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The World Academy
of Sciences

# TWAS in the New Millennium:

## Building scientific capacity in a time of promise and peril

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# TWAS Mission

The World Academy of Sciences for the advancement of science in developing countries (TWAS) supports sustainable prosperity through research, education, policy, and diplomacy.

TWAS was founded in 1983 by a distinguished group of scientists from the global South and North, under the leadership of Abdus Salam, the Pakistani physicist and Nobel laureate.

The Academy is based in Trieste, Italy, on the campus of the Abdus Salam International Centre for Theoretical Physics (ICTP). TWAS is a programme unit of the United Nations Educational, Scientific and Cultural Organization (UNESCO), and receives its core funding from the Italian Ministry of Foreign Affairs and International Cooperation (MAECI). The Swedish International Development Cooperation Agency (Sida) also provides essential funding for TWAS programmes.

Through more than four decades, the TWAS mission has remained consistent:

- Recognize, support and promote excellence in scientific research in the developing world,
- Respond to the needs of young scientists in countries that are lagging in science and technology,
- Promote South-South and South-North cooperation in science, technology and innovation, and
- Encourage scientific research and sharing of experiences in solving major challenges faced by developing countries.

# Contents

# *Foreword: Celebrating 40 Years of Scientific Solidarity and Impact*

*As we mark the 40th anniversary of the launch of The World Academy of Sciences for the advancement of science in developing countries (TWAS), we do so at a time of profound global transformation. From climate change, to biodiversity loss, displacement, and deepening inequality, the world is facing a convergence of crises that demand urgent, coordinated, and science-based responses. And yet, within these challenges lies an extraordinary opportunity: To reaffirm the power of science as a force for equity, resilience, and sustainable development.*

*This publication is a tribute to the thousands of scientists, partners, and institutions who have contributed to the TWAS mission. It reflects on four decades of progress: from building scientific capacity in the least developed countries, to supporting displaced researchers, to training the next generation of science diplomats and climate scientists. It also highlights the Academy's evolving role in amplifying voices from the global South in international fora, and in ensuring that science communication is inclusive, accessible, and impactful.*

*Since the 1980s, TWAS has grown into an internationally recognized force for science, policy, and diplomacy. With its partners, TWAS has supported over 1,230 PhD graduates, awarded more than 2,300 postdoctoral fellowships, bestowed over 1,200 prizes, and funded over 2,800 research grants. It has trained more than 750 individuals in science diplomacy and facilitated over 1,400 scientific exchange visits. These numbers reflect a deep and sustained commitment to building scientific excellence and leadership in the global South.*

*TWAS has become a global network of over 1,400 Fellows and more than 400 Young Affiliates, spanning disciplines and continents. Together, they form a vibrant community committed to advancing science for the common good. Through fellowships, research grants, policy engagement, and strategic partnerships, TWAS continues to bridge divides between nations, between generations, and between science and society.*

*The 40th anniversary celebrations, launched in 2023, spanned three years to reflect the process that led to the Academy's founding in 1983 and inauguration in 1985, and culminated with the 17th TWAS General Conference in Rio de Janeiro, Brazil, in September 2025, organized in partnership with the Brazilian Academy of Sciences and TWAS, under the theme 'Building a Sustainable Future: The role of science, technology, and innovation for global development'.*

*But this anniversary is not just a moment of reflection. It is a call to action. The next 40 years will require even greater resolve to confront the structural inequalities that limit scientific opportunity and impact. We must continue to invest in people, institutions, and platforms that enable scientists in the global South to thrive. We must ensure that science informs policy, that innovation is inclusive, and that no one is left behind in the pursuit of knowledge.*

*As we look ahead, let us draw strength from our shared history and recommit to the values that have guided TWAS since its inception: excellence, equity, collaboration, and service to humanity. The challenges are great, but so too is the potential for science to shape a more just, sustainable, and hopeful future for all.*

Quarraisha Abdool Karim,
TWAS President

*Ceremony marking the official launch of TWAS, held at the University of Trieste in 1985. From left: Mohamed H.A. Hassan, Antonino Zichichi, Paolo Budinich, Abdus Salam, Paolo Fusaroli, Luigi Granelli, Franco Richetti.*

*TWAS President Abdus Salam welcomes United Nations Secretary-General Javier Pérez de Cuéllar to TWAS's First Conference, Trieste, Italy, in 1985.*

