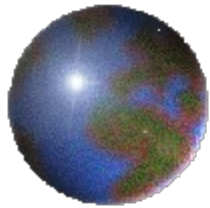


La Bioeconomia Toscana: potenzialità ed opportunità di sviluppo

Firenze, 24 Ottobre, 2017



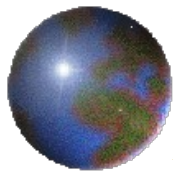
The Bioeconomy in Europe and in Italy, and the Italian Bioeconomy strategy

Fabio Fava

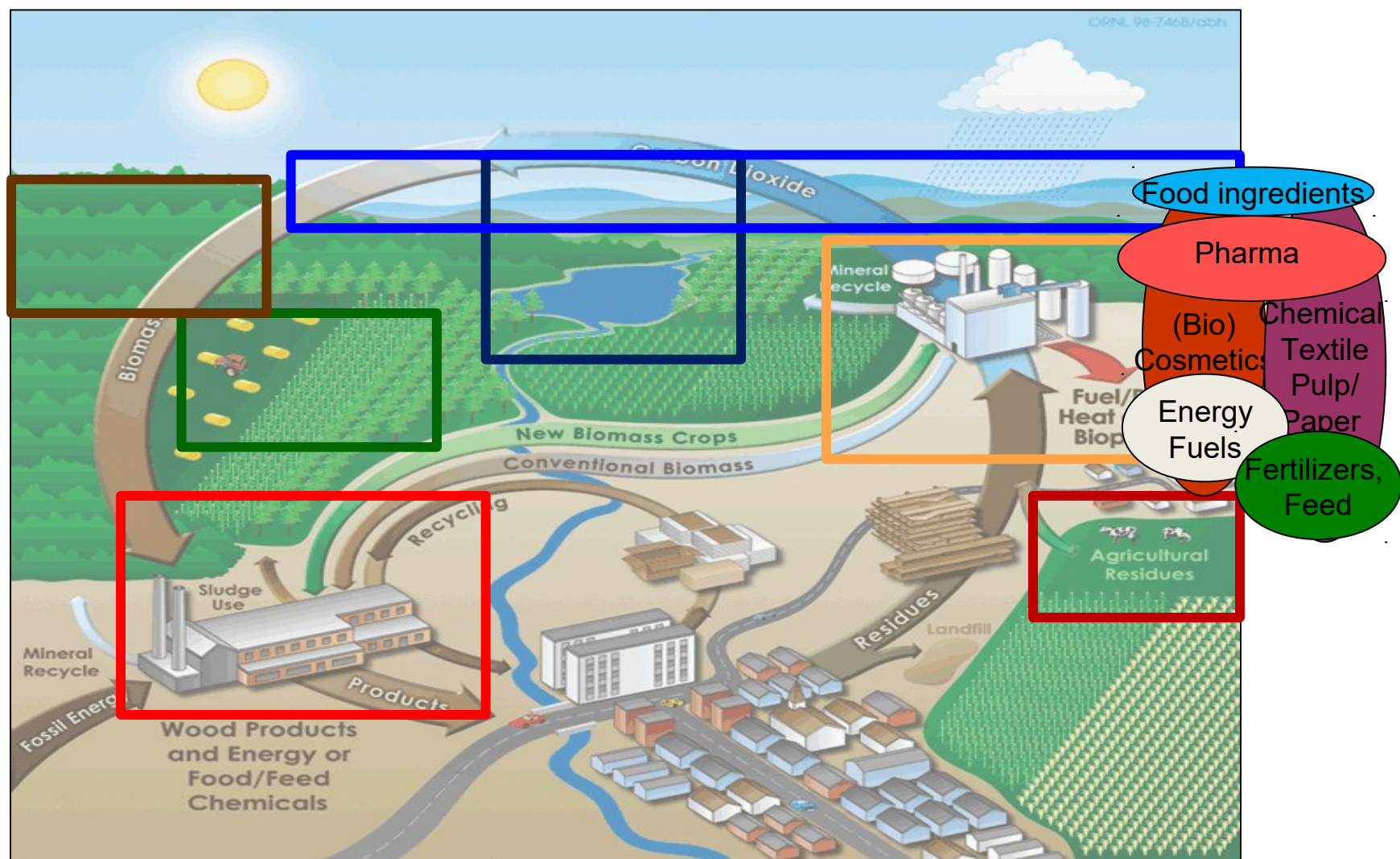
Italian Representative, i) *Horizon2020 SC2* Programming Committee; ii) "States Representatives Group" of *Public Private Partnership Biobased industry (BBI JU)*; iii) *BLUEMED Initiative* Strategic Board

&

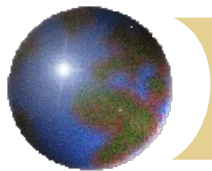
School of Engineering, AlmaMater Studiorum-Università di Bologna, Italy
(E-mail: fabio.fava@unibo.it)



The European Bioeconomy (a)



