President Muhammadu Buhari recently directed Nigeria's foremost technological development agency, the National Agency for Science and Engineering Infrastructure (NASENI) to collaborate with strategic ministries, departments and agencies to develop technologies that would advance the nation's growth. In this interview with NKECHI ISAAC, the executive vice chairman of the agency, Prof. Mohammed Haruna, highlights the Agency's efforts at executing this presidential directive.

What steps has the agency taken in compliance with the recent presidential directive on the development of relevant technologies for the country?

In order to implement this directive, we immediately wrote all the states individually and also reached out to the states through the Nigerian Governors Forum (NGF). The forum granted us audience and organised two meetings between the agency and state governors. We took time to make presentations on our activities, identifying technologies that are available and that can be explored by each state to create jobs and also attend to their rural needs in order to improve the lives of the indigenes. So far, several states have indicated interest on some areas of collaboration.

What do the states stand to benefit in these projects, especially in terms of job creation?

Depending on the priorities of the states, we have demonstrated to them we have capacity to step into rural electrification using our own solar technology, small hydro turbine and also the efficient energy saving lamps. Also, our agricultural and farm implements and technologies in the manufacture of our equipment for science education. There are also equipment that have matured in our system in the areas of recycling of waste to wealth, both metallic, polythene and plastic waste. In the area of job creation, in all areas in order to create artisans in plumbing work, wielding and fabrication, carpentry, all these aspects.

So, each state based on their priorities and programmes identified, but what is common is that we discovered that almost all states need our intervention in the area of electric power supply, especially using the alternative energy sources and also in agriculture. We discovered that almost every state indicated interest on that and we just returned from a trip to Jigawa State where our technical team is currently working with them to solve the problem of failure in their

street lights in the cities first, then rural electrification. In addition they have challenges with their cassava processing and various crop shellers. So, we'll not only give them these equipment, we're training them on how to operate, install and repair these equipment and through these processes they will be able to create several jobs.

Solar panel production is one of the flagship projects of the agency; currently there are concerns about the massive failure of solar panel projects in Nigeria which makes them unsustainable. What is your take on this?

The situation is so sad because many people think that solar power supply, solar energy is a myth because of the rate of failure of the project in so many places, which is for several reasons. First of all we don't have well trained personnel arising from the fact that everyone thinks they can install solar panels; if someone has the ability to wire some points of electricity he thinks he can also do that for solar. The fact that someone is an electrician does not mean he is qualified to install solar. Solar system is different and its installation requires special training because of the unique calculations of matching the components with the load. Most at times what is obtainable in most cases is that a client who wants to install solar simply tells the technician the number of rooms he has.

Solar wiring is not done like that, the technician must first of all carry out a survey to know the nature of loads, appliances in a two bedroom flat requires different types of solar installations, so therefore there are several un-matching from the beginning. The design is faulty and therefore may not produce a successful solar installation.I assure you that solar systems are very durable and sustainable provided they are properly designed and installed. It can last up to 40 to 50 years, the only thing that needs to be attended to is the deep cycle battery which usually have expiry period stamp on it, which should be replaced after expiration.

So, whoever wants to venture into solar installation is advised to come to NASENI for training on how to do the appropriate sizing, the design, the load survey and selection of components needed for installation.

You were recently in China and Indonesia ahead of the plan for the production of spare parts for machines and tools in Nigeria, what was the outcome of this visit?

We were in Indonesia and China and the team was led by the Minister of Science and Technology, Dr Ogbonnaya Onu. The project with China and Indonesia is actually a NASENI initiative since 2012, 2013. We're so happy that the current government is very interested in the project and is fully supporting it. You'll recall that we had wanted to start the manufacturing of aircraft and heavy duty trucks since 2014 but a lot of things were expected from the government of the day, then Mr President was to sign an agreement.

However, the project didn't take off as expected hence the trip with the new minister to explain

to the similar agencies like NASENI in Indonesia and China that are already producing multi-purpose aircraft, military, civilian, commercial heavy duty trucks and military equipment. So, after we briefed Mr President he took interest in the partnership and gave the directive for the trip to those countries. In the realisation of that the minister was recently in Indonesia with us to give the current administration's commitment to the partnership.

Agencies similar to NASENI, like SIRIM in Malaysia and PT Dirgantara in Indonesia are currently producing highly sophisticated military hardware and aircraft, what is inhibiting the agency from toeing the same path and how can the Federal Government step in?

We would have achieved this feat but we don't want to reinvent the wheel. When I took over as the chief executive of NASENI, I toured all similar agencies in about nine countries to see the technology gap, assess our differences in administrative approach and other things and we discovered that we're not receiving up to 0.1 percent of their budget even for countries smaller than Nigeria. Not only that, our approach has been different due to instability in policies and implementation in the country.

But we're not interested in reinventing the wheel, where we saw what we need to learn we appeal to them to collaborate and cooperate with us to build our own capacity to move in their direction and achieve success for the country. That we went to Indonesia in the first place, and they have agreed since 2013, they were expecting our engineers and scientists to learn all the system from design to manufacturing of aircraft, they are willing and ready to teach us all the aspects but we have been unable to properly enter this partnership because of lack of funds to sponsor our own staff during the training.

So, for Nigeria to get it and I believe that the giant stride of this administration, it will soon be a reality. The nation will soon receive a team from Indonesia in February or early March to assess what we have on ground in order to see how to take off in this aspect.