

THE PORTUGUESE BIOECONOMY LANDSCAPE

BRUNO SOMMER FERREIRA

Bio-based Industries Public-Private Partnership – Portuguese Stakeholder Event



Lisboa – 18th December 2013

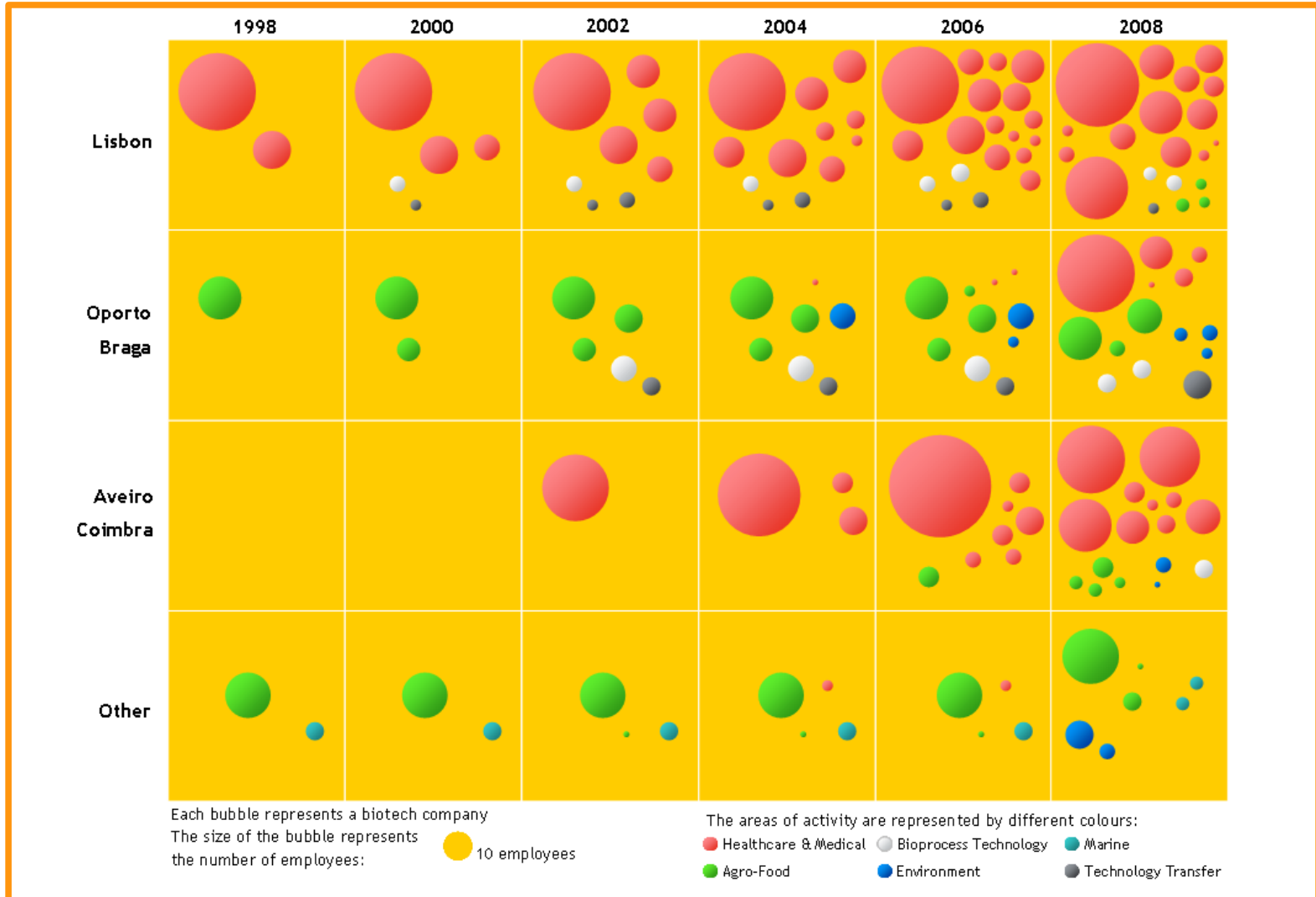
OUTLINE

- P-Bio
- Biotrend and Silicolife
- Bioeconomy requirements
- Portuguese (current) assets
 - Knowledge-base
 - Raw material availability
 - Infrastructure