# TWAS at 40

BY THE NUMBERS

**+1,400**
FELLOWS

**+400**
YOUNG AFFILIATES

**+1,200**
AWARDS AND HONOURS

**+2,800**
RESEARCH GRANTS

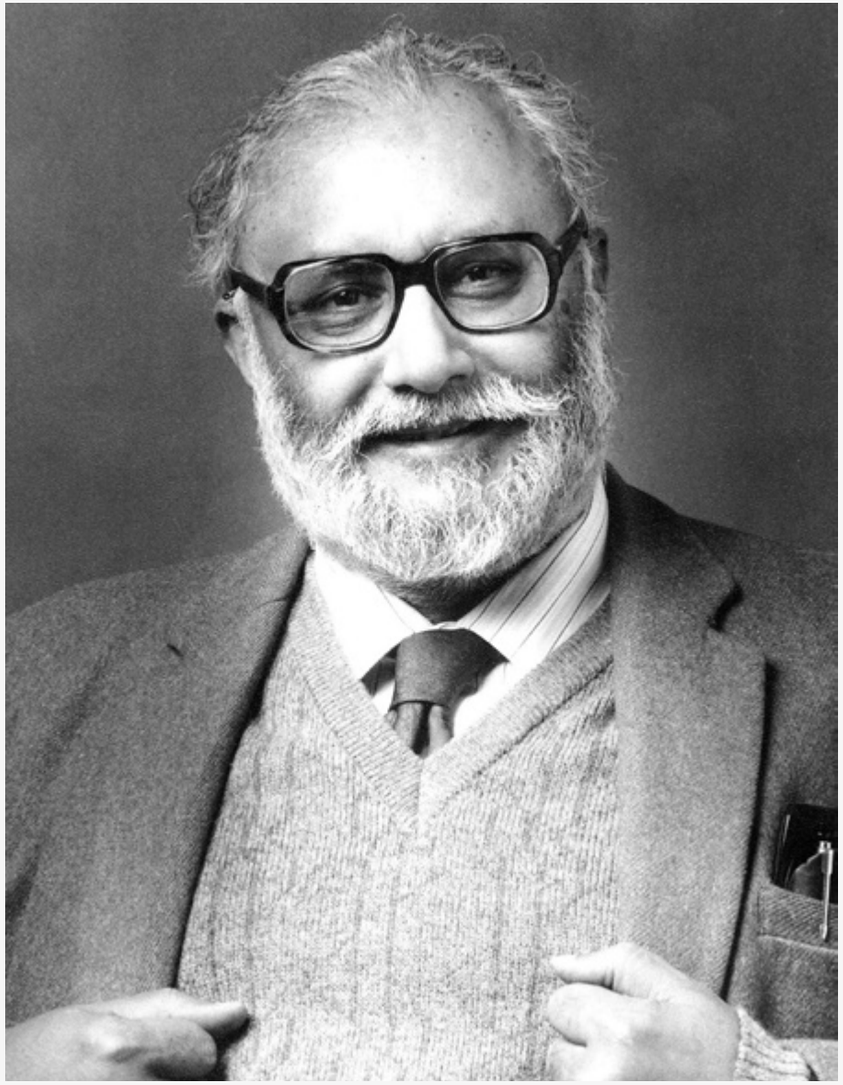
**+1,230**
PHD GRADUATES

**+2,300**
POSTDOCTORAL FELLOWSHIPS

**+750**
TRAINED IN SCIENCE DIPLOMACY

**+1,400**
SCIENTIFIC EXCHANGE VISITS

# TWAS Presidents



1985–1995
Abdus Salam
*(Photo: L. Scrobogna)*

1996–May 2000
José Israel Vargas

June 2000–2006
C.N.R. Rao

2007–2012
Jacob Palis

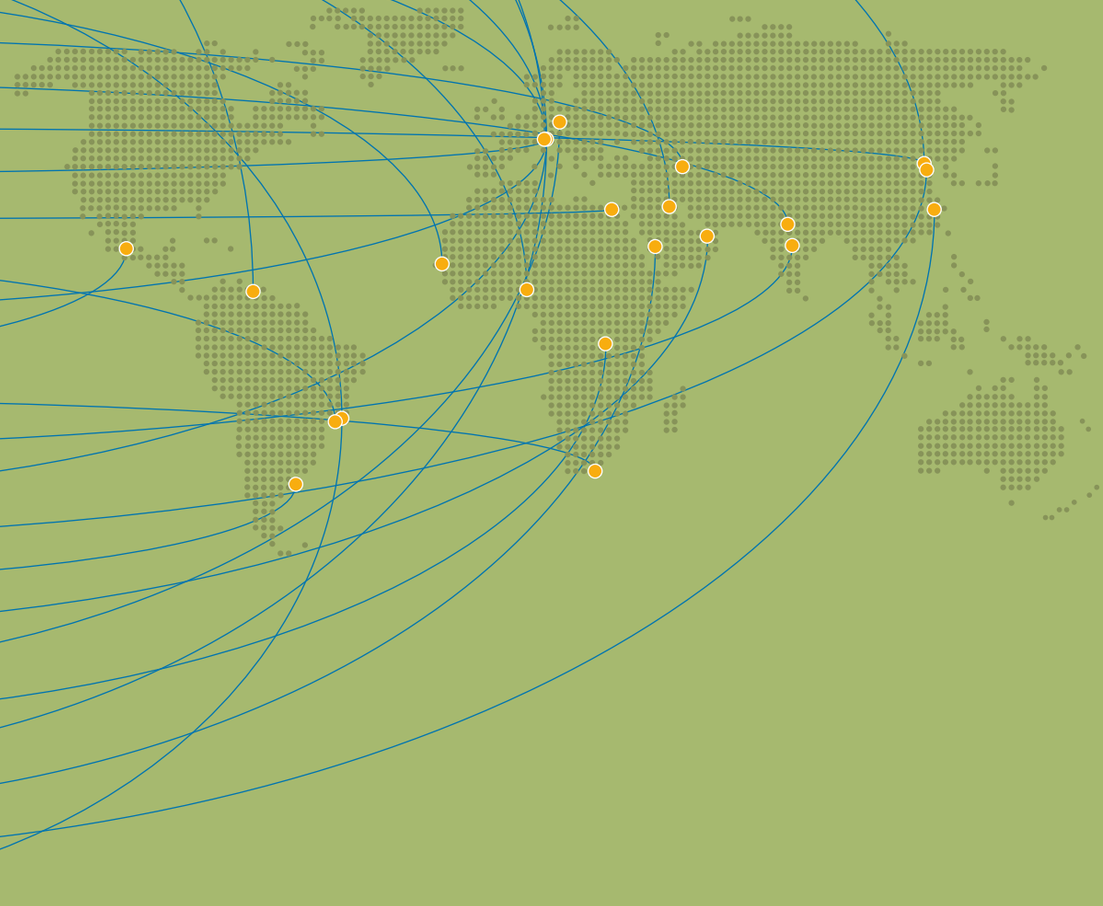
2013–2018
Bai Chunli

2019–2022
Mohamed Hassan

2023–2026
Quarraisha Abdool Karim
*(Photo: Rajesh Jantilal)*

# TWAS General Conferences and General Meetings

**1983** Duino, Trieste, Italy *FOUNDATION MEETING*
**1985** Trieste, Italy
**1987** Beijing, China
**1990** Caracas, Bolivarian Republic of Venezuela
**1992** Safat, Kuwait
**1993** Trieste, Italy
**1995** Abuja, Nigeria
**1996** Trieste, Italy
**1997** Rio de Janeiro, Brazil
**1999** Dakar, Senegal
**2000** Tehran, Islamic Republic of Iran
**2002** New Dehli, India
**2003** Beijing, China
**2004** Trieste, Italy
**2005** Alexandria, Egypt
**2006** Angra dos Reis, Brazil
**2007** Trieste, Italy
**2008** Mexico City, Mexico
**2009** Durban, South Africa
**2010** Hyderabad, India
**2011** Trieste, Italy
**2012** Tianjin, China
**2013** Buenos Aires, Argentina
**2014** Muscat, Oman
**2015** Vienna, Austria
**2016** Kigali, Rwanda
**2018** Trieste, Italy
**2021** Jeddah, Saudi Arabia (*Online*)
**2022** Hangzhou, China (*Online*)
**2025** Rio de Janeiro, Brazil



*“Scientific knowledge is the common and shared heritage of all mankind. East and West, South and North have all equally participated in its creation in the past, and we hope, they will in the future. This joint endeavour in sciences remains one of the unifying forces among the people of this globe.”*

Abdus Salam
Founding President
1983

# Challenging the Status Quo

When Abdus Salam first broached the idea of creating a global academy dedicated to honoring eminent scientists and building scientific capacity in the "Third World", the need for such an institution was not particularly apparent to either the scientific or economic development communities. Nor was it evident to national and international centres of power and influence.

Regardless of where one looked, little attention was being paid to the absence of science academies in the global South. And, on those rare occasions when the issue was raised—most often by Salam and his counterparts—deep skepticism was frequently expressed about the role that such institutions might play in boosting scientific capabilities or advancing economic and social development among the world's poorest countries.

Salam's call, which came at a plenary meeting of the Pontifical Academy of Sciences in Rome, Italy, in October 1981, was based on the recognition that most countries across the global South did not have national science academies—and had no intention of creating one any time soon. In fact, Salam's proposal for a science academy without borders was designed to compensate for the absence of national academies in the developing world, both then and in the foreseeable future.

Salam would go on to become the iconic founder of what is now called The World Academy of Sciences for the advancement of science in developing countries (TWAS). The Academy was intended to be an international focal point—a home away from home—for the developing world's most accomplished scientists, as well as a staunch advocate and supporter for science in the global South. It was designed to be an association of friendship, purpose, collegiality, and conviction for the exceptional role that science plays in societal well-being.

Yet even those advocating for a science academy for the Third World acknowledged that concerns about the viability



of such an institution could not be ignored. Would there be a sufficient number of scientists hailing from the global South to fill the academy's membership rolls? Would outstanding scientists suitable for election to such an upstart, unproven academy be far more interested in gaining membership to acclaimed national academies in the global North? How would an academy dedicated to scientists in the Third World enhance the reputations of scientists from the global South? Would its designation as a so-called "Third World academy" carry a stigma that might cause scientists from the global South to shy away from joining such an organization, and ridicule those who did? Would it, in some ways, have the opposite effect of what was intended?

Salam and his like-minded colleagues refused to be deterred by these wide-ranging uncertainties or by the skepticism of others in their quest. They were driven by their own personal experiences which had forced them to choose between remaining in their home countries and likely sacrificing (or, at least, sharply curtailing) their career prospects, or journeying to universities and research institutes in the global North to fulfill their potential and their ambitions.

Nearly one-third of the 42 eminent scientists chosen as founding members of the Academy lived and worked in the global North, including Salam who divided his time between Italy and the United Kingdom with occasional trips to his home country of Pakistan. Ten of TWAS's founding members named the United States as their affiliated country, a number matched only by India. Conversely, only five founding members cited African countries.

Given the prevailing situation, there was good reason to believe that the organization Salam was calling for would be an academy comprised of scientists nominally from the Third World but who, in reality, would be disproportionately associated with the global North or with the largest and the most prominent countries in the global South.

For many in the global North, the absence of both strong scientific institutions and individual scientists of high caliber in low- and middle-income countries was viewed largely as an insignificant matter to ignore. In their minds, the global South's immediate economic and social challenges were more dire. Indeed, many political and economic officials and administrators in the global South shared this view.

Beyond questions of the most effective use of limited financial resources, the predominant belief was that there was not much need for nurturing high-level, home-grown scientific talent in the global South because the science and technology they required could be obtained "off-the-shelf" from the global North and then applied to the most pressing problems these countries faced. Thus, the prevailing notion was that there was little need to foster scientific knowledge and technical expertise where it had yet to take hold. Those addressing the South's most urgent challenges could simply replicate and adapt existing North-based science and technology.

