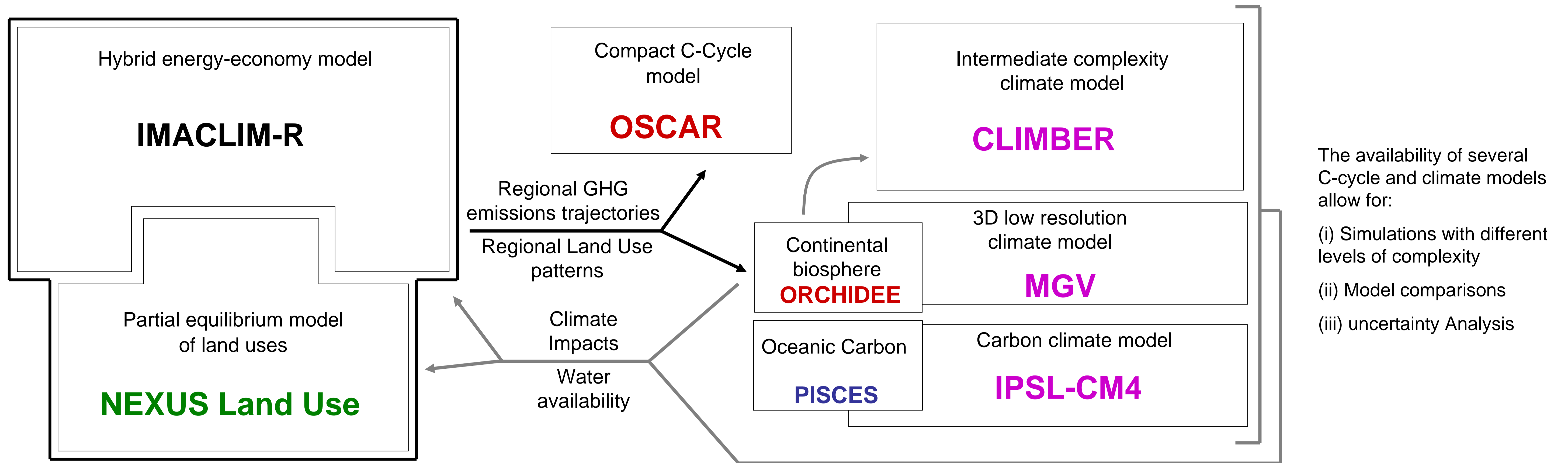


# The DECLIC Project

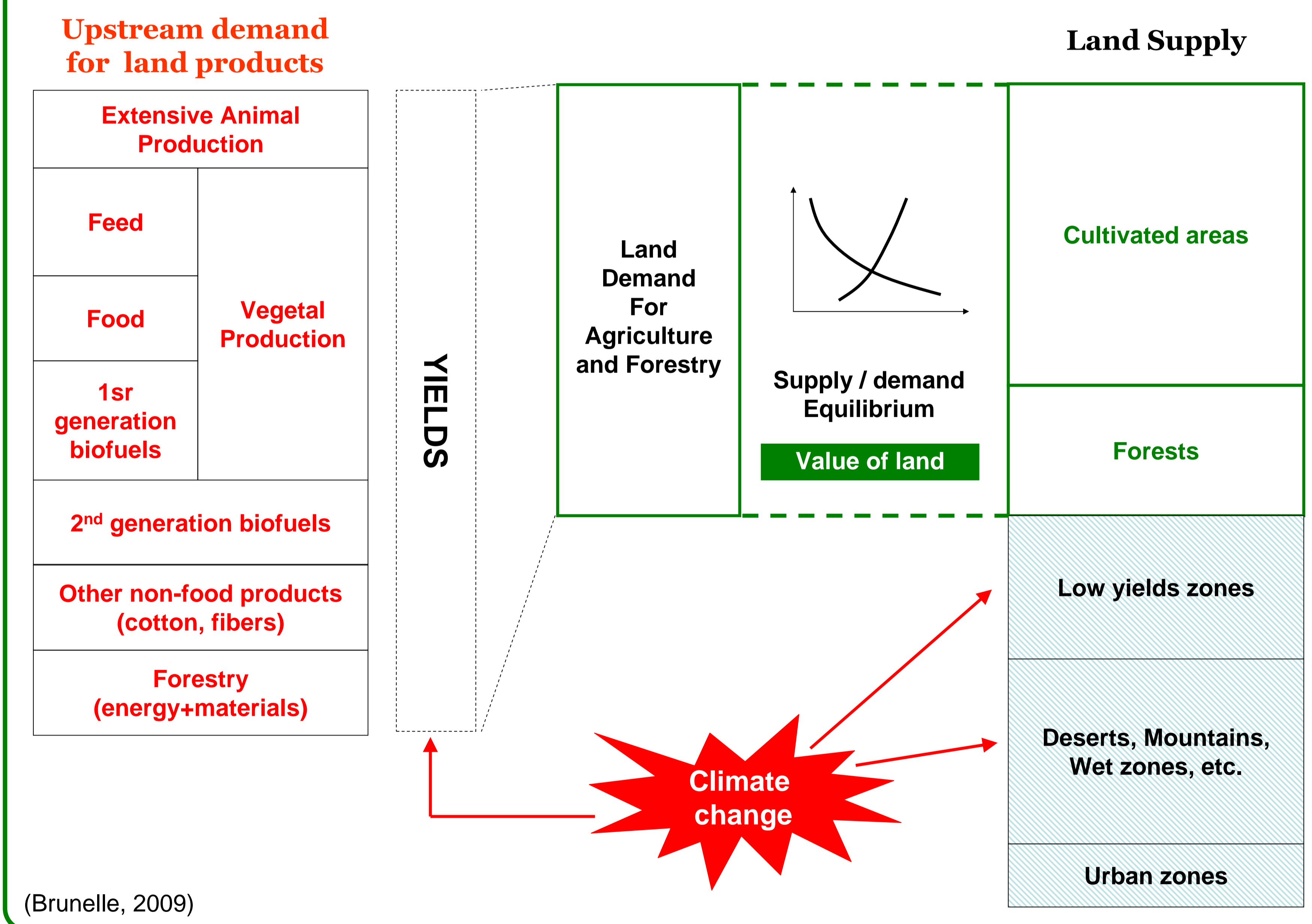
## Assembling Biophysical and Economic Models to Assess Long Run Integrated Scenarios

**Project management:** Renaud Crassous, CIRED, 45bis av de la Belle Gabrielle, 94736 Nogent sur Marne cedex, [crassous@centre-cired.fr](mailto:crassous@centre-cired.fr)  
 Pierre Friedlingstein, LSCE and Bristol University, [pierre.friedlingstein@lsce.ipsl.fr](mailto:pierre.friedlingstein@lsce.ipsl.fr)  
 Philippe Ciais, LSCE, CE Orme des Merisiers, Batiment 70, 91191 Gif sur Yvette Cedex, [philippe.ciais@lsce.ipsl.fr](mailto:philippe.ciais@lsce.ipsl.fr)

