

FUTURE EARTH INTRODUCTION AND OVERVIEW

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**Global
Biodiversity
Observations**

Yale University

www.futureearth.org



What is Future Earth?

- A global platform for **enhancing fundamental research** on the earth system, **enhancing translation of this research** toward actionable science and decision making, and **facilitating transformations** to sustainability
 - Providing **integrated research agenda** on major global change challenges and transformations to sustainability
 - Strengthening partnerships between researchers, funders and users of research through **co-design** of research and engagement
 - **Solutions-oriented**, aiming to generate knowledge that contributes to new more sustainable ways of doing things
 - **Communicating** science to society and society to science
- *Responds to the need for a more nimble innovation system for global sustainability in the face of increasing rates of change*



Future Earth Mission

To **provide the knowledge**
required **for societies** in the world
to **face risks** posed by global environmental
change and to **seize opportunities**
in a **transition to global sustainability**

"The Alliance"

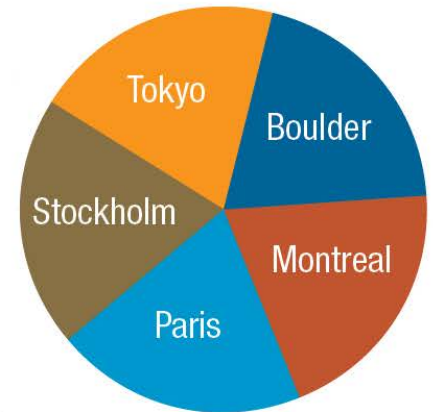
Science and Technology Alliance for Global Sustainability



Science and Engagement Committees



Networked Structure



5 Global and 4 Regional Hubs

- . Emerging hub in Africa.
- . Intend to extend regional reach into other regions of Africa, Asia and beyond.

