

futureearth

Research. Innovation. Sustainability.

2025年の Future Earth

Fumiko Kasuga

Professor, Nagasaki University / Global Hub Director Japan

Ria Lambino

Future Earth Center Director (RIHN), Deputy Director Japan Hub



International
Science Council



BELMONT
FORUM

10 years

10

NEW INSIGHTS IN
CLIMATE SCIENCE

Pathways Initiative
& EC initiated

EARTH
COMMISSION

Assessment

2017

2019

2023-24

KANs & Fast
Track Initiatives
2016



Seedbeds
Conference
2018

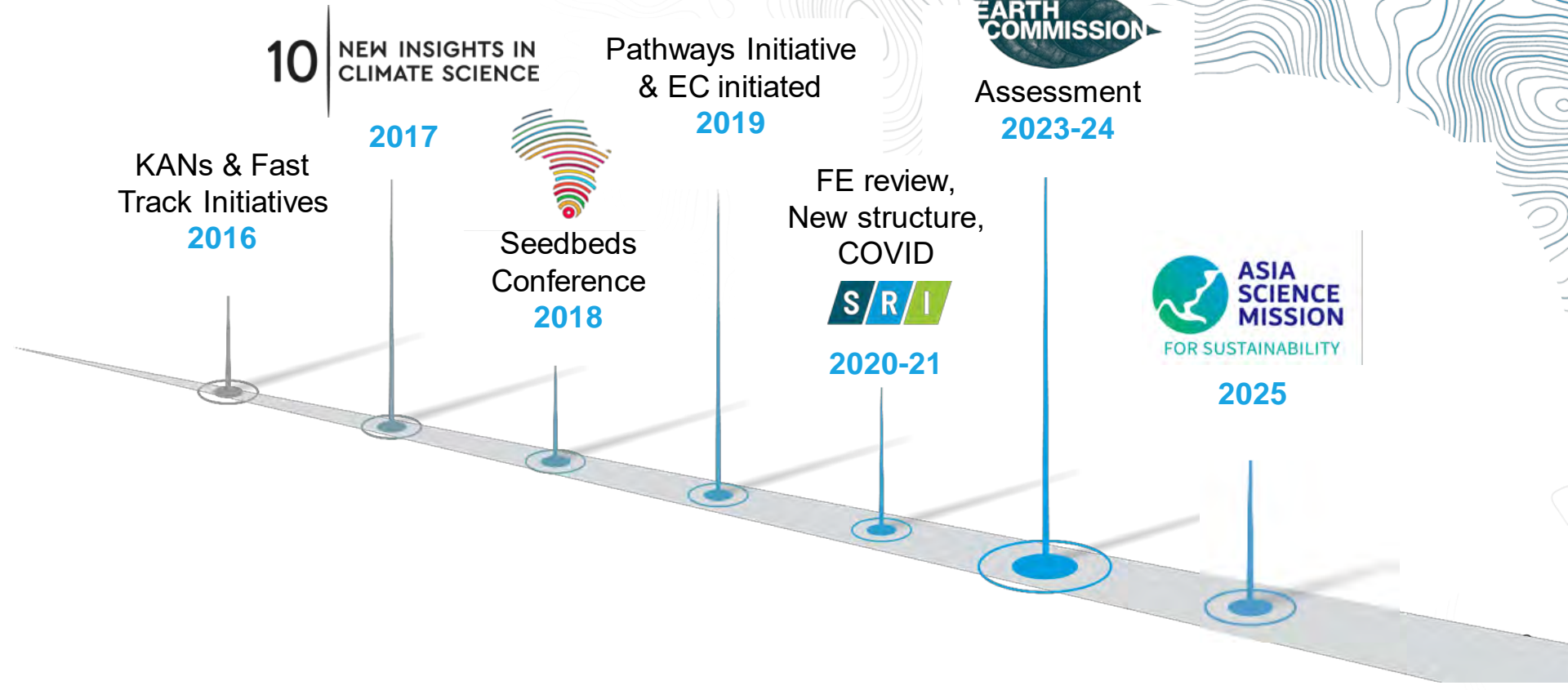
FE review,
New structure,
COVID



2020-21



2025





By 2025 Future Earth will have:

