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Perspektif Teori

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- Upaya Penanggulangan Kemiskinan
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Perspektif Teori

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Innovation Coconut Shell Briquette Production and Briquette Stove as Alternative Substitution of Fuel Oil in Pariaman

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Abstract

Pengolahan tempurung kelapa menjadi briket di Pariaman sangat potensial. Selama ini nilai tambah buah kelapa yang dirasakan petani masih kecil. Padahal buah kelapa sendiri terdiri dari sabut (35%) yang dibagi menjadi 2 bagian yaitu serat 54% dan serbuk 46%, tempurung (12%), Daging buah (28%) dan Air buah (25%). Kenapa demikian, karena petani terbatas hanya memanfaatkan daging buah sementara limbahnya tidak mendapat perhatian. Padahal potensi hasil samping dari buah kelapa (72%) mempunyai nilai jual cukup baik kalau dilakukan pengolahan, salah satunya berupa pengolahan tempurung menjadi briket. Apalagi dengan kondisi sekarang dengan adanya krisis energi (BBM). Kondisi seperti ini jelas akan sangat mempengaruhi perekonomian masyarakat di pedesaan. Untuk itu sudah seharusnya dicarikan solusi terbaik, salah satunya berupa bahan bakar alternatif dengan penggunaan bahan briket tempurung. Keuntungan penggunaan briket tempurung kelapa adalah (1) bahan baku tersedia cukup banyak berupa limbah dan belum dimanfaatkan oleh masyarakat secara optimal, (2) ramah lingkungan/tidak menimbulkan pencemaran lingkungan, (3) dapat diperbaharui/sustainable, (4) membantu mengatasi masalah krisis energi energi (khususnya bahan bakar)

I. Introduction

Background.

In order to develop society economic potency specially related to effort improve purchasing power, governmental cope to grow to develop small and medium industry area especially being based on natural agricultural sector. Dig of economic potency of agricultural sector till in this time still need development. Therefore, the government of Pariaman develop pre-eminent potency of area like coconut fruit.

In Pariaman, prospect of coconut shell processing to briquette is good, that is broadly coconut garden areal ± 2863 Ha, amount of trees of per hektar ± 125 , amount of crops of per tree per year ± 100 . Hence, existing coconut trees amount that is 2863×125 tree = 357.875 tree, and during the time passed to added value to the farmer seed = 357.875.500 seed, and during the time passed to added value to the farmer still small. Though coconut fruit compose from: coir (35%) which divided become two (2) part of that is fibre 54% and dash 46%, shell of coconut (12%), kernel (28%) and water fruit (25%). Why that way, because the farmer is limited to exploiting fruit and the waste not get attention. Though potency result of beside from coconut

fruit (72%) having value sell good enough if done by processing, one of them processing is coconut shell become briquette.

Coconut shell briquette and usage of briquette stove have been introduced to the society since year 2005, that is by Faculty of Agriculture of Ekasakti University Padang Field work along with Pemko Pariaman, but still small scalely with simple equipments. Society by then only processing coconut shell become charcoal.

In aspect economically, processing of coconut shell become charcoal still less beneficial, because the added value of still less was that is sold at the price about Rp. 1.500-1.700 /kg, and result of him still small relative because still done by manual (traditional), though after given by technological innovation touch in the form of processing of charcoal become briquette by using equipments of standard can be sold at the price about Rp. 3500 - 4000 / kg on condition that the fix carbon > 60%. Result of study show that the briquette can be used to cook reach 5 - 6 hour. Existence of briquette give added value to the farmer, so that the earnings of becoming

More than anything else with present condition off[is existence of crisis of energi and existence of earthquake accident, will make costly progressively oil fuel him (BBM). Clear Condition like that will very influence economics of rural society because his ever greater of expense which must berelease and society many living losses. To give help to society have ought to be looked for solution in the form of alternative fuel and living source that is with usage of coconut shell materials at the same time with briquette stove. Advantage of usage of coconut shell, (1) available raw material as long as mass which during the time still in the form of waste and not yet been exploited by society in an optimal fashion, (2) environmental friendliness, not generate contamination of environment, (3) renewable/sustainable, (4) assisting to overcome the problem of crisis of energi (specially fuel), and, (5) having no risk burst.