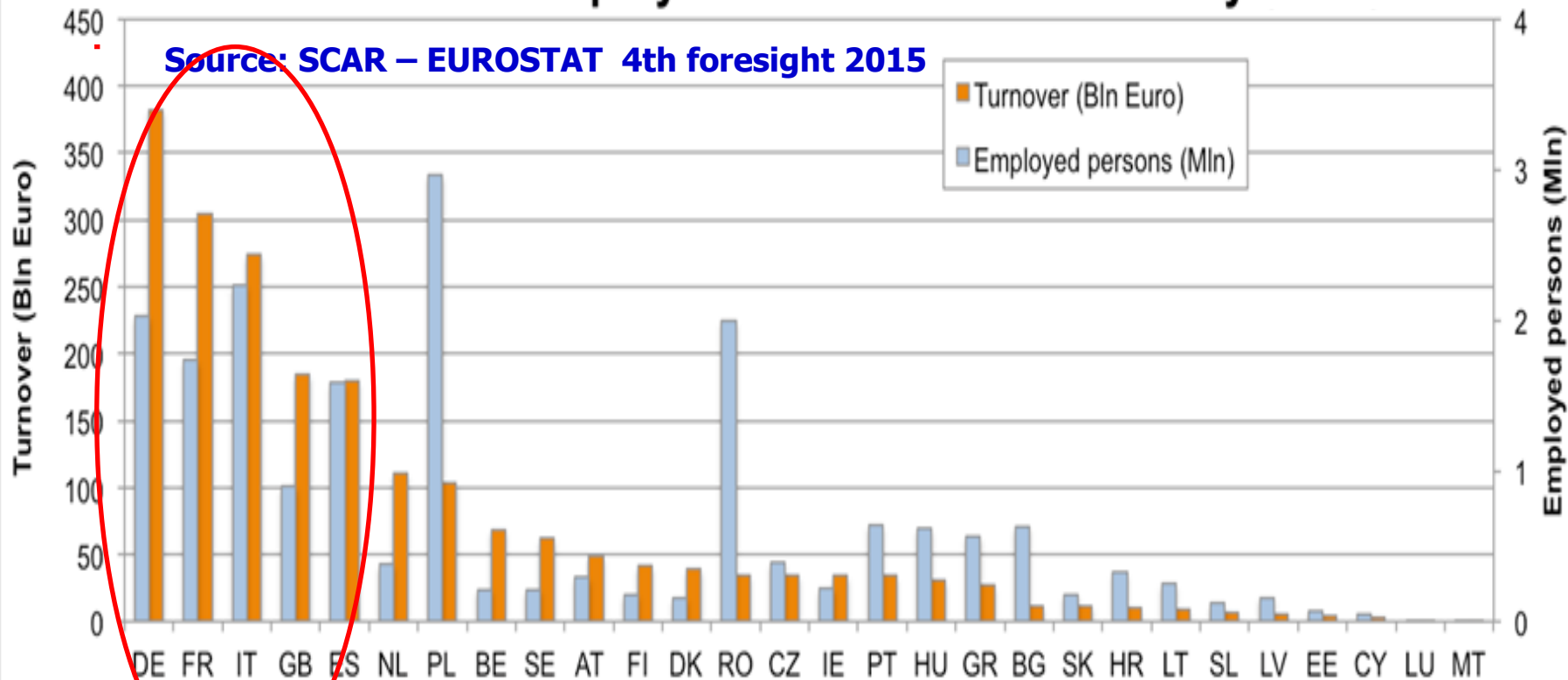
In Europe: about 2.200 Bln €/y and 18.6 Mln of jobs

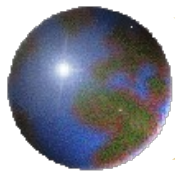


The European Bioeconomy (b)

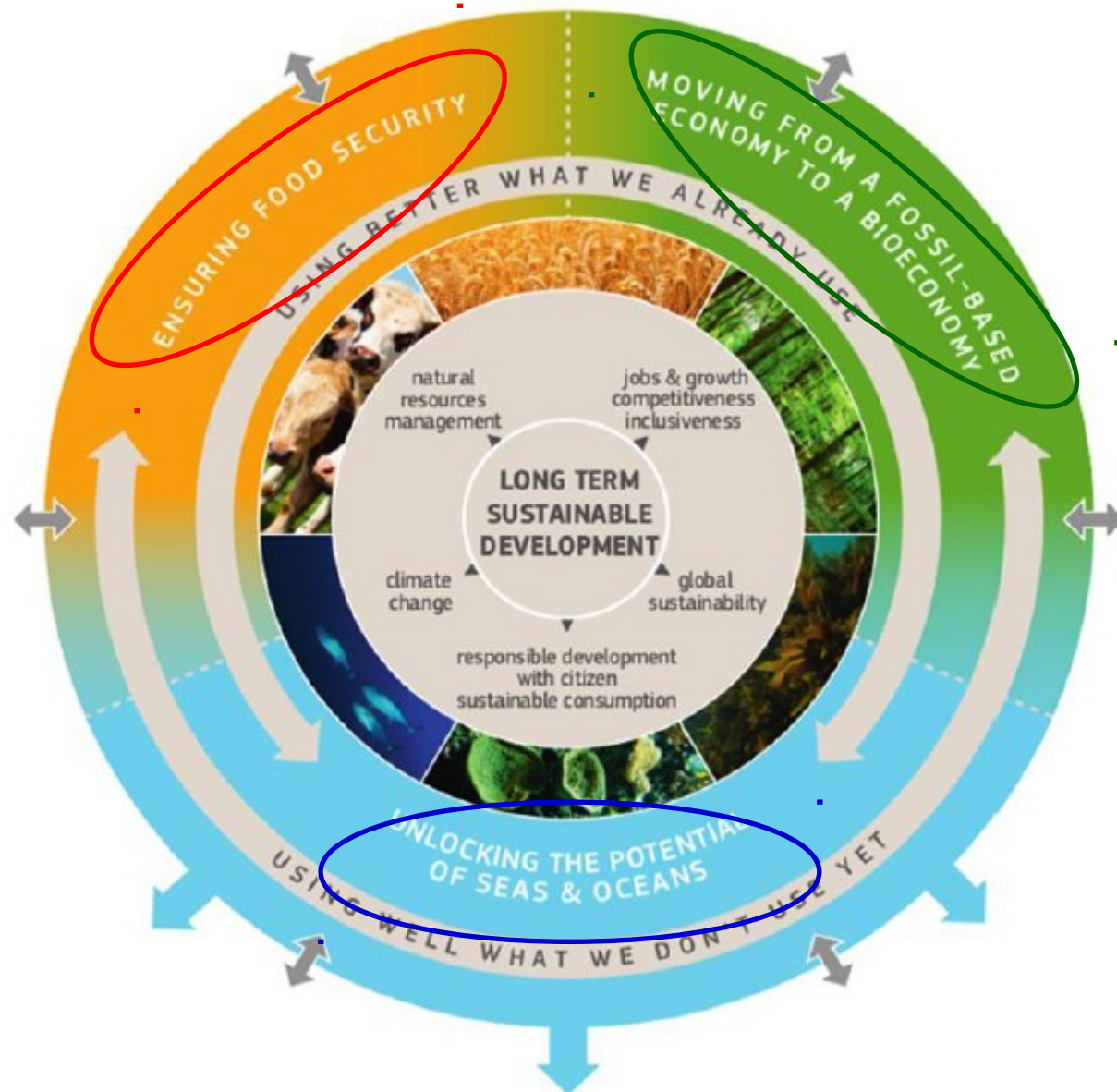
Turnover and employment in the EU bioeconomy

