Research collaborations between IIASA and Austria have been highly productive throughout IIASA’s history. Since 2008, this cooperation has involved over 50 Austrian organizations and led to over a thousand scientific publications. Recent joint studies have included an in-depth assessment of climate change in Austria, analyses of demographic change in Austria, investigations into the potential of biofuels in Austria, and development of innovative techniques to collect land use data. Underpinning the joint work is systems analysis—one of the few research tools with the breadth and depth to explore complex global problems and how they impact countries. Many young Austrian scientists are profiting from IIASA’s capacity building activities in systems analysis. As IIASA’s host country, Austria also benefits from the arrival of considerable international scientific talent to IIASA, and a significant amount of scientific exchange through events, lectures, and visits in addition to joint projects between IIASA researchers and Austrian institutions. In turn IIASA greatly benefits from a wide range of Austrian support, including the buildings (Schloss Laxenburg and the GP Building) that house the Institute. This IIASA Info Sheet provides a summary of interactions between IIASA and Austria since 2008.

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

<table>
<thead>
<tr>
<th>National Member Organization</th>
<th>Austrian Academy of Sciences</th>
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<tbody>
<tr>
<td>Membership start date</td>
<td>1973</td>
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</table>
| Selected research partners  | 54 Austrian organizations collaborate with IIASA including:  
  - Austrian Institute of Economic Research (WIFO)  
  - Central Institute for Meteorology and Geo-dynamics (ZAMG)  
  - Climate and Energy Fund  
  - Environment Agency Austria  
  - Federal Ministry for Europe, Integration and Foreign Affairs (BMEIA)  
  - Federal Ministry of Science, Research and Economy (BMWFW)  
  - Joanneum Research  
  - Universities of Graz, of Innsbruck, of Klagenfurt (AAU), and of Vienna  
  - University of Natural Resources and Life Sciences, Vienna (BOKU)  
  - Vienna Institute of Demography (VID), Austrian Academy of Sciences  
  - Vienna University of Economics and Business (WU)  
  - Vienna University of Technology (TU Wien) |
| Areas of research collaboration | Advancing demographic methods and applying them to the analysis of human capital and population dynamics  
  - Research collaborations to tackle climate change  
  - Transitions toward a sustainable energy future  
  - Increasing climate and disaster resilience  
  - Land use in Austria and Europe: Food, energy, water, and climate change  
  - Developing expertise in big data  
  - Basic research: Advancing the methods of systems analysis |
| Joint research grants        | Between 2006 and 2014, IIASA almost doubled its income by winning research grants that amounted to €69 million—15% of which funded projects that included partners from Austria. |
| Capacity building            | 25 Austrians have gained international and interdisciplinary research experience from participating in IIASA’s Young Scientists Summer Program. |
| Publication output           | 1052 publications have resulted from IIASA-Austrian collaborations |
| Other interactions           | Over 850 researchers, policymakers and diplomats who live in Austria have participated in IIASA events.  
  - On average 96 Austrians have been employed by IIASA every year. |
Activities with Member Countries: Austria

IIASA Info Sheet 2014/14
November 2014

The electronic version of this document is available at www.iiasa.ac.at/austria

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

This Info Sheet summarizes IIASA’s recent interactions with Austria. It includes highlights with links to further information but is not meant to be a comprehensive report on all interactions.

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

The Austrian Academy of Sciences is the National Member Organization (NMO) representing Austrian membership of IIASA. Membership began in 1973 and in addition to its membership fee; Austria provides the buildings (Schloss Laxenburg and the GP Building) that house IIASA along with favorable tax concessions and other privileges typical for international organizations in Austria. Today, Austria’s Federal Ministry of Science, Research and Economy (BMWF) funds the NMO and IIASA’s annual membership fee.

The Austrian Academy of Sciences entrusts the Austrian IIASA Committee with oversight of IIASA and with strengthening connections between IIASA and Austria’s science and policy communities. The committee has 30 members which include representatives of the Academy, ministries, universities and other research organizations.

Professor Dr Gerhard Glatzel, Austrian Academy of Sciences, is the Chairman of the Austrian IIASA Committee and the IIASA Council Member for Austria. 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. In addition, Professor Glatzel chairs the Council’s Finance Committee.

Other members of the Austrian IIASA Committee are:

Other representatives of the Austrian Academy of Sciences:

Vice Chairman: Professor Dr Kurt Komarek, Austrian Academy of Sciences
Professor Dr Anton Zeilinger, President, Austrian Academy of Sciences
Dr Michael Alram, Vice-President, Austrian Academy of Sciences

Representatives of Austrian Ministries:

Gesandter Mag Ernst Aichinger, Federal Ministry for Europe, Integration and Foreign Affairs
Mag Heribert Buchbauer, Federal Ministry of Science, Research and Economy
Dr Wolfgang Ecker, Federal Ministry for Social Security and Generations
Engr Elfriede Fuhrmann, Federal Ministry of Agriculture, Forestry, Environment and Water Management

Representatives of Austrian Universities:

Professor Dr Otto Doblhoff-Dier, Vice Rector for Research and International Relations, University of Veterinary Medicine, Vienna
Professor Dr Heinz Fassmann, Vice Rector for Human Resources Development and International Relations, University of Vienna
Professor Dr Manfred Fischer, Vienna University of Economics and Business
Professor Dr Helmut Haberl, University of Klagenfurt
Professor Dr Erich Gornik, Vienna University of Technology
Professor Dr Hans Ischik, Johannes Kepler University Linz
Professor Dr Gottfried Kirchengast, University of Graz
Professor Dr Dietmar Kuhn, University of Innsbruck
Professor Dr Andreas Ludwig, Montan University, Leoben
Professor Dr Reinhard Neck, University of Klagenfurt
Professor Dr Erwin Schmid, University of Natural Resources and Life Sciences, Vienna
Professor Dr Hans Süfkel, Graz University of Technology
Professor Dr Peter Zinterhof, Salzburg University

Representatives of other Austrian Research Institutes:

Mag Michael Binder, Austrian Research Promotion Agency
Professor Dr Wolfgang Knoll, Austrian Institute of Technology
Mag Marisa Radatz, Ludwig Boltzmann Society
Dr Michael Reiter, Institute for Advanced Studies
Dr Marcus Scheiblecker, Austrian Institute of Economic Research

The Austrian Academy of Sciences represents Austria and its scholarly community on IIASA’s governing Council

Web: www.oeaw.ac.at/iiasa-kom
Email: pitner@oeaw.ac.at
Some leading Austrian personalities from government and academia who are associated with IIASA (recent and past)

Dr Petra Bohuslav, Lower Austrian Commissioner for Economics, is working with IIASA’s Director General to strengthen cooperation between IIASA and the Province of Lower Austria.

