

1) トロムソ発表資料



Project to promote utilization of forest knowledge in developing countries

-Forest conservation by turning
rice husks and wood waste
into biomass fuel-

TROMSO Co., Ltd.

Programme

Date: 1pm-3pm 14th Oct, 2022

Venue: Amru Rice (Cambodia) rice mill factory in Kampong Thom

Address: Bosveng Village, Salavisay Commune, Prasat balang District, Kampong Thom Province, Cambodia

Map: https://maps.app.goo.gl/pUdjfoem8nueMfp7?g_st=il

Host: JIFPRO/Tromso Co., Ltd.

Contents; 1. Demonstration of briquette production made from wood chips and rice husks using Grind Mill(briquetting machine)

2. Demonstration of briquette burning

3. Seminar(1. Ms. Asako YAMAMOTO(JIFPRO), 2. Mr. Masaaki UESUGI(Tromso))

4. Question-and-answer session

Great technology based on shipbuilding technology

Name	TROMSO Co., Ltd.
Location	5265 Innoshima shigei-cho, Onomichi-City, Hiroshima 〒722-2102, Japan TEL 0845-24-3344 FAX 0845-24-3181 http://tromso.co.jp info@tromso.co.jp
Business	Production and sales of rice husk briquette machine
Establishment	October 19 th 1994
CEO	MASAAKI UESUGI
Bank	Japan Finance Corporation, Hiroshima Bank Shoko Chukin Bank, The Hiroshimaken Credit Cooperative

Background of the business

Motivation and background to start a business

The founder ran a manufacturer of heat exchangers related to shipbuilding for 45 years, and experienced the past shipbuilding recession. he thought that shipbuilding technology could be used for manufacturing in the agricultural field, and established Tromso Co., Ltd.

Initially, it was not decided what the specific pillars of the business would be, and the company started by gathering four engineers who had retired from the major shipbuilding industry in the neighborhood.

The turning point was the encounter with an agricultural corporation in northern Hiroshima prefecture. It was decided to work on the utilization of rice husks, triggered by their words, "I am having the problem of rice husks that are discharged every year." About 2.1 million tons of rice husks are generated every year in Japan, of which about 0.75 million tons are discarded unused. With the goal of effectively utilizing this inexhaustible resource, we have developed a rice husk briquette machine "Grind Mill".

Management Philosophy and Goals

We will develop the technology to solidify rice husks inherited from the founder and build a "rice husk solution" to add value to rice husks that were waste. Our management philosophy is to "develop a business that solves environmental and social issues" by contributing to the effective use of resources.

In addition, the world is currently in a turbulent era, and is in danger of facing not only environmental problems but also measures against infectious diseases. However, we do not think that such difficulties are difficult, but recognize that now is a business opportunity, and are taking on the challenge of new manufacturing. Through this challenge, we aim to contribute to the creation of a "equal world" and "sustainable society" for children in the future to live in abundant greenery.

Grind Mill

Rice husks products



Processing capacity Approx.120kg/h
Dimension 2500(W)×990(D)×1500(H)
Weight Approx. 850kg
Power AC200V 3φ 50/60Hz
Motor 15KW 4P reduction ratio 1/15
Heater 1.5KW×3 pcs