In the early 1980s, such a mindset rendered science academies a remote and frivolous objective for the global South. The thinking went that the potential societal benefits that such institutions could provide would take decades to realize, as urgent, deep-seated problems continued to fester and intensify. Science academies, although commonplace and broadly respected in the global North, were largely viewed as an extravagance that the global South could ill-afford. Poor countries could live without nurturing their own science since rich countries could make it available to them.

Another widely shared notion at the time of TWAS's creation was that individuals in the global South who aspired to be scientists could be educated and trained in institutions of higher education in the global North, as indeed many were. In many developing countries, a "students abroad" strategy, the reasoning went, could achieve results much more readily—and much more economically—than a strategy which sought



to build internationally recognized universities and research centres from the ground up in places where they did not exist. Money allocated for such ventures, it was argued, could be better spent on more pressing problems. The same sentiment held true—perhaps even more so—for organizations like science academies that were dedicated to collegial interaction and professional development and enrichment among elite segments of society.

In short, the dominant view was that the global South's deeply entrenched—seemingly intractable—economic, social, and environmental challenges demanded the full attention of the world's poor countries. Home-grown science could wait. And national science academies, it was logically assumed, could wait even longer. Such was the prevailing sentiment among both the scientific and economic development communities in the early 1980s.

## A New Narrative

Salam's broader and compelling insights into the realities faced by both science and scientists in the global South told a different story. These perspectives contrasted with the prevailing opinions on how scientists from poor countries could acquire the knowledge and training that they needed to succeed in their careers. They also challenged the views on how the world's poorest countries could be released from the grip of poverty and chronic underdevelopment by tapping into scientific and technological expertise and know-how.

As Salam repeatedly noted, it was terribly misguided to think that science and technology could simply be imported from elsewhere, thus mitigating the need for building scientific capacity and technical skills at home. In contrast, he insisted that chronically poor economic and social conditions went hand-in-hand with the chronically poor state of science

throughout much of the global South. The former was, in significant ways, a consequence of the latter. The latter, in turn, made it difficult to clearly chart a better future. Call it the science-deficit trap, a trap which had a direct impact on the global South's technological shortfalls and impoverished economies.

For Salam, science could not wait to see whether poor countries in the global South were intent on clearing a viable path toward enhanced economic and social well-being and sustainable development. Domestically nurtured scientific expertise was fundamental to these larger societal goals. Science, in Salam's mind, was an essential building block of modern societies that had to be meticulously erected at home and not blithely procured from elsewhere.

This key observation, which had guided the development of the International Centre for Theoretical Physics (ICTP) in the early 1960s (see page 31, "Centre First"), would also be the driving force behind the creation of TWAS 20 years later.

# Instrumental Change

At the time of TWAS's creation in the early 1980s, the absence of science exacerbated poverty and underdevelopment in the global South made it difficult, if not impossible, for poor countries to benefit from the unprecedented advances that were taking place in the global North during the post-World War II era. And because the advances were unfolding at an ever-accelerating pace, the disparities were only becoming more drastic. Those nations already lagging in scientific development were being left even further behind in a world of rapidly advancing science and technology.

While never minimizing the depth and breadth of these chronic problems, Salam and his allies envisioned a Third World academy as an invaluable instrument for promoting both scientists and scientific capacity building in poor countries. The academy, they firmly believed, could prove instrumental in narrowing the North-South divide in science that had long impeded efforts to uplift the well-being of developing countries. By helping both to honour worthy scientists (who largely laboured in obscurity) and to build scientific capacity (which was largely ignored and neglected), an institution like TWAS, Salam and his counterparts firmly believed, could make significant contributions to creating a more prosperous, peaceful and equitable world.

**CENTRE FIRST**

As was the case with TWAS in the early 1980s, Abdus Salam also faced significant initial skepticism in his efforts to launch the International Centre for Theoretical Physics (ICTP) in the early 1960s.

Designed as a global hub for scientists from the developing world seeking to advance their research, training and collaboration, ICTP, like TWAS, would take several years to be transformed from a bold, yet abstract, concept into a meaningful reality.

Why, doubters reasoned, couldn't scientists in the global South travel to existing universities and research centres in the global North to enhance their education and training? Was there any need to create a new research centre for developing-world scientists when they could acquire postgraduate training, enrichment and collegiality in places that already existed? Wouldn't conferences, meetings, workshops, and schools that are already taking place serve the same purpose? And wouldn't these existing initiatives be more eagerly sought by scientists from the global South and carry greater recognition both at home and abroad?

Despite such reservations, Salam's sharply focused determination and dogged per-

sistence ultimately led to the creation of ICTP in Trieste, Italy, a mid-sized city residing on the northern Adriatic Coast. Trieste became home to this iconic international institute for research and training whose mission was to provide opportunities for physicists and mathematicians from the developing world to participate in short-term conferences, workshops and schools that would add to their knowledge, experience, personal contacts, and reputations.

ICTP's overriding objective was to help researchers from the global South stay current in their fields—and to learn more about and participate in emerging research initiatives—without having to relocate permanently to countries in the global North. The Centre, designed to serve as an oasis of knowledge and training for researchers from low- and middle-income countries, would not only enable visitors to strengthen and expand their own research agendas but also open additional channels for collaboration with colleagues from across the globe and particularly from developing countries.

In the process, ICTP helped to usher in a new era of both North-South and South-South scientific cooperation in the fields of physics and mathematics. And, by extension, it provided a model for global cooperation in all disciplines.

Operating under the institutional umbrella of the United Nations Educational, Scientific and Cultural Organization (UNESCO), which enabled the Centre to gain immediate credibility, and with generous financial support of the government of Italy, ICTP has provided a nurturing environment for individual scientists from the global South for six decades. At the same time, it has served as an important bridge for the global exchange of scientific ideas.

Among its many triumphs and lasting legacies, ICTP—now the Abdus Salam International Centre for Theoretical Physics—helped to pave the way for TWAS, whose secretariat has been located on the ICTP campus in Trieste since the Academy's inception.

*The front entrance of the Enrico Fermi Building on the campus of the Abdus Salam International Centre for Theoretical Physics. The building hosts the TWAS Secretariat.*

*ICTP Founders in Duino, Italy, at the meeting preceeding the inauguration of the Third World Academy of Sciences on 11 November 1983 in Trieste. Shown here are H. Croxatto, D. Lal, M.G.K. Menon, C. Pavan, E. Rosenblueth, Abdus Salam, M. Roche, M.H.A. Hassan (at that time not a member of the Academy), S. Chandrasekhar, S. Siddiqui, G. Reichel-Dolmatoff, A.R. Ratsimamanga, C.R. Rao, H.G. Pereira.*

# Twenty Years On

*"Over the past two decades... many of the developing world's most 'advanced' nations have become scientifically proficient, but they have yet to convert this strength into broad-based economic development strategies that make a difference in the quality of life for their citizens."*

José I. Vargas
TWAS Past President
2003

In October 2003, TWAS met in Beijing, China, to celebrate the Academy's 20th anniversary. More than 300 delegates from 77 countries, including 13 government ministers, attended the four-day conference. The opening ceremony, held in the Great Hall of the People in Tiananmen Square, was attended by more than 3,000 people. The audience included not only prominent dignitaries and scientists from across the globe but also a large contingent of primary and secondary school students who filled the Great Hall's upper balcony to listen to the opening ceremonies, which were highlighted by President Hu Jintao's keynote address.

In his address, President Hu celebrated the universality of science and the mutual benefits that could be achieved through scientific capacity building at home and collaboration on a global scale. He attributed China's historic economic growth over the previous 25 years, in large measure, to the "great attention" his nation had "paid to the powerful role of science and technological innovation in economic and social development." And he urged nations across the global South to embrace science and technology as the cornerstones of their efforts to promote science-based sustainable development efforts that could be further enhanced through mutually beneficial international cooperation and exchange.

The broad array of scientific and technical sessions that took place in the days following the opening ceremony offered an expansive overview of the state of science in the global South. Some sessions, for example, focused on cutting-edge research in fields ranging from bioengineering to nanocrystals and from computer simulations to material processing. Other sessions examined the intricate ties between science and society related to such critical challenges as the growing impact of climate change, the rising threats to global health posed by viral diseases (prompted by the 2002 SARS outbreak), trends in agricultural production and food security, and the uncertainties emerging from ecological degradation and species loss.



