

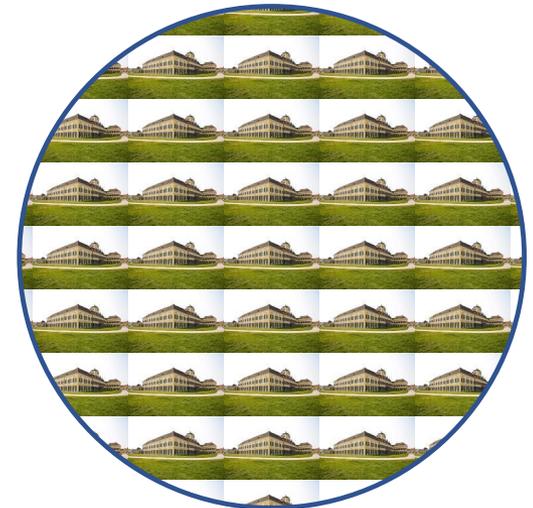
International Institute for Applied Systems Analysis - IIASA

Dr. Albert van Jaarsveld

IIASA Director General and Chief Executive Officer

Israel

28 November 2022



IIASA is...

An international research institute that conducts **multidisciplinary/ transdisciplinary research** to help policymakers find long-term solutions to **global and universal challenges** facing countries



CHARTER OF THE INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS

PREAMBLE

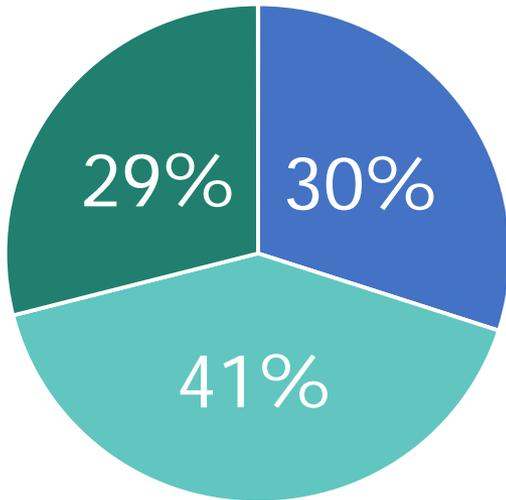
The Academy of Sciences, Union of Soviet Socialist Republics;
The Committee for the International Institute for Applied Systems Analysis, Canada;
The Committee for the International Institute for Applied Systems Analysis of the Czechoslovak Socialist Republic;
The French Association for the Development of Systems Analysis, France;
The Academy of Sciences of the German Democratic Republic;
The Japan Committee for the International Institute for Applied Systems Analysis;
The Max Planck Society for the Advancement of Sciences, Federal Republic of Germany;
The National Centre for Cybernetics and Computer Techniques, People's Republic of Bulgaria;
The National Academy of Sciences, United States of America;

