



International Institute for
Applied Systems Analysis

IIASA www.iiasa.ac.at

Annual report

2021

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IIASA IN 2021

Michael Clegg, Chair of the IIASA governing Council

The last two years have represented a kind of stress test for IIASA. The institute has had to quickly transition to working remotely and also to weather the pandemic-related financial disruptions, while continuing to produce excellent, policy-relevant, scientific research.

The IIASA Council has also had to adapt to new ways of working remotely, while fulfilling its important governance responsibilities.

The institute has proved to be a remarkably resilient and effective organization in meeting these challenges, owing in large part to an outstanding scientific and administrative staff. The Council expresses its deep appreciation to IIASA staff, the wider community of IIASA National Member Organizations (NMOs), visitors, and supporters who have worked so hard to maintain the institute's scientific excellence in 2021.

The IIASA Council has also maintained its long-term focus during the immediate challenges of the pandemic by engaging in an extensive process to modernize the fundamental governance document of the institute, the IIASA Charter, to ensure its greater alignment with 21st century practices.

The National Member Organizations of IIASA are fundamental to the design and mission of the institute. The Council and leadership of IIASA have continued to work to strengthen the connections with NMO countries and their scientific communities, thereby ensuring a seamless connection between IIASA and the ultimate consumers of its models and scientific findings.

As a global organization that uses systems analysis as a tool for the betterment of humankind, IIASA aspires to build connections between countries in conflict and to develop pathways for cooperation to enhance human wellbeing.

Today, the global order is undergoing significant changes, and its future shape is still unclear. Such tectonic shifts make an organization like IIASA especially important as we seek to reduce conflict and to maximize human potential.

A handwritten signature in black ink, appearing to read "Michael Clegg". The signature is stylized and fluid, with a large loop at the end.



IIASA IN 2021

Albert van Jaarsveld, Director General

For me, 2021 stands out as the year in which we implemented the new IIASA research strategy.

First, there was a new 10-year IIASA strategy, triggering a reconfiguration of the broad overall research programs at the heart of the institute's institutional framework. We then created flexible research groups that can be more agile and responsive to new research needs within that broader program context.

In 2021 we developed our new four-year research plan which distilled the broad strategy into a more detailed and program-specific focus.

Another key introduction was a new performance- and profile-based career advancement system for researchers, together with career tracks that allow lateral movement between research and management. An early research leadership development system was introduced, and we worked with our member institutions to strengthen our post-doctoral support program.

Despite COVID-19, the institute increased research outputs and their quality as reflected in their publication in high-level academic journals. I am proud that 12 IIASA researchers were in the global top one percent of highly cited scientists in 2021. Particular mention goes to Keywan Riahi, who was one of only 23 researchers recognized for showing exceptionally broad performance being highly cited in three or more fields.

The institute has also continued to make significant contributions to global sustainability through organizations like the Intergovernmental Panel on Climate Change and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.

During the ongoing pandemic, we have also strengthened our engagement with member organizations through expanded regional conferences and the IIASA Connect platform for online interaction—thereby leveraging networking power to increase the impact of systems analysis.

IIASA also made huge strides in developing a performance management system, for rollout in 2022, a sustainability program to measure the institute's environmental performance and thereby strengthen internal operations, and a home-office policy to contribute to our gender equity ambitions.

A handwritten signature in blue ink, appearing to read 'Albert van Jaarsveld', with a stylized flourish at the end.

Research in 2021





RESEARCH
IN 2021

To advance systems analysis

A global leader in systems science, IIASA further advanced and harnessed the potential of advanced systems analysis, a uniquely comprehensive scientific method, during 2021. As systems analysis is the gold standard for research into the interconnected nature of the world, the institute is committed to sharing the knowledge it acquires to improve human wellbeing, support societies, and protect the environment.

SELECTED
HIGHLIGHTS:

379

scientific publications were made freely available in 2021, with the full text being published in the institute's online repository. By making all IIASA-authored publications open-access, the institute ensures the distribution of its systems analysis knowledge worldwide. Many IIASA models are also freely accessible on demand.

09

world-leading integrated assessment modeling teams were brought together ahead of the Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) in a key systems analysis-based contribution to achieving net-zero emission strategies while avoiding temperature overshoot. IIASA led and coordinated a set of studies published in *Nature Climate Change* that used systematic comparison of modeling results to explore cost-effective and feasible pathways to meeting the targets of the 2015 Paris Agreement.

600k

global layers at grids of 9x9 km on land, agricultural, and water resources, were included in version 4 of the Global Agro-Ecological Zones (GAEZ) model, which was launched in 2021. The layers include crop-specific variables to inform worldwide agronomic policymaking, even at a very local level.

1.2m

data points from 68 communities across the globe were assembled to form a unique dataset using the Flood Resilience Measurement for Communities (FRMC) tool and advanced modeling to analyze the data. This analysis revealed the heterogeneity of resilience practices and that resilience dynamics follow transitional behavior rather than a linear or continuous process.

201

IIASA researchers served as editors of journals and special issues, or members of journal editorial boards in 2021, contributing to publishing excellence in systems science. This enormous effort is furthering research quality across multiple fields such as demography, economics, sustainability, forestry, and mathematics.

RESEARCH IN 2021 TO ADVANCE SYSTEMS ANALYSIS



© Caroline Zimm

Scenarios for just net-zero transitions

The JustTrans4All project, with its diverse team of researchers, used innovative systems analysis to map out socially and environmentally just transition scenarios to a decarbonized future. The project, which aims to prioritize fairness and justice for all groups affected by net-zero transitions, will inform policy design that aims to achieve the highest possible levels of human wellbeing in line with the UN 2030 Agenda and the Paris Agreement.



© ISC-UNDRR-IRDR

Setting a new UN research agenda for risk science

IIASA has helped set new research directions for the United Nations Office for Disaster Risk Reduction (UNDRR) as part of a global research agenda led by the Integrated Research for Disaster Risk Program (IRDR). IIASA, in a systems-focused paper, advocated a more holistic approach to the understanding and management of risks by integrating disaster risk science with climate change and the Sustainable Development Goals (SDGs) and by increasing the focus on people's lives to manage future threats.



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Demonstrating how to minimize the global carbon debt crisis

IIASA proposed an innovative means of alleviating looming carbon debt risks for future generations in a study published in the journal *Nature*. The scheme, to issue carbon emitters with tradable, interest-gathering debt instruments, would prevent the deferral of the massive cost of meeting commitments to limit global temperature increases.



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Allocating energy for all to have a decent life

Eradicating multidirectional poverty is dependent upon the adequate provision of energy so that all of society may enjoy a decent living standard. IIASA research published in the journal *Environmental Research Letters* has determined the amount of energy needed to ensure adequate supplies for all, including the global poor, while reconciling these needs with climate targets.

RESEARCH
IN 2021

To enhance policy impact

Resolution of today’s complex social-ecological problems calls for a systems-based approach to research that considers the multiple interconnected properties of challenges affecting the entire planet—among others, climate change, food and water, and energy. Advanced systems analysis at IIASA delivers powerful insights and knowledge to the public and decision-makers in a comprehensive and accessible manner, thus facilitating policymaking for just and sustainable development.

SELECTED
HIGHLIGHTS:

207

advisory boards, steering committees, and international working groups obtained vital input from IIASA researchers, which contributed to policy impacts in 2021. These included the Group of Chief Scientific Advisors to the European Commission and the 10-Member Group appointed by the UN Secretary-General to advise on science, technology, and innovation.

85

contributions by IIASA researchers were sought to provide policy advice based on their systems expertise in global multilateral initiatives, for example, against climate change. IIASA contributed to high-level working groups such as the Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC) and the UN Global Assessment Report on Disaster Risk Reduction.

57

policy documents cited research from IIASA in 2021, according to the Overton database. This was an increase of 18 over the previous year and included 20 mentions of IIASA by government policymakers. Examples include the US Congressional Research Service, which cited IIASA researchers 15 times in its report on greenhouse gas emissions.

288

presentations were made by IIASA researchers at events of high policy and scientific visibility in 2021. These included the UN High-Level Political Forum on Sustainable Development, which holds an influential position in the international policy arena.

11

training courses were held on the use of the many IIASA modeling frameworks to help inform better decisions, including MESSAGEix, CATSIM, GAINS, and CWatM. These training courses are instrumental in developing wider, advanced use of the models in pursuit of improved policy outcomes.

**RESEARCH
IN 2021
TO ENHANCE
POLICY IMPACT**

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Contributing to climate change policy deliberations and COP26

Insights from the IIASA-coordinated ENGAGE project for designing pathways to meet the Paris Agreement directly informed deliberations and negotiations of the United Nations Framework Convention on Climate Change (UNFCCC) in 2021, and assisted negotiations at COP26. IIASA side events at COP26 provided advice from a systems perspective, and the Global Methane Pledge, announced at COP26, was supported by several IIASA initiatives and assessments.

