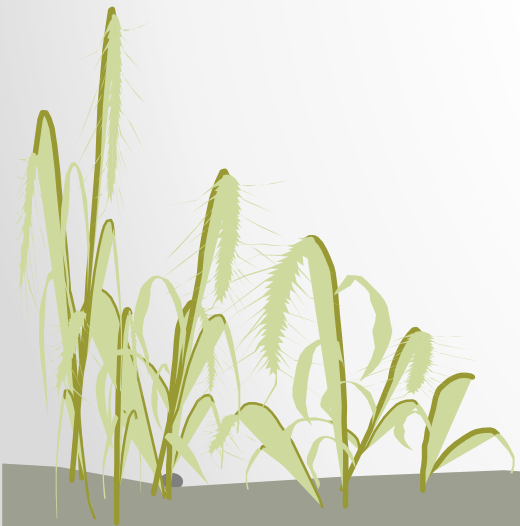


BIOMASS TO ENERGY INNOVATIONS in Tanzania

(Mr. Kazema, Tromso, Co. Ltd.)



Briquettes made of (rice husk, wood saw)
regulators <coal & allanblakia powders>

Contents:-

- Introduction
- History and Current Situation
- Product Innovation
- Statistics
- Problem facing the Project
- Future Predictions



BRIQUETTE MACHINE DESIGNER




Mr. Hashimoto
The founder and President of Tromso Co., Ltd
Hiroshima, Japan.



THE HEADQUARTERS OF THE COMPANY IN HIROSHIMA JAPAN

THE BRIQUETTE PRODUCING MACHINE

GRIND MILL



Specifications
Type: TRM-120A
Processing capacity: About 120 kg/h (when producing MOMIGALITE)
Size of mill: 2600 (width) x 1200 (depth) x 1615 (height) (mm)
Weight of mill: 1200 kg
Power supply: AC 400 V 3φ 50 Hz
Driving power: 15 KW 4P Reduction ratio: 1/15
Heater: 1. KW x 3 pieces

Characteristics of the GRIND MILL

- Efficient use of rice husks that are to be disposed of
- Produces solid fuel with excellent combustibility (MOMIGALITE)
- Integrated function of grinding and shaping rice husks into a solid fuel form. Products can be produced from the raw material in one process.
- Move the mill to where the rice husks are piled and set it up for operation.
- Use the mill solely for grinding and produce diverse natural organic materials such as feed and seed beds.
- Easy to operate and requires no special technique.




Figure: Production of MOMIGALITE

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Briquettes

INTRODUCTION:

TROMSO Co. Ltd, A company based in Japan built a rice husk Briquette Machine(Grind Mill) which uses the underutilized rice husks to Produce a useful Briquette product (The Kuni Mkaa Bora).

The machine was first created based on ship-building industry technological ethics in Hiroshima, Japan.

DEMACO Engineering Enterprise, a company based in Tanzania for manufacturing of machinery repair parts, and now under the auspices of JICA, SIDO and TROMSO had made significant improvement to the product(Kuni Mkaa Bora) produced from Rice Husk inclusive with other additives.

Some minor improvisations to the machine were made in order to maintain set production standards by TROMSO Ltd.



RICE HUSK BRIQUETTE MACHINE



TWO MACHINES BEING INSTALLED IN DEMACO MOROGORO.

IT IS UNDER PLAN TO MANUFACTURE 20 MORE MACHINES JOINTLY WITH DEMACO/TROMSO PARTNERSHIP IN THE YEAR 2018 UPON AVAILABILITY OF FUNDS.





The Rice Husk Briquette Machine

rice husk Briquette Machine (The Grind Mill)

- Robust and with Durable Core Parts
- High Production Capability
- Wide spectrum use of Natural Resources
- Dependable, resilient and reliable
- Potential for More Experimentation
- Technology Transfer to developing countries possible.

