Online Catalogue:

LOCAL SUSTAINABLE SOLUTIONS IN EAST AFRICA – Cooking Fuels

www.localsolutions.inforse.org

Collection of Successful Cases of Sustainable Energy and Climate Solutions in Kenya, Uganda, and Tanzania.

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The Catalogue is published by Partners of the Project "East African Civil Society for Sustainable Energy & Climate Action" (EASE-CA), a Project by members of the civil society network INFORSE - International Network for Sustainable Energy. The Partners are: JEEP and UCSD in Uganda, Suswatch in Kenya, TaTEDO in Tanzania, which is also INFORSE-East Africa Coordinator, Nordic Folkecenter for Renewable Energy (NFRE), and INFORSE Secretariat in Denmark. More on the EASE-CA Project: www.inforse.org/africa/EASE.htm. The online database behind the Catalogue is designed by NFRE. The EASE-CA Project is supported by CISU - Civil Society in Development, Denmark in 2019-22.

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Charcoal Briquettes (Hand made)



Why to choose this solution?

Briquettes, as fuel, are virtually smokeless and slow-burning. They are easy to store and to transport. They burn three times longer than charcoal. Their use poses a lower risk to the respiratory health of users. Briquettes heat up evenly and remain at a constant temperature for a long time. They are more efficient fuel than either wood or charcoal, so their use reduces the cutting of trees for firewood, hence helping to conserve the environment.

Savings per day or production:

Briquettes are made from 100% organic waste and residues. They are designed to be long burning (up to four hours), reducing cooking costs by 20% to 40%. It is estimated that 0.8 kg of briquettes is equivalent to one kilogram of traditional charcoal of average quality.

Cost in money and in own time to construct:

A kilogram of charcoal briquettes costs between USh 1000 - 1,500, or approximately USD 0.28 - 0.41. It takes a minimum of two hours to make.

Lifetime:

They last three times more than charcoal when burning. It can last for more than 5 years if stored in a cool dry place.

Maintenance needed:

Not applicable.

Resources needed in use:

Energy saving stove and cooking utensils.

Problems and limits:

Briquettes are not water resistant.

Where and how can you get it or make it?

The briquettes are sold at JEEP, supermarkets and through most of the environmental CBOs operating in Uganda.

Skills needed to produce, install. maintenance, use:

Training is required to make them.

How to use it:

Not relevant.

How to maintain it:

Not relevant.

Climate effect (if any):

Using briquettes as an alternative energy source reduces the fuelwood-cutting that contributes to deforestation. This allows trees to remain standing as carbon sinks, which helps to slow climate change.

Why is it successful?

This solution has been successful because it is affordable; it lasts longer than charcoal; it is smokeless, efficient, and environment friendly. Support comes from development partners and from the government of Uganda.

If you can make it, a short description, typical problems, materials needed:

Raw materials needed or used may include charcoal dust, dry food-peelings, ash, water, cassava flour, clay, and/or molasses.

How to make it (if possible):

Not relevant.

How is it delivered and by whom?

It can be picked up from the JEEP head office in Kyanja.

Successful financial model

The materials used are cheap and readily available in our communities.

What policies and strategies helped the success?

There is support coming from development partners and from the government.

More info:

JEEP- Joint Energy and Environment Project, 7 Miles, Gayaza Rd, Kyanja, Kampala, P. O. Box 4264, Uganda. +256 414 578 316. Email: info@jeepfolkecenter.org

Sources:

https://jeepfolkecenter.org/

Case uploaded:

2021-03-15

Improved Basic Earth-Mound Kiln (IBEK)



Why to choose this solution?

The Earth Mound Kiln (EMK) is one of the oldest and most commonly used kilns in East Africa. EMK has average efficiency of 8-15%. Carbonization time is 8 days, during which the kiln requires continuous attention, and cooling time is 24-48 hour on average. The quality of charcoal produced is rather low. The Improved Basic Earth Mound Kiln (IBEK) has efficiency of more than 25%, carbonization takes only 4 days, cooling takes 24 hours, and the quality of charcoal produced is relatively high.

Savings per day or production:

IBEK has an efficiency of about 20-25%. It requires half the time required by the traditional BEK to produce charcoal. IBEK yields large pieces of charcoal with no leftovers, requires only 4.5 kg of wood per 1 kg of charcoal, and raises the calorific value of produced fuel to more than 31kJ/kg. For traditional EMK, in contrast, 7kg of wood are required to produce 1kg of low-quality charcoal of calorific value of 26kJ/kg.