Federal President Dr Heinz Fischer has been a long-term supporter of IIASA including opening IIASA’s last two Anniversary Conferences in 2007 and 2012.

Ms Margit Fischer, First Lady of Austria and Chairperson of the Science Center Netzwerk which aims to engage more Austrians with science and includes IIASA as a member.

Professor Dr Franz Fischler, President of the European Forum Alpbach, former European Union Commissioner for Agriculture, Rural Development and Fisheries and former Austrian Federal Minister for Agriculture and Forestry, has partnered with IIASA to establish and run the Alpbach-Laxenburg Group.

Professor Dr Heinz Gärtner, Director, Austrian Institute for International Affairs (OIIP) signed a memorandum of understanding with IIASA in 2014 to develop stronger research collaborations.

Professor Dr Gerzabek, Rector of the University of Natural Resources and Life Sciences, Vienna (BOKU) signed a Memorandum of Understanding with IIASA in 2013 to further develop research partnerships in areas ranging from food security to forest management and to develop joint capacity building activities such as through the joint supervision of doctoral students.

HE Ambassador Irene Giner-Reichl, Austrian Ambassador to China, was a member of the governing council of IIASA’s Global Energy Assessment and has been a supporter of IIASA for many years.

Clemens Hellsberg is President of the Vienna Philharmonic Orchestra which is a goodwill ambassador for the work of IIASA.

Professor Thomas A. Henzinger, President of IST Austria, is working with IIASA to strengthen collaborations.

Professor Dr Raoul F. Kneucker, former Director General for scientific research and international science affairs at the Federal Ministry of Education, Science and Culture (BMBWK), is Deputy-Chairman of IIASA’s Endowment Fund Board.

Professor Dr Kurt Komarek, former Rector of the University of Vienna, was the IIASA Council member for Austria from 1991 to 2009 and served as the Interim Chair of IIASA’s governing Council from 1997-98.

Professor Thomas Nowotny of the University of Vienna and the President of the Vienna Chapter of the Society for International Development is a Trustee of the IIASA Endowment Fund.

Professor Karl Sigmund, Vienna University is an award-winning mathematician and one of the pioneers of evolutionary game theory. He has worked part-time as a research scholar at IIASA since 1984.

Dr Karlheinz Töchterle, former Federal Minister for Science and Research (2011-13), has been a long-term supporter of IIASA, visiting the Institute in 2012 and speaking at and sponsoring IIASA’s fortieth anniversary conference in the Hofburg Imperial Palace in 2012.

Professor Dr Oliver Vitouch, Rector of the University of Klagenfurt, will sign a Memorandum of Understanding with IIASA in December 2014 to further develop research collaborations and joint capacity building activities.
Research Partners in Austria

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

Austrian Academy of Sciences (ÖAW)
Austrian Agency of Health and Food Safety (AGES)
Austrian Climate Research Program (ACRP)
Austrian Development Agency (ADA)
Austrian Exchange Service (OeAD)
Austrian Energy Agency
Austrian Institute of Economic Research (WIFO)
Austrian Institute of Technology (AIT)
Austrian National Bank (OeNB)
Austrian OpenTrack Railway Technology
Austrian Partnership Programme in Higher Education and Research for Development (APPEAR)
Austrian Research Centres for Forests (BFW)
Austrian Research Promotion Agency (FFG)
Austrian Service for Torrent and Avalanche Control
Austrian Science Fund (FWF)
Austrian Security Research Project KIRAS
Center for Energy and Innovative Technologies (CEIT)
Central Institute for Meteorology and Geo-dynamics (ZAMG)
Climate Change Center Austria (CCCA)
Climate and Energy Fund
Diplomatic Academy of Vienna
Environment Agency Austria
Federal Ministry for Family and Youth (BMFJ)
Federal Ministry for Europe, Integration and Foreign Affairs (BMEIA)
Federal Ministry for Transport, Innovation and Technology (BMVIT)
Federal Ministry of Science, Research and Economy (BMWF)
Geological Survey of Austria
Graz University of Technology (TU Graz)
Institute for Advanced Studies, Vienna (IHS)
Institute of Social Ecology, Vienna
Joanneum Research
Johannes Kepler University Linz
Konrad Lorenz Institute for Evolution and Cognition Research (KLI)
Kommunalkredit Public Consulting
Medical University of Vienna
Montan University, Leoben
OMV
Research Institute for Limnology, Mondsee
RSA iSPACE
Science Center Netzwerk
University of Applied Sciences, Wiener Neustadt (FHWN)
University of Graz
University of Innsbruck
University of Klagenfurt
University of Natural Resources and Life Sciences, Vienna (BOKU)
University of Salzburg
University of Veterinary Medicine, Vienna
University of Vienna
Vienna Graduate School of Finance (VGSF)
Vienna Institute for International Economic Studies (WIIW)
Vienna Institute of Demography (VID), Austrian Academy of Sciences
Vienna Science and Technology Fund (WWTF)
Vienna University of Economics and Business (WU)
Vienna University of Technology (TU Wien)

IIASA is continually developing collaborations with Austria and has recently been working with 54 organizations in Austria via formal and informal connections.
Recent Research Collaborations

**Advancing demographic methods and applying them to the analysis of human capital and population dynamics**

IIASA's demographers study and project the changing composition of population for all countries of the world. They produce one of the few independent alternatives to the demographic projections of the UN Population Division. As a testament to the quality of IIASA's demography, the IPCC in 2011 adopted IIASA's population projections as its source data in all modeling for the Fifth Assessment Report; and UNESCO has adopted IIASA's demographic methods as part of its literacy forecasting.

A partnership between IIASA, the Vienna Institute of Demography, and the Research Institute on Human Capital and Development at the Vienna University of Economics and Business established the Wittgenstein Centre for Demography and Global Human Capital in 2011. The Centre combines the partners' strengths in the fields of demography, human capital formation, and analysis of the returns to education. It builds on a highly successful collaboration that has already generated significant scientific advances and provides sound scientific foundation for decision-making at various levels. This partnership also ensures there is a critical mass of demographic research skills in Austria and helps deliver further research excellence through knowledge exchange. In addition, IIASA's interdisciplinary setting encourages the 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 has been the development of research methods to project population by level of education. This equips researchers with the tools to 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 Austria show how different...

