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Contribution of Nigeria

to the CSTD 2016-17 priority theme on 'New innovation approaches to support the
implementation of the Sustainable Development Goals'

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NIGERIA'S INPUTS FOR CSTD 2016 -17 PRIORITY THEME 1: NEW INNOVATION APPROACHES TO SUPPORT THE IMPLEMENTATION OF THE SUSTAINABLE DEVELOPMENT GOALS (SDGS)

1.0 Introduction

Innovation is a cross cutting issue which is vital in ensuring successful implementation of the Sustainable Development Goals (SDGs). It is understood as the outcome of a complex process of learning and interaction between a diverse set of actors. Aside goal 9 which emphasized on building resilient infrastructure, promote sustainable industrialization and foster innovation, Science, Technology and Innovation (STI) has been recognized as a key enabler of most if not all the other goals.

The following SDGs including poverty eradication, reduction of inequality in all its forms everywhere, promotion of inclusive and sustainable consumption and production systems, provision of full and productive employment and decent work for all, promoting healthy lives and wellbeing for all at all ages, inclusive and equitable quality education and promotion of lifelong learning opportunities for all, achieving gender equality and women/girls empowerment among others are considered very important in ensuring economic development of developing economies. It is relevant to note that successful implementation of these SDGs require fundamental changes in the ways in which energy, food, water, housing, welfare, mobility and other goods and services are distributed and consumed.

In order to actualize the SDGs, it is important to note that innovations with environmental sustainable impacts should be promoted, while those that contribute to environmental degradation, economic inequality and social exclusiveness must be discouraged. The new innovation approaches should be designed to be sustainable and all inclusive.

2.0 New Innovation Approaches: Nigeria in Perspective

Nigeria is committed to full implementation of the SDGs and has instituted a mechanism to ensure effective monitoring and evaluation of SDGs related programme and policies as contained in the National Development Agenda coordinated by the National Planning Commission. Nigeria has a roadmap for the implementation of the SDGs and is currently preparing a document stating its indicators. A mechanism to ensure effective monitoring and evaluation of SDGs related programme and policies as contained in the National Development Agenda has been instituted, coordinated by the National Planning Commission.

At both national and state levels, Nigeria has demonstrated concerted efforts to addressing and mitigating poverty reduction, inclusive growth, provision of affordable healthcare and strengthening of the healthcare system. A number of activities have been embarked upon to domesticate and mainstream the SDGs in Nigeria which included the appointment of a Senior Special Assistant to Mr. President on SDGs to coordinate issues of implementation and the development of the MDGs Endpoint Report which captured the endpoint status of the MDGs indicators in Nigeria, the achievements, and main policy drivers of successes, challenges and lessons learnt.

Furthermore, Nigeria has developed a number of financial strategies to empower Nigerians such as the on-going implementation of the National Social Protection Reform Agenda aimed at significantly reducing the high level of extreme poverty in the country. The Government has commenced the implementation of the Conditional Cash Transfer (CCT) of the Social Investment Programmes (SIP). As part of on-going efforts of the Federal Ministry of Health to improve health outcomes in Nigeria, a number of key health-related SDG targets have already been prioritized, such as Universal Health Coverage and improving maternal and child health among others.

3.0 Some of the Key Innovation Approaches in Nigeria

The Federal Ministry of Science and Technology (FMST) saddled with the responsibility of promoting STI in Nigeria and other relevant stakeholder MDAs have identified and developed key innovative priority programmes/projects in line with the SDGs designed to generally improve the living conditions of Nigerians. These include:

i. Ward Based Technology Cluster Programme (WBTCP)

The potentials inherent in the STI sector especially as it concerns utilizing the numerous STI outputs in the country for job/wealth creation and poverty eradication is high. Moving from commitment to results, Nigeria is driving inclusive growth at the grassroots through the Ward Based Technology Cluster Programme (WBTCP) that provides the platform for the demonstration and further deployment of requisite technologies for value addition to the resource endowments of each of the 9,555 political wards into useful products and services. WBTCP when fully implemented will not only create wealth and jobs at the ward (local) level through spin off enterprises but will also reduce poverty and support the development of local capacity and talent.

Some of the activities already undertaken in respect of the (WBTCP);

- Mapping of the raw materials in the 9,555 political wards nationwide;
- The planning of the pilot projects has commenced (land, skills acquisition, identification of existing SMEs that can buy into projects etc);
- Seven **pilot projects** were selected for implementation across the six geo-political zones of the country as well as the Federal Capital Territory.

