Mexican national interests are integrally connected to complex global systems that impinge on the country, its economy, and its people. Systems analysis is one of the few research tools that has the breadth and depth to explore complex problems across multiple sectors, regions, and timeframes. And developing expertise in systems analysis was one of the reasons that Mexico joined IIASA in 2014. Establishing multinational and multidisciplinary teams of researchers is a key building block in IIASA’s work and existing productive partnerships between researchers at IIASA and 12 Mexican organizations, as documented in this Info Sheet, show significant potential for closer collaborations.

Other prospects for future IIASA-Mexican collaborations include developing bespoke Mexican versions of IIASA’s global models, conducting international assessments in areas of Mexican strategic interest, partnering with Mexican institutions to win international research grants, and contributing to Mexican science diplomacy. Further, young Mexican scientists have already developed skills in systems analysis by participating IIASA’s capacity building activities, but again there are substantial possibilities to expand such activities. By mapping recent interactions between IIASA and Mexico since 2008, this IIASA Info Sheet aims to identify (1) existing productive collaborations, (2) activities that could be relatively easily expanded, and (3) gaps in research priorities that would benefit from new attention and investment.

### Highlights of Interactions Between IIASA and Mexico (since 2008)

<table>
<thead>
<tr>
<th>National Member Organization</th>
<th>Mexican National Committee for IIASA represented jointly by the Mexican National Council for Science and Technology (CONACYT) and the National Institute of Statistics and Geography (INEGI)</th>
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</thead>
<tbody>
<tr>
<td>Membership Start Date</td>
<td>2014</td>
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<tr>
<td>Key Research Partners</td>
<td>Twelve Mexican organizations collaborate with IIASA including:</td>
</tr>
<tr>
<td></td>
<td>• Autonomous University of Baja California Sur (Universidad Autónoma de Baja California Sur – UABCS)</td>
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<td></td>
<td>• Centro de Investigaciones en Ecosistemas (CIEco)</td>
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<td>• Mario Molina Center (Centro Mario Molina)</td>
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<td>• National Autonomous University of Mexico (Universidad Nacional Autónoma de México - UNAM)</td>
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<td></td>
<td>• National Institute for Ecology and Climate Change (Instituto Nacional de Ecología y Cambio Climático - INECC)</td>
</tr>
<tr>
<td></td>
<td>• Universidad Iberoamericana Puebla</td>
</tr>
</tbody>
</table>
| Areas of Research Collaboration | • Fiscal planning for extreme events in Mexico  
                             | • Enhancing expertise in integrated assessment models  
                             | • Projecting demographic change in Mexico  
                             | • Developing a sustainable energy system in Mexico  
                             | • Governance of transboundary water resources along the United States and Mexico border  
                             | • Water management in the Mexico City basin  
                             | • Old-age pensions in Mexico  
                             | • Risk of financial crisis higher than previously estimated |
| Capacity Building           | Four doctoral and postdoctoral students from Mexico have taken part in IIASA’s capacity building programs                                                                                          |
| Publication Output          | 15 publications have resulted from IIASA-Mexican collaborations                                                                                                                               |
| Other Interactions          | Researchers, advisors, and diplomats have either visited IIASA from Mexico or visited Mexico from IIASA over 45 times                                                                               |
Activities with Member Countries: Mexico

IIASA Info Sheet 2015/7
August 2015

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IIASA Info Sheets provide succinct summaries about IIASA activities. They do
not necessarily reflect the views of IIASA staff, visitors, or National Member
Organizations.

This Info Sheet summarizes IIASA’s recent relationship with Mexico. It includes
highlights with links to further information, but it is not a comprehensive
report on all interactions.

Feedback and updates are encouraged and should be sent to Iain Stewart.
IIASA’s National Member Organization in Mexico

Mexico became IIASA’s twenty-second member country in June 2014. Membership was established jointly by the Mexican National Council for Science and Technology (CONACYT) and the National Institute of Statistics and Geography (INEGI). The two organizations share the role of IIASA Council Member for Mexico and the payment of IIASA’s membership contributions. The IIASA Council consists of one representative of each of IIASA’s member countries and is responsible for setting the overall strategic direction of the Institute as well as governing IIASA. Professor Eduardo Sojo Garza Aldape, President of the Board of Governors of INEGI is the IIASA Council Member for Mexico (2014-15) after which Dr Enrique Cabrero Mendoza, Director General of CONACYT will serve as Council Member (2016-17).