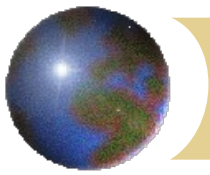
Source: SCAR – EUROSTAT 4th foresight 2015





The European Bioeconomy Strategy: main priorities (*under revision*)

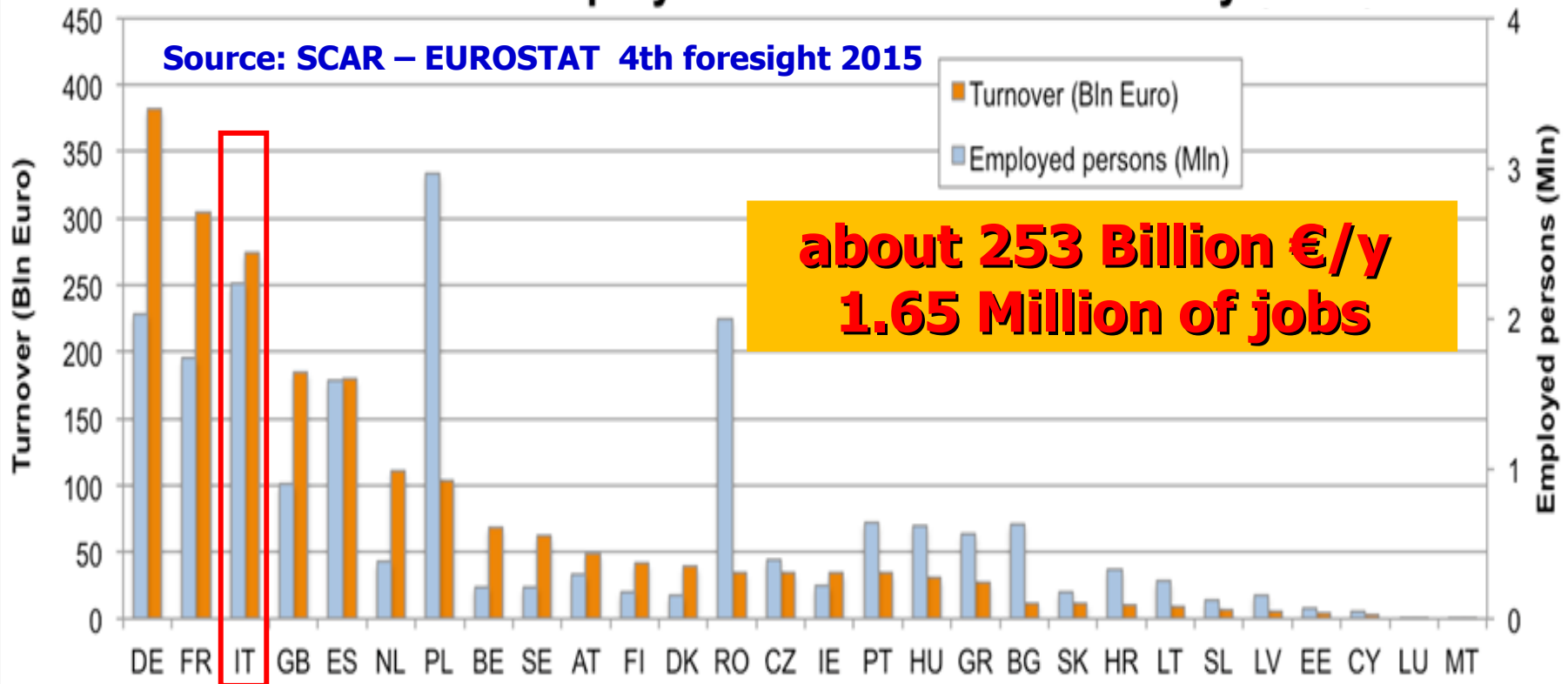




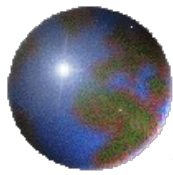
Bioeconomy in Italy

Turnover and employment in the EU bioeconomy

Source: SCAR – EUROSTAT 4th foresight 2015



IT is the 2nd EU-MS as success rates in Horizon2020 SC2 & BBI JU programs. Qualified R&I scores and public/private actors/stakeholders but often fragmented, lack of alignment among national policies, funding programmes and infrastructures.



