

First Forest Unit Open Day emphasizes the need for conservation

The Forest Open Day, which emphasized the keyword “conservation” in the minds of stakeholders, was organized by the [IITA Forest Unit](#) on 26 October at IITA, Ibadan, to showcase donor-funded facilities and highlight the activities of the Forest Unit over the past seven years.

This first ever Open Day was attended by representatives from the Leventis Foundation, Forestry Research Institute of Nigeria ([FRIN](#)), Nigerian Conservation Foundation ([NCF](#)), Centre

for Environment, Renewable Natural Resources Management and Research (CENRAD), and the [Australian High Commission](#) as well as students from the Olive Branch School, Ansar-Ud-Deen High School, Ekiti Mobil Grammar School, Saint Catherine’s College, and the International School of IITA.

The event aimed to bring together national, regional, and international partners to raise awareness on the need for sustainable management of natural resources, support

wider biodiversity, and build capacity for tree conservation.

From 1990 to 2005, Nigeria lost 21% of its forests, earning the reputation of having the highest rate of deforestation in the world. Such rapid deforestation resulted in an average temperature rise of 1.1% and a decrease in annual rainfall of 81 mm. Forest cover is now down to 4% yet there are few initiatives on reforestation or protection; and at this rate, Nigeria’s forest will be gone by 2020 if steps are not taken to conserve the remaining resources.

Speaking at the opening ceremony, [Kenton Dashiell](#), IITA Deputy Director General, Partnerships for Delivery, applauded all the participants for their contributions and dedication towards making the occasion a success. “This is the first Unit Open Day, and I am happy to celebrate with them. The Forest Unit has worked tirelessly to ensure that IITA’s forest and its habitats are not threatened, and I encourage you all to be movers of conservation,” he stated.

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IITA Management and dignitaries during the opening program of the Forest Unit Open Day.

Australian High Commission representative visits IITA

On 26 October, Adaora Ikenze, Head of Development Cooperation, Australian High Commission, Abuja, visited IITA to participate in the Forest Open Day and assess the Project’s programs and progress over the year.

Kenton Dashiell, Deputy Director General, Partnerships for Delivery, who received Ikenze, gave an overview of IITA and its activities before she was taken on a tour of the Institute’s facilities. Ikenze expressed her delight on the tour, saying, “I am quite impressed by what I see around here. It

is good to know that Africa at large has an institute like this to rely on.”

Ikenze conveyed her interest in the activities of the Youth Agripreneurs saying: “I would like to come back on another visit to see the youth in agriculture. I have heard about their programs.” The Australian High Commission is one of the donors of the Forest Project. Australia and Nigeria have a long history of bilateral relations and enjoy a strong relationship with deepening trade and investment.



Ikenze of the Australian High Commission visit the IITA labs.

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In addition, [Deni Bown](#), Head, IITA Forest Unit and focal point for the event, emphasized the importance of collaborative effort, partnership, and commitment to prioritize and protect Nigeria's most threatened trees for the continuous interdependence of people and nature.

The occasion incorporated the official opening of the Tree Heritage Park, which was led by [Ahmed Mantey](#), Chairman, Leventis Foundation, and gave stakeholders the opportunity to see rare and endangered Nigerian trees. Bown said "The Tree Heritage Park in IITA-Ibadan will raise awareness that native trees are better adapted to local soils and climate, and provide a far greater range of raw materials than exotics."

For his hard work and excellence, Bown presented an award to [David Ladipo](#),

Chief Executive Officer of CENRAD, and honored him as Patron of the Tree Heritage Park. Upon receiving the award Ladipo said, " I feel very excited to be recommended and given this award as the Patron of this Park. I will do everything

within my power to maintain the tree species here as they are crucial to the future of mankind."

The meeting ended with a tour of the Nursery and Ethnobotanical Garden.



IITA staff welcoming young students to the Forest Unit Open Day.

IITA launches FMS online database system

IITA Facilities Management Services (FMS) launched its web database platform on 31 October at IITA, Ibadan, to enhance online communication between the Unit and its clients.

The unveiling of the FMS online project database system was attended by users, contributors, supporters, and collaborators of the database, which comprise the various Directorates, data and information specialists, scientists, and FMS staff.