The lectures and discussions not only placed the developing world's increasing scientific prowess on full display but also raised the prospects for both South-South and North-South cooperation. In all, TWAS's general conference in Beijing provided a thorough accounting of the role of science in society at the dawn of the new millennium and offered an intriguing roadmap for what may lie ahead.

And, as portended by the conference's expansive scientific rigour and insights, the future would bring a dramatic strengthening of scientific communities in the global South, matched by a profound reordering of the international scientific community. These historic trends, which would accelerate in the years ahead, would render implications both for the strategic vision and practical programmes that the Academy would pursue in the opening decades of the 21st century.

Indeed, many of the opportunities and challenges that were emerging at "TWAS at 20" have become the enduring opportunities and challenges that "TWAS at 40" now faces—and will likely continue to face in the years ahead.

**CONFERENCES MATTER**

TWAS's general conferences, which today occur every other year, both showcase and chronicle the dramatic growth that has taken place in the global South's scientific capabilities among individual researchers, and the universities and institutions where they work.

Each conference, often highlighted by an opening address by the host country's head of state, includes roundtable discussions with ministers of finance and science from across the global South. Con-

ference activities not only encompass scientific lectures covering the full range of disciplines, but also speeches and sessions examining the state of affairs between science and society in the global South. In addition, the host country utilizes the occasion to explore the state of science within its borders, examining the progress that has been made and the challenges that lie ahead. Nobel laureates and other internationally renowned scientists are often featured among the list of presenters.

In the 21st century, TWAS general conferences have been held in the Islamic Republic of Iran (2000); India (2002, 2010); China (2003, 2012, 2022—hybrid in-person and virtual); Egypt (2005); Brazil (2006, 2025); Mexico (2008); South Africa (2009); Argentina (2013); Oman (2014); Austria (2015), heralding TWAS's growing engagement with the global North; Rwanda (2016); and Saudi Arabia (2021—entirely virtual). In the late 20th century, general conferences took place in China (1987), Venezuela (1990), Kuwait (1992), Nigeria (1995), Brazil (1997); and Senegal (1999).

When not being hosted by governments in other countries, the Academy's general conferences and general meetings have taken place in Trieste, Italy, the seaside northern Mediterranean city that is home to its Secretariat.

*TWAS 9th General Conference and 20th Anniversary Celebration in Beijing, China, in October 2003: Award winners with Chinese President Hu Jintao (centre), standing between TWAS Executive Director M.H.A. Hassan (left) and TWAS President C.N.R. Rao (right).*

# The South's Rise... to a degree

*"A trend marked by contradictory impulses signaling that things are paradoxically getting better and worse at the same time offers both challenges and opportunities."*

C.N.R. Rao
TWAS President
2005

The first notable trend of consequence at the turn of the 21st century carried both positive and negative connotations for science in the global South that have continued to strongly resonate within the Academy.

During the Academy's first two decades of its existence, TWAS implemented its capacity building initiatives across the entire breadth of the developing world "from Chad to China and from Chile to Cote d'Ivoire," as C.N.R. Rao, who served as the Academy's President from June 2000 to 2007, described it. By the early 21st century, however, the Academy's efforts were becoming increasingly targeted as large, populous developing countries with growing economies—most notably China, but also India, Brazil and South Africa, among others—successfully strengthened their scientific capabilities.

Yet, at the same time, a significant number of countries in the global South continued to lag behind, often far behind, in terms of both their scientific capacity and economic development. The progress that took place, while welcomed, did not translate into parity, either between the global North and South (where significant discrepancies in scientific capacity remained stubbornly in place) or within the global South itself.

Indeed, it could be argued that the progress in scientific capacity building that had occurred in select places in the global South had ironically opened new divides between the "haves" and "have nots" among the developing countries themselves. As one gap dwindled (but without disappearing), other gaps, which were closer to home, began to emerge, threatening to create a South-South scientific matrix that mirrored the North-South scientific matrix, which had been rightfully viewed as a condition to be eliminated, not replicated. As a result, the Academy's agenda over the past two decades has increasingly focused on closing both gaps: the narrowing but nevertheless persistent gap between the global North and South as well as the growing gap within the global South itself.



This new reality—surging science in some countries and stagnating science in others—led the Academy to identify 81 scientifically lagging countries in the global South, located primarily in sub-Saharan Africa, which were in need of special attention as the Academy allocated its programmatic resources. By 2017, TWAS had pared the number of scientifically lagging countries to 66, an encouraging indication of the progress thus far, but also an unambiguous sign of how much more needed to be done.

The same focus also applied to the election of TWAS members, who disproportionately hailed from the global South's largest and most scientifically advanced countries. Concerns for TWAS's skewed membership prompted the Academy to assiduously seek out and identify worthy candidates in scientifically lagging countries who were conducting excellent research under the radar, largely due to the remote settings in which they worked and the prevailing prejudicial notions about where noteworthy science was being done.

The goal, both then and now, has been to gain broader representation within TWAS's membership without compromising the Academy's dedication to excellence. This challenge has persisted since the Academy's inception. But it took on a greater sense of urgency at the beginning of the new millennium as the Academy sought to ensure a more inclusive membership, representing the entire global South, while at the same time seeking to build a stronger framework for South-South cooperation.

On another front, the rising scientific capacity of the global South, as well as the Academy's expanding agenda (which placed additional responsibilities on the TWAS Secretariat's small staff), prompted the Academy to create five Regional Partners. The TWAS Council approved the initiative in 2002. The first Regional Partner was established in Beijing, China (for East and Southeast Asia), followed in quick succession by offices in Rio de Janeiro, Brazil (for South America and the Caribbean);

Alexandria, Egypt (for the Arab Region); Bangalore, India (for Central and South Asia); and Nairobi, Kenya (for sub-Saharan Africa; in 2015, this office was moved to Pretoria, South Africa).

The Regional Partners have worked closely with the TWAS Secretariat in Trieste. They expanded and decentralized the Academy's activities, thus helping to bring its programmes closer to the scientists and scientific institutions that the Academy is seeking to assist—as well as laying a stronger groundwork for being more responsive to member needs.

The Regional Partners have proven instrumental in identifying scientists who are worthy of being nominated for membership to TWAS, especially scientists who are working in smaller, less-renowned universities and institutes in countries rarely associated with scientific excellence. The Regional Partners, as will be discussed later, have also played a major role in helping the TWAS Secretariat to expand its outreach to young scientists. As a result, in many ways, these offices have reflected the growing strength and diversity of science in the South while serving as agents of further progress.

**11 SEPTEMBER 2001**

TWAS's growing engagement in larger social issues of great import assumed an immediate and compelling posture following the 11 September 2001 terrorist attacks in the United States.

As an institution devoted to scientific capacity building in the 21st century, the Academy largely refrained from exploring distant historical and cultural events that had propelled both the rise and demise of science in Islam. But it did lend its voice, both in public discussions and international publications, to strongly affirm that science was deeply rooted within Islamic religion and culture.

During Islam's "Golden Age," a 500-year period lasting from 750 CE to 1250 CE (Common Era), the Muslim world was the global centre of scientific inquiry and learning. The exalted status of science in Islam at that time was not only on display at the Bibliotheca Alexandrina (the Old Alexander Library), but also in learned centres found across the region from Baghdad to Cordoba.

While praising Islam's past scientific accomplishments, TWAS also acknowledged that the dismal state of science in Islamic countries in the modern era was both undeniable and a major source of extreme distress.

In the aftermath of 11 September 2001, the Academy focused on what should—and could—be done to revitalize the reverence for science and learning that had once flourished in the Islamic world. This effort would not entail foregoing traditional Islam, as many critics claimed needed to be done, but rather embracing Islam's deeply rooted veneration for science and learning as a reflection of the universal values held by all people—and, at the same time, by vastly increasing its investments in both education and science and technology to nurture the human and social resources that were necessary to prosper in the world today.