1972

IIASA Membership 2022



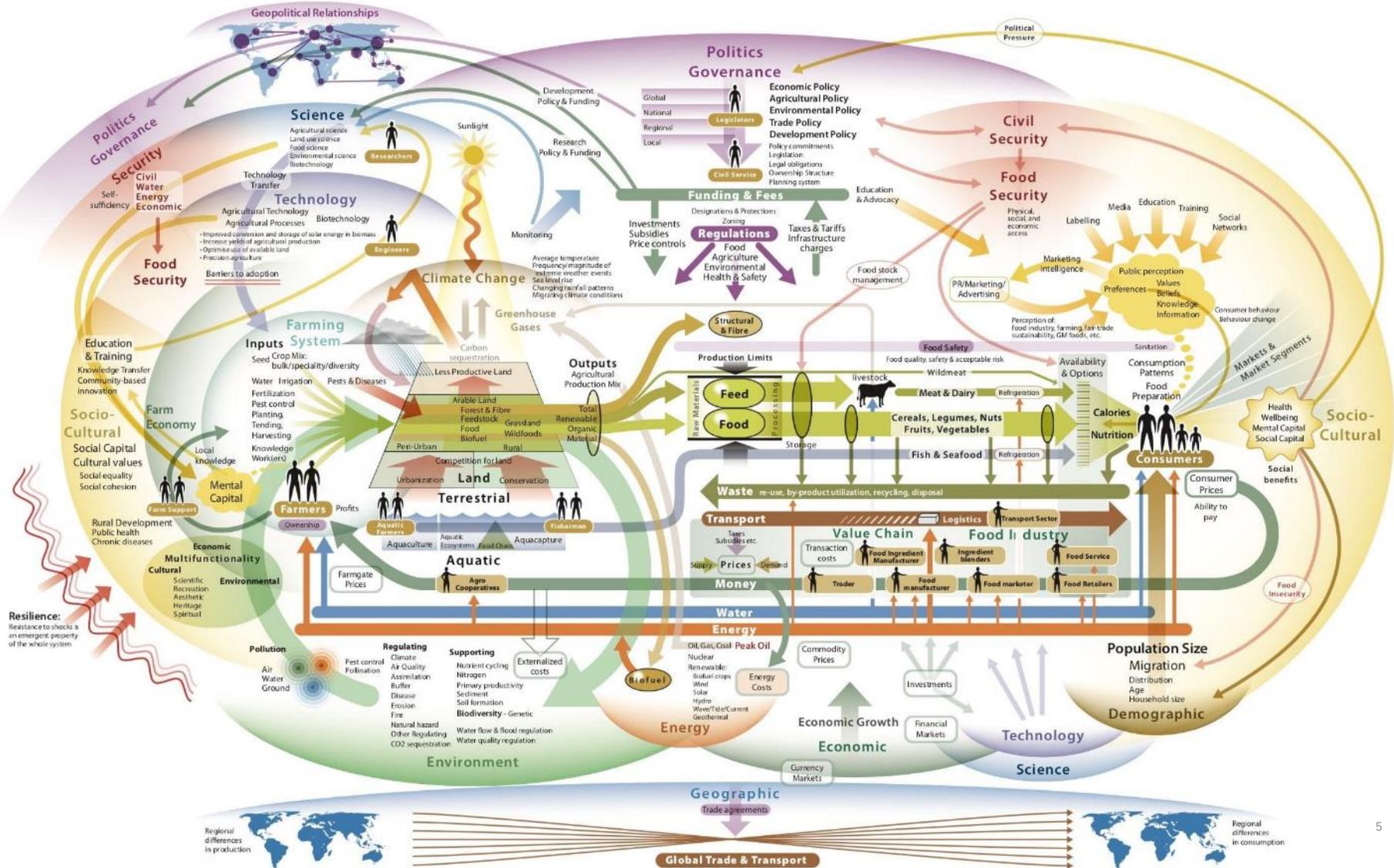
Multidisciplinary & International



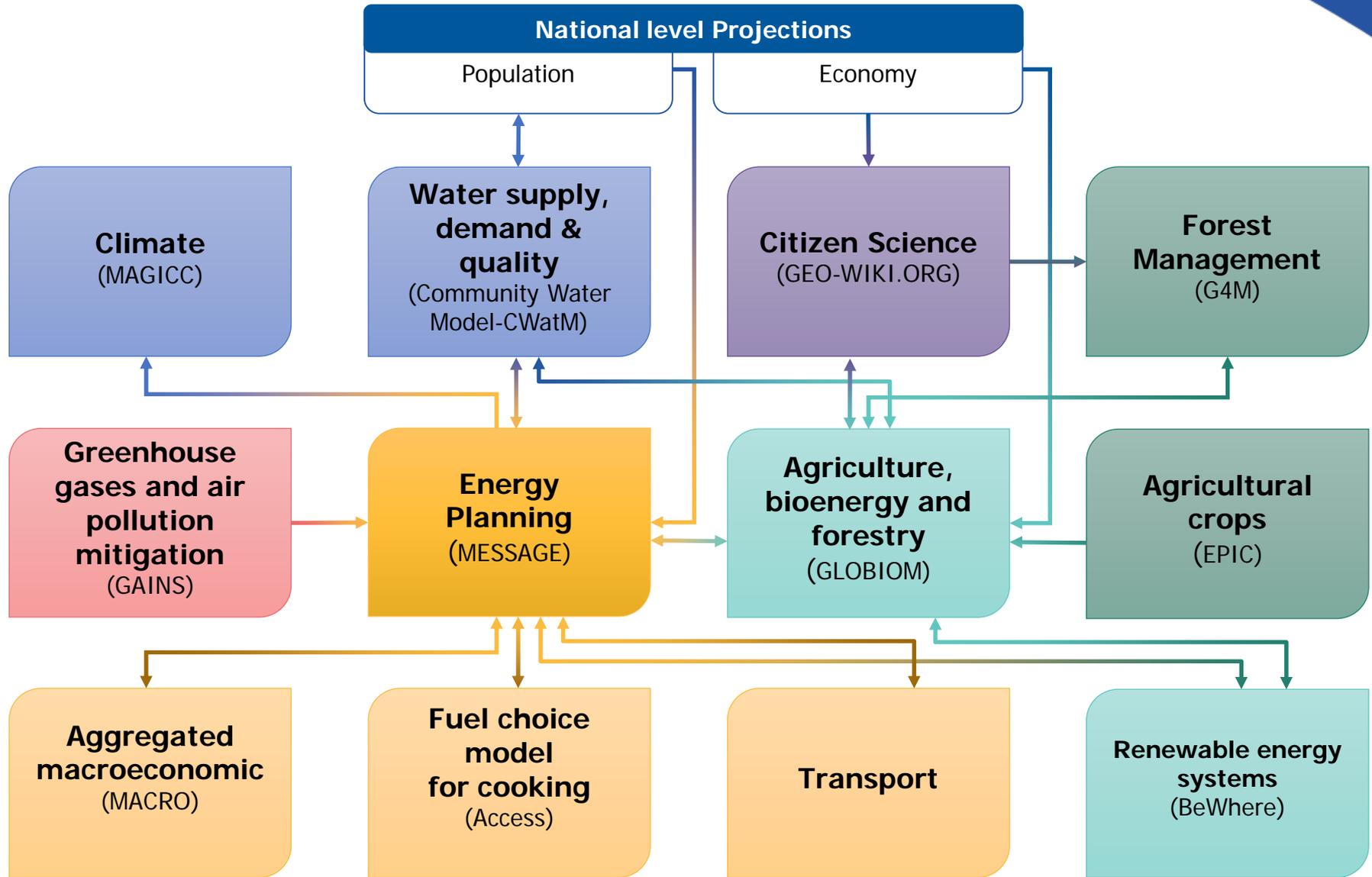
- Natural Scientists & Engineers
- Social Scientists
- Mathematicians and others

- 417 researchers from 52 countries
- 1,062 co-authors from 158 institutions in over 64 countries
- 785 research partners in member countries
- 4,267 alumni from 100 countries

