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# Future Earth Research for Global Sustainability



UNITED NATIONS  
UNIVERSITY



# Global Change

International Geosphere-Biosphere Programme

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## ANTHROPOCENE

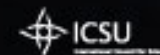
The geology of humanity

**Urban expansion**  
No signs of slowing

**Natural catastrophes**  
2011 breaks records

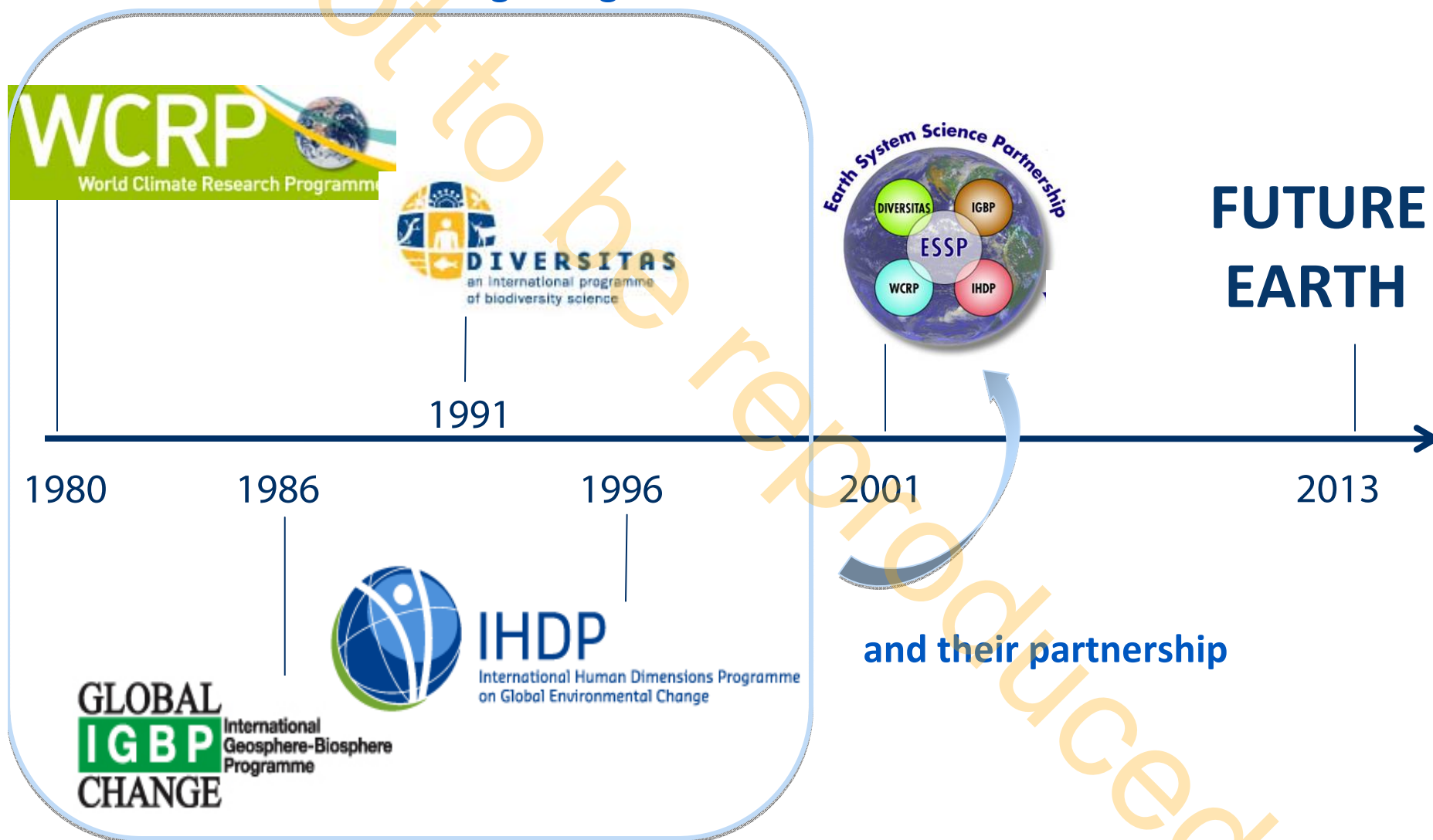
GLOBAL  
**IGBP**  
CHANGE  
International  
Geosphere-Biosphere  
Programme

[www.igbp.net](http://www.igbp.net)  
Earth-system science for a sustainable planet



# Future Earth: building from the GEC programmes

## Global Environmental Change Programmes



## Some of the challenges we face

- Feeding 9 billion people within sustainable planetary boundaries
- Valuing and protecting nature's services and biodiversity
- Adapting to a warmer and more urban world
- Transitioning to low carbon societies
- Providing income and innovation opportunities through transformations to global sustainability
- Reducing disaster risks
- Aligning governance with stewardship





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# Future Earth

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

# Future Earth: can we answer ...

How and why the global environment is changing, what are likely future changes, what the implications are for human wellbeing and other species, what choices can be made to reduce harmful risks and vulnerabilities and enhance resilience, and how this knowledge can support decisions and sustainable development?



