Dr. Musa Chacha, Technical Director of WIO-RISE (left) author Alan Anderson (center) and Grace Mutia of WIO-RISE.

by Alan Anderson

In Africa, Investments in Leadership *Transform Lives and Careers*

Introduction

As more African nations emerge from post-colonial turmoil, most of their leaders have agreed on the importance of strengthening their own science, technology and innovation capacity. As in other societies around the world, such capacity is rooted in the knowledge embodied in universities and their students, faculty and graduates who use and disseminate this knowledge to develop food security and innovate ways of increasing food production, as well as energy resources, public health skills, and economic growth.

For many years, the universities of Africa have struggled to maintain, let alone increase, their ability to provide quality education and training in science- and technology-related areas. Among the many challenges are the scarcity of public funding for graduate study, the shortages of incoming doctorate-level faculty, the small number of scholars in any given field, and pervasive lack of even basic laboratories and lab equipment.

For over a decade, Carnegie Corporation of New York has been involved in working to strengthen a number of African universities in selected sub-Saharan countries. However, the Corporation also believes in the capacity of individuals, given support, training and opportunity, to help bring about not only institutional change but also contribute to national development. For example, in

2007, the Corporation joined with the Science Initiative Group based at the Institute for Advanced Study to explore these challenges. The Science Initiative Group, an international team of scientific leaders and supporters dedicated to fostering science in developing countries, proposed the creation of the Regional Initiative for Science and Education (RISE) to support capacity building through *regional networks* of universities.[1] The emphasis in this initiative, though focused on university collaborations, is on the end product: furthering the ability of talented men and women to advance in the science and technology fields by helping postgraduate students and faculty to gain increased access to colleagues, mentors, instrumentation and the team-level research habits on which modern scholarship is based. In addition, RISE has emphasized participation by African women who have long been underrepresented in the sciences.

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Francis Arimoro.

A few of the people who have benefitted from the work of RISE are profiled in this article but so are two other individuals: Lillian Tibatemwa, a leading role model for women in academia and Bridget Omafuvbe, a professor of microbiology, both of whom received funding from Carnegie Corporation to attend leadership programs that strengthened their ability to network with colleagues and set their own course for their careers.

From the sampling of experiences in these pages, it is clear that even small programs, if carefully targeted, have the potential to transform both lives and careers. But even more, each individual who has the advantage of participating in science, technology and leadership training also has the potential to act as a mentor to their colleagues and to provide incentives for others to make their own contributions to science, technology, and innovation capacity in Africa—and that may be the most impactful benefit of all.

Francis Arimoro: Passing Along Knowledge and Training

Dr. Ofurum Francis Arimoro developed his interest in stream biology in his home country of Nigeria, in the rich aquatic habitat where he grew up on the Niger delta. His primary interest was in using aquatic insects as indicators of water quality, but he also enjoyed teaching the growing numbers of students interested in water issues and advising the public on issues of local concern—for example, how to use certain mites to rid waterways of invasive water hyacinths.

However, the institution where he earned his Ph.D. and spent years teaching, Delta State University in Abraka, had virtually none of the instrumentation he needed to fulfill his research dreams. He lacked even such a basic tool as a bifocal microscope, for example, indispensable for biologists who study macro-invertebrates. A simple bench microscope costs only a few hundred dollars in the U.S., but import duties and other restrictions can raise the cost to prohibitive levels for African institutions with scarce funding. Although Arimoro had published papers on aquatic insects, he could seldom identify them below the family level without a microscope, which limited both his research and teaching abilities.

Thanks to all he had accomplished despite such technical obstacles, he was invited last fall by the South Africa National Research Foundation to give a talk in Grahamstown on the biomonitoring of rivers. He spoke at the South African Aquatic Biodiversity Institute, located near Rhodes University, and as a result of the talk, an expert from Rhodes invited him to work at the university for a month. He leapt at the chance to use the lab's modern instruments and immerse himself in insect taxonomy.

While at Rhodes, Arimoro heard about RISE, and was again able to capitalize on a lucky coincidence. He was

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[1] *The regional networks created by RISE are: AMSEN: African Materials Science and Engineering Network; AFNNET: African Natural Products Network; SABINA: Southern African Biochemistry and Informatics for Natural Products; SSAWRN: Sub-Saharan Africa Water Resources Network; WIO-RISE: Western Indian Ocean Regional Initiative*

accepted by the Sub-Saharan Africa Water Resources Network program (SSAWRN) as a postdoc, and quickly returned to Rhodes to continue the work he had begun.

