



## EDITORIAL

# The Importance of Financial Sustainability of Science Academies

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Science academies have an important role to play in advancing scientific knowledge by promoting scientific research and education, providing policy makers with evidence-based advice on science and technology issues of national importance, and promoting understanding of science in order to build a more scientific-literate society. They also contribute to science diplomacy through international collaboration among scientists of different countries, especially in building trust and understanding of global challenges and contributing to solutions in addressing them. Academies equally promote ethical research practices and help to uphold the integrity of scientific knowledge.

To achieve these objectives, science academies need to be not only adequately funded but they also must achieve financial sustainability. And, in all their activities, academies must operate independently. In view of the relevance and importance of this issue to African science academies, in September 2024, the Network of African Science Academies (NASAC), of which MAST is a member, organised a virtual meeting on the topic "Maintaining Financial Sustainability with Independence", where the main speaker, the Executive Secretary of the Uganda National Academy of Sciences, emphasised the need for academies to establish robust financial models to enable them to operate independently. He further stated that the financial independence is vital for maintaining the integrity and credibility of the academies, ensuring that their advice remains free from external influence.

To further examine this issue, NASAC organised a side event on the same topic at its Annual Meeting of African Science Academies (AMASA) held in Algiers, Algeria, in November 2024. A major focus of discussion there was on diversifying funding sources to reduce over-reliance on government and donor funding. Examples were given where science

academies had created endowments, established strategic partnerships with industry and leveraged consultancy services to generate income. In order to achieve long-term financial independence, it was suggested that academies should engage the private sector, philanthropists and international funding agencies. Participants called on governments to allocate dedicated budgets to academies and create legal frameworks that allow them to engage in revenue-generating activities without compromising their integrity. Regional collaboration was considered essential to facilitate joint resource mobilisation and knowledge-sharing.

The issue of financial sustainability is very pertinent for MAST. So far, it has relied essentially on dues from its members and small grants obtained through regional collaboration. This is insufficient to even cover its annual membership dues to NASAC and the International Science Council (ISC), two organisations on which it depends to obtain valuable and vital information and support.

However, a new positive development has recently taken place. In October 2025, MAST received a sponsorship from Aspen Global Incorporated (AGI), a private company in Mauritius which is a subsidiary of Aspen Pharmacare Holdings Limited (based in Durban, South Africa), a leader in Africa and a global multinational supplier of branded and generic pharmaceutical products. The grant received will enable MAST to cover its membership dues to both NASAC and ISC for the year 2025. In accepting this generous sponsorship from a private company, the first of its kind in the history of the Academy, MAST expresses the wish that its partnership with AGI will continue and be strengthened in the future.

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## ABOUT MAST

The Mauritius Academy of Science and Technology (MAST) is a non-profit, non-governmental organisation created by a group of high-level concerned scientists to bring together some of the best brains in the country and the diaspora, under one association, willing to reflect on some of the burning issues of science, technology and innovation and offer independent and studied opinion on them and to promote the development of Mauritius.

The Academy, in collaboration with existing institutions, promotes the popularization and understanding of science and technology, while encouraging creativity and innovation that can make the service and production sectors competitive on the world market. In partnership with relevant organizations, local and foreign, the academy enhances cooperation and dissemination of scientific and technological knowledge for a knowledge-based economy.

The Academy currently addresses current national problems where science and technology can contribute answers and solutions.

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# FEATURED ARTICLES: PERSPECTIVES ON SCIENCE AND TECHNOLOGY

## Gene Editing in Agriculture

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Gene editing using CRISPR technology\* has now reached significant milestones in agricultural research and development, offering promising tools to enhance global food security, climate resilience, and sustainability. The year 2024 saw the transformation of gene-editing concepts into tangible agricultural solutions, many of which are nearing commercialisation in some countries.

### Major developments

One major advancement was the development of gene-edited rice varieties with improved yields and stress tolerance. CRISPR was used to fine-tune genes associated with flowering time, enabling the crop to better adapt to varying photoperiods and environmental stresses resulting in more adaptable rice varieties suitable for diverse climates. These varieties are already in multi-location field trials across Asia, with regulatory approval anticipated in countries such as the Philippines and Vietnam.

In 2025, India approved two genome-edited, high-performing rice varieties for broader cultivation trials. Pusa Rice DST1, has been edited for enhanced drought and salt tolerance while DRR Dhan 100, demonstrated a 19% increase in grain yield, earlier maturity, reduced fertiliser requirement, and improved performance under drought conditions. These two varieties were developed by scientists at the Indian Agricultural Research Institute and the Indian Institute of Rice Research, both operating under the Indian Council of Agricultural Research (<https://doi.org/10.1038/d44151-025-00078-2>).

In the U.S. gene-edited tomatoes demonstrated enhanced shelf life. CRISPR-Cas9 was used to significantly speed up fruit ripening and increase fruit firmness, resulting in extended shelf life. The efficacy of the CRISPR-Cas9 system in enhancing the resistance of tomato plants against tomato leaf curl New Delhi virus (ToLCNDV) was also achieved in 2025. This virus, which is transmitted by whiteflies, causes severe leaf curling, stunting, vein thickening symptoms with reduced fruit yield (<https://doi.org/10.1111/jph.70026>).

Wheat also benefitted from CRISPR technology, where editing susceptibility genes conferred the crop resistant to powdery mildew—a common major fungal disease.



### Near-Market and Approved Products

CRISPR-edited foods are now edging closer to market shelves. Tropic Biosciences, in the U.K. has used CRISPR to edit bananas to produce fruit with extended shelf life by reducing browning. In 2024, the Philippines Department of Agriculture and Bureau of Plant Industry (DA-BPI) deemed the edited bananas non-GMO and gave the green light for import and propagation. In 2025, the DA-BPI has also considered high levels of GABA (gamma- aminobutyric acid, an amino acid that helps to lower blood pressure), tomato first released by Sanatech in Japan in 2021, as non-GMO in the Philippines. This is the second gene-edited crop determined as non-GMO in the Philippines, following the reduced browning banana developed by Tropic Biosciences.

CRISPR bananas engineered to resist Panama disease were also fast-tracked in Latin America. By editing a susceptibility gene, scientists created banana lines that resist the Tropical Race 4 (TR4) strain of the fungus *Fusarium oxysporum* f. sp. cubense. This disease-resistant banana could be pivotal for preserving the global supply of the Cavendish variety, which is under serious threat. The edited lines are currently being propagated for larger field trials.

Soybean oil with improved health properties also gained traction in 2024. By using CRISPR to alter fatty acid profiles, developers created an oil with lower saturated fats and better oxidative stability, offering both health and frying advantages. The product has received regulatory approval in the U.S. and is already being used in pilot-scale food production.

Other gene-edited crops, including non-browning potatoes and high-fiber wheat, are in late-stage trials or have received deregulated status from U.S. regulatory agencies.

## Addressing Climate and Sustainability Challenges

CRISPR is also enabling innovations to make agriculture more climate-resilient and sustainable. In 2024, experimental gene-edited maize and sorghum varieties with improved root systems and water-use efficiency were tested in the U.S. and sub-Saharan Africa. These crops were engineered to promote deeper root systems and better nutrient uptake, two important traits critical to survive under drought conditions.

Another promising avenue involved enhancing photosynthetic efficiency, a long-standing goal in crop science. CRISPR was used to re-engineer photorespiration pathways in rice and tobacco to reduce energy losses and boost biomass accumulation. While still in early stages, these proof-of-concept trials hint at future crops that grow faster with less input under variable climates.

Researchers at the University of Florida successfully used CRISPR to edit sugar cane genes related to leaf architecture, overcoming challenges posed by the crop's complex genome. By targeting genes that control the angle of leaf growth, they achieved a 12% gene knockdown that reduced leaf angle by half, resulting in an 18% increase in biomass. This change improves light capture efficiency, with future trials set to determine its impact on sugar yield (<https://doi.org/10.1111/pbi.14380>).

Sorghum, a key cereal crop in Africa, faces major yield losses from *Striga hermonthica* (witchweed), a parasitic plant that invades sorghum roots and uses nutrients. Researchers at Kenyatta University in Kenya are using CRISPR to replicate natural resistance found in wild sorghum by editing genes that affect root compounds triggering *Striga* germination. These gene-edited, sorghum varieties were tested in field trials in 2024 and among the first CRISPR crops trialed on African soil—offering a promising, sustainable solution to this persistent agricultural threat.

Environmental sustainability also benefited. A few startups have successfully used CRISPR to develop low-input barley and rice varieties, requiring less fertilisers through improving nitrogen use efficiency.

## Regulatory and Global Trends

The year 2024 also marked a shift in global regulatory attitudes toward CRISPR. Many countries continued to distinguish gene-edited crops from traditional GMOs, especially when the edits involved deletions or alterations of native genes without introducing foreign DNA. This trend is accelerating product development pipelines and facilitating international collaborations.

In the U.S., several CRISPR crops—including soybean, tomato, potato, and wheat—received streamlined regulatory clearance. Japan and the U.K. also expanded approvals for gene-edited products, encouraging investment and product testing. Brazil, Argentina, and Colombia continued to lead the way in Latin America, with favorable policies that allow CRISPR crops to reach market more rapidly than their transgenic counterparts.

## Looking Ahead

The promise of CRISPR in agriculture is no longer hypothetical. From disease-resistant bananas to tastier tomatoes and climate-smart cereals, 2024 has proven that gene editing can deliver real agricultural impact. With several products nearing market launch and regulatory frameworks evolving, CRISPR is set to redefine the agricultural landscape in the years ahead. The integration of gene editing with conventional breeding and AI-driven phenotyping is paving the way for next-generation agriculture tailored to local needs.

Yet challenges remain, the major ones being public perception, intellectual property access, and regulatory harmonisation across borders will all influence how widely and fairly these innovations are adopted. Nonetheless, the momentum is unstoppable. With strong scientific foundations, growing commercial interest, and global partnerships, CRISPR is poised to help agriculture meet some of its most urgent challenges in the year ahead.

## Bibliography

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CRISPR in Agriculture: 2024 in Review, by Tonio Chaparro (Innovative Genomics Institute)



Scan to view article of Chaparro

\*CRISPR is the acronym for Clustered Regularly Interspaced Short Palindromic Repeats. It is a genome engineering tool adapted from an immune system found in bacteria.

\*\*International Service for the Acquisition of Agri-biotech Applications

# Flora of the Mascarenes Project

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## Origins

Knowledge about the Flora of the Mascarenes Islands dates back to the end of the 19<sup>th</sup> century. For Mauritius, the first reference was 'Hortus Mauritanus' by W. Bojer (1837), followed by the more complete, 'Flora of Mauritius and the Seychelles' by J.G. Baker (1877). For Rodrigues, the main reference remained 'Botany of Rodrigues' by I. B. Balfour and J.N. Fitch (1877) and for La Réunion, the 'Flore de la Réunion' by C. Jacob de Cordemoy (1895).

In the early 1960s, Jean Bosser, an agricultural engineer, was working at the ORSTOM Centre (Office for Scientific and Technical Research Overseas), now IRD - Institute of Research for Development) in Tananarive, Madagascar. His main focus was the study and improvement of Malagasy pastures. However, he also developed a keen interest in the general flora of the region, particularly orchids, and the flora of neighbouring territories including the Mascarene Islands. He conceived the idea of updating the flora of the Mascarene islands.

