photos: www.dawide.com

Missing questions at international level?

Res ility

UNEP

UNESCO
United Nations
Educational, Scientific and
Cultural Organization

BELMONT FORUM

ICSU
International Council for Science

ISSC
international social science council

UNITED NATIONS UNIVERSITY

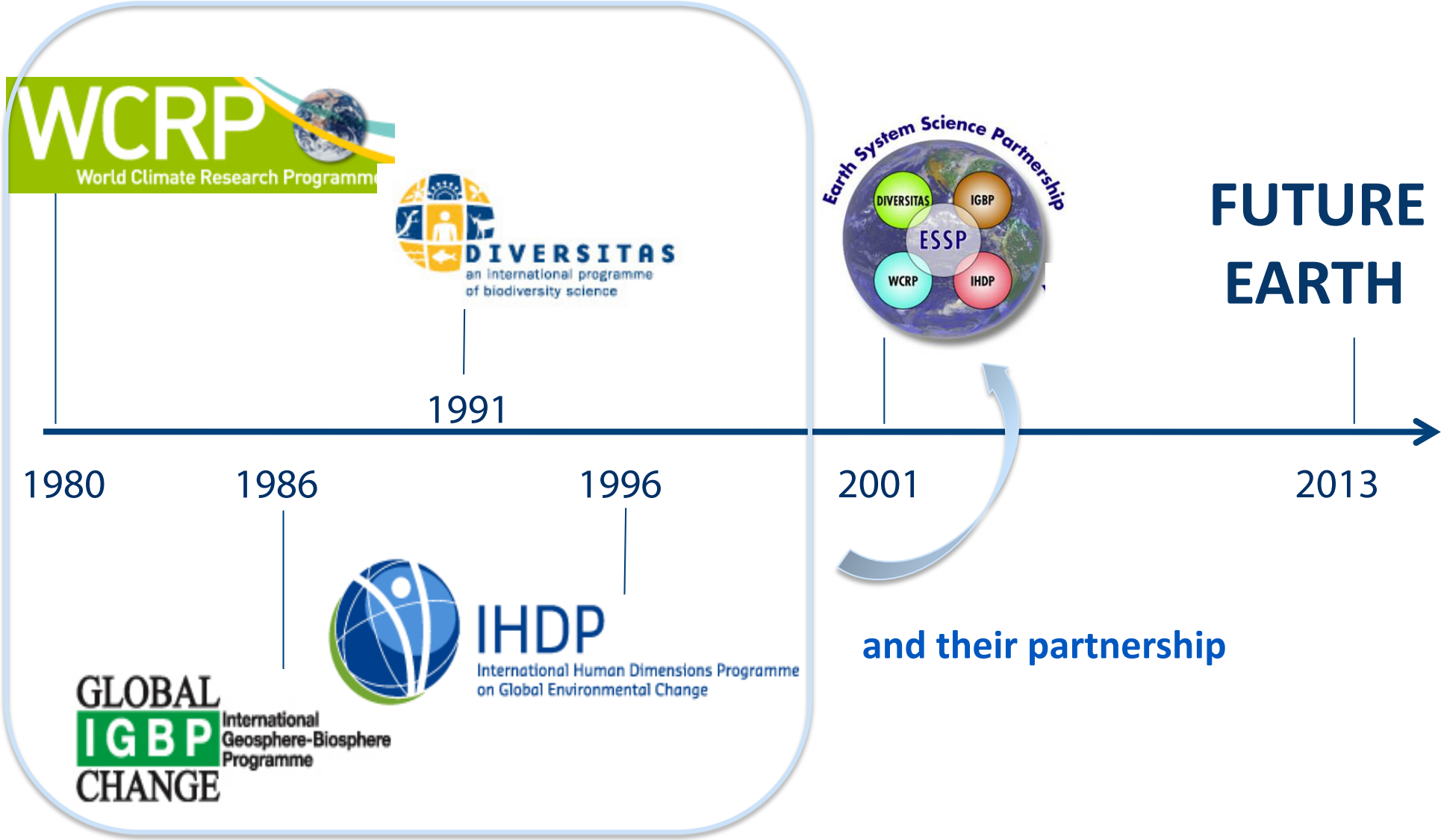
World Meteorological Organization

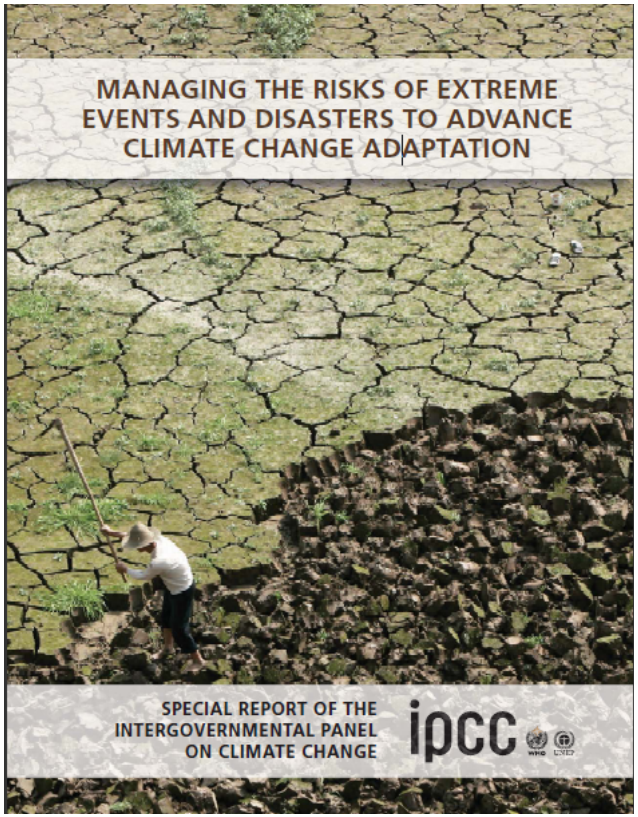
IGFA
International Group of Funding Agencies for Global Change Research


