



*Nuclear Scientist
Director
Civil Servant
Par Excellence*

DR. ALUMANDA M. DELA ROSA



*F*orty-eight years spent in public service is truly a feat of fortitude and excellence, and more so when devoted to the advancement of one's field and profession.

Indeed, for most of the history of the Philippine Atomic Energy Commission (PAEC), now the Philippine Nuclear Research Institute (PNRI), its stalwart Director, Dr. Alumanda Dela Rosa, has borne witness to how far the agency, and the Philippines in general, has gone in the field of nuclear science and technology.

She started from being an aspiring student in the provinces to serving beyond retirement age to be among the most respected scientists in the field of nuclear and radiation technology here and abroad. Director Dela Rosa's journey serves as an inspiration not only to civil servants and administrators alike, but also among the youth, who will one day follow in the footsteps of the highest ranking career scientist in the country.

A Lifetime of Accolades

Dr. Dela Rosa was conferred the rank of Career Scientist IV in 1991 under the Scientific Career System (SCS), the highest rank accorded to a Filipino scientist to date, and is also a Career Executive Service Officer (CESO) IV under the Career Executive System (CES).

The Director is also a recipient of numerous awards and accolades, including the 2015 Gawad CES Presidential Award, the World Association of Radiopharmaceutical and Molecular Therapy (WARMTH) Lifetime Achievement Award in 2013, the Women in Nuclear (WIN) international award by the World Nuclear Association in 2005, the 2013 Philippine Federation of Chemistry Societies Award for Service to the Chemistry Profession, the 2011 Distinguished Women Chemists of the Philippines recognition by the Integrated Chemists of the Philippines, the College of Holy Spirit Centennial Award in 2013, and the 1985 Outstanding Young Scientists Award, among others.



PNRI Director Dr. Alumanda Dela Rosa receives the Women in Nuclear (WIN) Award in 2005.



A LIFETIME OF ACCOLADES

She represented the Philippines in several international organizations such as the Regional Cooperative Agreement (RCA) under the International Atomic Energy Agency (IAEA), the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO) and the Forum for Nuclear Cooperation in Asia (FNCA).

Director Dela Rosa also served as a member of the Board of Chemistry from 1991, and later became its chairperson from 1997 to 2003. She was also a member of the Technical Advisory Group on Laboratory Recognition (TAG-LR) of the Department of Environment and Natural Resources (DENR) since 1998.



PNRI Director Dr. Alumanda Dela Rosa during the 59th IAEA General Conference

Humble Beginnings

Even with all these accomplishments, Dr. Dela Rosa's humility remains undiminished by time or rank. Indeed, she could still look back to the days when she was but one among many high school students in the province of Abra, who have yet to decide what career should they take, and all it took was one nudge from her teacher to set the would-be scientist on the path to success.

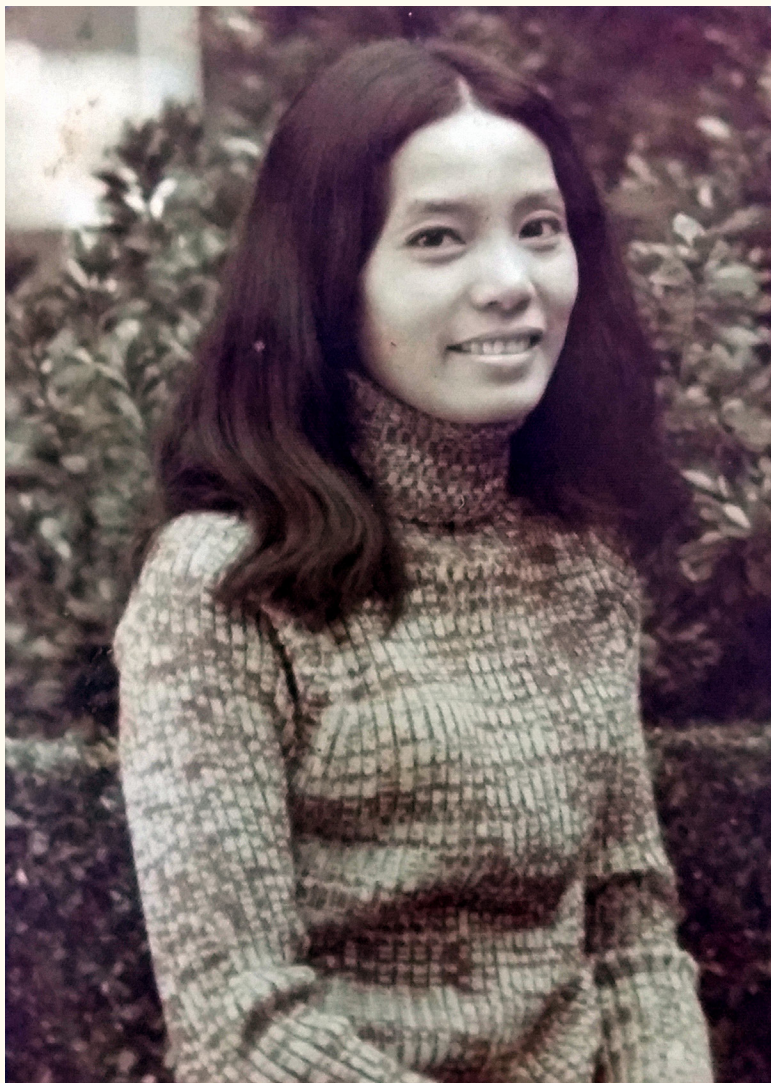
"Our role models were our teachers, so at that time, I thought I would be a teacher. But then, my science teacher suggested to me, 'Why don't you go to chemistry?', and I thought it was a good idea," she told students and young professionals during the First Philippine Nuclear Youth Summit on December 7, 2015.