The vast investments that the United Arab Emirates, Saudi Arabia, and Qatar, among others, have made in both education and scientific research since the beginning of the new millennium, and most notably over the past decade, confirm that the Islamic world can enthusiastically embrace the world of modern science without foregoing its traditional religious values and principles.


*TWAS 2014 Prize to Young Scientists awarded by the Nepal Academy of Science and Technology (NAST): Vimu Kafle Kharel receiving the certificate from Prime Minister Sushil Koirala, also Chancellor of NAST in 2014.*

*“We live in an era that places a premium on both global knowledge and global competition. That makes the role of science and technology more critical than ever.”*

Jacob Palis
TWAS President
2008

# Science for Society... more than ever

A second notable factor reshaping the Academy's response to the dramatic changes unfolding across the global South at the turn of the new millennium involved the growing attention paid to the role of science, technology and innovation in broader economic and social development strategies. There was increasing recognition, not only in the scientific community, but also in the financial and economic development communities, that the future well-being of the global South would depend not so much on low-cost, readily available labour and abundant, untapped natural resources, but rather on scientific knowhow and technological capabilities.

Such considerations have always been a part of the larger policy discussions. But they would acquire greater currency at the beginning of the new millennium as scientific communities became more engaged in the societies in which they operated as a way of affirming their value to society and making a tangible difference in people's everyday lives. This engagement, in turn, led a growing number of governments in the global South to increase both the attention they paid and, to some degree, the financial investments they made in science and technology.

In effect, at the beginning of the new millennium a "new contract" was being drawn between science and society in an increasing number of developing countries. The terms of this contract would unfold over the first two decades of the 21st century at an accelerated pace. Progress, however uneven in scope, would become a distinguishing characteristic of science-based development in the global South.

Similarly, the rapid and relentless development of such transformative fields as information and communications technologies, biotechnology, and nanotechnology would compel those countries in the global South, with the means to do so, to pursue cutting-edge scientific research. The quest to engage in such research would be necessary if countries in the global South hoped to avoid being relegated to the role of bystanders and belated recipients when it came to the most advanced and impactful "new" fields of science.

Frontier scientific research among some countries in the global South, moreover, might ultimately assist all developing countries by making it more likely that the research would be tailored to the concerns of the global South and thus stand a better chance of being responsive to the needs of less-wealthy countries.

Research in cutting-edge fields of science also held the promise of promoting North-South cooperation because it placed the South's most distinguished universities and research centres on a more equal footing with their Northern counterparts, while increasing their visibility.

Over the course of the first two decades of the 21st century, the lines separating scientific excellence in the global North and South have continued to narrow. This encouraging trend is now firmly entrenched in such fields as nanotechnology, biotechnology, space science, the production of high-capacity batteries, and the development of affordable pharmaceuticals.

The countries of the global South are increasingly determined not to be left behind when it comes to groundbreaking scientific and technological endeavours, and a growing number of them now have the scientific and technical wherewithal and financial support to ensure that this will not be the case. Indeed, several countries in the global South have emerged as global leaders in a number of basic and applied research fields, heralding a new era of North-South equity in international science.

Much remains to be done before this new era reaches into all corners of the South and becomes truly global in scope. But the progress that has been achieved to date is both encouraging and, even more importantly, irreversible.

Science for economic and social well-being has always been a critical aspect of the Academy's mandate. But it would gain even greater resonance in the years just before and after the new millennium. This broader view of the critical contributions that science makes to society has been revealed in many ways. For example, it was reflected in the extensive roles that TWAS played in major international conferences focusing on how the scientific community could become more directly involved in addressing crucial challenges. At the same time, these events encouraged participants to engage more directly with the political, financial, and diplomatic sectors of society and to lend their voices to debates examining the complexities of science-based sustainable development.

These events included the World Conference on Science, held in Vienna, Austria, in 1999, and the World Conference on Sustainable Development, held in Johannesburg, South Africa, in 2002 (marking the 10th anniversary of the historic Rio Earth Summit in Brazil), as well as the World Summits on the Information Society in Geneva, Switzerland, in 2003 and Tunis, Tunisia, in 2005, and the United Nations' Group of 77 (G-77) South-South high-level conference on science and technology held in Dubai, the United Arab Emirates, in 2002.

In each of these conferences, TWAS and its members played instrumental roles in organizing sessions, presenting plenary lectures, and drafting conference declarations. The Academy's involvement assured that the concerns of the scientific community in the global South were not only heard, but also incorporated into the statements of purpose and policy recommendations that emanated from these widely publicized international events. More generally, they helped to raise the profile of TWAS in the international science and economic development communities.

The Academy also played a critical role in a series of projects designed to highlight and promote successful examples of how governmental agencies, non-governmental organizations



(NGOs), individual scientists, and community activists were turning to science to address critical social and economic needs.

This broad-based "best practices" initiative was led by the Third World Network of Scientific Organizations (TWNSO), a Trieste-based institutional network launched in 1988, in large part through the efforts of TWAS, with membership comprised of the ministries of science and technology and higher education, research councils, and science academies in countries across the global South. In effect, during this period, TWNSO served as the political and diplomatic arm of TWAS. Its aim was to help build political and scientific leadership for science-based economic development in the South, and promote broad-based South-South and South-North partnerships in science and technology fields that were critical to sustainable development.

The projects entailed workshops that were designed to strengthen collaboration among individuals and institutions, and publications intended to inform a broad audience (particularly policy makers and financial officials) of the "best practices" being pursued in the global South to address critical challenges. A large number of other organizations would join TWNSO and TWAS in these efforts, including UNESCO; the United Nations Development Programme (UNDP); the UN Special Unit for South-South Cooperation (UN-SSC); the Global Environment Fund (GEF); the International Council for Science (ICSU); the Science Initiative Group (SIG) at the Institute for Advanced Study in Princeton, New Jersey (USA); and the Initiative for Science and Technology for Sustainability (ISTS) at the Kennedy School of Government at Harvard University in Cambridge, Massachusetts (USA).

Not only did these projects help to promote South-South cooperation in science; they also created a permanent record of successful experiences, underscoring the importance of national, regional and local initiatives in applications of science and technology for development. In addition, they helped

to build a platform for TWAS's increasing engagement in the larger world of science-based sustainable development, bringing to bear the importance of indigenous knowledge, community activism, and interdisciplinary approaches for meeting critical social and economic challenges.

The Academy's forays into science, culture, and policy at the turn of the new millennium would subsequently find expression in TWAS's initiatives dedicated to advancing science diplomacy as well as in its efforts to bring special attention to the plight of scientists displaced from their home countries due to internal conflicts and violence.

Scientific capacity has remained TWAS's primary activity. But the role of science in society assumed a more prominent place in the Academy's agenda in the late 20th and early 21st centuries in response to larger global developments and challenges. As a result, TWAS's quest for scientific capacity building has become ever-more integrated with the Academy's broader quest for improving economic and social well-being.

**COVID: SCIENCE MATTERS**

In 2020, COVID-19 presented a special challenge for TWAS (as it did for the entire world). The Academy's response demonstrated resilience and adaptability, transitioning many of its key activities — including the annual science diplomacy course organized in partnership with the American Association for the Advancement of Science (AAAS) — to virtual platforms.

The Academy also issued a statement on COVID-19 supporting calls from the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the InterAcademy Partnership (IAP) urging the global research community to act collectively in utilizing scientific knowledge and innovation to respond vigorously to the global crisis. Central to this message was an unstinting argument that efforts to combat the pandemic must include and empower developing nations, particularly the Least Developed Countries (LDCs).

*TWAS Council meeting hosted by the Accademia Nazionale dei Lincei in Rome, Italy, in 2002.*

*"TWAS has never been an organization that stands alone... Whatever we have achieved in our history, and whatever we will achieve in the future—is the result of cooperation, working together with many partners toward a shared vision of scientific excellence in the developing world."*

Bai Chunli
TWAS President
2018

# Progress with Partners... South and North

The Academy's broadly based "best practices" initiative is just one example of how the Academy has continually enlarged its circle of collaboration—both in the global South and North—in order to extend its reach and impact. Other initiatives have also reflected the Academy's growing presence on the global stage of science and development. In fact, expanding partnerships proved to be the third crucial trend unfolding in the years just before and after the new millennium that would profoundly influence how the Academy pursued its goals.

