Space Technology Has Improved The Lives of Millions of Nigerians

Dr. Mohammed is head of the Nigerian Space Research and Development Agency (NASRDA). He was born in the ancient town of Abejukolo in the Omala Local Government Area of Kogi State. He is currently an alumnus of several institutions including University of Jos, Nigeria; the International Institute for Geoinformation and Earth Observation (ITC), Twente University, The Netherlands; the Indian Institute of Remote Sensing, Dehradun, Uttah Pradesh Province, India; and the University of Chicago, Ill., U.S.A. He holds a PhD in Environmental Remote Sensing from the Bayero University, Kano, Nigeria.

EIRNS/William Jones

Dr. Mohammed has served as director-general of the Kogi State Directorate of Rural Development; managing director of the Nigerian Satellite Imageries and Consultancy Limited; director and CEO, National Centre for Remote Sensing, Jos; and is currently director-general and CEO of the National Space Research and Development Agency. In 2009 he was elected a member of the International Academy of Astronautics.

He was interviewed on Oct. 5, 2011, by William Jones and Marsha Freeman, on the sidelines of the 2011 International Astronautical Congress held in Capetown, South Africa.

EIR: Nigeria has been utilizing satellite technology and has been interested in space for a long time. Can you say something about what the net effect of having the capabilities of space has been for the economy, and for the general population?

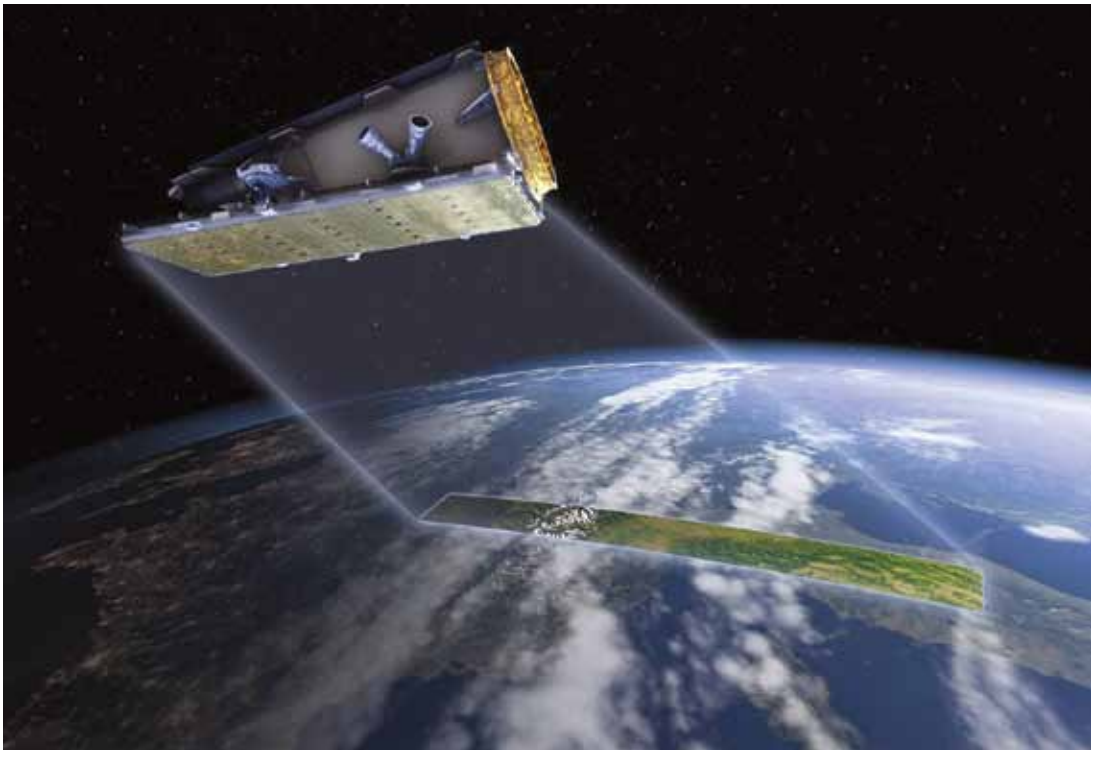
Mohammed: That is an interesting question. Of course we are confronted with that kind of question on a daily basis. Ten years ago, at the beginning [of the space program], we were severely criticized. Particularly by the elites.