CONACYT and INEGI are establishing a Mexican National Committee for IIASA to develop areas of collaboration between Mexico and IIASA. The committee will be comprised of leading Mexican scientists and directors of institutions that are relevant to IIASA’s research. The following have been invited to the committee:

- **Dr Sergio Alcocer Martinez De Castro**, President, Mexican Academy of Engineering
- **Dr Jaime Urrutia Fucugauchi**, President, Mexican Academy of Sciences
- **Dr Enrique Ruelas Barajas**, President, National Academy of Medicine of Mexico
- **Dra Tereza Cavazos Pérez**, Researcher, Center for Scientific Research and Higher Education of Mexico
- **Dr José Antonio de la Peña**, Director General of the Mathematics Research Center
- **Dr Enrique De Alba Guerra**, Vice-President, INEGI
- **Dr Enrique Ordaz López**, Director General Analysis and Research, INEGI
- **Dr Gerardo Leyva Parra**, Deputy Director General for Research, INEGI
- **Dr Juan Carlos Belausteguiotía Rius**, Researcher, Autonomous Technological Institute of Mexico
- **Dr Francisco Barnés Regueiro**, Executive Director, Mario Molina Center
- **Dra Julia Tagüeña Parga**, Deputy Director General for Scientific Development, CONACYT
- **Dr Víctor Carreón Rodríguez**, Deputy Director General of Planning and International Cooperation, CONACYT
- **Arturo Borja Tamayo**, Director of International Cooperation and Evaluation at CONACYT
- **Pilar García Velázquez**, Director of International Affairs at INEGI serve as the Mexican NMO Secretaries for IIASA.

Some leading Mexican personalities in academia and government who are associated with IIASA:

- **Professor Diego Arjona-Arguelles**, Director General, Research, Technology Development and Environment in the Mexican Government’s Secretariat for Energy (SENER) was a researcher at IIASA (1997-98).
- **Professor Asit K. Biswas**, founder of the Third World Centre for Water Management in Mexico was an IIASA researcher (1980-81).
- **Dr Beatriz Cárdenas González**, Director, Experimental Research on Air Pollution at the National Institute for Ecology and Climate Change has collaborated with IIASA’s air pollution experts.
- **Luis Donaldo Colosio**, a Mexican politician, economist, and Presidential candidate, researched at IIASA during the 1970s. The Colosio fellowship was established at IIASA following his assassination in 1994 to sponsor Mexican doctoral and post-doctoral scholars at IIASA.
- **Professor Silvia Giorguli**, President, El Colegio de México collaborates with IIASA’s population experts.
- **Professor Omar Masea**, Director of the Bioenergy Laboratory at the National Autonomous University of Mexico, was a contributor to IIASA’s Global Energy Assessment.
- **Professor Mario Molina**, Nobel Prize Winner (Chemistry 1995) is a collaborator with IIASA as well as being a member of the Earth League—an international alliance of world-leading researchers—along with IIASA’s Director General and Deputy Director General.
Research Partners in Mexico

IIASA works with research funders, academic institutions, policymakers, and individual researchers in Mexico. The following list includes the names of the organizations or the individual’s affiliated institutions that have all recently collaborated with IIASA.