Dynamic and Flexible

- . Regional Hubs can become Global Hubs
- . More hubs can emerge over time

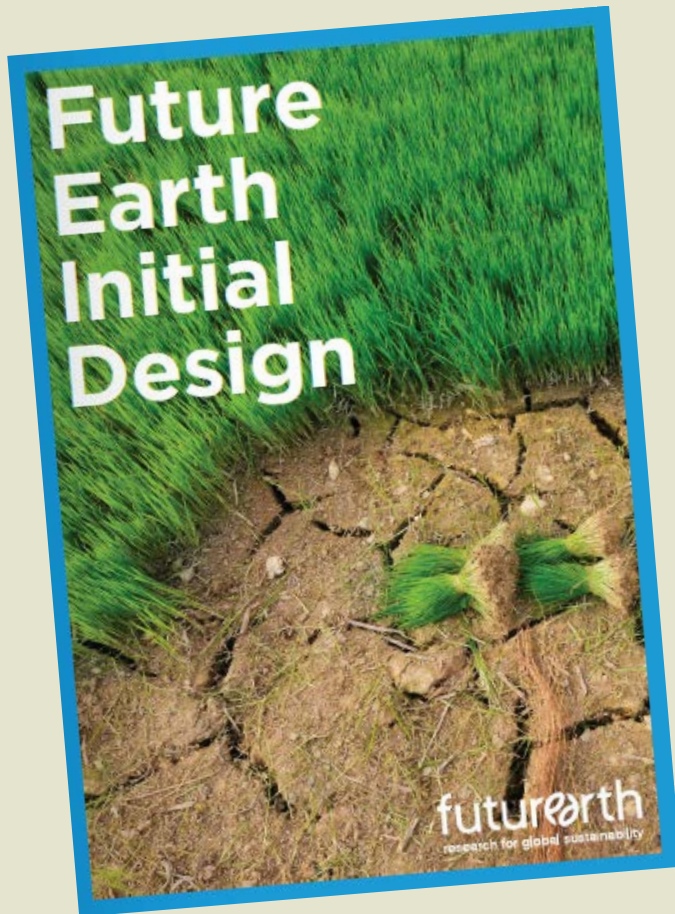
Grey stars represent regional potential



Paul Shrivastava



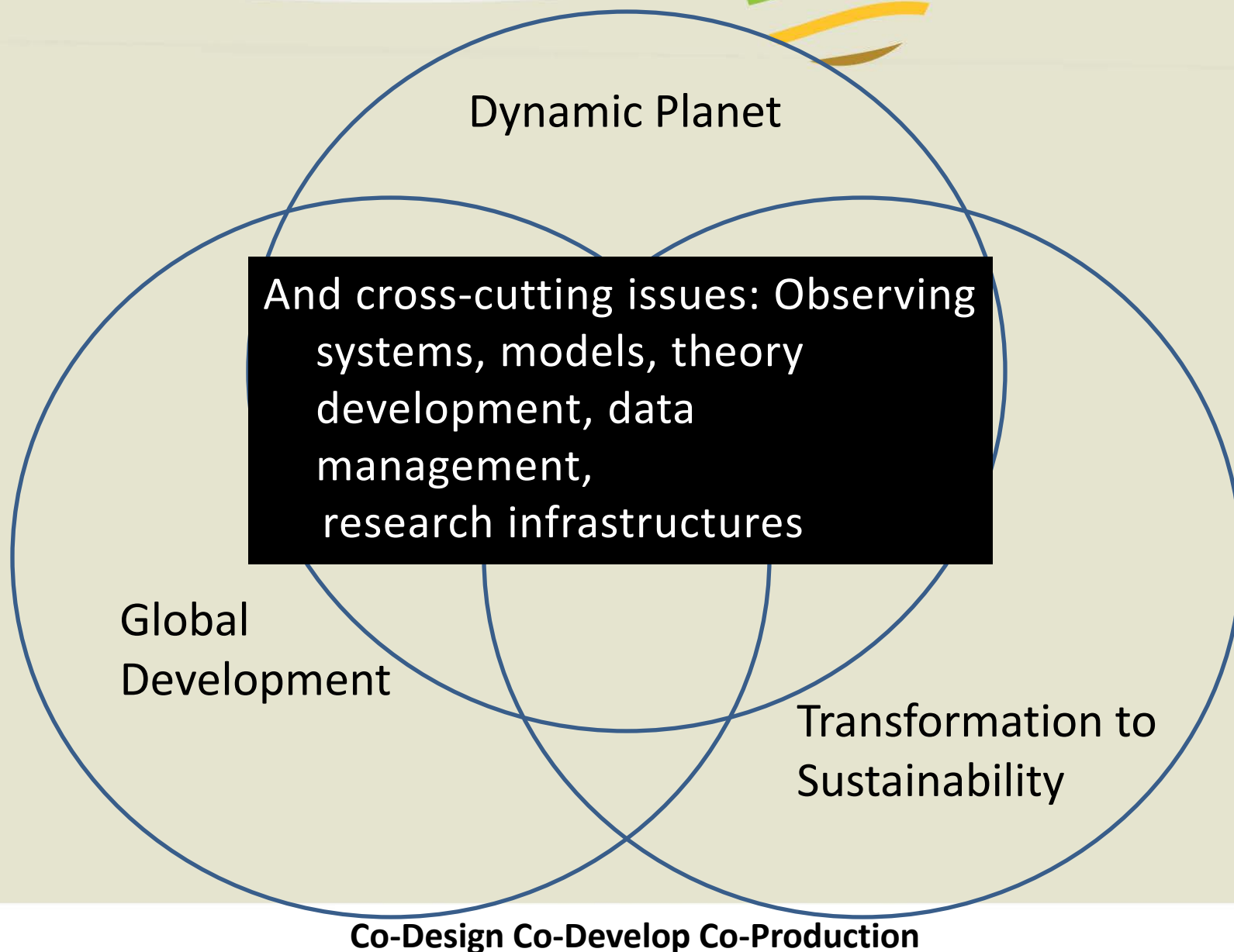
Developing a vision and high profile goals for Future Earth (2013)



Established initial framework for development of Future Earth

Short-term initiatives: things we try to do near-term, and things we initiate through FTI/cluster calls, establish governing bodies, build new communities of engagement, and develop a more integrated system approach for research and science-based solutions

FUTURE EARTH RESEARCH FOCAL AREAS



FUTURE EARTH INITIATIVE



FUTURE EARTH REPORTS

These reports serve to provide guidance to the research and engagement approaches, and aspirational directions of Future Earth.



