

As Nigeria’s communications satellite was being prepared for launch, the government, once again, confronted the criticism that money should instead be spent “fighting poverty.” Prof. Robert Boroffice, head of the space agency, responded that space technology was another way of lifting Nigeria out of poverty, by serving as a catalyst for economic development.

Unfortunately, after one year in Earth orbit, the Chinese-built NigComSat satellite failed (it will be replaced, free of charge, by China Great Wall Industries). But this has not discouraged Nigerian planners. Follow-on NigComSats 2 and 3 are in the works. Experts estimate that, thanks to the development of its cadre of engineers, by 2015, Nigeria will be able to design and build its own satellites.

In December 2009, the director-general of NASRDA, Dr. Seidu Onailo, told the National Media Conference on Space Science and Technology that space development is a “tool for technological revolution” for any society. This year, Nigeria is looking forward to the launch of its second remote-sensing satellite, and an experimental Sat-X high-resolution satellite.

The goal, as expressed by Nigerian officials, is for Africa to overcome its colonial designation as the “dark continent,” and instead, to become enlightened space-faring nations in the years ahead.

Interview: Dr. Berndt Feuerbacher

Bringing New Nations into Space

Dr. Feuerbacher is the current president of the International Astronautical Federation. He earned a Ph.D. in physics from Ludwig Maximilian University, in Munich, in 1968. He has participated in many science missions of the European Space Agency, and holds eight patents. He was interviewed by Marsha Freeman on the final day of the IAF Congress in Daejeon, South Korea, Oct. 16, 2009.



IAF

EIR: Congratulations on a very successful Congress. You mentioned that there were more people attending than you had expected.


Feuerbacher: Yes. You see normally we expect high attendance in the traditional space countries, in Europe and in the United States. If you are outside, it usually goes down a bit. So we extrapolated from the [2007] Congress in Hyderabad [India], and added a bit of financial crisis, and if you do that, you end up [expecting] less than 2,000 participants. But we had clearly more than 3,000—about 3,300. That was a real surprise for us. I think [the Koreans] did a very good job in advertising the Congress.

EIR: You had mentioned to me last year that one of your goals as president of the IAF was to bring in more young people. It seemed to me that this Congress had many more youth than previous meetings.

Feuerbacher: That has been very, very successful, and the same is true for the Space Generation Congress. We have a youth grant competition newly established within the IAF, which is for students from emerging space countries. And we had 12 young students who came here on those grants. In addition, we have the young professional program. Overall, I estimate than more than 25% of [the attendees] at this Congress are below the age of 33.

Krafft Ehrlicke's Extraterrestrial Imperative is the summation of his work on encouraging the exploration and development of space. The book contains all of his reasons why we need to get off the planet and explore space.

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EIR: Another goal of yours, as you had previously indicated, was to bring in a larger number of emerging countries.

Feuerbacher: This is a remarkable development. More and more nations recognize the benefits that space can bring to their population. In the past, space was regarded as a technology toy, more or less, or prestige for the country. Now, really, I think, the message has penetrated, that it is really the benefit for the people that counts. That means that many more nations get interested in space. We have more than 70 nations represented here. We're working towards our first Congress in Africa, which will be in 2011.

EIR: It tends to be the small satellite sessions at the Congress, where you see new countries emerging in to space technology, since these are more affordable, small learning projects, which do not require very much of a space industry or infrastructure. Many of the people have gotten their education abroad, and then come back to their country, and build on that.

Feuerbacher: You know, it's not necessary for a country to have an evolved space industry to harvest fruit from space. Today, we have large archives of data which are very freely accessible, and the policy to give out data at very low cost, or even for free, to other nations is getting more and more popular. Also, the data are now available in a form in which they are really usable, which is very critical in this context. So, you don't need a very high standard of education to be able to make use of them. Many countries don't have their own space industry; don't have their own satellites, but they still actively make use of the benefits for their particular country.

EIR: So, being a user of data from other nations' satellites seems to be the first step.

Feuerbacher: Yes, and I think that's the best way of doing it. Not to start at the high-tech end, but start at the low-tech end. Educate the young people, and in this way you create a workforce which is self-propagating. These young people have to first have access to space, and they educate themselves to become more skilled, and in this way, you can build up the basics which bring a country a whole step forward.

Technology Drivers Can Overcome the Crisis

EIR: Looking at the global situation, what do you see as the impact of the economic crisis on space programs?