Unstable price world oil have made effort diversified [as compulsion to lessen charges of energi. Till 29 June 2008, price of BBM have reached 120 dollar per barrel, even kerosene price now reach Rp.3.500,- at retail (Anonim, 2008). Flimsy threat of world oil reserve him, pushing government to release Regulation of President (Perpres) No. 5 Year 2006, 25 January concerning policy of national energi and President Instruction (Inpres) No 1 Year 2006 concerning ready and exploiting of vegetation fuel as other fuel (Anonim, 2007).

Briquette is solid fuel able to be used as alternative fuel substitution of kerosene. Briquette types pursuant to the compiler raw material of consisting of and Biobriket. Biobriket is made solid fuel of raw material of biomassa with mixture a few/little glue (Anonim, 2006). One of the example of biobriket which have been developed is briquette of paddy chaff. Composition of each briquette type are: 80 - 95% coal and 5%- 20% glue for the briquette of coal without carbonisasi, 80 - 90% coal and 5 - 15% glue for the briquette of coal with carbonisasi. and also 50 - 80%

briquette smolder that is by using stove where at the stove there are briquette. Briquette stove have been designed in such a manner so that application of briquette can earn more efisien and practical. Briquette stove can be made for household and able to be made for the merchant of light food and booth eat designed according to requirement.

Another activity have been executed in the form of technological innovation and socialization of processing of inwrought coconut to society, like making of board of coconut coir, ceramic of coconut coir, equipments of hot press machine to make particle board, making of coco de nata, making of VCO and made coconut briquette simply coming from Institute Research of Ekasakti University. Making 1 setting maker of briquette of cangkang sawit and also adjacent to produce of masculine banana become light food. Hereinafter to test market, document and hereinafter propagated to broaden to society pass activity of exhibition and socialization. This activity have walked better blessing of existence of support of KUD Candi Aie, Group of Roda Banting, Pemko Pariaman, Ministry Research and Technology, LIPI and civitas academic person in Faculty of Agriculture of Ekasakti University.

Roda Banting Grtoup have done exploiting of coconut waste like exploitation of coconut coir become dust coco and of coco fiber, making of doormat of coconut coir and chair shave with coconut coir raw material. Till now, not yet so expanded because problems of equipments condition, working capital, promotion and liability of human being potention. Though prospect development of the effort enough. Now the effort coconut coir have started to expand, and effort processing of coconut become briquette have been conducted.

In the 2008 activity of applying of technology and science area (IPTK) LIPI have been run which is have location Pariaman at Roda Banting Group activities in the form of socialization to Pemko and society about importance of briquette as fuel can replace Fuel Oil (BBM), levying of equipments of briquette making: crusher machine of charcoal of harsh measure become smooth measure machine, and briquette printer. Roda banting group have produced briquette (that is 3,3 tons/day (8 hours)) by 7-9 labour people. Briquette which have been produced tidly before all to be marketed have to be dried beforehand use oven (dryer) but in the form of concrete to be able to assist process draining of briquette so that not again depend on weather, hence in the year 2009, need of oven in the form of concrete and briquette stove production can be realized.

In Guidance of Making Stone Briquette Smolder and Solid Fuel Briquette Stone Smolder For Small Industry and Household express that making of briquette with addition of fastener materials/glue will boost up dusty rate and degrade value of kalor (Anonim, 2006). Therefore, need to developed materials alternative substitution of kerosene and some above problems, hence for that we interest to perform research with title "Innovation Coconut Shell Briquette Production and Briquette Stove

- c. To create employment exploited area potency (coconut fruit) by the effort making of coconut shell briquette.
- d. Marketing of briquette which have tidy for household and for the merchant of Home industry

Target.

As for target which wish to be reached from this activity is:

- a. Form of UMKM the goodness and exploit technology and science and apply effort management, and having the character of continuation.
- b. The available of coconut shell briquette which with quality and saleable marketing.
- c. Group of effort society can productive and can raise fund to next UMKM.
- d. Him of enableness model and access the exploiting of from related parties.

While activity target group goals is :

- a. UMKM can yield saleable coconut shell briquette marketing of lokal, national and of eksport.
- b. Recruitment woman labour so that follow to participate in lessening unemployment.

II. Problem Identification

Pursuant to perception of empirik in field obtained information that coconut fruit waste like coconut shell of coconut not yet been exploited in an optimal fashion so that less give added value to the farmer of coconut in rural. The settlement of disposal of simplest coconut shell of coconut and is quickly conducted by many farmers in charcoal agroindustri sentra of coconut shell is by burned so that generated smoke bring pollution impact. One of the solution alternative to overcome the problem it is by the waste materials analysis to be made by briquette charcoal raw material and making of liquid smoke. This matter require to be conducted to see possibility of usage of the waste as alternative fuel able to support the availability of fuel for heater stove (boiler) is source of heat of oven concrete, small and medium industry like restaurant, maker of flaky of balado which during the time still use kerosene and firewood.