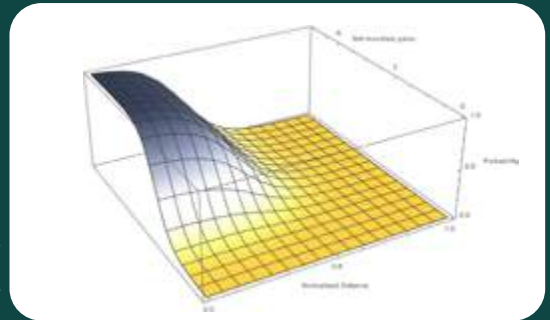
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Informing policy on the Global Biodiversity Framework

An information document co-authored by IIASA researchers supported the drafting of the Global Biodiversity Framework (GBF); around 20% of the supporting text for the four GBF goals relied on evidence from IIASA research. The institute continues to support the GBF with a follow-up synthesis report; publications on the topic have generated considerable international media coverage.

© Asjad Naqvi and Irene Monasterolo



Analyzing the cascading effects of natural disasters for humanitarian policies

A modeling framework, developed by IIASA researchers to analyze the socioeconomic vulnerabilities of whole regions following a natural disaster, examined the channels through which climate shocks can spread to regions not initially affected by the event. Insights from this innovative approach have been presented to several key humanitarian organizations to aid future response mechanisms.

© Kengmerry / Dreamstime



Advancing EU climate target policies

Proposals for revising climate-, energy-, and transport-related legislation in the *Fit for 55* package of the European Union, draws heavily on IIASA scientific analyses to map pathways to climate neutrality by 2050. The IIASA GAINS model has been a key part of the science underpinning the package, aiding impact assessments, and analyzing policy options.

RESEARCH
IN 2021

To exploit the digital revolution

Digital technologies, and cutting-edge digital tools developed by IIASA, are driving agile analysis of the key global challenges and the development of novel ways of addressing them. Challenges, ranging from climate change to poverty to security, can all be better tackled through smart utilization of digital opportunities and the new socioeconomic possibilities these create.

SELECTED
HIGHLIGHTS:

15k

citizen scientists registered on the Geo-Wiki portal have delivered prompt environmental monitoring of Earth's surface. Users of the mobile app evaluate satellite and aerial images to validate and add new attributes to global maps in close to real-time.

108

seconds is all it took to compute a full-fledged economic model that used 331 million agents in a scalable distributed computing system with 128 CPU cores. The model was designed in an IIASA–University of Tokyo collaboration.

5k+

financial sector workers participating in the Network for Greening the Financial System (NGFS)—an organization of 105 central banks and financial supervisors—are using the IIASA NGFS Scenario Explorer to disseminate climate scenario data for financial decision making on climate change mitigation.

155

demographic and health surveys dating back over 26 years have been synthesized by IIASA researchers to understand how access to electricity and modern cooking fuels affects women's wellbeing and their capacity to make reproductive choices. The findings are informing policymakers how improved access to these resources can support achievement of the SDGs.

1.2m

data points from citizen scientists in 68 communities across the globe were used in the Flood Resilience Measurement for Communities (FRMC) modeling tool to examine resilience practices in their communities. Results reveal that resilience dynamics follow transitional behavior rather than being a linear or continuous process.

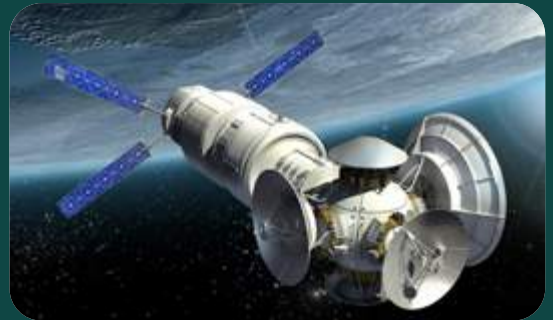
**RESEARCH
IN 2021
TO EXPLOIT
THE DIGITAL
REVOLUTION**



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Machine learning used to project future food security

A new statistical model and machine learning tools were used by IIASA to monitor and project food insecurity into the future for countries and regions. By considering climatic and socioeconomic trends for the first time, the study presents a realistic picture of future food security which has implications for the achievement of the SDG 2 goal of ending hunger by 2030.



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Advancing meteorological predictions for space weather

The IIASA CAMALIOT project is applying unique data fusion techniques to raw data from the Global Navigation Satellite System (GNSS) and other datasets and models to improve prediction of extreme weather events in the atmosphere and in space. An ever-increasing range of GNSS devices, such as mobile phones, are now being deployed to build even more detailed information sets.



© So/aworld | Dreamstime

Machine learning helping inform adaptation to agricultural climate vulnerability

Crop model simulations, machine learning, and a large climate model were used by IIASA scientists to pioneer a new digital method of estimating the likelihood of soybean crop failures in the US Corn Belt under climate change, given the abnormal yield losses that occurred during the drought in 2021. The same technique is now being used to model a range of similar settings.



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Combining machine learning and GIS to assess rooftop solar generation

IIASA used a combination of machine learning and geographic information system (GIS)-based mapping methods with a high spatial-temporal resolution to develop digital tools with a novel perspective on data analyses. The methods were used to assess new global potentials for rooftop solar panels to generate electricity under different socioeconomic pathways.

RESEARCH
IN 2021

To anticipate and respond to emerging issues

Resolution of today’s complex, interconnected global problems — ranging from climate change issues to the social challenges of an aging global population — requires a specialized international approach: one that not only responds swiftly to emerging issues, but actively anticipates them to lessen the risks involved. With its teams of leading researchers covering many disciplines, IIASA has the international credibility and convening power to help realize these ambitious goals.

SELECTED
HIGHLIGHTS:

08

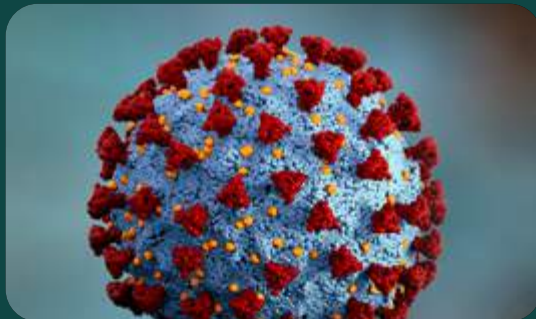
key recommendations for rebuilding a post-COVID-19 world that is both more sustainable and more resilient were detailed in a Synthesis Report produced from four thematic reports in a partnership between IIASA and the International Science Council.

590m

people can potentially be spared hunger, according to a study that intertwines environmental and crop production concerns to mitigate nitrogen emissions while furthering food security. The report in *Nature Food* has attracted strong interest from the fertilizer industry.

24

IIASA researchers contributed to Working Group III of the Sixth Assessment Report (AR6) of the Intergovernmental Panel on Climate Change (IPCC). The group explored climate change mitigation and assessed methods of reducing greenhouse gas emissions. Working Groups I and II also benefited from many contributions by IIASA researchers during the year.



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Framework for a pandemic response despite uncertainty

IIASA researchers produced a decision-making technique to help devise the best rapid response strategies despite uncertainties. The technique was nominated for a Decision Analysis Society (DAS) Practice Award and received an honorable mention from the European Commission.



© Grant ID: 101036534

Systems approach to EU wildfire risk management project

To manage the growing threat of wildfires, IIASA researchers incorporated equity and justice dimensions into risk management advice as part of the EU-funded project *Firelogue*, developed under the Horizon Europe programme for the European Green Deal. IIASA contributed its knowledge of different disciplines, sectors, and stakeholder groups to help develop a new set of strategies.

**RESEARCH
IN 2021
TO ANTICIPATE
AND RESPOND
TO EMERGING
ISSUES**



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New modeling on multispecies fish dynamics tackles growing biomass declines

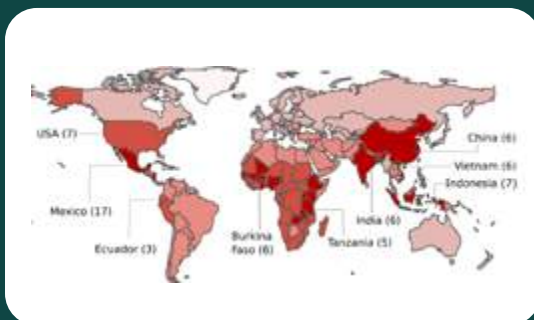
Responding to ever-depleting fish stocks, an IIASA study used a multispecies bioenergetic model to study the interconnections between forage fish and the larger piscivore stocks that feed on them, leading to new knowledge on prevention of overfishing. The study revealed some situations where limiting forage fish catches unexpectedly causes declines, or even collapses, of piscivore stocks.