Through Patrice Roederer, Director of the ORSTOM Centre in Tananarive in 1965, Bosser received the support Mauritian botanists including Reginald Vaughan, the curator of the Mauritius Herbarium, and Robert Antoine, Director of the Mauritius Sugar Industry Research Institute (MSIRI), which hosted the Mauritius Herbarium. The proposal made its way to J. Heslop-Harrison, the Director of the Royal Botanic

Gardens Herbarium, Kew, which housed the most important historical collections of the flora of the three islands. J.F. Leroy, Director of the Herbarium of the Muséum National d'Histoire Naturelle (MNHN) de Paris, which holds historical collections, also approved the collaboration, granting ORSTOM researchers access to the Museum's collections and library.

Meanwhile, in Réunion Island, a University Herbarium had just been created under the direction of Thérésien Cadet, Professor of Botany. Finally, the ORSTOM Technical Committee of Botany led by G. Mangenot and the Director of ORSTOM, G. Camus, gave their formal approval for the assignment of two researchers to the project.

## Implementation

A kick-off meeting was held in Mauritius in 1970 on the modalities of cooperation between the institutions. On the Mauritian side, were the Director of MSIRI - R. Antoine, R.

Vaughan, Curator of the Mauritius Herbarium and Joseph Guého, botanist of the herbarium. Upon the death of Robert Antoine in 1996, Jean Claude Autrey, then Director of MSIRI, succeeded him. On the English side were J. Heslop Harrison, Director of the Kew Herbarium, and his successor P. Brenan who was replaced by Keith Ferguson in 1985 until 2018 when Martin Cheek took over. On the French side were G. Mangenot, P. Roederer, J.F. Leroy, J. Bosser, F. Friedmann and a research fellow at ORSTOM, Thérésien Cadet. It was agreed that the Flore des Mascareignes be published in French.

A preliminary distribution of the study of the different plant families was established, assigning to either the taxonomists specialized in these families, mainly based at Kew, or to the botanists at ORSTOM. Some families were entrusted to international experts, for instance, Harold J. Moore, a specialist in palms.

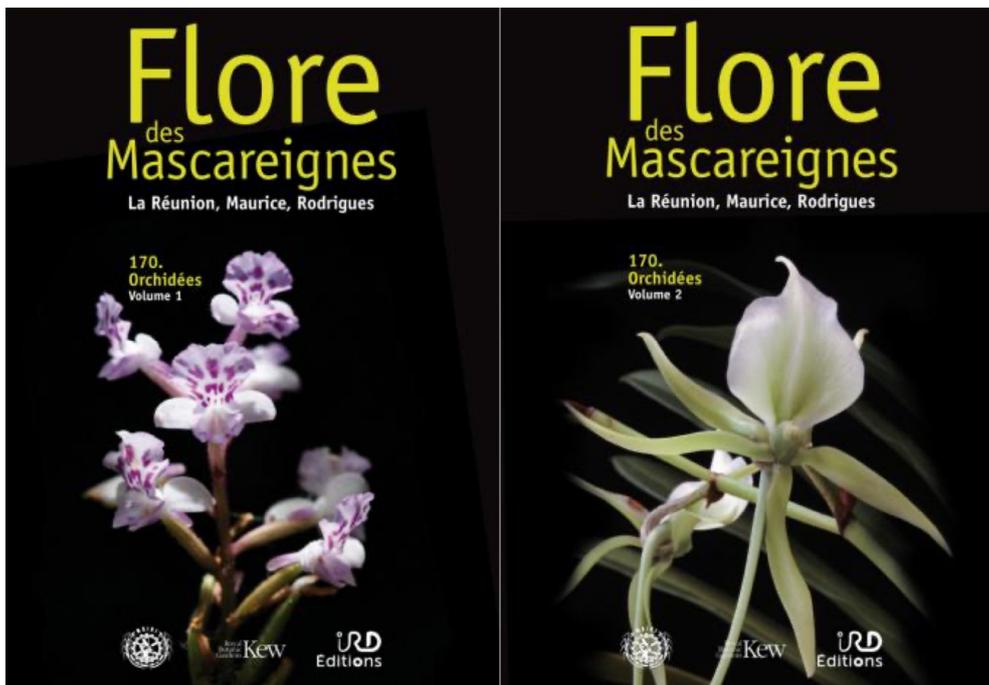
New botanical surveys in the field were planned to complete the existing collections, the oldest dating back to the collections of Philibert Commerson, botanist of the circumnavigation of Bougainville in 1768 and ancient collections in Kew.

A formal agreement was signed in 1971 between G. Camus and G. Mangenot for ORSTOM, J.P. Brenan for Kew, R. Antoine for MSIRI, and was renewed several times over the years and most recently in 2018.

In Réunion Island, the surveys were carried out in St Denis, by F. Friedmann and J. Bosser until 1978 and later by F. Badré, from the Museum, more specifically for ferns. Many surveys were conducted with Thérésien Cadet which enriched the Herbarium of Réunion Island and led to the rediscovery of *Ruizia cordata* (Sterculiaceae), unseen since the 1950s. Local naturalists also actively participated in the surveys leading to the rediscovery of the extremely rare *Angraecum palmiforme* (Orchids), believed to be extinct. Botanists from Kew - M. Coode, I. Richardson and W. Marais conducted fieldwork between 1973 and 1976.

In Mauritius, studies of the flora continued under R. Vaughan and J. Guého, with prospectors from Réunion Island and Kew investigating in Mauritius and Rodrigues.

Many species, not recorded for more than a century, were rediscovered by Mauritian naturalists. Thus, in 1975, D. Lorence found at Cascade 500 Pieds, *Tetraxis salicifolia* (Lythraceids), a plant last collected by Thouars in 1800. In 2001, *Trochetia parviflora* (Sterculiaceae), an endemic



The two volumes on Orchids published in 2023

species closely related to the national flower of Mauritius, *T. boutoniana*, was rediscovered by D. Florens on the Montagne du Corps de Garde, 138 years after last being seen and previously classified as extinct. Other species rediscovered were: *Dicliptera falcata* (Acanthaceae), *Pandanus iceryi* and *P. macrostigma* (Pandaneaceae), *Ficus densifolia* (Moraceae), *Myonima vaughanii* (Rubiaceae), etc. Only the *Astiria rosea* (Sterculiaceae), a spectacularly flowering tree, last seen in 1860, appears to be definitively extinct. All these rare species are now cultivated and propagated, in Réunion, Mauritius and Rodrigues, and also at the Royal Botanic Gardens of Kew and at the Botanical Conservatory of Brest. Collected specimens of all prospectors, in the form of herbaria, were deposited in Kew and the Museum.

The Phanerogamy Laboratory of the MNHN served as the working base for the researchers from ORSTOM/IRD. Jean Bosser served as editor-in-chief of the *Flore des Mascareignes* from 1973 to 2008, corresponding with various specialists, receiving and translating manuscripts, and overseeing the "proof" and printing of fascicules.

A large part of the families was studied in Kew. The first fascicule was published in 1976 and printed in Mauritius by the Government Printing Office. For subsequent volumes, the ORSTOM and then IRD editions took charge of the printing. The edition continued depending on the development of the texts until 2008, when the Pteridophytes Volume was published.

In 2010, the Cyperaceae, the Gramineae, and the Orchids still remained to be published. For the Cyperaceae, Dr. A. C. Araujo from the Natural History Museum completed the study and the writing, following the work started by W. Marais in the 1980s. For the Gramineae, Steve Renvoize, a specialist of this family at the Kew Herbarium, completed the study and the two families were published in 2018. For the Orchids, J. Bosser had also started to study a few genera

but the bulk of the work remained to be done. It was J.C. Autrey, then responsible for the Flora for Mauritius who went to Kew and contacted P. Cribb and J. Hermans and they agreed to carry out this important study and drafting work. The two volumes of the Orchids were published in 2023.

## Epilogue

The implementation of this programme was a complex task since it involved coordinating the interventions of four institutions: ORSTOM/IRD with the support of the MNHN, the Royal Botanic Gardens, KEW and MSIRI in Mauritius and the securing of sustained funding.

For the most important families, this represented several years of work by specialists with long hours of microscopic examination. This also explains why this program has taken so long to be completed now.

Tribute should be paid to all those who devoted themselves to the conduct and completion of this project, with a special mention for Jean Bosser and Robert Antoine, without forgetting the merit of other researchers and directors.

The final step – publication of the Introductory Volume is now underway and is expected to be completed by early 2026.

It is worth noting that it is extremely rare to have the flora of a specific part of the world, in the present case the Mascarenes, completed and documented.

# 100 Years of the International Society of Sugar Cane Technologists (ISSCT)

**L Jean Claude Autrey<sup>1</sup>, A Salem Saumtally<sup>2</sup> and Asha Dookun-Saumtally<sup>3</sup>**

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The International Society of Sugar Cane Technologists (ISSCT) was founded in 1924, at the Pan-Pacific Food Conservation Conference in Hawaii. It marked its centennial in 2024, commemorating one century of advancing science, technology, and industry collaboration around the sugar cane crop. ISSCT is a recognized global platform, with a network of individual, affiliated, institutional and corporate members. Its evolution can be divided in three major periods: its origin and early days (Congresses 1924-1938), its establishment just after the post World War II (Congresses 1950-1974), and its development (the more recent Congresses from 1970s onwards). Over the years, it has constituted a robust organisation structure, harmonizing research methodologies, disseminating technological innovations, and nurturing regional and international cooperation. From early contributions in key disciplines to today's focus on new spheres, the Society has continually evolved to reflect the dynamic needs of the sugar cane industry.

A hallmark of ISSCT's activities is the organisation of triennial Congresses, complemented by extensive technical and cultural tours, which have not only facilitated learning and cross-country comparisons but also helped cement global ties. Over time, these gatherings have incorporated keynote addresses, symposia, panel discussions, and exhibitions reinforcing their status as incubators of scientific thought and strategic dialogue and industry partnership. The Centennial XXXII Congress was held from 25 to 28 August, 2025 in Cali, Colombia and was attended by some 1150

delegates from 60 countries.

## Opening of the Centenary ISSCT Congress

ISSCT publishes the Proceedings of the Congresses and its 31 Proceedings, are valuable references and testimony of evolving practices and trends of the industry. They are freely available on the ISSCT website. The Proceedings of the Centennial Congress are accessible through the Members' Corner of the website.

In between the Congresses, Workshops, and recently Webinars are held and these play a vital role in strengthening the link with its members by fostering technical exchange on focused themes. They are smaller, discipline-specific gatherings which have enabled deeper collaboration, encouraged regional participation, and ensured continuity in scientific progress and engagement across the global sugar cane community.

From the very beginning of ISSCT, Mauritian scientists and technologists have actively participated in the Society's affairs. Late Robert Antoine and Jean Claude Autrey have been Past Presidents of the Society, and many other Mauritians have played key roles at the executive and technical levels.