Oct 2014



Dec 2014



2025 Vision: How would we know Future Earth is succeeding?
Provides a set of 8 Societal Challenges

Strategic Research Agenda 2014:

- Balanced advances on all research themes
- Established framing ideas
- Built on past consultations
- Iterative process with broad input (core projects and EC)

These reports can be found at:
www.futureearth.org



Core principles for Future Earth



- Work across all scientific disciplines/knowledge; inclusive of multiple socio-geographic approaches (plus humanities & engineering)
- Link global environmental change and development
- Build partnerships between researchers, funders, service providers, and research users such as decision makers and practitioners
- Bring on board and promoting the leadership of a new generation of Future Earth researchers



2025 Vision Challenges

- Nexus of Sustainable water, energy, and food systems
- Low carbon socio-economic systems
- Safeguard the terrestrial, freshwater and marine natural assets
- Build healthy, resilient and productive cities
- Promote sustainable rural futures
- Improve human health by understanding complex environmental interactions
- Encourage sustainable consumption and production patterns
- Increase social resilience to future natural threats



Science Development Connections

- Contribute to defining and evaluating **Sustainable Development Goals**
- Development of partnerships between research and practitioner communities
- Translating data and observations for end-user needs and decision making

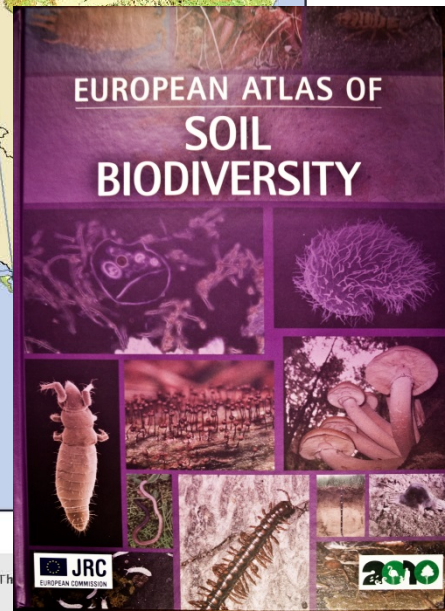
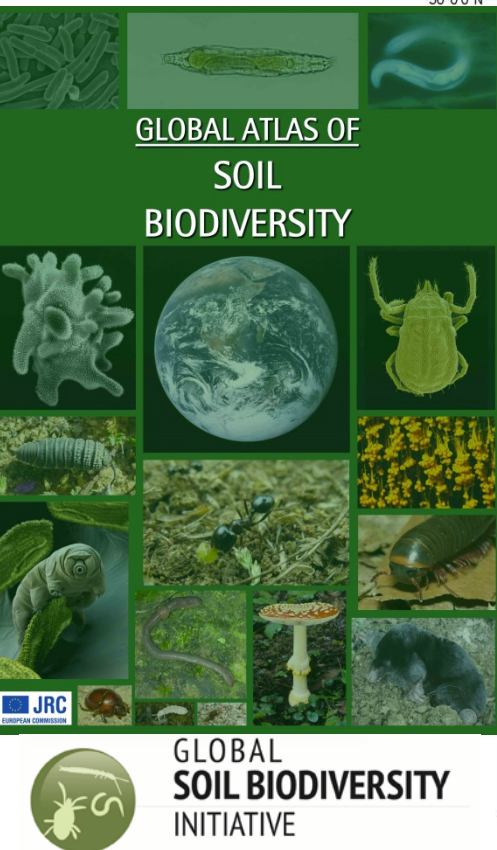
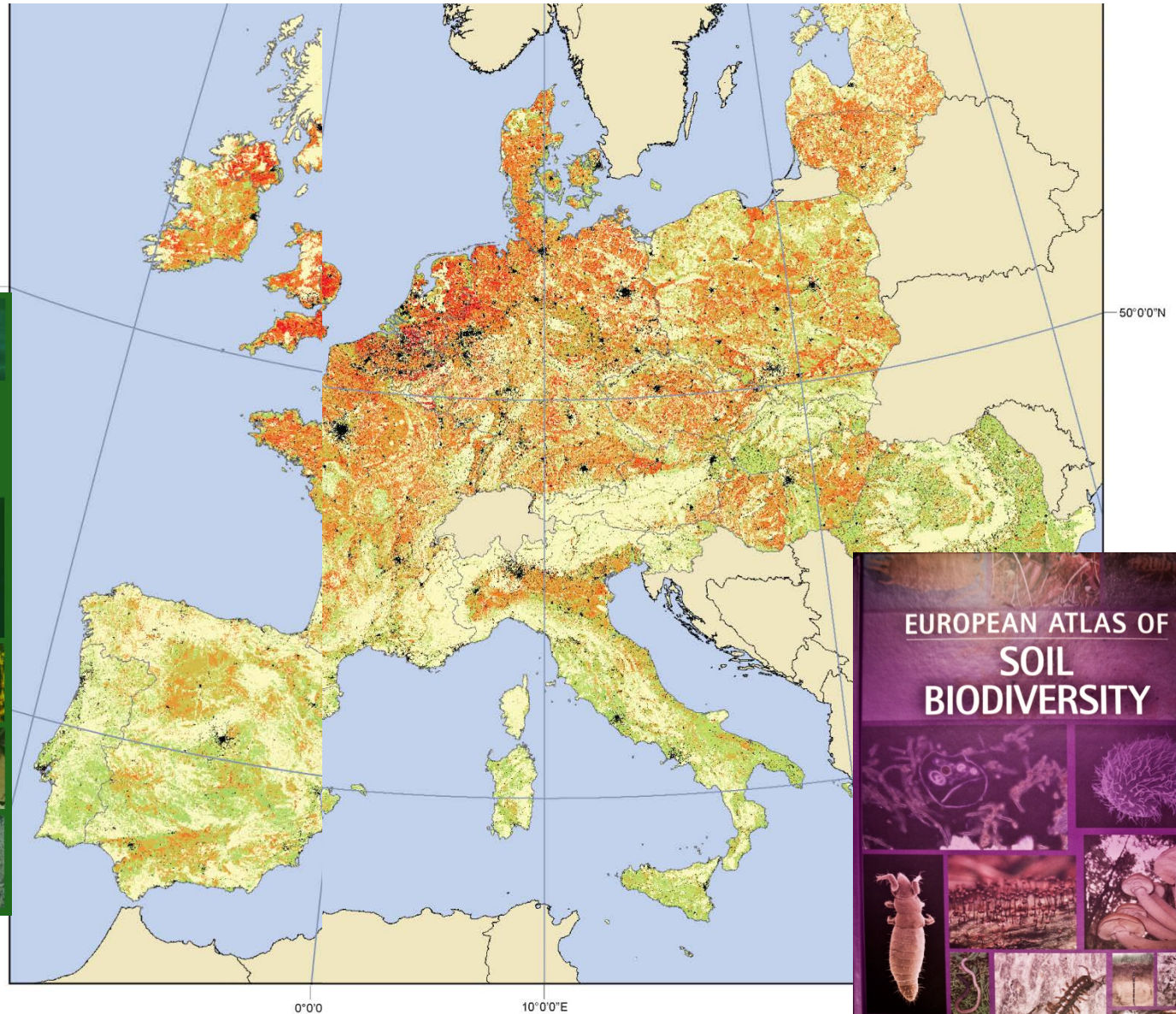
2025 Vision OUTPUTS