Rice husk briquette



Ground rice husk



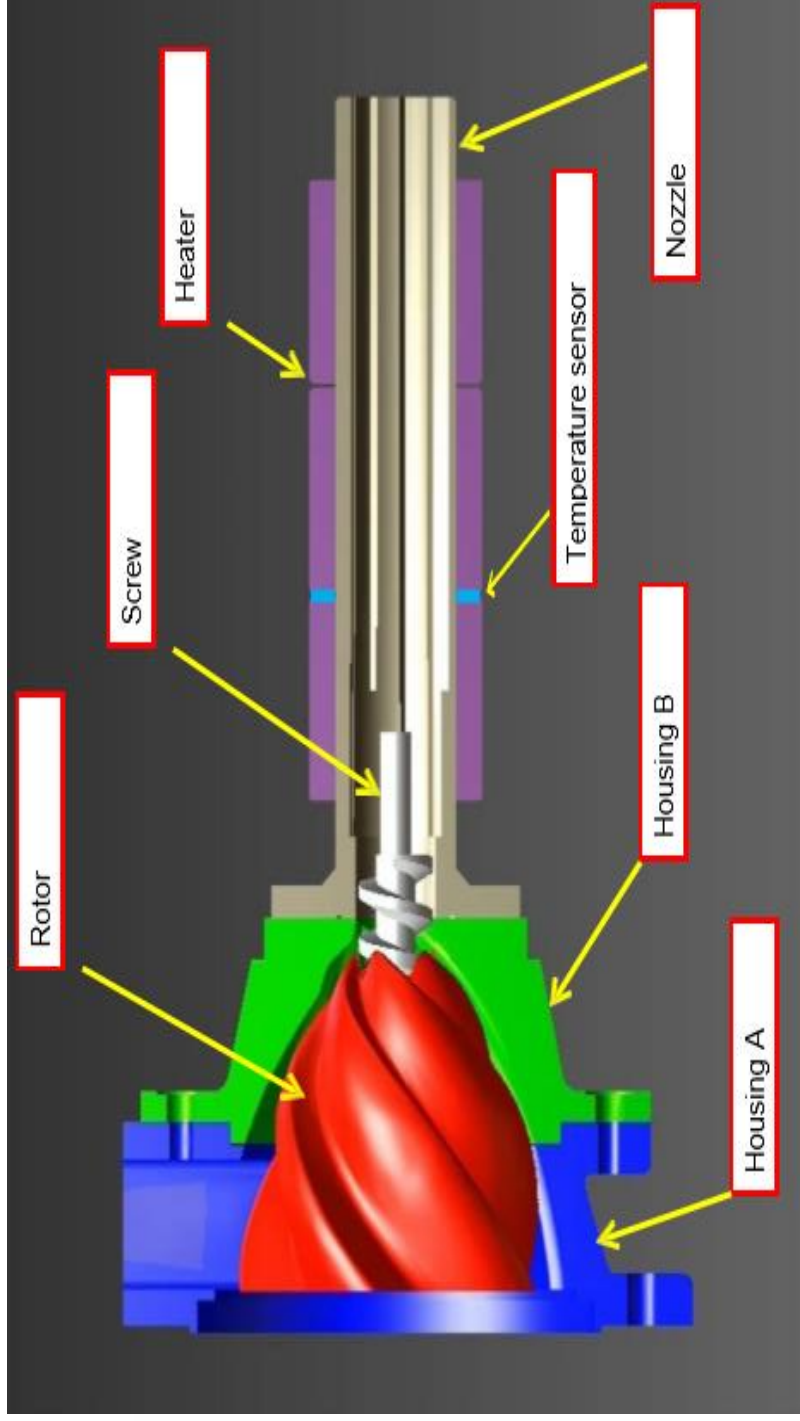
- ✓ Solid fuel made from 100% of rice husk
- ✓ No binders to solidify
- ✓ Calorific value Rice husk briquette 3970kcal/kg Firewood 4000kcal/kg
- ✓ It is possible to mix with other materials(saw dust, peanut shell etc.)
- ✓ Agricultural material(bedding material, compost etc.)
- ✓ Features with excellent water retention

Mechanism of Grind Mill

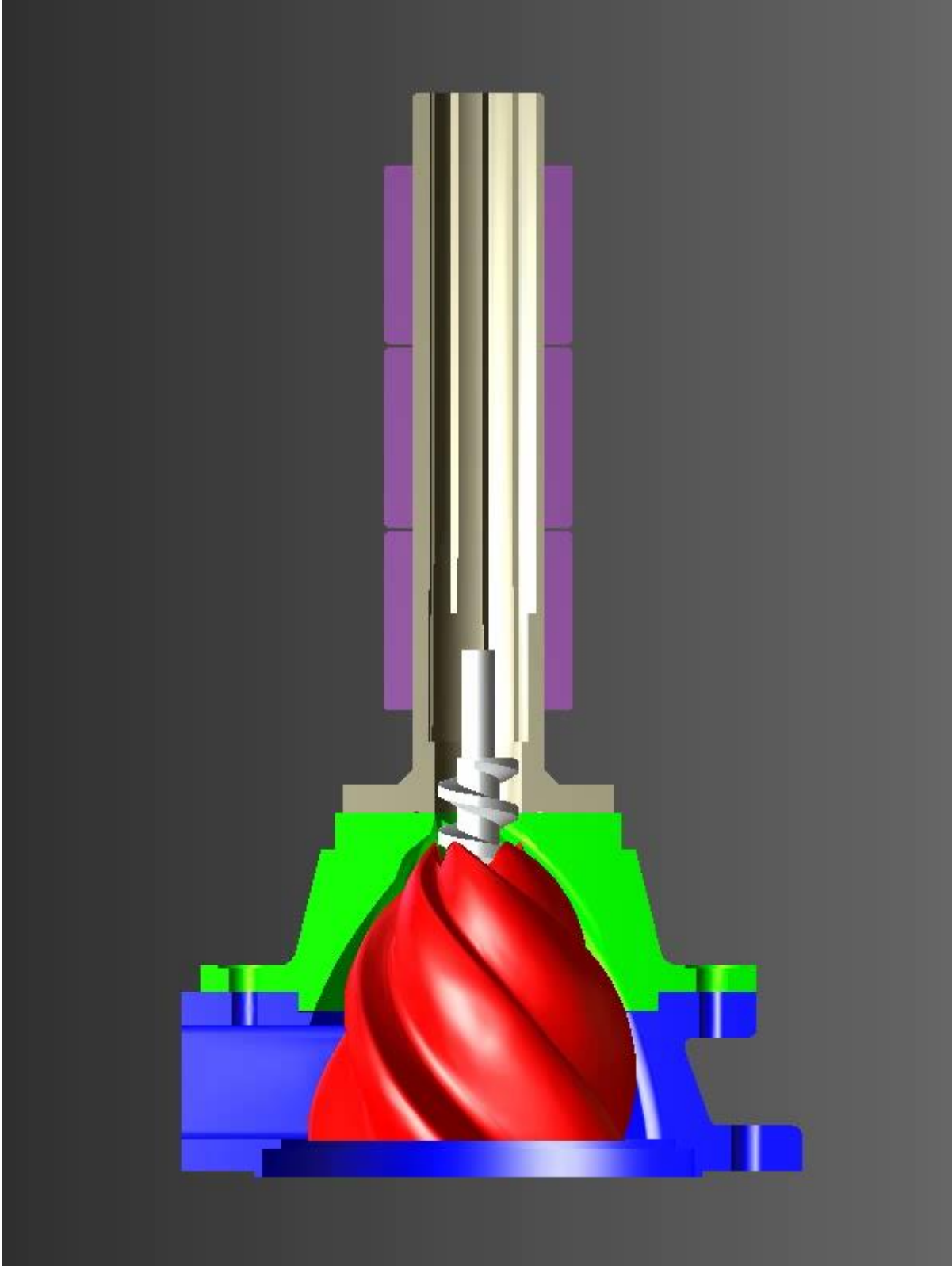
Production process of Rice husk briquette