P-Bio



- P-Bio was founded in 1999
- Currently has more than 30 members, representing more than 50% of biotech companies
- Promote the networking and synergies between biotech companies operating in Portugal
- Improve awareness of biotechnology
- Promote the adoption of national policies which foster the development of the biotech sector
- www.apbio.pt



- Bioprocess development company founded 2000

ist spin-off

- Specialized in industrial biotechnology
- Runs a state-of-the-art facility for development, optimization and scale-up of bioprocesses



- Service provider in bioprocess development
- Development of new technologies
- Keeps at the forefront of scientific development
 - Seven on-going FP7 projects in the bioeconomy space



www.biotrend.biz

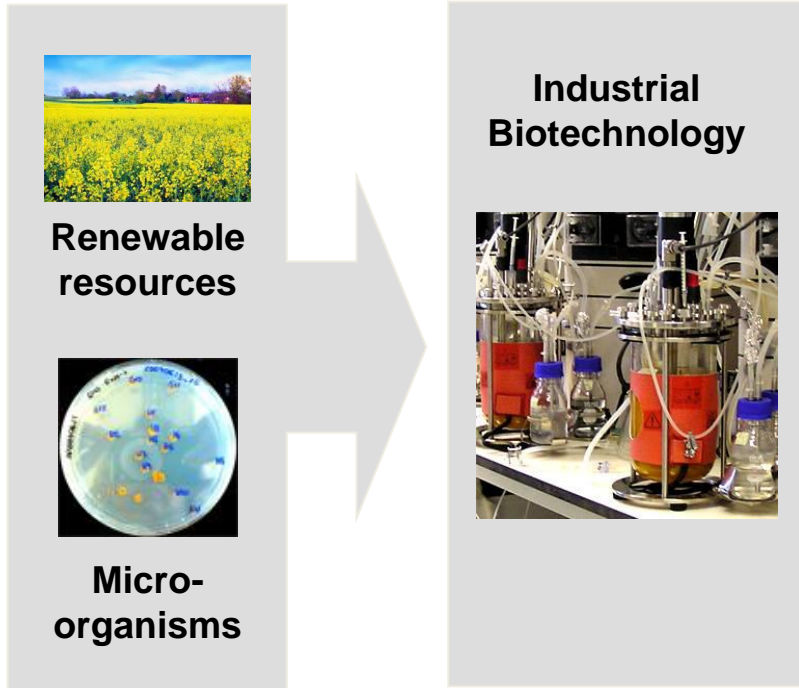
- Founded in 2010
- *In silico* rational design of microbial cells
- Serves leading chemical, materials and synthetic biology companies
- Based on world-class science and technology
- Participates in one FP7 project and in two ERA-IB projects



Universidade do Minho

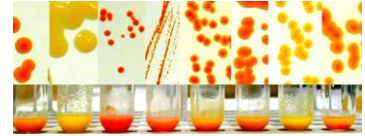
www.silicolife.com

REQUIREMENTS FOR THE BIOECONOMY



A plethora of products:

Food additives



Biopolymers



Fuels & Chemicals



And more, much more...