The newly designed network platform, which was developed and tested by Alexander Mwangi, Software Developer, International Intern at FMS, aims to provide an online monitoring and management platform for FMS projects.

The database interfaces with the IITA User Directory and Oracle, and seeks to provide better customer services, improve communication with clients, provide a clear line of responsibility within a project's lifecycle, and give a clear report on the status of a project to its requestors.

Hilde Koper-Limbourg, IITA Deputy Director General, Corporate Services, commended the entire team involved in the different phases of the development of the database system. "I am impressed because the database was completed on schedule. This day became a reality as a result of your determination and commitment," she said.

While enlightening the audience on the purpose of the system, Waheed

Quader, FMS Head, said: "This system provides a key link in a project which makes planning easy, supports a line of authority between the requestors and FMS, and also provides a clear report on the status of any ongoing and past project. Once you start using the database system, you will see the advantages."

Mwangi explained how the innovative technology functions irrespective of the user's location and also outlined the steps that should be taken by clients to request a project. He was then presented with a gift and a farewell card by Koper-Limbourg to commemorate his hard work.

The FMS project database was officially launched by Kenton Dashiell, IITA Deputy Director General, Partnerships for Delivery.



Kenton Dashiell, flanked by Hilde Koper-Limbourg, "pushing" the button that launches the FMS online platform and application.

Scientists' 20-year efforts to preserve West Africa's rainforests pay off

A 20-year project that protects and manages remnants of decrepit forests in a corner of the Republic of Benin in West Africa has resulted in a biodiversity-rich secondary forest, preserving its most important inhabitants, the critically endangered, endemic red-bellied monkey, *Cercopithecus erythrogaster* (Cercopithecidae) and 52 other endangered plant species of economic importance to Africa.

The outcome of the project, which was carried out in the [Drabo Gbo forest](#) of Southern Benin by IITA's scientist Emeritus, [Peter Neuenschwander](#) and [Aristide Adomou](#), a scientist from the University of Abomey-Calavi, Cotonou, Benin, was published recently in the open access journal *Nature Conservation* with the title [Reconstituting a rainforest patch in southern Benin for the protection of threatened plants](#). The project sought to link and rehabilitate small remnant forests and young fallow and agricultural fields to develop a 14-hectare forest reserve through selective management by encouraging forest regrowth and introducing plants from other forest islands of southern Benin.

Drabo Gbo is a village of about 500 inhabitants at the southern edge of the Allada Plateau, 30 km north of Cotonou, Benin's capital. The rehabilitated forests are so rich in biodiversity and now rival that of natural rainforest remnants in the region. Four forests within the Drabo Gbo forest are sacred and host diverse species of butterflies, birds, and endangered species of monkeys, trees, and snakes, among others.

In Africa, about 22% is forest and woodland, and only a small percentage of this acreage is protected. Incredibly important from a human standpoint because of their timber

and water resources, these tree-dominated ecological landscapes are also reservoirs of outstanding biological diversity. The maintenance of such managed islands of biodiversity is therefore critical considering the impact of human activities over the years that have led to the destruction and loss of such diversity.

The researchers—over the 20-year period—had carefully protected, managed, and encouraged fallow vegetation, removed exotic timber, and introduced 253 species of native plants as seeds and young plantlets collected in the few remaining rainforest patches in southern Benin. Today, the resulting reconstituted forest harbors about 600 species of plants and creates a sanctuary for many animals.

"The forest already serves as a reference for the region, and is intended to become an educational and research center maintained by IITA. This project demonstrates that by involving the surrounding population and by appealing to their local customs and traditions, the security of such an exposed forest in a densely populated area can be assured," Neuenschwander said.

He further said "I am pleased to tell the world that this study has proved that with relatively modest means, but much patience and perseverance, it is possible to restore, even create de novo, a rainforest. The techniques to do this have been available for a long time."