His first task was to develop a stream bioassessment protocol for Nigeria based on an existing South African scale called the SA Scoring System. This system is based on the varying resistance of certain aquatic insects to pollutants, especially those that are sensitive to any changes in their environment. For example, the presence of insects from the families Ephemeroptera, Plecoptera, and Tricoptera (the so-called EPT group) usually indicate clean water. (Ephemeroptera, widely known in the U.S. as mayflies, are so named because their adult life usually lasts less than a day.) The presence of hardy Chironomid insects, by contrast, indicates water with some degree of pollution; the greater the proportion of Chironomids, the more polluted the environment. After shifting the South African indicator species to match those from his home region, he has renamed his new version the Nigerian Scoring System.

Thanks to the resources available to him in South Africa, his study and research accomplishments have been considerable. He learned modern experimental and field sampling techniques, trained school groups and postgraduate students, and advanced his technical writing skills. He has written four papers for peer reviewed journals, two of which have been published, with two in press. He has also written a book review on fresh water invertebrates and a chapter in a textbook. He presented a paper on his work at the University of Johannesburg, which resulted in an invitation to lecture at the University of Namibia for two weeks.

Now that Arimoro's RISE postdoctoral year is complete, he has other goals he hopes will benefit not only his career but also his home country. He hopes to develop a taxonomic key to help students learn identification of important indicator groups. "We have a lot of scientists coming up in this area, and I want to be able to help them," he said. He wants to continue his field work to refine the biomonitoring methods for Nigeria and eventually to develop a full water quality monitoring program that provides information on riverine water quality.

"It is very important," he said, "to pass along the knowledge and training I received courtesy of the RISE funding to postgraduate students and junior lecturers. I also intend to develop a research program and join in active capacity building, which is one of the main targets of RISE." He returned to Delta State in January to do just that—and to tackle the equally hard job of raising funding for this ambitious agenda.

Seaweed farming has improved life in Zanzibar. A significant industry has evolved, providing many women in coastal areas with better lives.

Grace Mutia: The Seaweeds of Zanzibar

Several years ago, as a faculty member at the University of Nairobi, Grace Mutia had achieved unusual success in the realm of academic science in Kenya; among women she was even more of a rarity. She had earned a master's in hydrobiology, aquatic resources, and management. She was eager to reach the Ph.D. level and complete her dream—to teach and do research on the path toward full professor.

Unfortunately, she stalled at the same point where so many promising African students languish—at the threshold of PhD field work where personal or family resources run dry and no public or foundation funding is available. She resigned herself to an indefinite future at the School of Biological Sciences, applying for every scholarship she could find. "I was being turned down every time," she said. "I got only 'regrets'."

When her professors heard about the Western Indian Ocean WIO-RISE program and urged her to apply, she had no more reason for optimism than she had had in the past. Nevertheless, she sent in the required documents and did her best to brace for another "regret." She did learn that the program would be based at the Institute for Marine Sciences (IMS) in Zanzibar, part of the University of Dar es Salaam in neighboring Tanzania. This was promising, since the IMS research agenda closely matched her own interests in aquatic biology. So she applied for an interview and agreed to provide a description of her study objectives if accepted.

Among the available topics, she chose natural products from the

Grace Mutia (left).

marine environment, partly because she knew she would find expert mentoring among the IMS faculty, and because she felt she might find new ways to help the subsistence families of the marine coast. She knew that Tanzanian scientists had already taught many coastal women to earn a living by harvesting seaweeds, but that much remained to be learned about the biochemistry, taxonomy, and uses of local species.

The pioneering work to develop seaweed into a commercial crop was initiated by a puckish but dedicated biologist named Keto Mshigeni, who has long championed the nutritional and medical uses of seaweeds, mushrooms, and other natural products throughout Africa.[2] Despite being born in a highland village near Mt. Kilimanjaro, Professor Mshigeni was able to understand the plight of coastal women, who for generations had used sticks to plant maize and cassava in the rocky coral soil and buckets to carry water to their plots. He helped them learn a new way to farm by tying seaweed plants to twine that is strung between sticks at low tide on the Zanzibar flats, then harvesting, drying, and baling them for sale. The two most widely grown species are *Kappaphycus alvarezii* (locally known as *cottonii*) and *Eucheuma denticulatum*, both red algae[3] that are rich in carrageenans and in high demand worldwide as a commercial gelling, thickening and stabilizing agent for toothpaste, food products,pharmaceuticals,cosmetics,and many other products.