Austrian foreign policy and IIASA

Austrian leaders emphasize the unique role the country plays as an East-West hub and as a moderator between industrialized and developing countries. Neutrality and multilateral problem solving are cornerstones of Austria's long-term foreign policy and have seen Vienna become one of the most important headquarters of international organizations in the world.

IIASA contributes to this policy through building international consortiums of researchers to find global solutions to global problems. From the Institute's headquarters just outside Vienna, these multinational teams gather to research today's major global challenges ranging from tackling climate change to building sustainable energy systems to solving water scarcity. The Federal Ministry for Europe, Integration and Foreign Affairs (BMEIA) supports these efforts both in Austria and abroad:

- Former Foreign Minister Dr. Michael Spindelegger visited IIASA in 2010 along with United Nations Secretary General Ban Ki-moon; BMEIA has sponsored a range of major international conferences organized by IIASA including most recently its fortieth anniversary conference in 2012 and the Vienna Energy Forum in 2013. And BMEIA brings together ten Vienna-based international organizations dealing with energy to further develop a cluster of innovative international expertise in energy in Austria via the Vienna Energy Forum.
- Austrian embassies facilitate interactions between IIASA and its member countries as the following selected examples from 2014 show: HE Ambassador Bernhard Zimburg hosted a reception for IIASA at the Austrian Embassy in Tokyo; HE Ambassador Hans Peter Manz met with IIASA's Director General Professor Dr. Kabat to develop mutually beneficial activities between IIASA and the Austrian Embassy to the USA; and HE Ambassador Irene Giner-Reichl hosted a dinner for IIASA's Director General at the Austrian Embassy in Beijing.
policies over the next few decades could lead to the country’s 2010 population of 8.39 million falling to 4.55 million by 2100 or increasing to over 13 million.

Collaborations between demographers at IIASA, the Vienna Institute of Demography, and the Vienna University of Economics and Business have also researched:

- The basic hypothesis that societies can develop the most effective long-term defense against the dangers of climate change by strengthening human capacity—primarily through education.
- How skills, productivity, attitudes and beliefs in Europe will change over the coming decades.
- The effect of demographic change on economic growth.
- The dynamics of an improving educational composition of the population and to demonstrate the long-term implications of near-term investments in education.
- New approaches to the study of age and aging that are appropriate for the 21st century.

**Research collaborations to tackle climate change**

Although Austria has not currently set long-term reduction targets for greenhouse gas emissions, the EU foresees a reduction of 80% by 2050 compared to 1990 levels. Achieving such a goal will require adopting and implementing the most effective and efficient strategies. 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.

The Austrian Climate Change Assessment Report 2014 was the first national-level report that mirrors the breadth and rigor of the Intergovernmental Panel on Climate Change, examining the historical and future development of climate change, as well as the potential response and mitigation measures for the problem. IIASA’s Deputy Director General was the project leader of the report which brought together data and findings from over 240 scientists at over 50 institutions including IIASA, the Climate Change Center Austria, Vienna University of Technology (TU Wien), the Wegener Center for Climate and Global Change at the University of Graz, and the Center for Global Change and Sustainability at the University of Natural Resources and Life Sciences, Vienna (BOKU). IIASA also led and managed the review process of the report to ensure rigor and the highest research standard.

The holistic approach of systems analysis helps identify climate change strategies that reap multiple benefits across sectors and regions, as well as avoid policies that lead to negative side effects in remotely connected activities. IIASA’s integrated assessment model, GAINS, identifies

Joint Austrian-IIASA studies have produced an assessment report on climate change in Austria as well as identifying strategies to reduce greenhouse gas emissions in the most cost effective way

Selected publications resulting from IIASA-Austrian collaborations

smart mixes of measures to simultaneously cut air pollution and greenhouse gas emissions in the most cost-effective way. It has been applied successfully to many international environmental negotiations. The European implementation of GAINS includes Austria and experts from the Environment Agency Austria have visited IIASA to learn more about GAINS and how it guides EU policy and the National Emission Ceilings Directive. Other Austrian-IIASA collaborations using GAINS include:

- The research project SYNADAPT (2009-10) with Joanneum Research, sponsored by the Austrian Climate and Energy Fund analyzed the synergies between adaptation and mitigation strategies.
- The joint study RE-ADJUST (2013-15) with the University of Graz, also sponsored by the Climate and Energy Fund is carrying out a comprehensive model-based analysis of technological options, taking into account international trade, to achieve European energy and climate targets.

In addition, IIASA has been a member of the Climate Change Centre Austria (CCCA) since 2011. CCCA is a contact point for research, policy, media and the public for all aspects of climate research in Austria.

Transitions toward a sustainable energy future

The long-term Austrian energy strategy aims to establish a sustainable energy system through increasing energy efficiency; promoting and intensifying renewable energy; and guaranteeing energy supply for the long term. Achieving these goals requires a thorough understanding of the complex global energy system and its multiple connections with Austria’s economy, environment, and society.

Most recently, IIASA led the Global Energy Assessment (GEA), from 2006-12, in which a new global energy policy agenda is defined—one that transforms the way society thinks about, uses, and delivers energy. GEA involved over 500 specialists from a range of disciplines, industry groups, and policy areas, to identify pathways and policies to facilitate equitable and sustainable energy services for all:

- Austria was an important sponsor of the GEA with the Austrian Development Agency providing substantial financial support.

A range of collaborations between Austrian and IIASA researchers are investigating how to manage the transition toward a sustainable energy system.

In 2013, the European Forum Alpbach (EFA) and IIASA as part of their ongoing strategic partnership launched the Alpbach-Laxenburg Group (ALG). The group brings together some of the best minds in the world from academia, governments, business leaders and civil society to support global economic and social transformations towards sustainability by creating and communicating positive narratives for sustainable development and business opportunities, grounded in cutting edge international systems-science.

Austrian members of the Alpbach-Laxenburg Group include Franz Fischler, President of the European Forum Alpbach and former EU Commissioner for Agriculture, Rural Development and Fisheries; and Clemens Hellsberg, President of the Vienna Philharmonic Orchestra. They join other members including: Tarja Halonen, former President of Finland; Pascal Lamry, former Director General of the World Trade Organisation; Rajendra K. Pachauri, Chairman of the Intergovernmental Panel on Climate Change; Mary Robinson, former President of Ireland; and Jeffrey Sachs, Director of the Earth Institute, Columbia University, and Director of the United Nations Sustainable Development Solutions Network.