© Cristina Conti | Alfabeta

Determining the energy demands of a post-pandemic world

A new method pioneered by IIASA researchers for estimating the emerging impacts of the COVID-19 crisis on energy demand has analyzed a range of recovery scenarios to discover best-practice pathways for post-pandemic recovery. The study, published in *Nature Energy*, discovered how recovery practices could assist in reaching Paris Agreement targets.



© R. Hoffmann et al.

World leading research on environmental and climate-based migration

Research on climate-induced migration by IIASA has updated understanding of this developing problem and has offered new high-level methodologies for analyzing the issues concerned. Studies in *Global Environment Change* and the *Journal on Migration and Human Security* outlined new frameworks for forced migration research and measuring applicable variables.



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Understanding economic behaviors amid pandemic disruptions

As the COVID-19 pandemic evolved, IIASA researchers forged a better understanding of the socioeconomic consequences of the emerging global disruption: these included the generational impacts of the pandemic across OECD countries, its economic impacts on the United States, and the relationship between climate and the spread of the disease. The IIASA team also formulated policy advice on minimizing COVID-19-related disruptions.

RESEARCH
IN 2021

To further research excellence

IIASA collaborates with academic institutions and international organizations worldwide to make ground-breaking advances in the systems analysis field. The institute provides the growing systems science community with open access to this work in a clear and readily comprehensible format. The new methods, tools, and data available from IIASA thus act as a foundation from which novel systems-based science can expand for the benefit of all.

SELECTED
HIGHLIGHTS:

43k+

citations of IIASA publications were recorded in 2021 by the citation database, SCOPUS. This was a significant increase of 29.44% over the previous year's 33,562 mentions, demonstrating the high regard in which IIASA researchers are held in the scientific world.

12

IIASA researchers were among the 1% of most highly cited scientists in 2021 according to the Institute for Scientific Information. Keywan Riahi is one of only 23 researchers cited in three or more fields. Petr Havlik was cited in two.

81

articles by IIASA researchers were published in prestigious high-impact journals such as *Nature* journals, *Science*, *PNAS*, and *The Lancet*. This 40% increase from 55 articles in 2020 recognizes the institute's commitment to high-quality innovative research.

392

peer-reviewed journal articles, contributed by IIASA researchers and focusing on systems analysis methodologies developed to address various global challenges, were published throughout 2021. The number comes from SCOPUS—the independent abstract and citation database maintained by Elsevier.

21

researchers from different backgrounds worked together in a transdisciplinary research initiative: the JustTrans4All and fairSTREAM projects. Their aim was to solve complex global environmental challenges related to the interconnectedness of natural and human systems.

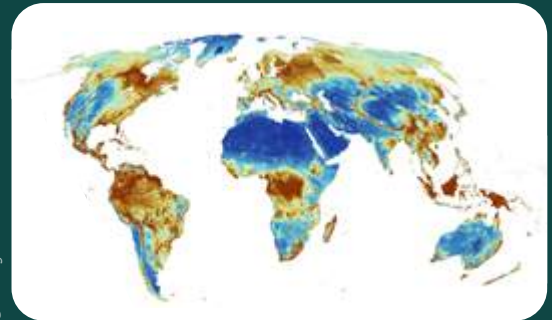
**RESEARCH
IN 2021
TO FURTHER
RESEARCH
EXCELLENCE**



© Katarzyna Blasiewicz | Dreamstime

Innovative criteria proposed for assessing progress in populations

To define an indicator of human wellbeing suitable for inclusion in the Sustainable Development Goals (SDGs), IIASA demography researchers created “Years of Good Life,” based on life expectancy and benchmarks of objective and subjective wellbeing. It will be used to measure human progress in different subpopulations. Results were published in a paper in the *Proceedings of the National Academy of Sciences*.



© M. Jung et al

First global analysis of synergies between differing conservation priorities

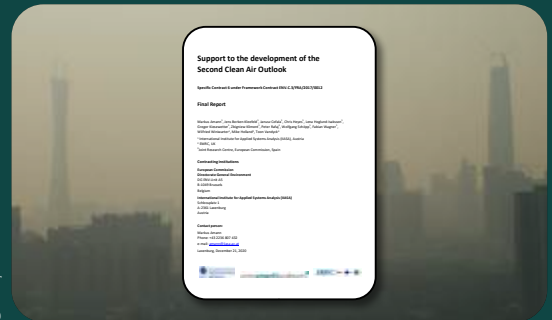
IIASA researchers led the publication of the first global analysis of the interactions between species conservation, carbon storage, and water provision. Their paper, published in *Nature Ecology and Evolution*, provides insights into managing area-based conservation to further international efforts, using techniques from advanced systems analysis.



© Mikhail Dudarev | Dreamstime

Understanding the impact of international trade on sustainable development

IIASA researchers pioneered research into the role international trade can play in sustainable development. Analyzing China’s growing food demands and EU mitigation policies on agriculture, they found that a balanced commitment to climate action across the world would substantially limit greenhouse gas leakage and create opportunities for efficient farmers everywhere.



© Hsc | Dreamstime

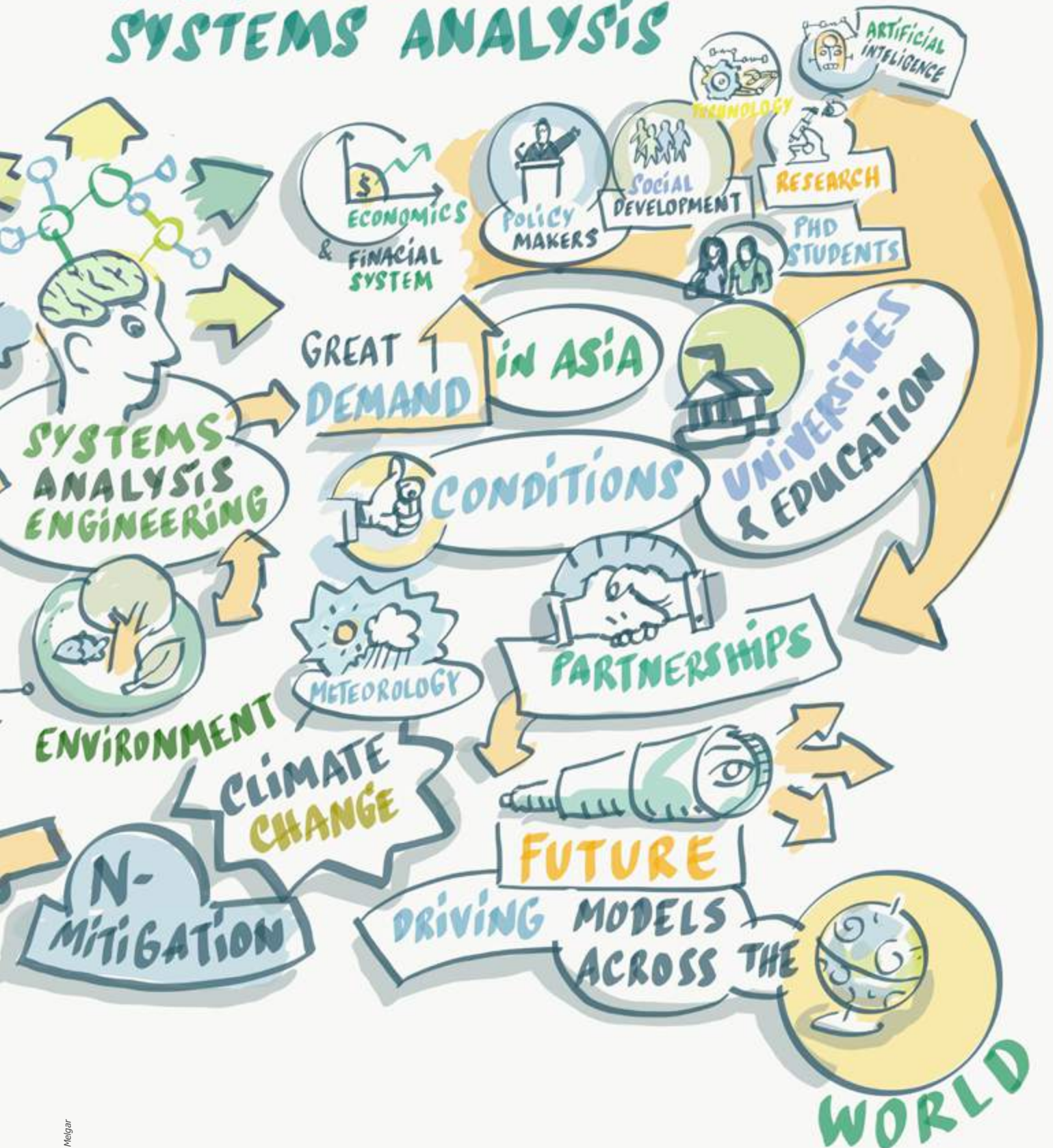
Helping countries identify ways to reduce air pollution

New IIASA research was the basis for the EU’s second Clean Air Outlook, which aimed to reduce air pollution in Europe. Similar ambitious work has not only developed systematic road maps for air quality management plans in China, Vietnam, and South Africa, but is also supporting air quality reforms in India, which has 22 of the 30 most polluted cities in the world.

