



Horizon 2020

**Food security, sustainable agriculture and forestry,
marine and maritime and inland water research
and the bioeconomy**

Work Programme 2016-2017 Societal Challenge 2



Horizon 2020 - Outline

- Title: Horizon 2020 - Research and Innovation Framework Programme
- Origin: European Commission
- Lifetime Period: 2014 – 2020
- Overall Budget: 77 Billion Euros
- Funding range: 70%-100%, Indirect costs: 25%
- Focuses on:
 - coupling research to innovation
 - societal challenges facing EU, e.g. health, clean energy and transport
 - providing simplified access for all companies, universities, institutes etc



Horizon 2020 - Structure

Excellent Science

Industrial Leadership

Societal Challenges



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Budget distribution

*Total indicative budget: 77.0 billion €**

Excellent science

- *European Research Council*
- *Future and Emerging Technologies*
- *Marie Curie actions*
- *Research infrastructures*

Indicative Budget:
24.4 billion €*

Industrial leadership

- *Leadership in enabling and industrial technologies*
- *Access to risk finance*
- *Innovation in SMEs*

Indicative Budget:
17.0 billion €*

Societal challenges

- *Health, demographic change and wellbeing*
- *Food security, sustainable agriculture, marine and maritime research and the bioeconomy*
- *Secure, clean and efficient energy*
- *Smart, green and integrated transport*
- *Climate action, resource efficiency and raw materials*
- *Inclusive, innovative and reflective societies*
- *Secure societies*

Indicative Budget:
29.7 billion €*



** 2014-2020 actual budget (indicative) includes 5.9b€ for*
-widening participation
-science with and for society
-JRC and EIT
not shown in three priorities above



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Societal Challenges in Horizon 2020

Why Social Challenges in HORIZON 2020;

- European citizen's concerns as well as European / Societal priorities (climate, environment, energy, transport, etc.) can not be achieved without innovation
- Efficient solutions come from interdisciplinary collaborations, including social sciences and the humanities
- The ambitious results will go through control phase, demonstration and escalation - adjustment.



Tackling societal challenges for a better society!



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Societal Challenges in Horizon 2020



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



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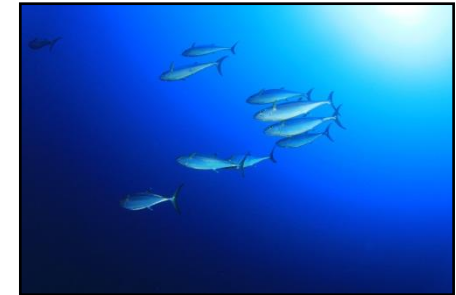
Societal Challenge 2– Areas of Activities