Space Techology Is Not Only for Advanced Countries

EIR: Inside Nigeria?

Mohammed: Yes, inside Nigeria. For a developing country, what business do you have going into space? But we're happy that after 10-11 years, the population criticizing us has been reduced considerably. That's number one. Number two, our colleagues all over Africa, after Nigeria, when they saw what we were doing, Algeria has established number two [in space]. South Africa has formalized its space agency, number three. Kenya has joined, making it four. Also Egypt formalized, for number five. Morocco is making good efforts. And Ghana is joining. So nobody will talk badly about this project.

And at home it has helped to develop local competences. In 2003, when we did our first microsatellite, with our partners, Surrey Satellite in the United Kingdom, about 15 engineers and scientists were trained from that project. In 2007, we had a collaboration with the Chinese to do a communications satellite. Fifty engineers and scientists were trained from that project. And the latest one that was launched Aug. 17, 2011, twenty-five engineers and scientists were trained. Through that, also currently training are about 40 of our colleagues at 11 facilities all over the world, including the University of Alabama, Surrey University, and several others across the world. And about 50 are also doing their MSc [Masters of Science degrees]



Surrey Satellite Technology Ltd.

Space technology is not just for industrialized economies, Dr. Mohammed insists. Shown: a Synthetic Aperture Radar (SAR) Satellite System, NovaSAR-s, manufacted by Surrey Satellite Technology Ltd, used by Nigeria.

to develop enough capacity to carry on, to man our facilities.

All these facilities are ground stations manned by Nigerian engineers and scientists working on these satellites. We have also established processing platforms to process the data from those Earth observation satellites, an area for environmental assessment, providing maps for farmers, and so on and so forth.

We recently completed a project, the National Land Cover Map for the whole country, at the scale of 1:100,000. There was a similar project in 1995-96. At that time, the Nigerian government got a grant from the World Bank for about $3 million to buy images from the French, 14 images. But this time, we didn't get any grant from anybody because we don't have a satellite. And at that time, it was Canadian consultants who came to do it. This time, we looked to use local resource persons from a Nigerian university to develop those maps. From one single project alone, we saved more than $10 million. So, because of this, more Nigerians are encouraged.

We have also produced a satellite atlas map which, all over Nigeria, is being used by local people, people wanting to establish business chains, restaurants, and so on. These are high-resolution images to look at the best population area, to look at population that is a little bit well-to-do, to look at where several routes join, that can have an impact.

So that we begin to see now that Nigerians are being mobilized to this, and more and more people are being converted, that space technology can be of use, and that it is not meant [only] for industrialized economies. Because ours is not a level two, ours is meant to solve particular problems. So with that, I win more converts.

But that is not to say that some people are not still criticizing us. I keep telling people that, as advanced as NASA is, all Americans do not believe in space projects!

The Farmers Follow the Water

EIR: The water issue in many parts of the region has become absolutely critical. There is now a proposal on the table to build a massive irrigation system that would bring the waters from the Congo River to refurbish Lake Chad and begin reversing the desertification. How do you view such a project?

Mohammed: This affects the lives of over 20 million people, not only in Nigeria, but also in Cameroon, in Chad, in Niger probably, and in part of Sudan. And

because of that recession of the water, the livelihoods are being disturbed. And this is because of human activities. Most of these countries have now come up with dams, with reservoirs, that are affecting the supply of water. And the result of that is that there is no underground water in Chad. This is a big problem.