The study reveals that with 585 plant species or about 20% of the flora of Benin, the Drabo Gbo forest has saved plants that might have otherwise disappeared from Benin. The forest has now become a sanctuary, not only for monkeys, but also for rare plants, which provide the

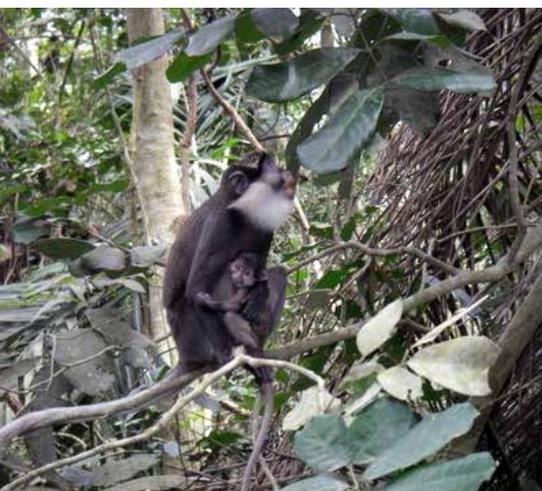


Top: The team helping IITA rehabilitate the forests with IITA staff. Above: Village celebration in the Benin forest.

basis for the launch of rare butterflies and other species. Similarly, the area's proximity to big towns and the relatively easy access could offer some ecotouristic development.

The authors point out that what is needed now is "action to create a network of protected forests with exchange of species and local rehabilitation to round up the area of forests and to fill holes created by earlier logging." Most importantly, they contended that the local populations have to be involved in managing these forests and see the advantage of such forests or at least not oppose their creation.

Ownership of the Drabo Gbo forest had been transferred to IITA to consolidate sustainability and to continue biodiversity studies. IITA maintains another important forest patch, a 350-hectare secondary forest, in its headquarters in Ibadan, Nigeria. The forest represents a wealth of flora and fauna that are not common in Nigeria, and also serves as an important link to the ongoing conservation of biodiversity resources in the region.



The critically endangered red-bellied monkey (left) and one of the important trees (right) in the Benin forest.

N2Africa success stories: Mozambique

The N2Africa project in Mozambique is now on its second phase and is focusing on scaling out the legume technologies proven under phase 1 using a “business-led” approach. This involved engaging government, development organizations, and the private sector, creating awareness on N2Africa technologies and approaches, and facilitating dissemination campaigns.

The project focused on soybean and cowpea agronomy (sowing time, optimal planting density, advantage of improved over traditional varieties, response to fertilizer application, use of inoculants, postharvest handling), the input supply systems, and local capacity building for government extension officers, agrodealers, and individual community seed producers.

More than 25,000 smallholder farmers have been reached by directly hosting on-farm demonstration trials, Train the Trainer training, and field days in Manica, Tete, and Zambézia provinces. Using public-private-partnership approaches N2Africa disseminated four varieties of soybean and two of cowpea. Market linkages were established between farmer associations and off-takers.

Seizing the moment! Maria Miguel Noé moves from farmer to innovative community seed supplier

The emerging entrepreneur is “repairing” the missing link in input supply chains in Mozambique



Maria Miguel Noe now provides seeds to her community. Photo by Wilson Leonardo, N2 Africa Project Coordinator.

The smallholder farming sector in Mozambique is relatively underdeveloped and a significant percentage of farmers live in sparsely populated rural areas with little access to inputs. In addition, there is insufficient business to support a conventional brick-and-mortar agricultural retailer. Maria Brigida Miguel Noé, from the remote community of Dumue village, Angónia district, Tete Province, is an emerging entrepreneur who has benefited from the N2Africa Project, and is making progress in providing inputs.

Maria’s involvement in N2Africa began in 2010 when the project initiated a collaboration with the farmers’ association Chigwirizano, of which Maria is a member. As a member, she hosted N2Africa demonstration plots on good agricultural practices (GAPs) on soybean production. The practices included improved varieties, optimal plant spacing, seed inoculation, and fertilizer application. The project proved that by using inoculated seed and optimal plant density farmers were able to double their yields (from 0.9 t/ha to 2.0 t/ha).