Enhancing impact



HARNESSING THE POWER OF SYSTEMS ANALYSIS



ENHANCING
IMPACT IN
2021

Building capacity

IIASA is committed to strengthening the knowledge and abilities of researchers in systems analysis, both at the institute and beyond. As well as training early-career researchers in systems analysis through its flagship Young Scientists Summer Program (YSSP) and various postdoctoral opportunities, IIASA demonstrates the value of its integrated modeling work through international training programs, courses, and workshops, thus providing vital capacity building around the world.

SELECTED
HIGHLIGHTS:

59

students attended the virtual 2021 Young Scientists Summer Program.

20

YSSP participants were able to visit IIASA for a limited period as part of the YSSP program, either over summer 2021 or before year-end, as various COVID-19 travel bans were lifted.

16

postdoctoral fellows were hosted by IIASA and its partner organizations in 2021.

22%

of IIASA papers published in 2021 feature an IIASA-affiliated first author who had received their PhD less than five years ago, demonstrating how the research environment at IIASA encourages early career scientists to lead on topics that advance the institute's research agenda.

90

IIASA research staff were engaged in guiding the research of IIASA postdoctoral fellows, YSSP participants, and other PhD students at IIASA.

**ENHANCING
IMPACT
BUILDING
CAPACITY**



© Academy of Scientific Research and Technology, Egypt Ribbon cutting

Launch of the North African Applied Systems Analysis Center

In December 2021, the Northern African Applied Systems Analysis Centre (NAASAC) was launched in Cairo, Egypt, as a collaborative initiative between IIASA, the IIASA National Member Organization (NMO) for Egypt (the Egyptian Academy of Scientific Research and Technology [ASRT]), and the Cairo-based Egyptian Institute of National Planning. In the coming two years, IIASA will support NAASAC by providing guest lectures and mentorship related to the certificate course on systems analysis to be offered by the Institute of National Planning.

Virtual Young Scientists Summer Program was a resounding success

Because of COVID-19, the 2021 Young Scientists Summer Program (YSSP) was advertised as a virtual program from the outset. At the start of the application period, the IIASA Capacity Development and Academic Training (CDAT) Unit worked with several NMOs to increase the quality and quantity of applications, and 59 students were admitted to the program. The virtual setting worked well and offered some advantages over the in-person format, although participants predictably felt that being physically present at IIASA would have benefited their experience. The committee for the Peccei and Mikhalevich Awards had a tough time singling out the most compelling from among many excellent manuscripts submitted by participants on their YSSP research topic, and all papers were also externally reviewed. Some research articles resulting from work done by 2021 YSSP participants have since been published in high-ranking international journals.



© Olga Kurbatova | Dreamstime

First foundational course on systems analysis rolled out

In 2021, the IIASA Capacity Development and Training (CDAT) Unit designed and rolled out the first version of a foundational course on systems analysis—Systems Analysis 101—in collaboration with researchers from across the institute. A pilot online version with five modules (10 hours) was offered to the 2021 Young Scientists Summer Program (YSSP) cohort, and was universally judged to be useful and interesting. Another more compact version of the course was presented in the run-up to the regional IIASA conference in Beijing, China, in November 2021, which drew some 30 participants from Asia. CDAT will continue to respond to requests to offer this course to NMOs, and plans to develop more modules, while also refining and packaging an extended version that can be offered as an online or hybrid version and accredited at interested universities.



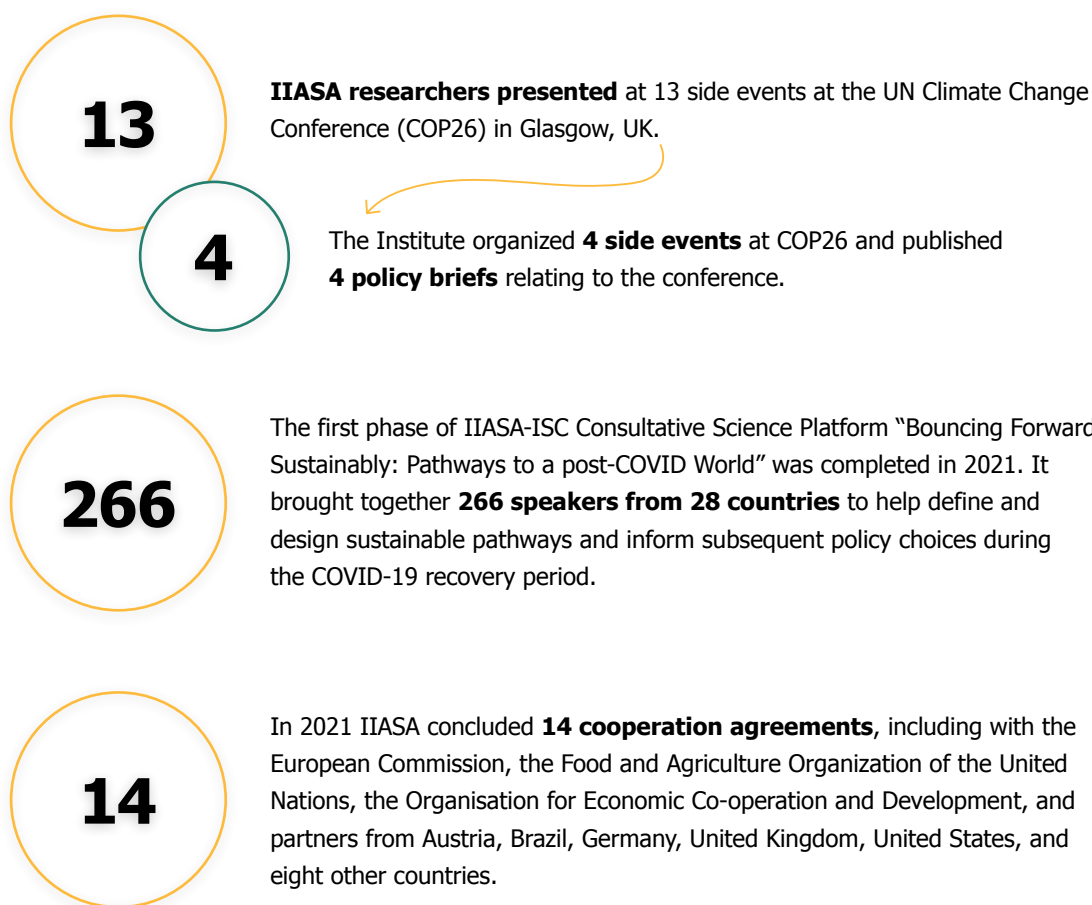
© Adam Eisemann | IIASA

ENHANCING
IMPACT IN
2021

Science diplomacy

In 2021 IIASA worked to facilitate international science collaboration through its science diplomacy mandate, providing a neutral platform where scientists and decision makers can freely discuss global and emerging challenges and solutions to them. IIASA offers unbiased evidence-based knowledge and policy findings that improve trust and understanding between countries. This supports the “level playing field” approach that is essential in bilateral and multilateral negotiations and where regular diplomacy channels may be strained.

SELECTED
HIGHLIGHTS:



IIASA works on Science Diplomacy Strategy



In 2021 IIASA initiated elaboration of a strategy for its ongoing work in the area of science diplomacy. The strategy aims to enhance a shared understanding within IIASA regarding the definition of science diplomacy and its related objectives and to communicate this understanding to the outside world. Representatives of IIASA research programs and relevant departments are involved in the elaboration process, which is expected to be finalized in 2022.

**ENHANCING
IMPACT
SCIENCE
DIPLOMACY**



© NUST MISIS

High-level session: Science Diplomacy and Systems Analysis

The 2021 IIASA Regional Conference “Systems Analysis in Eurasia” featured a high-level panel discussion that explored synergies between the IIASA approach to systems analysis and science diplomacy. As complex global problems and solutions to them—air pollution, global energy demand, water resource management, sustainable economic development, and trade growth—cross international boundaries, the discussion focused on what can be learned from the IIASA experience in using science as an alternative channel for diplomacy to advance policy consensus among countries and international entities.