Feuerbacher: It's different, in different countries. Some countries actually see space technology as an innovation driver, and therefore, a means to overcome the crisis. Others act differently, but I think, overall, it actually helps to improve global cooperation. Because it's more and more difficult for individual countries to have very complex space missions so there is an incentive to cooperate. This is a good thing.

EIR: How important do you think international cooperation will be in the meeting the space goals of this century?

Feuerbacher: If you're looking at big goals, like going to the Moon, or to Mars, with humans, it turns out more and more that this is a task of global dimension. You have to go even beyond cooperation like we have on the International Space Station. We have to include everybody. We now have to start these new processes, which means that we don't have dominators any more. We have partners on an equal level, whether this is a small country, like Nigeria, that can contribute a little bit, or it's a big country like the United States or Russia, that has developed technology. We can bring it all together, and finally come up with a global effort. I think that's a good direction.

EIR: How do you see bringing countries like Nigeria into a global effort? What can they contribute?

Feuerbacher: Countries like Nigeria are very much concentrated on their national problems. Things like climate change, desertification, water shortages, food, and so on. And this is correct. But as they use space technologies to help meet these demands, they develop higher skills which will enable them to also contribute to a larger task. They will have to find their niche. They don't have it yet.

You know that at the end of May 2010, the IAF is running the Global Lunar Conference. We want to bring together all nations interested in the Moon, one way or the other. First of all to make contacts, but also to sketch out the ways that future advances can be made in the revisit of the Moon, and later also use it as a stepping stone to go to Mars.

EIR: In two years the IAF Congress will be in South Africa, which will be a real eye-opener. Very few people in the U.S. had any idea even about South Korea's space program, before this Congress in Daejeon.

Feuerbacher: I hope that our Congress here has

helped the Koreans to get their ambitious and dynamic space program more known to the rest of the world and that it gives them a little more accessibility to other programs. Here, in this country, the interest is very high. The President [of Korea] said in his opening speech [to the Congress] that 90% of the population watched the KSLV-1 rocket launch on TV. I don't think that happens in any other country in the world.

Vietnam Looks To the Stars

by William Jones

The annual gathering of the International Astronomical Federation always presents an opportunity for the smaller nations to describe the efforts they are making to develop and utilize space technologies. Over the last few years, there has been an increased emphasis on encouraging the participation of young people in the conference. On Oct. 12-16, 2009, in Daejeon, South Korea, there were 700 youth in attendance. And indeed, many of the countries that are catching up in the new "space race," are putting much of their effort into the younger generation.

Perhaps no country has had a more difficult situation to overcome than Vietnam. In an almost continual state of war, from World War II until 1975, Vietnam has not had much time, nor resources, to devote to space science. Nevertheless, it is now taking its first steps to develop a space capability.

But as Thanh Tuong Nguyen, a teacher of Astronomy and Space Science at the Le Hong Phong High School for the Highly Gifted in Ho Chi Minh City, indicated in his presentation at the Daejeon conference, although Vietnam does not have a very long tradition of space science, it does have an astronomical tradition which has its roots in the peasant economy of the country, and which goes back centuries.

Vietnam, like most of the Asian countries, utilized the Chinese lunar calendar. Aside from the overall influence of Chinese culture in Asia, this calendar served very practical purposes. The most important product in their agricultural economy was rice, which demands a great deal of water. Therefore, the rise and fall of the



Thanh Tuong Nguyen

When Thanh Tuong Nguyen became the first high school astronomy teacher in Vietnam, in 2000, teaching supplies were nonexistent. Since then, he has introduced a simplified university astronomy textbook, a rotating sky map, a home-made solar clock, and field trips to observe the night sky. Here, students examine the rotating sky map.

water level in the rivers was of utmost importance for the Vietnamese peasant. This rise in turn was dependent on the phases of the Moon.

Peasants became quite adept at determining these phases, in which identifying the position of the heavenly constellations played a major role. But this was not a tradition that was easily transmitted from generation to generation, and not only because of general illiteracy. The written Vietnamese language was based on Chinese Han characters. As in China, this character script takes many years to master, and was really only accessible to the highly educated classes.

An Oral Tradition

The knowledge of the heavens required by the peasant to successfully grow his rice, was, therefore, transmitted orally. The farmer would memorize chants, called *caodao*, that could easily be transmitted from generation to generation, and which incorporated their knowledge of the seasons, the placement of the constellations, and the lunar progression. This was a form of rural astronomy that existed in the country for centuries, and was widely diffused among the peasantry.

There was also an Imperial Observatory, which, at the beginning of each lunar year, would issue a calendar of the seasons, divided into 36 weather periods, that would vary from year to year. But, even this calendar