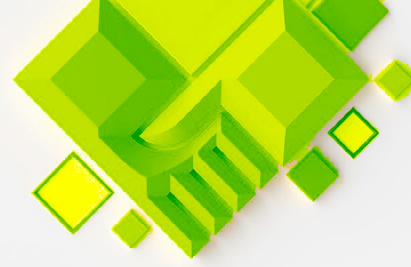
## Mass Education & Awareness

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The biggest barrier to adoption of briquettes in place of traditional charcoal is low awareness of the community of existence of and proper use of briquettes – mass education and sensitization campaigns are needed,

## Job Creation

The agenda of replacing charcoal by briquettes presents an opportunity to support industrialization and job creation



# Thank You



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