IIASA engages with its science diplomacy network and diplomatic corps

IIASA delivered presentations to science diplomacy events organized by its partners, namely, at “Addressing Global Challenges Together: the Role of Science Diplomacy,” the final meeting of the project Using Science for/in Diplomacy for Addressing Global Challenges (S4D4C); and at “Science Diplomacy to Promote and Strengthen Basic Research and International Cooperation,” a workshop organized by the National Academies of Sciences, Engineering, and Medicine (NASEM). Throughout 2021 IIASA leadership maintained regular contacts and held meetings with ambassadors from NMO and other major partner countries, and with heads of international organizations.



© Anemad | Dreamstime

IIASA provides scientific insights to OSCE

IIASA continued to provide scientific insights to the Organization for Security and Co-operation in Europe (OSCE). The institute contributed to discussions at the OSCE High-Level Conference marking 30 years of the Bonn Document, an OSCE event on “Critical Infrastructure Dependencies,” and the OSCE International Workshop “China’s Belt and Road Initiative: curse or blessing for democracy in Eurasia?”



© VityaKotube | Dreamstime

IIASA develops pathways to water, food, and energy security in transboundary basins facing multiple challenges

The year 2021 saw the completion of the Integrated Solutions for Water, Energy, and Land (ISWEL) project, led by IIASA in partnership with the Global Environment Facility (GEF), and the United Nations Industrial Development Organization (UNIDO). While ISWEL took a global approach, it also zoomed in on the Zambezi and the Indus basins—two large transboundary basins facing multiple development and environmental challenges, and significant water rights sharing disputes. A fully integrated assessment modeling framework identified transformation pathways that, in the long run, can help alleviate the conflicting demands of multiple users and countries. Two related policy briefs with concrete policy recommendations were published.



© IIASA

ENHANCING
IMPACT IN
2021

Strengthening partnerships

IIASA, a global leader in systems analysis, is now in its 50th year. Throughout 2021, the institute has continued to expand its scientific reach internationally through research partnerships, alumni, and collaborator networks. It has strengthened networks within its National Member Organization (NMO) communities, putting in place mechanisms to enhance NMO participation in IIASA research and to improve access to it. This has established the institute as a major center for the building and sharing of knowledge on sustainable development worldwide.

SELECTED
HIGHLIGHTS:

734

In 2021 IIASA researchers worked with 734 **collaborating institutions and organizations** from the government, academic, and private sectors across IIASA NMO countries: this number is up from 681 in 2020.

1816

In 2021 IIASA **researchers collaborated** with 1816 coauthors from 1194 different institutions in 92 countries around the world to write 449 journal articles.

221

IIASA was **lead or partner** on 221 externally funded projects which is 31 more than last year.

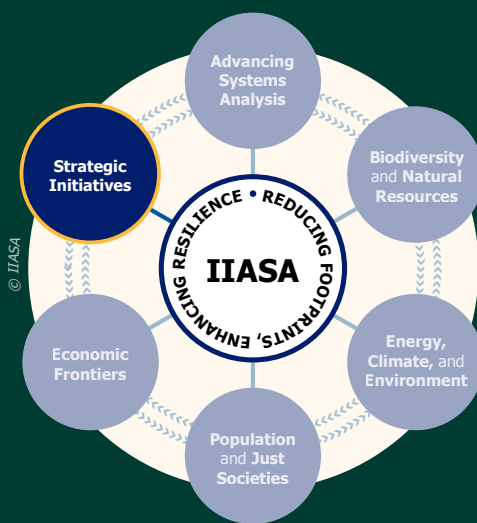
4389

By the end of 2021, the **IIASA network** included 4389 alumni from 100 countries, of which 73.24% were from IIASA member countries.

178

IIASA hosted, organized, or co-organized 178 events around the world. These included international scientific conferences, project-related workshops, training on IIASA models and tools, and scientific sessions at large international events.

**ENHANCING
IMPACT
STRENGTHENING
PARTNERSHIPS**



IIASA Connect launch

IIASA Connect is an exclusive platform that brings together the institute's global systems analysis community. In 2021, 811 IIASA staff, alumni, NMO communities, and collaborators interacted on the platform 1800 times to share their activities and updates. IIASA Connect hosted two hybrid regional conferences, the YSSP cohort, a YSSP virtual reunion, and two launch events in NMO countries. The IIASA Connect platform also hosts its own event series: the Coffee Talks. These bring together NMOs, alumni, and staff to discuss a hot topic in science, while featured events allow members to present and promote achievements and new opportunities.

Strategic Initiatives launch

The Strategic Initiatives (SI) program was launched in 2021 as a new mechanism for IIASA to engage in active horizon scanning to identify high-impact global and regional initiatives. Two projects resulted from an internal call and selection process: the fairSTREAM project, which investigates wicked policy issues at the food–water–biodiversity nexus; and the JustTrans4All project, which contributes to novel analyses of transition pathways that are socially and environmentally just. The process included two co-creation workshops with representatives from 20 NMO countries and aimed to identify research interests specific and relevant to the IIASA NMO communities.

Two regional conferences

In 2021, two regional conferences took place, in Moscow and Beijing, as part of an ongoing series aiming to foster dialogue between the research and policy communities. These conferences were organized with partners in eight NMO countries and explored the role of systems analysis in addressing regional and societal challenges in Eurasia and Asia. Twelve scientific sessions welcomed 50 speakers from 17 countries; there were 21 featured posters and 689 registered participants.

The GENIE Project

In 2021, Keywan Riahi and his project team secured over 2.8 million euros in funding from the European Commission through a European Research Council (ERC) Grant for the GeoEngineering and Negative Emissions pathways in Europe (GENIE) project. This comprehensive scientific assessment will explore the environmental, technical, social, legal, ethical, and policy dimensions of greenhouse gas removal and solar radiation management in support of evidence-based policymaking to address climate change.

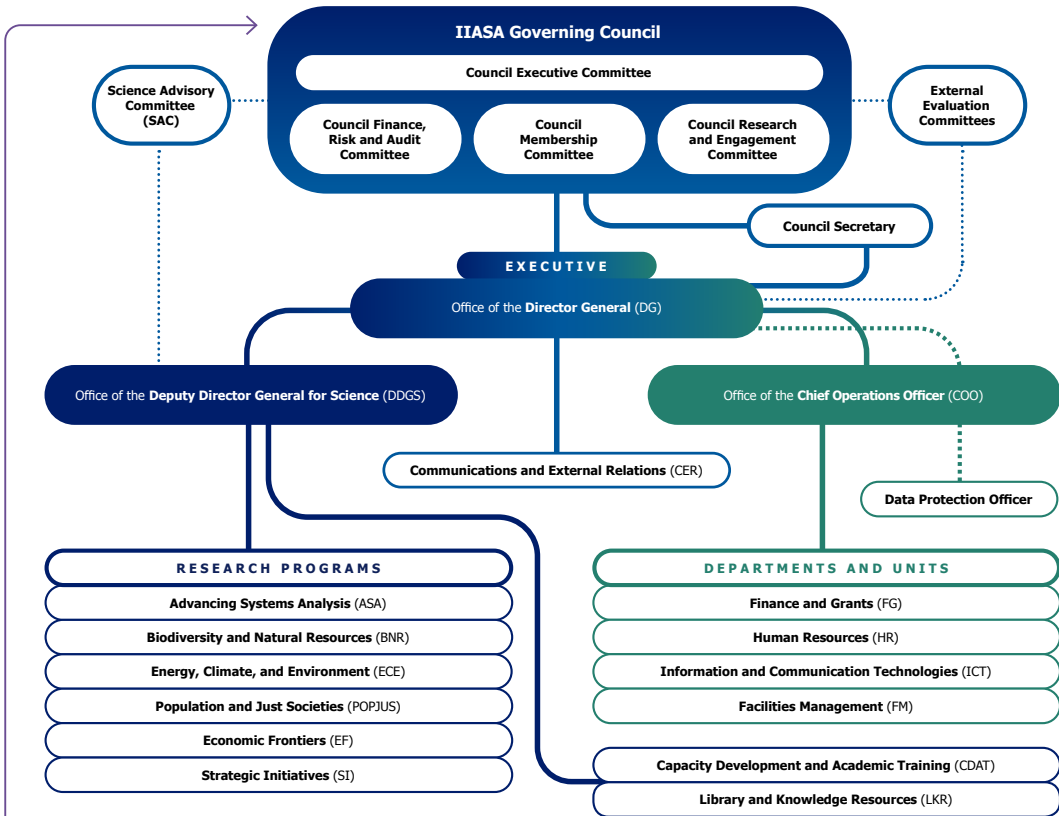
Institute performance





Governance and management

In 2021, IIASA continued to strengthen its governance, due diligence, and management processes and procedures by working with the IIASA Council as well as external and internal auditors. The IIASA approach of continuous improvement in its governance oversight to achieve its anticipated results more efficiently and effectively will also support sound financial outcomes into the future.