Following a three-day high-level retreat during the 2014 European Forum Alpbach, ALG issued a declaration arguing that inequality must be a primary focus for the post 2015 sustainable development goals. Future meetings and declarations will explore climate change, women’s empowerment, energy for all, and education for all among other global issues.
Austrian scientists at IIASA played important roles directing the GEA with Nebojsa Nakicenovic serving as GEA Director and Luis Gomez-Echeverri as GEA Associate Director, and Ambassador Irene Giner-Reichl as a member of the GEA governing Council.

Austrian scientists made a significant contribution to the GEA with eleven authors from IIASA, Montan University, and the Universities of Graz, and Klagenfurt.

Outcomes from the GEA included the adoption of GEA’s findings as the three key objectives of the UN Secretary-General’s Sustainable Energy For All (SE4ALL) initiative on energy access, energy efficiency, and renewable energy.

Other energy-related activities have contributed to knowledge exchange between the cluster of energy-related international organizations in Vienna including the International Atomic Energy Agency and SE4ALL. These include:

- Every two years since 2009, UNIDO, IIASA, and the Federal Ministry for Europe, Integration and Foreign Affairs host the Vienna Energy Forum to facilitate international dialog on energy issues ranging from how to reduce energy poverty to how to increase energy efficiency.
- IIASA is a member of the Vienna Energy Club, which brings together ten Vienna-based international organizations dealing with energy along with the Austrian Federal Ministries for Europe, Integration and Foreign Affairs and for Family and Youth, to provide an informal platform for discussions and exchange of views.

Other joint energy studies include:

- IIASA’s energy experts and TU Wien have been exploring mitigation pathways and associated costs as part of the EU-funded AMPERE project (2011-14).
- With the Center for Energy and Innovative Technologies on the EU-funded, EnRiMA project (2010-14), IIASA developed a decision support system to help energy managers of public buildings in certain cities in Austria to improve energy efficiency.

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:

1. 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 Intergovernmental Panel on Climate Change Fifth Assessment Report.

2. 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.
Increasing climate and disaster resilience

Joint research has assessed ways to improve proactive climate and disaster risk management through improving our understanding of the risks faced by Austria, Europe and vulnerable regions of the world; identifying cost effective ways for Austria to adapt to anticipated changes from climate change; providing management tools for those working in disaster prevention and emergency preparation roles; and researching how to make countries and systems more resilient.

Research collaborations improving our understanding of risks include:

- In 2009, risk specialists from BOKU and IIASA published Urban flooding: Reducing vulnerabilities which investigates flood risks in Vienna and suggests alternative mitigation measures as part of an overall strategy to decrease total mitigation costs and reduce the likelihood and uncertainties of catastrophic financial losses.

Findings from collaborations between IIASA and Austrian researchers are helping to enhance climate and disaster resilience in Austria, Europe, and developing countries

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:

- The Austrian Climate Change Assessment Report (AAR14), published in 2014, was the first national-level climate report that mirrors the breadth and rigor of the Intergovernmental Panel on Climate Change (IPCC), examining the historical and future development of climate change, as well as the potential response and mitigation measures for the problem. Its findings include:
  - Since 1880, average temperature in Austria has risen by nearly 2°C, compared with a global average increase of 0.85°C. The report projects that by 2050, the average temperature in Austria will likely increase by approximately 1.4°C compared to current temperatures.
  - Extremely hot days are expected to become more frequent in summer, while very cold days will become rarer in winter.
  - Snow cover duration and glacier extent have decreased significantly in recent decades, and this trend is likely to continue.
  - Precipitation patterns are likely to change, but with significant regional differences. On average, the report projects an increase in precipitation in winter months, and a decrease in summer months.
  - The risk of natural disasters including landslides and rockfalls, as well as forest fires, is projected to increase as precipitation patterns change and the temperature increases.
  - IIASA Deputy Director Nebojsa Nakicenovic led the project, IIASA researchers were among the authors, and IIASA led and coordinated the peer-review process to ensure the report was of the highest standard. (Source: APCC (2014): Summary for Policymakers (SPM). In: Österreichischer Sachstandsbericht Klimawandel 2014 (AAR14), Austrian Panel on Climate Change (APCC), Verlag der Österreichischen Akademie der Wissenschaften, Wien, Österreich.)

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 (GLOBIOM model).
- Financial disaster risk management (CATSIM model).
- Projecting future population (Demographic multistate modeling).
IIASA is researching with Joanneum Research and the University of Graz as part of the EU-funded IMPACT2C project (2011-15) to assess the biophysical impacts and socio-economic risks associated with a global temperature increase of 2°C for Europe and the most vulnerable regions of the world.

IIASA researchers played important roles in the latest IPCC Special Report on extreme events and joined the Austrian Federal Minister for Agriculture, Forestry, Environment and Water to launch the report in 2012 and explain how its findings relate to Austria and Europe. Joint studies are identifying cost effective ways for Austria to adapt to anticipated changes from climate change and include:

- IIASA researchers are calculating the costs of climate change in Austria if the country takes no action on adaptation and no further action on mitigation as part of the Costs of Inaction (COIN) project from 2013-14 with the Austrian Institute for Economic Research (WIFO), Austrian Research Centres for Forests (BFW), Climate Change Centre Austria (CCCA), Environment Agency Austria, Joanneum Research, University of Graz, University of Klagenfurt, BOKU, TU Wien, and the Central Institute for Meteorology and Geo-dynamics (ZAMG).

- IIASA is conducting, as a policy case study, an assessment of the fiscal consequences of extreme weather events and adaptation to future events at the federal and provincial level in Austria as part of the Public Costs of Adaptation (PACINAS) project (2014-16) with the Austrian Institute of Technology (AIT), the Environment Agency Austria, and the University of Graz.

- IIASA’s risk experts are investigating the link between risk-transfer instruments (especially insurance) and the promotion of climate adaptation in general and risk mitigation in particular in Austria as part of the InsAdapt (2013-16) project funded by the Austrian Climate Research Program.

Decision support and management tools include:

- With the Austrian Agency of Health and Food Safety (AGES), WIFO, BFW, Environment Agency Austria, University of Salzburg, and ZAMG, IIASA is developing a decision support system to help the city of Lienz build resilience and reduce the risk of hazards stemming from climate change. The project known as ARISE runs from 2014-16 and is funded by the Climate and Energy Fund.