Time passed slowly for Mutia as she waited to hear from WIO-RISE. She could see that the large number of applicants listed on the web site would reduce her chances. She heard nothing for two months, then three. After four months, when she had all but given up hope, she received an e-mail from the program director: she had been chosen after all, and would have the support she needed to do her Ph.D. field work.

Soon after arriving at the IMS she could see that seaweed farming had already improved life on Zanzibar. A significant industry had evolved, visible almost daily in the port of Stone Town, where men stagger under huge bales of dry seaweed, dumping them aboard coastal freighters that informally beach themselves near the tourist hotels. She visited the women at their seaweed plots and learned that they now had some cash to spend; many owned 20 or 30 outfits of Kenyan clothing and were able to send their children to school.

But she also saw many challenges. *K. cottoni* is vulnerable to monsoon currents that wash away the strings and sticks, predation by sea urchins, and die-offs when the beach is not flushed by enough water. The women's work is hard, drying is slow in the rainy season and die-offs can set back seaweed growth by months. The low prices

[2] *After teaching and serving as pro-vice-chancellor at the University of Namibia, Professor Mshigeni has returned to his native Tanzania, where he is director of the Tanzanian Academy of Sciences and vice-chancellor of the Hubert Kairuki Memorial University, a private medical college in Dar es Salaam. He was profiled in the Vol. 3, No. 1 of the* Carnegie Reporter.

[3] *Both species, despite their classification in the phylum Rhodophyta (red plants), are highly variable in both form and color, ranging from greens to reds to browns.*

received by the women are dictated by a single company that controls the market; they receive about 200 Tanzanian shillings (15 U.S. cents) per kilogram of dried, baled product.

However, Mutia quickly learned of some local customs that can be exploited to improve livelihoods. For example, local fishermen crush certain seaweeds and place them in handwoven traps as bait for parrotfish, a common local food. But they sail all the way to Bagamoyo to collect this seaweed, a 50-mile round trip by dhow. She believes that if she can isolate and produce the fish-attracting chemical, she can improve the lot of the fishermen and reduce the heavy demand on seaweed. She also hopes to teach women to grow this seaweed for sale to the local fishermen.

"We have many opportunities," she said. "What are the nutritional properties of the seaweed? Why do the fish choose them?" She is also studying a new floating line system developed to grow *K. cottoni* in water about 10 feet deep. Although this depth seems to prevent the die-offs, it is difficult for the women, who are not good swimmers.

"If the men can work there too," concluded Mutia, "they could all benefit. They can help with the seaweed and also catch more fish in their basket traps without having to maintain a boat or work all night. It would push the fishermen farther out from the beach, which is good because there they won't take so many juvenile fish. So we have many benefits to work for."

Irene Naigaga: A Long-Term Goal to Help Other Women

Irene Naigaga has wanted to help others from an early age. Her family long assumed that she would seek a career in medicine; after all, her mother was a midwife and her father was director of a medical center. "In fact," she remembers, "I hated medicine. At home a little girl with mental problems used to burn herself, and the only person she would let clean her wound was me. I didn't like doing it."

Instead she was strongly drawn to the activities of a veterinary field center where a neighbor worked amid numerous needy animals. As early as the second grade she would hurry through her homework so she could rush to the center to sort slides and do other chores. "One day I saw someone counting lots of money, and I thought to myself that this must be a good place to work!"

She remembers the excitement of a campaign to eradicate trypanosomiasis in cattle. She was eager to help, and one day a veterinarian showed her the squiggly shape of the organism itself under a microscope. She was hooked. "The sight of the money was nice," she said, "but the sight of that little creature is really what set my mind. My teachers tried to talk me out of it, and told me to go into medicine instead, but I had had enough medicine around my house."