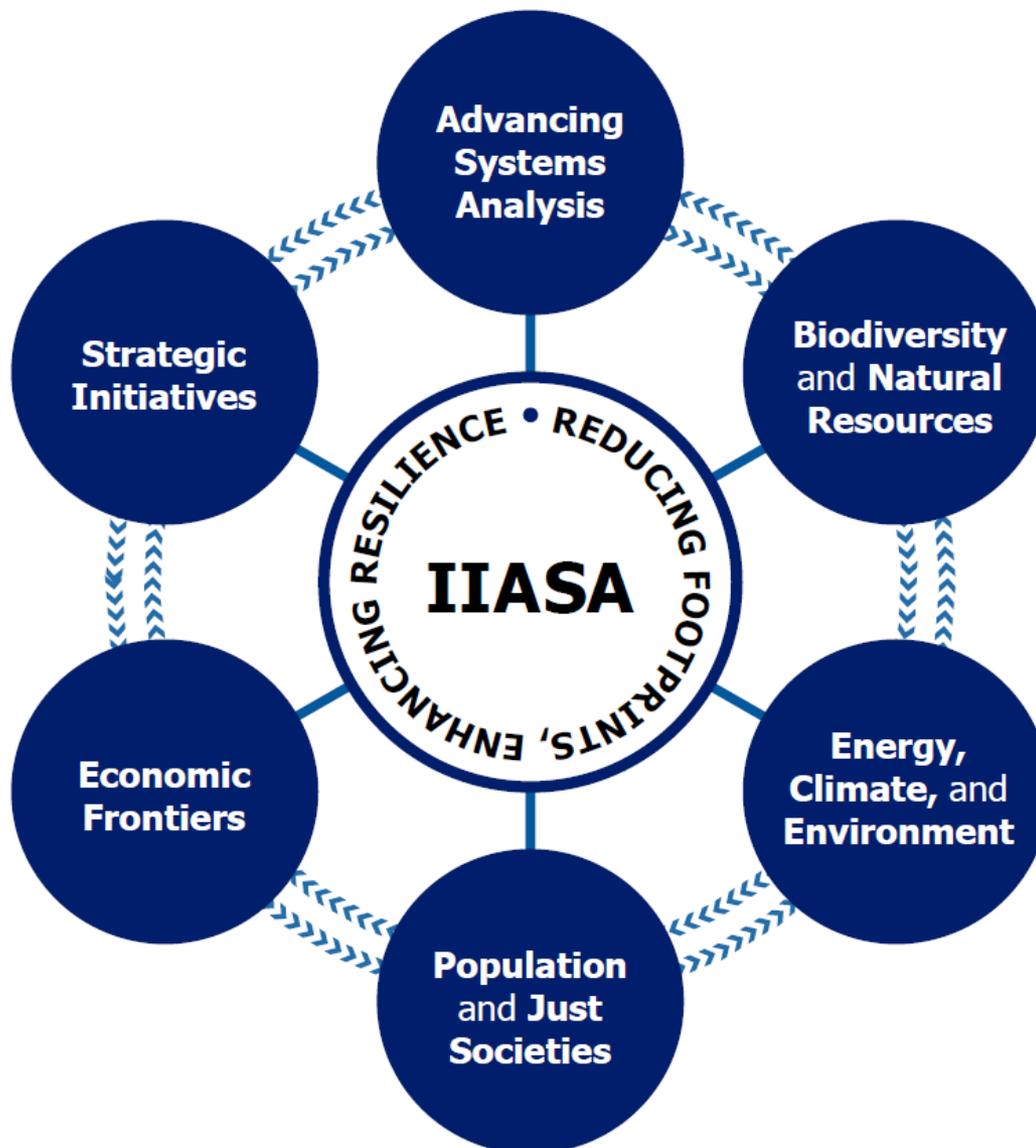
The world is complex as are the key political and scientific challenges of the day



IIASA Integrated Assessment Framework

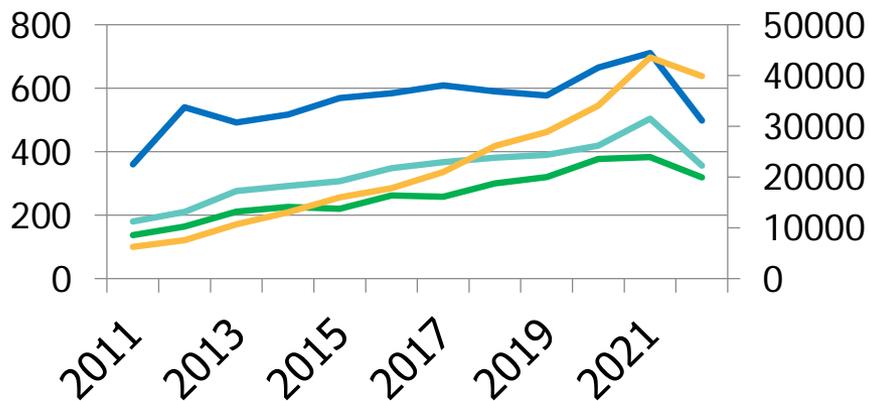


IIASA Research Programs



Publications Output

	2017	2018	2019	2020	2021	Oct 2022
IIASA Publications in PURE	609	590	577	665	711	498
Number of peer-reviewed articles in PURE	367	381	390	419	504	356
Peer-reviewed journal articles according to SCOPUS	258	300	320	377	383	319
Citations of IIASA publications according to SCOPUS	20,978	26,101	28,879	34,054	43,558	39,860



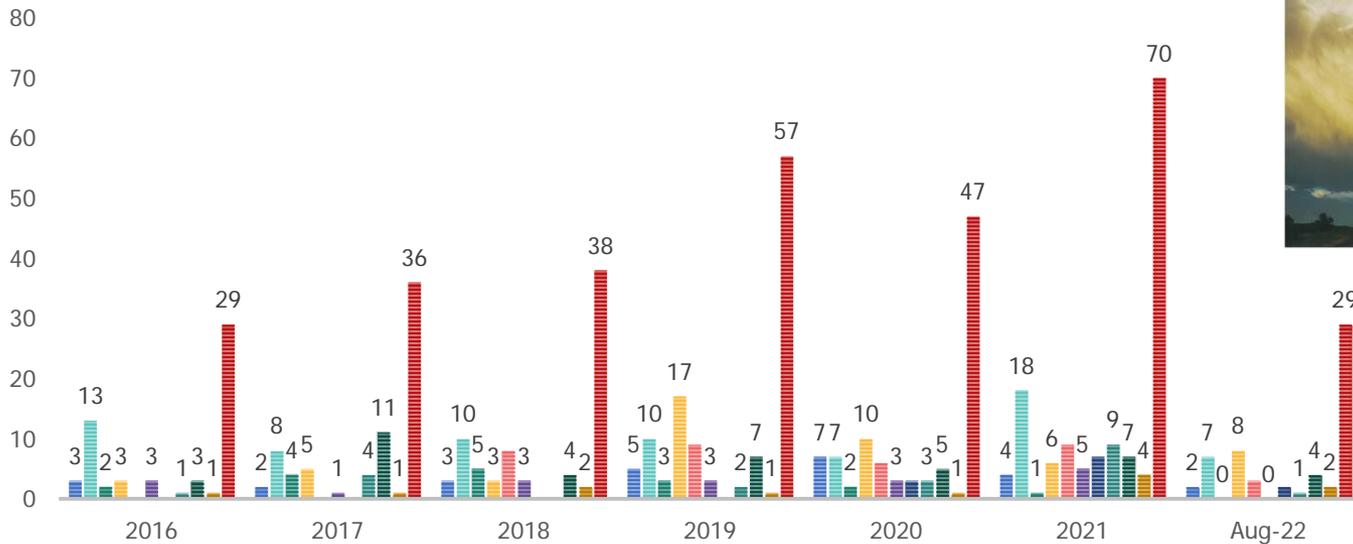
- IIASA Publications (PURE)
- Peer-reviewed Articles (PURE)
- Peer-reviewed Articles (SCOPUS)
- Citations (SCOPUS)

