

**INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION
ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)**

**Geneva, Switzerland
23-25 January 2017**

Contribution of Nigeria

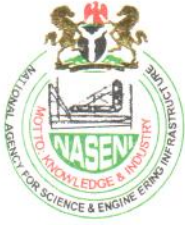
to the CSTD 2016-17 priority theme on ‘The role of science, technology and innovation in
ensuring food security by 2030’

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NATIONAL AGENCY FOR SCIENCE & ENGINEERING INFRASTRUCTURE

FEDERAL MINISTRY OF SCIENCE AND TECHNOLOGY.

IDU, INDUSTRIAL AREA,
P.M.B. 391, GARKI, ABUJA



13th December, 2016

The Honourable Minister,

Federal Ministry of Science and Technology,

Federal Secretariat, Phase II,

Shehu Shagari Way,

Abuja.

Attention: Director (Planning, Research and Policy Analysis).

**RE: REQUEST FOR INPUT FOR CSTD 2016 – 17 PRIORITY THEME 2:
“THE ROLE OF SCIENCE, TECHNOLOGY AND INNOVATION IN
ENSURING FOOD SECURITY BY 2030”**

I am directed to acknowledge the receipt of your letter dated 1st December, 2016 and to forward the attached document as NASENI submission on the above subject matter. The soft copy has also been sent to the e-mail.

Please accept the assurances of the Executive Vice Chairman/ Chief Executive Officer, NASENI highest regards.

Mrs. B. Ossai

Deputy Director (Science Infrastructure)

For: Executive Vice Chairman/ Chief Executive Officer

NASENI AGRIC INNOVATION MACHINES IN ENSURING FOOD SECURITY BY

2030

Over the years, the dearth of essential tools, equipment and machines at farmer's disposal has hampered the overall growth of the agricultural sector and hitherto impeded the benefits of the country's possession of an expansive flora and fauna from Nigeria's south through the Northern Savannah up to Sahara. These impediments had hindered over 60 million farmers from engaging in optimum exploration of the vast agriculture and minerals resources in the nation's soil. The challenge of agricultural development in Nigeria rural areas fundamentally had not been the absence of available land for cultivation or lack of people's interest in farming, but the lack of needed infrastructure at almost all its critical functioning stages – power, process machines and equipment, appropriate technologies or tools, manpower training, right incentives thereby preventing opportunity of value addition to agricultural practice, leaving the sector at a level largely subsistence.

NASENI, as a task force was given the mandate to develop relevant process, designs, capital goods and equipment necessary for job creation, national economic well-being and progress including creating enabling knowledge-driven environment for achieving home-initiated, home sustained industrialization and local mass-production of standard parts, goods and services required for Nigeria's technology advancement, the agriculture sector inclusive.

In pursuit of this mandate, NASENI carried out research study and developed technologies in the area of spares, components, process and system engineering to be transferred to SMEs for onward commercialization or production of goods and services. Also NASENI developed technologies behind increase in agricultural productivity as a system for technology extension and other services for farmers, and commercial orientation in farm management. Among the new developed technologies by NASENI in agriculture sector to ensure food security includes:

- a. Integrated Cassava Flour Plant
- b. Mobile Cassava Grater
- c. Rotary Dryer
- d. Cassava Chipping Machine
- e. Cassava Peeling Machine

- f. Deep Well (Bore) Hole Pump
- g. Cassava Pelleting Machine
- h. Palm Oil Milling Machine
- i. Palm Fruit Bunch Stripper
- j. Palm Fruit Digester
- k. Seed Oil Expeller
- l. Multi-Grain Thresher
- m. Cabinet Solar Food Dryer
- n. Rice Threshing Machine
- o. Smokehouse Device

Attached is the detailed position of the projects.

S/N	Project Title	Location	Starting date/duration	Main Actor	Target Audience	Funder	Technology and innovation used	Tech. transfer	Food security issue addressed.	Goals & Objectives	Project status (implementation stage)	Sustainability measured	Info. available
1	Integrated Cassava Flour Plant	Scientific Equipment Development Institute (SEDI), Minna, Niger State	2008 - 2010	NASENI in collaboration with five universities	Bakery and confectionery industry	FGN	Research and advanced materials	Cooperative research	Diversity of food	To expand value chain, job and wealth creation	Prototype developed and tested and ready for transfer and scaling down	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
2	Mobile cassava grater	Scientific Equipment Development Institute (SEDI), Enugu, Enugu State	2011	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Knowledge transfer	Stop cassava wastage less transport	To reduce labour and increase in output	Finished/functional	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
3	Rotary dryer	SEDI, Enugu	2011	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	Process cassava into products such as garr, starch and odourless fufu (storage) and diversity of food	Food diversity	Finished/functional	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video

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4	Cassava chipping machine	SED, Enugu	2012	NASENI	SMEs	FGN	Research and advanced materials	Training	Chip two tones of cassava per eight working hour	Food diversity	Finished/functional	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
5	Cassava peeling machine	SED, Enugu	2012	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	Can be operated electrically. It replaces manual way of peeling	Food diversity	Finished/functional and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
6	Deep well (bore hole pump)	Hydraulic Equipment Development Institute (HEDI), Kumbotso, Kano State	2014	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Cooperative research	For irrigation purposes	Food diversity	Finished/functional and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
7	Cassava pelleting machine	SED, Enugu	2014	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	Food diversity	Food diversity	Finished/functional and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video

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8	Palm oil milling machine	National Engineering Design and Developing Institute (NEDDI), Nnewi, Anambra State	2014	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	Enhanced yield	Food diversity	Finished/functional and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
9	Palm fruit bunch stripper	Scientific Equipment Development Institute (SEDI), Enugu, Enugu State	2014	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	It is a power driven machine used for separation of palm fruit from the bunch. It reduces labor	Food diversity	Finished/functional and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
10	Palm fruit digester	SEDI, Enugu		NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	It is for small scale palm oil processing	Food diversity	Finished/functional and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
11	Seed oil expeller	Engineering Materials Developing Institute (EMDI), Akure, Ondo State	2014	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research		Food diversity	Finished/functional and at commercialization stage		Books/publication/NASENI website and video

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12	Multi – Grain Thresher	Advanced Manufacturing Technology Centre (AMT), Jalingo	2015	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	It is a mobile power driven agricultural machine used to beat or rub harvested plants in order to separate the seeds from the rest of the plant. It is used for threshing maize, millet, guinea corn, cowpea and groundnut.	Food diversity	Finished/functional and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
13	Cabinet Solar Food Dryer	AMT, Jalingo	2015	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	Proper drying of vegetables and herbal leaves.	To reduce post-harvest waste of vegetable and others	finished and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video

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14	Rice Threshing Machine	AMT, Jalingo	2015	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	It separates rice grain from dried paddy after initial cutting of the rice has been carried out	To reduce post-harvest waste of rice and others	Completed and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video
15	Smokehouse Device	AMT, Jalingo	2015	NASENI	Farmers/SMEs	FGN	Research and advanced materials	Participatory research	It is a device where fish, meat etc, are cured in smoke.	Provide a means of a controlled smoking and drying of fish, meat, etc.	Completed and at commercialization stage	Yes. Transfer of technology to SMEs for mass production & commercialization, and consultancy services	Books/publication/NASENI website and video