Future Earth Health Knowledge Action Network (KAN)

Biodiversity and Health

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Global environmental change research: a long, successful history

four Global Environmental Change Programmes

all co-sponsored by ICSU
A global Alliance for a new 10-year initiative

Note: WMO is an observer
Previous research landscape (Core Projects)

Now part of Future Earth (Global Research Projects)
A universe of smaller and larger research entities

Research programme

We are an OPEN NETWORK - a collaborative and inclusive space for a broad community to contribute to our vision and research agenda.

Knowledge-Action Networks

Knowledge-Action Networks are structured networks catalysing new research and deep engagement with society around our key priorities.

21 major international projects

Guiding principles: Multidisciplinarity & co-design
Deliver **water, energy, and food** for all, and manage the synergies and trade-offs among them.

Decarbonise socio-economic systems to stabilise the climate.

Safeguard the terrestrial, freshwater and marine **natural assets** underpinning human well-being. Build healthy, resilient and productive **cities**.

Promote sustainable **rural futures** to feed rising and more affluent populations.

Improve human **health** in relation to GEC.

Encourage **sustainable consumption** and **production** patterns that are equitable.

Increase social resilience to future threats by building adaptive **governance** systems.
Why health?

• Sustainable development goals (2015):
  
  • #3: ”Ensure healthy lives and promote well-being for all at all ages”
    • No targets related to global environmental change
  
  • #13: ”Take urgent action to combat climate change and its impacts”
    • No targets related to health
    • UNFCCC (until 2015): barely a mention of health consequences

• Awareness of health issues increasing: Rockefeller-Lancet, IPCC, WHO, CBD, others

• Future Earth 2025 Vision, challenge #6: “Improve human health by elucidating, and finding responses to, the **complex interactions** amongst environmental change, pollution, pathogens, disease vectors, ecosystem services, and people’s livelihoods, nutrition and well-being”.
Research priorities (tentative)

• Energy, air quality, climate change, and health.
• Land use change, biodiversity loss and disease risk.
• Urbanization and health.
• Food systems and nutrition.
• Health in the Circular economy.
• Cross-cutting issues.
  • Implementation science
  • Models and scenarios to describe future vulnerabilities
  • Research and monitoring of global environmental change and health
Priority for surveillance—extracts from recent reviews

• “Build integrated surveillance systems that collect rigorous health, socioeconomic, and environmental data for defined populations over long time periods” (Rockefeller-Lancet 2015)

• “Relevant research for health protection in the near term is therefore likely to come from cross-disciplinary studies, including public health decision makers, in the following areas: ...surveillance, monitoring, and observational systems that link climate, health, and economic impact data and provide a basis for early warning systems as well as development of future scenarios” (IPCC AR5)

• “Health research should also focus on the complex interplay between risk, location, and environmental conditions. A huge amount of diverse information will be needed at all governance levels (local, regional, national, global).” (US Interagency Working Group on Climate and Health 2010)

• “Facilitate implementation of integrated environment and health surveillance to support timely and evidence-based decisions for the short and long-term risks to human health posed by ecosystem degradation and biodiversity loss by forecasting and preventing increases in related ill-health and disease.” (CBD/WHO Report 2015)
What to build upon - Existing observation networks

- **LTER** (long-term ecological research):
  - USA: 26 sites in USA/Antarctica
  - LTER-Europe: 1,800 "sites" (limited scope) and "platforms" (multidisciplinary, local stakeholders)

- **LTSER** (long-term social-ecological research): under development (LTER-Europe)

- **ILTER** (international LTER): a 'network of networks', a global network of research sites (538 on website) located in a wide array of ecosystems that can help understand environmental change across the globe. ILTER's focus is on long-term, site-based research and monitoring.

- **INDEPTH**: Health and Demographic Surveillance System (HDSS), 52 centers in 20 countries (39 Africa, 11 Asia, 2 Oceania), “to provide a more complete picture of the health status of communities”

- **PEEX**: "multidisciplinary climate change, air quality, environment and research infrastructure program focused on the Northern Eurasian particularly arctic and boreal regions”, a network of stations across Northern Eurasia (under development)

- **DRIIHM**: network of observatories (5 in France, 3 elsewhere) for multidisciplinary study of effects of disruptive environmental events

- **GEO-BON**: "there are many thousands of dedicated Biodiversity Observation Initiatives (BOI’s) active in bringing the data together, to better understand change in various biodiversity dimensions and scales. GEO BON is actively building up a network of BOI’s to improve the acquisition, coordination and delivery of biodiversity information and services to users, particularly decision-makers."

……AND MORE!
Main problems of Future Earth development

• Complex organization:
  • Governing Council, Scientific and Engagement Committees (with subcommittees)
  • Distributed secretariat (5 global hubs)
  • Regional hubs (Europe, MENA, Latin America, Asia) with Committees
  • National committees (ca. 30) with regional alliances (Europe)
  • Research organizations (GRPs, KANs, FTIs etc)

• Underfunding (of joint activities/organization):
  • The Alliance (Belmont Forum) command ca. 10 bn US$/year
  • Main funding decisions by national agencies, CRA only joint resource

• Too many strategies/high-level conferences – too little new research!
• What is Future Earth? (Not research performing nor funding organization)
Potential benefits from a well-functioning KAN

• Contacts to scientists/groups with similar interests (Open network)
• Contribution to well-designed global research agenda
• Conducting policy-relevant research co-designed with stakeholders
• Improved funding opportunities (Belmont CRAs)
• Contribution/access to quality-assured databases (ICSU/CODATA)
• Contribution to/benefit from systematic reviews of published science
• Access to field observation stations
• Learning from the experience of others (repository of case studies)