	Aug 2021	May 2022	Oct 2022
H-Index (SCOPUS)	193	193	216

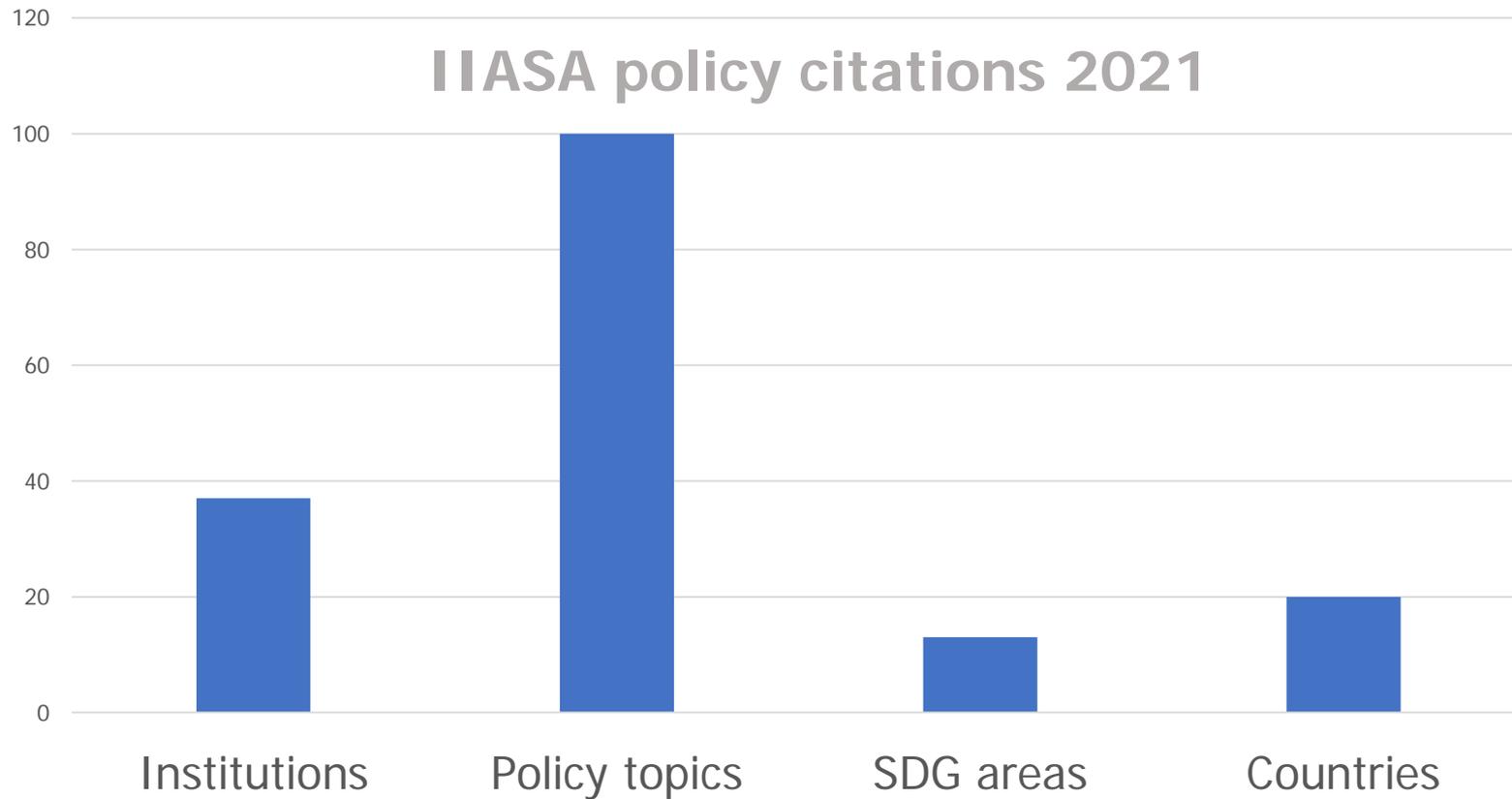
High-impact Publications 2016-2022

IIASA HIGH IMPACT PUBS 2016 - AUG 2022

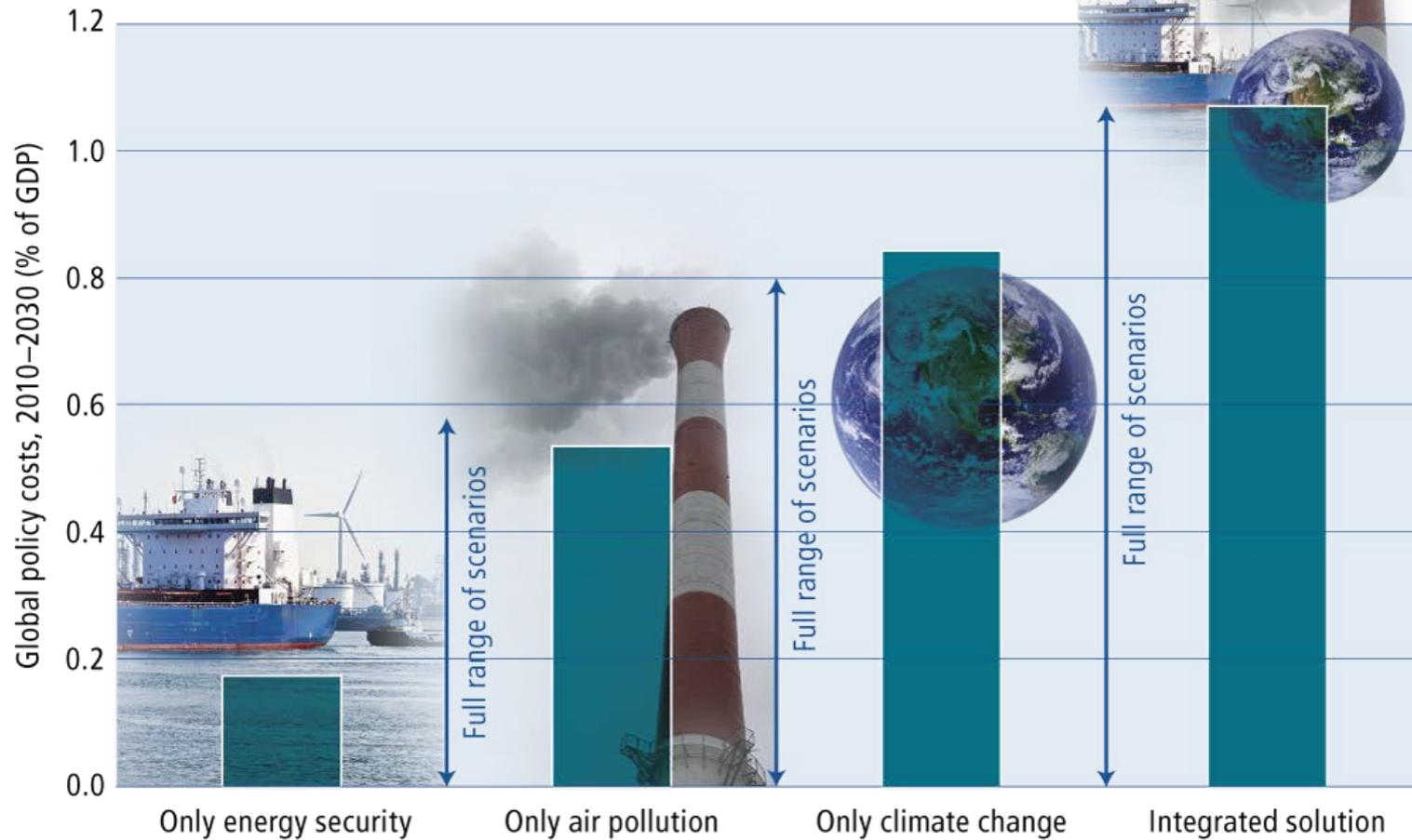
- Nature
- Nature Geoscience
- Nature Sustainability
- Nature Food
- PNAS
- Nature Climate Change
- Nature Communications