With the new knowledge from the demonstrations, Maria and her colleagues decided to massively cultivate soybean in their fields as a cash crop. Unfortunately, one stumbling block was the lack of certified and good quality seed. This challenge was the start of Maria’s success story as she decided to start a seed production business. With facilitation from N2Africa she got promiscuous soybean varieties to multiply on 3 ha of her 5-ha land. She started an innovative and farmer-friendly model to help farmers in the village access soybean seed of high quality. She provided soybean seed to farmers and each beneficiary paid back with their harvested soybean using a rate of 1:3 (three times the amount received). She then sold the grain to middlemen or big traders such as Cargill.

In the first cropping season she received 25 kg of soybean from N2Africa. In subsequent seasons she bought the seed directly from agrodealers located at Ulongue, the main village in the district or in neighboring villages in Malawi.

“I decided to set up this business primarily to improve my life by selling seeds, but also to help colleagues in the association. Seeing the growing demand for soybean seed, I decided to become the main seed provider in the village, by also growing other crops such as groundnut and maize,” Maria said.

Maria is already starting to see her hard work pay off and is confident of a better future. “With the seed business I was

able to build a new house, I successfully requested additional land (30 ha) and cattle. When you visit me next season, you will be surprised to see

the vehicle I am planning to buy. It is too expensive to rent a car locally to transport produce," she said.

While there is still a long way to go until the seed sector is developed in the country, the long-lasting benefits of N2Africa are becoming increasingly apparent as testified by Maria.

Unlocking the potential of indigenous rhizobia as inoculant to increase soybean yields in Mozambique

Soybean is an important crop for Mozambican farmers due to its many uses in animal feed and human food. It can also fix nitrogen from the atmosphere! However, two problems are frequently reported about the crop's production. The first is that when soybean is grown for the first time, the field generally requires inoculation with effective strains. Even after inoculation, yields are still low due to competition from the indigenous rhizobia populations, which often have low capacity to fix nitrogen but are already adapted to the environment.

While indigenous rhizobia are a great challenge to soybean production, they also provide a hidden opportunity: some have a high capacity to fix atmospheric nitrogen and therefore have potential to be used in inoculants. This was the focus of a four-year (2012–2016) PhD study funded by the N2Africa Project in Mozambique awarded to Amaral Chibeba.

In 2013, Chibeba collected soybean nodules in Manica, Nampula, Tete, and Zambézia provinces, in Mozambique, and extracted rhizobia isolates in Brazil. Chibeba successfully explored the

symbiotic potential of the indigenous rhizobia from Mozambique in two greenhouse trials with promiscuous and non-promiscuous soybean varieties against reference strains used in inoculants in Brazil (SEMIA 587, 5019, 5079 and 5080) and one (USDA 110) used in many African countries.

Five of the isolates from Mozambique consistently showed similar or better nitrogen fixation ability compared to

the reference strains. They will be tested in multilocation field trials in collaboration with IIAM (Mozambique national research institute) to confirm their symbiotic potential in the presence of other indigenous and/or commercial strains. This will be a crucial step on moving these strains along the development pipeline towards production of inoculants in Mozambique, reducing the dependency on imported inoculants.



Amaral Chibeba conducting a greenhouse trial in Brazil.

Announcements

- **CGIAR AT COP23**, Bonn, Germany, 7–16 November
- **Phylogenetic Workshop**, IITA, Yaounde, Cameroon, 13–17 November
- **Open Access Training**, IITA, Ibadan, Nigeria, 13–17 November
- **R4D Week**, IITA, Ibadan, Nigeria, 20–24 November
- **Board Meeting**, IITA, Ibadan, Nigeria, 20–24 November
- **Science Conference** on Food and Nutrition Security: Foresight and Futures, IITA, Ibadan, Nigeria, 24–25 November
- **Open Day**, IITA, Ibadan, Nigeria, 25 November
- **ATTC annual project review meeting**, Senegal, 27-29 November
- **Introduction to Liquid Chromatography and Mass Spectrometry**, IITA, Yaounde, Cameroon, 26–29 December

Got a story to share? Please email it with photos and captions every Wednesday to Katherine Lopez (k.lopez@cgiar.org), Jeffrey T. Oliver (j.oliver@cgiar.org), Catherine Njuguna (c.njuguna@cgiar.org), or David Ngome (d.ngome@cgiar.org).