- Autonomous University of Baja California Sur (Universidad Autónoma de Baja California Sur – UABCS)
- Banco de México
- Centro de Investigaciones en Ecosistemas (CIEco)
- The College of Mexico (El Colegio de Mexico – COLMEX)
- Mario Molina Center (Centro Mario Molina)
- Megalópolis Environmental Commission (Comisión Ambiental de la Megalópolis - CAME)
- National Autonomous University of Mexico (Universidad Nacional Autónoma de México - UNAM)
- National Council for Science and Technology (CONACYT)
- National Institute for Ecology and Climate Change (Instituto Nacional de Ecología y Cambio Climático - INECC)
- National Institute of Statistics and Geography (INEGI)
- Secretariat of Finance and Public Credit
- Universidad Iberoamericana Puebla

Many of today’s most pressing challenges do not stop at international borders. IIASA’s research areas such as climate change, water scarcity, and poverty are affected by multiple factors across the globe. In turn these global problems have impacts on nations, regions, and continents. Finding long-lasting solutions to these challenges requires scientific expertise that is free from the interests of a single nation. IIASA’s National Member Organizations recognize this need and that their investment in IIASA is a contribution to a global public good. And the benefit of this contribution is paid back to global researchers, policymakers, and citizens in multiple ways as the following examples show:

- IIASA supports the climate change research community by hosting the Representative Concentration Pathways (RCP) database. The database provides data on greenhouse gas emissions for four different future scenarios that underpin the analysis of thousands of climate change researchers. IIASA also calculated the data for one of the scenarios, all of which have been developed for the world’s most comprehensive analysis of climate change—the IPCC’s (Intergovernmental Panel on Climate Change) Fifth Assessment Report.

- IIASA’s research provides scientific guidance to the Convention on Long-range Transboundary Air Pollution of the United Nations Economic Commission for Europe. This international environmental treaty between 33 countries has slashed air pollution in Europe, improving people’s health and countries’ crop production. IIASA’s GAINS model guided negotiators and policymakers as they worked on the treaty to identify the most cost-effective approach to cleaning Europe’s air. The negotiators chose the GAINS model not only because of its accuracy and usability but also because it had been developed by an international team with funding from multiple countries, which assured them that the model was nationally unbiased.
Recent Research Collaborations

**Fiscal planning for extreme events in Mexico**

Research collaboration between IIASA’s risk experts and the Mexican Secretariat of Finance and Public Credit (Ministry of Finance) has helped Mexico prepare financially for a major natural disaster. IIASA’s catastrophe simulation model (CATSIM) provided the Mexican authorities with a clear picture of the risks posed by natural hazards (earthquakes, hurricanes, mudslides, and volcanic activity) to the public finances. From this, the researchers were able to explore how much risk could be transferred to the international reinsurance and capital markets at an acceptable cost. Subsequently in 2006 and 2009, the Mexican government issued catastrophe bonds to cover the risk of a major earthquake or hurricane.

**Enhancing expertise in integrated assessment models**

Mexico’s national interests are integrally connected to complex global systems that impinge on the country’s economy, energy systems, and climate, among others. Integrated assessment models are one of the few research tools that enable researchers to analyze highly complex and interconnected global problems and test the impact, including negative side effects, of different national policies. For example, IIASA’s GAINS model explores the synergies and interactions between climate change, air quality and other policy objectives.

Studies using the GAINS model and related to Mexico include:

- Researchers from IIASA and the Megalópolis Environmental Commission (CAMe) among others are steering committee members of the Global Emissions Initiative (GEIA), which aims to constantly improve the quantification of chemical emissions into the air in order to identify feasible controls that reduce adverse impacts associated with air quality and climate, to track the success of implemented policies, and to estimate future impacts.