Following her dream, Naigaga enrolled in Makerere University's Faculty of Veterinary Medicine and graduated with the help of a government scholarship. There she found her interests to be broad. A postgraduate diploma allowed her to do research on pollution in a lake in western Uganda, where she also became interested in wildlife. Eventually, she was hired by the Department of Wildlife at Makerere, which allowed her to complete her master's at Rhodes University in South Africa under the supervision of Professor Denis Hughes and his colleagues.

When it came time to search for a Ph.D. project, she found one that was challenging, useful, and—again—different from her previous work: the need to develop an inexpensive but accurate technique to monitor water quality in Lake Victoria and its wetlands.

"Uganda had no regular water monitoring of this important lake," Naigaga said, "because the techniques were too expensive." She knew she could not expect to produce a highly sophisticated technique while keeping

Irene Naigaga.

expenses low, so she turned to her veterinary background. She chose an animal high in the food chain that might be expected to accumulate pollutants over its lifespan: the Nile perch, or tilapia, the most important commercial fish in the vast lake. "I wanted to be able to identify the water quality 'hot spots'," she said, "at least qualitatively. And I found I could do that with the fish. It turned out that when the water quality goes down, we can see lesions in the tilapia tissue." This was a new technique for Uganda and an excellent match for Naigaga, because her background in veterinary medicine prepared her to recognize the histopathology of the fish.

By that point, however, she had used up her available funding and her project skidded to a halt. "I had finished sampling the fish, but I was really stuck. The technique was inexpensive, but I still needed to pay for several

thousand dollars in lab charges. I also needed tuition to finish my degree in South Africa. We don't have a good enough library in Uganda for the work I was doing, and the collection at Rhodes would allow me to do better work." Then she heard about RISE, applied, and was accepted into the Sub-Saharan Africa Water Resources Network (SSAWRN). "I have really, really appreciated RISE," she said. "It was like God answering my prayers."

What will be next? Says Naigaga, "After I get my Ph.D. I would like to do more data collection. Then I'd also like to encourage women. Women are vulnerable to pollution. They actually know the environment is polluted, but they go anyway to wash their clothes or draw water because they have no choice. I'd like to link my science of environmental health with the communities of people. I also want to be a teacher. Students need direction, and I think I can give that. Some of them are really lost; they don't even know why they are coming to class."

Bernard Odera.

Bernard Odera: Finding Success—and Reward—in the Laboratory

For a fortunate few students, RISE has brought opportunity to advance their careers after many years of unexciting and yet exhausting duties as a junior faculty member. This was the case for Bernard Odera, who has toiled for two decades as an underpaid lecturer at the University of Nairobi, teaching in overcrowded classrooms with little time or support for research. Since earning his masters in mechanical engineering at the University of Lagos, Nigeria, in 1987, he never had the opportunity—or the funding—to complete his Ph.D. and pursue his academic dreams.

But Odera's chance finally came last year when he heard from a colleague that a new program called the African Materials Science and Engineering Network (AMSEN) was requesting proposals. He was then collaborating with colleagues at the University of Namibia, with whom his department had joint funding for some work in materials science. He quickly pursued this opportunity, with the assistance of his advisor, Professor G. O. Rading at the University of Nairobi, and was accepted into the program.

Bernard's special interest—design and production engineering in the field of metallurgy—turned out to be fortuitous. The founding head of the new engineering school in Namibia, Professor Frank Kavishe, was already collaborating with renowned metallurgist Professor Lesley Cornish, director of the Centre of Excellence in Strong Materials at the University of the Witwatersrand, Johannesburg. Her own expertise in superalloys coincided neatly with his own special interest in metallurgy, and he was admitted into her research group in Johannesburg.

Far from the overcrowded classrooms, he now finds himself immersed in a cutting-edge laboratory environment of great complexity and importance to the world of engineering. Superalloys are advanced materials used in high-stress, safety-critical environments, such as nuclear reactors, aircraft turbines, and rocket engines. Engineers have worked for half a century to design alloys that can hold their strength and resist corrosion at ever-higher temperatures—in applications where failure can be catastrophic. Working with Professor Cornish, her colleagues, and fellow RISE students, Odero will attempt to design a new formulation for platinum-aluminum-based alloys. Early two-element formulations using these metals proved too brittle, but the addition of a third element has shown promise. Bernard and his group will attempt to add fourth and fifth elements—niobium and vanadium—to improve both durability and toughness.