Salient among the technologies to be deployed in ensuring food security include: Cassava Processing; Plantain Processing; Fish Processing; Okra Processing; Oil Palm Processing; Milk Processing; Tomato Processing etc. The success of the pilot project will culminate in the replication of the project in all the 9, 555 Wards in the Country. This is expected to lead to unprecedented level of employment and wealth creation at the grass root level.

ii. Application of Biotechnology Techniques in combating desertification and erosion

The FMST through the activities of Sheda Science and Technology Complex (SHESTCO) and National Biotechnology Development Agency (NABDA) have developed technology critical to the mass multiplication of plants which can combat both desertification and erosion menace, and have also acquired relevant equipment to elucidate the active ingredients produced by plants in vitro especially when they are challenged by elicitors. The facilities available at these establishments could be expanded to a regional training utility in the operationalization of the desertification programme of the West and Central Africa Region.

Nigeria is therefore seeking to collaborate with the United Nations Convention to Combat Desertification (UNCCD) in terms of using our establishments in Nigeria as a regional hub to promote technology dissemination activities that would lead to saving the environment in these areas and providing socio-economic benefits to its inhabitants. Applying the advocacy and knowledge sharing, and the secretariat budget on science-technology-and knowledge, it is feasible to employ the financial instruments available under the Global Environment Fund (GEF), agricultural and rural development fund facilities to implement this proposal aimed at putting skills in the hands of those who matter most in the quest for arresting the deserts` negative impacts. Also there exists the Office of the Ecological Fund which is an intervention facility established to address the multifarious ecological problems ravaging communities across the country. Recently, the Federal Government of Nigeria approved some Ecological Fund Intervention Projects in 11 states across the 6 geo-political zones of the country in line with its commitment to effectively combat desertification and erosion menace and enhance agricultural productivity.

iii. Promoting new and Renewable Energy

The Ministry in order to help meet the energy demand of the country through some of its Agencies including the Energy Commission of Nigeria (ECN) and National Agency for Science and Engineering Infrastructure (NASeni) is promoting development and deployment of renewable energy and energy efficiency across the country. These include: Small Hydro Power (SHP), Solar PV for street lights, water pumping, mini-grids, ventilation, vaccine refrigeration, efficient lighting systems (CFL, LEDs), Wind Electricity, Energy audits, Bio-fuels, etc.. Despite the efforts by the Government to address the energy challenges confronting the country, much is yet to be achieved especially as a result of high cost of developing and deploying these technologies. Considering that renewable energy is safe and environmentally friendly, it is imperative for Nigeria to seek collaboration and support from the developed countries and Development Partners in terms of making these technologies affordable and accessible to Nigerians

iv. Promoting Food Security and Right to Food

In recognition of food security and to give consideration to agricultural development, and nutrition in line with the SDGs, Nigeria has articulated her National Policy on Science, Technology and Innovation (STI), embarked on strategies to develop agriculture and the principles for sustainable food security. Some of these strategies are:

- Developing appropriate and innovative technologies for breeding, feeding and management of livestock and poultry;
- Encouraging technology update and diffusion of agricultural innovations to farmers;
- Enhancing agricultural productivity through cultivation of improved crop varieties and breeds of livestock and fisheries.

The FMST through some of its Agencies has developed, acquired and piloted various technologies that have added value to local raw materials including food/Nutrition Processing/ Preservation Technologies, agro-allied products & Agricultural Inputs, with substantial capacity to fast-track the development of rural communities and reduce poverty in Nigeria. The relevant Agencies include among others:

- SHESTCO & NABDA - Plantelets multiplication using Temporary Immersion Bioreactor (TIB) to produce high yielding varieties of crops and plants etc.;

- SHESTCO - Gama Irradiation Facility meant for the protection and preservation of agricultural produce;
- Food Processing Technologies/products, High Nutrient Density (HND) & Ready-to-Use-Therapeutic Foods, Fruit processing (Banana, Oranges, Mangoes) into cordials and concentrates by the Federal Institute of Industrial Research , Oshodi (FIIRO) for the use of small and medium enterprises. These include instant pounded yam flour, fruit juice product, cassava products (Chips adhesives, Starch, Flour) instant fufu flour, baking and confectioneries etc;
- Enzymes for industrial uses have been transferred for pilot scale production by FIIRO. They include proteinase glucoamylase, pectinase and amylase;
- Food & Chemical Processing Technologies/products, Organic fertilizer from Moringa Oleifera etc developed by the National Research Institute for Chemical Technology (NARICT);
- Food Processing equipment developed by Project Development Institute (PRODA) and NASENI;
- Memoranda of Understanding (MoU) were signed with private sectors (companies) for use of technologies developed in area of food production.
- NOTAP facilitates linkages between Fulani Cattle rearers and Milk producing companies in Nigeria eg. (Fiesland Campina WAMCO plc) on large scale collection and preservation of raw milk from across the country. This strategy has helped to create wealth and job among the farmers and reduce import dependency in importation of raw milk