Selected publications resulting from IIASA-Mexican collaborations

<table>
<thead>
<tr>
<th>Title</th>
<th>Journal/Conference</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>New directions: GEIA’s 2020 vision for better air emissions information</td>
<td>Atmospheric Environment, 81:710-712</td>
<td>2013</td>
</tr>
<tr>
<td>Using household surveys in climate change vulnerability and adaptation analysis</td>
<td>In: Martine G &amp; (Eds) D Schensul (eds), The Demography of Adaptation to Climate Change. UNFPA, IIED, &amp; El Colegio de Mexico, New York, London, Mexico City pp.96-114.</td>
<td>2013</td>
</tr>
<tr>
<td>Demography’s role in sustainable development</td>
<td>Science, 335(6071):918</td>
<td>2012</td>
</tr>
</tbody>
</table>
Mexico was a founding member of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC). Starting with six member countries in 2012, the coalition had 46 state partners and 54 non-state partners by January 2015—all committed to taking action on short-lived climate pollutants (SLCPs). IIASA’s GAINS model provided the intellectual underpinnings for CCAC by demonstrating, in an article in Science, how an integrated approach to reduce short-lived climate pollutants, methane, and black carbon, could simultaneously increase human wellbeing through reduced local air pollution, increase security of food and energy supply, and lower water demand. In many cases, these measures would also result in more efficient energy use and thereby also reduce emissions of long-lived greenhouse gases. In 2014, IIASA with researchers from the National Autonomous University of Mexico, National Institute for Ecology and Climate Change, and the Mario Molina Center among others began a major regional assessment of SLCPs in Latin America and the Caribbean for CCAC. The purpose is to foster increased awareness, knowledge, and mitigation actions on SLCPs.

Other collaborations on integrated assessments include:

- The Universidad Iberoamericana Puebla is a member of the Integrated Assessment Modeling Consortium (IAMC), which is coordinated by IIASA and partners in Japan and the US. IAMC is a consortium of scientific research organizations that facilitates and fosters the development of integrated assessment models. Recent IAMC work for the climate change research community involved in the IPCC’s Fifth Assessment Report includes: (1) the Representative Concentration Pathways (RCP) database that provides greenhouse gas emission and other projections, and (2) the Shared Socio-economic Pathways (SSPs) database that facilitate the integrated analysis of future climate impacts, vulnerabilities, adaptation, and mitigation.

- A recent integrated assessment including researchers from IIASA and the National Autonomous University of Mexico (UNAM) examined the synergies and trade-offs from strategies to ensure the world can feed 9 to 10 billion people by 2050 and prevent dangerous climate change.

- Researchers used a multidisciplinary and systems analytical approach to investigate the vulnerabilities of Mexican coffee farmers to external factors.
IIASA’s demographers study and project the changing composition of population for all countries of the world. IIASA’s interdisciplinary setting has always encouraged its demographers to research beyond the traditional boundaries of demography and to explore how changes in society, economy, and the natural environment influence the health and mortality, migratory patterns, and reproductive behavior of human society. A recent innovative example of this broader approach is:

- The development of research methods to project population by level of education and so explore the implications of different education policies on a country’s future fertility, life expectancy, migration, and population level as well as economic growth and ability to adapt to climate change. In 2014 IIASA published the first projections of educational attainment by age and sex for 195 countries with Oxford University Press. Findings for Mexico show how different policies over the next few decades could lead to the country’s 2010 population of 113 million increasing to 238 million by 2100 or falling to around 98 million.

Other joint studies with Mexican collaborators include:

- Research with El Colegio de México analyzed how using household surveys within integrated assessment models can shed new light on people’s vulnerability to climate change and ways to adapt to these threats.

- In 2011, IIASA’s demographers assembled a global panel of experts, including Silvia Giorguli of El Colegio de México. Together, they issued the Laxenburg Declaration which outlined the demographic challenges for sustainable development and was subsequently published in Science.

Through intense data gathering, computer modeling, and other advanced research methods, IIASA provides a country’s researchers and their policymakers with the essential numbers and tools to select the most effective policies. For example:

- A recent analysis explored the impact of different education and development policies on Mexico’s future total population. If Mexico follows a conventional development scenario over the coming decades, IIASA’s demographers project the country’s 2010 population of 113 million will peak this century at around 133 million and then fall to 98 million by 2100. Rapid development would lead Mexico to following a similar scenario with its population reaching over 138 million this century and then falling to around 108 million by 2100. However, if development were to stall, Mexico’s population is likely to continue to rise and reach over 238 million by 2100. (Source: Lutz W, Butz WP, KC S (Eds) (2014). World Population & Human Capital in the Twenty-first Century. Oxford University Press, UK).