As a series of processes, rice husks are ground, compressed and molded to produce the briquette.

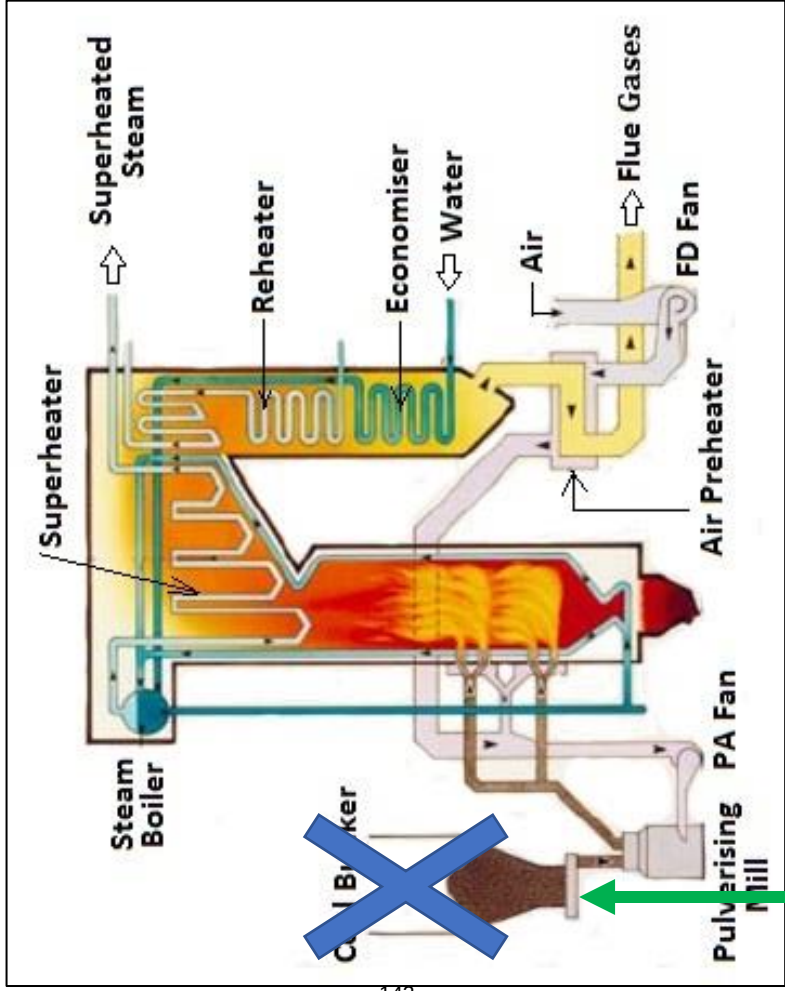


Mechanism of Grind Mill



Efforts for low carbon or decarbonization

Utilization as a substitute for coke and coal used in waste incinerators / thermal power plants