Cost in money and in own time to construct:

IBEK is a temporary structure; the size of the kiln varies from a few cubic metersâ€™ capacity to over 100 cubic meters. One iron sheet to make the chimney is required, the price ranges from TSh 15,000 to 18,000 (USD 6.50 to 7.75). Another cost in time, effort, is labour, to construct, to load, to monitor, and to clear away the kiln. Given the reductions in number of days required for carbonization and in the amount of wood needed, the IBEK is a vast improvement over the traditional BEK in terms of labour costs.

Lifetime:

Carbonization takes four days and cooling takes 24 hours, then off-loading follows.

Maintenance needed:

During carbonization, one must monitor the process every two to three hours to ensure that the kiln is well covered throughout and that no air is getting into the kiln through its walls. Soil is used to cover any emerging openings in the structure of the kiln.

Resources needed in use:

One corrugated-iron sheet is needed to make a chimney. Wood, grasses, and soil, all locally available, complete the building materials. The IBEK requires little capital investment once one possesses the necessary common hand tools (axes, machetes, hoes, rakes, shovels, digging forks), which are usually already at hand from other daily industrial and agricultural activities of the rural population. Labour is required to form the chimney, to construct the kiln, to shepherd the process, and to unload the kiln.

Problems and limits:

More time is consumed while preparing and organizing wood in the kiln to minimize void space. A large amount of small pieces of wood is required to make the apron. More grasses are required, as the more efficient design requires the entire piles of wood to be covered completely.

Where and how can you get it or make it?

The IBEK design is applied in Tanzaniaâ€™s coastal and southern areas, but mainly is used in Kilosa in the Morogoro region.

Skills needed to produce, install. maintenance, use:

Arrangement of logs, chimney placement, and kiln covering requires a trained person. Monitoring of the carbonization process and charcoal off-loading need a short introduction only.

How to use it:

How to maintain it:

Climate effect (if any):

Each ton of charcoal produced and consumed in Tanzania using traditional methods generates nine tons of CO2 emissions; IBEK reduces emissions considerably. The IBEK is designed such that the chimney plays an important role in reducing air pollution by serving as a smoke filter. It works well, reducing the emission of harmful volatile substances into the atmosphere by as much as 75%.

Why is it successful?

IBEK uses a relatively smaller quantity of wood, and less carbonization time (hence, less monitoring time) to produce charcoal in the same quantity as the traditional method. Moreover, the IBEK yields large pieces of charcoal with no leftovers.

If you can make it, a short description, typical problems, materials needed:

Wood is needed to make charcoal. A metal sheet and minimal metal-working skills are required to make the chimney. A large amount of earth and grass is needed to achieve full coverage of the other material input, wood.

How to make it (if possible):

Video is being prepared to be uploaded later.

How is it delivered and by whom?

The IBEK has been incorporated into a sustainable charcoal-production model, which involves development of a village land-use plan with land demarcation for each villageâ€™s forest reserve. The village prepares a forest-management plan and by-laws for managing the village forest reserve. The forest-management plan designates areas for sustainable charcoal production equal to 10% of the villageâ€™s total forest land. A Village Natural Resource Committee (VNRC) is established to oversee and to manage the village forest land. One of the tasks of the VNRC is to approve requests from charcoal producers and to ensure that they follow sustainable charcoal production methods, including use of IBEKs rather than traditional BEKs.

Successful financial model

This model facilitates transformation of forest that, earlier, was regarded as general land, into village land. Thus, the model gives villagers the right to own, and to benefit from fees and royalties from, forest adjacent to them. Money previously collected by the central government remains in the village. The decision on how the revenue accrued will be used is made by the village assembly. In most cases, villagers use the money for community-development projects and for forest management costs, such as patrols.

What policies and strategies helped the success?

The Tanzania National Forest Policy advocates for Community Based Forest Management and benefit-sharing. Charcoal regulations and village by-laws support these improvements.

More info:

www.tatedo.or.tz

Sources:

TaTEDO, Mbezi Juu, Mpakani Road, Goba, House No GOB/KZD/883, P. O. Box 32794, Dar es Salaam, Tanzania. Tel: +255 738-201498, E-mail: energy@tatedo.or.tz

Case uploaded:

2020-09-04

Portable Metal Kiln

Why to choose this solution?