Many of the research projects summarized in this Info Sheet draw on analyses from IIASA’s models, tools, and data including:

- Reducing air pollutants and greenhouse gas emissions simultaneously (GAINS model).
- Planning a sustainable energy system (MESSAGE model, Global Energy Assessment Scenario Database).
- Reducing energy poverty (Energy Access Interactive Tool [ENACT]).
- Improving food security through identifying yield gaps (GAEZ model) and assessing competition for land use between agriculture, bioenergy, and forestry (GLOBIO3 model).
- Financial disaster risk management (CATSIM model).
- Projecting future population (Demographic multistate modeling).
Developing a sustainable energy system in Mexico

Developing a sustainable energy system in Mexico requires a thorough understanding of the complex global energy system and its multiple connections with Mexico’s economy, environment, and society. Integrated, international assessments are one of the few research approaches that have the breadth and depth to explore such complex problems across multiple sectors, regions, and timeframes. IIASA has developed substantial expertise in international energy assessments, most recently in the Global Energy Assessment (GEA), which involved contributions from researchers at the National Autonomous University of Mexico and the Autonomous University of Baja California Sur.

Governance of transboundary water resources along the United States and Mexico border

A new research project is developing comparative approaches to transboundary water resources environmental governance along the United States and Mexico border, with case studies of the Rio Grande/Río Bravo Basin and the Colorado River Basin. The project, which runs from 2014-16, (1) analyzes institutional and organizational regional arrangements for transboundary river governance, (2) addresses stakeholders’ involvement at the local level, (3) develops a qualitative methodology to evaluate and compare different scenarios of transboundary water resources environmental governance, and (4) formulates recommendations to enhance and optimize current environmental governance. Researchers from Canada (Université Laval), Mexico (IIASA’s Colosio Fellow: see page 10), USA (University of California, Davis & New Mexico State University) and IIASA are collaborating on the project.

Business can benefit from science through the analysis and knowledge it provides. In turn, science can benefit from business through its experience on the ground and in implementation. IIASA also recognizes that closer collaboration between business and its researchers can increase the impact of the Institute’s work. Not surprisingly, IIASA is seeing a growing number of contracts with commercial partners, including:

- The global insurer, Zurich Insurance Group, began working with IIASA in 2013 to identify and address research gaps on flood resilience and community based disaster risk reduction, demonstrate the benefits of pre-event risk reduction over post-event disaster relief and to improve public dialogue around disaster resilience.
- The German carmaker, Daimler AG, has collaborated with IIASA researchers to assess biofuel potential from marginal and degraded lands in India and Brazil.
- The Brazilian energy company, Petrolero Brasileiro, was one of nineteen sponsors of IIASA’s Global Energy Assessment.
- The research institute of the Japanese carmaker, Toyota, has an ongoing collaboration with IIASA to research measures to reduce ozone emissions in Asia.
- The multinational consumer goods company, Unilever, funded IIASA’s agricultural experts from 2008-10 to analyze yields and land suitability of key agricultural crops under a changing climate.

In addition, IIASA is exploring ways that it can work more closely with multinational corporations, including through input to the development of their global sustainable business plans.
**Water management in the Mexico City basin**

The aquifer system of the Basin of Mexico is the main source of water supply to the Mexico City Metropolitan Zone and its nearly 20 million inhabitants. Under supervision of IIASA’s modeling experts, IIASA’s Colosio Fellow (see page: 10) developed a regional groundwater flow model between 2006-08 to improve understanding of regional groundwater flow patterns including factors that affect aquifer recharge. A range of publications and recommendations resulted from the study.

**Old-age pensions in Mexico**

IIASA research recently chronicled the rise of social pensions in Mexico which have helped increase the number of older Mexicans with a pension from 22% in the year 2000 to 88% by 2013. The analysis also suggests what still needs to be done in order to achieve pensions for everyone in Mexico.

**Risk of financial crisis higher than previously estimated**

A study by researchers from Banco de México, IIASA and others has found that the risk of a financial crisis is substantially higher than previously estimated. The research, published in the journal *Financial Stability*, introduces a new method that allows researchers to estimate the systemic risk that emerge from multiple layers of connectivity. For example if a major bank fails, it could trigger the failure of other financial institutions that are linked to it through loans, derivatives, securities, and foreign exchange exposure. The fear of such contagion is what drives governments to bail out banks.