Global Change
International Geosphere-Biosphere Programme
Issue 78 ▮ March 2012
ANTHROPOCENE
The geology of humanity
Urban expansion
No signs of slowing
Natural catastrophes
2011 breaks records
GLOBAL CHANGE
IGBP
International Geosphere-Biosphere Programme
www.igbp.net
Earth-system science for a sustainable planet
ICSU

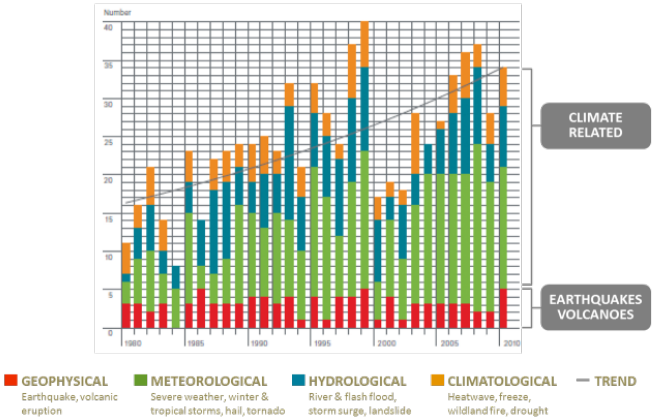
Future Earth: building from the GEC programmes