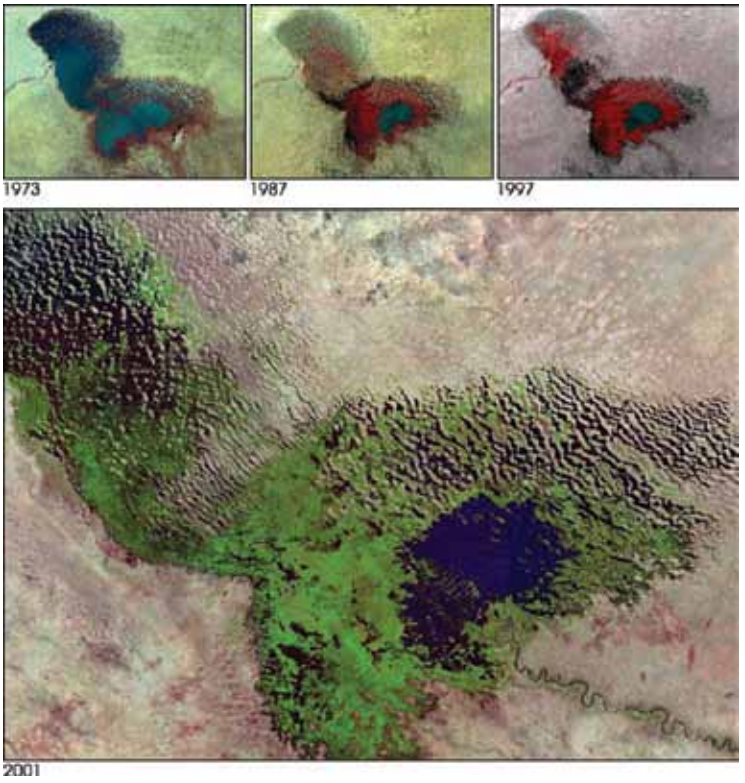
And sometimes, because there is water, and the farmers follow it, and sometimes it's already moving out of their country boundary. But they don't know it, and they begin to fight. You know, "You have taken all my land." But as far as they're concerned, it is their water, and they are prepared to go with it wherever it goes. They [the farmers] have told me that they have come up with more images of Lake Chad than anywhere else. I say that that is correct, because the Corona pictures that we are using from the '60s come from the U.S.

EIR: So these are historic images?
Mohammed: Yes.

EIR: I told [NASA Administrator] Charlie Bolden that every time there's a new picture, there's probably less water in Lake Chad. And he agreed that that was the case. So the idea should be, with the Transaqua project, to bring the water back to Lake Chad and help reverse the desertification.
Mohammed: Fantastic.

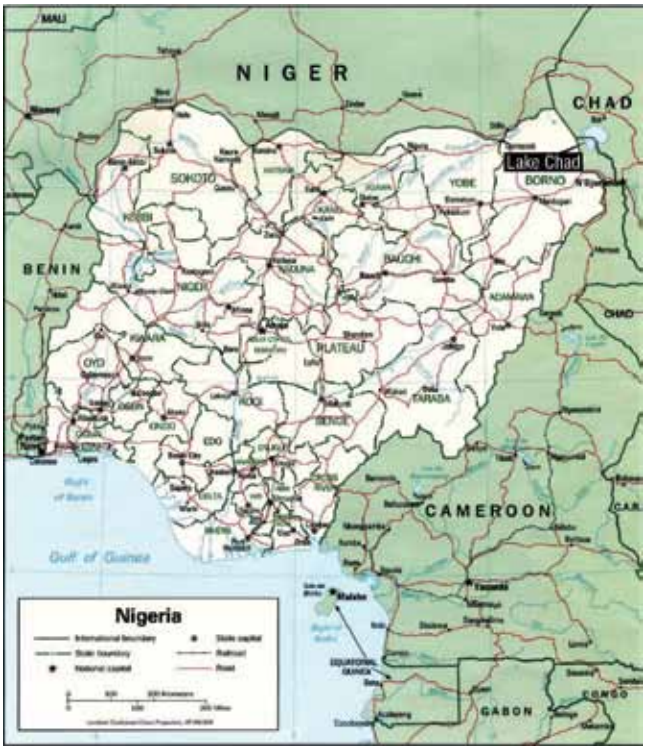
EIR: What are the next steps then?
Mohammed: Like I said during the conference, we now have optical images. The next one we're launching is a communications satellite. The population is over 150 million people. We have over 95 million GSM [Global System for Mobile Communications] lines. With that alone you can cover over 50% of the population. The capital flight of $400 billion will be reduced to less than $500 million, to create jobs. This money can be used to reduce loans. This money can be used to provide medical services, and to rehabilitate schools for young ones.