For its Centenary, ISSCT recognized prominent contributors in different disciplines for the periods 1924-1938, 1950-1974, 1975-1999 and 2000-2023, among whom were several Mauritians:

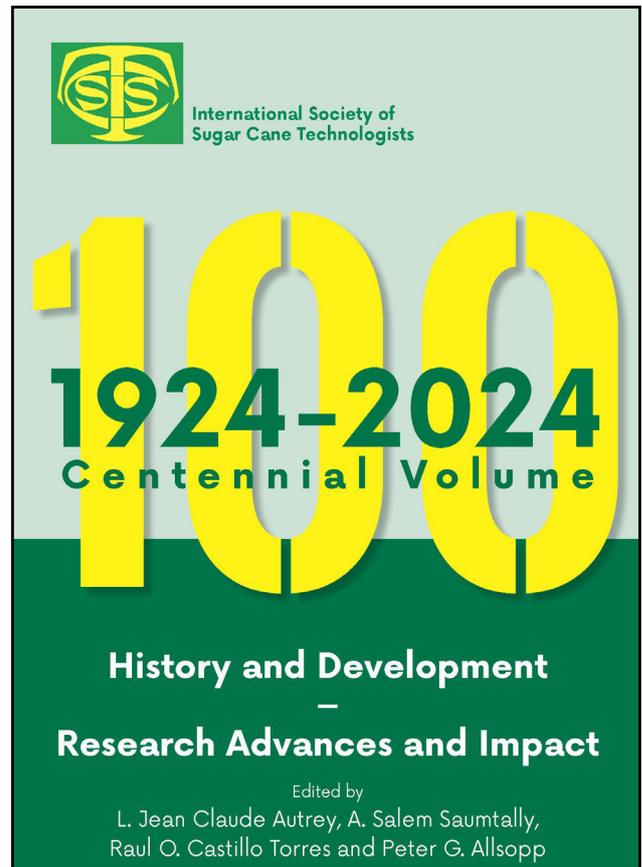
- Auguste Esnouf: Co-products 1924-1938
- Maurice Paturau: Co-products 1975-1999
- Raoul Lionnet: Management 1975-1999
- Guy McIntyre: Agronomy 1975-1999
- René Ng Kee Kwong (MAST Fellow): Agronomy 1975-1999 and 2000-2023
- Kishore Ramdoyal: Germplasm and Breeding 2000-2023
- Regis Julien: Physiology and Molecular Biology 1975-1999
- Jean Claude Autrey (MAST Fellow): Pathology 1975-1999
- Salem Saumtally (MAST Fellow): Pathology 2000-2023

The formalisation of the organization's secretariat in Mauritius in 1996, ensured consistent governance and

continuity. Through robust communication, archiving, and digitalization of Congress materials, the Secretariat has professionalized the Society's operations and enhanced member engagement. Claude Ricaud (formerly a MAST Fellow) and Jean Claude received medals for outstanding service as the secretaries of ISSCT.

The Centennial Commemoration at the XXVII Congress in Colombia reflected not only over the milestones of the past but also the enduring spirit of collaboration that defines ISSCT's global legacy. The ISSCT website ([www.issct.org](http://www.issct.org)) can be consulted for the Centennial Volume - 1924-2024 - History and Development – Research Advances and Impact using the following link:

<https://issct.org/2025/09/09/centennial-volume-the-first-100-years-of-the-international-society-of-sugar-cane-technologists-1924-2024/>



*Centennial Volume marking 100 years of the International Society of Sugar Cane Technologists (1924–2024)*



# Critical Thinking and Falsifiability: Foundations for Sound Decision-Making

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## The Concept

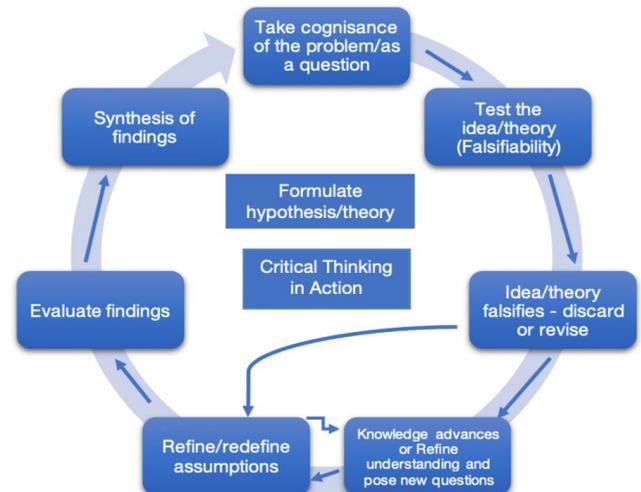
Karl Popper (1902–1994) was one of the most influential thinkers of the last century, and he had a simple but powerful idea: knowledge advances not by proving theories, but by proposing ideas and then trying to falsify them. For Popper, critical thinking was far more than a skill — it was the very core of rationality itself. By rigorously questioning ideas, testing them against reality, and being willing to discard those that fail, we get closer to the truth. In his landmark book - *The Logic of Scientific Discovery*—first published in German, in 1934, and later translated into English in 1959—he introduced the idea of **falsifiability** - the principle that a scientific theory must be testable and open to being proven wrong. Popper argued that science progresses not by confirming theories, but by trying to disprove them — **turning failure into the driving force of progress**.

While Popper laid the foundations of critical thinking, its most significant educational and epistemological implications remained concealed—an idea this reflection aims to briefly explore by analysing the close relationship between falsifiability and critical thinking as mutual tools for cultivating sound judgment in learners.

## The Stages

The **first step** is to identify a problem, an issue, or ask a question – the **‘What?’**. This initial stage is crucial for proposing an idea or a theory. Here, a *theory* remains open to refinement, revision, or even falsification as new evidence or stronger reasoning emerges – a process that is central to the advancement of knowledge and the cultivation of critical thinking.

The **second step** involves thoroughly testing the idea or theory through hypotheses—the **‘Why?’**. Here, the proposed idea or theory is subjected to scrutiny, empirical investigation, or systematic experimentation to assess its validity—that is, to determine its robustness. Whether through observation, data analysis, or controlled experiments, this phase establishes whether the hypothesis holds under examination or needs adjustment. This iterative process of questioning, testing, and refining not only strengthens the theory but also reinforces the principles



of scientific integrity and evidence-based reasoning. Decisions must be based on evidence, not dogma or intuition.

The **third step** involves effectively addressing the issue—the **‘How?’**. In this phase, critical thinking is actively applied through structured problem-solving, in-depth questioning, and detailed analysis of the evidence. Although critical thinking was involved in earlier stages, it now takes centre stage as the focus shifts from theoretical exploration to practical implementation. This includes evaluating potential solutions, foreseeing challenges, and applying strategies that align with the validated findings. The aim is to turn knowledge into practical actions while remaining receptive to further improvements as new insights arise.

## The Framework

This three-step framework—What? Why? How?—describes a dynamic and iterative process that promotes intellectual growth, empirical rigour, and practical problem-solving. By systematically identifying questions, testing hypotheses and assumptions, and implementing solutions, learners not only deepen their understanding, but also contribute to meaningful progress in both academic and real-world contexts. At each stage, the process facilitates progress—towards a well-supported conclusion through synthesis (the integration of diverse ideas into new insights) or resolution (a solution that satisfies all stakeholders). Equally important, it allows for revision (through evaluation – making a judgement about the value, quality, or effectiveness of something based on

evidence or criteria) or falsification when confronted with new evidence. In either case, genuine learning occurs, emphasising the essential role of critical thinking and intellectual flexibility in the advancement of knowledge.

### Application in Everyday Life Situations

The application of critical thinking and falsifiability in everyday life situations requires resisting the urge to jump to conclusions. The three stages—*What*, *Why*, and *How*—are interconnected, forming a continuous and self-connecting loop.

Take the example of a person whose computer suddenly stops turning on.

#### What?

The problem is clearly stated: *The computer does not power on*. Symptoms include a blank screen, no fan noise, and no indicator lights when the power button is pressed.

#### Why?

Rather than assuming the computer is “completely dead” and rushing to call the technician, the person considers multiple causes/hypotheses:

- The power cable or adapter may be faulty;
- The wall outlet isn’t supplying electricity;
- The battery (for a laptop) is fully drained;
- There might be an internal hardware failure.

Evidence is gathered by visually inspecting the cables, testing a different outlet, and confirming if other devices work in the same socket.

#### How?

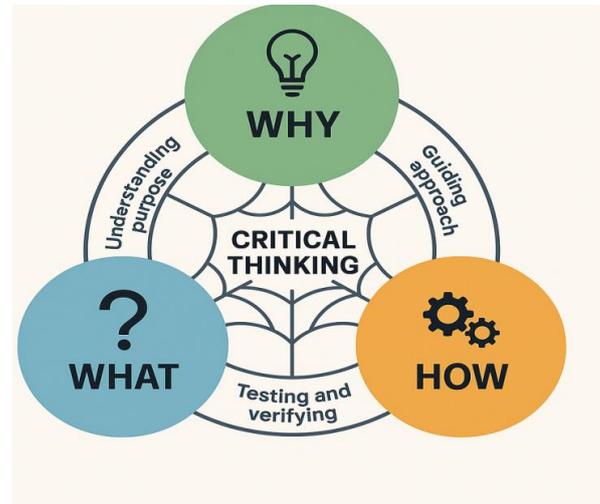
The person systematically tests each hypothesis:

- Swaps the power cable with a known working one;
- Uses a different wall outlet in another room;
- For a laptop, connect it directly to power without the battery;
- If there is still no response, test the power supply unit (for a desktop) or take the device to a technician for internal diagnostics.

### Conclusion

Testing reveals that the power cable was damaged, preventing electricity from reaching the computer. The “hardware failure” hypothesis is **falsified**, and the problem is resolved with a simple replacement cable—avoiding unnecessary expense, time, and stress.

By applying the What–Why–How approach alongside falsifiability, an individual avoids a premature and costly conclusion, illustrating how structured reasoning and



openness to falsification lead to better decisions. If all the steps are exhausted without determining the cause, the logical next step is to consult a qualified technician—equipped with the evidence already gathered—to ensure that any further diagnosis is accurate and targeted. This approach not only saves time and resources, but also contributes to the professional development of the person involved, who is then better prepared to handle similar technical challenges with greater confidence, efficiency, and independence in future.

The scenario above offers a straightforward example of critical thinking in action, incorporating the principle of falsifiability. The key is to develop a mindset that, before making any decision, deliberately follows a systematic process of questioning through falsification, gathering evidence, and testing assumptions—regardless of one’s scientific background. This approach not only reduces the likelihood of errors but also fosters informed, rational, and adaptable decision-making skills that are valuable in both professional and everyday contexts.

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# Science, Silos and Society - Insights from an African Woman Scientist

**Chandani Appadoo**

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## What is Science to Me?

I have been interested in science subjects, especially biology and my career path has been guided by my strong love for this subject since high school. My biology teacher and my first university lecturer were the first people to influence me. I then focused on marine science, coastal biodiversity, coastal ecosystems again guided by the people I met for my master's program, my supervisors for my PhD program and workshops that I attended. Study of science has been a dynamic process for me, evolving from a biologist, to taxonomist, to someone working on coastal ecosystems especially mangroves and to taking a more holistic and societal approach working on protocols for litter assessment or working with a team on importance of coastal ecosystems. So as a scientist, I have followed this path, not always rosy and at times with lots of challenges to get a scholarship or to get funds. I have done what scientists do, work on a research topic, publish the work in peer-reviewed publications, write chapters, be reviewers for peer reviewed journals, work on research projects, mentor students and focus on being a professor in marine environmental sciences and be happy with these achievements.

In this article I wish to provoke some thoughts on how we can inspire others, break barriers and possibly change mindsets.