Global Environmental Change Programmes and Projects

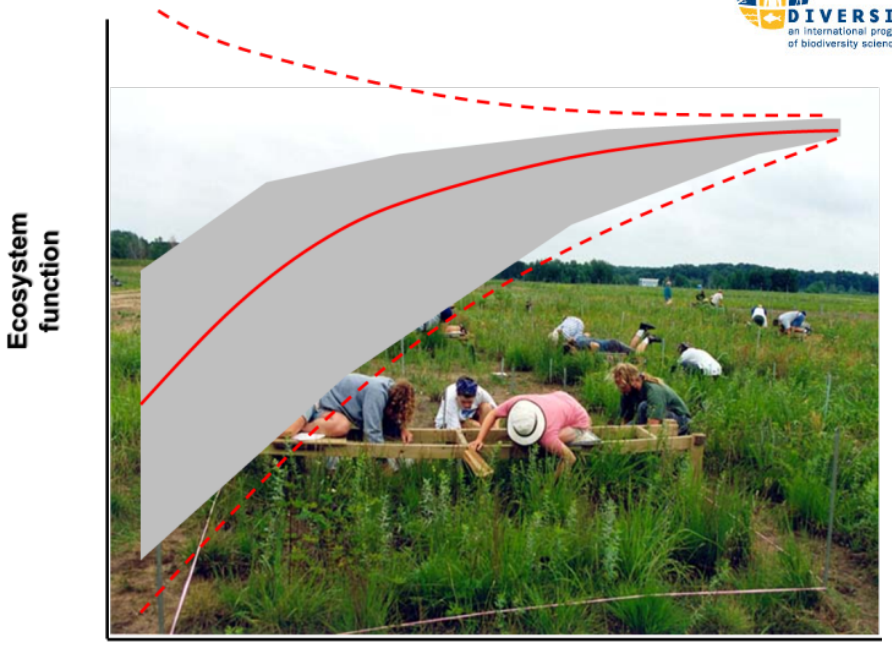




NUMBER OF "GREAT" & "DEVASTATING" GLOBAL DISASTERS
(AS DEFINED BY MUNICH RE) SINCE 1980 INDICATED BY TYPE OF EVENT



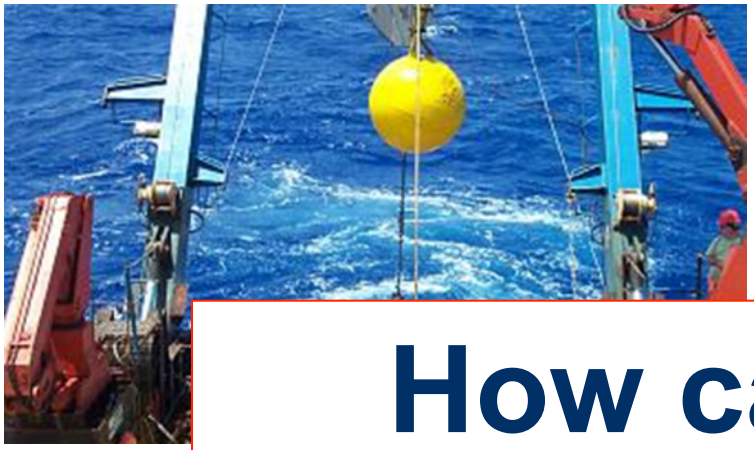
DIVERSITAS
an international programme of biodiversity science



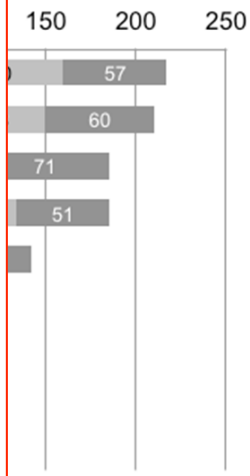
Some of the challenges we face

- Feeding 9 billion people within sustainable planetary boundaries
- V… …s and b…
- A… …world
- T…
- Providing income and innovation opportunities through transformations to global sustainability
- Reducing disaster risks
- Aligning governance with stewardship

How can we improve science for policy and action processes?



How can societal challenges best inform scientific research priorities?



Science and Technology Alliance for Global Sustainability

photos

What is global sustainability?