- Landslide risk management tools as part of the EU-funded Safelands project (2009-12) which included the Geological Survey of Austria as a research partner, and the Austrian Service for Torrent and Avalanche Control as end users.

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. For example, researchers and policymakers from Austria (Vienna Institute for International Economic Studies), the European Commission, Finland, Germany, Russia, and Ukraine are jointly analyzing the challenges and opportunities for greater economic integration in Eurasia.

In addition, IIASA also maintains its original bridge-building objective through attracting member countries that represent a range of geo-political interests (see full list of members: Back page). For instance, both Russia and the US are members; as are Brazil, China, India, and South Africa. Several key factors also unite all IIASA member countries: their interest in systems analysis, scientific and academic infrastructure, economic stability and the geopolitical role in future global transitions. With this in mind, IIASA is also negotiating membership with countries in the Middle East (Qatar, Saudi Arabia, Turkey) and, at IIASA Council, has discussed starting negotiations with Iran and Israel.
New multi-sector partnerships to reduce or redistribute risk as part of the EU-funded ENHANCE project (2012-16) and including the Austrian OpenTrack Railway Technology GmbH.

A collaboration with the Universities of Salzburg and Vienna and other partners is modeling the anticipated changes in natural disaster patterns in Europe in order to assist emergency preparedness officials and to train young scientists in the risk management skills needed to respond to future disasters. This joint study is the EU-funded project, CHANGES, and runs from 2011-14.

Other joint studies are researching how to make countries and systems more resilient:

- IIASA researchers are assessing resilience of Austria to six specific scenarios: (1) political instability; (2) economic and financial crises; (3) societal crises (polarization, exclusion, gangs); (4) environmental risks (climate change, extreme weather events); (5) technological risks (cyber-attack and breakdown of critical infrastructure) and (6) pandemic risks. IIASA is working with FASResearch on this project (2013-15) which is funded by the Austrian Security Research Project KIRAS.

- IIASA is improving our understanding and management of the resilience of forested social ecological systems in the Congo Basin as part of the CoForTips project funded by the Austrian Science Fund (FWF).

**Land use in Austria and Europe: Food, energy, water, and climate change**

Increasing the potential of land in Austria and Europe to provide food, energy, and water as well as provide a host of ecosystem services from biodiversity to tourism, requires an integrated approach to identify synergies, explore trade-offs, and avoid unintended consequences. Systems analysis provides the tools for researchers to find the most effective policies among these competing uses and within the context of a changing climate that both influences the productivity of our land and is influenced by how we use the land. Recent collaborations between Austrian partners and IIASA are improving our understanding of how farmland and forests contribute to climate change, the potential of biofuels and other renewable energy in Austria and the Alps, and exploring the availability of future water resources.

IIASA’s global land use model GLOBIOM and its global forestry model G4M support multiple research projects that have improved our understanding of how Europe’s forests and farmland

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, Petróleo 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 works with the Austrian industrial company, OMV via IIASA Deputy Director General serving on OMV’s Advisory Group on Sustainability and being Chair of the Advisory Board of OMV Future Energy Fund from 2006-11.
– and people’s management of them – release and absorb greenhouse gases. Other collaborations use the models to analyze how climate change and associated government policies impact Europe’s agricultural and forestry sectors, which account for some 50% of Europe’s land surface. Projects and partners include:

- The EU-funded GHG Europe project (2010-13) with BFW, Joanneum Research, and the University of Innsbruck.
- The EU-funded CC-TAME project (2008-11) with Joanneum Research and BOKU.
- Joanneum Research and the University of Graz on the EU-funded IMPACT2C project (2011-15).
- The new EU-funded SIGMA project (2014-18), with the geo-information firm Geoville and other partners, is assessing the longer term impacts of agricultural dynamics on the environment and vice versa.

The impact of extreme weather events on the carbon cycle is the focus of the EU-funded CARBOExtreme project (2009-15), which includes IIASA and the University of Innsbruck as project partners. Together they are improving our understanding of how extreme weather events impact the Earth’s ability to absorb carbon; early findings from the project appeared in Nature in 2013.

Research into the potential of biofuels and renewable energy includes:

- IIASA’s BeWhere model determines the optimal size and location of bio-energy production plants based on minimizing the cost of the complete supply chain. An international team, coordinated by IIASA, develops the model and includes BOKU with whom IIASA developed a detailed version of the model for Austria. Recent research has assessed the cost-effectiveness of energy policy instruments to reduce greenhouse gas emissions by substituting fossil fuels with new bioenergy technologies, as well as identifying the optimal location, size and technology of second generation biofuel production plants in Austria.
- IIASA is leading the economic-ecological modelling of the recharge.green project (2012-15) using the BeWhere model. The project analyzes how to develop the potential of the Alps to provide renewable energy at the same time as conserving nature and ensuring sustainable land use, and is funded by the European Regional Development Fund in the Alpine Space Programme.
- The EU-funded S2Biom project (2013-16) is developing research tools and a roadmap for Europe to make more efficient use of the continent’s biomass resources. Austrian partners include Joanneum Research.
- BOKU, IIASA and TU Wien are assessing the vulnerability of the Austrian bio-based industries to climate change and providing policy guidelines for regional adaptation to these changes as part of the CC2BBE project (2013-15), which is funded by the Austrian Climate and Energy Fund.
- IIASA in collaboration with Joanneum Research and other partners completed the EU-funded Refuel project, which produced an EU road map for biofuels in transport in 2010.

Finally, in 2013, IIASA launched a new flagship initiative, Water Futures and Solutions (WFaS), to conduct an integrated analysis of global water challenges and solutions. Progress toward meeting global water challenges has not been enough. For example, 770 million people lack access to improved sources of drinking water, and 35 million die prematurely each year from water-related diseases. The Austrian Development Agency has recently funded WFaS to compile estimates of the future availability of water resources (in space and time) and changes in demand across multiple sectors under various scenarios of climate change and selected shared socio-economic development pathways.
Developing expertise in big data

The growth in data is a global phenomenon; and IIASA and Austrian researchers are collaborating to research and develop new tools and techniques, and innovative ways to extract insight and value from data:

- Accurate data underpins all studies. Over the past 5 years as part of the Geo-Wiki project, IIASA and partners including TU Wien and the University of Applied Sciences Wiener Neustadt (FHWN) have been leading a team of citizen scientists to improve maps of different land uses by examining satellite data to identify more exactly how people use the land. The rise of citizen scientists provides potential to radically improve the accuracy of maps and subsequently the quality of the research and policy recommendations that are based on mapping data.
  - One question the research teams always get is whether the analysis from laypeople is as good as that from experts. In other words, can they rely on non-experts to provide accurate data analysis? Together with a researcher from FHWN, IIASA researchers showed in the journal PLOS ONE (2013) that data gathered and analyzed by non-experts can rival the quality of data from experts.
  - To encourage more people to join its growing network of citizen scientists, the Geo-Wiki team has developed innovative online games in a range of projects including Landspotting (2011-12) which was funded by the Austrian Research Promotion Agency (FFG).