Product name: Grind Mill (rice husk briquette machine)

<p>Specifications (Modified Japan Model)</p>	<ul style="list-style-type: none">• Production capacity: 120kg/h of rice husk briquettes• Weight: approx. 1,300kg• Size: 2.7m(L) x 1.3m(W) x 2.3m(H)• Electricity supply: AC400V/3φ 50Hz AC200V/1φ 50Hz• Electricity Consumption: approx. 16kW (maximum 20kW)• Rice husk supply: automated• *The Japan model is modified to be operated with AC400V/3e 
<p>Specifications (Tanzania Model)</p>	<ul style="list-style-type: none">• Production capacity: 120kg/h of rice husk briquettes• Weight: approx. 850 kg• Size: 2.3m(L) x 1.05m(W) x 1.4m(H)• Electricity supply: AC400V/3φ 50Hz AC200V/1φ 50Hz• Electricity consumption: approx. 16kW (maximum 19kW)• Rice husk supply: manual 

RICE HUSK BRIQUETTE MACHINE



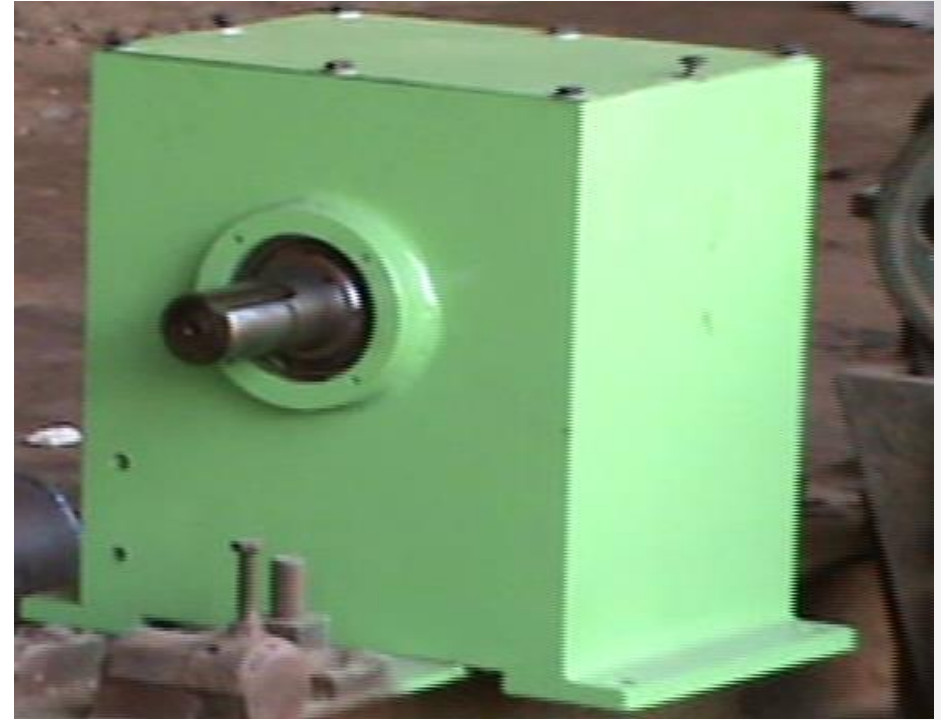
Mobile Grind Mill

THE MACHINE CAN BE MOUNTED ON THE VAN AND THIS IS A N IMPORTANT STRUTEGIC ADVANTAGE ON EXPANDING THE MARKETS TO IMPOSSIBLE ANGLES OF THE COUNTRY /COUNTRIES.

RICE HUSK BRIQUETTE MACHINE



TANANIAN TECHNICIANS AT TRAINING FOR HANDLING/MANUFACTURING OF MACHINE PARTS



THIS ASSEMBLED SHAFT BOX WAS MANUFACTURED IN DEMACO TANZANIA. A PRODUCT OF THE TROMSO TRAINING .