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The challenges of global environmental change and sustainable development require some new approaches which are:

- *More international*
- *More interdisciplinary*
- *More collaborative*
- *Co-designed with users, funders...*
- *More responsive to society and grand challenges of sustainability*
- *Builds on the success of current international research programmes*



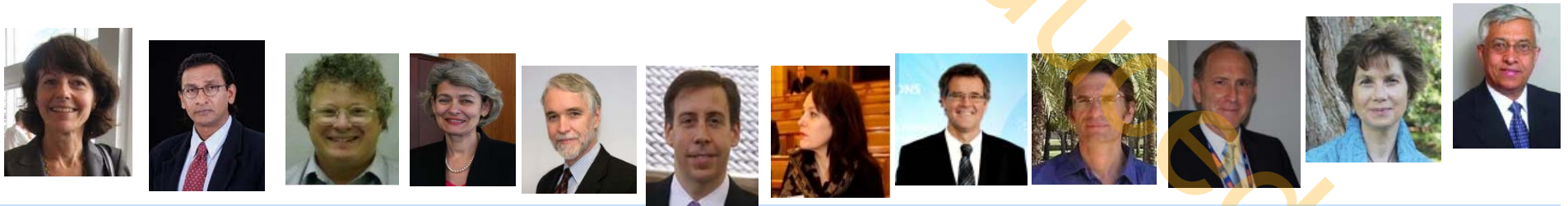
# The Transition Team



Many disciplines, sectors, regions



for a truly new co-design effort



17 individual capacity members, 12 ex-officio (ICSU, ISSC, Belmont Forum, UNESCO, UNU, UNEP) and Global Environmental Change Programme Directors



# Transition Team deliverables

- An initial research framework
- An institutional design
- A strategy for outreach, education, stakeholder engagement
- A name for the initiative



# Organizing Future Earth research

A conceptual framework

A number of “integrated research” themes:

- thematic areas in which interdisciplinary research will be carried out
- a number of key research questions under each theme
- populated by existing/new projects

	<b><i>Future Earth: Proposed Integrated Research Themes</i></b>
1	<b>A Changing Planet:</b> Understanding earth, ecological and societal system trends, drivers, processes, and projections
2	<b>Resources for development and wellbeing:</b> ensuring the sustainable provision of food, water, health and ecosystem services
3	<b>Low Carbon Societies:</b> Linking Climate Change, Energy and the Economy
4	<b>Living with the Sea:</b> Oceans, coasts and blue societies
5	<b>Reducing the risk of catastrophes:</b> Global thresholds and disaster risk reduction
6	<b>Pivotal places:</b> Cities, regions, and critical biomes
7	<b>Global Responses:</b> Managing change and governing the environment
8	<b>Transformative Pathways:</b> Fundamental changes for a Sustainable, Inclusive and Prosperous Future Earth
9	Other themes to be proposed by the scientific community.....

# Living with the sea: oceans, coasts and blue societies - Example research questions

- What might adaptive management strategies contribute to resilient coastal zones?
- How much and what kind of food will the oceans provide to future societies?
- What is the capacity of the ocean to take up CO<sub>2</sub>?
- How to govern sustainable fisheries?
- How do land-use and open ocean changes influence coastal habitats and marine biodiversity?
- What are the regional impacts of sea level rise and their interaction with coastal use and protection?





# Crosscutting capabilities

- *Observing systems*
- *Data systems*
- *Earth system models*
- *Theory development*
- *Synthesis and assessments*
- *Capacity development and education*
- *Communication and the science-policy interface*

# Future Earth: next steps

- Early actions
  - Launch – PuP and Rio+20
  - Belmont Collaborative Research Actions on coasts and water
  - ISSC transformations to sustainability project
- Consultations – second half 2012
  - Research Framework
  - Projects and programmes
  - Regional perspectives

# For more information on Future Earth

[www.icsu.org/future-earth](http://www.icsu.org/future-earth)



International Council for Science

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Strengthening international science for the benefit of society



**Future Earth - research for global sustainability**

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**Future Earth will be a global platform to deliver:**

- **Solution-orientated** research for sustainability, linking environmental change and development challenges to satisfy human needs for food, water, energy, health;
- **Effective interdisciplinary collaboration** across natural and social sciences, humanities, economics, and technology development, to find the best scientific solutions to multi-faceted problems;
- **Timely information for policy-makers** by generating the knowledge that will support existing and new global and regional integrated assessments;
- **Participation** of policy-makers, funders, academics, business and industry, and other sectors of civil society in co-designing and co-producing research agendas and knowledge;
- **Increased capacity building** in science, technology and innovation, especially in developing countries and engagement of a new generation of scientists.

**Integrating existing endeavours**

Future Earth will build on the success of existing global environmental change programmes ([Diversitas](#), [IGBP](#), [IHDP](#), [WCRP](#)), to help develop a stronger and broader community. The [Planet Under Pressure conference](#) (London, March 2012) was a step towards this goal, with wide support of Future Earth as one of its major outcomes.

[www.icsu.org/future-earth](http://www.icsu.org/future-earth)