Council leadership and changes to senior management

In 2021, Michael Clegg (United States) continued as IIASA Council chair—a position he has held since September 2017. The two Council vice chair positions also remained unchanged, with Lea Kauppi (Finland), who has been the Council vice chair since January 2019, and Gansen Pillay (South Africa), who has held the position since January 2018. Heloisa Hollnagel (Brazil) and Dorsamy (Gansen) Pillay (South Africa) stepped down as Council members in 2021.

At program and department level, Lindsay Radakovits-

Smith was appointed as Acting Head of Human Resources in August 2021 and Colin Adair as Head of Finance and Grants in November 2021.

24 council members representing 24 National Member Organizations (NMOs) governed IIASA in 2021. The IIASA Council exercised its oversight responsibilities through a committee structure comprising an Executive Committee; a Finance, Risk, and Audit Committee; a Membership Committee; a Research and Engagement Committee, and a Science Advisory Committee (SAC) supported by external auditors that provided specialized input to the Council.

A new structure to support IIASA research

Six new research programs and 18 research groups created as part of the IIASA research plan 2021–2024, were approved and implemented in 2021. Through this structure, the institute aims to emphasize opportunities for simultaneously achieving multiple global sustainability goals while minimizing trade-offs using multidisciplinary, collaborative, and inclusive approaches that better integrate behavior, equity, justice, and resilience imperatives.

New policies and strategies adopted

Several policies and strategies were adopted in 2021, including:

- The IIASA Dispute Resolution Policy adopted in March 2021, which together with accompanying procedures sets out the institute’s approach to achieving solutions to issues raised by staff members regarding their working environment or working relationships.
- The IIASA Procurement Rules issued as part of the implementation of the IIASA Financial Principles regarding the acquisition of goods, works, and/or services for IIASA, were adopted in March 2021.

Research environment

In 2021, IIASA introduced new policies and processes to enhance transparency and accountability within its research environment. The new measures will ensure that the institute continues to attract and retain the best talent, increase diversity, provide a clear career development path, and support all staff in reaching their full potential.



Pandemic prompts a new way of working

To ensure uninterrupted operations during the COVID-19 pandemic, IIASA introduced a working-from-home policy capped at a 100 days a year, supported by the adoption of Microsoft Office 365 cloud-based applications. This new way of working provides a one-stop solution for collaboration, document sharing, and interactive messaging, and allows researchers to collaborate seamlessly regardless of their location.

New policy to help guide career development

In April 2021, IIASA adopted a career development policy for researchers based on the European Framework for Research Careers and the Procedures for the Recognition of Researchers. The policy provides clear pathways and career progression routes, allowing researchers to assess themselves against established criteria and choose when to apply to be recognized in a higher profile. The introduction of specific career pathways enhance both young and established researchers' ability to foster their careers at IIASA.

A modern approach to performance assessment

IIASA has implemented a comprehensive, data-driven, performance assessment system, supported by a new system of recognizing and rewarding individuals and research entities for substantively advancing the institute's objectives. The state-of-the-art system, which tracks progress in at least six performance axes—such as research relevance, scientific excellence, and nurturing talent—is aligned with the overall strategic objectives of IIASA.

Engaging researchers to build a strong research environment

IIASA endeavors to support its researchers in their efforts through clear, transparent policies and guidelines. To this end, cross-sections of researchers engaged in different taskforces and committees throughout 2021 to put in place a new open access policy for its models, tools, and databases; strengthen existing guidelines on authorship; gauge the value of flagship projects; and to update the institute's understanding of good scientific practice. In these processes, both younger and more established IIASA researchers had the opportunity to contribute to the evolution of a stronger, more inclusive research environment at the institute.

Equity, diversity, and inclusion

IIASA is deeply committed to encouraging and applying equity, diversity, and inclusion across its workforce and operations. By promoting and safeguarding these principles, IIASA is securing the quality of its policy-oriented research into problems of a global nature and ensuring its ability to consider the wider aspects of its work.

434

researchers from 53 countries were affiliated with IIASA in 2021, of which 64% were male and 36% were female.

71%

(307) of researchers who worked at IIASA in 2021 came from National Member Organization countries.

Eminent research scholars recognized

In recognition of their contributions to the fundamental scientific work at IIASA and to ensure their continued mentoring and network transfer that are of vital importance to the encouragement and nurturing of career growth and development of young and mid-career scientists, IIASA granted ten scientists Emeritus Research Scholar status in 2021. They are:

JoAnne Bayer, Luis Gomez Echeverri, Günther Fischer, Arnulf Grübler, Chris Heyes, Leena Ilmola-Sheppard, Nebojsa Nakicenovic, Georg Pflug, Holger Rogner, Anatoly Shvidenko, and Yurii Yermoliev.

The Executive Committee of the Council also appointed Dirk Messner and Maria Uhle as IIASA Distinguished Visiting Fellows.

The newly created IIASA Lifetime Achievement Award was conferred on Günther Fischer and Nebojsa Nakicenovic.

Cementing equity, diversity, and inclusion in IIASA policy

To support the IIASA Strategy (2021–2030) and the Research Plan (2021–2024), the institute introduced a diversity policy in 2021 with a range of new and ongoing initiatives. In addition to focusing on diversity within the staff of the institute and their work environment, the policy covers research into the concepts of diversity, equity, and justice themselves, spilling over into the overall research activities of IIASA.

Building on the institute's commitment to diversity enshrined in the diversity policy, work on an IIASA Gender Equality Plan began in September 2021. A letter of commitment was signed by the IIASA Executive and posted on the IIASA website. The European Commission's Gender Equality in Academia and Research tool will be used as a framework to facilitate the establishment of this plan at IIASA.

Health and safety

Despite the reduced presence of staff on IIASA premises due to the impacts of the COVID-19 pandemic, the institute implemented a number of initiatives and projects to safeguard the health of its staff in 2021.



© M. Silveri / IIASA

Safety first on the IIASA premises

To ensure the safety of staff working at IIASA, the Facilities Management Department implemented the IIASA COVID-19 operational rules and preventive measures, including the distribution of antigen tests, FFP2 facemasks, and disinfectant.

Following the periods of short-time work implemented for the catering team during the Austria-wide lockdowns and temporary closures of the IIASA restaurant, which amounted to six months in total, lunch services were reinstated in the restaurant after the COVID-19 hospitality sector restrictions were lifted by the Austrian authorities.

A health and safety officer from Health Consult-Sicherheitstechnik GmbH, an external service provider, confirmed the institute's compliance with the legal requirements (ASchG) regulated by the consultant's quality management policy.

The second phase of a new access control system was implemented at IIASA at the end of 2021 and became fully operational in January 2022. This further enhances security at the institute.

No major health and safety incidents were reported in 2021.

Ensuring an optimal working environment

IIASA provided staff members with extensive information and recommendations on how to make the best of working from home. The focus was on the ergonomic design of computer workstations including the most efficient working environment, light quality, airflow, climate and noise levels, technical equipment, and worktables and chairs. Staff also had the option to consult directly with the IIASA workplace safety representative, either in person or via video call, for advice on setting up a workstation.

Modern height-adjustable desks that exceeded the usual ergonomic requirements, were acquired for IIASA offices to meet the needs of some staff members.

Environmental performance

IIASA pursues sustainable practices in its own day-to-day operations thereby playing its part in making the world more sustainable.



© Augustin Florian / Dreamstime

IIASA joins the race to zero

In 2021, IIASA officially joined the UN-supported Race-to-Zero campaign, which commits to achieving net zero CO₂ emissions by 2050, with a mid-term target of 50% CO₂ reduction by 2030. The Race-to-Zero policy approved by the IIASA Executive Committee in November makes it possible for all staff members to suggest initiatives to help IIASA achieve these ambitious goals. Proposed initiatives are scientifically evaluated by the Sustainability Champions, a committee comprising voluntary representatives from each program and department at IIASA. Successful proposals are presented to the IIASA Executive Committee for approval and allocation of the necessary resources. This process has already resulted in several proactive projects to reduce emissions by IIASA.

Walking the talk: reducing the institute's carbon footprint

Based on a 2019 evaluation, 58% of the institute's carbon footprint comes from staff business travel, rising to 71% if IIASA-funded business travel for visitors is included. Although a lot has changed due to the ongoing COVID-19 pandemic, IIASA continues to urge staff to opt for online rather than in-person attendance where feasible. If in-person attendance is crucial, it is suggested to select a mode of transport with a lower carbon footprint, such as train travel.