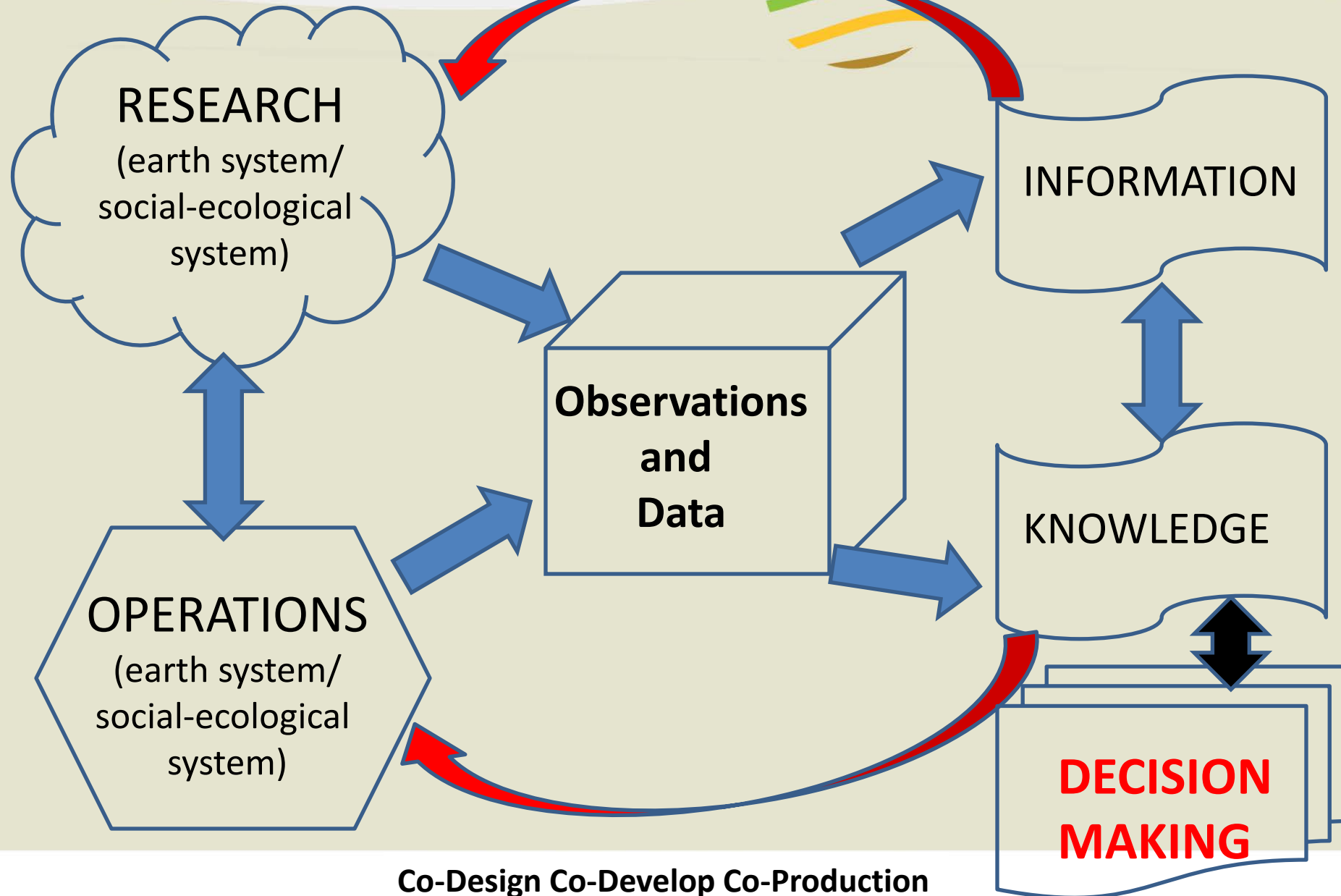


- Enhanced knowledge of earth system dynamics
- Open and inclusive platforms for observing and monitoring
- Tailored metrics and evaluation tools for well-being and sustainable development.
- New generation of integrated Earth system models
- Science-based data, tools and resources to support improved resilience of social-ecological systems
- Scenarios for transformative development pathways that enable global sustainability
- Critical contributions to key debates on global sustainability issues
- Innovations in communicating, engaging and visualising global change and sustainability

Vulnerability of soil biodiversity in Europe (land use, invasive species, soil sealing, loss of OM, etc)

- No Threats
- Extremely Low
- Very Low
- Low
- Moderate/Intermediate
- High
- Very High
- Extremely High
- Country borders
- Urban Areas







What are the modalities of analysis of biodiversity observations to SDG and society?

- How do we communicate observations of changes and trends?
- How do we apply this information into knowledge that is useful to multiple sectors of decision makers?
- What are the critical intersections between research disciplines and society?



Questions

www.futureearth.org



Co-Design Co-Develop Co-Production

Fast Track Initiatives (2014)

- **Exploring nitrogen in Future Earth**
- **Scientific support for IPBES knowledge generation**
- **Liveable urban futures**
- **Bright spots: seeds of a good Anthropocene**
- **Global biodiversity monitoring, prediction and reporting**
- **Extreme events and environments from climate to society**
- **Linking earth system and socio-economic models to predict and manage changes in land use and biodiversity**
- **Sustainability for water, food and energy through integrated water information and improved governance**



- 2014 Draft SUSTAINABLE DEVELOPMENT GOALS

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Ensure healthy lives and promote well-being for all at all ages
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



- 2014 Draft SUSTAINABLE DEVELOPMENT GOALS

10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts*
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development



Enhancing Research Activities

- Maintaining interdisciplinary and trans-disciplinary research to further our understanding of the dynamic earth system
- Provide knowledge sharing and translation of findings between research communities, practitioners, and decision makers
- Establish mechanism for co-development of research strategies with user community



Science Policy Connections

- Organize research input into IPCC and IPBES, and other regional assessments
- Contribute to defining and evaluating Sustainable Development Goals (SDG's)
- Co-develop studies to identify vulnerabilities, risks, and opportunities related to reducing emissions and responding to global environmental changes



Science Development Connections

- Contribute to defining and evaluating **Sustainable Development Goals**
- Development of partnerships between research and practitioner communities
- Translating data and observations for end-user needs and decision making

BELMONT FORUM

Collaborative Research Actions (2013-2014)

- Arctic Observing and Research for Sustainability
- Scenarios of Biodiversity and Ecosystem Services
- Food Security and Land Use Change
- Freshwater Security
- Coastal Vulnerability
- 2015 - Now Open
 - [Mountains as Sentinels of Change](#)
 - [Climate Predictability and Inter-Regional Linkages](#)