Concept Paper on a Global Sustainability Research Initiative

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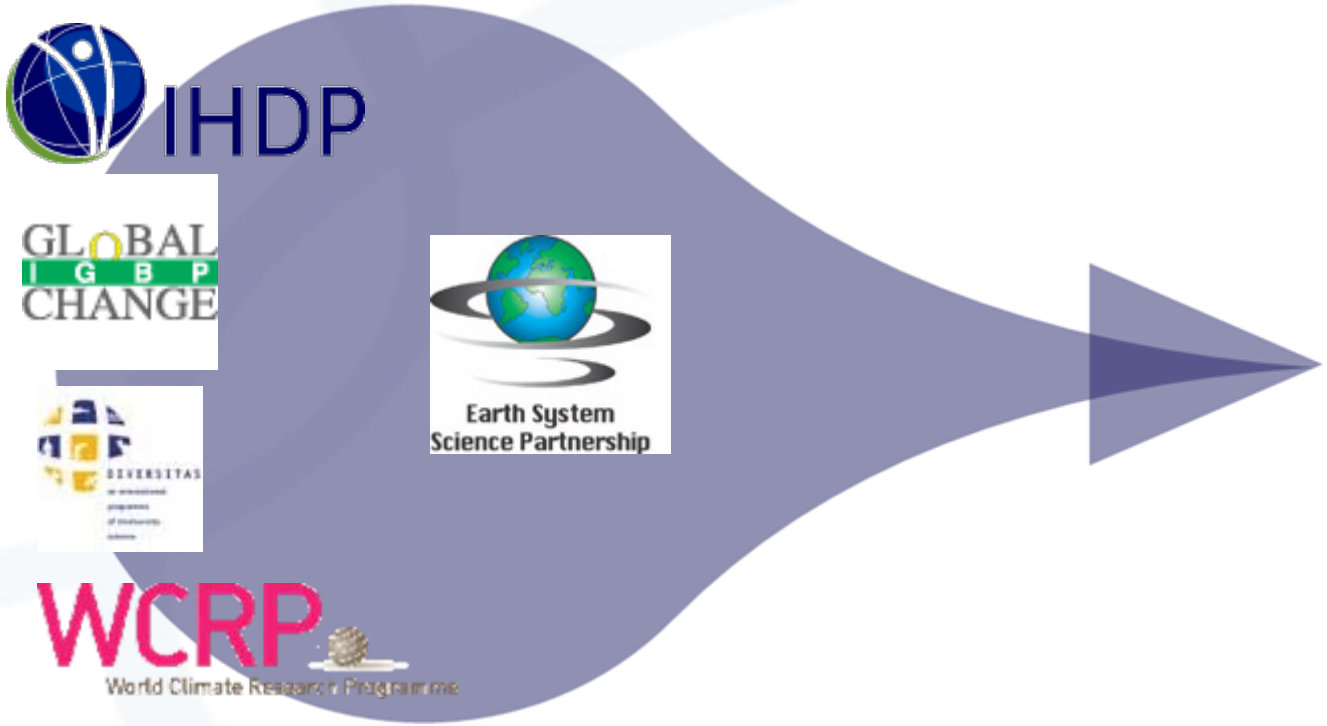
Scientific evolution of onvergence towards integrated Earth system science



Integrated Earth System Science

(growing capability of predicting the Earth system implications of anthropenic change)