- Knowledge base
- Raw materials
- Infrastructure

REQUIREMENTS FOR THE BIOECONOMY

Knowledge base

- Plant improvement
- Microbial strain improvement
- Biocatalyst optimization
- Bioprocess engineering

Raw materials

- Availability
- Logistic of supply

Infrastructure

- Research
- Demonstration
- Biomass production
- Processing

PORTUGAL: Knowledge-base

- Education and research
- Exponential growth of PhD's in biotech topics [about 20% of total]
- International cooperation [ex. EU, US, Brazil]

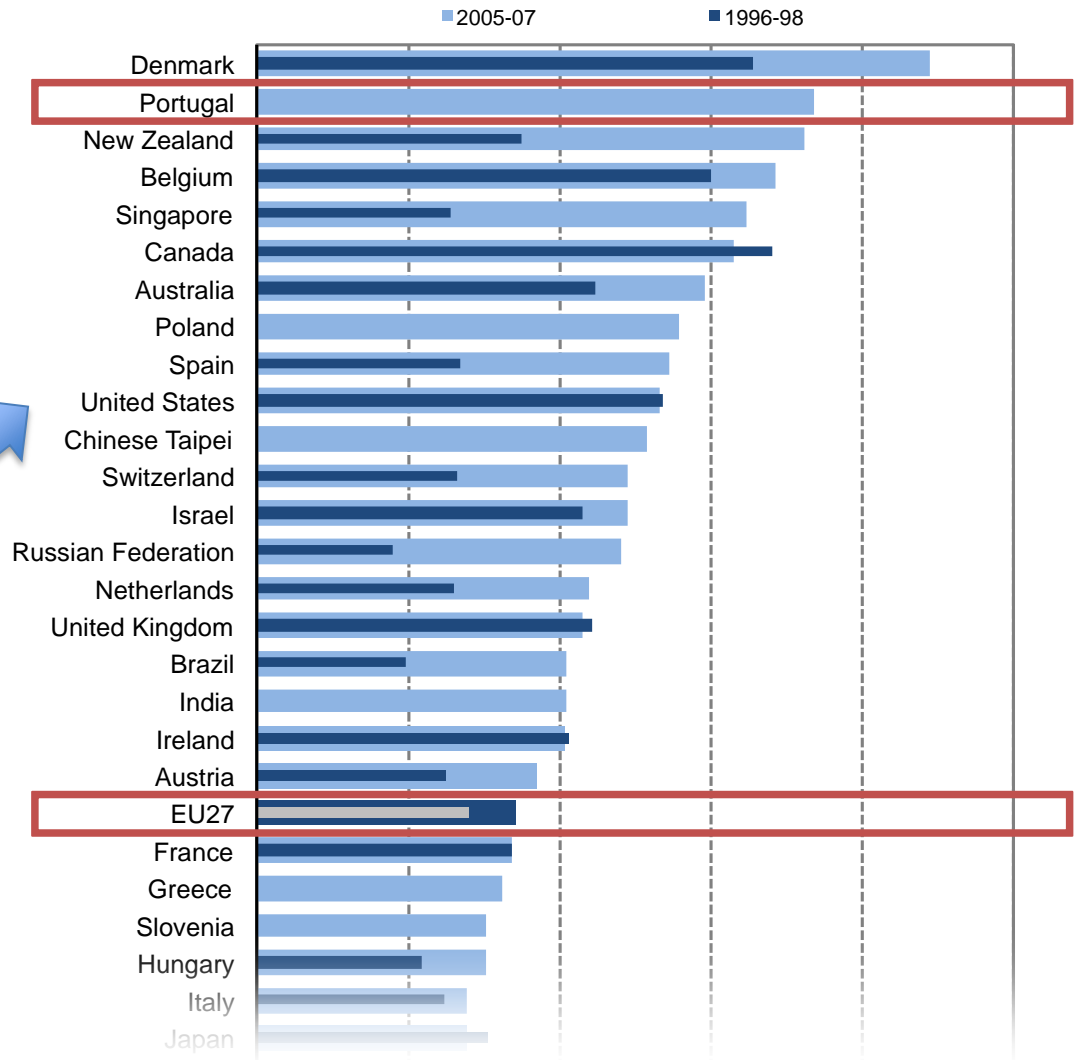


PORTUGAL: Knowledge-base



KBI 12. Revealed technological advantage in biotechnology, 1996-98 and 2005-07

- Ratio of biotech publications vs. total publications in Portugal above EU average
- Patents, impressive development!