These portable metal kilns (PMKs) operate on the principle of reverse draught: carbonisation starts from the top and moves downwards, aided by chimneys situated around the base of the kiln. They provide better control and a greater average yield (about 30%) of charcoal with shorter production cycles (16-24 hours) than traditional earth kilns.

Savings per day or production:

Saves on kilograms of wood used to produce charcoal (the kiln will reduce wastage of wood), as it produces more kg of charcoal (250 kg) for every 1000 kg of wood used. The traditional earth kiln only produces 120-180 kg of charcoal from the same amount of wood.

Cost in money and in own time to construct:

Not specified.

Lifetime:

2-3 years.

Maintenance needed:

Not specified.

Resources needed in use:

The kiln requires dried tree branches systematically arranged vertically inside the drum. The fire is lit from the top once the drum is full.

Problems and limits:

PMKs have a higher capital cost compared with an equal production capacity of either improved basic earth-mound kilns or masonry kilns; they are limited in production capacity (about 3-4 bags); and biomass must be cut and/ split to fit into the kiln. Putting the lid on a flaming drum can also be dicey.

Where and how can you get it or make it?

These kilns are available at Kenya Forestry Research Institute (KEFRI). They are made from ordinary oil drums, modified by welding on short metal pipes that act as chimneys.

Skills needed to produce, install. maintenance, use:

Skills needed to produce and maintain the metal kilns are welding and metal crafts training. The charcoal producers are trained on how to use this technology. An easy-to-use training manual is also available at KEFRI to guide the users.

How to use it:

To be added.

How to maintain it:

To be added.

Climate effect (if any):

The kiln uses tree branches and thus there is less need to cut down trees. This technology therefore reduces some of the deforestation that contributes to climate change.

Why is it successful?

It succeeds because PMKs are easily moved to sites near the required raw materials. Further, the production cycle is short (16-24 hours), they are sturdy and thus last for two to three years, and being weather-resistant, they can be operated throughout the wet season.

If you can make it, a short description, typical problems, materials needed:

The kilns are made of 2-mm-thick stainless or mild steel, consisting of three interlocking cylindrical sectors and a conical cover. The bottom cylinder has eight air inlet/outlet channels arranged radially at the base, chimneys are situated around the base of the kiln.

How to make it (if possible):

To be added.

How is it delivered and by whom?

The PMK is produced by skilled metal craftsmen. Charcoal producers in charcoal-producing counties (men and women) are trained to produce charcoal with this technology, and such training propagates further through the Charcoal Producer Association (CPA). Main actors include charcoal producers and KEFRI as well as charcoal research and development organisations.

Successful financial model

Training charcoal producers and supporting the development of a charcoal framework could be developed further by the Government into a full- fledged Nationally Appropriate Mitigation Action priority. Successful partnerships support the technology, e.g., with Kenya Forest Service (KFS) and with organisations involved in charcoal-related research and development like the United Nations Development Program (UNDP).

What policies and strategies helped the success?

Successful partnerships, training of charcoal producers, and charcoal rules and regulations of Kenya, 2015.

More info:

https://www.fornis.net/node/272 and at
https://www.ke.undp.org/content/kenya/en/home/presscenter/articles/2016/sustainable-charcoal-production-using-improved-technologies.html

Sources:

Kenya Forest Service, Tel: 020-2689882.

Case uploaded:

2020-08-27

Blue Box Toilet Waste Sanivation Briquettes



Why to choose this solution?

Sanivation collects human waste from special toilets and turns it into sustainable fuel, which improves sanitation and reduces the environmental impact of burning wood. It creates fuel briquettes for cook stoves, which comes from its toilet service in Naivasha (Kenya). The briquettes are cheaper, cleaner, and longer-lasting than charcoal.

Savings per day or production:

Sanivation briquettes burn 1 hour 45 minutes longer than charcoal, thus they are more economical to use. They reduce the demand for charcoal and wood for cooking and heating, as well as help to protect the environment.

Cost in money and in own time to construct:

Installation of the blue box is free, but the users pay a basic monthly service fee of KES 200 (USD 2) for the human waste to be collected twice a week. Installation takes one day.

Lifetime:

Not specified.

Maintenance needed:

The blue box condition is inspected during the collection of human wastes twice a week.