His placement at the University of the Witwatersrand has been ideal for him. The Centre has the advanced instrumentation his home institution lacks. A close working relationship between the Centre and Mintek, a leading South African company specializing in mineral and metallurgical products, has brought him access to the small but pure samples of platinum, aluminum, and other metals he needs for his work. While RISE covers the modest tuition of the program, the Centre has agreed to cover the surcharge for international students.

With more than half a year's work behind him, he has won the respect of his advisors and made excellent professional progress. In July he discussed his work at the Advanced Metals Initiative Student Seminar sponsored and hosted

by Mintek. For the annual meeting of the Microscopy Society of Southern Africa in Durban last December, he was lead author on "A Study of Phases in Selected Alloys from the Pt-Al-V System in the Pt-rich Corner."

In other words, for the first time in two decades, Bernard has the luxury to work as hard as he can in the field he loves.

Lillian Tibatemwa-Ekirikubinza: A Woman with "Permission to Succeed"

Being a woman, Professor Lillian Tibatemwa is a rarity among academic leaders in Uganda and indeed, in Africa. She not only rose through Makerere University's academic hierarchy to become the first full professor of law in East Africa, but was more recently named first deputy vice-chancellor for academic affairs, the first woman to hold that post at Makerere.

The road to her current post was not without its bumps. When she entered the faculty of law it was assumed by her male colleagues that she would be the one to teach family law. "No one else wanted to," she recalls during an interview in her office, "and everyone looked right at me."

When she moved higher into university leadership she encountered a few more bumps. At her first meeting with fellow members of the university council, the men were all introduced as "Dr.," while she was welcomed as "my sister Lillian." At a subsequent meeting of the council, she was again singled out— this time as "Mrs. Lillian."

"I had to say, I'm not here because of my marital status," she notes, though she is happily married to an engineer, Paul Ekirikubinza. "But I also knew I'd have to work a little harder than anyone else."

Her determination and dedication have paid off: though still faced with some of the opposition to women in power that has marked the rise of women in many traditional societies—both in Africa and elsewhere—Tibatemwa has arrived at the top echelon of leadership in a major university. She is also a respected researcher with interests in comparative criminal jurisprudence, gender and the law, human rights perspectives of criminal law, and juvenile justice. All three of her textbooks are available on Amazon (*Criminal Law in Uganda*, *Offences Against the Person*, and *Women's Violent Crime in Uganda*), and she has published numerous articles and book chapters.

Lillian Tibatemwa.

She has also emerged as a compassionate defender of the underdog. "It seems that when I was little, I had a sense of justice I wasn't really aware of," she explains. "My friends told me about this later. They said I used to argue a lot and take the side of anyone who was being harassed. Later I learned that a judge had the ability to defend people from being oppressed, and I suppose that is one of the reasons I went into law."

The youngest of five girls and three boys, she was born into a family with high standards. Her late father was the *sabalangira*, or head of the princes' clan, in the traditional Ugandan kingdom of Busoga. (The largest city in Busoga is Jinja, which sits adjacent to the site where the White Nile pours out of Lake Victoria.) Her parents treated the female children just like the males, sending them to one of the most demanding high schools in the country.

When the time came to decide what she would study in college, her most immediate influence was a sister who was three years older and who had entered the study of law. Also, when Tibatemwa was ready for university in 1980, the government was giving scholarships to those majoring in legal studies. "It was assumed in those days that if you were good in the humanities, the field to study was the law," she says. "Just as if you were brilliant and went for science, you went to medicine. It was almost automatic. So it wasn't a difficult decision."

After earning her bachelor's in law at Makerere, she took a master's in the field at Bristol University, in the United Kingdom, and then a Ph.D. at the University of Copenhagen. But unlike many of her classmates, she always knew she would return to her Ugandan roots—and responsibilities. "It never crossed my mind to stay abroad," she offers. "I have a lot of family here. Even when my colleagues were thinking of staying in Britain, it was never one of those things for me. It was really Makerere that made me who I am, and I've been here all my career."

When she returned to Makerere, she began her climb from teaching assistant to assistant lecturer, lecturer, senior lecturer, and finally professor of law. During this long journey she gained an intimate view of not only academic law, but also of the rarity of women in academia. "As you go up the ladder in the law," she says, "you see fewer women at every rung. It is true for the sciences, too; even at the teaching assistant stage, the numbers are dismally low."