III. Method of Activity

3.1 Activity Location :

Roda Banting Group of Ampalu Pariaman.

3.2 Executor Organization.

For the organization of executor in area have been formed by Yayasan Tani Organik Minang pursuant to Peraturan Menteri Pertanian No. 11/2008.

- c. Charcoal coconut shell 3 ton/week (before obtaining activity of Iptekd 2008)
2. Production process since year 2005.
3. Wide of market of covering Jakarta, Field, Riau, Jambi and abroad like duta state, Thailand, Japan, Korea, Taiwan, Chinese, Europe and Nations of Middle Timur.
4. Labours amount used to :
 - a. Coconut coir 20 people.
 - b. Doormat (buffer of gold) about 700 family head, 1 family can yield doormat/day with fee of Rp. 10.000,- / doormat
 - c. Charcoal coconut shell of coconut 7-9 people/unit , if enabling improve processing become shell of coconut briquette made equipment
5. Name, amount of effort status and equipments had in this time to :
 - a. Equipments of maker of Coir coconut (fiber coco) and Coco dust produced by self with equipments type there is 4 setting to cover: 1 setting machine of thresher (coconut coir), 1 setting sieve machine of coco fiber, 1 setting sieve of coco feat (dust) and 1 setting hydraulic press with pressure 130 ton
 - b. Equipments of making of Doormat (buffer of gold) about printing,mould disseminated to 700 KK in society with status equipment Roda Banting Group property.
 - c. Equipments of making of coconut shell briquette which have been finished in this time is activity of execution of activity of IPTEKDA year 2009 covering: 1 setting destroyer machine of charcoal become charcoal flour of harsh coconut shell, 1 setting machine destroyer of charcoal flour of coconut shell become smooth charcoal flour, 1 setting mixer machine, 1 setting machine printer of briquette. While activity of IPTEKDA year 2009 is equipments in the form of dryer oven and making of designed briquet stove and give capital to UMKM.

3.4 New technology Innovation

For the repair of quality of improvement of coconut shell production process which during the time still conducted by manual with capacities can be improved with scheme and making of appliance of prosesing harsh destroyer machine, refinement, mixer, briquette printer and oven until packaging and also until application scheme of making of briquette stove which is special While management process given adjacent of administration area given by professional bookkeeping of administration, and development of marketing effort execution of marketing to society work along with Body Enableness of So

combustion of capacities coconut shell of coconut 1 ton, harsh crusher, smooth crusher, match, masker, manual weighing-machine, pail, measure glass, mixer machine, analytic balance, solder cup, biuret, pipette of etes, appliance printer of hydraulic briquette, nampan, spoon, spatula, scissors, lint, and calorimeter bomb. To see quality of this activity is perceived in the form of materials mass, old blaze briquette, rendemen, water rate, dusty rate and value of kalor.

Drum the used is ex- drum of Pertamina. Drum consist of 4 shares, that is drum body which one of the back part of opened, cover, air-hole and flue at drum body. Middle shares of cover made hole as smokestack adherence place which is have diameter 5 cm and high 30 cm, in air-hole counted 3 lines and each, every line consist of 4 hole with diameter 13 mm.

To distroyer briquette use harsh destroyer machine and smooth. In the development of innovation, both this equipments have been joined to become one equipments so that more effisien and practical.

Result mill coconut shell refinement is hereinafter mixed with glue in the form of flour starch equal to 6 %, added by water sufficiently, is later then swirled flatten to use churn/mixer. Result isn't it if have flattened hence continued by printing.

The Printer appliance is used to print briquette looking like and owing pressure come up to hydraulic jack to give energy depress maximal at surface of briquette. Printer appliance basically can be made according to desire. At this activity, appliance made with a few model to be adapted for requirement.

Briquette printed material is hereinafter dried to use sunshine/dryer oven of or iron of oven concrete. Result of tidy dry briquette hereinafter and made ready to be marketed. The equipment machines for coconut shell briquette and briquette stove as shown in the Figure below.