”*the great*

CO_2, N_2O, CH_4 concentrations

Overfishing

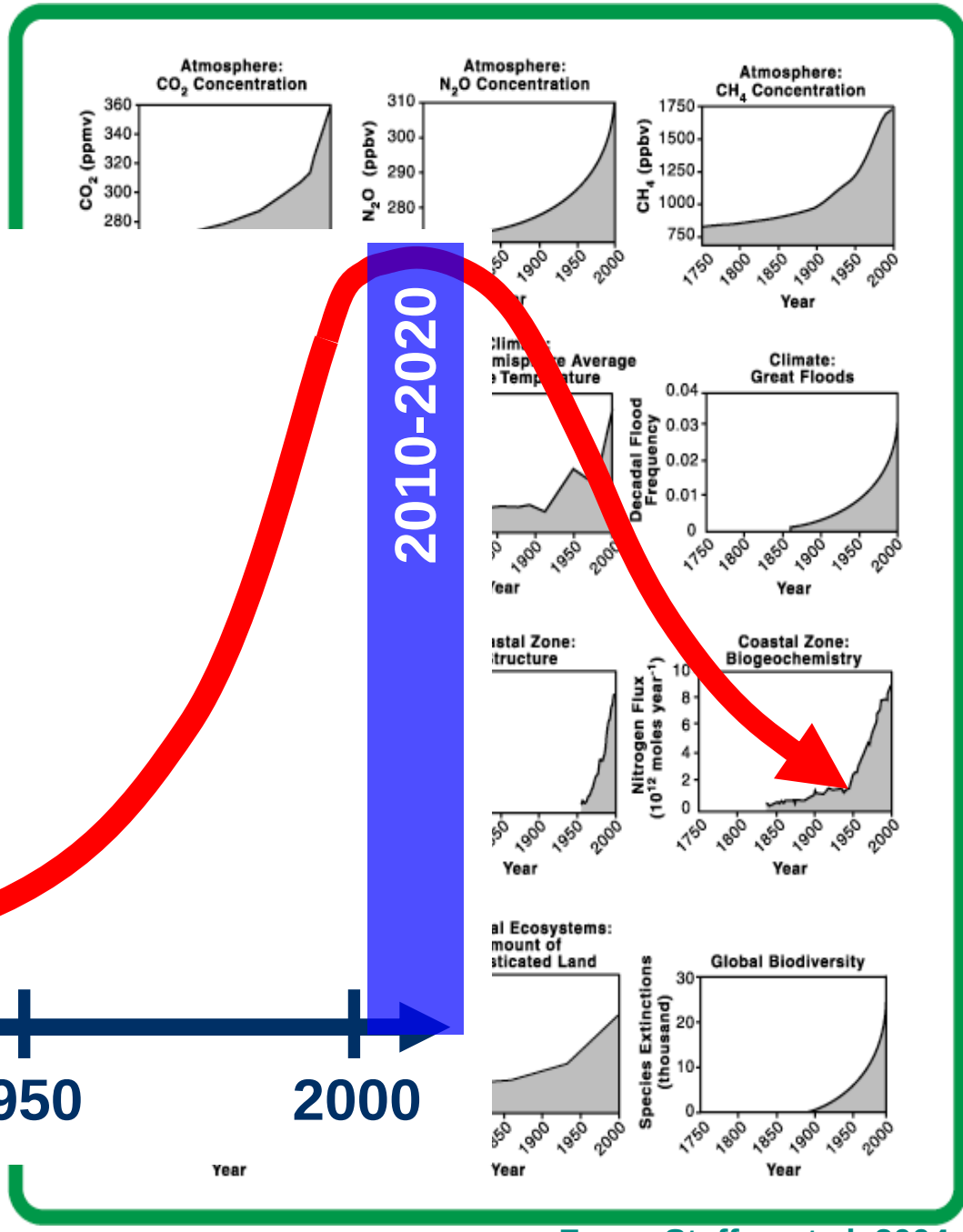
Land degradation

Loss Biodiversity

…..

1900 **1950** **2000**

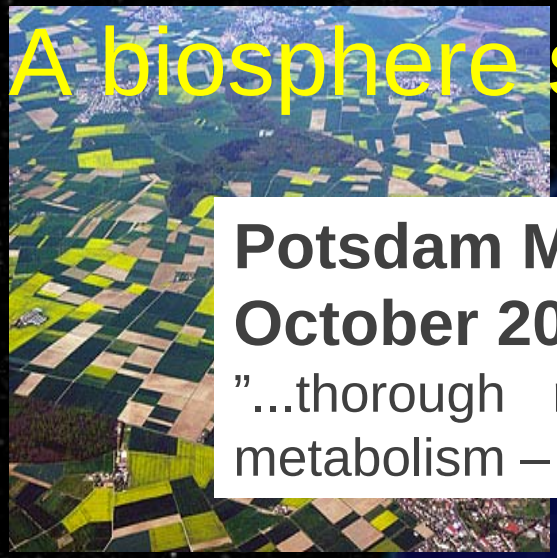
2010-2020



From: Steffen et al. 2004

A growing sense of Urgency for stewardship

A biosphere shaped by humanity



Potsdam Memorandum 10th October 2007

"...thorough re-invention of our industrial metabolism – **the Great Transformation**."

