

Future Earth Health Knowledge Action Network (KAN)

Biodiversity and Health

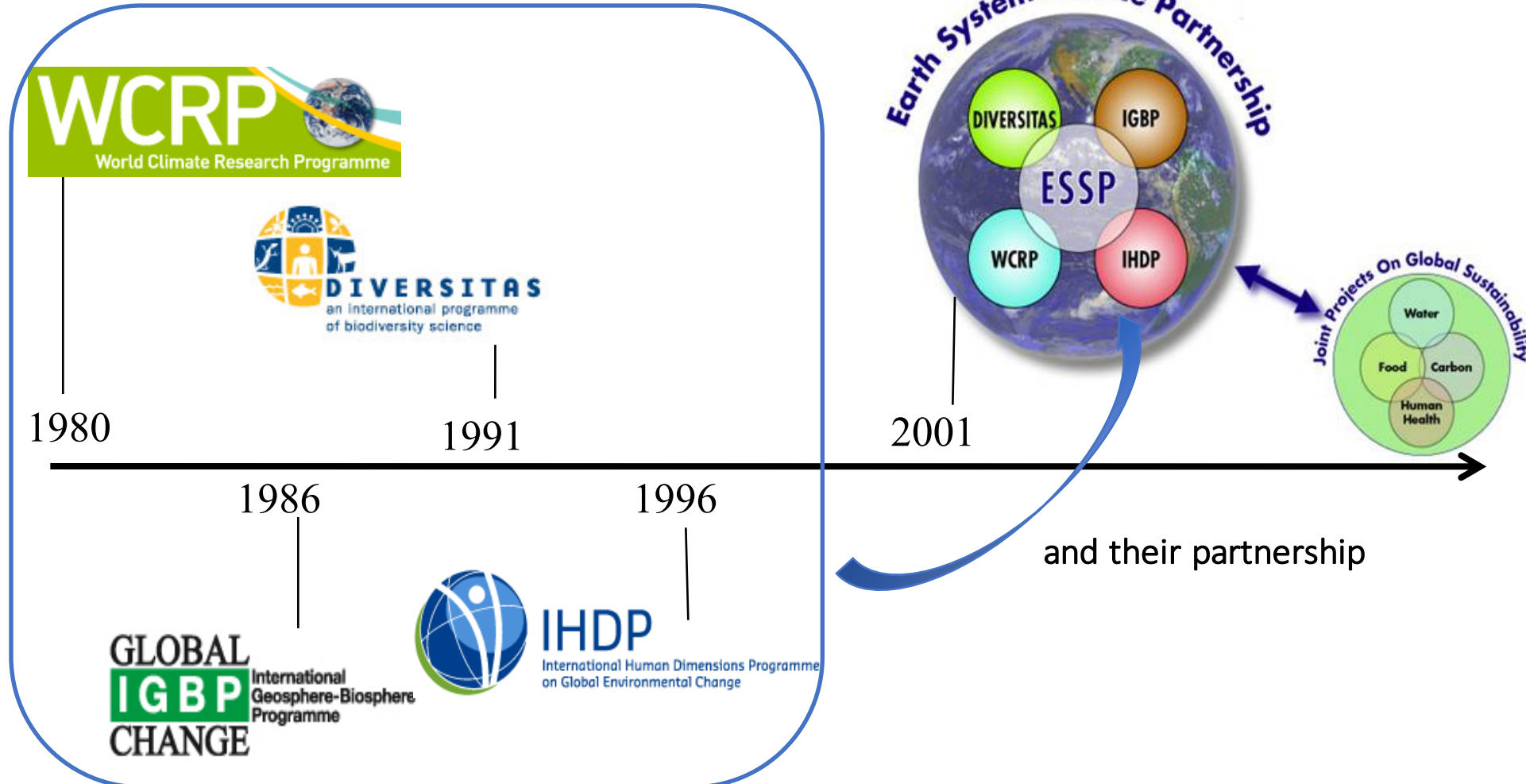
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Global environmental change research: a long, successful history