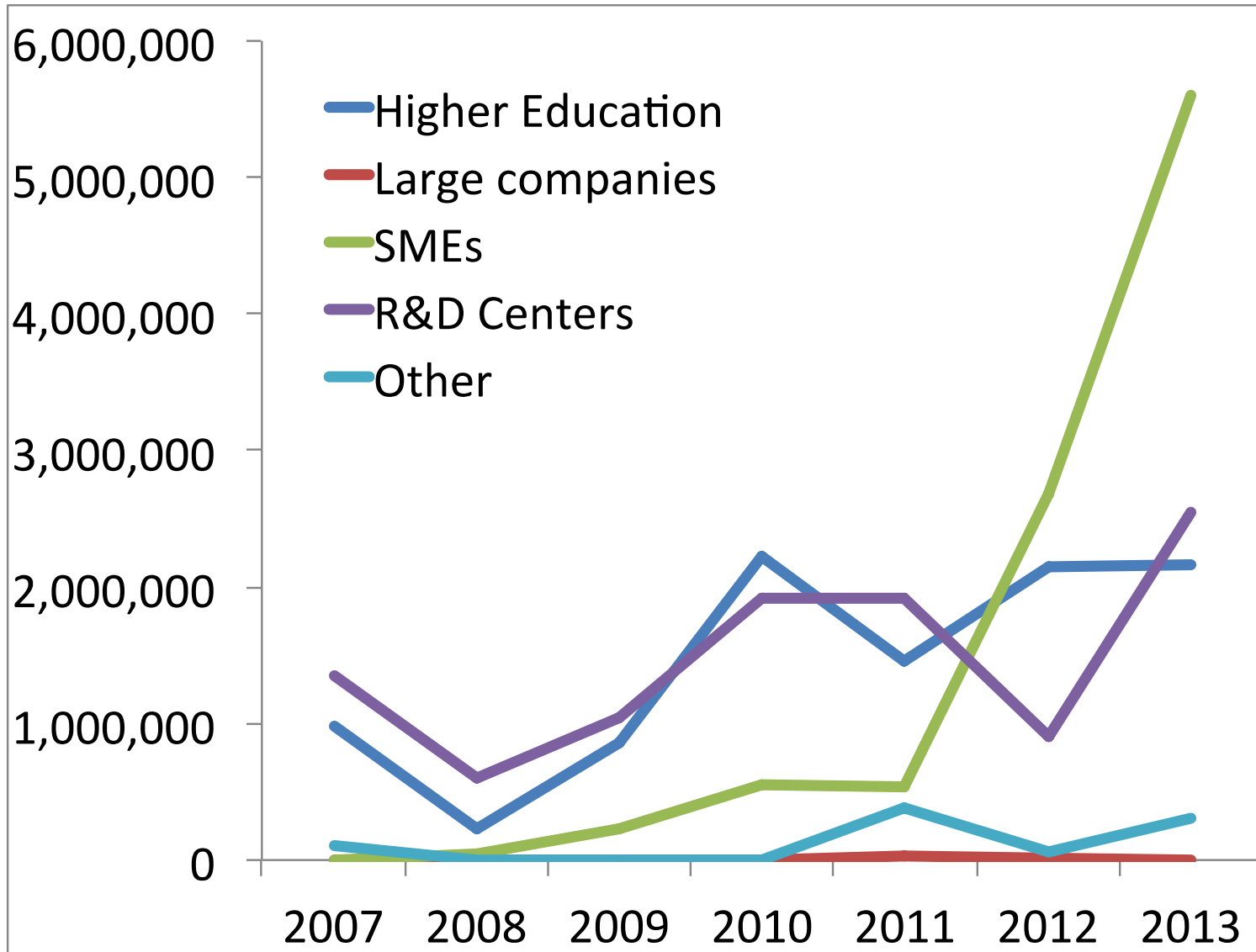
PORTUGAL: Participation in EU projects

- Statistics of **KBBE** projects
- Proposals: 2943 total EU 568 with PT
- Approved: 507 total EU 107 with PT
- Success rate: 17.2% total EU 18.8% with PT