RICE HUSK BRIQUETTE MACHINE



THE FINISHED PRODUCTS
CAN BE SOLD IN SINGLE
BRIQUETTES AND IN BAGS
OF 25Kgm .

PRICING CAN BE IN TONS
AS WELL.



HISTORY AND CURRENT SITUATION



The availability of rice husk in huge quantities lead SIDO and JICA to improvise means to make use of this waste - turn it into a use full product, the BRIQUETTES

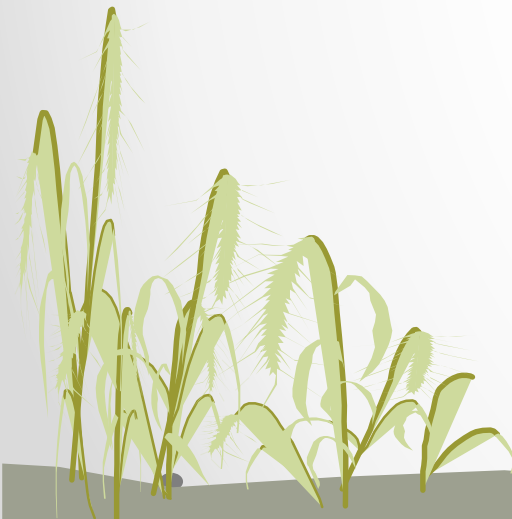
Machines were imported from TROMSO Ltd of Japan.

Two of the machines were installed in Morogoro at the DEMACO workshop.

DEMACO had alia been trained to maintain and possibly manufacture parts of this machine in TANZANIA which we did and TROMSO liked it.

However DEMACO realized that pure rice husk briquettes have to be improved in order to be USER FRIENDLY and worked on this and achieved remarkable results.

One of the achievements is to have briquettes which can be turned into charcoal in precisely the local peasants do it very cheaply drawing the price at par with charcoal from the forests.



Briquettes saver of the environment

CURRENT SITUATION

- One Major drive for deforestation in Third World countries is source of fuel. Use of Charcoal and fire woods as fuel is leading to destruction of forests in Tanzania and in most of Africa.
- Charcoal production is a major commercial activity in the rural areas and is mostly unregulated and subjected to weak government controls.
- Vicious circles of idleness during the year causes the unemployed to turn to the charcoal production business . Women and their class seven drop out have learned the trade . We call them the DESERT MAKERS by their action. They unfortunately cut down small size trees left over by the men we call the DESERT STARTERS who deal with mainly large trees.
- And such is the case in Senegal, in Zambia , Tanzania is off course leading, Kenya may not be left behind, and so is the case to most of the developing countries.



Briquettes

Current Situation

Urban growth has created a great demand for charcoal resulting in a loss of some 575,000 ha of forested land in Tanzania.

- Fuelwood supply to Dar es Salaam city alone had been depleting forests in the surrounding areas at a rate of 75,000 ha per annum.
- Consequently, today charcoal is brought from distances of up to 200 km inland. Piles of charcoal bags awaiting collection are a common sight along major roads leading to the cities.
- With up to 94% of cooking in the totality use charcoal and firewood for cooking. One study of the United Nation reveals that forest per capital of forested land area divided by the peoples population has decreased from 2.2 hectors to 0.9 from 1990 to 2015. While the population almost doubled the hector ratio has worsened to nearly 2.5 times.
- Under such forecalling situation it is absolutely necessary to keep searching for ALTANATIVE FUELS which can be substituted to firewood and charcoal.
- The solutions so found should be USER FRIENDLY close to those we want to substitute FIREWOOD AND CHARCOAL in quality and usefulness.