We have our foot on the accelerator driving towards the Abyss..."

Ban Ki-moon Secretary General of the UN

Obama Administration Instructions to NSF for US fiscal year 2011

A new **Sustainability Research effort** on renewable energy systems and complex environmental- and climate system processes to

June meeting concludes

- The status quo cannot deliver the integrated research that is needed to effectively respond to the Grand Challenges.
- ESSP does not have the resources or the authority to play a lead role in responding to the Grand Challenges. The new overarching structure needs to have both of these.
- There is a window of opportunity and momentum now that has been built during the development of the Grand Challenges and this must not be lost in prolonged discussion about structures.

Core elements of the overarching framework

- Support integrated science
- Ensure effective policy impact and communications
- Support stakeholder engagement, trans-disciplinary research approaches and co-production of knowledge
- Sufficient long-term research funding
- Foster collaborative research networks that are truly global in scope

The goals of the Initiative

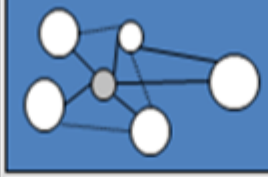
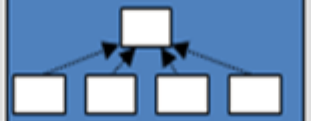
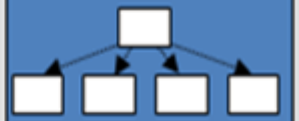
- Deliver at global and regional scales the knowledge that societies need to effectively respond to global change while meeting economic and social goals;
- Coordinate and focus international scientific research to address the “Grand Challenges in Global Sustainability;”
- Engage a new generation of researchers in the social, economic, natural, health, and engineering sciences in global sustainability research.

The new Initiative should

- deliver the **knowledge** that will enable countries to meet needs for sustainable development in the face of global change.
- provide **solutions** to pressing sustainability challenges at regional scales.
- attract the brightest **young scientists**, particularly in developing countries.
- expand the involvement of **social scientists and economists** in the grand challenge research agenda.
- involve **stakeholders and decision-makers** in the process of defining and carrying out research.
- deliver end-to-end **environmental services**.

Initiative Characteristics

- Focus on global sustainability research
- Cutting-edge network structure
- Built around strong regional nodes
- Active engagement with decision-makers
- Actively engage the full range of disciplines
- Actively engage young scientists

	Web	Enabled network	Loose federation	Tight federation	Single org
					
Governance	• No joint governance	• Minimal joint governance	• Limited joint governance, limited if any shared services	• Strong shared governance, and targeted shared services	• Single entity, centralized governance and decision making
Shared processes & infrastructure	• Ad hoc knowledge and resource sharing	• Facilitated knowledge exchange and collaboration on selected issues	• Some shared infrastructure; facilitated knowledge exchange	• Significant shared infrastructure and knowledge sharing	• Majority of processes & infrastructure are shared
Role of the center	• N/A – no core • Complete autonomy of independent organizations	• Center or "lead node" facilitates collaboration among autonomous organizations	• Center coordinates key issues on behest of field • Strong local autonomy	• Center facilitates high level strategic policy • Local flexibility in delivery	• Center leads/ supports strategy development (with input from field)
Examples	• Linux	• Global Fund • ICBL • WWF	• GAVI • Visa (pre-reorg)	• Amnesty International	• CI • Ashoka

Governing body

- Current core programme sponsors (ICSU, ISSC, ..)
- Research donors (BF, ..)
- Scientists (6)
- Users of global sustainability information and knowledge
- Representatives of civil society and business