Dr. Dela Rosa (2nd from left) during her younger years



Dr. Dela Rosa (left) as a student in the College of the Holy Spirit



She went to Manila to study at the College of the Holy Spirit, under the care of German nuns – whom she found “very strict” during their time – and graduated with a degree in Chemistry in 1968. It was during her stay in the college that she first learned about nuclear science and technology, as several of her professors were scientists from the Philippine Atomic Energy Commission (PAEC), which would later become the PNRI. She later completed her undergraduate thesis at PAEC, and she said that this strengthened her interaction with the scientists in the nuclear field.

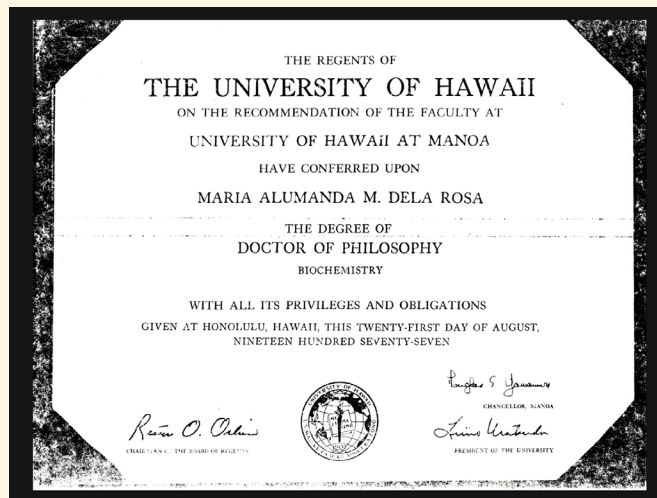
Right after graduating, she began her career in government service as a Nuclear Research Assistant in PAEC. While rising through the ranks, she completed her graduate studies at the University of Hawaii in the United States of America, earning her doctorate degree in Biochemistry in 1977.

Her dissertation on the effects of radiation on the biological membranes of *Escherichia coli* (*E. coli*) was one of the very few works of its kind at that time, when most scientists worked on the effects of radiation on DNA. Dr. Dela Rosa would go on to author and publish more than 45 papers on nuclear S&T, particularly in radiation chemistry.

After obtaining her Ph. D., Dr. Dela Rosa became a professional lecturer in biochemistry at the University of the Philippines, both in its Diliman and Manila Campuses, and at the Gregorio Araneta University Foundation (now the De La Salle Araneta University). She also served as a consultant for several government agencies and corporations.



Dr. Dela Rosa taking up her graduate studies at the University of Hawaii



Dr. Dela Rosa's diploma for her Ph.D. in Biochemistry

Career Scientist

According to her, it was during her work on applied research at PAEC that she “evolved from being a radiation biochemist to a radiation chemist,” and she led her team to develop several radiation-modified products from natural polymers found in indigenous materials such as rubber latex, plantation trees, cellulosic waste, and carrageenan extracted from seaweed.

Aside from these, she also conducted research on the radiation chemistry of biomolecules, environmental chemistry and coastal pollution due to heavy metals and harmful algal blooms or “red tide”.