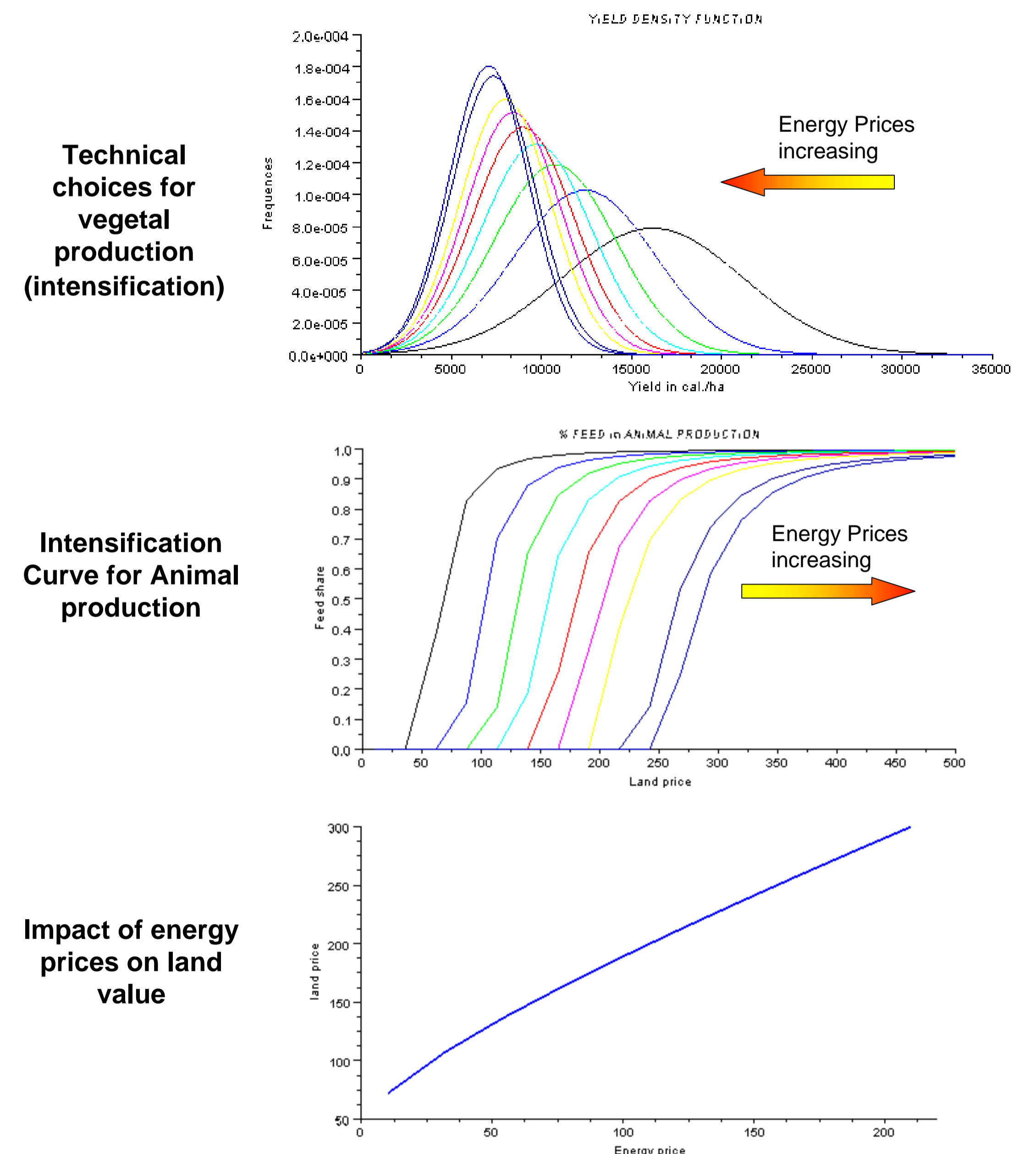
### 1 A new modeling platform built on preexisting models