Resources needed in use:

The blue box, the service, and efficient cookstoves to cook with the fuel produced.

Problems and limits:

The initial monthly household service fee was set at KSh 600 (USD 6) which proved very expensive for the users. It was then reduced to the present KSh 200, which made a big difference in uptake. The initial plan was to use flower waste from nearby flower farms, in addition to charcoal dust. However, the cost of carbonizing flower waste was found to be too high, so the focus shifted to charcoal dust, which is readily available. At times, production may be affected by fluctuations in grid electricity from Kenya Power.

Where and how can you get it or make it?

Available in Naivasha and Nakuru counties, Kenya. Beneficiaries of the Blue Box are identified by Sanivation Sales Agents.

Skills needed to produce, install. maintenance, use:

Skills needed to install and to maintain the Blue Box include engineering, energy, and construction skills. There are written instructions on how to use the Blue Box.

How to use it:

To be added.

How to maintain it:

To be added.

Climate effect (if any):

People who replace charcoal with briquettes reduce their emissions by not burning charcoal. The briquettes save about 50% of emissions, which is about 2 tons CO2-equivalent/year if 2.5 kg wood/day are saved. There is a high rate of tree loss in the area, and every ton of charcoal sold saves about 88 trees.

Why is it successful?

It is affordable. It sustainably replaces some amounts of other charcoal, saving trees and removing some part of the contribution of fuelwood to climate change. It conveniently offers reliable, user-focused, vertically integrated sanitation services. Another critical benefit of the Sanivation service, according to studies conducted by Sanivation, is reduction of the number of people suffering from diseases related to improper human-waste disposal.

If you can make it, a short description, typical problems, materials needed:

Materials needed include Blue box, human wastes, charcoal dust, centrifugal briquetting machine, and drying trays. The expertise of trained technicians is also necessary.

How to make it (if possible):

https://youtu.be/bPwwUaKJVfY

How is it delivered and by whom?

Beneficiaries of the Blue Box are identified by Sanivation Sales Agents and although they are installed for free, the home owner signs an agreement with Sanivation to abide with the written instructions on how to use the Blue Box, and to pay a basic monthly service fee of KSh 200 (USD 2) for the human waste to be collected twice a week. The location of all Blue Boxes is established using GPS coordinates, and moving a Blue Box from one house to another is allowed with prior consultation.

Successful financial model

Support for development, training.

What policies and strategies helped the success?

Successful partnerships with the Nakuru County government as well as with Naivasha Water and Sanitation Company (VAIVAWASCO). The Centers for Disease Control and Prevention (CDC) Kenya and the CDC Waterborne Disease Prevention Branch are collaborating with Sanivation through a CDC Innovation Fund Award to help scale-up their waste collection and treatment activities beyond household subscribers.

More info:

Sanivation http://www.sanivation.com

Sources:

Sanivation, Mr. Benjamin Kramer, E-mail: Benjamin@sanivation.com. Tel: +254 716 963 462.

Case uploaded:

2020-08-18

Coconut Husks and Charcoal Dust Briquettes



Why to choose this solution?

In Tanzania, after the edible portions of the coconut fruit are consumed, the husks often are thrown away or burnt. Improper disposal and burning of husks creates environmental problems such as air pollution and chocked (gutter) mosquito-breeding sites that support transmission of mosquito- borne cholera, malaria, and fever.

Savings per day or production:

The wholesale price of a bag of charcoal weighing between 50- 75 kg runs to TSh 45,000 - 70,000 (USD 19.50 - 30). Thus, one kilogram of charcoal costs about 900Tsh (USD 0.4), whereas one kilogram of briquettes is sold at TSh 600-700 (USD 0.25-0.30). Briquettes are more affordable than wood charcoal. Their greater efficiency stems from their higher calorific value, longer burning time, and more even heating.

Cost in money and in own time to construct:

To produce one ton of briquettes, SEECO incurs a total cost of TSh 305,104 (USD 130). These costs include materials, labour, transportation of materials, and overhead costs. To produce 1-1.5 ton, 6-8 hours are required.

Lifetime:

N/A

Maintenance needed:

Regular maintenance of the briquette-making machines is required, including replacement of bearings, etc.

Resources needed in use:

An improved cookstove is required to use the briquettes for cooking. There is no need for a specific model of stove, since the briquettes burn well in normal charcoal-burning improved stoves.

