WASTE TO WEALTH: HARNESSING COCOA POD HUSK FOR LIQUID SOAP PRODUCTION

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Background: Soap constitutes the largest group of the detergents that are commonly in use today as they constitute about 95% of all the detergents(Wilkinson,1974). This cleaning agent product is usually of high demand because of its usage in virtually all household affairs. Saponification which is the basic reaction leading to the formation of soaps employs the use of fatty acids and alkalis which are exorbitant in price. Efforts have therefore been put in place to replace the alkalis with agricultural residues. One of such is the cocoa pod husk which constitute heaps in most cocoa plantations. This heaps of cocoa pod husk constitutes nuisance to cocoa plantations as they serve as host to pathogens.

Nigeria generate large volume of cocoa pod husk arising from cocoa production which this project is harnessing by replacing the conventional alkali with cocoa pod ash. In this way, the cocoa plantations will be kept clean and value will be added to the crop through revenue generation. Cocoa Pod Husk which forms approximately 67% of the whole pod is a byproduct of cocoa cultivation. It is often obtained after the bean is been removed from the pod of cocoa. The pressure on the use of these chemicals for soap production has resulted in its exorbitant price. Efforts have therefore been geared towards sourcing for alternatives. Majority of agricultural materials are embedded with these alkalis which can be used if properly harnessed. Example of these materials is cocoa pod husk (CPH).

Objective: The broad objective of the project is to harness cocoa pod husk, a seemingly agricultural waste for soap making. Specifically, the project will employ ash produced from the pod husk of cocoa for soap making. It will also address scaling up of the production process of cocoa pod husk soap. The project seeks to train trainer of trainee for cocoa pod husk soap production.

Methodology: The production of soap from cocoa pod husk shall employ the method of Yahaya et al, 2012. This is a saponification process that involves the use of triglyceride from non-edible oil and cocoa pod ash. The cocoa pod ash shall be incinerated, followed by potash extraction. The extracted potash shall be reacted with the glyceride under high temperature for 8 hours when the soap mass will be obtained. The solid soap mass shall be dissolved with water to form a viscous solution. Additives (fragrance, colorant, builder) shall be included to boost its efficiency. The capacity building of trainers of trainee (TOT) shall be carried out among youths and women in selected major cocoa producing areas across Nigeria. This shall be through participatory approach wherein participants will be privileged to participate in the soap making process. 5 participants in 5 LGs in 3 cocoa producing state shall be selected for this purpose.

Expected outcomes: At the end of the project, the following are expected:

- Enhanced production techniques: cocoa pod husk liquid soap would have been produced.
- 75 TOT would have been trained on cocoa pod husk soap

- Employment Opportunities: Approximately over 300 new jobs would have been created in the cocoa processing and by-product sectors. These jobs include roles in processing, marketing, and distribution, contributing to reduced unemployment and enhanced economic stability in rural areas.
- Entrepreneurship Growth: About 75% women and youth would have been established small-scale soap processing businesses or cooperatives. These enterprises will generate income and creating job opportunities within their communities.
- Product Innovation: This product would have gained market acceptance, leading to additional revenue streams.

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Budget: The budget for the project is presented below:

SN	Activities	Cost (N)
1	Sourcing of cocoa pod husk	
	Collection of pod husk (100kg @N20,000)	2,000,000
2	Ashing of pod husk	
	Incinerator (1 @ N180,000)	180,000
	Poly sac for ash collection (50 @N1000)	50,000
	Weighing balance (1 @ N350,000)	350,000
3	Extraction of potash salt	
	Metallic pot (1 @ N255,000)	225,000
	Sieve (large size @ N45,000)	45,000
	Gas Burner (Large size @ N300,000)	300,000
	Gas cylinder (50kg size @ 250,000)	250,000
4	Crystallization	
	Firewood (1 ton @ N200,000)	200,000
	Plastic bowls (6 @ N8000)	48,000
5	Saponification	
	Palm kernel oil (1000L @ N2800/L)	2,800,000
	Galvanized steel cooking pan (1000L cap.@ 450,000)	450,000
	Mechanical Stirrer (1 @ N25,000)	25,000
	Fragrance (25L @ N18,000/L)	450,000
	Colorant (5kg @ 1,500/kg)	7,500
	Storex tank (2000L cap. @ 285,000)	285,000
	Water (2000L @ N45,000)	45,000
6	Product analysis and quality checks	450,000
7	Packaging	
	Plastic container (1000pcs @ N800)	800,000
	Label (1000 pcs @ N120)	120,000
8	Capacity building (TOT)	
	Training materials	375,000

	DTA for resource persons (6 x 6 x 15 x N25,000)	13,500,000
	Laptop, printer & stationeries	1,500,000
	Refreshment for trainees	2,500,000
	Total	N26, 955, 500

Work frame: The work frame for the project is presented as follows:

SN		N	D	J	F	M	A	M	J	J	A	S	O	N	D	J
	Collection of cocoa pod husks	X	X													
	Drying of cocoa pod husk	X	x	X												
	burning of cocoa pod husk				X	X										
	Extraction of potash						X	X								
	Saponification								X	X	X	X				
	Product analysis												X	X		
	Packaging of product														X	X
	Capacity building														X	X

References.

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