four Global Environmental Change Programmes



all co-sponsored by ICSU

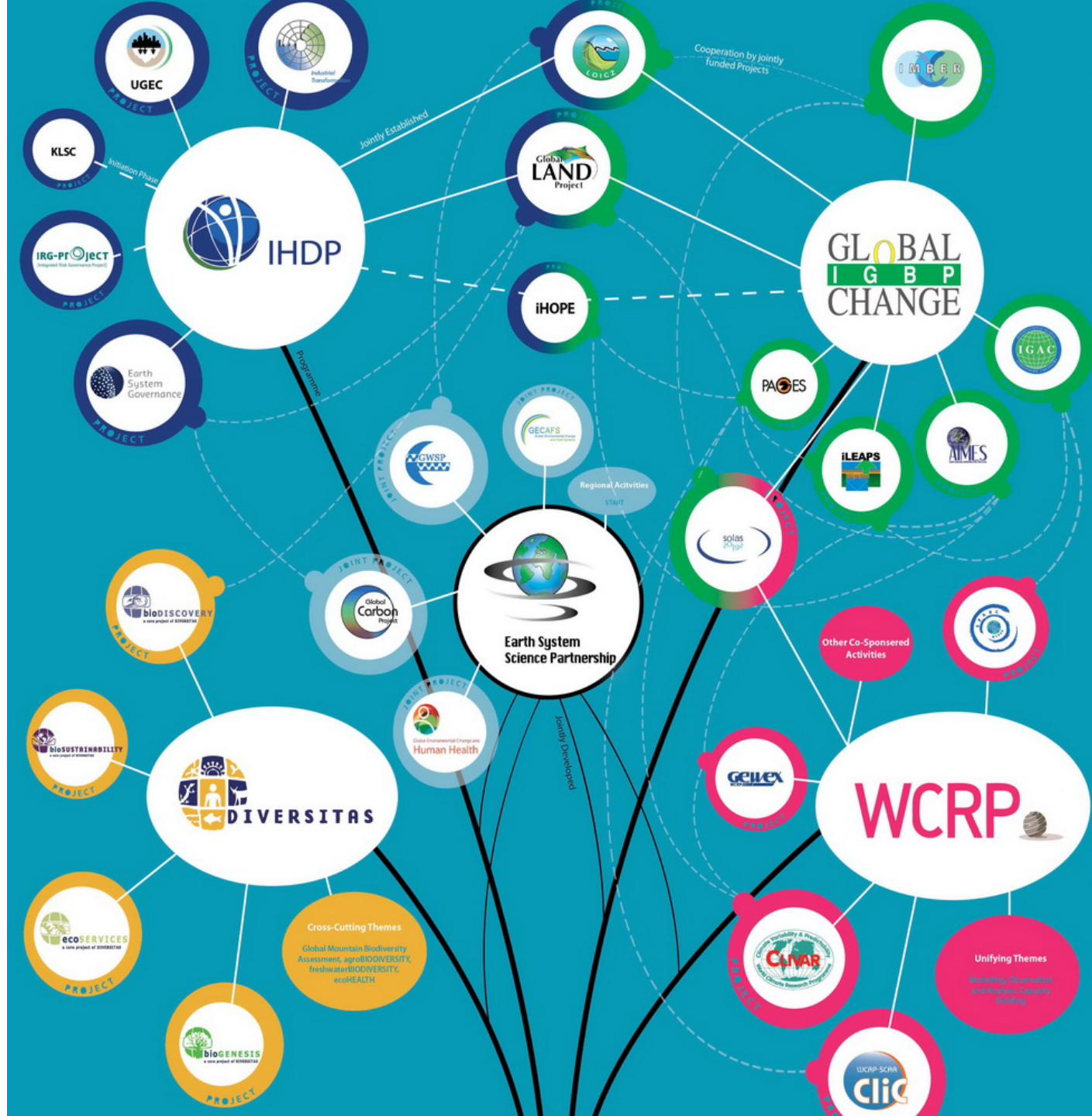
and their partnership

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











21 major international projects

Guiding principles: Multidisciplinary & co-design

Key challenges (to become Knowledge Action Networks)

Strategic Research Agenda 2014

-  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)