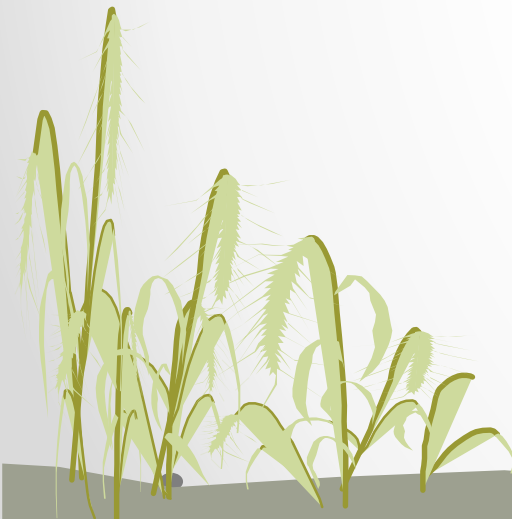
THE DESERT CREATORS



THESE PICTURES WERE TAKEN WITHIN 2 HOURS IN THE OUTSKITS OF MOROGORO (40 KILOMETER) ABOUT CHARCOAL ENTREPRENEURS FROM WOOD. THERE WERE HUNDREDS OF THEM AROUND.



DESERTIFICATION IN MOROGORO REGION



MORE PICTURES OF THE DESERTIFICATION PROCESS



THE PRODUCT INNOVATIONS

ON THE MACHINE:-

- The top stirrers. These helps the raw materials to flow into the grinding chamber easily and therefore no need of keeping operators busy doing this

ON THE BRIQUETTES:-

- The addition of 50% wood saw not only increased the calorific value but the briquettes burned veraciously to ashes.
- The addition of coal powder not only increased the calorific value but increased the glowing time after the veracious flame is out.
- The addition of allanblakia powder does increase the calorific value but its major task is to make the briquettes easy to start burn at the initial burning.

KuniBoraAnalysis1.pdf 1 / 1

ANALYSIS AND TEST RESULTS (1/1)

C U S T O M E R : Tromso Co., Ltd. REPORTING DATE 03/01/17

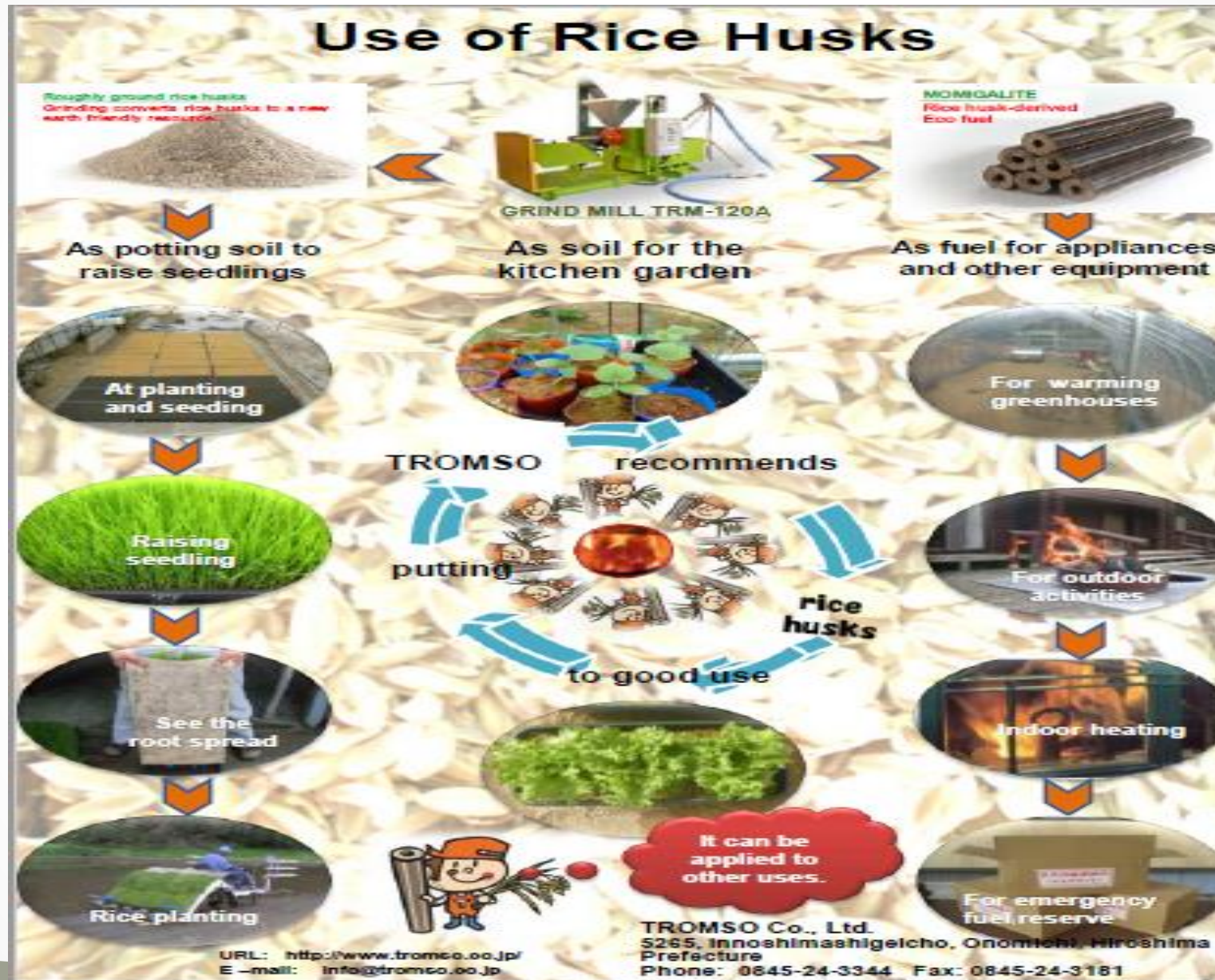
KIND OF ARTICLE Measurement of total calorific value REPORT No. NI603523

