

# Future Earth

*a new global research platform  
for global sustainability*

*P. Monfray, CNRS & ANR  
CNFCG, 11 juillet 2012*

# Changing nature – Changing Science the *alert* phase

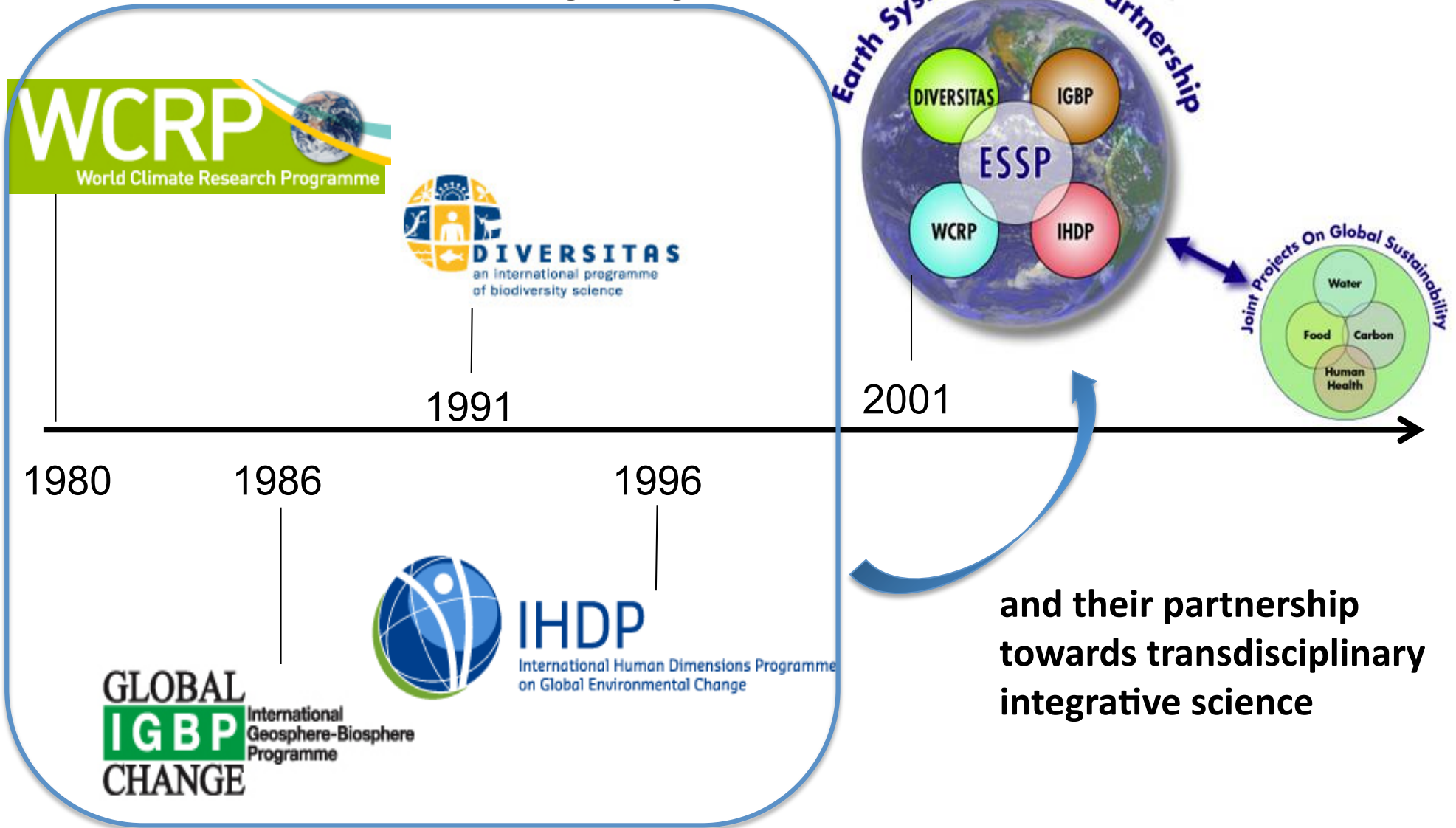
- 1950 to 1980 : From *Natural processes* to gradually *Anthropogenic impacts* on Earth components
- 1980 to 2010 : From *Impact Assessment* to *Societal Alert* : pollution/ozone hole (IO3C), climate (IPCC), biodiversity loss (MEA, IPBES), etc...
- ICSU, a key player since 80's, to structure scientific communities on GEC (WCRP, IGBP, DIVERSITAS, IHDP, ...)
- IGFA, a key player since 90's, for key funding : ICSU programs + national basic research