Can be used as an alternative fuel



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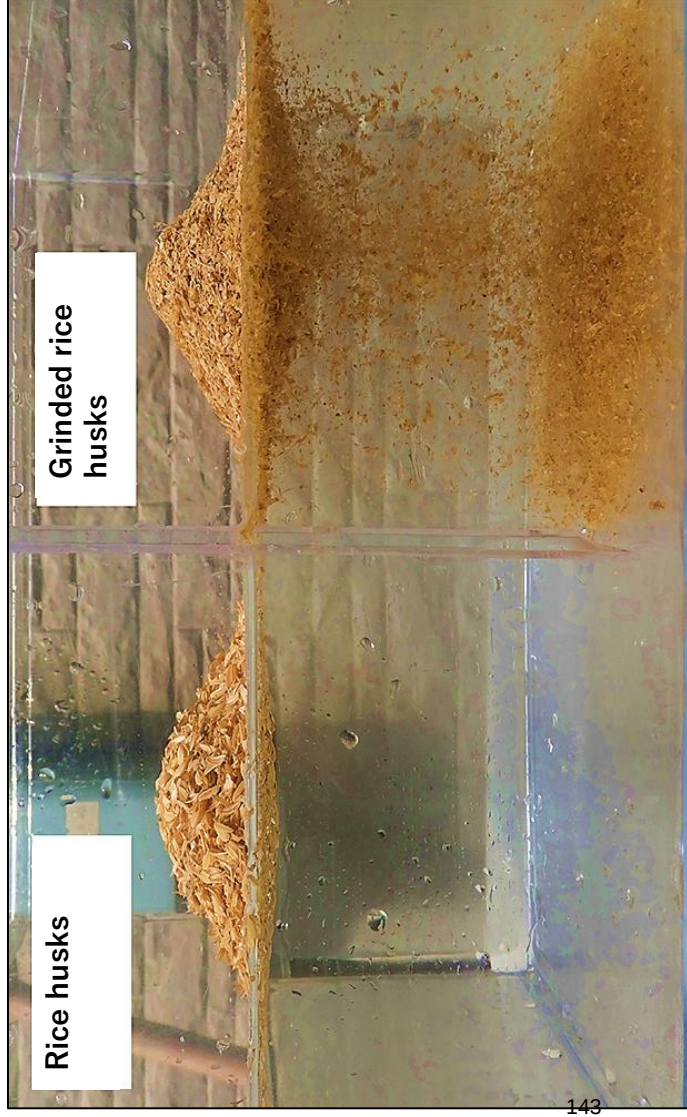
Environmental problems including climate change due to carbon dioxide (greenhouse gas) emissions from the use of coke and coal



Carbon dioxide emissions from rice husk briquette, which is a carbon-neutral fuel, virtually no emissions → Control of climate change



Product(Rice husks products)