## What are the Silos in this Scientific World?

The silos start when we start to build our careers, often our choice of a subject area is guided by our wishes but also opportunities that we encounter and decide at individual levels. When we see an email, a call for a research project, we start to ponder on it, and there are two options, we either go for it, or we work on it. This is the first barrier, which may be guided by our own shyness to participate or fear of not being successful or based on bad experience, or thinking of the time involvement, challenges and responsibilities. The next silo is competition, competition among colleagues, and no team spirit, which may lead to aversion and just ignoring opportunities. The way science is practiced through research projects also creates silos.



*Chandani Appadoo facilitating a Training Workshop in Comoros, 2024*

## What Have Been Some Opportunities to Showcase and Break Barriers?

As an African woman scientist, I have worked at the University of Mauritius for more than 30 years and am grateful to my institution for this academic position and contributing to teaching, research and administration. I form part of several regional organisations for example Western Indian Ocean Marine Science Organization (WIOMSA) and the Women in Marine Science (WIMS), and part of the Western Indian Ocean Network (WIOMN). These organisations have given me opportunities to present myself e.g. People's magazine of WIOMSA, or be part of initiatives e.g. womentoring for WIMS, or leadership roles by WIOMN. I was also privileged to be selected and to have an article on me and my contributions as a woman marine scientist in the UNECA book -Earth, Oceans and Skies, featuring 23 women from the African continent. Recently I was invited to be a member spotlight on a social platform and share my experience shaping marine research in Mauritius and beyond. All these opportunities of storytelling, networking have been platforms to share my experience, my research and how to inspire young scientists especially women in the field.

However, to break the silos in science, as advised by a friend of mine from west Africa there is a need to work together on scientific questions from a transdisciplinary perspective.

I also believe there is a need to break the initial barrier of making a choice, a need for recognition and value and push scientists and create an environment for teamwork. There should be opportunities and platforms for African women scientists to express themselves, break the silo, be guided and mentored, build their confidence, do science and make a change in society.

### **What is my Parting Message and Best Satisfaction?**

I believe whatever science we do; it must have a positive impact on society. I have during my career had the privilege of teaching and supervising and contributing to capacity building of more than 30 cohorts of students and I am happy to meet them as successful scientists. They are everywhere from academia, to researchers, to occupying high level posts. My contribution to writing protocols and drawing attention to plastic pollution in mangroves and seeing people doing cleanups.

My most recent satisfaction is contributing to a video that was shared on the social platform. After so many years,

I broke the barrier of accepting to be part of a video, to share the knowledge on mangrove ecosystems on mangrove day (program called “2 minutes”), to talk science in the local language and I’m thankful that I had so many viewers. I wish to thank the COI/RECOs project funded by AFD/FFEM for helping to break this barrier and for helping me reach out to what science is meant for, reach people and change mindsets. Our mission should be to be more environmentally conscious, and work towards environmental sustainability.

I am thankful to another great African woman scientist, Professor Françoise Driver and Mauritius Academy of Science and Technology (MAST) for this opportunity to share my thoughts. I wish to ask my readers to work selflessly towards science, to make a change in society for a better world and help each other, as one of my friends recently told me, let us be “worker bees” and every small action counts.



# Fostering Human-Wildlife Coexistence Using Science

**Geetika Bhandra and F B Vincent Florens**

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## Introduction

In 2015, Mauritius weakened its biodiversity conservation law to enable culling of the hitherto protected Mauritian flying fox (*Pteropus niger*), a Mascarene endemic threatened species, claiming that this would benefit commercial fruit growers, particularly of lychee (Florens, 2012, 2015). Mass-culling campaigns ensued (Florens, 2016), which halved the flying fox's population, prompting a worsening of the species' conservation status from Vulnerable to Endangered by the International Union for Conservation of Nature (Kingston *et al.*, 2018). These failed to improve lychee production, which instead dropped by 70% stressing the profound disconnect between killing flying foxes and reaping fruits (Florens and Baider, 2019). Local and international experts had predicted the inefficacy of culling, but were dismissed by policy makers and the government's conservation service. This highlights a familiar situation: although policy-makers often acknowledge that policy should be evidence-based, in practice, the opposite often happens in attempts to address human-wildlife conflicts (HWC). As a result, resources and costs are incurred, the problem and dissatisfaction remain intact and new problems are created instead, such as a more threatened biodiversity and reputational damage to the industry and country.

## Hybrid Workshop to Share Research Findings on the Flying Fox

In July 2017, a hybrid format, the workshop shared research findings on the flying fox (Florens *et al.*, 2017; Florens and Baider, 2019; Oleksy *et al.*, 2019; Seegobin *et al.*, 2022, 2024), its interactions with commercial fruit crops (Bhandra *et al.*, 2025), and non-lethal bat deterrent methods, building on published and ongoing research in view to inspire public policies towards effective fruit protection and improved native biodiversity conservation. Presentations were given by stakeholders including the Human-Bat Conflict Working Group (HBCWG) to bring stakeholders concerned by the HWC to meet regularly for sharing perspectives and move together towards a common lasting solution.

The workshop was structured around three themes:

- “The need for an evidence-based approach”, to clarify the importance of science in shifting policy;
- “Understanding the conflict: drivers of commercial fruit loss and opportunities to improve yield”, including perspectives on coexistence with bats;
- “Shifting towards coexistence”, highlighting non-lethal protection methods and the role of the HBCWG in fostering understanding through science and dialogue.

The workshop highlighted key knowledge gaps, takeaways, and potential actions. A central point of discussion was the official estimates of the bat population size where there was the need for more robust figures. and cost-effective approach like the use of thermal cameras on drones. Participants stressed the importance of improved communication among stakeholders to enhance mutual understanding and collaboration. Discussions also recognised that the control of invasive alien plants and animals for native forest restoration remain essential long-term strategies to mitigate the HWC, being the best management measure to conserve myriads of species in their natural habitats.

## Conclusions

Research revealed that the Mauritian flying fox is an ecological keystone species, fostering the natural regeneration of many native and threatened plants and contributing to the regeneration of the majority of woody plants in the island's forests, a role weakened by culling. Evidence also shows that timely protection of fruit trees would significantly reduce fruit losses. Although non-lethal bat deterrents using noise, light, or smoke provide some degree of protection, netted enclosures remain the only method affording complete protection from frugivores. To maximise their effectiveness, bird nets must be of good quality, made available on the local market, and the bird net subsidy schemes expanded.

With the government signalling stronger support for the environment, there is now an opportunity to rectify past mistakes. Amending the legislation to remove the clause permitting culling, is important. Mauritius can and should adopt proven win-win solutions, including effective non-

lethal crop protection and habitat restoration (Krivek *et al.*, 2020), that safeguard both farmers' livelihoods and the island's unique and highly threatened biodiversity, and thus also serve as a beacon of wisdom for other countries facing similar HWC.

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# A threat of Nuclear War?

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*“There are dire consequences if nuclear weapons were used, not just for the countries involved, but for the entire Planet”*



## What Countries Would Survive Nuclear War?

New research indicates that Australia and New Zealand, Terra del Fuego, Mauritius, Réunion, and South Africa are, amongst others, the best places on Earth to survive a nuclear war fought in Russia, in Europe and North America. With a nuclear war in our region (Middle East) the above equation would be entirely reversed, with radiation threats to Indian Ocean islands, East and Southern Africa, Seychelles, Diego, Sri Lanka, India and others.

Where would be the safest place during a nuclear war? The safest place in your home during a radiation emergency is a centrally located room or basement, fully stocked with water and canned foods. This area should have as few windows as possible. The further your shelter is from windows, the safer you will be. However, a direct hit like in Hiroshima and Nagasaki in 1945 would kill hundreds of thousand people, animals and plants directly and immediately.

## What Would a Full-scale Nuclear War be Like?

Besides the immediate destruction of cities by nuclear blasts, the potential aftermath of a nuclear war could involve firestorms, a nuclear winter, widespread radiation sickness from fallout, and/or the temporary (if not permanent) loss of much modern technology (such as air-travel, internet, global trade etc) due to electromagnetic pulses. Beta particles travel appreciable distances in air but can be reduced or stopped by a layer of clothing, thin sheet of plastic or a thin sheet of aluminium foil. Several feet of concrete or a thin sheet of a few inches of lead may be required to stop the more energetic gamma rays.

The war could reduce global calorie production by 90% and many people and animals would starve. More than 5 billion people — roughly 60% of the world’s current population — would die of famine in the aftermath of a full-scale nuclear war between the United States, Russia and their allies.

According to the researchers, the conflict would create widespread fires that could eject up to 150 million metric tons of soot into Earth’s atmosphere, leading to crop declines by as much as 90%.

In 2025, of the world’s approximately 12,000 nuclear warheads, Russia has 5,400 and the United States has 5,100, according to the Stockholm International Peace Research Institute’s latest report. The country with the third most nuclear warheads is China, with 600, UK stocks 225 nuclear warheads and France 290. India and Pakistan have 180 and 160 respectively. Israel 90 and North Korea about 50.

The world should tip its hat to two countries: South Africa and Ukraine, which had started developing nuclear capacities but stopped and renounced making and stocking nuclear weapons.

Temperate regions worldwide would endure freezing temperatures and severe precipitation reductions. And conditions would likely take up to 15 years to fully recover. Permafrost would cover the landscapes of most of North America, Europe and Asia.

A nuclear war could be triggered through an accident of one wrong manoeuvre or one mad man amongst those holding nuclear missiles.

It was the height of the Cuban Missile Crisis and everyone was on edge. Eleven days earlier, a spy plane had captured photographs of secret launchers, missiles and trucks in Cuba, which suggested the Soviets were mobilising to strike targets across the United States. As the world knew only too well, all it would take was one single strike from either nation to trigger an unpredictable escalation. As it happens, on this occasion there was no imposter – at least, not a human one. The figure skulking around the fence is thought to have been a large black bear. It was all a mistake.

It's easy to forget that there are roughly 14,000 nuclear weapons out in the world, with the combined power to extinguish the lives of around three billion people – or even the extinction of the species if they triggered a nuclear winter. We know that the prospect of any leader intentionally detonating one is extremely remote; after all, they would have to be mad.

What we haven't considered is that it could happen by accident! Or triggered by a black bear! Flocks of birds are known to have caused false alarms

All told, there have been at least 22 alarmingly narrow misses since nuclear weapons were discovered. So far, we've been pushed to the brink of nuclear war by such innocuous events as a group of flying swans, the Moon,

minor computer problems and unusual space weather. In 1958, a plane accidentally dropped a nuclear bomb in a family's back garden; miraculously, no one was killed, though their free-range chickens were vaporised. Mishaps have occurred as recently as 2010, when the United States Air Force temporarily lost the ability to communicate with 50 nuclear missiles, meaning there would have been no way to detect and stop an automatic launch.

On 25 January 1995, the then-Russian President Boris Yeltsin became the first world leader in history to activate a "nuclear briefcase" – a satchel which contains the instructions and technology for detonating nuclear bombs. And now in October 2022, President Vladimir Putin says, "this decade is the most dangerous for the world" and talks regularly of 'his' nuclear capacity.

Again, a call to all political leaders for SCIENCE-BASED DECISION MAKING, on which scientific evidence we conclude that no nuclear weapon should ever be used as the resulting consequences would be catastrophic for the enemy, the attacker and the whole Planet. So, from science a formal and complete NO to using such weapons.