Previous studies of systemic risk have just examined one layer of this system, the interbank loans. The new study expands this to include three other layers of connectivity: derivatives, securities, and foreign exchange. By including the other layers, the researchers found that the actual risk was 90% higher than the risk just from interbank loans.

Currently, financial regulators tend to use market-based measures to estimate systemic risk. The researchers find that these measures also underestimate the actual risk. In Mexico, which the researchers used as a case study, they found that systemic risk levels are about four times higher today than before the financial crisis—yet these risks are not reflected in market-based measures.
Capacity Building

Young Scientists Summer Program

The Young Scientists Summer Program (YSSP) develops the research skills and networks of talented PhD students. Program participants conduct independent research within the Institute’s research programs under the guidance of IIASA scientific staff. Funding is provided through IIASA’s National Member Organizations. In 2015 the following two students from Mexico have participated:

Yolanda Lopez Maldonado (YSSP ’15 & Ludwig Maximilian University of Munich), a Mexican national, conducted an early identification of the human drivers affecting the groundwater system of Yucatan, Mexico, using material flow analysis.

Julio Enrique Herrera Estrada (YSSP ’15 & Princeton University), a Mexican national, investigated how compound events of droughts and heatwaves around the world may change in the future due to climate change, and what this means for water stress in different regions, given trends in water use.

Luis Donaldo Colosio Fellowship

The Colosio fellowship funds a Mexican doctoral or postdoctoral scholar to develop their research skills in IIASA’s international and interdisciplinary scientific environment. The funding helps the young scientist to look at his/her work from fresh angles, to publish widely in journal articles, and to establish his/her own global network of collaborators. The fellowship was established in memory of former IIASA researcher Luis Donaldo Colosio, who was assassinated on 23 March 1994 while campaigning in Tijuana for the office of President of Mexico. The fellowship ran from 1994 to 2008 and in 2014 was re-launched to coincide with Mexico becoming IIASA’s 22nd member country and so help strengthen IIASA’s ongoing collaboration with Mexico. Recent Colosio fellows include:

Luzma Nava Jiménez (2014 to present) is exploring how to build strong and adaptive institutions to govern transboundary water bodies and withstand environmental challenges. Her work focuses on the transboundary river basin environmental challenges across the United States-Mexico border.

Manuel Benjamin Ortiz-Moctezuma (2008-09) developed new models to better understand transportation systems in the context of economic growth.

Jaime Carrera Hernandez (2006-07) used the multi-criteria model analysis methods developed at IIASA to analyze water management solutions in the 9,000km² Basin of Mexico, which encloses Mexico City and its metropolitan area.

Sergio Saldana Zorrilla (2002-03) analyzed economic vulnerability to natural and economic hazards of Mexican farmers and Mexico’s agricultural sector in order to assess public and private coping capacity.
IIASA researchers regularly make presentations in Mexico, a recent selection follows:

**Nebojsa Nakicenovic** participated in the round table discussions on "Accelerating Energy Productivity" and "Sustainable Urban Energy Transition" at the Clean Energy Ministerial 6 (CEM6) forum in Merida, Yucatan, in 2015.

**Zbigniew Klimont** on "GAINS and the regional assessment of short-lived climate pollutants (SLCPs) in Latin America and the Caribbean" at the second author meeting of the Latin America and the Caribbean Assessment SLCP meeting in Mexico City in 2015.

**Wolfgang Lutz** on "Global human capital: Integrating education and population" at the Center for Demographic, Urban and Environmental Studies at El Colegio de México in 2014.

**Sergei Scherbov** on "New measures of age and ageing" at the Center for Demographic, Urban and Environmental Studies at El Colegio de México in 2014.

**Zbigniew Klimont** on "Public policies to reduce environmental impact of brick production" at a workshop on 'Regional and global impacts of brick production' in Guanajuato in 2012.