Leaning into climate-friendly travel practices

The bike-to-work month has become a regular event at IIASA. In 2021, it was again organized by the IIASA Staff Social and Cultural Association (SOCU) and attracted 45 staff members, who competed in 16 groups. They cycled a total of 8,300 km. The year also saw an investment in e-mobility at IIASA with electric car-and bike-charging stations installed for the use of IIASA employees in November 2021.



© Thomas Steiner/dink

Managing risk

Improving the effectiveness of organizational risk management, control, and governance processes remained one of the top priorities for the IIASA Council and Executive in 2021.



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Assessing and managing risks to IIASA operations

IIASA maintains a comprehensive risk register that is continuously reviewed and updated. As per the Risk Register Terms of Reference revised and approved by the executive in April 2021, the identification of potential risks is undertaken on an annual basis, while the review of existing risks is done biannually.

In 2021, the highest ranked risks included business interruptions due to the dependency of business-critical functions on one or just a few staff members, non- or partial payments of membership contributions due to COVID-19, and the disruption of IIASA operations due to technological vulnerabilities and high dependency on IT infrastructure and services while working remotely. Appropriate actions were taken to prevent potential negative impacts for the institute.

Enhancing the effectiveness of internal processes, governance, and controls

The Finance, Risk, and Audit Committee of the IIASA Council and the executive established an internal audit function as part of a commitment to introduce a systematic approach to evaluating and mitigating institutional risks. This function comprises the professional auditing of internal processes, governance, and controls to ensure compliance with the regulatory framework and to enhance performance, organizational learning, and the efficiency and effectiveness of IIASA operations.

The following internal audits were undertaken in 2021:

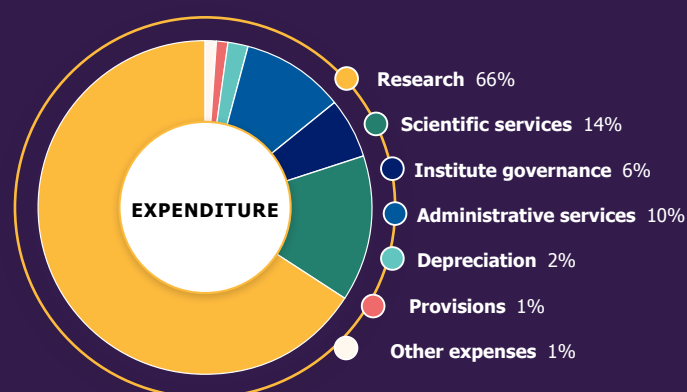
- A large internal audit examined the related control systems of information technology services at IIASA and identified potential improvements in, among others, the roles and responsibilities of the Information and Communication Technologies Department and developers in scientific programs, the resources available, and the service needs.
- A small internal audit analyzed control systems and identified potential improvements to inventory and asset management processes at the institute.
- A large internal audit looked into current human resource management practices at IIASA including recruitment, employee management and administration, compensation, and retirement (succession planning).

Financial performance

The annual budget of IIASA in 2021 was €22.8 million, just under 50% of which came from prestigious scientific institutions, the institute's National Member Organizations (NMOs), located in Africa, the Americas, Asia, and Europe. Additional funding came from contracts, grants, and donations from governments, international organizations, academia, business, and individuals. These many diverse income sources enabled IIASA to perform truly independent research. IIASA would like to thank all those who gave their financial support in 2021.



The 2021 income of IIASA was €22.8 million, 48% of which came from National Member Organizations and 50% from contracts, grants, and donations.



Almost 80% of the institute's total spending in 2021, €17.3 million, was dedicated to research and scientific services; spending on administration services and institute governance was consolidated.

	31 December 2021	31 December 2020
INCOME		
Membership contributions	10,930,500	11,105,500
Contracts and grants	11,412,184	11,187,497
Other income	440,196	101,876
TOTAL INCOME	22,782,880	22,394,873
EXPENDITURES		
Research	14,321,640	14,348,539
Scientific services	3,018,251	2,872,277
Institute governance	1,318,887	1,468,277
Administrative services	2,110,603	2,120,965
Depreciation	460,138	356,598
Provisions	234,345	147,328
Other expenses	296,269	764,437
TOTAL EXPENDITURE	21,760,133	22,078,421
OPERATING RESULT		
Change in net assets	1,022,747	316,452

INSTITUTE PERFORMANCE FINANCIALS

Contracts, grants, and donations

Funding of contracts and grants increased marginally from €11.2 million in 2020 to around €11.4 million in 2021. IIASA gratefully acknowledges the financial support and lists the funders below. Additionally, the institute continues to receive generous support through the nongovernmental organization Friends of IIASA, which enables US residents to make tax deductible donations to the institute. These donations support the Peter E. de Jánosi Postdoctoral Fellowship, set up in honor of former IIASA director, Dr. de Jánosi, to provide postgraduate students the opportunity to participate in the IIASA Postdoctoral Fellowships.

Funders:

- Austrian Academy of Sciences (ÖAW), Vienna, Austria
- Austrian Climate Research Program (ACRP), Vienna, Austria
- Austrian Development Agency (ADA), Vienna, Austria
- Austrian Research Promotion Agency (FFG), Vienna, Austria
- Austrian Science Fund (FWF), Vienna, Austria
- Federal Ministry for Education, Science and Research (BMBWF), Vienna, Austria
- Federal Ministry for Sustainability and Tourism of Austria (BMNT), Vienna, Austria
- Lower Austrian Research and Education Association m.b.H. (NFB), Sankt Poelten, Austria
- Office of the Federal Government of Lower Austria, Sankt Poelten, Austria
- The National Bank of Austria, Anniversary Fund (OeNB), Vienna, Austria
- World Data Lab, Vienna, Austria
- YSSP Annual Fund, Laxenburg, Austria
- European Association of Remote Sensing (EARSC), Brussels, Belgium
- European Commission, DG Climate Action, Brussels, Belgium
- European Commission, DG Energy, Brussels, Belgium
- European Commission, DG Environment, Brussels, Belgium
- European Commission, DG for Neighbourhood and Enlargement Negotiations (NEAR), Brussels, Belgium
- European Commission, DG Research and Innovation (RIA), Brussels, Belgium
- European Commission, European Climate, Infrastructure and Environment Executive Agency (CINEA)
- European Commission, European Research Council Executive Agency (ERCEA), Brussels, Belgium
- European Commission, Executive Agency for Small and Medium-sized Enterprises (EASME), Brussels, Belgium
- European Commission, Innovation and Networks Executive Agency (INEA), Brussels, Belgium
- European Commission, Research Executive Agency (REA), Brussels, Belgium
- European Commission, Service for Foreign Policy Instruments (FPI), Brussels, Belgium
- European Free Trade Association Surveillance Authority (EFTA), Brussels, Belgium
- Global Energy Interconnection Development and Cooperation Organization (GEIDCO), Beijing, China
- The China Sustainable Energy Program (CSEP), The Energy Foundation, Beijing, China
- Czech Ministry of Education, Youth and Sports, Prague, Czech Republic
- European Environment Agency (EEA), Copenhagen, Denmark
- Nordic Working Group for Climate and Air (NKL), Copenhagen, Denmark
- Academy of Finland, Helsinki, Finland
- European Space Agency (ESA), Paris, France
- International Energy Agency (IEA), Paris, France
- Organisation for Economic Co-operation and Development (OECD), Paris, France
- United Nations Environment Programme (UNEP), Paris, France
- DBFZ German Biomass Research Center, Leipzig, Germany
- Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), Berlin, Germany
- Federal Ministry of Education and Research (BMBF), Bonn, Germany
- German Agency for International Cooperation GmbH (GIZ), Eschborn, Germany
- German Environment Agency (UBA), Dessau-Rosslau, Germany
- Interreg Alpine Space, Munich, Germany
- Swiss Federal Department of Foreign Affairs, Swiss Cooperation Office India, New Delhi, India
- European Space Agency (ESA-ESRIN), Rome, Italy
- Food and Agriculture Organization of the United Nations (FAO), Rome, Italy
- Italian Agency for New Technology Energy and the Environment (ENEA), Rome, Italy
- Research Institute of Innovative Technology for the Earth (RITE), Kyoto, Japan
- United Nations Environment Programme (UNEP), Nairobi, Kenya
- Coresense Co., Ltd., Daejeon, Republic of Korea
- Green Climate Fund, Incheon, Republic of Korea
- Jeonju University, Jeonju, Republic of Korea
- Konkuk University, Seoul, Republic of Korea
- National Research Foundation of Korea (NRF), Daejeon, Republic of Korea
- World Health Organization (WHO), Cyberjaya, Selangor, Malaysia
- European Climate Foundation (ECF), The Hague, Netherlands
- European Space Agency (ESA-ESTEC), Noordwijk, Netherlands
- WWF Netherlands, Zeist, Netherlands
- Norwegian Agency for Development Cooperation (NORAD), Oslo, Norway
- The Research Council of Norway, Oslo, Norway
- Higher School of Economics (HSE), Moscow, Russia
- Joint Stock Company SUEK, Moscow, Russia
- WWF South Africa, Cape Town, South Africa
- Commission of the European Communities, Directorate General Joint Research Centre (JRC), Sevilla, Spain
- International Water Management Institute (IWMI), Battaramulla, Colombo, Sri Lanka
- Knut and Alice Wallenberg Foundation, Stockholm, Sweden
- Barry Callebaut AG, Zürich, Switzerland
- ETH Zürich, Global Ecosystem Ecology Laboratory, Zürich, Switzerland
- Restor Eco AG, Zürich, Switzerland
- Swiss Re Management Ltd., Adliswil, Switzerland
- United Nations Economic Commission for Europe (UNECE), Geneva, Switzerland
- United Nations Environment Programme, Geneva, Switzerland
- United Nations Office at Geneva, Switzerland
- Zurich Insurance Company Ltd., Switzerland
- Bank of England, London, United Kingdom
- Department for Business, Energy & Industrial Strategy (BEIS), London, United Kingdom
- European Space Agency (ESA), Oxfordshire, United Kingdom
- National Environment Research Council (NERC), Swindon, United Kingdom
- Quadrature Climate Foundation (QCF), London, United Kingdom
- Research Councils UK (RCUK), Swindon, United Kingdom
- Wellcome Trust, London, United Kingdom
- Bill and Melinda Gates Foundation (BMGF), Seattle, W.A., USA
- ClimateWorks Foundation, San Francisco, USA
- Environmental Protection Agency (EPA), Washington, DC., USA
- Gordon and Betty Moore Foundation, Palo Alto, CA., USA
- Inter-American Development Bank (IADB), Washington, D.C., USA
- National Science Foundation (NSF), Arlington, VA., USA
- Rockefeller Philanthropy Advisors, New York, USA
- RTI International, Washington D.C., USA
- The Nature Conservancy (TNC), Arlington, VA., USA
- The World Bank, Washington, D.C., USA
- United Nations Department of Economic and Social Affairs (UNDESA), New York, USA
- UN Sustainable Development Solutions Network (SDSN Association), New York, USA
- United States Agency for International Development (USAID), Washington, D.C., USA
- World Resources Institute, Washington, D.C., USA
- University of Economics Ho Chi Minh City (UEH), Vietnam