In 2000, for instance, the InterAcademy Panel (IAP)—a global network of science  academies established in 1993 to provide independent, expert advice on critical global issues—relocated its secretariat from London to Trieste, Italy. And in 2003 the InterAcademy Medical Panel (IAMP) also decided to transfer its secretariat from Washington, D.C., to Trieste.

This move enabled IAP and IAMP to share office space and administrative support with TWAS, strengthening collaboration between the organizations. The relocation also enhanced TWAS's role in supporting IAP's mission particularly in helping to establish science academies in countries where they did not exist, with a strong focus on Africa. Through this partnership, TWAS became a vital link between science academies in the global North and South, advancing its long-standing goal of promoting scientific capacity and cooperation worldwide.

In 2002, illycaffè, one of the world's most prominent coffee manufacturers whose corporate headquarters are in Trieste, announced that it would sponsor the Trieste Science Prize, which would be administered by TWAS. Touted as the Nobel Prize for scientists from the Third World, it included an annual award of US$100,000 to be shared by "singularly outstanding and world-renowned scientists" who were living and working in a developing country.

The significance of this becomes clear when looking at the entire history of the Nobel Prize, dating back more than a century (the first Nobel Prize was conferred in 1901). Since then, just three scientists who had conducted their research in developing countries had ever won the world's most prestigious science award: C.V. Raman in India (1930); Bernardo Houssay in Argentina (1947); and Luis F. Leloir in Argentina (1970).

As Mohamed H.A. Hassan, the Academy's executive director (and later president) noted, the Trieste Science Prize was intended to "give recognition at the international level" to worthy scientists who in their own way had been kept in the shadows by the North-South divide in science.

Illycaffè continued to fund the Trieste Science Prize until 2012, when China's high-technology corporate giant, Lenovo Ltd., assumed patronage of the award. The changeover in sponsorship of the prize, which was renamed the TWAS-Lenovo Science Prize, did not in any way alter its rationale: to honour and pay homage to prominent scientists in the global South who had yet to receive their due.

The shift in sponsorship from the global North to South was a sign of the growing economic and scientific strength of the developing world, a term that in-of-itself had become increasingly anachronistic. More specifically, it reflected China's arrival as a global superpower, both economically and scientifically. And from an even larger perspective, it foretold of a world in which the global South would possess both the capacity and the will to honor its own scientists and not have to rely on the benevolence of the global North to do so.

## Granting Progress

Since its inception, TWAS's most widely recognized initiative has been its research grants programme. The programme has served as an excellent example of how to facilitate intellectual

capacity in science and technology. It has also played a key role in infrastructure development by prompting "brick-and-mortar" projects that help to propel science. Good scientists, after all, need good places in which to work.

Supported through core funding provided by the Italian government and grants from the Swedish International Development Corporation's Agency for Research Cooperation (then known as Sida-SAREC), the initiative offers critical financial support for early-career, mid-career, and senior scientists living and working in the global South. Funds from programme benefactors are used, for example, to cover the costs of supplies, laboratory equipment, publications and travel, and to provide support and stipends for students seeking advanced degrees. To date, more than 2,800 researchers have been awarded grants. The initiative speaks directly to the needs of researchers in low-resource settings in ways that provide long-term cross-generational benefits that bolster the research capabilities of young scientists. The universities and centres where they study and work afford researchers a broad array of opportunities to develop and strengthen their knowledge, skills, and credentials.

Following the lead of the Council of Scientific & Industrial Research (CSIR) in 1991, more programme partners from developing countries joined the family of TWAS fellowship partners. This includes the Brazilian National Council for Scientific and Technological Development (CNPq), the Chinese Academy of Sciences (CAS), and the Department of Biotechnology (DBT) of India's Ministry of Science and Technology. All agreed to collaborate with TWAS in funding fellowships for postgraduate and postdoctorate students from the developing world to study at centres of excellence in Brazil, China, and India, respectively.

Under these agreements, TWAS agreed to cover transportation and visa costs, while the programme partners agreed to waive student tuition fees and provide support for lodging and research expenses. Institutions in other nations, including Kenya, Malaysia, Mexico, Pakistan, and South Africa, have subsequently joined the initiative.

With 285 students currently enrolled (and an additional 160 students awaiting participation as slots open), it has become the world's largest South-South doctoral and postdoctoral research fellowship programme. Its success is a reflection of the remarkable growth in scientific research and teaching capabilities that has taken hold in the global South over the past several decades. It also points to the increasing role that South-South cooperation plays in advancing scientific education and training in the global South. Perhaps, in this sense, there may be no other programme that so clearly reflects the fulfillment of the TWAS founders' dream.

**IN THE YEARS 2003-2005**

Over the course of its history, each year has inevitably brought new activities and new partners to TWAS, as the Academy has sought to expand its reach and impact. But the years 2003–2005, coming on the heels of its 20th anniversary conference in Beijing, proved to be a particularly active time. The launch of a series of new initiatives left an indelible mark on the Academy's agenda that continues to this day. Here's a sampling of what transpired over the course of these eventful years.

The Italian government agreed to transpose its annual contribution to TWAS from a voluntary contribution, subject to yearly reviews, into a permanent contribution, providing the Academy with a more secure funding base for its operations and programmes.

TWAS launched Regional partners in China, Brazil, India, Kenya, and Egypt, signaling important steps forward in the Academy's efforts to decentralize its activities.

The TWAS South-South Fellowship Programme for graduate

and post-graduate study was launched. The governments of Brazil, China, and India were the Academy's first partners. Other nations, including Kenya, Malaysia, Mexico, and Pakistan, subsequently joined the initiative in what has become the world's largest fellowship programme of its kind.

TWAS awarded the first Trieste Science Prize sponsored by illycaffè. Labelled the Nobel Prize for scientists from developing countries, the Chinese international high-technology company Lenovo assumed sponsorship of the award in 2012. The TWAS-Lenovo Science Prize was considered to be among the most prestigious awards for scientists from the global South.

The transfer of the Secretariat of the InterAcademy Panel (IAP), a global network of merit-based science academies to Trieste, where it would operate under the administrative umbrella of TWAS. The InterAcademy Medical Panel (IAMP), a like-minded global network of medical academies and medical branches of science academies, would soon follow. The arrival of IAP and IAMP highlighted TWAS's growing presence on the global stage and the expanding role it was playing as a bridge for South-South and South-North collaboration in science.

A name change for TWAS from the Third World Academy of Sciences to The World Academy of Sciences for the Developing World, served as yet another sign of the Academy's global reach as a prime advocate for science in the global South. In 2012, TWAS would change its name once more to The World Academy of Sciences for the advancement of science in developing countries, confirming its status as a global institution dedicated to building scientific capacity in the global South. Through it all, TWAS, the acronym, has remained TWAS, as have the Academy's core responsibilities and primary goals.


*Ndeye Maty Ndiaye, Research Grantee, Department of Physics University Cheikh Anta Diop, Dakar, Senegal. In the background (right): Balla Diop Ngom, Research Grantee, Department of Physics University Cheikh Anta Diop, Dakar, Senegal, in November 2024.*

# Exclusive to Inclusive

*"Ensuring an inclusive environment that embraces diversity in gender, age, and nationality within the membership and programmes of TWAS is crucial. By fostering such diverse perspectives, TWAS can better tailor solutions that significantly benefit low- and middle-income countries, ultimately contributing to a more equitable and sustainable future for all."*

Mohamed H.A. Hassan
TWAS Founding Executive Director
TWAS President
2022

A fourth major trend that has played an increasingly central role in shaping TWAS's agenda since the turn of the new millennium has been the Academy's efforts to address persistent demographic imbalances in age and gender within TWAS itself.

Both issues have posed a major challenge for the Academy since its inception—as they have for much of the international science community (and the entire global community, more generally). But the issues have become an increasing focus of concern over the past two decades as the Academy has turned its attention to addressing gnawing questions related to access and equity within its own organization.

TWAS membership has been largely comprised of "senior" male Fellows. And, as TWAS has matured, so too has the average age of its membership, only exacerbating this "age-old" problem. The median age of the Academy's membership in 2025 stands at 73.