### 2 NEXUS Land-Use: a new centerpiece in the modeling architecture



### Effect of increasing energy prices on land-use choices



### 3 IPCC: Parallelizing scenarios building and assessment

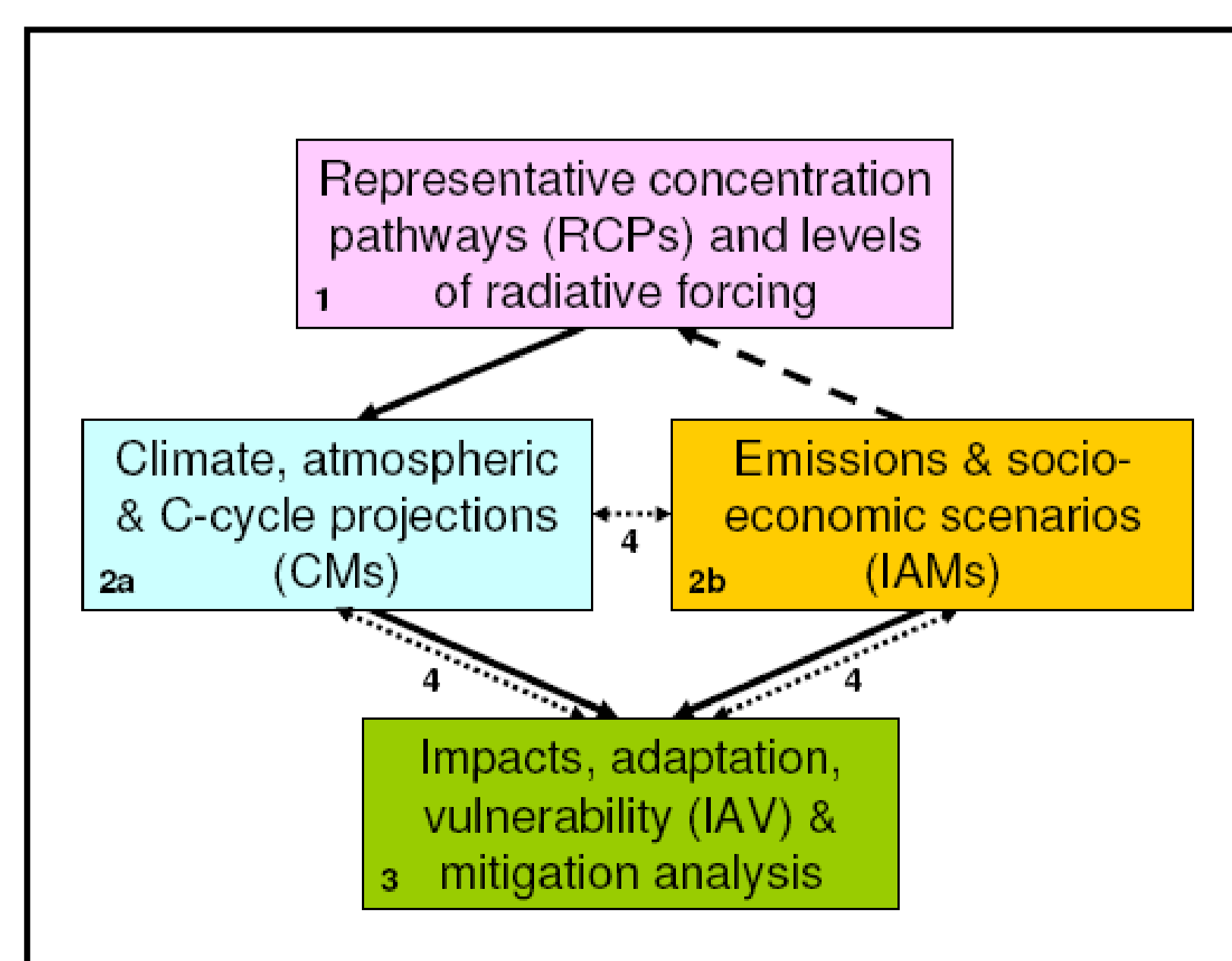
IPCC catalyses a new process for new scenarios (AR5):

- (i) To break with the former sequential SRES-type process that was criticized for being too long and too inert, because of the chronologic procedure that was adopted: socio-economic storylines, emissions scenarios, climate scenarios, impact assessment.
- (ii) To improve the interdisciplinary cooperation between the 3 IPCC working groups.

The new process is structured around pivotal benchmark stabilization scenarios (RCPs), labeled in terms of ultimate levels of Radiative Forcing :

- 8.5 W/m<sup>2</sup>
- 6.0 W/m<sup>2</sup>
- 4.5 W/m<sup>2</sup>
- 2.6 W/m<sup>2</sup>

The DECLIC Project gathers French researchers of the CMs and IAMs communities, to achieve up-to-date integrated scenarios, aiming at high level publications within each research communities and in interdisciplinary journals.



### 4 Expected outcome for science and policy

#### Main Innovations:

- Embedded Land-Use choices in a world macro-energy model
- Scenarios with full consistency between socio-economic pathways and biophysical constraints
- Development of spatially explicit carbon cycle dynamics
- Full coupling between climate and GHG cycles

#### Issues:

- ✓ For each stabilization pathway, what will be the rhythm of climate change, the level of stabilization in 2100 and the ultimate level of concentration after several thousand years?
- ✓ For each stabilization pathway, what emissions scenarios are compatible and how plausible are they on the socio-economic side?
- ✓ What mitigation strategies should be implemented to make these emissions scenarios effective?
- ✓ What are the feedbacks of the climate change on emission scenarios, especially through the channel of land use changes?

#### Tasks:

- ✓ Identify the links between anthropogenic emissions, natural GHG fluxes, GHG concentrations and climate change
- ✓ Simulate land use changes, direct and indirect GES emissions and their contribution to global radiative forcing
- ✓ Explore a large range of comprehensive mitigation strategies that take into account biophysical feedbacks