Financing to PT entities	Higher education	10 056 215 €	✓
	Large companies	41 919 €	!!!
	SMEs	9 660 288 €	✓
	Research centers	10 265 041 €	✓
	Others	855 121 €	
TOTAL		30 878 584 €	

PORTUGAL: Participation in EU projects








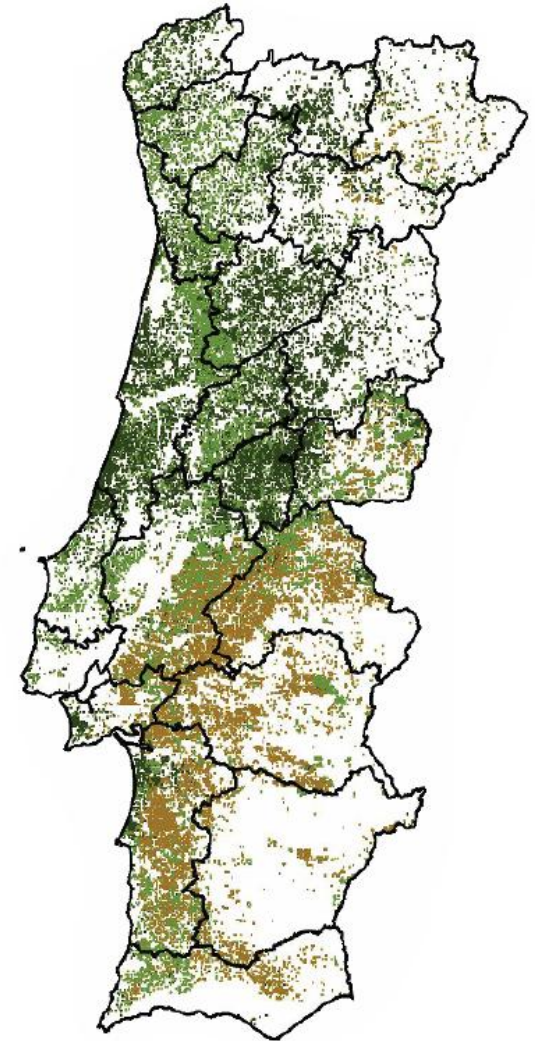
PORTUGAL: Lignocellulosic raw-material

Forest occupies 39% of Portuguese territory
Accounts for ~6% of Portuguese exports