Joint Austrian-IIASA studies are combining satellite data and other information to provide African farmers with early warning of droughts:

- Using satellite data and models, researchers from IIASA, TU Wien and ZAMG developed a prototype to provide early warning to farmers in East Africa of the risk of drought as part of the GEOSAF project (2012-13) funded by the European Space Agency. The same collaborators developed a system to provide weather forecasts and soil moisture information to farmers in Ethiopia and Kenya as part of the FFG-funded FarmSupport project (2012-13).
- This research has recently been extended as part of the FFG-funded Satida project (2014-18). IIASA with BOKU, TU Wien, ZAMG, and Médecins Sans Frontières, Austria are further developing innovative methods to use satellite data to improve the assessment of drought risks.

In 2013, IIASA’s Geo-Wiki team won a €1.4 million grant from the European Research Council to further develop the global network of citizen scientists for environmental monitoring. The new project focuses on two pilot areas in Austria and Kenya. In Austria the researchers will focus on collecting on-the-ground data along the lines of the Eurostat’s Land Use Change Analysis System surveys, by building and engaging a local network of citizen scientists to collect the data.

All the above studies build on earlier collaborations with BOKU which analyzed the benefits of using satellite imagery not just in the study of climate change but also for energy, water, agriculture and ecosystem research as part of the EU-funded GEOBENE project (2006-09) and

Dr Markus Amann has been Program Director of IIASA’s Mitigation of Air Pollution and Greenhouse Gases Program and earlier versions of the program since 1991.

Professor Dr Arnulf Grubler has been Acting Program Director of IIASA’s Transitions to New Technologies Program since 2008.

Professor Dr Wolfgang Lutz has been Program Director of IIASA’s World Population Program since 1994.

Professor Dr Nebojsa Nakicenovic has been Deputy Director General of IIASA since 2008 and was Director of the IIASA coordinated Global Energy Assessment from 2006-12.

Dr Michael Obersteiner has been Program Director of IIASA’s Ecosystems Services and Management Program since 2011.

Professor Dr Keywan Riahi has been Program Director of IIASA’s Energy Program since 2008.
developed tools to take advantage of these benefits as part of the EU-funded EuroGEOSS (2009-12).

**Basic research: Advancing the methods of systems analysis**

Many of the most serious problems that confront humanity—including climate change, global food security, and sustainable energy—are complex and interconnected. Austrian national interests are tightly connected to these complex global systems. Resolving such challenges requires an understanding not only of the detailed components of each element (disciplinary research) but also their dynamic and interconnecting elements (systems analysis). IIASA has recently worked with Austrian organizations to advance research methods that cross multiple disciplines in the following areas:

- With WIFO and other partners as part of the EU-funded PASHMINA study (2009-12), IIASA integrated its economic, energy and land-use models with models of project partners to analyze paradigm shifts in the way societies use energy, land, and transport over the next 40 years.
- With researchers at TU Wien, IIASA is applying optimal control theory to economic growth modeling. IIASA, WIFO and WU researchers collaborate on economic growth modeling. And with researchers from the Institute of Social Ecology, IIASA is analyzing long-term metabolic social transitions.
- Collaborations with researchers from BOKU and other partners are conducting multiple model assessments of the impacts of climate change (ISI-MIP) and of agricultural production (AgMIP). By carrying out comprehensive and rigorous model inter-comparisons, researchers find more robust findings and improve the underlying models. Results have recently been published in a 2013 special issue of PNAS.

Other research has developed new methods and techniques to study evolution, biodiversity, and cooperation:

Every year, IIASA hosts around 90 lectures, seminars and workshops in Austria to facilitate internal collaborations, progress research and provide academic training. In addition, it hosts a number of major events to highlight the world-class research and researchers that IIASA brings to Austria. These events include:

- A major international conference every five years: “Worlds within Reach: From Science to Policy” at the Hofburg Palace in Vienna and at IIASA from 24-26 October 2012 and under the patronage of Dr. Heinz Fischer, The Federal President of the Republic of Austria, and with sponsorship from the Federal Ministry of International and European Affairs, and the Federal Ministry of Science and Research.
- A series of public lectures jointly hosted by the Austrian Academy of Sciences and IIASA since 2012:
  - Maastricht and Kyoto: A Tale of Two Treaties by Professor William Nordhaus, Yale University (2012)
  - Can we maintain sustainability for the future of humankind? by Professor Carlo Rubbia, Institute for Advanced Sustainability Studies e.V., Potsdam, Germany (2012)
  - Surviving the Century by Lord Martin Rees, University of Cambridge (2013)
  - The Polar Regions under Climate Change by Professor Peter Lemke, University of Bremen (2013)
  - The Age of Sustainable Development by Professor Jeffrey Sachs, Columbia University & Special Advisor to United Nations Secretary-General (2014)
  - Obstacles and Opportunities in Environmental Management by Professor Simon Levin, Princeton University (2014)
Researchers from IIASA, the University of Vienna and the University of Veterinary Medicine, Vienna, developed mathematical models and statistical methods to gain new insights into the central process of evolutionary diversification as part of the Vienna Science and Technology Fund’s mathematics and evolution project (2005-09).

By applying mathematical techniques of evolutionary game theory and adaptive dynamics, researchers from IIASA, the University of Vienna and WU among others are analyzing the evolution of cooperation with particular emphasis on the nature and impact of incentives.

Researchers from IIASA and the University of Vienna have explored how living systems respond to changing conditions. Studies include finding unexpected patterns of skipped reproduction in environments with uncertain energy supply, and how the degree of phenotypic plasticity is evolutionarily destined to change over the lifespan of individuals, which is likely to have as yet unprobed implications for population dynamics.