Harsh Crusher Machine



Smooth Crusher Machine



Mixer Machine



3.5 Result Activity.

Activity which have been executed till now in the form of :

- a. Adjacent activity and technical asistensi concerning making of good stove and briquette of merchant and household.
- b. Adjacent activity and technical asistensi concerning management, reind of facilities and basic facilities which directly support operational ac production process for group of effort.
- c. Adjacent activity and technical asistensi concerning marketing like dete of market segmentation, product price, product distribution and also various activity of promotion pass electronic media, product launching.

Activity which is conducting now for the agenda of more assure like restaurant, worker of maker eat lightly (banana kripik) in Pariaman that coconut shell briquette with the stove of at the same time more beneficial than try on briquette stove and not yet until business phase. From of this phase, the consumer will give comment do licking lips or there input for repair. Pu description of Consumer in Pariaman, mean say that usage with briquette will profit to be compared to by using kerosene, but only the problems of if st started to be weared, user expectation that this coconut shell briquette supply available continuously. If this do not fulfilled, discontenteds users mean can continue to use this briquette stove.

To be more assure consumer of coconut shell briquette, hence h done by test of PT. Sucofindo like result test below:

Certificate No. 04291/002008
Date: October 25, 2008

REPORT OF ANALYSIS

PRINCIPAL : RS. 1 KETUT BUKARAGA, MS
Bisnis Industri Kaporta UNES
Jl. Veteran Dwihi No. 35 B - Padang

SUBJECT : COCONUT SHELL BRIQUET
TESTED FOR : Total Moisture, Proximate, Total Sulphur and Gross Calorific Value

DESCRIPTION OF SAMPLE : 1 (One) Sample received on 17th October 2008
Packing : unbranded plastic bag

DATED RECEIVED : 17th October 2008

DATED OF ANALYSED : 18th October 2008

REFERENCE : ASTM

PARAMETERS	RESULTS		METHODS
	AN	DU	
Total Moisture, %	8.37	-	ASTM
PROXIMATE :			
- Wetland Moisture, %			ASTM
- Ash Content, %	18.23	20.65	ASTM
- Volatile Matter, %	11.24	12.23	ASTM
- Fixed Carbon, %	62.94	67.32	ASTM
Total Sulphur, %	0.15	0.15	ASTM
Gross Calorific Value, K Cal/Kg	8760	8141	ASTM

PT. Sucofindo Mineral
PO BOX 00511 2008

The examination result conducted by the Restaurant in Pariaman obtained by thrift of usage of fuel like information below:

- a. Cooking of rice
- b. Ripe of water.
- c. Cooking to fry.
- d. Cooking of gulai.
- e. Cooking of vegetables.

Used up/finished oil 100 litre/day.

Kerosene price of Rp. 5000/litre = Rp. 500.000,- in cooking to use kerosene gas pump with assumption work 8 hour/day. If using briquette of is each stove need 5 kg/day x 5 stove = 25 kg x Rp. 4000 = Rp.100.000. The way of usage for restaurant each every 1 hour + 0,5 kg briquette, hence earning isn't it if wearing 2 ton coconut shell briquette will equivalent with thrift of kerosene 10.000 litre/day. Conclusion, with restaurant use briquette stove + coconut shell of briquette hence one day can economize Rp. 400.000/day.

IV. Continuation Plan

Activity plan to be conducted now is in the form of development of make-up of production capacities of briquette stove and coconut shell briquette, beside more intensive look for marketing of briquette stove demonstrations beforehand to society. To the fore, to overcome the problem of time smoke combustion of coconut shell in making of coconut shell of coconut charcoal have been conducted by anticipation made liquid smoke. Liquid smoke is very potential to be developed as flesh preservative or fishery product and anti pest, including to reduce of latek rubber aroma. Now is cooperation with fisherman group maker of small fish. The result of socialization to fisherman society of Pasié Nan Tigo Padang, they have readied to use briquette stove to cook small fish, because from test-drive usage of much more compared to economical coconut shell briquette to use kerosene. For nicer promotion, hence, hane been conducted by asking for wearer to introduce briquette stove to society (or restaurant) with payment system pay by installments. From this sale system, is expected bydirect promotion will be more assure consumer.

V. Conclusion

- a. Coconut shell briquette is very potential to be developed as alternative fuel substitution of BBM specially in Pariaman (Kota dan Kabupaten), particularly progressively costly of price of BBM because of coconut sheel raw material quite a lot, having the character of sustainable, friendly of environment, not bother health and very efficient used in cooking (1 kg of coconut shell briquette can be weared to cook 5-6 hour).
- b. Coconut shell briquette stove is very potential to be used by society to be weared

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