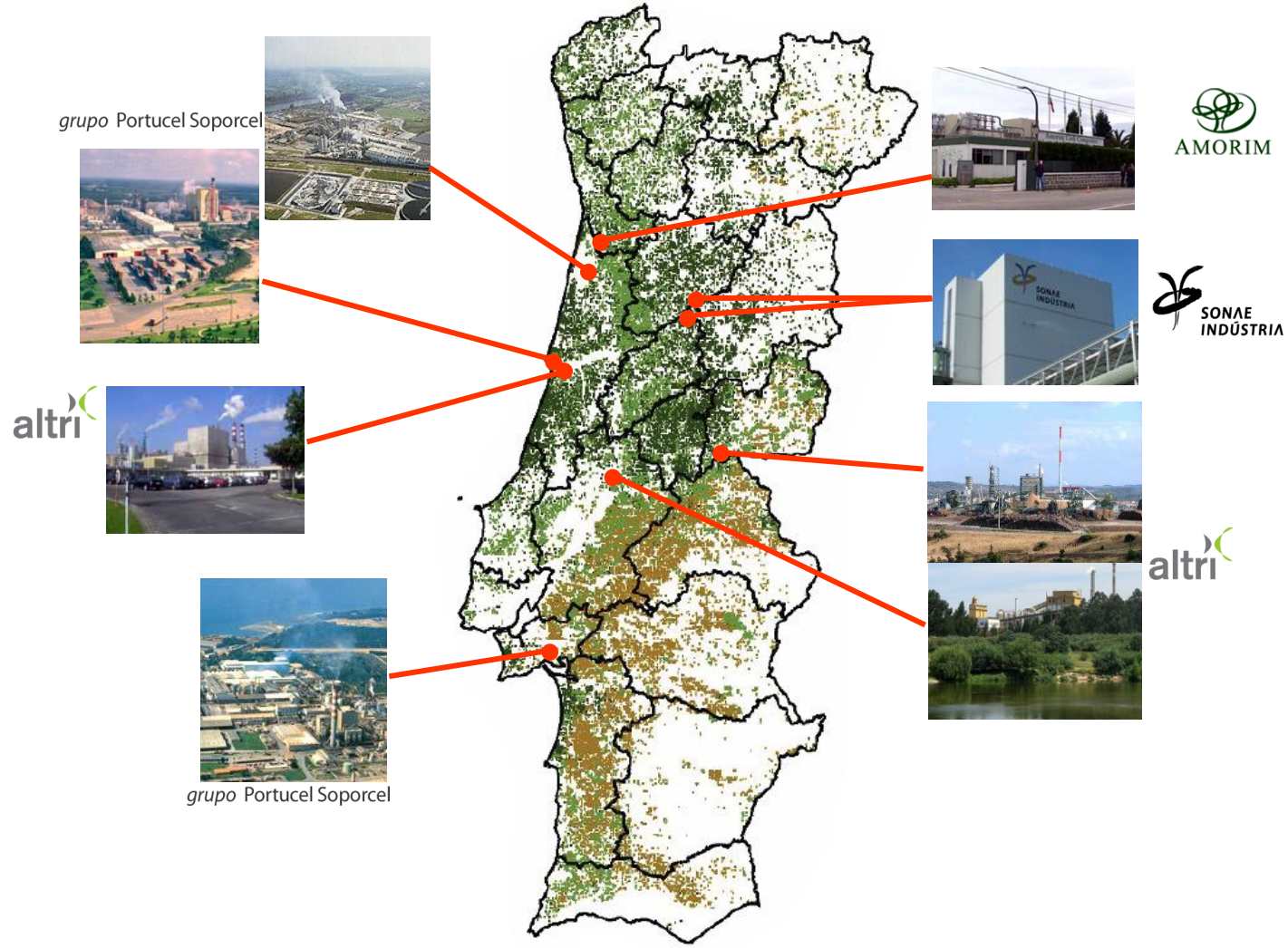
- Species:
- Pine, 28%
 - Eucalyptus 23%
 - Cork 23%

Products:

- Pulp and paper 
grupo Portucel Soporcel
- Cork and derivatives 
AMORIM
- Wood panels 
SONAE
INDÚSTRIA
- Furniture  
An industrial group within



PORTUGAL: Established biorefining capacity and supply chains



PORTUGAL: Examples of available residues

Lignocellulosic residues and by-products

- agriculture
- forestry



Cheese whey



Glycerol

by-product of biodiesel



Wastewater sludge



PORTUGAL: A sea of opportunities

Possible extension in the Portuguese Continental Shelf

40x surface of continental Portugal

Huge diversity of ecosystems

Untapped biodiversity and potential new bioactivities



PORTUGAL: Coverage of the value chain

Renewable
raw material

Biocatalyst

Process

Product



PORTUGAL: Infrastructure in place

- Raw-material



- Genomics, systems biology



- Process development



- Demonstration scale
Up to 100 m³



PORTUGAL: And the EU bioeconomy showcase



European Forum for Industrial Biotechnology and the Biobased Economy

2008

Brussels



2009

Lisbon



2010

Edinburgh



2011

Amsterdam



2012

Dusseldorf



2013

Brussels



Biotrend and P-Bio
co-organizers

Silcolife
sponsor



Portugal's Biotechnology Industry Organization
Associação Portuguesa de BioIndústria

P-Bio media partner

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