# The International Year of Quantum Science and Technology

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## Introduction

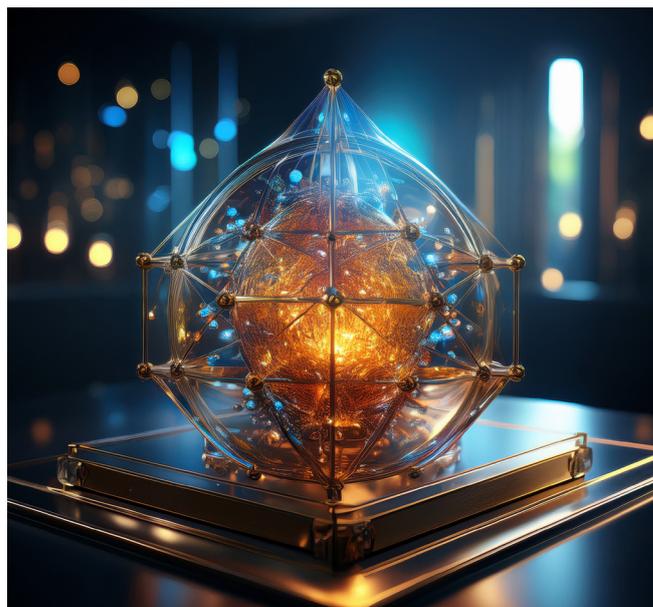
On 7 June 2024, the United Nations declared 2025 as the International Year of Quantum Science and Technology (IYQ). This global initiative intends to feature activities worldwide to raise public awareness about the significance and impact of quantum science. The Mauritius Academy of Science and Technology (MAST) is contributing to this celebration with a brief overview of the origins, principles, and transformative applications of quantum physics in modern society.

Quantum physics, or quantum mechanics, is the branch of science that explores matter and energy at the smallest scales—those of atoms and subatomic particles. Unlike classical physics, which relies on Newton’s laws and Maxwell’s electromagnetism, quantum physics uncovers a world where particles behave both as waves and as particles, often challenging intuitive logic. Imagine walking into a room: in classical physics, you would enter through one door or the other. In quantum physics, however, it is as if you could pass through both doors at the same time, only “choosing” one when someone actually checks where you are. This idea, known as superposition, means that particles can exist in multiple states simultaneously until they are measured. Another strange idea in quantum physics is called entanglement. This happens when two particles become linked in such a way that whatever happens to one immediately affects the other—even if they are very far apart. Einstein jokingly called this “spooky action at a distance.”

This revolutionary discipline arose in the late 19th and early 20th centuries, as perplexing experimental results compelled scientists to reconsider the foundations of physics.

## Timeline of Key Developments

**1900 – Max Planck and Blackbody Radiation:** Max Planck resolved the “ultraviolet catastrophe”—a flaw in classical theory regarding the energy emitted by heated objects. He proposed that energy is emitted in discrete units, or quanta, marking the birth of quantum theory.



**1905 – Albert Einstein and the Photoelectric Effect:** Einstein expanded on Planck’s ideas, suggesting that light itself is quantised into photons. His work explained the photoelectric effect—where light knocks electrons out of metals—and earned him the Nobel Prize, supporting the idea of quantised energy.

**1913 – Niels Bohr and the Hydrogen Atom:** Niels Bohr introduced quantised energy levels for electrons orbiting an atomic nucleus. Electrons move between these levels by absorbing or emitting quanta of light, which explains hydrogen’s line spectra, although the model had its limitations.

**1924 – Louis de Broglie and Matter Waves:** Louis de Broglie proposed that matter, like light, exhibits both wave and particle characteristics. Experiments confirmed that electrons can behave as waves, introducing the concept of wave-particle duality for matter.

**1925–1926 – Heisenberg and Schrödinger:** The whole framework of quantum mechanics was formed as Werner Heisenberg developed matrix mechanics and Erwin Schrödinger introduced wave mechanics. Both approaches proved equivalent, with Paul Dirac later unifying them.

1927 – Heisenberg’s Uncertainty Principle: Heisenberg established the uncertainty principle: certain properties, such as position and momentum, cannot be precisely measured simultaneously. This emphasised the inherently probabilistic nature of quantum phenomena, unlike the deterministic laws of classical physics.

## Impact of Quantum Physics

Quantum physics fundamentally changed our understanding of nature. It showed that particles exist in probability distributions until observed, and their behaviour can only be predicted statistically.

This revolution led to technologies we depend on today, such as:

- Semiconductors and transistors (the foundation of computers and smartphones)
- Lasers (used in medicine, communications, and industry)
- Nuclear energy
- Quantum cryptography and computing (emerging transformative technologies)

While classical computers process data as bits (0 or 1), quantum computers use qubits, which can exist in a superposition of both states. With properties such as entanglement - enabling instant correlation between qubits - quantum computers can solve complex problems much faster, such as factoring large numbers (impacting cybersecurity) or simulating molecules (aiding drug discovery and materials science), tasks that are infeasible for classical computers.

## Looking Ahead

For A-level students, the story of quantum physics serves as a powerful lesson in thinking differently. It shows how questioning established ideas and exploring the unknown can lead to groundbreaking discoveries that may be far beyond what we currently imagine. The journey of quantum theory reminds us that science is never static - today’s puzzles can become tomorrow’s revolutionary technologies.

So, stay curious, embrace challenges, and think beyond the obvious—just as the pioneers of quantum physics did. Your imagination and questioning mindset could be the spark that ignites the next scientific revolution!



# FAO's Third State of the World Report on Plant Genetic Resources for Food and Agriculture Highlights Declining Genetic Diversity in Crop Plants

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## Introduction

Plant genetic resources for food and agriculture (PGRFA) are the foundation of our food and nutrition systems and play a major role in ensuring food and nutrition security in the world (Harlan, 1975; Swaminathan, 2014). Yet they are poorly known and understood by policy and decision makers and are often overlooked in national agricultural strategies and policies. Basically, PGRFA is defined as any genetic material of plant origin of actual or potential value for food and agriculture (FAO, 2009). They specifically refer to the genetic diversity within crops, principally food and non-food crops, and their wild relatives and include their seeds and reproductive propagules. They provide the raw material necessary for addressing the many challenges affecting our crops such as pests and diseases, climate change, land degradation, and other socio-economic changes and for developing new plant varieties necessary to cope with the unpredictable future human needs, food demands and changing environmental changes (Frison *et al.*, 2011).

Early farmers have domesticated wild edible plants to produce crops with a large diversity of morphologically recognizable traditional varieties or landraces (Harlan, 1992), which constitute the bulk of PGRFA together with modern varieties and other types of PGRFA. With progress in plant breeding, during the green revolution period, more productive, but genetically less diverse, crop varieties were developed, which led to the loss of genetically diverse landraces (Harlan, 1975; Vavilov 1997; Thormann and Engels, 2015). There are many examples of how this loss of genetic diversity led to famine in the world. The most famous example is the Irish Potato Famine in 1845, which caused mass starvation in Ireland due to the vulnerability of cultivated potato varieties with limited genetic diversity to the potato blight pathogen *Phytophthora infestans*. Another poignant example is the case of taro leaf blight



(TLB) (*Phytophthora colocasiae*) which devastated all taro crop (a food security crop in the south pacific islands) within a period of 6 months, in Samoa in 1993, causing a cultural, food security and economic catastrophe (Alexandra *et al.*, 2019). These events demonstrate the dangers of monocultures and relying on a narrow allelic diversity. They prompted the international community to collect and conserve the traditional varieties and crop wild relatives in *ex situ* collection facilities (genebanks), principally to continue to provide plant breeders with genetic resources they need to continue crop improvements. It led to the creation of a global network of plant introduction stations which served as genebanks in the world in the 1950's and 1960's. FAO led a series of technical conferences on PGRFA to advise on the PGRFA collections and conservation. In 1972, the UN Stockholm Conference on Human Environment called for strengthening PGRFA conservation activities. A major development in PGR conservation has been the establishment of the International Board for Plant

Genetic Resources (IBPGR) (renamed as International Plant Genetic Resources Institute (IPGRI) now known as Alliance of Bioversity International and CIAT) in 1974, by the CGIAR and operating under the legal and administrative umbrella of FAO, to coordinate existing national, regional and international efforts in the conservation of crop genetic resources and promote the collection and conservation efforts to halt genetic erosion and develop a global network of genebanks (Hanson *et al.*, 1984).

In the past genetic resources used to be regarded as a global public good accessible to everyone. Developed countries with advanced technologies were able to exploit genetic resource diversity from countries in the south (where centres of origin and diversity are located) and develop high yielding varieties and produce seeds that are then marketed globally by multinational seed companies with huge profits, often supplemented by accompanying fertilizers and pesticides to boost yield. The deployment of these high yielding varieties further displaced local varieties from the agricultural fields. In 1992, the adoption of the Convention on Biological Diversity (CBD) conferred national sovereignty over genetic resources to individual countries. The aims of CBD are to conserve biodiversity, its sustainable use and the fair and equitable sharing of benefits arising out of the utilization of use of genetic resources (CBD, 1992). It also developed the Nagoya protocol which provides a legal framework for the fair and equitable benefit sharing in the use of genetic resources and indigenous knowledge (CBD, 2011). However, the CBD resulted in a drastic decline in the germplasm exchange in the world, limiting access and exchange of germplasm and threatening food security. In reaction to this, an international Treaty on PGRFA has been established by FAO in 2006, which establishes a multilateral system for specific crops, to facilitate access to PGRFA and to share, in a fair and equitable way, the benefits arising out of their use in accordance with CBD (FAO, 2009).

## Monitoring Status and Trends of PGRFA

Various global assessments on the state of PGRFA have been conducted in the last four decades. Since the 1990's, the FAO, under the aegis of its Commission on Genetic Resources for Food and Agriculture (CGRFA), has carried out three assessments of the state of the world's plant genetic resources for food and agriculture (SoW-PGRFA) to monitor progress made on their conservation and use at the global level. The first SoW-PGRFA report was launched in 1996 during the Fourth International Technical Conference on Plant Genetic Resources, in Leipzig (FAO, 1997). Over 155 countries contributed to its preparation, providing the first ever global summary of the state of conservation and use of plant genetic resources. The findings triggered the adoption of the first Global Plan of Action on the Conservation and

Sustainable Use of Plant Genetic Resources for Food and Agriculture (First GPA) with a set of 20 priority activities and targets that members countries should achieve over a specified period as well as indicators to be used to monitor progress of countries on the implementation of the Global Plan of Action (FAO, 1996). In 2009, FAO launched the Second Report (SoW2-PGRFA) which was endorsed by the CGRFA at its Twelfth Regular Session (FAO, 2010). The second report highlighted changes and developments that had occurred since the First Report and identified any significant gaps and needs to be addressed. This led to a revision of the First GPA and a Second GPA, with 18 priority activities, which were endorsed by the Commission (FAO, 2011). Recently, in March 2025, FAO published its third report on the State of The World's Plant Genetic Resources for Food and Agriculture (SoW3-PGRFA) (FAO, 2025), which was adopted at the Eighteenth Regular session of the CGRFA (see key findings below). Besides these FAO SoW reports on PGRFA, a global assessment of the state of Biodiversity for Food and Agriculture (Bélanger and Philling, 2019) was also carried out, as well as a global assessment of Biodiversity and Ecosystem Services for policy makers by Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019). All the above-mentioned global assessments point to the decline in plant genetic diversity and raise concerns that this may have on global food and nutrition security.