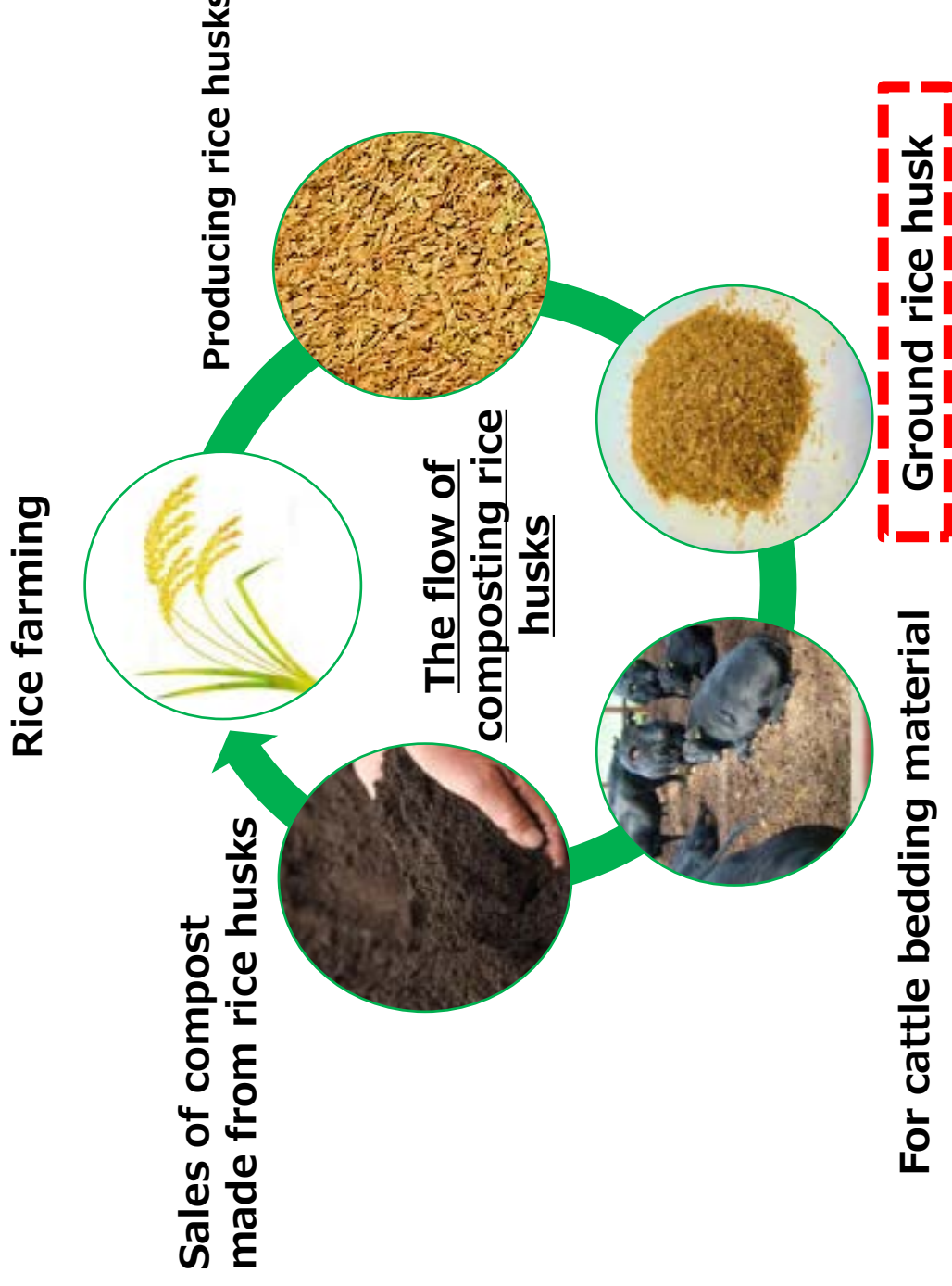


Agricultural materials derived from rice husks

It can be used as an agricultural material with excellent absorbency by grinding rice husks that have hydrophobic properties.

Used as a soil conditioner / bedding for livestock / hilling for raising seedlings / material for mushroom bed etc.

Utilization model for livestock bedding



History of overseas business

December 2013	JICA SME project, Tanzania “Investigation of introduction of solid fuel manufacturing equipment using rice husks”
September 2014	JICA SME project, Tanzania "Promotion and demonstration project of solid fuel manufacturing equipment using rice husks"
August 2019	TICAD7 co-sponsored business "Japan / Africa Business Forum & EXPO" opened at Japan Fair
September 2019	Ministry of the Environment's intercity cooperation business consignment business "Biomass project by converting rice husks generated from rice mills into compressed solid fuel"
February 2020	Concluded a contract for 7 grind mills as non-project grant aid for ODA projects at the request of the Nigerian government
June 2020	UNIDO Apply for an overseas Japanese company support project by demonstrating and transferring STePP technology for the prevention of infectious diseases in developing countries.
September 2020	Ministry of the Environment Reiwa 2nd year, adopted for an intercity cooperation project consignment business for the realization of a carbon society.
April 2021	Adopted for JICA SME / SDGs Business Support Project.
July 2021	Established a local subsidiary in Vietnam (established Tromso VN)
October 2021	Exhibited at COP26 JAPAN Virtual Pavilion
May 2022	Ministry of the Environment Reiwa 4th year, adopted for an intercity cooperation project consignment business for the realization of a carbon society.
August 2022	Exhibited at TICAD8 (Tunisia) Business Forum Exhibition Booth

Deforestation in Africa



Activities in Africa



Feasibility study supported by JICA

Feasibility study in Tanzania(2013~2014)



Project name: "Study on Introduction of Rice Husk Briquette Machine

Outline;

- Deforestation is progressing by securing fuel for general households.
- Rice farming is being promoted, but rice husks are being discarded.
- In order to survey the demand for rice husk briquetting machine that converts rice husks into fuel, we surveyed the price of conventional fuel, amount of fuel in general household in Tanzania, the status of deforestation or rice husk processing etc.



Serious deforestation is underway.