Primary production: main challenges and opportunities

Problems:

- ❑ Limited profitability due to low average size and low revenue of farms, poorly organized value chains → abandonment, reduction of cultivated land surface;
- ❑ Poorly innovative agricultural practices and systems;
- ❑ Depletion of soil organic matter and water scarcity;
- ❑ Lack of training of farmers.

Opportunities:

- ❑ Valorize plant/animal biodiversity and ecosystem services;
- ❑ Improvements crops/agricultural practices; precision farming;
- ❑ Valorize agricultural residues and effluents.

Problems:

- ❑ Limited valorization of forest products -> abandonment with biodiversity depletion, also due to climate change;
- ❑ Lack of training of forest company managers on new opportunities and business management.

Opportunities:

- ❑ Integrated management of forest with valorization its biodiversity, ecosystem services, wood and products.

**Agriculture,
Livestock and
aquaculture.**

**Used land: ~13 M
ha, 90% in
rural areas**

**~ 56 Billion €/y
~ 920,000 jobs**

**Forestry.
Used area:
~12 M ha**



Food and biobased industry: main challenges and opportunities

Food Industry.

~132

Billion €/y
~ 390,000
jobs

Problems:

- ❑ Structural limitations (very small SMEs), lack of value chain coordination;
- ❑ Strong products counterfeiting and imitations;
- ❑ Low efficiency of food chains with remarkable food/biomass losses, energy and water consumption and by-products/waste production;

Opportunities:

- ❑ Leading position for “typical/quality” foods (DOP, IGP, STG, etc.);
- ❑ Digitalization of entire value chains (Industry 4.0);
- ❑ Use by-products as sources of ingredients/bioproducts

Problems:

- ❑ Wood processing industry based on imported raw material and on the production of medium/low value products;
- ❑ Limited availability of low cost, sustainable non-food feedstocks;
- ❑ Limited market for national biobased products; occurrence on the market of products that do not comply to international standards/labeling;
- ❑ Insufficient clarity in the labeling of bio products;

Opportunities:

- ❑ Connect locally wood production and wood processing industry and biorefineries to produce conventional and new/higher value products;
- ❑ Use biowastes (byproducts/effluents/residues/waste) as feedstocks;
- ❑ Exploit abandoned/marginal lands for producing biomass for the local biobased industry and re-covert former industrial sites.

Biobased Industry (Wood, Pulp & Paper Industry, Biorefinery)

~63

Billion €/y
~ 300,000
jobs



Marine and maritime sectors: main challenges and opportunities



About 8,000 km of coastline

~ € 43 Billion €/y
~ 835,000 jobs
~20% due to Bioeconomy

*After: V RAPPORTO
SULL'ECONOMIA DEL MARE
Unioncamere, 2016*

Problems:

- ❑ Unsustainable fishery; productions highly affected by climate changes;
- ❑ Increasing import of fish from areas with uncertain regulations and monitoring;
- ❑ Sea pollution (due to chemicals, litter, etc), presence of invasive species;
- ❑ Coastal urbanization, over- and un-sustainable exploitation of beaches.

Opportunities:

- ❑ Exploit marine aquaculture (also off shore);
- ❑ Exploit local marine biodiversity;
- ❑ Exploit potential of bioeconomy at the land/sea interface.

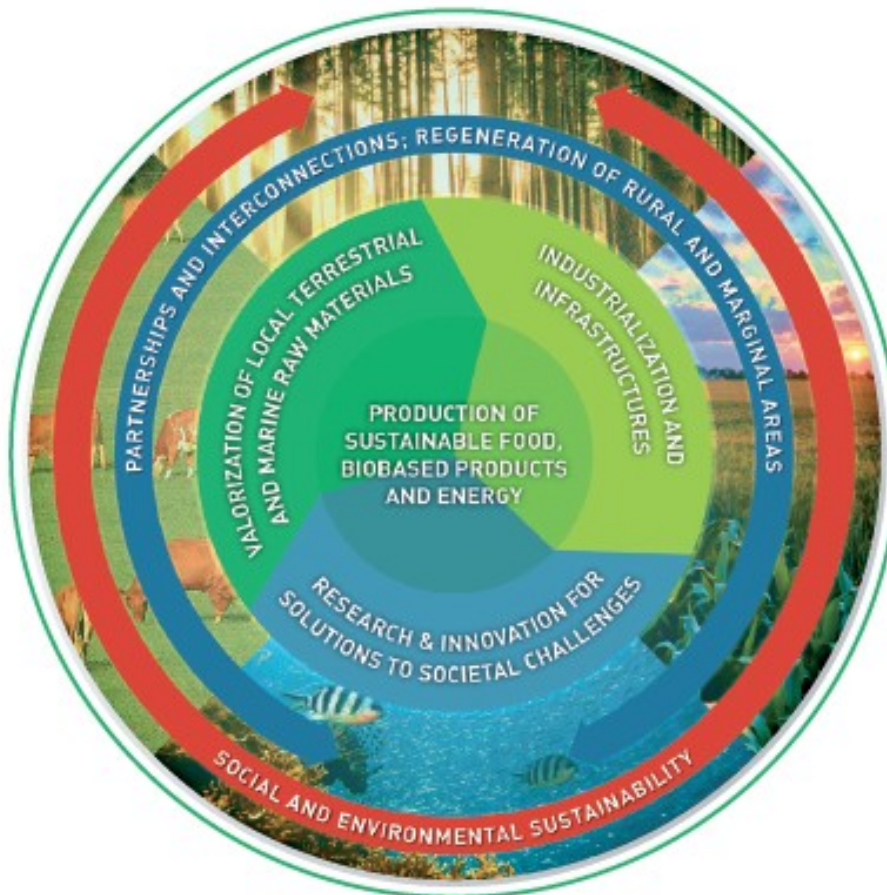
BIT

Bioeconomy in Italy

The Italian Bioeconomy strategy

AVAILABLE AT web site:

www.agenziacoessione.gov.it/it/S3/Consultazioni_pubbliche/Bioeconomy.html



A unique opportunity to reconnect
ECONOMY, SOCIETY
and the **ENVIRONMENT**

1 Bioeconomy – Basics

- 1.1 In the global and EU context
- 1.2 At Italian level
- 1.3 Bioeconomy at regional levels