v. Establishment of Bio-resource Centres

Poverty has been identified as one of the main causes of food crisis in the world. Taking cognizance of this, Nigeria has in different geo-political zones of the country developed Bio-resources centres, where skills acquisition training on Bio-resources exploitation, development and utilization are organized regularly for job creation and poverty alleviation. FMST is using Biotechnological tools such as Genetic Engineering to boost agricultural productivity for improved crop yeild, drought tolerant plants, disease

resistant crops and crops with increased nutritional value such as *Beta* carotene for vitamin A availability. Currently, Confines Field Trials (CFTs) of Bio-fortified Sorghum, Maruca-resistant Cowpea and Bio-Cassava plus are on-going in different parts of the country.

Nigeria now has in place a Bio-safety Law. The country will expectedly take full advantage of the use of biotechnology, (especially transgenic biotechnology) in crop improvement particularly where conventional methods lack solution. These include both biotic and abiotic constraints / challenges that are now limiting productivity. With proper funding, the Ministry through its relevant Agencies can now carry out its mandate in genetic engineering research for crop improvement. A good example is the possible development of Nigeria local wheat variety which can thrive under hot and low water input. It will save the country huge wheat import, hard currency while at same time create employment, alleviate poverty and thus, generate wealth. Nigeria advocates for greater cooperation and support from the developed economies in respect of Technology transfer to low income Countries for the enhancement of their infrastructure, packaging and marketing systems where the wastage of their food are always associated.

vi. Promoting Science and Technology Education

In order to promote science education, FMST through one of its Agencies NASENI has developed Primary Science Kit (PSK) and Junior Science Kit (JSK). The kits are meant to help the teacher and pupil to actualize in practical terms the objectives of basic science education. The kits among others enable the Nigerian child to observe and explore their environment, develop basic science process skills, scientific attitude, self confidence and self reliance through problem solving activities. Also, in line with its Social Investment Programmes (SIP), the Government's free National feeding programme for primary school pupils has been billed to take off nationwide.

vii. NOTAP – Industry Technology Transfer Fellowship (NITTF)

NOTAP Facilitates the NITTF which is a scheme of human capital development to bridge the gap between professional Nigerians in the industry and the academia. This is as it relates to the research needs of industries and the industrial exposure needed by Research Institutions. Some of the success stories involved:

- The Dufil Prima foods Nigeria plc (Indomie noodles)
- Julius Berger Nigeria PLc (Kiln Technology)
- Nesle Nigeria Plc. (Production Process)

viii. Promoting affordable clean water and Sanitation

NASENI has developed deep well pump and Nano-porous filter membrane from rice husk and clay for household use in Nigeria. This is intended to ensure that rural dwellers have unhindered access to clean and safe water.

ix. Policy Research and capacity development to promote the utilization of STI in actualization of the SDGs

The FMST through National Centre for Technology Management (NACETEM) and other relevant stakeholders conduct policy research on various areas of STI as it relates to ensuring successful implementation of the SDGs. These include: Technology Innovation Value Chain of Agricultural products in Nigeria, Technology Needs Assessment on various productive sector of the economy in Nigeria including Agricultural sector, Policy research on water treatment and conservation technology, Technological Entrepreneurship Assessment in the Nigerian Manufacturing sector, Policy research on climate change resilience and adaptive capacity to climate related hazards among others.

Also, capacity development programmes in the following areas are salient. They include: sustainable watershed management tools, production of safe, nutritious and widely acceptable condiments, Strategic energy conservation method, Technological Entrepreneurship,

4.0 Conclusion

The transition to SDGs requires support for STI development, provision of business development services, establishment of enterprise clustering and networking, stimulation of business linkages and creation of pro-poor business linkages/opportunities. The FMST has taken cognizance of this development and is poised to implement projects/programmes that will fast-track the actualization of the SDGs.

In line with the revised National Policy on STI, It will be worthwhile to share that Nigeria has established a robust coordination platform, the **National Research and Innovation Council (NRIC)** chaired by Mr. President with the Honourable Ministers of the cognate Ministries and representatives of the Organized Private Sector (OPS) as members and has commenced creation of a funding arrangement ie **National Research and Innovation Fund (NRIF)** that will ensure sustainable and competitive funding of STI in Nigeria covering various areas including Scientific research in public and private institutions, as well as commercialization of STI based researches that will help in the actualization of the SDGs, especially with focus on Poverty Eradication, Food

& Nutrition Security and Job/wealth creation, among others. This is a demonstration of Nigeria's commitment and political will to promote the use of STI tools in addressing the nation's developmental challenges. It is therefore crucial for developed economies to assist developing countries especially those in Africa with development and enhancement of STI infrastructure with a view to actualizing the SDGs.