Rice cluster in Mubea, southern Southern Tanzania

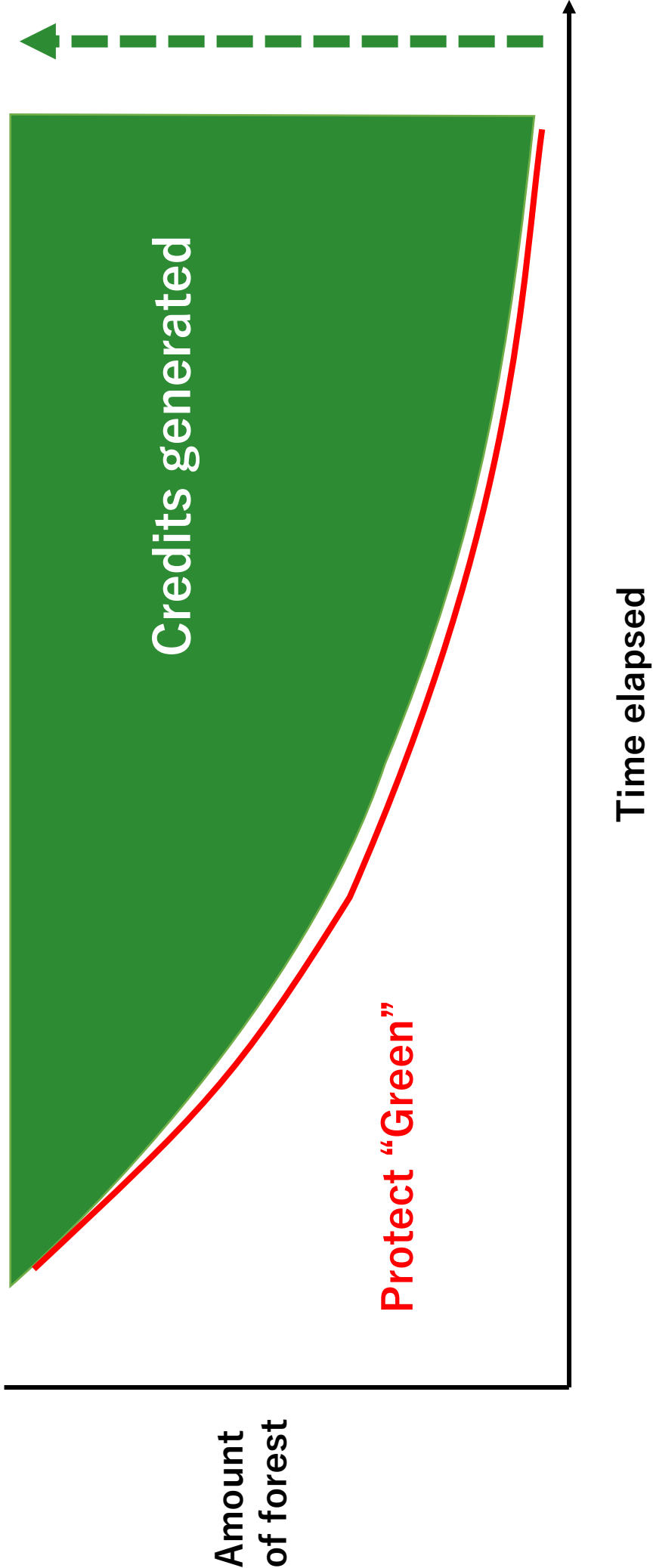


Demonstration at Daruel Salam Institute of Technology

Tromso business scope

1 Forest conservation

We keep forests



Project Overview

Name of Verification study

Forest conservation by turning rice husks and wood waste into biomass fuel

Area

Cambodia(Kampong Thom etc.)



Cambodia

Kampong Thom

Target Resources

Wood waste (sawdust, bark, etc.)

A large amount of sawdust, etc., which has not been turned into products, is generated at sawmills and wood processing facilities.

Issue

Deforestation is becoming a serious problem due to the need to secure firewood and charcoal. Therefore, alternative fuels to existing firewood and charcoal are needed to curb deforestation.

⇒In the JICA project in Tanzania (2014-2017), 180 tons of solid fuel was produced per grind mill per year. Substituting the same amount of charcoal has been shown to save 22.5 hectares of forest.



JICA Project in Tanzania (2014-2017) State of deforestation

Project Overview

Goal

Through our technology, we will conduct a verification survey on the possibility of substituting fuel that is a mixture of rice husk and wood waste for conventional firewood and charcoal for commercials and households use.

Expected effect of verification

- Companies and households who use firewood and charcoal to switch their conventional fuels to alternative fuels(our briquettes). ⇒ It is expected to have the effect of preventing deforestation for the production of firewood and charcoal.
- Possibility to produce briquettes at low cost by using waste materials(wood waste etc.) to keep procurement costs low. ⇒ If it can be provided to end users at a low price, it is expected to have the effect of reducing their economic burden occupied by energy on local residents.

Implementation system for achieving goals

With the cooperation of Cambodian companies and a Japanese professor in local universities, we can continue the survey on the Cambodian side even during the period when our personnel cannot travel to Cambodia. In the unlikely event that our personnel cannot travel from Japan, we can dispatch the personnel from our Vietnamese subsidiary.