The Mentoring of Women Initiative and the Makerere University Women and Leadership Forum aim to help academic women overcome barriers and advance their careers.

As she gained expertise and seniority, she had the option of becoming a judge, which would have allowed her numerous opportunities to bring justice to the oppressed. But the university faculty made it clear that her talents were desired at Makerere, and, for her part, she knew that she loved the academic disciplines of "reading, being analytical, and doing research." As she applied these disciplines, her interests drew her again and again toward a cluster of overlapping interests: gender and crime, gender and the law, human rights perspectives of criminal law, children's and women's rights. She began to use her academic position to encourage younger women to pursue advanced degrees and to combine significant research with their classroom studies.

Two areas in which she champions research today are the codes and rituals that slow the progress of women in their careers and, more specifically, the informal hierarchies and norms of academic institutions that thwart the upward movement of women. She notes, for example, that as of September 2009, only 4.4 percent of academics at Makerere holding the ranks of associate professor and professor were women. To address this imbalance, she has taken a growing interest in mentoring younger women through both the Mentoring of Women Initiative and the Makerere University Women and Leadership Forum.

"The value of mentoring," she explains, "is that it can increase the participation of socially marginalized groups in leadership positions. It helps a less experienced person climb the ladder and reach her full potential." She notes, however, that traditional models of mentoring are based on male relationships: in Greek mythology, Odysseus left his wise friend Mentor to look after his son Telemachus when he left home for the Trojan war. Mentoring of females, she argues, needs its own model that is based on the perspectives and experiences of women. She also sees the need for an "Africanization" of mentoring: Is the modern concept of mentoring alien to African culture, or part of it? Is it a universal or culture-specific activity?

"We must answer all such questions," she says, "if we are to use mentoring as a mechanism for ensuring women's visibility in high echelons of the universities." Several years ago she received a leadership grant from Carnegie Corporation of New York that allowed her to attend the Leadership Foundation of the International Women's Forum, a competitive non-residential fellowship program for women from all sectors. "The wonderful thing about this Forum is that it brings together women who have made careers in many different fields," she said. "You learn that you are not alone at the top, and it allows you to share experiences of mentoring and leadership with your peers from the business world, academia and other fields; from the U.S. and Asia and Africa. We had so many issues in common, and could discuss freely how gender issues affect our lives."

She believes that increased participation of women is central to whether Makerere continues to lead in academic excellence. She points out, for example, that the university is not benefiting from female talent in many fields, especially science. As of fall 2009, for instance, only one faculty member at the level of professor was female.

"Every woman who has made it," she recently told *The Observer* of Uganda, "needs to mentor younger girls. The young should look at you

and want to become like you." She notes again the expectations set by her own parents, including their "permission" for their daughter to succeed. "At a personal level," she says, "I thank my father and mother for having valued me as a girl child. It is because of this that I grew up confident, with self-worth and self-love."

Bridget Omafuvbe: Achieving Much While Hoping to Inspire Others

Editor's Note: This profile was written by Susan King, Carnegie Corporation of New York Vice President, External Affairs; Director, Journalism Initiative, Special Initiatives and Strategy

What gives a young girl growing up in a village in Nigeria a sense that she wants to be a scientist? A chance encounter with the world of medicine perhaps, but clearly it's more: a personal drive to find a place that most African girls couldn't even imagine and a university plan to invest in women in a way unknown in the past.

Bridget Omafuvbe seems headed for the top of any academic pyramid. She was just promoted to associate professor of microbiology at Obafemi Awolowo University in Nigeria in a year that sees her traveling the world as part of a competitive leadership program established by the International Women's Forum (IWF) Leadership Foundation of Washington, DC. Bridget was chosen as a member of the Class of 2009-2010 for this year-long program of intensive study in London and at the Harvard Business School that includes mentoring and international seminars. She was chosen because of her academic achievements and her personal potential as a university leader. Along with a few dozen other women professionals from around the world, Bridget embarks on a program that has transformed many women's careers.

Her rise to the top sounds easy, but education was not a given when she was growing up in rural Nigeria, a college education was a distant dream, and she the first in her family—male or female—to attain an education, let alone earn a Ph.D.