- Nature Energy
- Science
- Lancet & Lancet Planetary Health



Policy Citations – Spread 2021



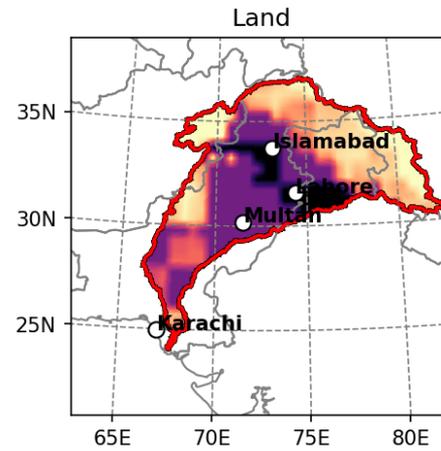
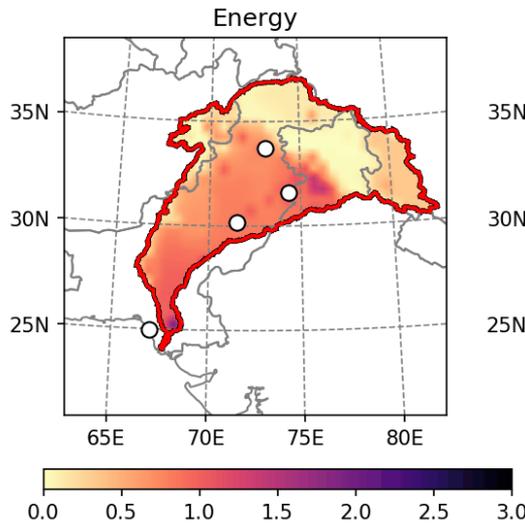
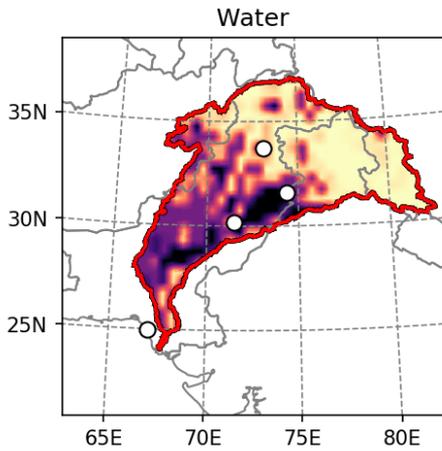
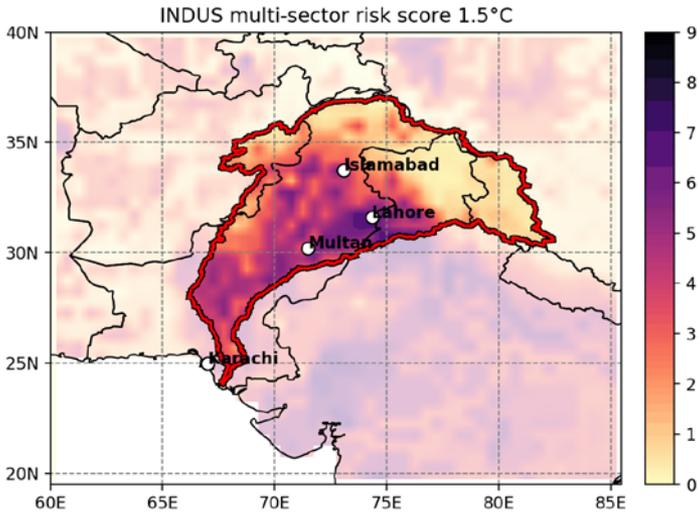
Multiple benefits of integrated policies (harnessing synergies and trade-offs)