She was one of the leading specialists of PAEC’s Chemistry Research Division during the Commission’s later years until its reorganization into PNRI, where Dr. Dela Rosa became the chief of the Atomic Research Division in 1988, just two years before her official recognition as Scientist IV. Ever hardworking, Dr. Dela Rosa also admits to spending the late hours at work, as much as any PNRI employee, if not more.

“You have to exert time, and even sacrifice some time so you can do what you want to do. And this is what I did. I had to burn the midnight candle; even after work, I have to work at home from 9 in the evening to 3 in the morning, thinking of projects and proposals, and what to do in the laboratory,” she said.



Radiation chemistry specialist Dr. Dela Rosa at work in one of the PAEC laboratories

Her colleagues in the division bore witness not only to her devotion to work, but also to her ever kind and friendly aura.

"On a lighter side, Alum, my very good friend, most often would forget to go eat lunch and merienda during the time she worked as a scientist," said Ms. Ma. Teresa Yulo-Nazarea, one of Dr. Dela Rosa's closest friends at PAEC, and later at PNRI.

"Well, when she went to the other building as Director, it would be hard for me to go up her office to get her to eat lunch and merienda because by then, her work was now involved in a lot of meetings and writing reports, and most often she would not have the chance to eat on time," she said.

"I really appreciate her dedication and wholehearted love for PNRI. Even on Saturdays and Sundays, she is still here at PNRI to work," said Dr. Elvira Sombrito, a colleague of Dr. Dela Rosa and one of PNRI's expert consultants in recent years.

"When she was in the Chemistry Research Division, we would have many things which we could not agree on, but that did not stop us from becoming very good friends," said Dr. Sombrito.



Director of PNRI

Dr. Dela Rosa finally took the helm of PNRI in 1998 as its Acting Director, succeeding Dr. Carlito Aleta in the 40th year of the Institute's existence. She became the Institute's full-fledged Director in 2003, and would serve for 13 years in that capacity.

Her leadership proved crucial at the turn of the century, as PNRI was already shifting its efforts beyond the nuclear power program and into expanding the applications of nuclear S&T

in the country. This was no small feat considering the finite resources and other challenges that research institutions had to face at that time.

"With pride, we can say that through the years, the PNRI has fulfilled its mandate of promoting and regulating the peaceful applications of nuclear energy in the country. This we have done to the best of our ability, given the financial constraints normal



to a Philippine science and technology agency,” said the Acting Director during her first message in the 1998 PNRI Annual Report.

“We have remained true to our commitment to bring the Filipino people the benefits that the peaceful applications of nuclear energy can offer.”

Moreover, the infusion of new blood among PNRI scientists and researchers coupled by the increasingly global nature of research projects meant that the Institute needed a better environment for both its research and development efforts and the professional advancement of its human resources.

The Director certainly did not disappoint, as her stewardship saw the establishment of several new facilities for PNRI and the upgrading of older laboratories. These include the improvements to the Atomic Research Center, which houses most of the laboratories for chemistry, biology, and physics projects, the upgrading of the Cobalt-60 Multipurpose Irradiation Facility from a pilot-scale to an income-generating semi-commercial facility, the addition of modular laboratories for various research sections which allowed for the installation of newer equipment, and the establishment of new facilities that will meet the needs of workers needing specialized training and services such as the Technetium-99m Generator Facility, the Non-Destructive Testing (NDT) Laboratory and the Secondary Standards Dosimetry Laboratory (SSDL), among others.



Dr. Dela Rosa as Acting Director of PNRI with Congressman Simeon Kintanar of the House Committee on S&T during the 1998 Atomic Energy Week



In 2003, DOST Secretary Estrella Alabastro administers the oath of Dr. Dela Rosa as the full-fledged Director of PNRI.



Director Dela Rosa with nuclear medicine specialists at the hot cell of the Technetium-99m Generator Facility

Consistent with PNRI's dual mandate, the Director also oversaw developments in nuclear regulations, safety and security. Beginning with the World Trade Center bombing in 2001, the international community has since intensified its efforts to secure nuclear and radioactive materials. The trenches of the centralized Radioactive Waste Management Facility, as well as the Nuclear Response Support Center were established to help meet these issues. She also led the Institute in collaborating with the military, law enforcement and other government agencies in the formulation of the National Nuclear Security Plan and the National Radiological Emergency Preparedness and Response Plan (RADPLAN).

These measures were put to the test during the Fukushima Nuclear Power Plant Accident in March 2011, which cast a great cloud of anxiety among the Filipino public. In perhaps one of the greatest nuclear emergency and public



The Director presents PNRI's services to representatives of Filipino and American-affiliated businesses

relations challenges PNRI had to meet, the whole country relied on the words of Director Dela Rosa and other experts from the institute to assure them that no significant increase in radiation levels would befall the Philippines, keeping the general populace from a state of panic.