By combining fields of expertise as diverse as population genetics, evolutionary theory, and fisheries science, IIASA’s researchers are analyzing how to achieve sustainable harvesting of fish. Collaborations with a researcher at the University of Innsbruck are shedding light on the impacts of climate change on fish stocks.
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. Since the start of the YSSP in 1977, 96 students from Austria have taken part in the program. Funding is provided through IIASA’s Austrian National Member Organization unless otherwise stated. The following 25 young researchers from Austria or undertaking a PhD in Austria have participated in this program since 2008:

Stefan Berecz (YSSP ’08 & University of Vienna) studied the social impacts of the palm oil boom in Borneo.

Martin Bruckner (YSSP ’13 & University of Natural Resources and Life Sciences, Vienna) gave a structured overview of different approaches for the calculation of virtual land and water embodied in traded goods.

Sebastian Busch (YSSP ’12 & Vienna University of Technology), a German national, developed a regulatory framework to facilitate cooperation among European states on the generation and transmission of renewable energy. (Funded by German NMO)

Marcela Doubkova (YSSP ’11 & Vienna University of Technology) studied the effects of extreme soil moisture on crop yields in the Sahel region using the Erosion-Productivity Impact Calculator model.

Markus Enenkel (YSSP ’13 & Vienna University of Technology) researched how to integrate vulnerability assessments into the Satellite-Derived Combined Drought Index.

Harald Ficker (YSSP ’12 & Research Institute for Limnology) developed a model to analyze how different management interventions (angling and stocking) as well as temperature changes could alter trajectories of exploited whitefish populations.

Viktoria Gass (YSSP ’11 & University of Natural Resources and Life Sciences, Vienna) conducted an assessment of the economic wind power potential in Austria.

Hamed Ghoddusi (YSSP ’10 & Vienna Graduate School of Finance) extended IIASA’s MESSAGE model by incorporating the effect of financial constraints on future energy supply and demand. (Self-funded)

Christine Heumesser (YSSP ’10 & University of Natural Resources and Life Sciences, Vienna) developed a model to analyze decisions by farmers to invest in different irrigation technologies in the Marchfeld region of Austria.

Christian Hilbe (YSSP ’09 & University of Vienna) analyzed the effect of time pressure on public good games.

Gregor Kiesewetter (YSSP ’09 & University of Bremen), an Austrian national, assessed the influence of the North Atlantic Oscillation on pollution transport to and within Europe and the Arctic, and how this can be integrated into IIASA's GAINS model. (Funded by German NMO)

Mathias Kirchner (YSSP ’13 & University of Natural Resources and Life Sciences, Vienna) researched how climate change and agricultural trade can impact Austrian agriculture, the environment, and how decision makers can respond in a sustainable way to negative impacts as well as opportunities.

Julian Matzenberger (YSSP ’11 & University of Technology Vienna) conducted research on demand side modeling of biomass products to help provide more accurate forecasts of demand.

Aldo Martinez Piñánez (YSSP ’09 & University of Innsbruck) developed a tool to evaluate the performance of different mitigation measures and reinsurance on both expected net losses and worst case scenarios when considering flood damage.
Doris Anita Oberdabernig (YSSP ’10 & University of Innsbruck) analyzed the different effects of education on economic growth and on the transition to a democratic form of government.

Wolf Heinrich Reuter (YSSP ’10 & Vienna University of Economics and Business) modeled the optimal behavior of an electricity producer.

Thomas Schinko (YSSP ’14 & University of Graz) studied how to better govern risks in the financing of renewable energy projects in North and South Africa.

Fabian Schipfer (YSSP ’14 & Vienna University of Technology) explored cost-efficient and environmentally sound (non-food) biomass-to-end-use chains and addressed their potential to contribute to the transition toward a knowledge- and bio-based economy.

Johannes Schmidt (YSSP ’08 & University of Natural Resources and Life Sciences, Vienna) extended IIASA’s BeWhere model to integrate heating demand and heating infrastructure costs and applied the model to a regional study of bio-fuel production in Austria.

Stefan Schreier (YSSP ’12 & University of Bremen), an Austrian national, estimated nitrogen emissions from wild fires in northern Eurasia for 2001 to 2010.

Franziska Strauss (YSSP ’09 & University of Natural Resources and Life Sciences, Vienna) analyzed the management options for a risk-averse farmer to develop a sustainable agricultural production system.

Anna Valerievna Timonina (YSSP ’11 & University of Vienna) used multi-hazard modeling to assess the behaviors that promote the adaptation, resilience, and resistance of societies to catastrophic events. (IIASA funded)

Natallia Tratsiakova (YSSP ’11 & Vienna University of Economics and Business) studied catastrophe bonds as a complementary tool to reduce inefficiencies in the reinsurance market in the face of natural disasters. (IIASA funded)

Nancy Wozabal (YSSP ’08 & University of Vienna) studied the performance of different measures of risk as well as to adapt concepts of risk measurement and management to the setting of disaster management. (Self-funded)

Marianne Zeyringer (YSSP ’10 & Technical University of Vienna) modeled the demand for electricity among households in Kenya taking into account different income levels and affordability to pay for electricity.

Special Awards
Young scholars from Austria or studying in Austria have been recipients of the annual YSSP Peccei and Mikhalevich Awards, which reward the YSSP participants whose research papers have met standards of the highest quality, originality and relevance of research. The winners receive a scholarship to return to research at IIASA.

In 2012, Stefan Schreier (University of Bremen), an Austrian national, won the Peccei award for his paper “Estimates of Forest Fire Nitrogen Oxides Emissions in Russia between 1998 and 2010”. Three years earlier, Austrian-born Gregor Kiesewetter (University of Bremen) won the same award for his work on assessing transport of particulate matter pollution from Europe to the Arctic. In 2011 Anna Timonina (University of Vienna) won the Mikhalevich award for assessing the behaviors that promote the adaptation, resilience, and resistance of societies to catastrophic events. Christian Hilbe also won this award in 2009 for modeling the effect of time pressure on public good games.

Regional Young Scientists Summer Program
In 2012 IIASA launched its first regional YSSP called the Southern African Young Scientists Summer Program (SA-YSSP). The Program is organized jointly by the South African National Research Foundation, the South African Department of Science and Technology, the University of the Free State in Bloemfontein, South Africa, and IIASA. The following Austrian national has participated in the program:
Carmen Klausbruckner (SA-YSSP 2014-15 & Johannes Kepler University Linz) researched Southern Africa’s energy policies including the legal framework in the field of local and regional air quality.