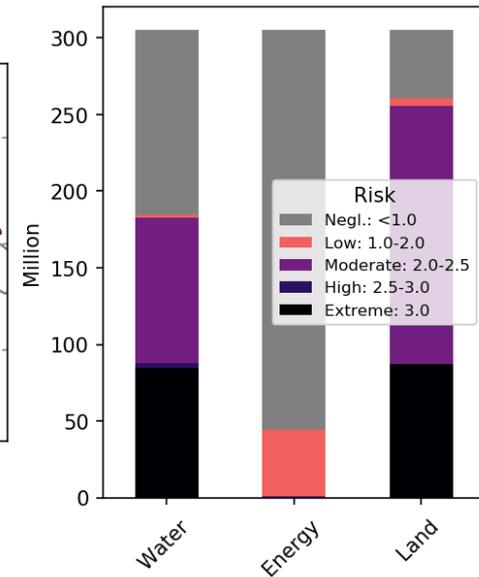
Source: McCollum, Krey, Riahi, 2012

Hotspot basin: *Indus*

Current risks in water and land sectors
With warmer temperatures – energy risks
affect most regions

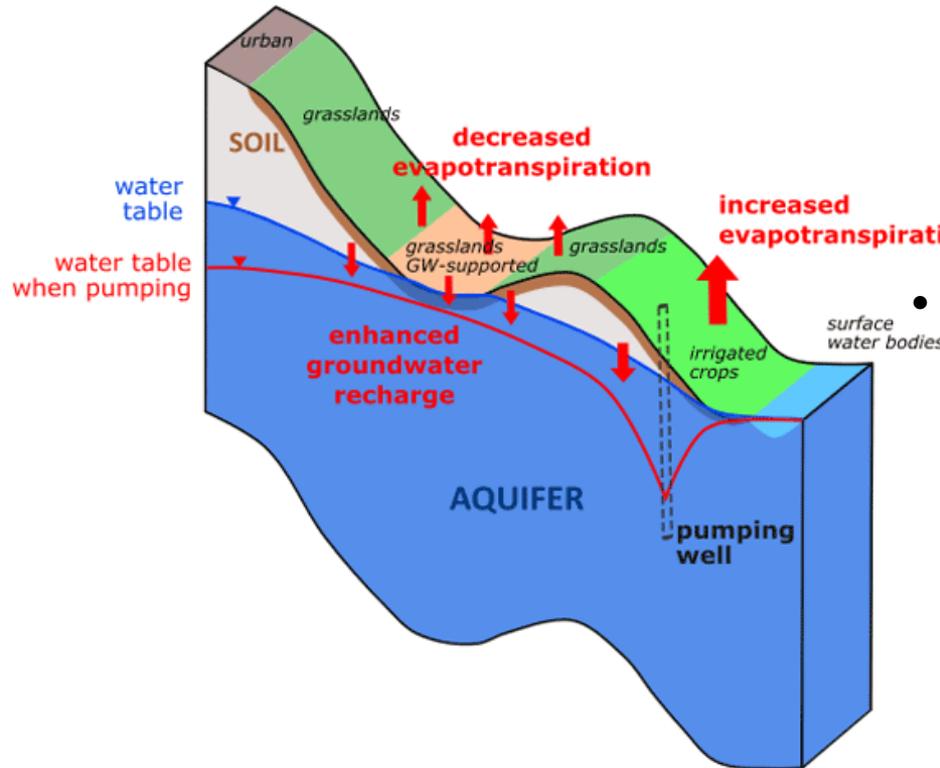


1.5°C



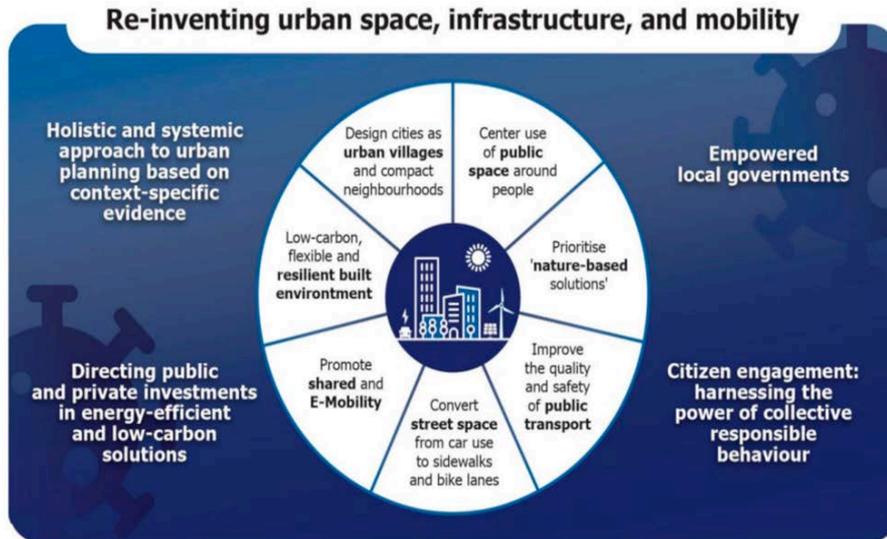
An integrated modeling framework to assess surface and groundwater resources

- Against the backdrop of climate change and rising water demand, tools for adequately modeling water availability are much needed. In a new study, researchers applied a large-scale model linking surface water to groundwater, which can be used for estimating water resources at a high spatial resolution.
- The results show that the reproduction of (1) average water table fluctuations and (2) water table depths without bias can be a benchmark objective of such models. Grid resolution is the main factor that affects water table depth bias because it smooths river incision, while pumping affects time fluctuations. The model was used to assess the impact of groundwater-based irrigation pumping on evapotranspiration, groundwater recharge, and water table observations from boreholes.