# Changing nature – Changing Science the *adaptation* phase

- **2010-2030** : How shift from *Societal Alert* to contribute to *Societal Solutions* for adaptation and global sustainability ?
- **Much more complex issue !** Cannot be address by natural sciences... but in interaction with.
- **Need to address human development** trajectories, including divides and diversity
- **Should consider GEC as “additional” constrain or opportunity** to the others as economy, finance, technology, geopolitics, culture, poverty, education ...
- **New science policy** needed, crossing discipline barriers and beyond, in close interaction with needs of societies and end-users, towards contributions of *Earth System Science for Global Sustainability*

# Environmental change research: a long, successful history

## four Global Environmental Change Programmes



all co-sponsored by ICSU

and their partnership  
towards transdisciplinary  
integrative science

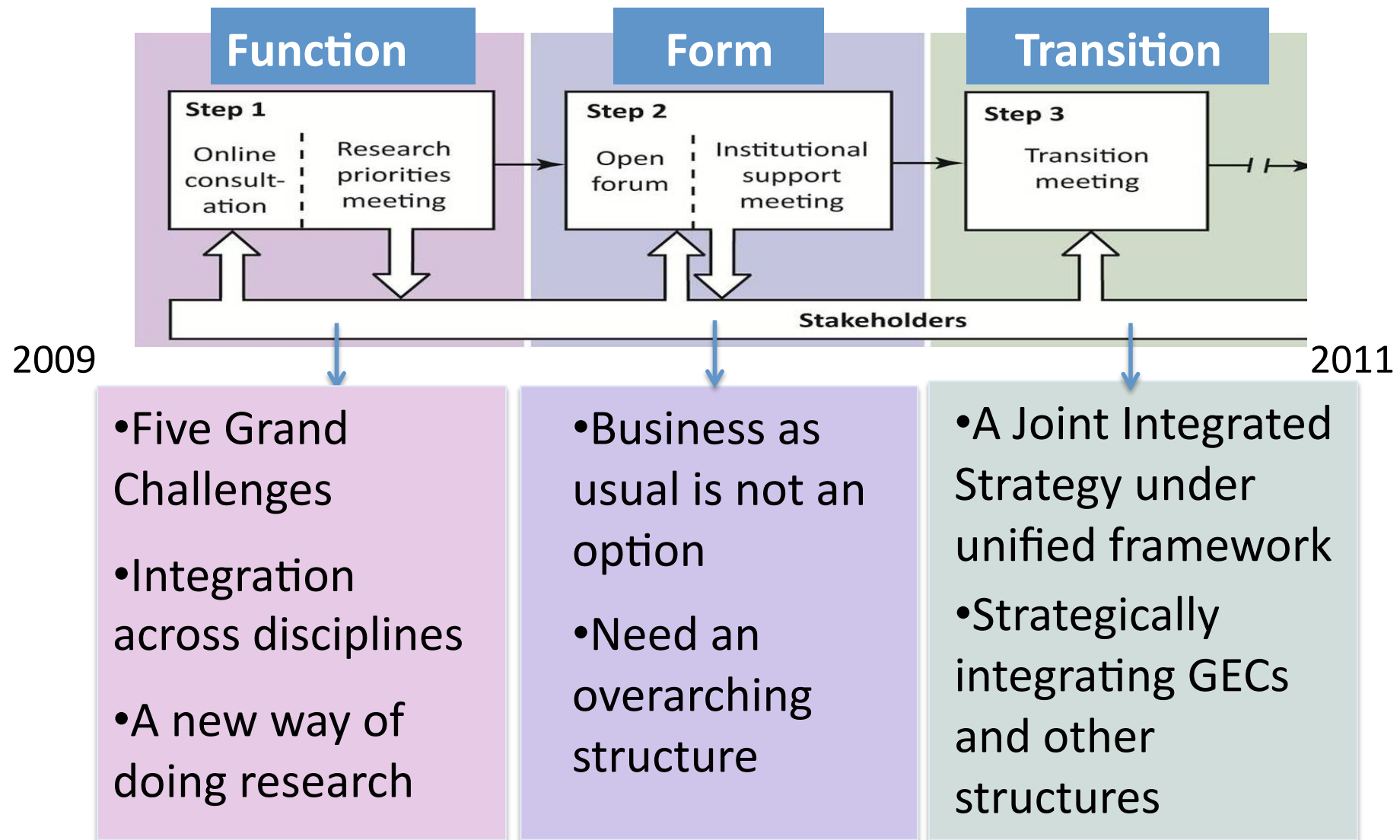
# Why a new initiative?