SAMPLE NAME	CHEMICAL COMPOSITION	
	Total calorific value	KJ/kg
Coal, Allanbrakia and Rice husk Mixture Briquette of Tanzania (Weight ratio: 2:3:30)	16740	
Rice Husk Briquette of Tanzania	14420	

[Remarks] [Analysis method]
According to JIS M8814, the total heating value measurement method by Bomb fuel gauge

JFE JFE Techno-Research Corporation,
Fukuyama Division
1, Kokan-cho, Fukuyama-city, Approved Signatory : _____
Analysis for Production Control Dept. general manager

THE PRODUCT INNOVATIONS



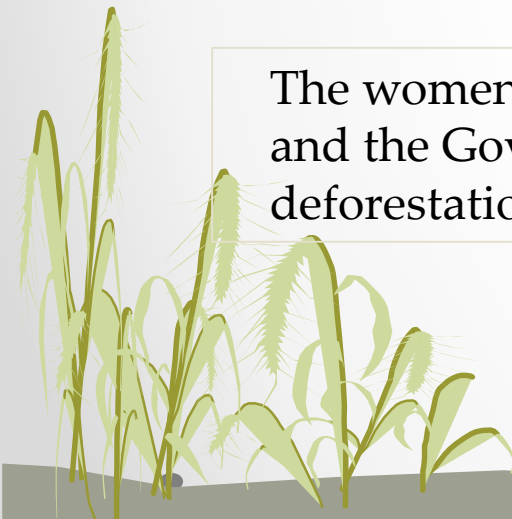
FUTURE PREDICTIONS

At the rate of deforestation of 175,000Ha per annum Morogoro will lose its position as the granary of this Tanzanian Nation in not afar off future.