Source: <https://gmd.copernicus.org/articles/15/7099/2022/>

Blessing or curse? How the pandemic and the war impact energy transitions



Investigates the impact of these two events and their short- and long-term implications for low-carbon energy transitions and sustainable development. To improve the resilience of the energy system, the researchers put forward four policy recommendations:

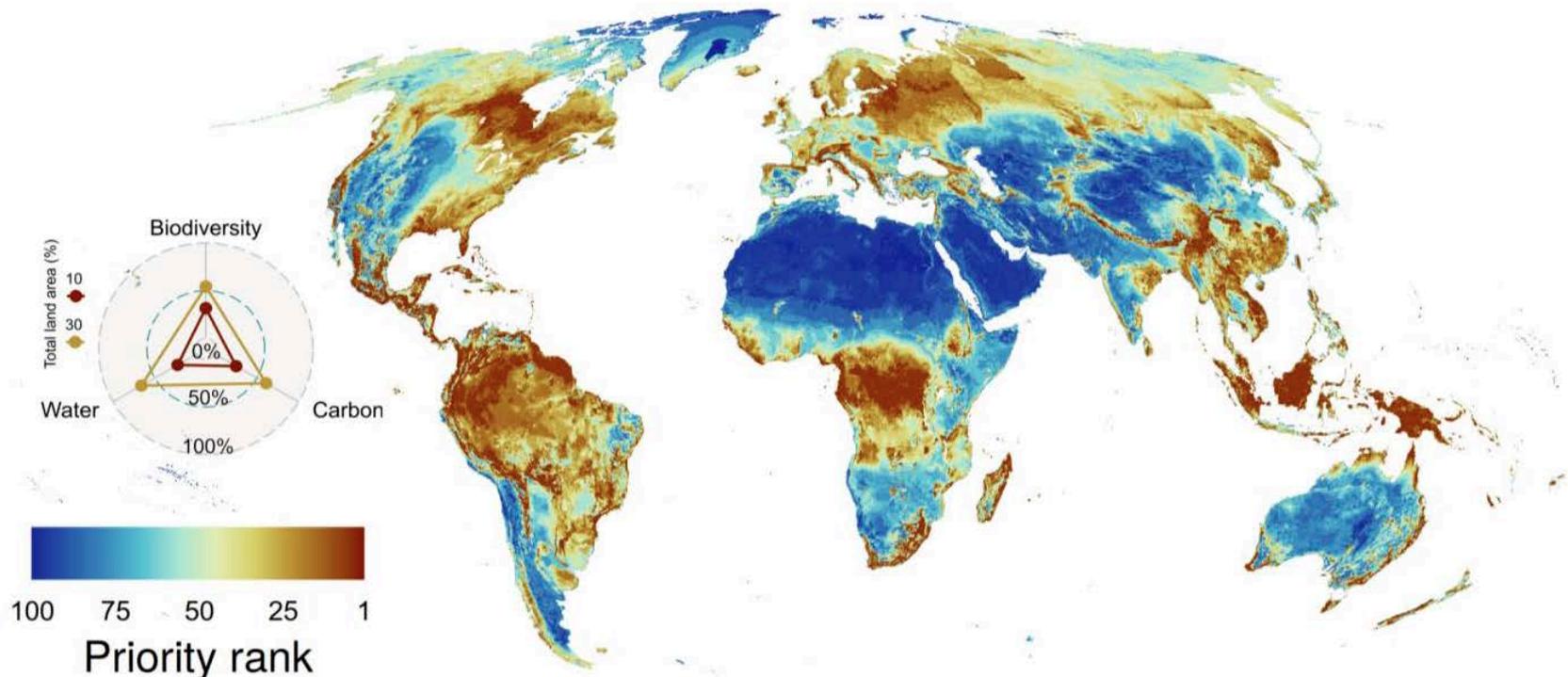
1. *Rethinking consumption*: transforming energy demand and the concept of consumption toward responsible, sustainable, and sufficient ways of meeting human needs.

2. *Reinventing urban space, infrastructure, and mobility*: designing cities as urban, digitalized villages featuring compact neighborhoods with access to essential services within a short distance, thereby reducing car dependency and promoting shared mobility services, including under-served low-income populations, and promoting e-mobility and energy efficiency in the transport sector.
3. *Promoting decentralized, community-based energy systems*: reducing or eliminating fossil fuel subsidies, diversifying investments in low-carbon assets, prioritizing decentralized energy solutions, promoting community-based governance and business models, among other measures.
4. *Ensuring a just energy transition*: expanding and strengthening energy safety nets and ensuring accessibility for vulnerable low-income populations, setting up programs to guide off-grid companies to protect and support customers, and providing financial assistance for energy access companies.



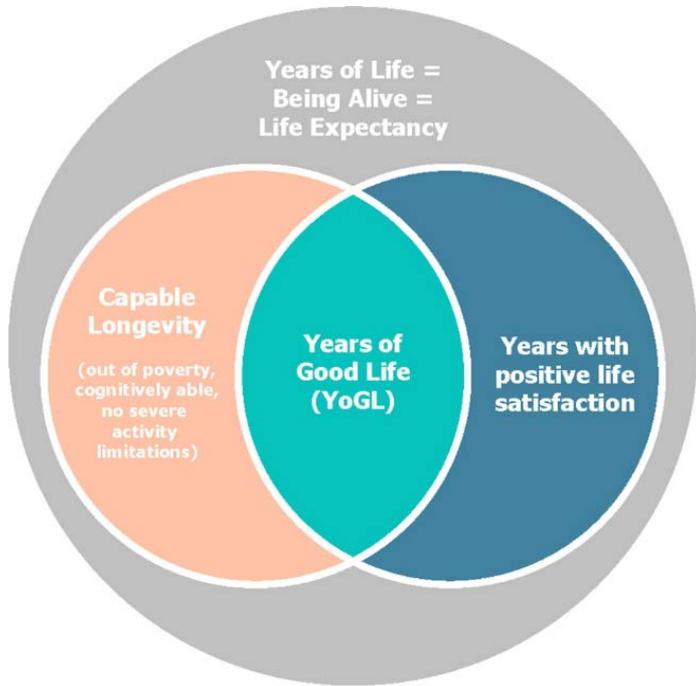
Source: <https://www.mdpi.com/1996-1073/15/17/6114>

Meeting biodiversity, climate, and water objectives through integrated strategies



A new study carried out by the Nature Map Consortium and led by IIASA, shows that managing a strategically placed 30% of land for conservation could safeguard 70% of all considered terrestrial plant and vertebrate animal species, while simultaneously conserving more than 62% of the world's above and below ground vulnerable carbon, and 68% of all clean water. Collaboration includes IIASA, UN Environment Programme World Conservation Monitoring Centre, Food and Agriculture Organization of the United Nations, University of Cambridge, University of Connecticut, Siberian Federal University, University of Arizona, Florida State University, Tel Aviv University, King's College London, Ben-Gurion University of the Negev, Yale University, Columbia University, University of Kentucky, The Santa Fe Institute, Purdue University, Universidade Federal do Rio de Janeiro, Oxford University