2 Raw materials sources and the opportunities of biowaste

3 Bioeconomy in everyday life

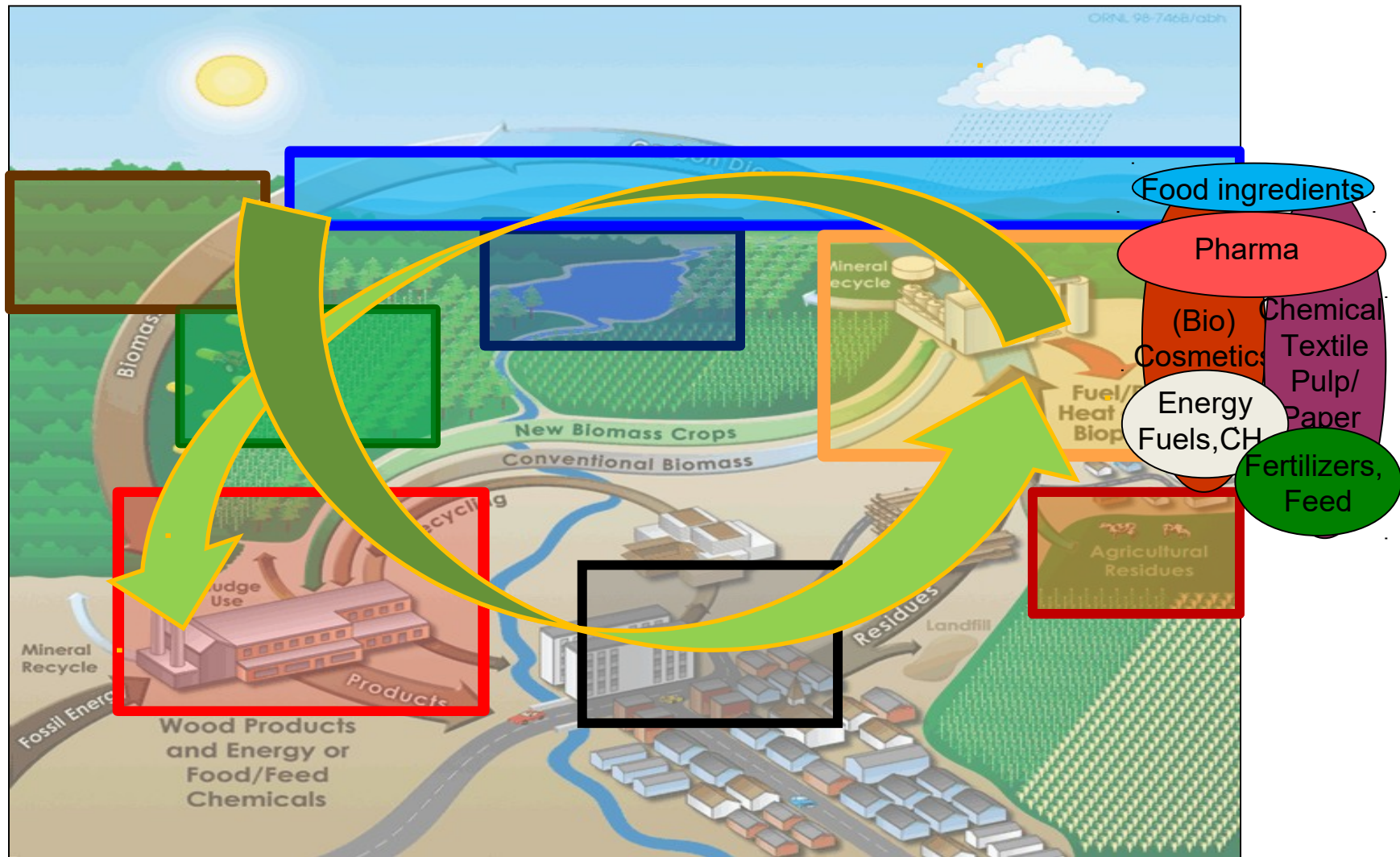
4 The social dimension of the bioeconomy