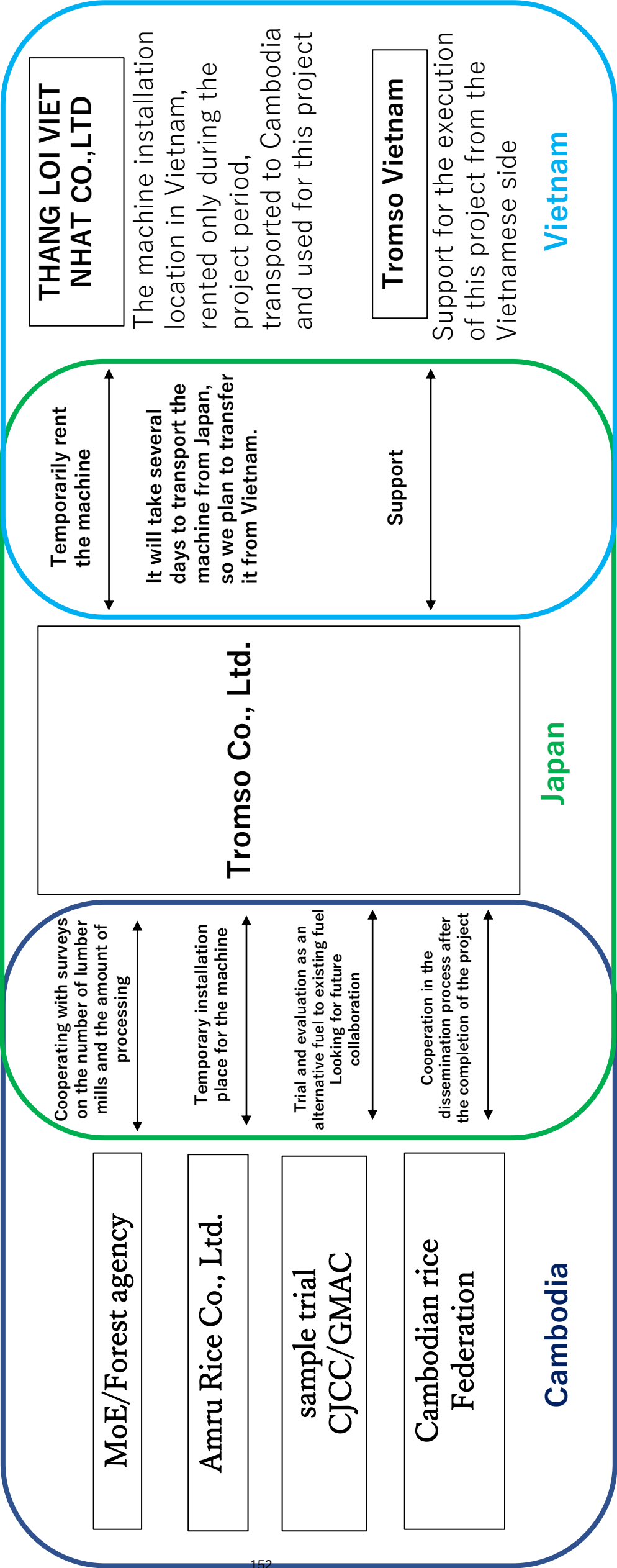
Solution

Forest conservation mechanism in this project



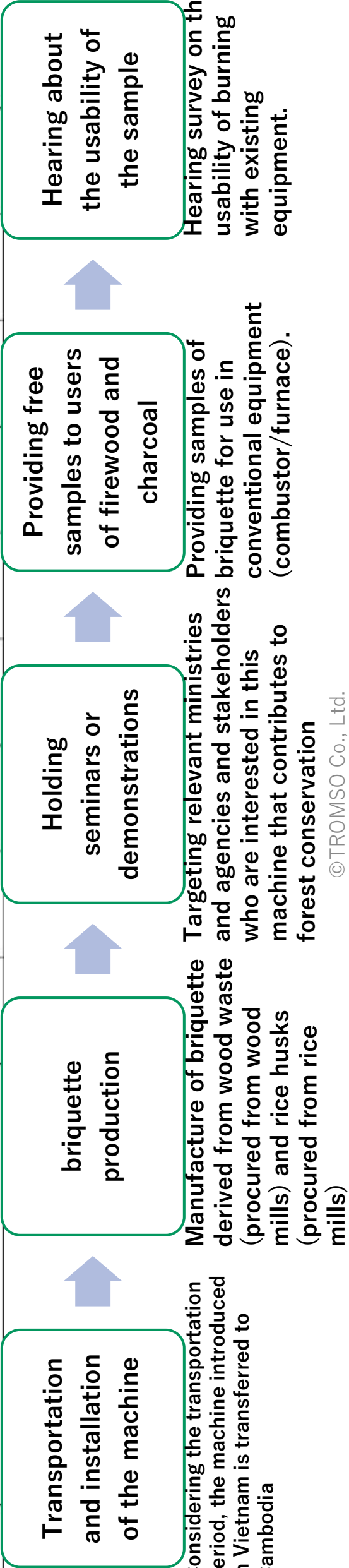
Implementation system

Implementation team of this project



Implementation schedule

	Activity	June	July	August	September	October	November	December	January	February	March
①	Literature/Internet research										
②	Coordinating meetings with relevant parties										
③	Survey on forests in Cambodia										
④	Temporary installation of the machine and production of briquettes										
⑤	Distributing samples to end users. Then, we interviewed end users about their impressions of the feeling of use.										
⑥	Holding seminars or demonstrations										
-	Cambodia visit period										



SUSTAINABLE DEVELOPMENT GOALS



— From the business of **protecting greenery** to the business of **growing greenery** —

Thank you for your attention

2) JIFPRO 発表資料

Pilot case in Cambodia with Tromso in **Knowledge Program** by JIFPRO

~Sustainable Business to
Conserve Forest and Benefit Community~



Asako Yamamoto, JIFPRO
Japan International
Forestry Promotion and
Cooperation Center