Problems and limits:

Low community awareness of the potential benefits of briquettes limits its use, especially in households. Another challenge might be limited availability or increased costs of feedstock at a future peak of briquette markets.

Where and how can you get it or make it?

It is available in Tanzania markets and is produced by SEECO social enterprise. Some training, investment in machines, and construction of carbonization kilns is required to be able to produce briquettes.

Skills needed to produce, install. maintenance, use:

Simple training is required to be able to produce briquettes. Proper ratios must be used to mix materials required for briquette production. Some training is required on how to use the briquette- production machines.

How to use it:

How to maintain it:

Climate effect (if any):

Methane is a greenhouse gas which is mostly emitted from decomposing waste. It has more than twenty times the potency of carbon dioxide and is ranked as a dangerous contributor to climate change. Using coconut husks and charcoal dust to produce briquettes avoids the production of some methane while producing clean fuels which are useful for cooking. Carbonization of coconut husks is undertaken in simple retort kilns through pyrolysis-process gas, thus less biomass is used to initiate carbonization before the process becomes self-sustaining.

Why is it successful?

Briquettes are more affordable than most existing fuels. They are more efficient, since they have a higher calorific value, and long burning time. They are user-friendly, clean, and smokeless.

If you can make it, a short description, typical problems, materials needed:

Required materials include coconut husks, charcoal dust, and a binder of cassava flour. After binding into shape, it requires sun and ground space to dry.

How to make it (if possible):

(video coming)

How is it delivered and by whom?

Main actors include wood-charcoal wholesalers and retailers, coconut-oil producers, cassava-flour dealers, SEECO social enterprise, transporters, and end-users. SEECO always works to maintain the high quality of its briquettes. The enterprise uses a business approach to deliver briquettes to targeted end-users. SEECO uses marketing personnel to identify and to sell to potential customers, who are provided with product samples to test. The majority of people who have tested SEECO briquettes come back to buy more. In an average week, SEECO sells about one ton of briquettes to existing customers.

Successful financial model

Initial investment capital was covered by a grant from a development programme. SEECO covers operational and maintenance costs through business returns.

What policies and strategies helped the success?

The National Energy Policy of 2015 promotes fuel alternatives to replace wood charcoal; the Draft Biomass Energy Strategy (BEST) identified briquettes from waste as one promising alternative cooking fuel. Support come as well from the former Minister of Environment of Tanzania, Mr. January Makamba, who organized awards for competitions of the briquette producers.

More info:

SEECO, Tanzania. https://sescom.co.tz/seeco , https://www.facebook.com/SEECOtz/

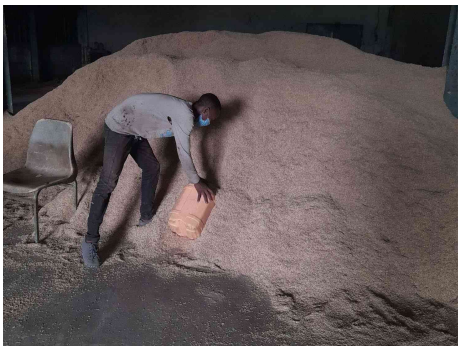
Sources:

Case uploaded:

2020-08-18

KIDT Rice Husks Charcoal Briquettes





Why to choose this solution?

Rice husks charcoal briquettes is an alternative to wood charcoal as it provides energy for cooking in households, learning institutions, hospital, for cooking various kinds of foods such as beans, Ugali, rice etc.

Savings per day or production:

"2kg of rice husk briquettes charcoal worth 600 Tshs is enough for cooking one day meals for a household whereas if wood charcoal is used, Tshs 1000/= will be require to accomplish the task. For institution they can consume 30kg of rice husks briquettes per day instead of 70kg of wood charcoal. "

Cost in money and in own time to construct:

1kg of briquette is sold Tsh 300/=

Lifetime:

N/A

Maintenance needed:

All measures should be in place to ensure briquettes do not come into contact with water

Resources needed in use:

Rice husks are raw material for producing the briquettes

Problems and limits:

"Since availability of rice Husks is seasonal, it requires capital for purchasing and also area for storage."

Where and how can you get it or make it?