5 Legislative framework, funding measures and market pull measures

6 Challenges and action plan for the Italian bioeconomy

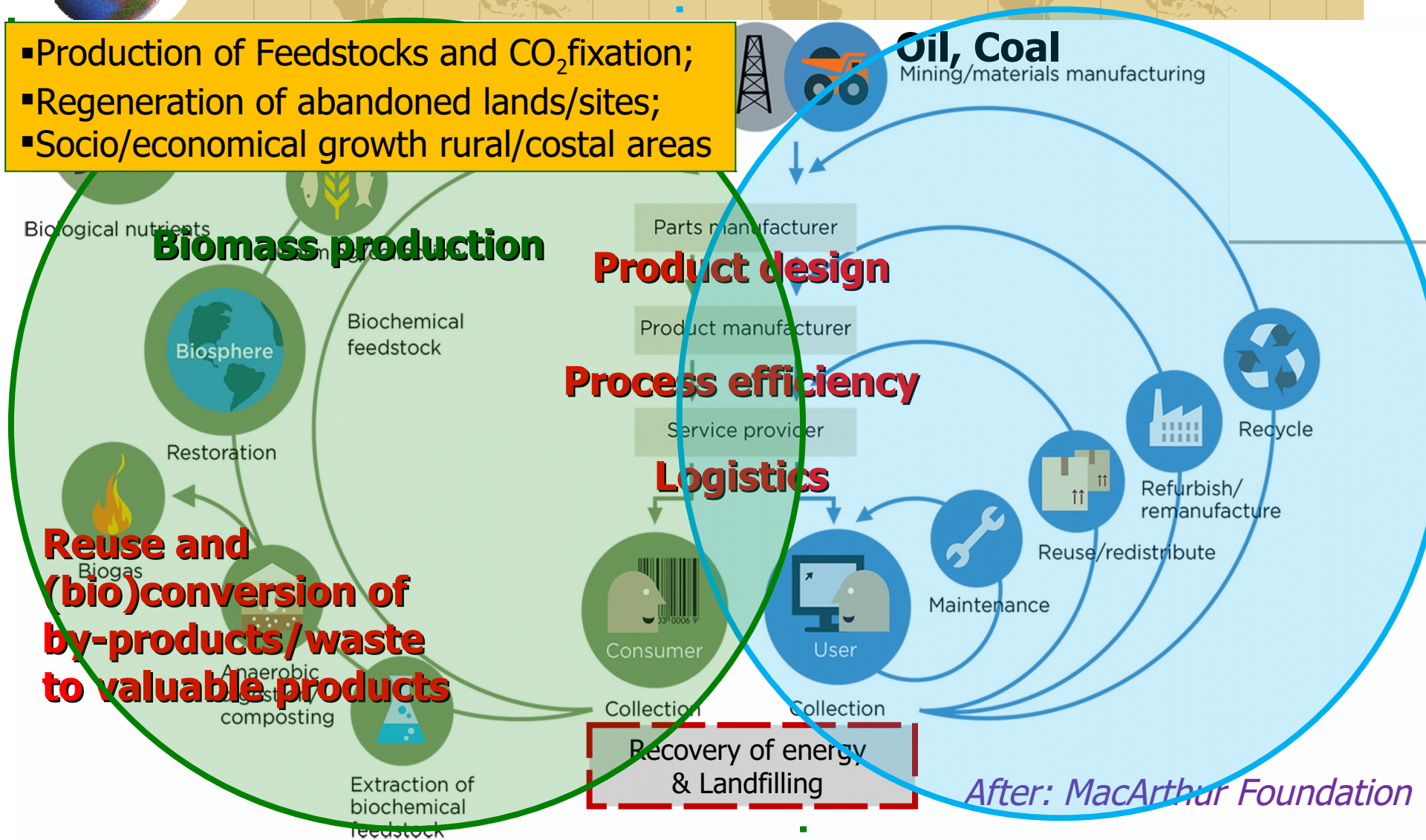
7 Implementation and monitoring

8 Actors involved and road map

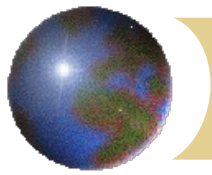


Bioeconomy & Circular Economy

- Production of Feedstocks and CO₂ fixation;
- Regeneration of abandoned lands/sites;
- Socio/economical growth rural/costal areas



Parliament Resolution: Jul 9 2015; EU adoption of Circular Economy package: Dec 2, 2015
In EU by 2030: +30% resource saving; -50% CO₂ emission; +3% GDP; +1 M jobs



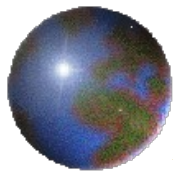
The Italian Bioeconomy strategy: main objective and priorities

Main priorities:

- a) Improve sustainably the productivity and quality of products of each of the sectors and more efficiently interconnect them, by creating longer and more locally routed value chains, where the actions of public and private stakeholders integrate across all major sectors;
- b) Exploit national terrestrial/marine biodiversity, ecosystem services and circularity, and regenerate abandoned/marginal lands and former industrial sites;
- c) Contribute to the growth of bioeconomy in the Mediterranean area via PRIMA and BLUEMED initiatives, for a greener and more productive region, a wider social cohesion and political stability in the area;
- d) Create: i) a wider and more coherent political commitment, ii) more investments in R&I, spin off/start up, education, training, communication (public engagement), iii) new and better tailored policies; iv) a better coordination between regional, national and EU stakeholders/policies, and v) tailored market development actions.

Objective:

Increase Italian Bioeconomy turnover and jobs by 20% by 2030.



Tools for boosting IT Bioeconomy



*Cluster
tecnologico
nazionale **Blue
Growth BIG***

Mission & actions:

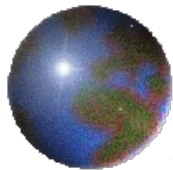
- ❑ Identification of main regional & national R&I needs and opportunities;
- ❑ Promotion of identified priorities/needs towards regional, national and EU institutions funding R&I;
- ❑ Promotion of partnerships and the participation of public R&I institutions, industry and associations in regional (PNR, FESR, FSE, etc.) national and EU (Horizon 2020, BBI JU, JPIs) agendas/programs for R&I, by reducing fragmentation and duplication, and fostering effective innovation.

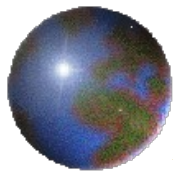


Thank You!