Postdoctoral Program

Postdoctoral researchers at IIASA work in a rich international scientific environment alongside scientists from many different countries and disciplines. The Institute’s research community helps its postdoctoral researchers to develop their research from fresh angles, to publish widely in journal articles, and to establish their own global network of collaborators. Since 2006, IIASA has awarded Postdoctoral Fellowships to a select group of promising young scholars from around the world, including one from Austria:

Christina Kaiser (2011-13) investigated the mechanisms behind the Rhizosphere Priming Effect, i.e. the effect of the release of labile carbon and nitrogen by plant roots on microbial decomposition of soil organic matter. She developed a model which links carbon and nitrogen input by plants to microbial community composition and function in a spatially structured soil environment, and analyzed how cooperation between microbial functional groups may lead to their coexistence and the emergence of the priming effect. (PhD in ecology from the University of Vienna)

Other Capacity-Building Activities

A significant number of IIASA researchers also hold academic positions at Austrian universities (see box below: IIASA-Austrian scientific exchange through people) at which they lecture and supervise Masters and PhD students. Lecture courses include: international environmental conventions; technology and the environment; and renewable energy in central and eastern Europe.

In addition, IIASA participates in a masters training program, MSc European Forestry, for advanced university students at BOKU. Since 2009, nine participants in the program have worked for a three-month period with IIASA researchers as part of the course.

In 2013, IIASA and the Austrian Institute of Technology hosted the first IFA Summer School to train young researchers in foresight skills and public engagement techniques as part of the International Foresight Academy (IFA).

Many IIASA researchers hold positions at universities and other institutions in Austria. These include: Markus Amann (Member, Commission on Climate and Air Quality, Austrian Academy of Sciences); Bilal Barakat (Vienna Institute of Demography); Joanne Bayer (Steering Committee, Austrian Climate Research Program); Jesus Crespo Cuaresma (Vienna University of Economics and Business, Austrian Institute for Economic Research); Alexia Fürnkranz-Prskawetz (Member Austrian Academy of Sciences, Technical University of Vienna, Vienna Institute of Technology); Anne Goujon (Vienna Institute of Demography); Arnulf Grubler (Montan University Leoben); Peter Havlik (Vienna Institute for International Economic Studies); Volker Krey (Vienna University of Technology); Wolfgang Lutz (Member Austrian Academy of Sciences, Vienna Institute of Demography, Vienna University of Economics and Business); Reinhard Mechler (Vienna University of Economics and Business); Raya Muttarak (Vienna Institute of Demography); Nebojsa Nakicenovic (Technical University of Vienna); Georg Pflug (University of Vienna); Michaela Potancoková (Vienna Institute of Demography); Keywan Riahi (Graz University of Technology); Serguei Scherbov (Vienna Institute of Demography); Karl Sigmund (University of Vienna); Nadia Steiber (University of Vienna); Erich Strießnig (Vienna University of Economics and Business); Stefan Thurner (Medical University of Vienna); Wilfried Winiwarter (University of Graz; Deputy Chair and Member, Commission on Climate and Air Quality, Austrian Academy of Sciences)

IIASA researchers regularly make presentations in Austria, a recent selection follows:
IIASA-Austrian scientific exchange through people

Ulf Dieckmann on “Modelle der Biodiversitätsdynamik: Träger und Treiber evolutionären Wandels” at the Kerner von Marilaun lectures in the Austrian Academy of Sciences in 2014.


Oskar Franklin on “Modeling carbon allocation in trees” at the University of Natural Resources and Life Sciences in Vienna in 2013.


Peter Havlik on “Problems of Eurasian Economic Integration” at the Austrian Chamber of Commerce in Vienna in 2013.

Lena Höglund-Isaksson on “Why refund emission payments to the polluters? Lessons learnt from the Swedish NOx charge” at the ISIS Science Talk in Graz in 2013.


Nebojsa Nakicenovic on “Global Transformation: Toward Sustainable Energy for All” at the OMV Business Talk entitled “Sustainable Energy for All” in Vienna in 2014.

Pallav Purohit on “Impact of current policies on future air quality and health outcomes in Delhi, India” at the European Geosciences Union (EGU) General Assembly in Vienna in 2013.


Karl Sigmund on “Gödel und der Wiener Kreis” at the 18th Congress of the Austrian Mathematical Society (ÖMG) and Annual Meeting of the German Mathematical Society (DMV) in Innsbruck in 2013.


Other examples of scientific exchange include:

- Over 850 researchers, policymakers and diplomats who live in Austria have participated in IIASA events since 2008.
- 1052 publications have resulted from collaborations between IIASA and Austrian nationals since 2008.
- On average 96 Austrians have been employed by IIASA every year since 2008.
- Since 2008, 25 Austrians have gained international and interdisciplinary research experience from participating in IIASA’s Young Scientists Summer Program.
- Almost 180 researchers, advisors, and diplomats who live in Austria have visited IIASA since 2008.

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 (drinkovs@iiasa.ac.at):

1. Employees with Austrian nationality at IIASA (2006-14)
2. IIASA visitors who are resident in Austria (2006-2014)
3. Participants at IIASA events who live in Austria (2006-2014)
Prospects for Future IIASA-Austrian Activities

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

■ **Enhancing Austrian expertise in applying system analysis to national problems:** Developing bespoke Austrian versions of IIASA’s global models would allow researchers and policymakers to look at complex global problems and their impact on Austria 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 Austrian strategic interest:** Austria was a significant contributor to IIASA’s Global Energy Assessment which brought together over 500 specialists to transform the way society thinks about, uses, and delivers energy. IIASA also plays key roles in the Austrian Panel on Climate Change. IIASA is embarking on new assessments, at the request of its member countries that will focus on issues of strategic interest to Austria. These are holistic, integrative assessments of plausible futures for the Arctic, global water challenges, and deforestation in the tropics.

■ **New partnerships between IIASA and Austria 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 2014, IIASA almost doubled its income by winning research grants that amounted to €69 million—15% of which funded projects that included partners from Austria. This was part of a total funding portfolio of €329 million of the external projects in which IIASA was and is involved. Looking forward, the potential for intensifying collaboration between IIASA and Austrian partners on the new EU research funding program, Horizon 2020, is high.

■ **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 11). 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 Austrian scientists:** There is significant potential to enhance participation by young Austrian scientists in IIASA’s programs to develop international and interdisciplinary research skills (see page 16: Capacity Building), for example, by becoming a partner in IIASA’s forthcoming International School of Excellence in Systems Analysis.
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 & climate change; food & water; and poverty & 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, Malaysia, Japan, Mexico, Netherlands, Norway, Pakistan, Republic of Korea, Russia, South Africa, Sweden, Ukraine, United Kingdom, United States of America, Vietnam.

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