A new way to measure human wellbeing towards sustainability



Years of Good Life range 12-56 years (men > 20)

PNAS



Wittgenstein Centre
FOR DEMOGRAPHY AND
GLOBAL HUMAN CAPITAL



Years of good life is a well-being indicator designed to serve research on sustainability W. Lutz, E. Striessnig, A. Dimitrova, S. Ghislandi, A. Lijadi, C. Reiter, S. Spitzer & D. Yildiz

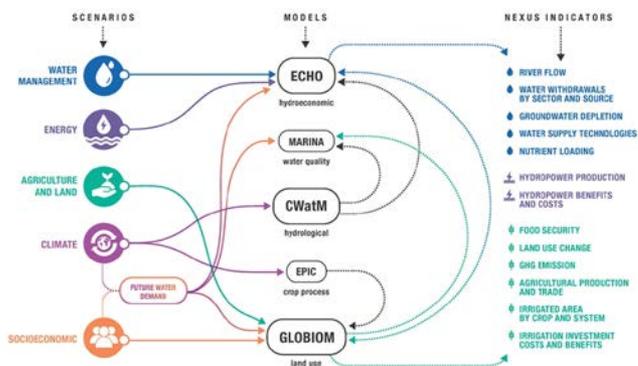
PNAS 118 (12) e1907351118; <https://doi.org/10.1073/pnas.1907351118>

YoGL and individual dimensions at age 20, males, 2010-2015

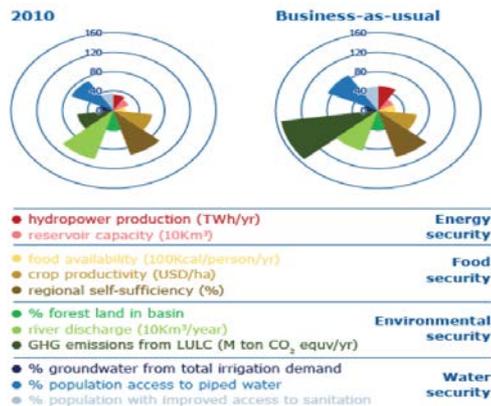


Integrated modeling framework for robust management of water-food-energy nexus under uncertainty

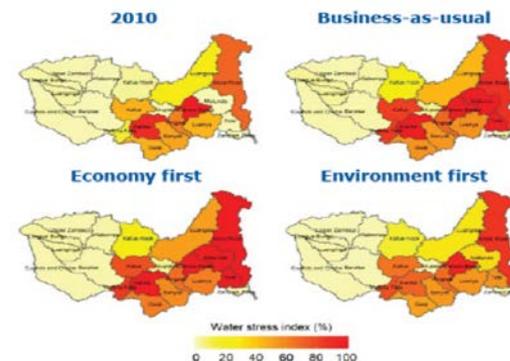
Well-established models



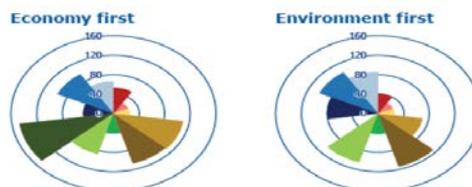
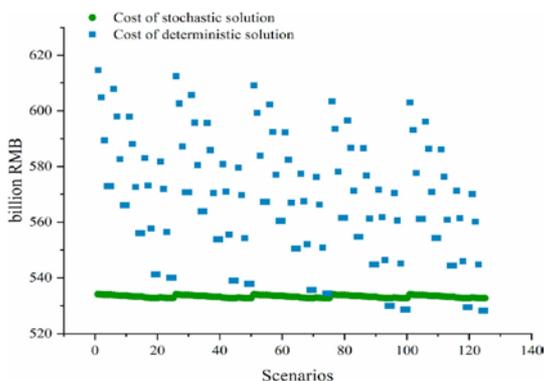
Comprehensive set of nexus indicators



Spatially-explicit analysis



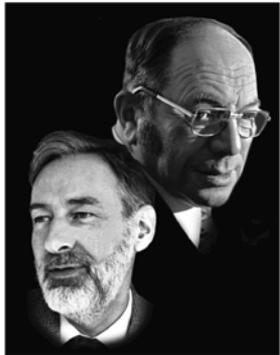
Considering compound uncertainty



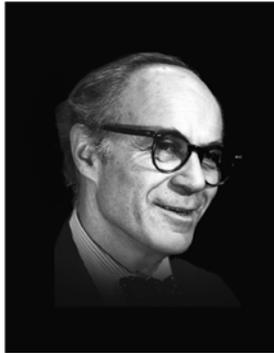
Co-designed scenarios and solutions with stakeholders



Since 1972, IIASA has attracted some of the world's best researchers



Prof. Tjalling Koopmans
and Prof. Leonid Kantorovich
Nobel Prize in Economics



Prof. Lawrence Klein
Nobel Prize in Economics



Prof. Paul Crutzen
Nobel Prize for Chemistry



Prof. Thomas C. Schelling
Nobel Prize in Economics



Authors of the Intergovernmental Panel on Climate Change Reports
Nobel Peace Prize



Prof. William Nordhaus
Nobel Prize in Economics

1975

1980

1995

2005

2007

2018

Highly Cited Researchers List

(Source: Clarivate Analytics (top 1%, 2021) *new data available in November 2022*)



[Shinichiro Fujimori](#)



[Petr Havlik](#)



[Klaus Hubacek](#)



[Zbigniew Klimont](#)



[Volker Krey](#)



[Michael Obersteiner](#)



[Keywan Riahi](#)



[Andreas Richter](#)



[Joeri Rogelj](#)



[Hugo Valin](#)



[Yoshihide Wada](#)



[Oliver Fricko](#)

Keywan – one of 23 research recognized in 3 or more fields

...and (perhaps the most important
and meaningful)...

...engaging with the best researchers of tomorrow

- YSSP – a transformative experience at IIASA
- Postdoc opportunities



Thank you

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