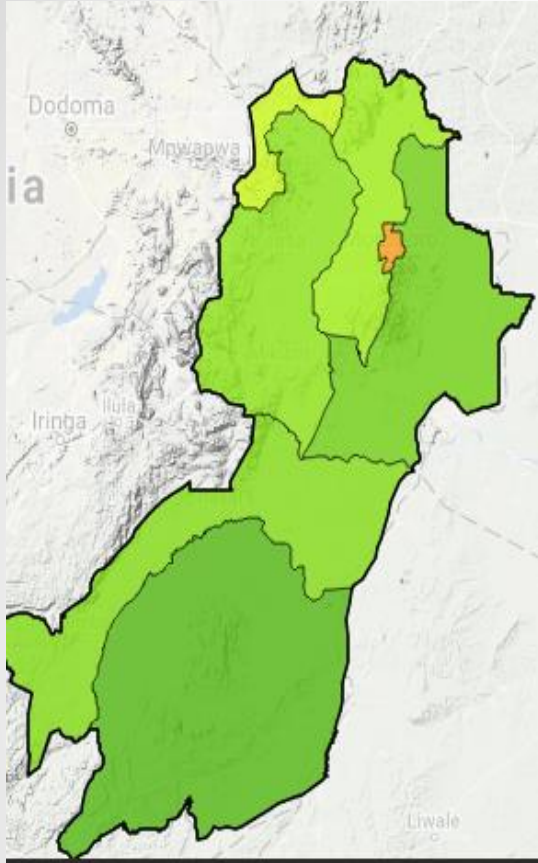
The amount of biomass turned to the rice husk ,wood saw modified by additions of powders of coal and allanblakia to equal the energy produced by forest firewood and charcoal will need a total of 575 briquette machines .

The TROMSO machine produces well compressed briquettes which can be used as firewood strait or be turned to good quality charcoal for public consumption.

The women and their school drop out will have an alternative to use as raw material and the Government will have now the moral authority to tighten the rope of deforestation



STATISTICS



MOROGORO

Region in Tanzania

Subdivision

The population development in Morogoro as well as related information and service (Wikipedia, Google, images).

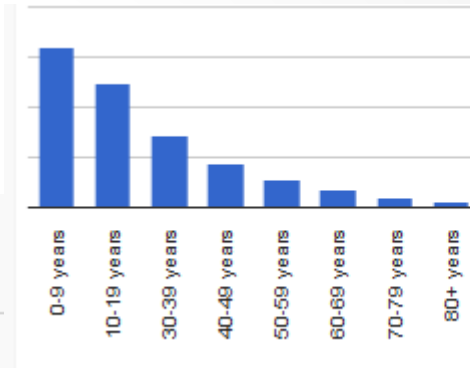
Name	Status	Population Census 1988-08-27	Population Census 2002-08-01	Population Census 2012-08-26
Morogoro	Region	1,220,564	1,753,362	2,218,492
Gairo	District	193,011
Kilombero	District	187,593	321,611	407,880
Kilosa	District	438,175
Morogoro Municipal	Municipality	117,601	227,921	315,866
Morogoro Rural	District	225,857	263,012	286,248
Mvomero	District	204,345	259,347	312,109
Ulanga	District	138,642	193,280	265,203
Tanzania	United Republic	23,174,336	34,443,603	44,928,923

Source: National Bureau of Statistics Tanzania (web).

Explanation: Area figures of districts are calculated from geospatial data.

Deforestation rate in Tanzania stands at 575,000 Ha per annum

Deforestation rate in Morogoro 200Km from DSM stands at 175,000 Ha per annum the highest Regional wise.



0-9 years	638,006
10-19 years	495,654
30-39 years	287,094
40-49 years	179,596
50-59 years	111,283
60-69 years	73,774
70-79 years	43,593
80+ years	22,442



PROBLEMS FACING THE PROJECT



WE DO NOT HAVE ENOUGH MACHINES TO CERTIFY EXISTING CUSTOMMERS LET ALONE NEW ONES

FUNDS FOR MANUFACTURING MORE GRIND MILLS ARE NOT AVAILABLE

MASIVE TRAINING AND MARKETING IN THE RURAL AREAS OF THIS GREAT INNOVATION NEEDS CAPITAL.

THE REGIONAL GOVERINMENT IS SUPPORTING US IN MARKETTING THE IDEA UP THE LADDER