PNRI was once again in the spotlight during the 2012 missile testing by North Korea, which was feared to have radioactive materials. The Director appeared in several TV and radio interviews to once again reassure the public that the Institute will be there to lend its expertise.



DOST Secretary Mario Montejo and PNRI Director Dr. Alumanda Dela Rosa at a press conference at the Malacañang Palace during the Fukushima Nuclear Power Plant Accident in 2011.



Director Dela Rosa in an interview with ABS-CBN's Anthony Taberna during the North Korean missile launch in 2012.

As an Administrator

Beyond being a most respected scientist in the country, Director Dela Rosa also proved herself an able administrator and a well-respected representative in the international arena. During her administration, PNRI expanded its technical cooperation projects with the IAEA and other multinational organizations, resulting in stronger linkages. Bilateral collaboration with the United States Department of Energy, the European Union, the Japan Atomic Energy Agency, and other institutions allowed the Philippines to participate in several activities such as the establishment of Radiation Portal Monitors through the Megaports Initiative in 2008, the Global Threat Reduction Initiative, the EU Instrument for Nuclear Safety Cooperation and the on-going JAEA Follow-up Training Courses,

among others. In addition to international assistance, the Director's unrelenting support was also instrumental in securing local funding from the DOST Grants-in-Aid (GIA) and other research grants from government agencies and private research foundations.

More importantly, the increase in funding and opportunities gave the Institute's scientists and researchers more avenues to excel in their work, participate in global projects and pursue newer fields of study. Among IAEA Member States, the Philippines began leading the way for several of its international projects, including serving as the pilot country for the IAEA Water Availability Enhancement Project (IWAVE) in 2011, as well as one of the first IAEA collaborating centers for Harmful Algal Blooms, in 2005 and 2010.



Director Dela Rosa and SATREC Initiative VP Dr. Hyon Sock Chang signing the Deed of Donation for an EFRD-3300 Environmental Radiation Monitoring System



Director Dela Rosa (red blazer) with Secretary Montejo and officials from the US Department of Energy during the turnover of Radiation Monitoring Portals in Manila as part of the Megaports Initiative Project

"You have contributed not only to the TC program between your country and the IAEA, but also to the peaceful uses of nuclear technology and applications, and in regional and international cooperation," said IAEA Deputy Director General Dazhu Yang in his message to Director Dela Rosa on the eve of her retirement.

"Your leadership of PNRI has benefitted not only the Philippines, but also the international scientific community," the Deputy Director General said.

PNRI currently participates in more than 40 IAEA regional and technical cooperation projects and more than 200 fellowships and training grants every year are given by foreign institutions to researchers from PNRI and its partner agencies, oftentimes being afforded the opportunity to travel overseas.

"Through this collaboration with the IAEA, [Dr. Dela Rosa] built this capacity not only for the Philippines but also contributed to the region by facilitating training and networking, through the national program, the regional program, and particularly through RCA," said Dr. Najat Mokhtar, the current Director for the Division for Asia and the Pacific, IAEA Department of Technical Cooperation.

Dr. Mokhtar especially noted Dr. Dela Rosa's role in the RCA, where *"she played a significant and tremendous role, by bringing people together, taking leadership, leading meetings on medium-term strategies,"* which in turn also inspired them at the IAEA.

"In my time, there was a saying, 'Join PAEC and See the World'. I did not realize then what it meant, but when I got involved more in nuclear research, I was also able to see the world," Dr. Dela Rosa said.

"And that is still true today. Our young researchers at PNRI, in fact, now have more opportunities for them to see the world and interact with other young researchers and mature scientists, and be able to get more knowledge and experience from them."



Director Dela Rosa with IAEA and government officials during the designation of PNRI as the IAEA Collaborating Center for Harmful Algal Blooms in 2005.



Dr. Dela Rosa explains several nuclear and radiation applications to students during the 2014 National Science and Technology Week

Beyond the Call of Duty

Having given most of her life to government service for 45 years, Dr. Dela Rosa has certainly earned her retirement upon reaching 65 years of age in 2012. She would leave the state of nuclear S&T in the country on the rise, but the lack of a successor to sustain this momentum meant that perhaps the call of duty wasn't ready to let go just yet. President Benigno Aquino III thus extended Director Dela Rosa's appointment for another year, and later issued her last appointment as PNRI Director, which will end with his term on June 30 this year.