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 attributes

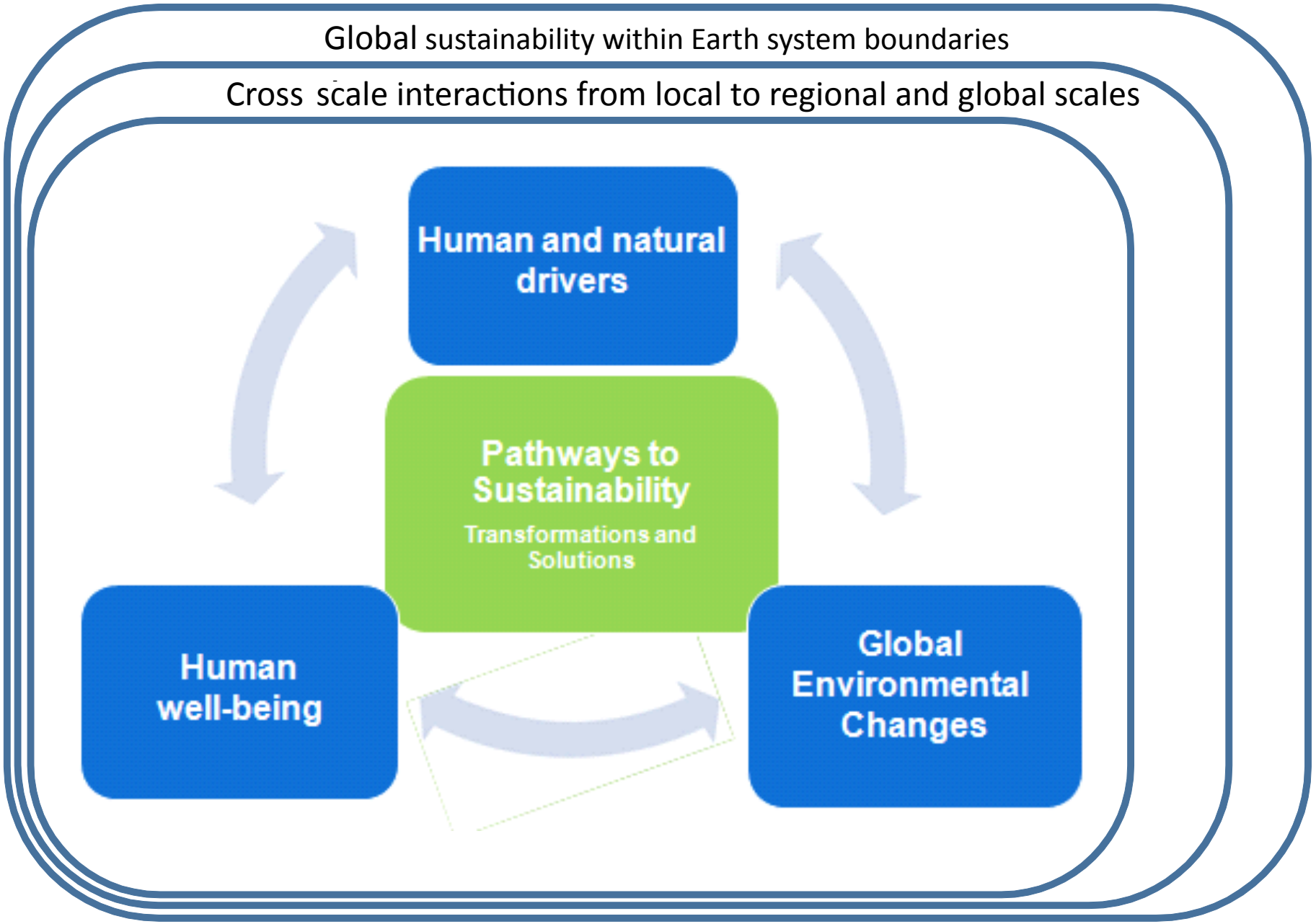
A global platform

on

What can we learn from existing initiatives?

- augm s of environmental change on **people**, adaptation and transformation
- delivers **interdisciplinary** research on global environmental change for sustainable development
- strengthens partnership between researchers/ funders/users (**co-design**)

Conceptual framework for Future Earth



	Proposed Research Themes
1	**Dynamic Planet**: Observing, explaining, understanding, projecting earth, environmental and societal system trends, drivers and processes and their interactions; anticipating global thresholds and risks.
2	**Global development:** Providing the knowledge for sustainable, secure and fair stewardship of food, water, biodiversity, health, energy, materials and other ecosystem functions and services.
3	**Transformation towards Sustainability**: Understanding transformation processes and options, assessing how these relate to human values, emerging technologies and economic development pathways, and evaluating strategies for governing and managing the global environment across sectors and scales.