**Nebojsa Nakicenovic & Michael Obersteiner** on "Are our present energy systems adequate to resolve the challenges of the 21st Century such as climate change, poverty alleviation, energy security, and food security?" at an IIASA side event 'The multiple co-benefits of transformational change: energy, land use, and climate change' at the UN Climate Change Conference in Cancun in 2010.


**Ariel Macaspac Penetrante** on "Education and migration" at the First Latin American Congress on International Migration, 'Voices of the South' at the University of Toluca in 2008.

Other examples of scientific exchange include:

- Since 2008 Mexicans have visited IIASA to participate in a range of IIASA organized events 15 times, while IIASA scientists have visited Mexico over 30 times.
- 15 publications have resulted from collaborations between IIASA and Mexican nationals since 2008.
- On average between one and two Mexicans have been employed by IIASA every year since 2008.
- Since 2008, four Mexicans have gained international and interdisciplinary research experience from participating in IIASA's capacity building programs.

**Appendices**

The details behind the above facts can be found in the following appendices to the country sheet. The appendices are either attached or available on request from Sanja Drinkovic (drinkovic@iiasa.ac.at):

1. Employees with Mexican nationality at IIASA (2008-2015)
Prospects for Future IIASA-Mexican Activities

This Info Sheet summarizes recent research collaborations between IIASA and Mexico. Significant potential remains to further intensify the IIASA-Mexican relationship through developing a range of new joint activities including:

- **Enhancing Mexican expertise in applying system analysis to national problems:** Developing bespoke Mexican versions of IIASA’s global models would allow researchers and policymakers to look at complex global problems and their impact on Mexico in a holistic and integrated way. For example, the Dutch government worked with IIASA to develop a Dutch version of the IIASA GAINS model. The new model helps ministries to identify cost-effective measures to improve air quality and reduce greenhouse gas emissions in the Netherlands at the same time as complying with the country’s obligations under European air quality agreements.

- **Conducting international assessments in areas of Mexican strategic interest:** Mexico contributed to IIASA’s Global Energy Assessment which brought together over 500 specialists to transform the way society thinks about, uses, and delivers energy. IIASA is embarking on two new assessments, at the request of its member countries that will focus on issues of strategic interest to Mexico. These are holistic, integrative assessments of plausible futures for global water challenges, and tropical forests.

- **New partnerships between IIASA and Mexican institutions to win grants from international research funders:** IIASA’s high-quality research and international research network makes it highly competitive in its applications for international research funds. Between 2006 and 2013, IIASA almost doubled its income by winning research grants that amounted to €62.5 million. This was part of a total funding portfolio of €308 million of the external projects in which IIASA was and is involved.

- **Using international scientific cooperation to support diplomacy:** IIASA was established in 1972 to use scientific cooperation to build bridges across the Cold War divide and research growing global problems on a truly international scale. Today the soft power of science diplomacy continues to help IIASA’s member countries through using scientific cooperation to improve international relations, and through international teams jointly researching controversial issues to find consensus, free from the constraints of national self-interest (see box: Research to support science diplomacy: page 6). Recently, IIASA has launched a new international project to analyze the prospects for economic integration between Europe and the countries of the former USSR.

- **Academic training opportunities for young Mexican scientists:** There is potential to further enhance participation by young Mexican doctoral and post-doctoral students in IIASA’s programs to develop international and interdisciplinary research skills (see page 10: Capacity Building). For example, by becoming a partner in IIASA’s forthcoming International Postgraduate School of Excellence.
About IIASA

Founded in 1972, the International Institute for Applied Systems Analysis (IIASA) conducts policy-oriented research into problems of a global nature that are too large or too complex to be solved by a single country or academic discipline. IIASA’s research areas are energy and climate change; food and water; and poverty and equity.

IIASA is at the center of a global research network of around 2,500 scholars and over 550 partner institutions in over 65 countries. It is funded and supported by its National Member Organizations which represent the scholarly community in the following countries:

Australia, Austria, Brazil, China, Egypt, Finland, Germany, India, Indonesia, Japan, Malaysia, Mexico, Netherlands, Norway, Pakistan, Republic of Korea, Russia, South Africa, Sweden, Ukraine, United Kingdom, United States of America, Vietnam.

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