The Future is Bio-Based

The diagram illustrates a sustainable bio-based economy. It shows a cycle where crops and agricultural biomass are harvested and processed into various products, including energy, food, feed, and chemicals. The process also generates residues, which are managed through landfills. The cycle is closed by carbon dioxide being released back into the atmosphere. A large orange banner across the diagram reads "The Future is Bio-Based".





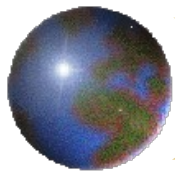
Bioeconomy: one of the Societal Challenges

Societal challenges



**Tackling
societal
challenges
for a better
society**

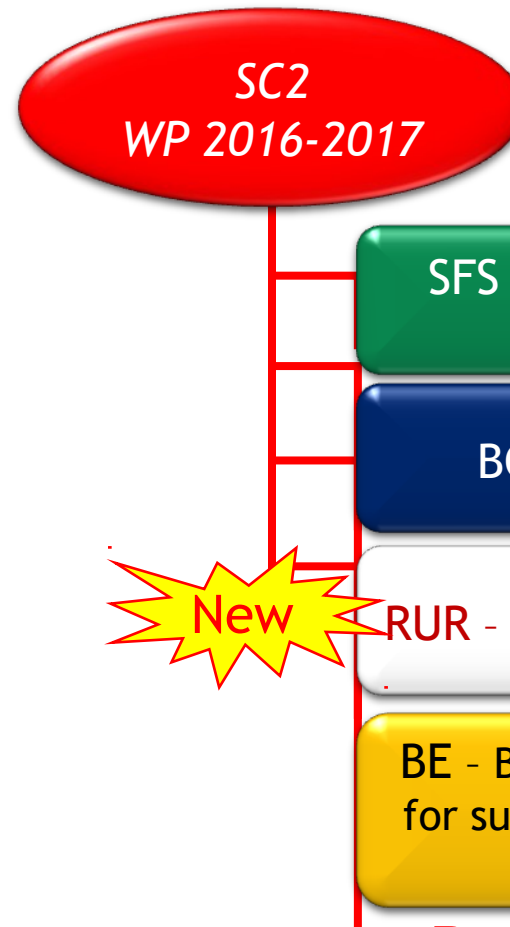
1. Health, demographic change and wellbeing (7.472 Bln)
2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy (3.851 Bln)
3. Secure, clean and efficient energy (5.931 Bln)
4. Smart, green and integrated transport (6.339 Bln)
5. Climate action, resource efficiency and raw materials (3.081 Bln)
6. Inclusive, innovative and reflective societies (1.310 Bln)
7. Secure societies (1.695 Bln)