Designing and Creating the Initiative

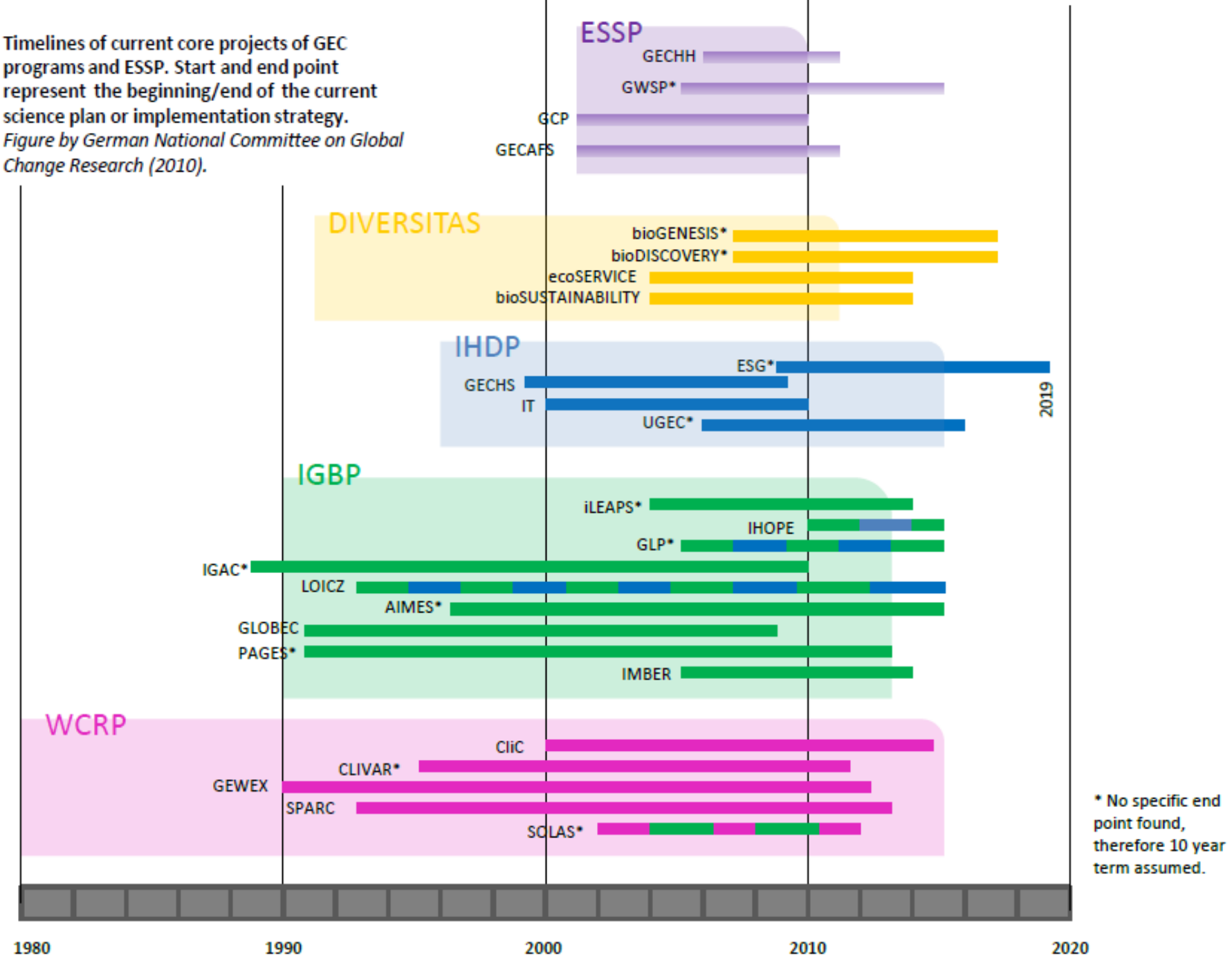
1. Engage organizational design experts
2. Initiate a SWOT analysis of existing GEC research
3. Explore integration of GEC programmes
4. Assemble information on obvious regional ‘nodes’ for the network
5. Explore alternative options for the governance, funding, and priority setting for the network

Designing and Creating the Initiative (continued)

6. Explore options for knowledge management systems
7. Develop a detailed research plan for the first three years of the Initiative
8. Co-design and coordinate an implementation plan
9. Develop a formal relationship among the relevant network nodes
10. Reach out to potential partners and user

Launching the Initiative

Timelines of current core projects of GEC programs and ESSP. Start and end point represent the beginning/end of the current science plan or implementation strategy.
Figure by German National Committee on Global Change Research (2010).



* No specific end point found, therefore 10 year term assumed.