It is available at Kilimanjaro Industry Development Trust (KIDT) Moshi- Kilimanjaro in Tanzania

Skills needed to produce, install. maintenance, use:

" Skills for producing rice husks briquettes charcoal available at KIDT. Short training and machines are required to be able to produce KIDT briquettes.

How to use it:

" https://youtu.be/svbpv06B8FU

How to maintain it:

" https://youtu.be/yhvvWwU72bc

Climate effect (if any):

Offer an alternative energy to wood hence reducing the growing demand for wood charcoal therefore contributing to reduced deforestation. Briquettes are made out of rice husks which if not used would have rot leading to generate methane contributing to greenhouse gas emissions.

Why is it successful?

It is successful because it is cheaper and its heat last longer.

If you can make it, a short description, typical problems, materials needed:

" "Not applicable, needs a skilled technician"

How to make it (if possible):

" https://youtu.be/OrvNS51wae0

How is it delivered and by whom?

Successful financial model

What policies and strategies helped the success?

Donors community such as JICA -Japan has been supporting this project with the aim to limit deforestation and the effects of climate change.

More info:

"www.kidt.org, njaujean@mail.co.tz"

Sources:

KIDT (Kilimanjaro Industrial Development Trust)

Case uploaded:

2022-03-30

Maa Briquette



Why to choose this solution?

This solution uses charcoal dust, maize cobs, maize stalks, and waste vegetable matter to make smokeless briquettes which are dried and then sold as fuel. The briquettes burn three times longer than charcoal, and are smokeless, hence pose much less risk to the respiratory health of the user. At the same time, use of briquettes resolves the environmental challenge of exploitation of trees.

Savings per day or production:

Saves about 60 trees per day per 500 households. The briquettes burn three times longer than charcoal and are smokeless, hence posing minimal risk to the user respiratory health.

Cost in money and in own time to construct:

Cost about six Million Kenya Shillings (USD 60,000).

Lifetime:

Not specified.

Maintenance needed:

Repair of the briquetting machine in case of any breakdown.

Resources needed in use:

Improved cookstoves (Jikos) to use the briquettes for cooking.

Problems and limits:

It is a challenge to revamp the sole-proprietor business into a company due to numerous prerequisites and capital required for expansion. For the enterprise to be considered as a company, a lot of investment has to be put in place, licensing, upscaling equipment, and mentors are needed.

Where and how can you get it or make it?

Available in Kajiado County ,Kenya.

Skills needed to produce, install. maintenance, use:

Production of the briquettes requires a short training session.

How to use it:

https://youtu.be/QNiROZI9dGw

How to maintain it:

To be added.

Climate effect (if any):

According to George Mochu, the owner of Maa Briquette, this solution has helped to reduce deforestation significantly. Initially, ten trees would be cut daily-- amounting to seventy trees per week -- for fuel. With the

use of these briquettes, only one or two trees are felled per week for the over 500 households reached.

Why is it successful?

It is an affordable, easily accessible fuel. It is smokeless, efficient, and environmentally friendly.

If you can make it, a short description, typical problems, materials needed:

To make Maa Briquettes, the user should first source the raw materials, which are charcoal dust, maize cobs, maize stalks, and any agricultural waste, all of which must be carbonized first for production. These carbonized materials are sorted by sieving, then put through a hammer mill, where they are ground to a fine powder. They then go into a mixing machine, where they are mixed with a binder and water. After production, they are dried either outdoors or inside a solar dryer.

How to make it (if possible):

https://youtu.be/QNiROZI9dGw

How is it delivered and by whom?

Maa briquettes are either delivered to customers by sales agents in pickup vehicles or bought directly and transported by customers.

Successful financial model

A local bank loan financed the purchase of the Briquette machine. Repayment of the loan has been facilitated through the returns and also through training other people on how to make the briquettes. The enterprise won the 2014 Green Innovation Award, which has brought further technical assistance in terms of planning. Successful partnerships with the National Environment Trust Fund from Kenya and with the Kenya Climate Change Innovation Center were involved. The company also conducted market research and has established a market base.

What policies and strategies helped the success?

Online marketing is done via social media, with information as to whether the briquettes are ready for purchase. Successful partnerships with the National Environment Trust Fund from Kenya and with the Kenya Climate Change Innovation Center assisted the owner in creating a feasible business plan.