- WHY** Inspired and created ground-breaking interdisciplinary science relevant to major global sustainability challenges
- WHAT** Delivered products and services that our societal partners need to meet these challenges
- HOW** Pioneered approaches to co-design and co-produce solutions-oriented science, knowledge and innovation for global sustainable development
- WHO** Enabled and mobilised capacities to co-produce knowledge, across cultural and social differences, geographies and generations



By 2025 Future Earth will have:

WHY

Inspired and created ground-breaking interdisciplinary science relevant to major global sustainability challenges

画期的な学際研究を推進する

WHAT

Delivered products and services that our societal partners need to meet these challenges

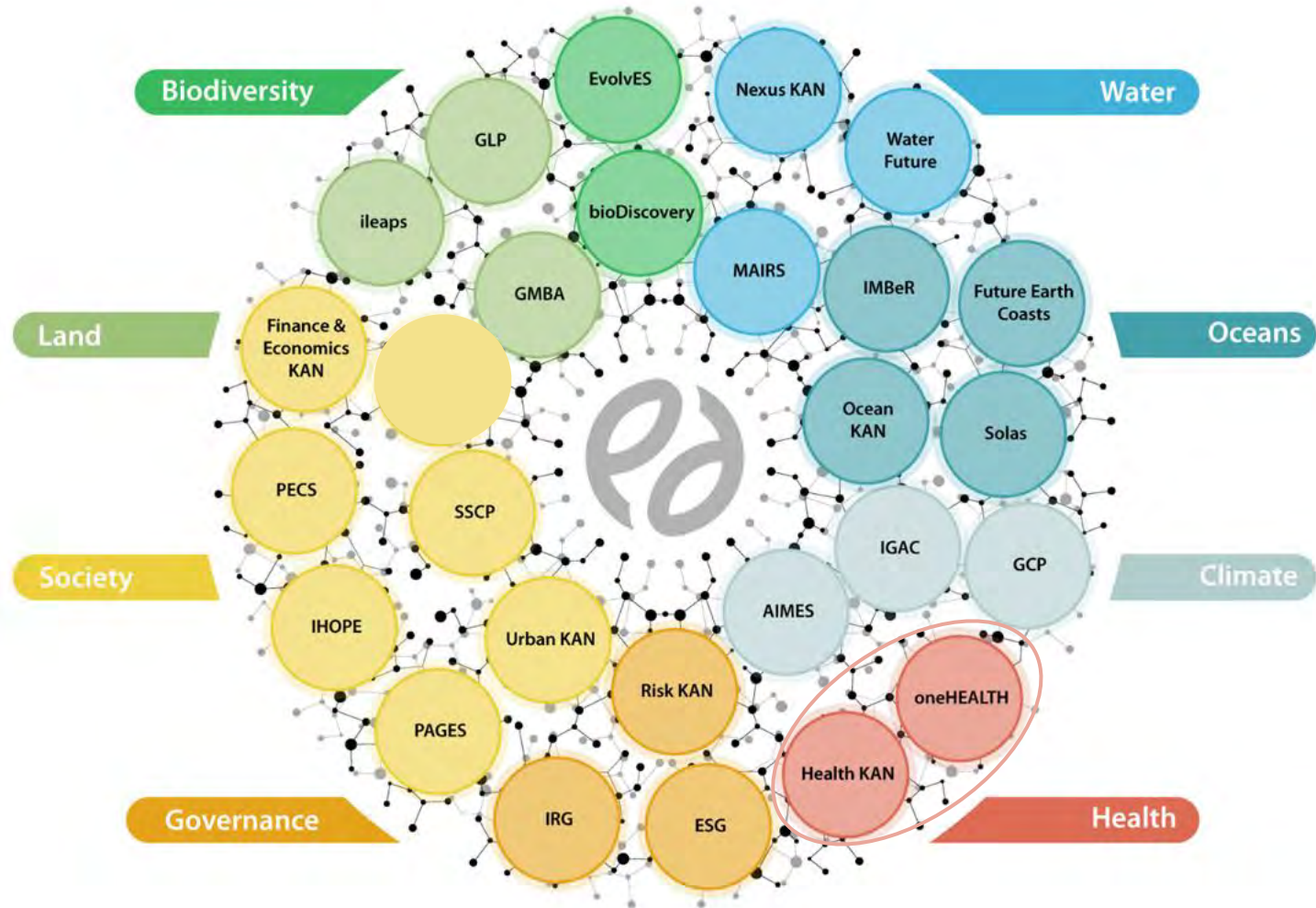
HOW

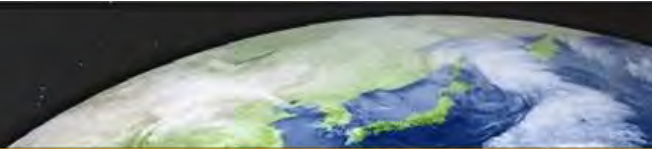
Pioneered approaches to co-design and co-produce solutions-oriented science, knowledge and innovation for global sustainable development

WHO

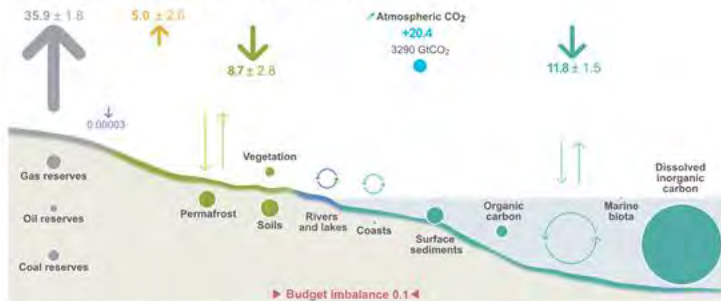
Enabled and mobilised capacities to co-produce knowledge, across cultural and social differences, geographies and generations

Global Research Networks





The global carbon cycle



Anthropogenic fluxes
2015-2024 average
GtCO₂ per year

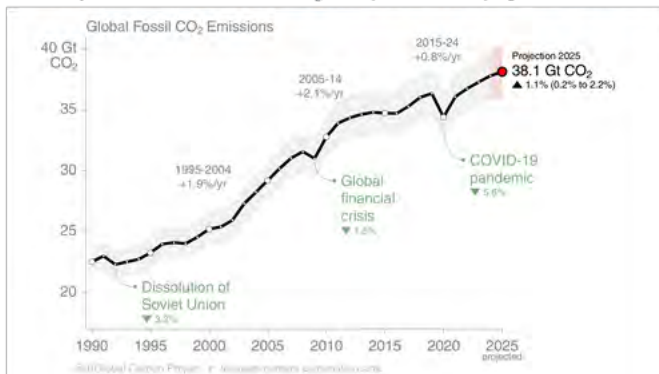
- ↑ Fossil CO₂ E_{Fossil}
- ↓ Land uptake S_{Land}
- ▶ Budget imbalance B_{net}
- ↑ Land-use change E_{LUC}
- ↓ Ocean uptake S_{Ocean}
- ⊖ Stocks
- ↓ CDR not included in E_{Fossil}
- ⊕ Atmospheric increase G_{atm}
- ↕ Natural carbon fluxes