## FAO Third Report on the State of The World's Plant Genetic Resources for Food and Agriculture (SoW3-PGRFA) – Key Findings

The SoW3-PGRFA report presents the results of a comprehensive assessment of global status and trends, including progress made and the remaining constraints, regarding the conservation and use of PGRFA since 2011.

**In situ/on farm conservation:** The report highlights that while progress has been made in carrying out surveys and inventories of PGRFA and an increase in the establishment of protected areas which de facto protects CWR and WFP, a high percentage of PGRFA remains threatened in the wild and protected areas for *in situ* conservation of CWR and WFP are poorly managed due to lack of specific management plans. The report also notes an increase in farmer's activities in conserving locally adapted traditional varieties and landraces on-farm, involving indigenous people and in establishing community seed banks where farmers can get ready access to seeds and helps in events of natural disasters to reestablish their plantations. Key constraints include lack of coordination among different ministries and departments, standardized and consistent baseline for monitoring, lack of policies and legislation, awareness

among policy makers, funding and limited access to information on occurrences of PGRFA in protected areas, OECMs, herbaria, genebanks, CSBs and botanic gardens.

**Ex situ conservation:** The current status of conservation of PGRFA in genebanks shows that there are over 5.9 million accessions that are conserved in 852 national genebanks in 116 countries, four regional genebanks and 13 international genebanks. Among these accessions only 37% are considered as being unique accessions. Several species are conserved in only one or few genebanks, constituting a major threat to these accessions. Over 250,000 samples have been collected by 366 institutes in 87 reporting countries. Approximately 41 percent of all *ex situ* holdings were safely duplicated, a significant increase from 15 percent in 2014. During the period under review almost 1.3 million accessions have been distributed, of which 90% were distributed domestically. Germplasm health issues and regeneration remain major challenges for germplasm exchange due to lack of adequate human and financial resources, thereby limiting the use of genetic resources. *Ex situ* conservation still lacks the necessary political and financial support in many countries, which often results in limited or sporadic funding, lack of sufficiently qualified staff, and insufficient infrastructure and logistics. Key activities, such as viability testing, regeneration and safety duplication, continue to suffer from this lack of support. In addition, several national genebanks lack the human and/or technical capacity necessary to effectively address germplasm health issues.

**Sustainable use:** Progress was made in the sustainable use of PGRFA, in particular through germplasm characterization, plant breeding, broadening of the genetic base of crops through pre-breeding, the utilization of locally adapted varieties and underutilized species, the release of crop varieties and seed delivery systems, and the promotion of diverse farming systems. Almost 800,000 germplasm accessions were characterized, on average for 24 traits. Recent advances in biotechnologies, especially DNA markers technology, next-generation sequencing and high-throughput phenotyping, are increasingly utilized to enhance efficiencies in germplasm characterization and evaluation. Despite this progress, characterization and evaluation data are often not publicly available due to suboptimal information and data management systems, which hinder the targeted selection of accessions possessing specific desirable traits. Breeding and pre-breeding activities continue to focus on yield, but resistance to biotic and abiotic stresses – especially as a climate change adaptation strategy – and quality traits for enhanced nutrition are also frequently cited as breeding objectives, but many of local varieties and their CWR, harboring adaptation traits continues to disappear.

There is also interest in locally adapted varieties and underutilized species. But overall, the diversity continues to decline because of lack of market opportunities, declining number of rural farmers and knowledge associated with cultivation of local varieties as well as abandonment of marginal cropping areas. Informal and formal seed systems co-exist in all countries. Many developing countries reported improvements in their seed systems, facilitating farmers' adoption of the most suitable crop varieties. The limited availability of characterization data constrains the use of PGRFA in research and plant breeding. Modern biotechnologies and molecular genetic tools remain too costly for regular use in crop breeding in many national programmes, which are often insufficiently funded to even support capacities for traditional breeding, while cost of quality seeds of suitable crop varieties remains an important constraint to their wider application in many developing countries. There is also a lack of national strategies, policies and legal frameworks and funding to support these sustainable use initiatives.

**Human and institutional capacities:** Globally, human and institutional capacities to use and conserve PGRFA have increased, although progress has been uneven across key areas of PGRFA conservation and sustainable use, and across regions and countries. The establishment of national PGRFA programmes and strategies has increased, possibly due to the legal requirement of countries to prepare and submit National Biodiversity Strategies and Action Plans (NBSAP) (which include PGRFA) to the CBD secretariat. Many countries report having postgraduate level PGR educational programmes, but very few are in developing countries. Other stakeholders like botanic gardens, international organizations (for example CGIAR centres, Crop Trust, FAO, Plant Treaty, PGRFA networks, foundations, among others), have contributed to training and capacity development. There is also increased use of online tools and platforms, including videos and e-learning resources that enhance participation in training programmes from remote locations. PGRFA networks continue to be important hubs for promoting the conservation and sustainable use of PGRFA, but many regional networks have had to cease their operation due to lack of funding. Genebank documentation, information and management systems are important mechanisms for enhancing the conservation and use of PGRFA and making information and data accessible and available for users of germplasm. The SoW3-PGRFA report mentions international information systems such as International Treaty's Global Information System (GLIS), including Crop Trust's Genesys and FAO WIEWS which have greatly facilitated access to information by developing cross-platform interoperability and data-sharing initiatives. Further the recent development of GRIN-Global Community Edition has expanded the opportunities for genebanks

to adopt an open-access and user-friendly genebank information management system. The lack of capacity to undertake PGRFA conservation and use activities is reflected in the fact that there are limited implementation of national PGRFA programmes, limited number of educational and training opportunities in the field of PGRFA, lack of expertise on plant taxonomy, information management and bioinformatics, weak collaboration among national stakeholders and institutions, lack of necessary digital infrastructure, poor implementation of farmer's right, and lack of long-term funding and financial support for genebank, communication and public awareness activities.

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# Strengthening Science Advice Capacity in Africa: The Journey of INGSA-Africa

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The [International Network for Governmental Science Advice](#) (INGSA) was established in 2014 to support the use of evidence in policymaking. Under the leadership of its founding Chair, Sir Peter Gluckman, presently the ISC President, and since 2021, Professor Rémi Quirion, Chief Scientist of Québec, INGSA has grown into a global platform, with over 6,000 members from 130 countries, for sharing practices, building capacity, and strengthening the science-policy interface.

In 2016, [INGSA-Africa](#) became the network's first regional chapter. It was created to respond to the specific needs of African scientists and policymakers, while remaining aligned with INGSA's broader mission. Since then, other chapters of INGSA have followed: INGSA-Asia, INGSA-LAC (Latin America and the Caribbean), and most recently INGSA-Europe. Each chapter is shaped by local contexts and connected by a shared commitment to evidence-informed decision-making.

## A Personal Perspective

My own involvement with INGSA began in 2018, when I participated in the biennial conference in Japan as a member of the Global Young Academy. That experience sparked my interest in the role of science advice in decision-making, and I have since then contributed to other INGSA initiatives. I joined the INGSA-Africa Steering Committee

in 2021. At the time, I was also heading the Regulatory Division at the Higher Education Commission (HEC), where I engaged in policy development. This dual perspective, both scholarly and regulatory, shaped my appreciation for evidence-informed policymaking and the importance of structured science advice in governance. I was appointed Chair in 2024, succeeding Dr Mobolaji Oladoyin Odubanjo, the Executive Secretary of the Nigerian Academy of Science (NAS), who was the inaugural Chair of INGSA-Africa, leading the strategic growth of the Chapter.

The Steering Committee is composed of volunteer members who represent different regions of Africa and a wide range of disciplines, from public health and agriculture to environmental science and education. This diversity is one of our strengths, allowing us to approach science advice from multiple perspectives.

## What We Do

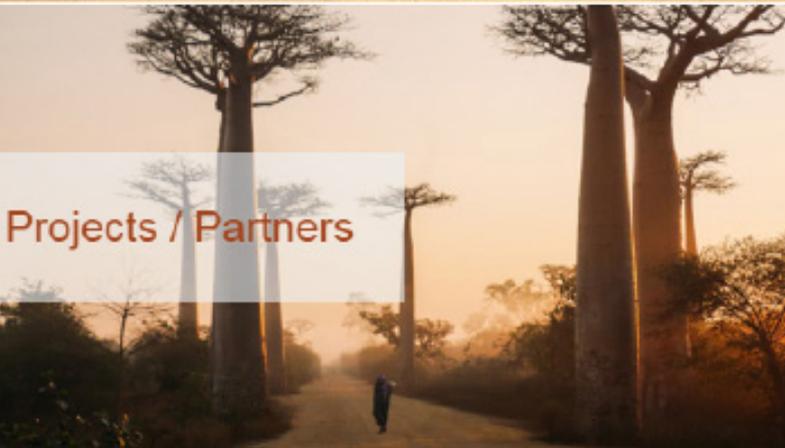
INGSA-Africa works to build the capacity of African scientists and institutions to engage with policy. We do this through training, mentoring, regional workshops, and collaborative research. We also support the development of science advice mechanisms at national and regional levels.

## A Diverse Portfolio of Capacity Building and Engagement

Over the past years, INGSA-Africa has led a wide range of activities aimed at strengthening science advice systems across the continent.

Highlights include:

- Francophone Workshop in Senegal (2017)
- Eastern Africa Regional Workshop in Rwanda (2018)
- Central Africa Workshop in Cameroon (2019)
- North Eastern Africa Workshop Series in Ethiopia (2019)
- Collaborative events with academies and young scientist networks in South Africa, Nigeria, Malawi, and Uganda



- Participation in global platforms such as the Global Young Academy Annual Conference in Kigali (2023)
- Science Forum South Africa (2016 -2024) where we lead engaging capacity building sessions the INGS-Africa way

These efforts have been complemented by commissioned surveys and calls for papers on science advice in emergencies and policy contexts. One of our most significant contributions has been the publication of a Consensus Study Report in 2021, titled The Evolving Science Advisory Landscape in Africa.

The report was the result of extensive consultations with science academies and science advice experts in Africa and provides a detailed overview of the structures, challenges, and opportunities for science advice across the continent. It remains a key reference for understanding the structures and opportunities for science advice across the continent.

### **The Science Skills Development Program (SASDP)**

In 2022, INGS-Africa launched the Science Advice Skills Development Program (SASDP) and to date, 3 cohorts have graduated. The program is designed for early- and mid-career African scientists and researchers, with a focus on

translating research into actionable policy advice. In this virtual one-on-one 6-month mentoring program, mentees are guided through the production of science advice documents and events, helping them develop the skills to communicate their research effectively to policymakers.

To date, 39 mentees from 16 African countries have completed the program. Mentors are drawn from INGS-Africa's global network, including African institutions and international partners and academies of science. Among our mentors is Dr Salem Saumtally, a member of the Mauritius Academy of Science and Technology, who has contributed to the three consecutive cohorts, and mentored scientists from Uganda, Nigeria, and Ivory Coast.

Through the SASDP, a mentor-mentee outcome in 2022 was the Global Indigenous Youth Summit on Climate Change (GIYSCC), a 24-hour virtual event that brought together Indigenous youth, engaged in advocacy, activism, research, science advice and diplomacy, from around the world to share perspectives on climate action. The Summit is a yearly event, held on the International Day of the World's Indigenous Peoples observed on 9 August. Three of our mentees, including Dr Devina Lobine from Mauritius, have taken on leadership roles in the annual GIYSCC.