Dynamic Planet: Possible questions

- What are the states and trends of global change?
- How can be we better understand Earth-Ecological-Social system dynamics?
- **What are the risks of crossing regional to global thresholds and planetary boundaries and inducing tipping points and social-environmental crises due to global environmental change?**
- What kind of integrated global and regional observing systems and data infrastructures are needed to document and model the coupled Earth system and the anthropogenic drivers of change?
- What can be understood and anticipated about the condition and future for critical zones and biomes such as coasts, tropical forests, or polar regions?

Global development: possible questions

- What are the patterns, trade-offs and options for equitable and sustainable use of resources and land, and how can we ensure sustainable access to food, water, clean air, energy and materials for current and future populations?
- What are the implications of climate change for food, water, health, human settlements, and ecosystems? How can climate services and disaster risk reduction reduce these impacts and facilitate adaptation?
- **What are the links between biodiversity, ecosystems, human wellbeing and sustainable development?**
- How socially and environmentally effective, efficient and equitable are alternative approaches for conceiving, measuring and implementing development projects?
- What options are available to provide energy for all with reduced environmental impacts, and what are the social implications of these energy choices?
- How can the business and industrial sector contribute to development, prosperity and environmental stewardship through the management of their production and supply chains?
- How does global environmental change affect distinct groups in society such as Indigenous people, women, children, subsistence farmers, business, the poor or the elderly? How does their environmental knowledge contribute to solutions for sustainable development?

Transformation towards sustainability

What are approaches to governance for human prosperity and global sustainability?

Can emerging technologies provide viable solutions to global environmental change an

How do

and coll

patterns

What do w

technology

guide futur

What are t

landscape

How can t

could include warming of more than 4C over the next century?

What are the implication of global changes for economic frameworks?

What are the implications of efforts to govern and manage the earth system for sustainability for scientific observations, monitoring, indicators and analysis?

How best can we connect challenge-led, x-disciplinary and curiosity-driven, disciplinary research?

Governance of Future Earth

The next steps for Future Earth

Spring 2012:	First Belmont Forum call for integrative research
Oct-2012 – Jan-2013:	Regional Consultation meetings
Nov-2012:	GEC-projects Consultation meeting
Dec-2012 – Apr-2012:	Future Earth presentations (e.g. AGU, EGU, AAAS)
Oct-2012:	Establishing the Transition Management Project Board
Oct-2012 – Apr-2013:	The Alliance will function as an interim Governing Council
Jan-2013:	Recruiting Interim Director and nominating Science committee members
April-2013:	Appointing Science committee members
Spring-2013:	Competitive call for funding and hosting executive secretariat
April-2014:	**Future Earth fully operational**

For more information on Future Earth

www.icsu.org/future-earth

Missing questions?

- How can we improve science for policy and action processes?
- How can societal challenges best inform scientific research priorities?
- What is global sustainability?
- What can we learn from existing initiatives?
- How best can we connect challenge-led, x-disciplinary and curiosity-driven, disciplinary research?
- How should Future Earth be organised at theme level?
- How should Future Earth operate regionally?
- …

Extra slides

Future Earth Cross Cutting Capabilities

To facilitate integration across research themes, science will be supported by a set of cross-cutting capabilities in science and outreach (many delivered through partnerships).

	Activity	Possible Partners
C1	Observing Systems	GCOS, GEOSS, …
C2	Data Systems	World Data Systems, …
C3	Earth System Modeling	Modeling Centers
C4	Theory Development	ISSC, Disciplinary unions
O1	Synthesis and Assessments	IPCC, IPBES, AoA, …
O2	Capacity Development and Education	START, UNESCO..
O3	Communication	
O4	Science-Policy Interface and interactions	UNEP..

FUNDING MODELS

Typical incentive tools:

Some key issues for Future Earth:

** Typical Money Unit*

Consultative process: Timeline