© Global Carbon Project

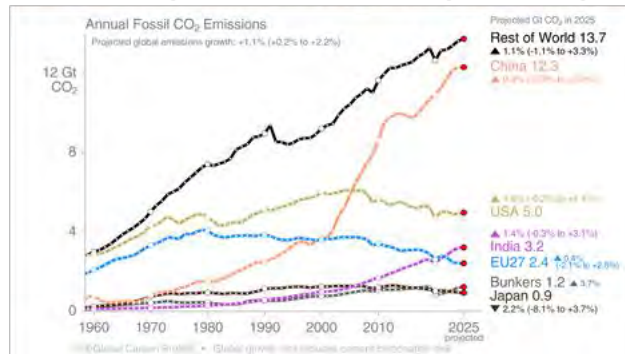
化石由来CO₂の排出量

国別化石由来CO₂排出量

Global fossil CO₂ emissions: 37.8 ± 2 GtCO₂ in 2024, 69% over 1990
Projection for 2025: 38.1 ± 2 GtCO₂, 1.1% [0.2% to +2.2%] higher than 2024



Fossil CO₂ emissions growth is from different regions in 2025 compared to 2024:
The USA rising, and EU27 flat, reversing recent declines. China flat, India low growth, contrasting recent strong growth.



What will Future Earth deliver?

Agenda setting initiatives: Global Research Networks

GRNsからの課題設定・提案



幅広い関係コミュニティとの協働に基づく、GRNsによる新研究課題の提案

(Health KAN, Urban KANの例)

研究助成の効果を最大化する意義も



Transdisciplinary Research Priorities for Human and Planetary Health in the Context of the 2030 Agenda for Sustainable Development

Kristin L. Ebi^{1,4}, Frances Harris^{2,3}, Giles B. Sioen^{3,4,5}, Chadia Wannous^{2,6}, Anaf Anyamba^{7,8}, Peng Bi⁹, Melanie Bowkman¹⁰, Kathryn Bowen^{11,12}, Gaurish Chini^{13,14}, Purnama Dasgupta^{15,16}, Gabriel O. Dida^{15,16,17}, Alexandros Gasparatos^{17,18}, Franz Gatzwiler¹⁹, Firoozeh Javadi¹⁹, Sakiko Kanbara²⁰, Beama Kone^{21,22}, Bruce Maycock²³, Andy Morse²⁴, Takahito Murakami²⁵, Adetoun Mustapha²⁶, Montira Pongpipit²⁶, Gerardou Suzan²⁷, Chihito Watanabe²⁸ and Anthony Capon²⁹

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Health KAN

Global Sustainability

cambridge.org/us

Review Article

Reimagining urban science for global sustainability: Five strategic research areas

Xuemei Bai^{1,2}, Giles B. Sioen^{3,4}, Şer Kilkis⁵, Timon McPhearson^{1,3,6}, Zeenat Niaz^{7,8}, Jago Dodson⁹, Tri Atmaja^{10,11}, Kensuke Fukuchi^{12,13}, Niki Frantzesaki¹⁴, Harini Nagendra¹⁵, Wanyu Shih¹⁶, Thomas Elmqvist¹⁷, Tinchá Muñoz-Erickson¹⁸, Kiangzheng Deng¹⁹, Burak Günel²⁰, Shuaib Lwasa²¹ and Noburu Zama²²

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Abstract

Non-technical summary: Cities, as complex systems, are faced with increasingly diverse and connected challenges across social, economic, environmental, and health domains. To help cities address these challenges, the Future Earth Urban Knowledge-Action Network developed a cross-disciplinary urban research agenda through expert discussions and extensive consultation. Five research themes to guide urban sustainability research were identified including: (1) advancing urban sustainability transformations, (2) ensuring equity, (3) lowering innovation in low to lower-middle income countries, (4) managing complexity and systemic risks, and (5) leveraging environmental change. Advancing this agenda will require collaboration across disciplines and geographies, transdisciplinary coproduction, and enhanced support to urban science.