## **Need for a unified strategic framework to:**

- deepen our understanding of the Earth system
- deliver solutions to sustainability challenges,  
at regional to global scale

# Visioning: a two-year consultative process



**>>> Inputs from  
young scientists**





photos: www.dawide.com

# Future Earth

## Research for global sustainability



Observer



UNITED NATIONS  
UNIVERSITY



- The challenges of global environmental change and sustainable development require a new way of doing research which is:
  - *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 programs by bringing them together into a unified system*



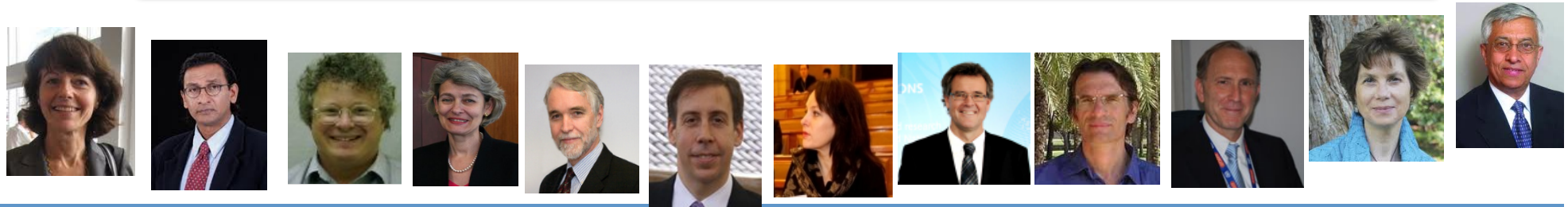
# The Transition Team (*mid 2011 - end 2012*)



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

## Draft research framework

A number of “integrated research” themes:

- thematic areas to foster interdisciplinary research
- crosscutting capabilities
- populated by existing and new projects asking critical questions in support of the research themes

|   |  |
|---|--|
|   | <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 | <b>Other themes</b> to be proposed by the scientific community.....  |