October 14, 2022
Grind Mill Demonstration
Amru Rice, Kampong Thom, Cambodia

林野庁補助事業 途上国森林ナレッジ活用促進事業

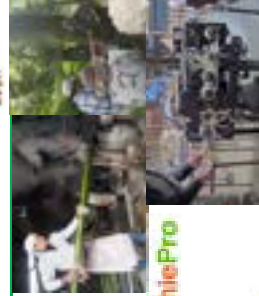
Knowledge Program's pilot

Apply Japanese Knowledge
in Forest Product value chain

森林資源のバリューチェーンに
日本の「ちえ」活用する実証調査

➤ Tromso's Knowledge includes

- ✓ Grind Mill technology
- ✓ Toughness of Shipbuilding
- ✓ Utilization of waste (rice husk)



Tropic Forest loss 熱帯森の減少

● Unsustainable/unmanageable use

非持続的 / 非自律的な活動



(FAO, 2015)

● Community interview, Kampong Thom

➤ "I fear there will be no firewood left for my children's generation if we don't take care now"

子供の世代に使える薪がなくなってしまう

➤ "I see in the news everyday there will be no forest"

毎日ニュースで森林がなくなっている

2

Program & Pilot Aims ねらい

森林資源利用の課題 + 日本の技術 (ちえ)

Sustainable forest products use issue

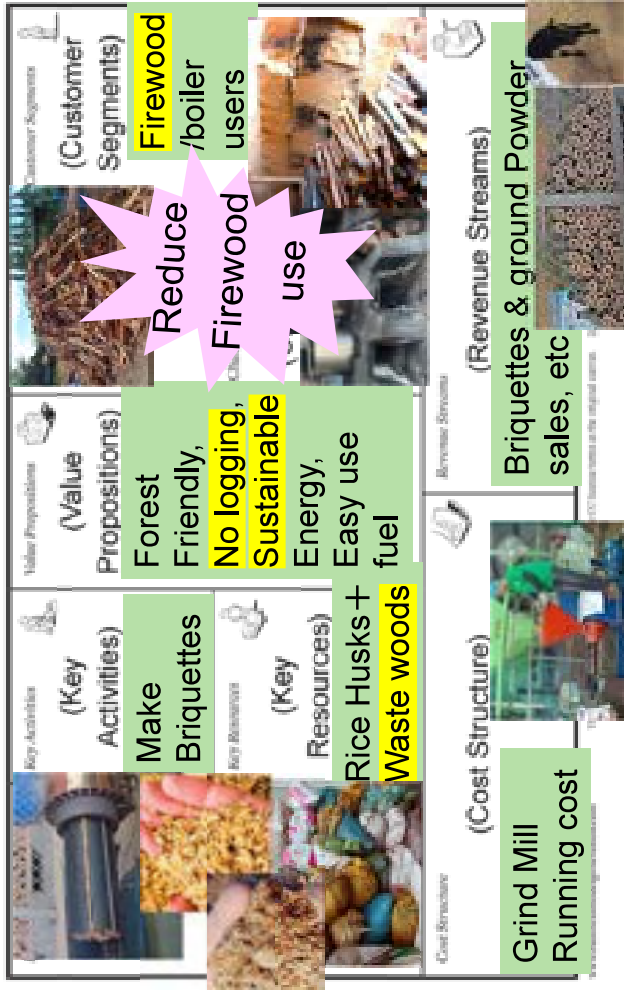
Apply Knowledge in Japan

Contribute to Sustainable Forest Management/use and raising community livelihoods

= 森林保全・住民の
生計向上に資する



Cambodia Case Business Model



Utilize this Pilot Case

- Companies can initiate the sustainable briquette business (distribute briquette in the markets)
- Firewood users can purchase the briquette and reduce firewood use
- Government and organizations could facilitate the sustainable business by collaborating with companies and/or plan and apply/request for Projects including the grind mill/ briquette components
- Connect with others today, collaborate, cooperate and continue discussions, make it happen
- Communities can continue using the firewood sustainably and also use briquette

Conserve your forest and support the communities



Knowledge Applied Model benefits

- Forest conservation
 - ✓ Less firewood use
 - ✓ Brick factory
 - ✓ Garment factory
 - ✓ Other firewood/boiler users
 - ✓ Less logging, less decrease/degrade of forests
- Community livelihoods
 - ✓ More resource :food, medicine, pesticide, etc
 - ✓ fruits, fungi, nuts, seeds, insects, frogs etc
 - = More cash income source
 - ✓ Better wind protection (safe)
 - ✓ Less time to collect home use firewood
 - = More time to spend for other production

Case to be shared at seminar in Japan

Survey supported by

Forest Admin, Cambodia
Forest Admin, Kampong Thom
Kampong Thom Communes
Forestry Agency, Japan
JICA Project/Advisor
And many others



Okun!



chiepro_forest