Technical abstract: Cities and urban regions are at the forefront of transformational limited global sustainability. As urbanization accelerates, there is increasing demand for cities to play multiple, complex and synthetic roles across social and environmental domains within and beyond their boundaries. For example, driving economic development while managing and reducing global environmental changes. To help cities in meeting this challenge, urban science, a rapidly growing field that includes inter- and transdisciplinary research, needs to expand and evolve, with clear priorities. Combining expert discussion and community consultation, the Future Earth Urban Knowledge-Action Network developed a strategic research agenda for urban science for the next decade. The urban science research agenda describes five critical research themes for scientific advances: (1) accelerate urban sustainability transformations, (2) ensure equity and inclusivity, (3) amplify innovation from the low to lower-middle income countries, (4) regulate complexity and systemic risks, and (5) mitigate environmental change. Under each research theme, we review the state of the art, identify remaining gaps, and outline key research questions according to be addressed to advance science toward urban transformations. Interconnections across, and enabling conditions to advance, these priority research themes are discussed.

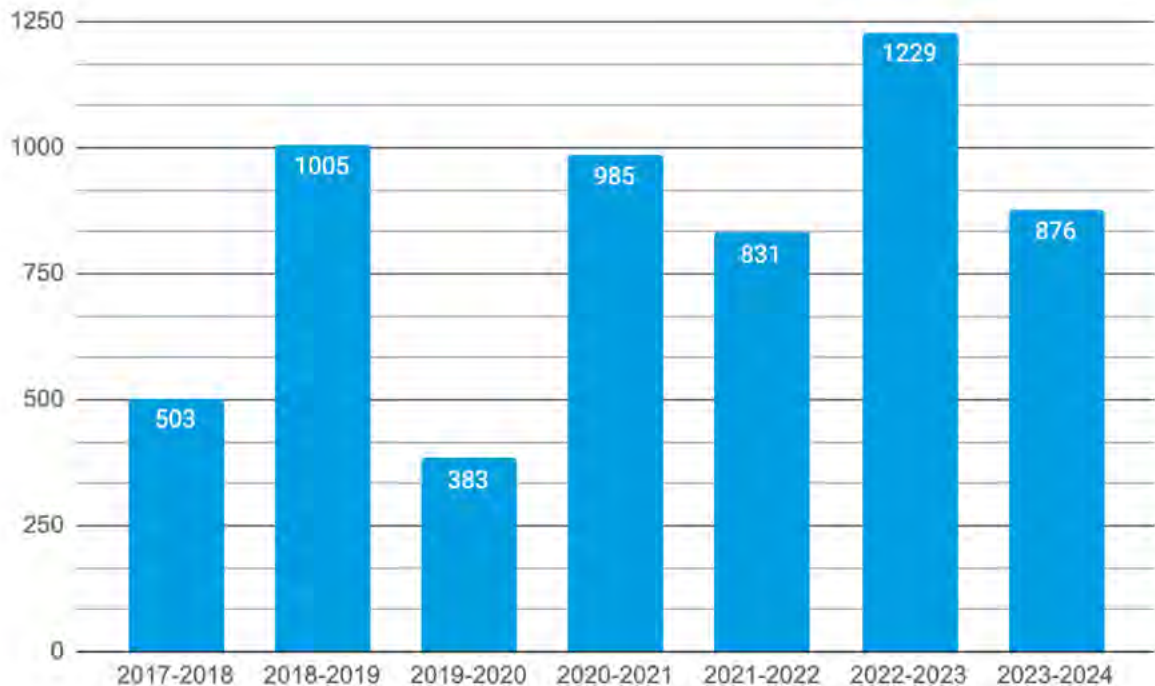
Social media summary: Globally co-designed urban research agenda reveals pressing priorities for sustainability and resilience.



Urban KAN

Why
do we need
Future
Earth?