TWAS's skewed age demographic has been partly due to the fact that the Academy is an honorary institution that reveres and rewards excellence—and that it often takes years, sometimes decades, before the exemplary work of a researcher is duly recognized. It has also been partly due to the fact that the Academy is an organization in which "Fellows elect Fellows". That is, like all science academies, TWAS's selection process is characterized by current Fellows choosing colleagues who usually share the same demographic profile and who often follow similar career paths.

But TWAS's skewed age profile has been mostly due to the fact that the global scientific community—across both disciplines and borders—has been dominated by older males from time immemorial. In this sense, TWAS has largely mirrored the continuing "club-like characteristic" of the international scientific community writ large, especially among its science academies. It reflects an enduring legacy closely tied to the



scientific community's abiding mindset and long-standing operational procedures.

Following years-long discussions on how to address the Academy's "aging" challenges and overcome this continuing demographic imbalance, in 2007 the Academy launched the TWAS Young Affiliates programme, a separate category of "associated" membership for scientists under the age of 40. While Affiliates are not Academy members, they do have access to many of the benefits that members enjoy, not the least of which is their ability to cite their connection to TWAS and to attend Academy workshops and conferences. The Academy's five Regional Partners oversee the selection process, choosing up to 25 young scientists each year.

In 2016, the Young Affiliates programme expanded its reach and impact by launching the TWAS Young Affiliates Network (TYAN). The Network, which is dedicated to promoting comradery and collaboration among its members, has embodied the same spirit and purpose as TWAS itself but from a more youthful viewpoint, touting its own concerns and priorities. Equally important, the Network has enabled the Young Affiliates to gain a stronger voice within the larger international scientific community, speaking for the interests of the next generation of scientists from the perspective of the global South.

Age imbalance is not the only critical demographic challenge that TWAS has faced throughout its history. Gender imbalance is another persistent challenge that the Academy has sought to address. Only one woman was included in the Academy's inaugural class in 1983—Johanna Dobereiner, a world-renowned European-born Brazilian agronomist who pioneered the development of biological fixation, providing an effective strategy for reducing the use of chemical fertilizers in agriculture. Even as late as 2020, women comprised less than 15% of TWAS's members. Not surprisingly, women were also rarely elected to the Academy's governing Council.

TWAS sought to meet this challenge early on in its history when it served as the driving force behind the creation of the Third World Organization for Women in Science (TWOWS). The organization, which has been dedicated to honoring and supporting women scientists in the developing world, was established in 1988, five years after the creation of TWAS. It was officially launched in 1993, tracking a lengthy journey from concept to reality comparable to the journey that TWAS (and ICTP) experienced.

The Secretariat, which is headquartered in Trieste and shares both office space and administrative staff with TWAS, has evolved into one of the leading advocacy organizations for women scientists in the global South. Today, TWOWS, which changed its name to the Organization for Women in Science for the Developing World (OWSD) in 2010, convenes a broad range of programmes, including fellowships for PhD students, research grants for early career women scientists and master's scholarships for displaced women scientists. The organization also bestows awards recognising the achievements and raising the visibility of women scientists that are considered among the most prestigious honours of their kind in the global South. More generally, membership of OWSD's 57 national chapters allows women to share challenges and best practices at the national level and provides credibility and recognition for women scientists across the developing world.

With a directory that exceeds 11,000 members, OWSD has become an indispensable voice for women scientists from the global South and one of the most recognized and respected organizations for the promotion of women scientists in the world.

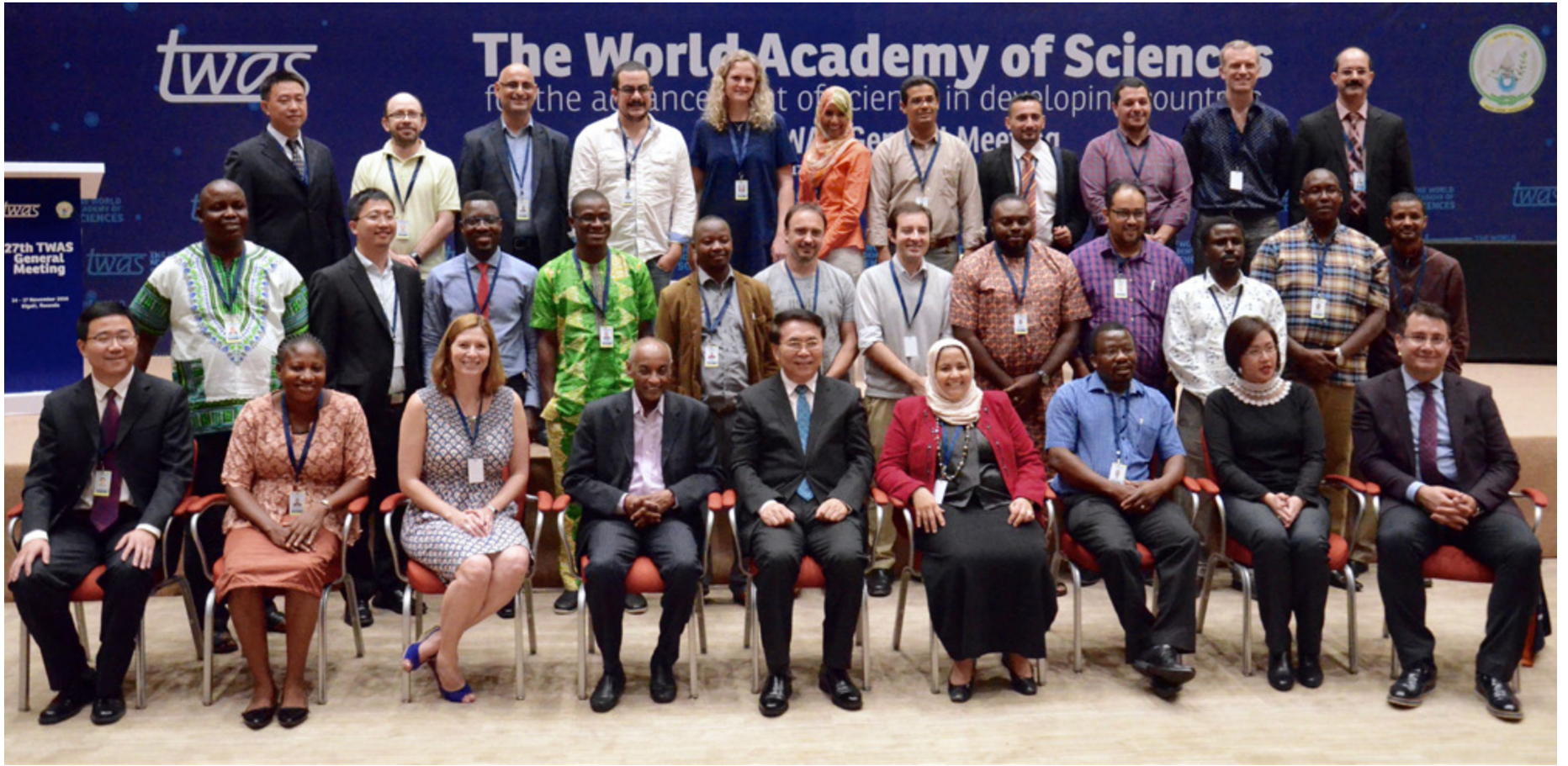
In effect, TWAS and OWSD are closely aligned institutions with distinct, yet overlapping, mandates. They serve both complementary and corresponding roles for advancing science in the global South.



The Academy itself has made slow but steady progress in increasing its female membership. Twenty women were elected to TWAS in 2023, representing 40% of the incoming class. In 2022, the Academy also elected its first woman as president, Quarraisha Abdool Karim, a distinguished infectious disease epidemiologist and a world-renowned AIDS researcher from South Africa. At the same time, it elected eight female scientists to its Council, the largest number in its history, marking a milestone that established full gender equity on the Academy's 16-person governing board for the first time in TWAS's history.

While these trends are indeed encouraging and commendable (although long overdue), it is also true that women continue to be woefully underrepresented in TWAS. Just 19% of the Academy's 1,400 members are women—a discernable improvement from an historical perspective but still a long way from equity. Indeed, even if the Academy continued to elect 25 women to the Academy each year (which would represent approximately half of each incoming class), full gender equity would not be achieved until the end of this century.