Acknowledgements

IIASA would like to thank its National Member Organizations and other organizations that provided financial support to the institute in 2021. IIASA is also indebted to the contributions of its researchers, staff, and members of the governing Council and Science Advisory Committee to the advances and progress that IIASA has made in 2021.

IIASA National Member Organizations (NMOs) and Council members

On 31 December 2021, IIASA had 24 member countries, including two observers and one prospective member, represented by the following NMOs:

AUSTRIA

The Austrian Academy of Sciences (ÖAW)

Council member:

Professor Dr. Christian Köberl

BRAZIL

The Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES)

Council member:

Professor Livia Pelli Palumbo

CHINA

The National Natural Science Foundation of China (NSFC)

Council member:

Professor Dr. Xincheng Xie

EGYPT

Academy of Scientific Research and Technology (ASRT)

Council member:

Professor Dr. Mahmoud M. Sakr

FINLAND

The Finnish Committee for IIASA

Council member: Dr. Lea Kauppi

GERMANY

Association for the Advancement of IIASA

Council member:

Professor Dr. Helga Weisz

INDIA

Technology Information, Forecasting, and Assessment Council (TIFAC)

Council member:

Dr. Pradeep Srivastava

INDONESIA

Indonesian National Committee for IIASA

Council member:

Professor Dr. Kuntoro Mangkusubroto

IRAN, ISLAMIC REPUBLIC OF

Iran National Science Foundation (INSF)

Council member:

Professor Dr. Eaman Eftekhary

ISRAEL

The Israel Committee for IIASA

Council member:

Professor Dr. Moti Herskowitz

JAPAN

The Japan Committee for IIASA

Council member:

Professor Dr. Kazu Takemoto

JORDAN (prospective)

The Royal Scientific Society (RSS) of Jordan

Council member:

Dr. Amna Jrrar

KOREA, REPUBLIC OF

National Research Foundation of Korea (NRF)

Council member:

Dr. Kil-Choo Moon

MALAYSIA (observer)

Academy of Sciences Malaysia (ASM)

Council member:

Professor Datuk Dr. Asma Ismail

MEXICO (observer)

Mexican National Committee for IIASA

Council member:

Dra. Maria Elena Alvarez-Buylla Roces

NORWAY

The Research Council of Norway (RCN)

Council member:

Dr. Kirsten Broch Mathisen

RUSSIA FEDERATION

The Russian Academy of Sciences (RAS)

Council member:

Academician Professor Vladislav Panchenko

SLOVAKIA

Ministry of Education, Science, Research and Sport

Council member:

Ms. Anna Jurikova

SOUTH AFRICA

National Research Foundation (NRF)

Council member:

Dr. Dorsamy (Gansen) Pillay

SWEDEN

The Swedish Research Council for Environment, Agricultural Sciences, and Spatial Planning (FORMAS)

Council member:

Dr. Ingrid Petersson

UKRAINE

The National Academy of Sciences of Ukraine (NASU)

Council member:

Professor Olena Borodina

UK

United Kingdom Research and Innovation (UKRI)

Council member:

Dr. Sarah Webb

USA

The National Academy of Sciences (NAS)

Council member:

Professor Dr. Michael Clegg

VIETNAM

Vietnam Academy of Science and Technology (VAST)

Council member:

Professor Dr. Ninh Khac Ban

In particular, IIASA would like to thank the following Council members who left the Council in 2021 for their invaluable service and advice: **Professor Heloisa Hollnagel (Brazil) and Professor Dorsamy (Gansen) Pillay (South Africa).**

IIASA Science Advisory Committee

The Science Advisory Committee (SAC) provides scientific guidance and a research assurance function for the institute, and on 31 December 2021 its members were:

- Professor Jim Hall (SAC Chair), Oxford University, UK
- Dr. John R. Birge, The University of Chicago Booth School of Business, USA
- Professor Ruth Defries, Columbia University, USA
- Professor Bojie Fu, Chinese Academy of Sciences, China
- Dr. Silvia E. Giorguli Saucedo, El Colegio de México, Mexico
- Dr. Olga Kordas, Royal Institute of Technology, Sweden
- Professor Dr. Christoph Meinel, University of Potsdam, Germany
- Professor Mari Elka Pangestu, World Bank
- Dr. Youba Sokona, The South Centre, Switzerland
- Professor Elke U. Weber, Princeton University, USA

In particular, IIASA would like to thank the following SAC members who left SAC in 2021 for their unique contributions and dedication: Professor Mari Elka Pangestu and Dr. Silvia E. Giorguli Saucedo.

Annual report 2021

National Member Organizations:

On 31 December 2021, IIASA had 24 member countries (3 observers and 1 prospective member) represented by the following National Member Organizations:

AUSTRIA	The Austrian Academy of Sciences (ÖAW)
BRAZIL	The Brazilian Federal Agency for Support and Evaluation of Graduate Education (CAPES)
CHINA	The National Natural Science Foundation of China (NSFC)
EGYPT	Academy of Scientific Research and Technology (ASRT)
FINLAND	The Finnish Committee for IIASA
GERMANY	Association for the Advancement of IIASA
INDIA	Technology Information, Forecasting and Assessment Council (TIFAC)
INDONESIA	Indonesian National Committee for IIASA
IRAN, ISLAMIC REPUBLIC OF	Iran National Science Foundation (INSF)
ISRAEL	The Israel Committee for IIASA
JAPAN	The Japan Committee for IIASA
JORDAN (<i>Prospective</i>)	The Royal Scientific Society (RSS) of Jordan
KOREA, REPUBLIC OF	National Research Foundation of Korea (NRF)
MALAYSIA (<i>Observer</i>)	Academy of Sciences Malaysia (ASM)
MEXICO (<i>Observer</i>)	Mexican National Committee for IIASA
NORWAY	The Research Council of Norway (RCN)
RUSSIAN FEDERATION	The Russian Academy of Sciences (RAS)
SLOVAKIA	Ministry of Education, Science, Research and Sport
SOUTH AFRICA	National Research Foundation (NRF)
SWEDEN	The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS)
UKRAINE	The National Academy of Sciences of Ukraine (NASU)
UK	United Kingdom Research and Innovation (UKRI)
USA	The National Academy of Sciences (NAS)
VIETNAM	Vietnam Academy of Science and Technology (VAST)