Nonetheless, her final years in PNRI will shape not only her legacy but also the future of the Institute, and of nuclear science and technology in the Philippines. Among these are the establishment of the new Electron Beam Irradiation Facility in 2013, which opened the doors to more radiation processing applications, the Institute's efforts in pushing for an independent nuclear regulatory body through the legislation of a new Nuclear Law, and the preparations for the establishment of a future research reactor and an accelerator facility.



Director Dela Rosa with Congressman Francis Gerald Abaya and DOST Undersecretary Dr. Amelia Guevara during the inauguration of the Electron Beam Irradiation Facility in 2014.



PNRI officials formally receiving the ISO 9001:2008 Certification

During her watch, the Philippines was awarded the IAEA Atoms for Peace Award early in 2016 along with 15 other Member States in recognition of the country's contributions in nuclear security, particularly through the removal of highly-enriched uranium from the country's territory.

Due to no small effort by the Director and the Institute's officials, PNRI also received the ISO 9001:2008 certification of its Quality Management System in December 2014, in line with the government's efforts to ensure that its services are compliant to international standards.

Dr. Dela Rosa joined the Philippine delegates and PNRI specialists during the 58th IAEA General Conference on September 22-26, 2014. IAEA Director General Yukiya Amano and other international experts visited the first ever Philippine exhibits for the annual IAEA conference.

2015 was a special year for the Director and PNRI due to the dual visit of Director General Amano in January 27-28 and in December 7-9, 2015. The latter visit was in time for the 3rd Philippine Nuclear Congress, a multi-sectoral forum for assessing the current state and contributions of nuclear technology in the Philippines. The PNC is held every two decades since 1976, making Director Dela Rosa one of the few who were already in PAEC/PNRI during all three Congresses.

But if it was up to her, she would rather see more PNCs to come, hoping that "it will not take us another twenty years to hold the 4th Philippine Nuclear Congress."



Dr. Dela Rosa and DOST Undersecretary Amelia Guevara welcome IAEA Director General Yukiya Amano to the Philippine Exhibits at the 58th IAEA General Conference



Director Dela Rosa with IAEA Director General Yukiya Amano and DOST Secretary Mario Montejo at the 3rd Philippine Nuclear Congress



The Lighter Side

In every achievement, Director Dela Rosa always expresses her gratitude to the men and women of PNRI, “without whom [this] would not be possible.” During the closing ceremonies of the 3rd PNC, the Director joked that, if not for the qualification standards, she wished she could promote everyone to the next position for the success of the Congress.

Like a mother to the entire Institute, she would talk with the staff at breakfast and ask them about their concerns. Even at her age, she still works overtime, at home or even at the office, to make sure that the various plans and proposals are acted upon as soon as possible.

When the opportunities present themselves, the Director also shows that she can have as much fun as the average PNRI employee, which means more than meets the eye for an Institute with a great tradition of sportsmanship. Knowing the need for a sound mind in a sound body, she does exercise with other PNRI personnel during spare time, and when asked what will be the first thing she will do when she retires, the Director said she’ll be jogging.



The Director also participates in the annual PNRI Sportsfest (left) as well as in occasional aerobics (right)



The Director also gives "pamasko" to children every Christmas at PNRI



Director Dela Rosa dances to the beat during the PAEC-PNRI Reunion in 2015



Director Dela Rosa makes the opening serve for the DOST Sportsfest Table Tennis Opening in 2013



For all that she is and all that she has accomplished, Director Dela Rosa will always be an inspiration to the officials and staff of PNRI. It is to her greatest credit that she will retire from the Institute knowing that nuclear science and technology will further prosper under a new generation, building up upon the strongest foundations laid down by PNRI's longest serving director to date, and the first woman to serve as Director in the Institute's 58 years of existence.

"The first wave of nuclear scientists and professionals laid the foundation which served as the anchor for nuclear SET to take its roots in the national SET system. The second wave built on the labor of the former and serve as pillars for a strong nuclear SET in the country. The present wave of nuclear scientists and professionals take the responsibility of expanding and sustaining the nuclear SET infrastructure," the Director exhorted during the 50th year of the Institute that she came to love so dearly.

The PNRI officials and staff would like to express our gratitude to Director Dela Rosa for her almost two decades of leadership in the Institute, her guidance and concern for every award, every project, every problem and every employee. We love you, and we wish you well in your retirement.

There will never be another you!

Thank you, Ma'am Dela Rosa!