## INGSA 2024 in Kigali

In May 2024, INGSA held its fifth biennial conference in Kigali, Rwanda, the first time the event was hosted in the Global South. The theme, “The Transformation Imperative: Expanded Evidence for Inclusive Policies in Diverse Contexts”, reflected the growing recognition of the need for locally relevant, inclusive approaches to science advice. More than 300 science advice practitioners and thought leaders gathered to share insights and explore innovative approaches to embedding evidence in policymaking across diverse cultural, institutional, and disciplinary contexts. The conference was a milestone for INGSA-Africa and a moment of visibility for African leadership in global science advice.

## Looking Ahead

As INGSA-Africa continues to grow, we remain focused on expanding our reach, creating impact, and supporting the next generation of science-policy leaders. We welcome collaboration with national academies, universities, and policy institutions across the continent.

For Mauritius, and for the wider region, there is a real opportunity to shape how science is used in decision-making. INGSA-Africa is one of the platforms helping to make that happen.

If you are interested in sharing professional experience, building capacity and developing theoretical and practical approaches to the use of scientific evidence in policy formation at all levels of governance, INGSA is an open-access network, join us.

### References

INGSA-Africa - The Journey So Far



# MAST'S PARTICIPATION IN NATIONAL, REGIONAL AND GLOBAL ACTIVITIES

## Participation of MAST in Mauritius's 'National Committee on Science Diplomacy'

The National Committee on Science Diplomacy, an initiative of the Ministry of Tertiary Education, Science and Research, has been established to position Mauritius as a knowledge-driven economy with global scientific influence. Its strategic objectives are to:

- Institutionalize science diplomacy across all sectors of government;
- Forge strategic STI partnerships through bilateral agreements and multilateral platforms;
- Develop innovative infrastructure linking academia with industry;
- Strengthen human capital through STEM education reform and diaspora engagement;
- Provide leadership among Small Island Developing States (SIDS) in pioneering solutions for climate adaptation, sustainable tourism, and blue economy development.

The Committee is chaired by the Executive Director of the Mauritius Research and Innovation Council (MRIC) and brings together leading figures from academia, government agencies, and industry. The Mauritius Academy of Science and Technology (MAST) and the Mauritius Young Academy Initiative are active members, reflecting the importance of scientific expertise and youth perspectives in shaping national strategy. Dr Saumtally (Immediate Past President) represents MAST on the committee.

In June 2025, the Committee presented a roadmap for science diplomacy during a session of the Higher Education Summit, highlighting Mauritius's ambition to leverage science as a driver of innovation, collaboration, and sustainable development.

The report is available for download at:

(<https://tertiaryeducation.govmu.org/te/wp-content/uploads/2025/07/National-Committee-on-Science-Diplomacy-FINAL.pdf>).

Through its participation, MAST reaffirms its commitment to advancing science-informed policy and positioning Mauritius as a hub of excellence and international collaboration in the region.

## Representation of MAST at AMASA 2024 in Algiers, Algeria

### The Meeting

As President of MAST, Prof. Goolam Mohamedbhai was invited to attend AMASA 2024, held in Algiers from 26-28 November 2024. The event was organised by the Network of African Science Academies (NASAC) in collaboration with the Algerian Academy of Science and Technology (AAST).

The main theme of the Meeting was "Resources, Science and Technology for Development in Africa", with the following three sub-themes:

1. Ensuring One Health in Africa: Mathematical, Numerical and Biotechnological Approaches.
2. National Hazards and their Impact on the Environment and Health in Africa.
3. Mobilisation of Skills and Pooling of Scientific and Technological Resources in Africa.

Prof Mohamedbhai gave a Power-Point presentation on "Networking and Pooling of Resources for Promoting Postgraduate Training and Research in Africa" under sub-theme 3. Dr Deoraj Caussy, MAST Council member, also attended the Meeting and he made a presentation on "Mainstreaming Health in Climate Change Policy for Africa" under sub-theme 1.

### Side Events

Two Side Events were held on the sidelines of the Meeting. The first one focused on: "Empowering Academies of Science and Universities as Catalysts for Development While Maintaining Financial Sustainability with Independence". The aim of the initiative was to examine how the capacity of science academies and universities can be enhanced to actively contribute to Africa's development agenda.

It was also meant to serve as the foundation for drafting a long-term collaborative funding proposal for potential donors.

The second side event was a workshop on "Strengthening Academies of Science and Universities as Leaders in Open Science". This was organised jointly by AAST, African Open Science Platform (AOSP), CODATA (International Science Council's Committee on Data), NASAC and Periperi U (a network of 19 African universities running disaster risk-



*AMASA 2024 Meeting, held in Algiers from 26 to 28 November 2024*

related academic programmes). The objective of the event was to highlight the challenges and opportunities for addressing One Health and Natural Hazards Resilience in Africa by leveraging Open Science. The workshop discussed advancing North-South collaboration for One Health research, strengthening Open Science for Sustainable Development, and enhancing disaster risk reduction through data accuracy and Open Science.

### **Launch of “Decarbonisation of Transport in Africa” Report**

A report on “Decarbonisation of Transport in Africa: Opportunities, Challenges and Policy Options”, jointly published by NASAC and InterAcademy Partnership (IAP), was launched during AMASA 2024. The report was prepared by a Working Group of 10 African experts across the continent. It highlights the critical role of enhancing public transportation systems through the development of Mass Rapid Transit (MRT) systems and the need to promote non-motorised transportation methods such as cycling and walking. The report also discusses the promotion of electric vehicles and investments in renewable energy. The report, which is very relevant to Mauritius, is available on NASAC’s website.

### **General Assembly Meeting of NASAC**

NASAC’s General Assembly is the highest decision-making body of the organisation. It consists of Presidents (or their formally designated representatives) of NASAC’s member Academies, and is chaired by the President of NASAC’s Board. The Assembly meets once a year. The

General Assembly meeting in Algiers was attended by the Presidents (or their representatives) of 25 of the 30 members of NASAC.

- Some of the main issues discussed and decisions taken are as follows: Annual Subscriptions: Several Academies had not paid up their annual subscriptions in recent years. MAST was exempted from payment in 2021 and 2022, but has paid for 2023 and 2024.
- Amendment to the Constitution: The Constitution was amended to include Affiliate Membership open to any National Young Academy (NYA) in Africa. The Assembly also approved the establishment of Regional Chapters of NASAC, linked to Regional Economic Communities of the African Union.
- Strategic Plan: NASAC was in the process of drafting its new Strategic Plan 2025-2035.
- New Members: The following academies were admitted: the Academy of Scientific Research and Technology (ASRT) of Egypt; the Kingdom of Eswatini Academy of Sciences (KEAS); the Academy of Sciences of Mali (ASM); and the Academy of Sciences of Guinea.

The full AMASA report 2024 is available on NASAC’s website: <https://nasaonline.org/event/annual-meeting-of-african-science-academies-amasa-2024/>

## Shaping NASAC's 10-Year Strategic Vision (2025–2035)

MAST participated in NASAC's stakeholder survey to help shape its 10-Year Strategic Plan (2025–2035), aimed at aligning science with Africa's sustainable development priorities. MAST's input highlighted the importance of:

- Strengthening science advisory systems,
- Promoting gender equity in scientific leadership, and
- Fostering interdisciplinary collaboration across the continent.

Key recommendations included:

- Increased support for early-career scientists,
- Enhanced scientific mobility,
- Investment in digital infrastructure to drive innovation in areas such as AI and climate resilience.

MAST's First Vice-President - Prof Yashwantrao Ramma - served on NASAC's Strategic Plan Committee (SPC), contributing directly to this important continental initiative. Through this engagement, MAST reaffirms its commitment to a shared African vision for inclusive, responsive, and impactful science.

## Science Advice in Action: Regional Webinar Engagement

MAST contributed to the regional webinar on 'Science Advice and Policy Advocacy – Science Academy Contributions to Science-grounded Policy in Africa,' held on 27 March 2025. The event was organised by TWAS-SAREP, in partnership with the Academy of Science of South Africa (ASSAf), the International Network for Governmental Science Advice (INGSA), and the Nigerian Academy of Science (NAS).

Representing MAST, Dr Salem Saumtally, Immediate Past President of MAST, presented key initiatives supported under the NASAC-IAP Capacity-building Funds 2024, including the development of two policy-focused booklets on Food Security. His presentation also outlined MAST's broader efforts in providing science-based advice to policymakers and promoting evidence-informed dialogue in national and regional contexts.

Following the webinar, MAST members reflected on the role of science academies in the policy process. Discussions highlighted the distinction between solicited and unsolicited policy advice, and how this affects levels of engagement and expectations around follow-up. While recognising that monitoring policy implementation is often outside the formal mandate of academies, members affirmed the importance of strategic collaboration and continued dialogue with decision-makers.

MAST remains committed to contributing to science-grounded policy advocacy in Africa, and to supporting initiatives that strengthen the interface between science and public policy.

## Collaborative Project to Analyse Declining Sugarcane Production in East Africa

MAST has been enlisted to participate in a joint project entitled "The effect of falling production of sugarcane in east african agricultural economies", along with the Kenya National Academy of Science (KNAS), Uganda National Academy of Science, Ethiopian Academy of Science, and Mozambique Academy of Science. The project is an initiative of KNAS, which obtained a grant from the InterAcademy Partnership to undertake a study on the status of the sugar sector in the Eastern Africa Region covering Ethiopia, Uganda, Mauritius, Mozambique and Kenya. It will focus on analyzing and addressing shared challenges facing the sugar sector in the Common Market for Eastern and Southern Africa (COMESA) region.

The key challenges facing the sugar sector in the target countries include among other factors climate change, water scarcity and market accessibility. The funding, for a period of 12 months (June 2025 - May 2026), will provide inter-academy networking opportunities that will lead to offering science policy advice in the respective countries. MAST will be represented by J C Autrey, A Dookun-Saumtally and S Saumtally. To initiate the implementation of project activities, a questionnaire had been prepared to gather data on the sugar cane industries of the participating countries.

## Participation in the Muscat Global Knowledge Dialogue and General Assembly and Third International Science Council (ISC) General Assembly in Muscat, Oman

Associate Professor (Dr) Ravhee Bholah, MAST Assistant Secretary, participated in the Muscat Global Knowledge Dialogue and the Third International Science Council (ISC) General Assembly in Muscat, Oman, from 26 to 30 January 2025.

The 2025 ISC General Assembly offered a premier platform for ISC members and partners worldwide to engage in cross-disciplinary discussions on global scientific challenges and priorities for international cooperation. The Assembly was held on 29–30 January 2025, preceded by pre-event workshops on 26 January and the Muscat Global Knowledge Dialogue on 27–28 January. These events were hosted by the Ministry of

Higher Education, Research, and Innovation of Oman at the Oman Convention and Exhibition Centre (OCEC).