Publications including peer reviewed papers, book chapters, blog posts, reports





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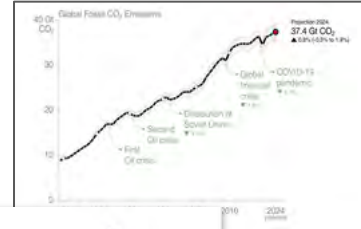
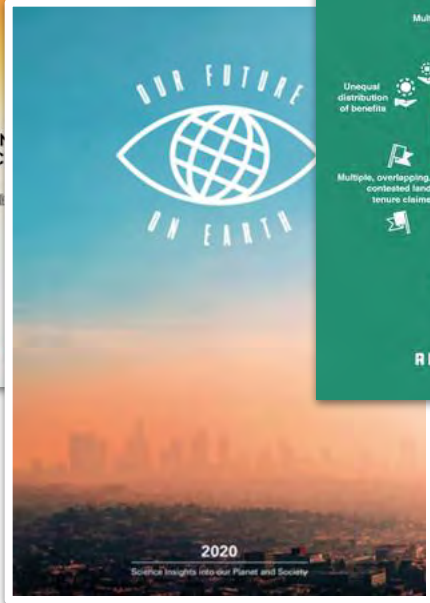
主な成果と出版物

HOW Pioneered approaches to co-design and co-produce solutions-oriented science, knowledge and innovation for global sustainable development

WHO Enabled and mobilised capacities to co-produce knowledge, across cultural and social differences, geographies and generations

What
will Future
Earth
deliver?

Policy Reports, synthesis reports, Anthropocene magazine



What
will Future
Earth
deliver?

Engagement in UN processes



UN
2023 WATER
CONFERENCE

NEW YORK
22-24
MARCH
2023

UN HABITAT
FOR A BETTER URBAN FUTURE



THE
OCEAN
CONFERENCE
UNITED NATIONS, NEW YORK, 5-9 JUNE 2017



Convention on
Biological Diversity



ipcc
INTERGOVERNMENTAL PANEL ON
climate change

UN
environment
programme

Statement from Science at COP28

- A statement from science on fossil fuel phase out.
- Over 1300 signatories.
- Covered in New York Times
- Co-convened between Future Earth and WCRP.



It's Big Oil vs. Science at the U.N. Climate Summit

As negotiators work to agree on a final text, attention has turned to a fundamental question: Will the talks call for a phaseout of fossil fuels?



Accelerating the Decade of Delivery: Future Earth at COP 30

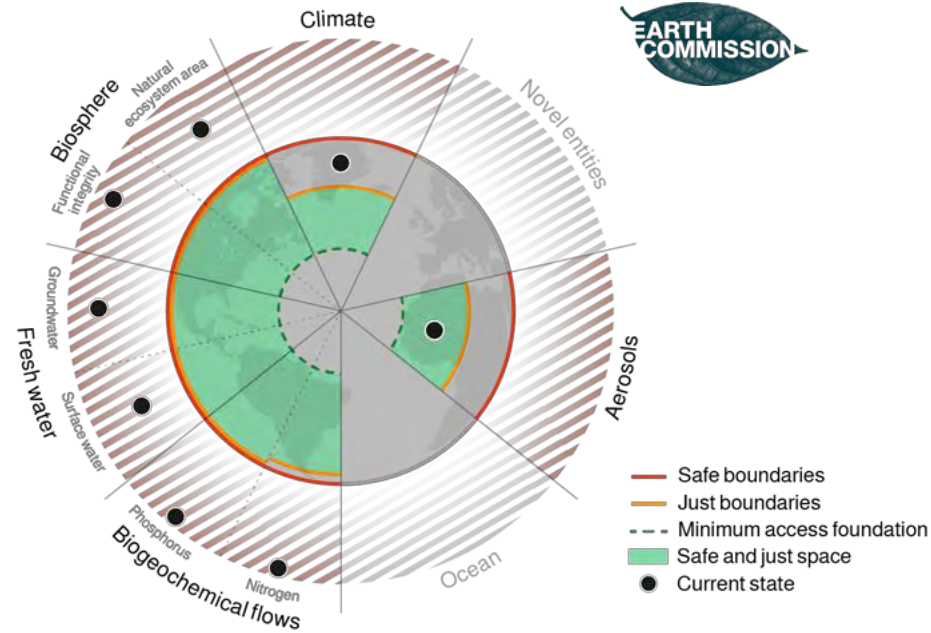
(<https://futureearth.org/2025/10/30/accelerating-the-decade-of-delivery-future-earth-at-cop-30/>)