# Crosscutting capabilities

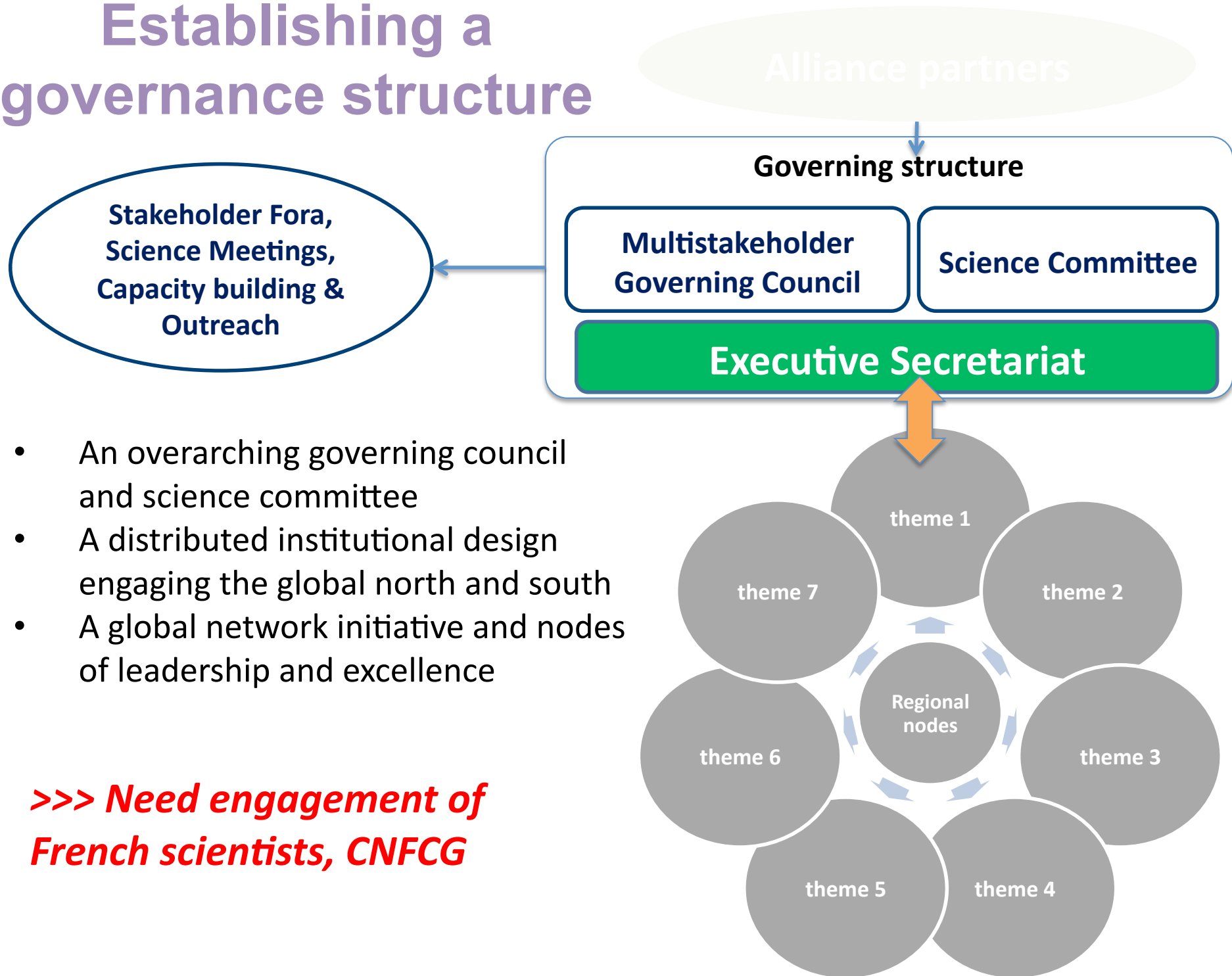
- *Observing systems*
- *Data systems*
- *Earth system models*
- *Theory development*
- *Assessments*
- *Capacity development and education*
- *Communication and the science-policy interface*

# Some steps 2012 and beyond

- Draft research framework for open iteration (*august*)
- Engagement of all GEC projects & National Committees (*Alliance's letter*)
- Open Web consultation
- Regional consultation
  - Africa: 31 October – 02 November 2012, Cape Town
  - Asia Pacific: 21-23 November 2012, Kuala Lumpur
  - Latin-America and Caribbean: 3-5 December, Mexico City
  - Europe, tbd
  - Middle East, tbd
- Early 2013 FE Scientific Committee to co-design Science Plan
- Towards 2014 implementation with present and new projects *tbd*

**>>> Need inputs from young scientists**


# Establishing a governance structure





# For more information on Future Earth


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



**ICSU**  
International Council for Science

WhoVisionWhat's new?Media centre

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)

*Some incentive tools  
from science funders*

## Current Members

- Australia/CSIRO
- Austria\*/BMWF\*
- Brazil/FAPESP
- Canada/NSERC
- China/NSFC
- European Commission/DG R&I\*\*
- France\*/CNRS&ANR\*
- Germany\*/DFG&BMBF\*
- India/MoES
- Japan/MEXT&JST
- Norway\*/RCN\*
- South Africa/NRF
- United Kingdom\*/NERC\*
- United States/NSF
- *International Council for Science (ICSU)*
- *International Social Sciences Council (ISSC)*



\* Also JPI FACCE

\* Also JPI Climate

Belmont Forum

## **Collaborative Research Actions**

to promote inter- and trans-disciplinarity

- Support "***Future Earth***"
- 2012 themes (*call deadline July 20<sup>th</sup>*)
  - **Freshwater Security, Coastal Vulnerability**
- 2013 themes
  - **Food security and land use change**, Brazil lead, *with JPI FACCE ?*
  - **Arctic**, Canada lead, *with JPI Climate ?*
  - **e-infrastructure**, US lead
- Others potential themes
  - **Biodiversity & Ecosystem Services** (for IPBES)
  - **Climate services**, *with WMO ? JPI Climate ?*
  - **Green Growth, Disaster Risks**, *with WB ?*
  - **Africa**, *with AID agencies ?*
  - **Peri-urban systems ?**

**>>> [www.belmontforum/iof](http://www.belmontforum/iof)**

# Programmation SST 2012-2014