Gender imbalance, like age imbalance, remains an ongoing challenge that TWAS regrettably shares with the global scientific community. But it is a challenge that now resides at the top of the Academy's agenda, illustrating that even as TWAS seeks to address critical global scientific issues, it is attending to shortcomings within its own organization.




*Founding of the TWAS Young Affiliates Network (TYAN) during the TWAS's 27th General Meeting in Kigali, Rwanda, in November 2016.*

# The Future: Then now, now then

*“It is important to consider not only who does the science but also who receives the fruits of science if the global South is to leapfrog into an equitable present and future.”*

Quarraisha Abdool Karim
TWAS President
2023

The Academy should be rightfully proud of the progress that has been made in advancing its goals over the past four decades, and it should be especially gratified by the accelerated pace of progress that has taken place over the past two decades in building scientific capacity and promoting science-based development across the global South.

But another glaring reality surrounds all the progress that has been made: The challenges that science and society face today, in many ways, have become even more complex and intractable than in the past. Building scientific capacity has been a daunting task, but applying that capacity to the intricate web of economic, social, and environmental difficulties that the world now faces may prove to be even more daunting.

There is a growing global fact-based consensus that we have entered a new geopolitical era characterized by sprawling and intense competition among nations being increasingly punctuated by troubling tensions and recurring outbursts of oppression and violence. Perhaps even more worrying, there is also a growing global fact-based consensus that we have entered a new era darkened by escalating existential threats to the planet—climate change, species loss, soil and forest degradation, diminishing supplies of fresh drinking water, and a host of other human-induced ecological risks that seem increasingly ominous and intractable.

As for science, the pace of discovery is likely to quicken as more developing nations join the long-standing scientific powerhouses in the global North in having the resources and expertise to pursue science for sustainable development and cutting-edge research that will undoubtedly drive future economic growth. At the same time, there will be mounting public concerns across the globe focused on the potential risks that frontier science and technology—most notably artificial intelligence, but also gene editing, advanced robotics, and other pioneering research endeavors—may pose to the future well-being of the planet.



Much as it was with developments in nuclear science in the mid-20th century, science will be viewed as both a source of salvation and a wellspring of risk. Amplifying the former and minimizing the latter will become an increasing focus of concern for both global science and society. Indeed, whether it will be possible to separate scientific salvation from scientific risk may become an existential question itself.

Forty years after the Academy's birth, the closing of the North-South gap in science seems to be increasingly within reach, if not already achieved, at least among an increasing number of countries in the global South. But equity in scientific capacity is unlikely to translate into equanimity on the larger global stage. The gains that have been made are both concrete and promising; yet, they have also been perplexing and disconcerting, simultaneously creating both a better and, in many respects, more troubling and divisive world.

How the Academy chooses to speak to all these profound and conflicting challenges, while remaining true to its original mandate, will largely determine how its influence will play out in the years and decades ahead.

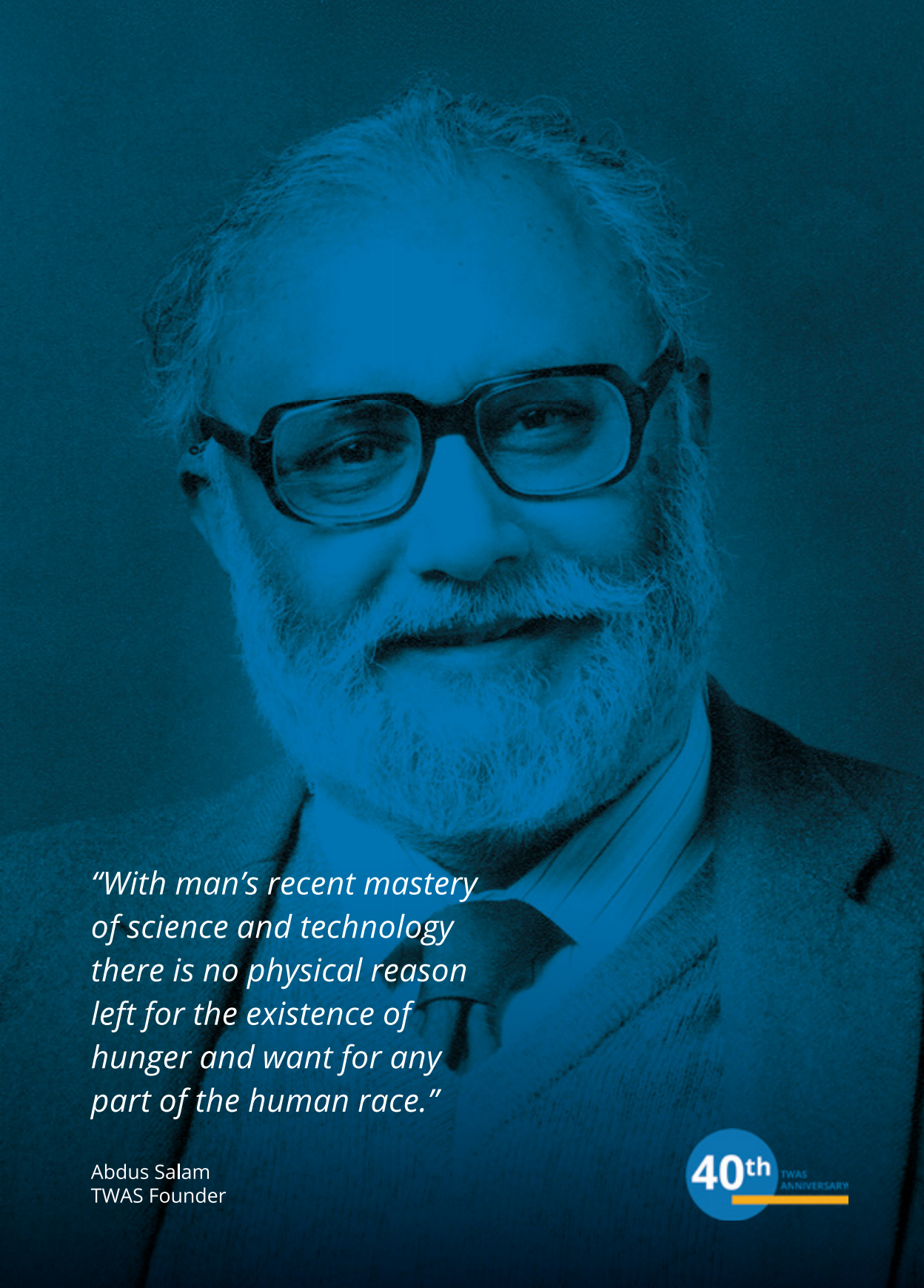
One factor, however, remains certain. The Academy will continue focusing on the principal tasks that have always defined its agenda and purpose: Nurturing scientific excellence and building scientific capacity in the global South as part of a larger effort to cultivate a more sustainable, secure, and just world.

The Academy will continue to boost science in the global South by recognizing and honoring scientific excellence, assisting individual scientists and scientific institutions, and promoting regional and international scientific exchange and cooperation. A critical question for the current generation of TWAS scientists is how to accomplish these goals while remaining true to Abdus Salam's inspirational entreaty rendered decades ago: to cherish and embrace science as "the common heritage of all humankind".

What that heritage represents—and how that heritage evolves to meet the challenges of an ever-changing world—will likely drive TWAS's agenda over the course of the next 40 years and for many years beyond, just as it has throughout the Academy's remarkable history.

The past may not be prologue, but it may well offer a reliable blueprint for what lies ahead for TWAS. Consistency in principles and purpose can serve as the Academy's greatest strength in a world of ever-accelerating change and uncertainty.

*The 12th AAAS-TWAS Course on Science Diplomacy. From left: Mary Luck Hicarte, minister and consul, Embassy of the Philippines in Germany, and Denise Margaret S. Matias, professor, Eberswalde University for Sustainable Development, the Philippines, in July 2025.*


*“With man’s recent mastery of science and technology there is no physical reason left for the existence of hunger and want for any part of the human race.”*
Abdus Salam
TWAS Founder
40th TWAS ANNIVERSARY