- 10 New Insights in Climate Science 2025/2026
 - Press Conference
 - 10 New Insights in Climate Science: evidence, risks, and solutions, @Planetary Science Pavilion
- Safeguarding Climate Action: Reforming and Strengthening Carbon Markets and Accelerating CO₂ Removal — a deep-dive on the 10 New Insights in Climate Science 2025 @Planetary Science Pavilion
- Resilience Science Must Knows report launch
- Global Carbon Budget 2025 press conference

and more.

- Defines **safe and just** boundaries for a resilient planet;
- Translation of budgets to underpin **science based targets** for businesses, cities and nations
- **Transformation pathways**
- **TIPMIP** Tipping Point model intercomparison community project
- Tipping elements **webinar series**



What
will Future
Earth
deliver?

Earth Commission 蟹江先生、沖先生が参画



- Nearly **100** scientists from **35+** countries
- **23** commissioners
- **20+** peer-reviewed papers
- **4500+** citations
- **2300+** media stories
- Explainer **briefs**
- **Engagement** with business and policy





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コ・デザイン、コ・プロダクション、課題解決のための超学際研究

WHO

Enabled and mobilised capacities to co-produce knowledge, across cultural and social differences, geographies and generations

The Pathways Initiative



- Support researchers' engagement in inter and transdisciplinary research
- Create spaces for reflection and mutual learning
- Mobilize a plurality of worldviews, knowledge and methodologies
- Promote transformative inter- and transdisciplinary research outcomes



Sustainability
Science Conference
Series



Pathways Autumn
Schools



Pathways
Forums



Pathways Grants



Sustainability, Research & Innovation Congress



国内での超学際研究の実践例：企業、市民、学生、アカデミア、そしてFuture Earth国際事務局との共催事例

平和と環境についての対話会



ショッピングセンターでの、プラネタリーヘルスダイエットについての公開イベントの開催





- ❖ Consortium led by Future Earth Asia with Research Institute for Humanity and Nature, Asia Pacific Network for Global Change Research, Fenner School of Australia National University
- ❖ **Selected** as one of the two ISC pilot missions out of 250 proposed initiatives- launched in Oman, Jan 2025
- ❖ Endorsed as a program for the UN Decade of Science for Sustainable Development, July 2025
- ❖ Year 1 Co-design phase with AUD 500k funding



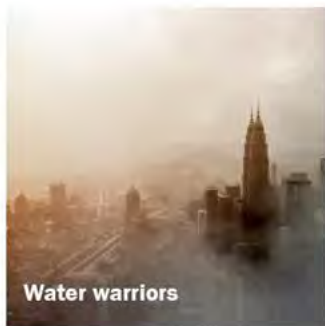
Pilot Phase (Sep 2025 to June 2026): AUD 503,800
Funded by ISC Asia Pacific/Australia Academy of Science
(RIHN as hosting institution)

- Operationalization of the Asia Science Mission
- Co-designing transdisciplinary projects addressing
 - Drought, land degradation, biodiversity loss in semi-arid highlands of Purulia, West Bengal, India with local communities
 - Climate adaptation in floodplains of Mt. Pinatubo Region, Central Luzon, Philippines