On 26 January 2025, Dr Bholah participated in the ISC pre-event workshops, focusing on social sciences and their critical role in sustainable development, where he emphasized the need for equitable representation of social science researchers in high-level projects and decision-making. The Muscat Global Knowledge Dialogue (27–28 January) brought together over 415 participants from 132 countries to discuss science priorities across three streams: science systems and futures, just transformations to sustainability, and science-society relations. Opening sessions highlighted the importance of science in addressing global challenges, fostering international collaboration, and integrating scientific evidence into policymaking. Plenary discussions on science diplomacy and pilot science missions showcased initiatives targeting sustainability, with immediate funding awarded to two mission-led projects addressing SDGs in Asia and sustainable livelihoods in the Amazon. Parallel sessions explored the role of emerging technologies, artificial intelligence and open science, emphasizing ethical considerations, transdisciplinary approaches, and inclusive participation in the post-2030 sustainability agenda. Sessions on science education stressed transforming curricula and institutional environments to equip future scientists to tackle

complex global challenges. The event concluded with the adoption of the Muscat Declaration, calling for equitable access to knowledge, transformative science systems, and strengthened international collaboration.

The Third ISC General Assembly (29–30 January) served as an important platform for strategic dialogue on the ISC 2025–2028 Strategic Plan, advancing principles of freedom and responsibility in science, and strengthening global representation. Deliberations focused on enhancing inclusivity, refining governance structures, expanding regional engagement, and reinforcing the role of science diplomacy in addressing global challenges. The Assembly concluded with the election of Robbert Dijkgraaf as President-Elect and the appointment of new Governing Board members to guide the ISC’s future initiatives.

The group photo offers a glimpse of the ISC events held in Oman.

### **Promoting Gender Inclusion in Academies of Science, Medicine, and Engineering, and Young Academies**

In April 2025, members of the MAST Council participated in a global survey comprising 78 questions titled “Representation and Participation of Women Scientists in Academies of Science, Medicine, Medicine and Engineering, and Young Academies”. The survey, focused



*Pre-event Workshop, Oman (January 2025) – “Science is Social: Increasing the Role and Visibility of the Social Sciences in Sustainable Development Policy and Practice”*

on gender equality in scientific organisations, was jointly led by the International Science Council (ISC), the InterAcademy Partnership (IAP), and the Standing Committee for Gender Equality in Science (SCGES).

This initiative builds on previous studies conducted in 2015/16 and 2020/21. The 2025 survey seeks to update data on the representation, participation, and leadership of women in science academies, medical academies, engineering academies, young academies, and disciplinary scientific organisations worldwide. Its overarching goal is to produce robust, comparable data to inform evidence-based policies and strengthen gender equality efforts across the global scientific community.

### **Strategic Contribution to the ISC Global Survey on Science Diplomacy**

In June 2025, MAST contributed to the International Science Council (ISC) members' online survey on science diplomacy, aimed at assessing members' needs, capacities, and priorities in this evolving field.

As part of its submission, MAST emphasised the importance of strengthening institutional capacity for science diplomacy at both national and regional levels, with a focus on training, cross-sector partnerships, and enhancing African representation in global forums.

MAST also underscored the role of academies in bridging science and foreign policy, particularly through advisory functions, collaborative networks, and evidence-based engagement on issues such as climate, health, and emerging technologies.

Recommendations included developing context-sensitive science diplomacy frameworks for SIDS, enhancing knowledge exchange platforms, and integrating science diplomacy into national science strategies.

MAST reiterated its commitment to supporting multilateral collaboration and advancing the role of science in diplomacy through strategic partnerships and capacity-building initiatives.

### **Contributing to Equity in Global Science: MAST's Input on ISC Membership Dues Structure**

In June 2025, MAST participated in the International Science Council (ISC) consultation on the revision of its membership dues structure, highlighting the financial challenges faced by smaller, under-resourced academies through an online survey.

MAST reported ongoing difficulties in meeting its dues obligations due to a limited membership base, as well as the absence of government support or stable external funding. In its submission, MAST expressed concern about the potential loss of access to ISC membership benefits, which are essential for its international engagement and institutional development.

MAST strongly recommended the adoption of a more flexible dues model based on organisational size and capacity, to ensure the continued inclusion of smaller scientific organisations. Our Academy also emphasised the value of the ISC's resources, networks, and communications, and urged the ISC to continue promoting equitable participation across its global membership.

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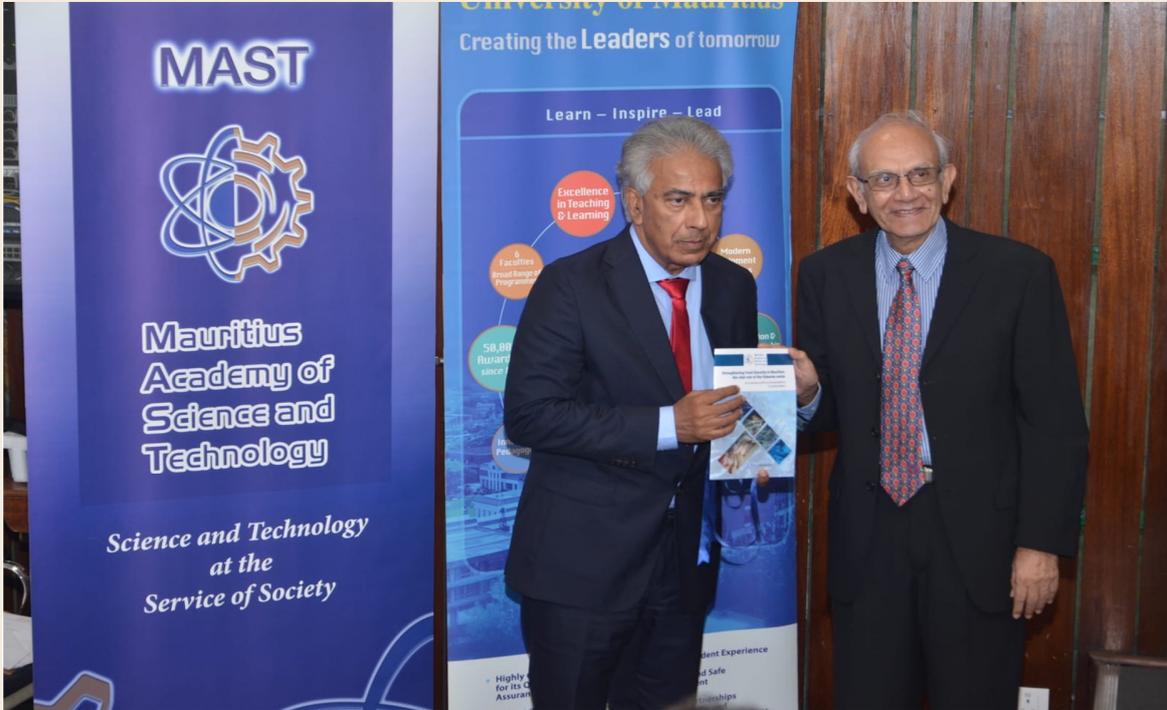
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## MAST IN PICTURES

Launch of the policy booklet  
**“Strengthening Food Security in Mauritius: The Vital Role of the Fisheries Sector”**  
(NASAC–IAP Capacity Building Grant Scheme 2024), on 10 December 2024”



*Dr the Hon. Arvin Boolell, Minister of Agro-Industry, Food Security, Blue Economy and Fisheries (left), and Prof Goolam Mohamedbhai, MAST President (right)*

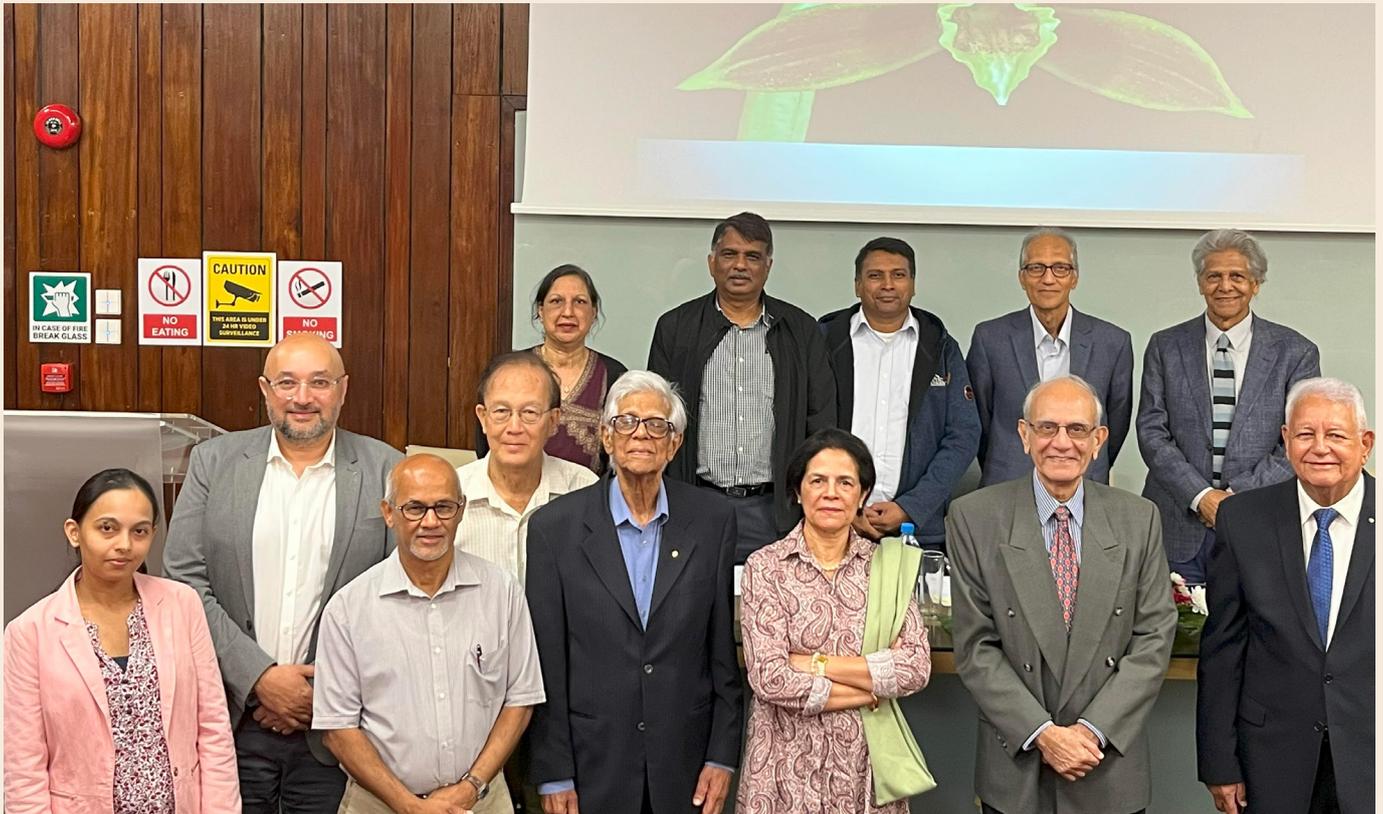


*Mr Gilles Fabrice David, Junior Minister, Ministry of Agro-Industry, Food Security, Blue Economy and Fisheries (right), and Dr Salem Sauntally (left), Immediate Past President, MAST*

Participants at the MAST project workshop on  
**“Strengthening Food Security in Mauritius - The Vital Role of the Fisheries Sector”**  
(NASAC-IAP Capacity Building Grant Scheme 2024) held on 28 November 2024



MAST Council Members and Members at the **Annual General Assembly**, held at the University of Mauritius on 24 July 2025



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