Societal Challenge 2 (Bioeconomy): ~3.8 Billion, 2014-2020

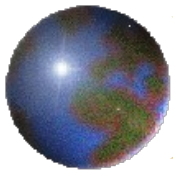


Budget: ~ 450 M €



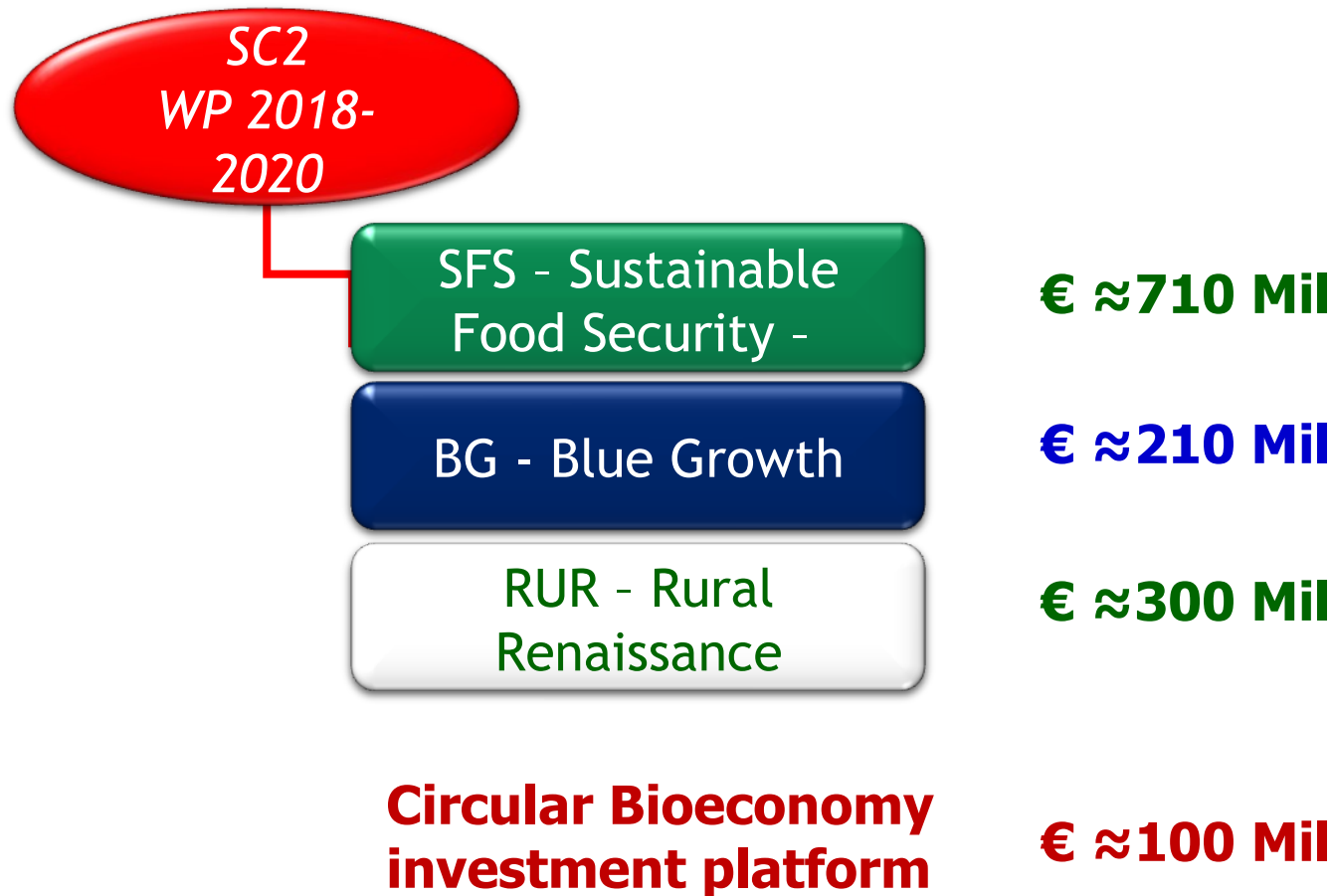
Budget: ~ 750 M €

	2014	2015	2016
Success rate (%)	17	19	37
Ranking	4th	3rd	2nd



Societal Challenge 2: main features

WP 2018-2020



WP DRAFT JUST PUBLISHED on:

https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/h2020-sc2-2018-2020_09_19_2017_-_pre-publication.pdf

A Public-Private Partnership on Bio-Based Industries

Realising the European Bio-economy Potential



Supported by

<http://www.bbi-europe.eu/>

 Bio-based Industries
Consortium



The BBI JU: structure and priorities

Public partner
27% of investment



€3.7 billion

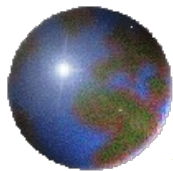


Private partner
73% of investment

A structured approach via 5 **Value Chains** (VC)...

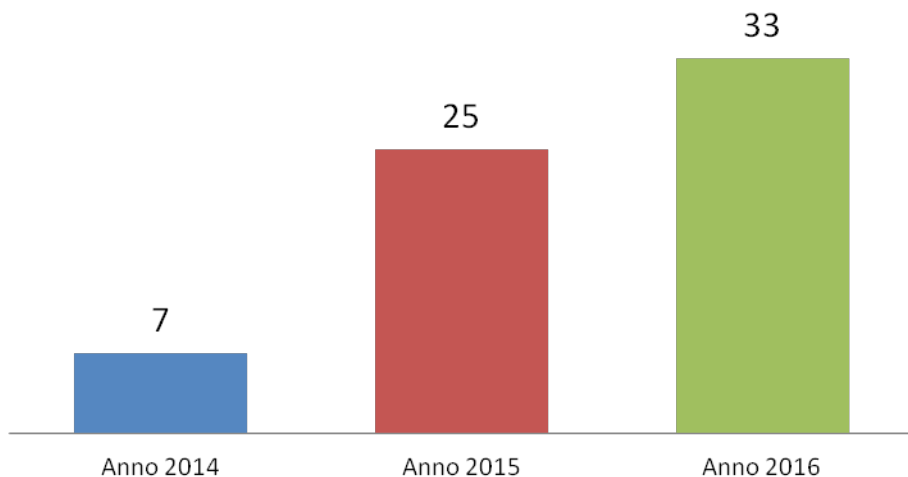
- ❖ VC 1: From ***lignocellulosic*** feedstock to advanced biofuels, bio-based chemicals & biomaterials
- ❖ VC 2: Next generation ***forest***-based value chains
- ❖ VC 3: Next generation ***agro***-based value chains
- ❖ VC 4: New value chains from (organic) ***waste***
- ❖ VC 5: ***Integrated*** energy, pulp and chemicals biorefineries

and a marine bioresource exploitation value chain is coming...



Italian participation in BBI JU calls (2014-16)(b)

IT - Proposals retained



ITALY
(submission)

2014 - **5th**

2015 - **2nd**

2016 - **1st**

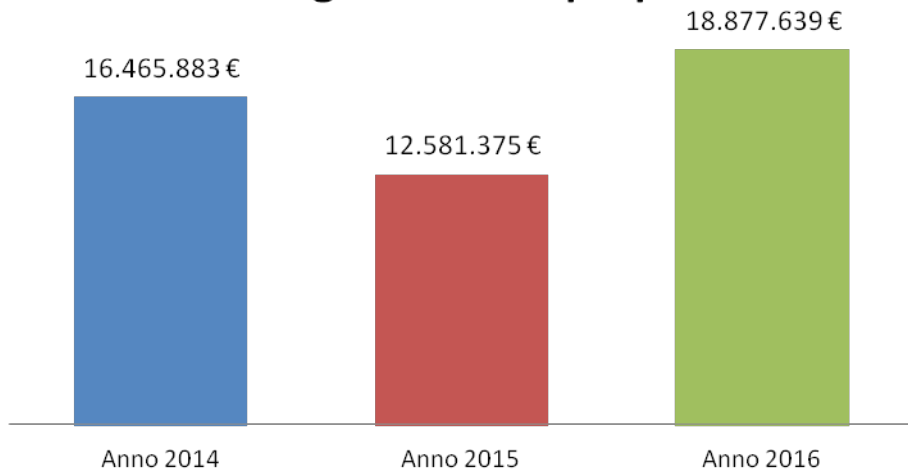
ITALY
(retained)

2014 - **5th**

2015 - **4th**

2016 - **2nd**

IT – Budget retained proposals



Budget proposals retained (3 years)