More info:

https://www.changemakers.com/discussions/entries/maa-briquettes and
https://www.charcoalproject.org/entrepreneurs/maa-briquettes/

Sources:

Maa briqutte, Kenya. Email: maabriquette@gmail.com. Tel:+254 728 284768.

Case uploaded:

2020-09-29

Fuelwood - Planting

Why to choose this solution?

Trees are vital. Trees give us oxygen, store carbon, stabilise the soil, and help to support the diverse wildlife of the world. They also provide us with materials for tools and shelter as well as fuel for cooking. Trees such as shear nut provide natural oils, which can be used for cooking and in personal- care products such soap, Vaseline, creams, and lotions. These natural oils are also medicinal, providing health benefits to the skin and to the entire body. Tree-planting is recommended to help mitigate climate change and its effects, e.g., drought, insufficient rains, destructive winds, floods, energy crises, and loss of soil. Tree-planting can also be done to earn income.

Savings per day or production:

The cost is low because tree-planting uses locally available resources like seedlings, manure, soil, and labour. Trees can also help reduce household bills for air conditioning and for heating bills. Trees contribute to their environment by providing oxygen, improving air quality, helping to slow climatic deterioration, conserving water, preserving soil, and supporting wildlife. During the process of photosynthesis, trees take in carbon dioxide and produce the oxygen we breathe.

Cost in money and in own time to construct:

Tree seedlings cost between USh 50 to 5000 (USD 0.01-to 1.4). Some seedlings and seeds can even be accessed locally, free of charge. Family labour can be used during establishment, and even if no members are available at home, you can plant your trees gradually until you accomplish the plantation. Cooking oil and cosmetics from natural oils from trees cost between USh 5000 and 50,000 UGX (approximately 1-14 USD).

Lifetime:

This may depend on the purpose. For example, one might harvest and manage the trees for regeneration for future uses. Durability also depends on the tree species, as some trees can last between 10-25 years.

Maintenance needed:

Weeding, pruning, protection against fire and animals, and too in some cases, spraying to control pests and diseases.

Resources needed in use:

Hoe, slasher, panga, manure, labour, spray pump, pesticide/fungicides.

Problems and limits:

Land shortages, prolonged dry spells, high temperatures, fires, inaccessibility of seedlings to some locations, varying sunshine, insufficient rains, financial capital to manage tree-planting, and theft of the trees.

Where and how can you get it or make it?

Seedlings and seeds can be accessed from tree nursery centres all over the country, from the bush as wildings, from existing forests, or below the trees on farms. Woodlots can also be established using Farmer Natural Regeneration Management.

Skills needed to produce, install. maintenance, use:

Knowledge of how to plant trees, spacing needed, where to plant.

How to use it:

Not relevant.

How to maintain it:

Not relevant.

Climate effect (if any):

Trees absorb CO2 by removing and storing the carbon while releasing oxygen back into the air. In one year, an acre of mature trees absorbs the same amount of CO2 produced when you drive your car 26,000 miles. Trees also play a big role in conserving water, preserving soil, and supporting wildlife.

Why is it successful?

Tree management practices as well as the trees themselves satisfy the needs of the farmers. Availability of land and bondage to culture. Fuel wood planting has been also successful because of support from the government and other development partners through provision of seedlings, awareness creation and capacity building trainings.

If you can make it, a short description, typical problems, materials needed:

Establishing a woodlot requires trained personnel. Typical problems associated with tree-planting include insufficient rains, drought, floods, animals, fires, limited quality seedlings, and financial constraints. Materials needed include manure, fertile black soil, seedlings, water, stakes, string, hoes, panga, basins.

How to make it (if possible):

Not necessary.

How is it delivered and by whom?

Not necessary.

Successful financial model

Support for development, trainings.

What policies and strategies helped the success?

The Government, the private sector, and civil society have supported tree-planting initiatives in the country. Communities are involved tree growing through local groups, training sessions in tree-growing, and management. The Tree-Planting Act of 2003 has helped, as has the Forestry Policy of 2001. Community by-laws help to guide the initiative (e.g., Before you cut existing trees, plant new trees.â€•). The governmental project Operation Wealth Creation (OWC) provides seedlings, especially of fruit trees.

More info:

http://spgs.mwe.go.ug/sites/files/SPGS%20Issue%2039.pdf and https://facethefuture.com/downloads/FtF_The-contribution-of-forests-to-climate-change-mitigation_LR.pdf

Sources:

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Case uploaded:

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