Becoming a scientist was an idea that took hold when she was ten, in primary school, and her aunt took her to a hospital. She was amazed at how smart the doctors and nurses were and found herself attracted to this institution dedicated to helping care for sick people. She was a gifted student and won high grades. So the aunt, who filled the void left when Bridget's mother died and her father remarried, insisted a girl with such good grades couldn't waste them and simply get a job like most girls in their Nigerian community. Bridget notes that her aunt told her, "Your marks are too good," and insisted that her niece change her plans to study rather than work. "I'm very grateful," says Bridget, With that challenge from her father's sister, Bridget focused on finding a way to get a university education. But of the 65 students in her secondary school, only three would find their way to the next step and acceptance at a university.

It was a professor in the only university she has attended (Bridget is a product of Obafemi Awolowo University where she earned all three degrees and where she has seen continuous promotions) that kindled her interest in microbiology. "I liked this professor's style and she made the course so interesting," Bridget explains. It was also a science with real implications for day-to-day life in Nigeria, where scientific advances relating to food, nutrition and agriculture can stem poverty and offer citizens a better quality of life.

Bridget's academic work continued with stellar grades. Early in her research career she won a Commonwealth Fellowship Award that offered her the chance to study in England for six months. The state-of-art equipment and labs she encountered in England opened up opportunities for Bridget's research, but they never became a temptation to remain outside her country. "I'm more moored to Africa than the United Kingdom, because I know in Nigeria I can inspire young women to pursue careers like I have. If everybody leaves who will be left to teach the next generation?" says Bridget with the same drive and dedication to an idea that has animated her career.

"I know in Nigeria I can inspire young women to pursue careers like I have. If everybody leaves, who will be left to teach the next generation?" —Bridget Omafuvbe

It's that sense of giving back, of being a woman who gained much from an aunt and from a university system that made investments in her graduate studies, that makes Bridget stand out. Her most recent elevation to the associate professorship won applause from her entire university

department who all came to her home to celebrate the promotion. She is not just any student. She is a home-grown success story. A product of a university investing in its own who has earned the respect of her peers because of her academic performance and her willingness to take leadership roles at the university, sometimes at a personal cost.

Obafemi Awolowo was one of the Nigerian universities involved in Carnegie Corporation's ten-year focus on systematic and institutional change in higher education. Creating a long-term strategic plan that would grow the university and better serve its students was a key ingredient in becoming one of the Carnegie Corporation-supported African universities. Bridget sees her promotion and her chance to spend a year enhancing her leadership skills as a Leadership Fellow as a direct way to build on this Carnegie Corporation strategy. "They will help me with my plan to reach a higher position in the university so that I can be where decisions will be taken. I want to offer my perspective on strategies for the university and its future."

Part of her personal strategic plan is to grow professionally in order to reach higher levels of respect in the area of microbiology within the university. She wants to deepen her research, which has won peer review respect because of her findings in food and industrial microbiology. Already her study on the fermentation of oil-seeds has revealed that the nutritional and sensory value of soybean and African locust beans does not differ significantly. These studies may lead to reduced production time and guarantee consistent and improved flavor of these critical foodstuffs.

Bridget Omafuvbe.

But her personal strategic plan also calls for focusing on the number of researchers, especially women, who are attracted to the field of microbiology and food development. "Women are the ones who are doing most of the farming in local areas," she explains, and more female researchers and better discoveries around agriculture, seeds and production will directly affect women's lives in towns and villages like the one where Bridget began her dreams.

Vartan Gregorian, president of Carnegie Corporation, whose own vision was to deepen scholarship in Africa and to offer women financial support to enter universities in order to increase the number of women students, has a saying: "You educate a man and you educate a gypsy. He will often leave. If you educate a woman, you educate a nation." Bridget Omafuvbe is a young woman already proving Gregorian's point.

But, she also has a longer reach. Along with investing in her university and her community, Bridget has become a key member of the IWF's Leadership Class meeting in Harvard this spring. Overcoming obstacles are part of any leader's story. But abandoned by her father after her mother's death, without financial backing and armed only with her smarts and dedication to studies, Bridget has been the 2010 class's most inspiring student according to all accounts. She has been able to share her vision of success with the global class and describe the personal loss and pain she has endured during this journey as an African woman.

Bridget Omafuvbe is a scholar and university leader on her way up. But for her, success won't be measured in degrees, promotions and research grants alone. It will be measured in how many other young students—particularly women—she can inspire to follow her into educating a nation. ■