SDG Labs



Water warriors



**Visualizing and
Connecting Seeds of a
Good Anthropocene**



**The value of Design
Visualised.**



Urban Eco labs



**New Interfaces for
sustainable financial flow**



**The Future of Rural Energy:
Macro Problems and Micro
Solutions**



Rural Systems Visioneering



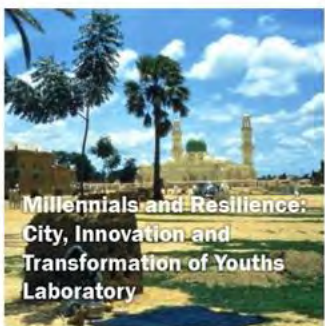
**Transformation Beyond
Consumerism**



Back to a local food system



**Lusaka 2021- What if we
all lived downstream?**



**Millennials and Resilience:
City, Innovation and
Transformation of Youths
Laboratory**



**Mainstreaming resilience
into climate change
adaptation and disaster
risk planning.**



BeerSustLab



**Young Entrepreneurs to
Advance Local Economies
and Community Health in
Africa**



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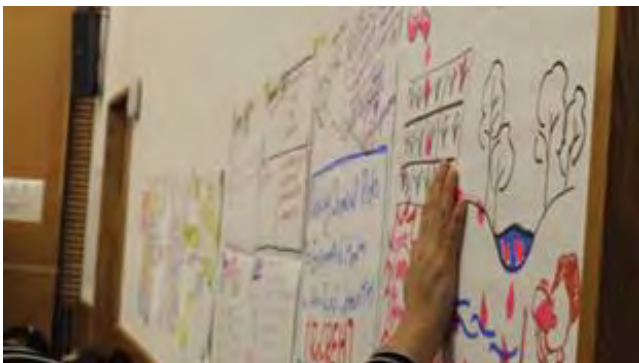
HOW

Pioneered approaches to co-design and co-produce solutions-oriented science, knowledge and innovation for global sustainable development

WHO

Enabled and mobilised capacities to co-produce knowledge, across cultural and social differences, geographies and generations

国や地域、文化の多様性や世代を超えた広がりへ



TERRA School, since 2019 (hosted at RIHN)

- 100+ young researchers
- 15+ countries in Asia and beyond

ECR Fellowships

- Award RMB 30,000–50,000 each to 10–15 ECRs/year

ECR Short Talks/Webinar Series

- 50+ talks organized since 2021

Transdisciplinary ECR courses in France

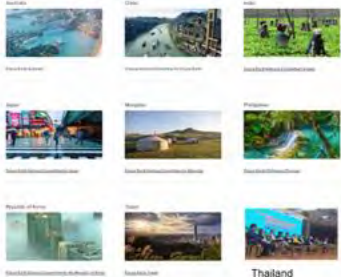
Supporting ECR participation

- Assembly and Governing Council, GRNs, SSC, SRI, Pathways, etc.

アジア学術会議でのFuture Earthシンポジウム、パキスタン、イスラマバード, 2025年11月18日

Future Earth Network in Asia

Future Earth National Committees



Thailand



Global Research Networks with nodes in Asia

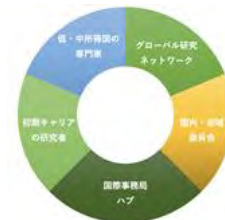
- Monsoon Asia Integrated Research for Sustainability – Future Earth (MAIRS-FE)
- Future Earth Coasts
- Regional Networks
- Hi-ASAP: Health Investigation and Air Sensing for Asian Pollution
- Sustainability Initiative in the Marginal Seas of South and East Asia (SIMSEA)



Pakistan Academy of Sciences (PAS)

Transformation to a diverse and community-led network

- 9 Global Secretariat Hubs
- 16 National and Local Networks
- 25 Global Research Networks



The logo for Future Earth is a large, stylized circular emblem composed of several overlapping, curved, leaf-like or petal-like shapes in various shades of blue. The word "futureearth" is written across the center of this emblem in a white, lowercase, sans-serif font. The background of the entire slide is a solid, vibrant blue.

futureearth

Research. Innovation. Sustainability.

Thank you!