That is number two. Number three, we need also to have synthetic aperture radar satellites. Because more than 50% of Nigeria is covered by clouds, and radar for now is the only technology that can penetrate clouds. It gives us the opportunity to assess our assets of oil and



NASA GSFC Scientific Vixualization Studio; Landsat 7 Project Science Office

The dessication of Lake Chad, shown in these composite images taken between 1973 and 2001, affects the lives of over 20 million people, in Nigeria, Cameroon, Chad, Niger, and part of Sudan. The map shows the location of Lake Chad near the upper righthand corner.



gas. It will be an opportunity to monitor the environment, oil spillages, and also monitor related problems in the Niger Delta areas. And it also gives us the opportunity to monitor offshore activities, particularly illegal fishing vessels that dominate our waters. All of these are important. And so this is the direction. We need to build a radar satellite. So this is a part of what we are looking at totally.

EIR: Is this synthetic aperture radar satellite something that you will develop yourselves?

Mohammed: There are several models. Model one is go out and buy it yourself. Model two is, start the process from beginning to end, like the U.S. has done. We don't have the money to do that. Because if you lose one satellite and you lose another, they will call for my head.

EIR: They fired the head of the Russian Space Agency for that reason.

Mohammed: Yes. So, in that case we have to develop a model in-between, so we're not reinventing the wheel. So this is exactly what we are doing.

Looking Ahead: A Nigerian Astronaut

EIR: You mentioned that by 2025, you would have a testing and design center, and in 15 years…

Mohammed: No! A testing and design center, we want that now. We are in the process of doing that now. We're looking for money to do that. In 2025, we said our industries should have grown to commercialize production services to our space technology. That's what we said.

By 2030, we want collaboration with other nations to develop a launch facility like they have in Kourou. We are looking for partners now. We are coming to America, we are coming to Europe, to shop for them. So that at that time we can jointly develop a launch facility, because of our uniqueness close to the equator. And we want the support of collaborators.

EIR: You also mentioned that you collaborated with South Africa on a number of projects. What programs have you worked with them on?

Mohammed: We currently have within the African Platform, we have the African Earth Resource Monitoring Constellation. We are saying that those who can contribute satellites should contribute to provide data for Africa. The satellite that we launched, the last one, is the first in that constellation, which means collaboration has started. And we are going to work in a number of ways through capacity-building, and then start by developing the SKA [Square Kilometre Array]. We are initially not there, but we want to join as part of an effort to develop an astronomy program in Africa, because it is capable of impacting several areas. So all of these are currently happening.

Now we also expect that the private sector—there are good signs in South Africa—can also have their footprints in Nigeria, so that we two combine to make it a purely African affair. This is our intention: To work together, that would strengthen our effort and it will go a long way to being on the list with a fair share of the African market.

EIR: In a presentation the other day on the Nigerian program, it was mentioned that there should be a Nigerian astronaut by 2015.

Mohammed: Yes. By our roadmap, in 2015 we are supposed to have a young Nigerian at the International Space Station. That is what we want. But, you know, global policy—like Bolden was saying—we are looking at that, and seeing how it affects our roadmap, and how we can also tailor the roadmap to suit it. Bolden is saying they want further participation now, in space. So we are watching carefully to see how that can affect our program. But all we are interested in is how it affects us. We need to take along with us some of the indigenous foods in Nigeria, in zero gravity for effect, to see how it can improve the varieties.

EIR: The Chinese are doing a lot of experiments with Chinese seeds and different rice and all kinds of things, to see if microgravity improves it.

Mohammed: Correct.

EIR: The possibility of a Nigerian astronaut would be very important. Because people have talked a lot at the conference about how to engage young people in space. And of course, the most exciting part of space is the manned space program. And man walking on the Moon is always the thing people see the most. So if you had a Nigerian in space—

Mohammed: Fantastic! That icon alone! I would walk the streets of Nigeria, and I could now move mountains. If we do that, that would be enough of a campaign for the space program. I wouldn't have to do any thing else.