Agriculture & Forestry



Safe and healthy products



Aquaculture



**Bio Industries &
Bioeconomy**



**Marine and Maritime
Research**



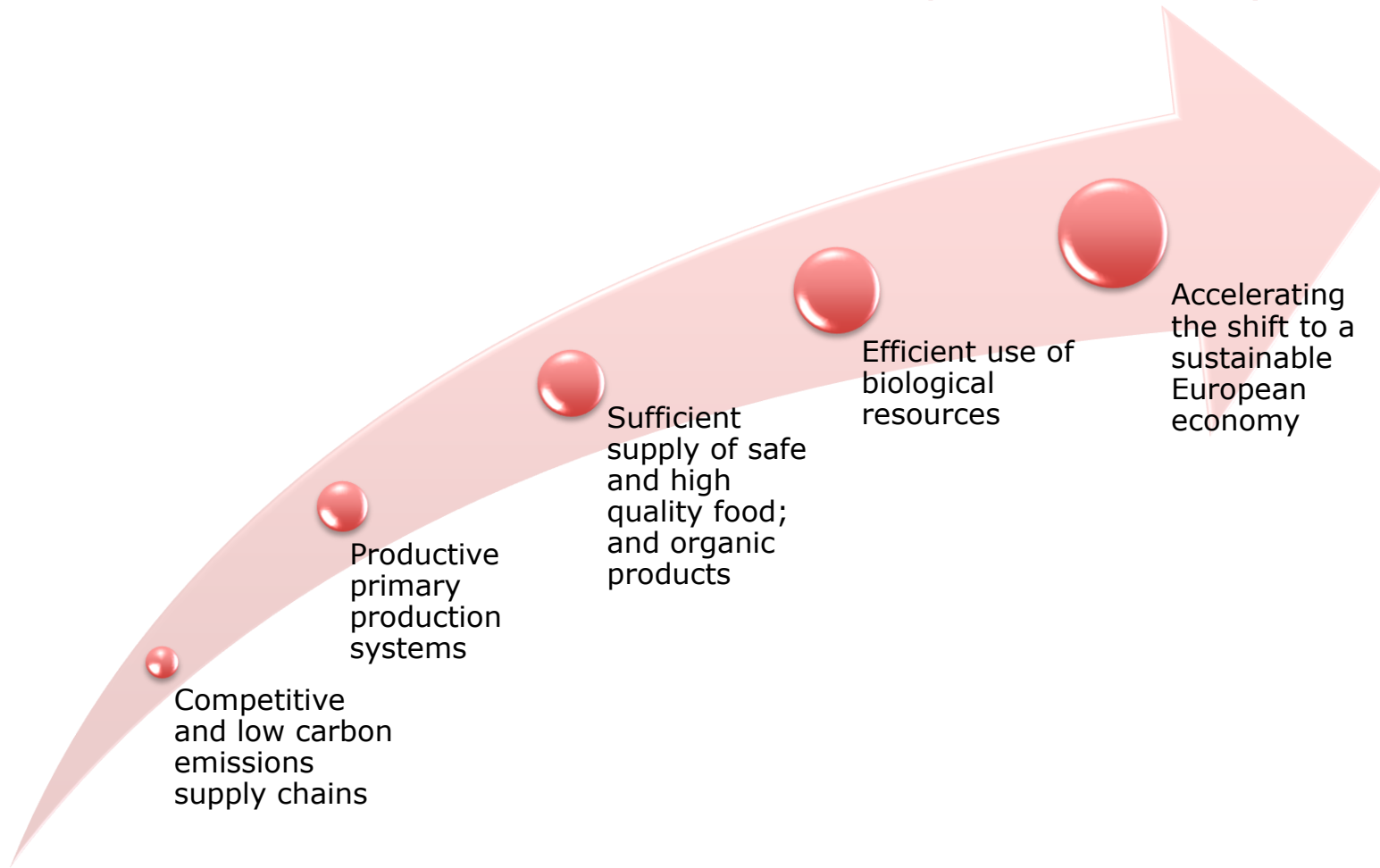
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The route towards a Sustainable European Economy



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Horizon Work Programmes Specificities

All topics reflect the approach based on the Horizon 2020 societal challenges

Challenge

Scope

Impact



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Work Programme 2016/2017

Supporting research to find solutions to these challenges

- ✓ **Feed 9 billion people by 2050**, by improving farming and food systems' capacity to sustainably supply sufficient and healthy food
- ✓ **Unlock the potential of seas and oceans**, which cover 70% of the Earth's surface and host 50% of known species
- ✓ **Raise the sustainable growth potential of rural areas**, and their ability to cope with demographic, climatic and economic change
- ✓ **Boost bio-based markets**, to create for example over 3% growth/year in the bio-based chemistry sector



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Work Programme 2016/2017

Objectives

- ✓ **Ensure food and nutrition security, by fostering resilient and resource efficient** primary production and industry
- ✓ **Demonstrate the innovative potential of the oceans,** by bringing technology to market
- ✓ **Foster innovation and business opportunities for rural and coastal areas,** through new territorial approaches and business models
- ✓ **Re-industrialise Europe,** through new bio-based value-chains, while securing sustainable biomass



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Work Programme 2016/2017

The Calls

**Sustainable
food security**

**Blue
Growth**

**Rural
Renaissance**

**Bio-based
innovation
for
sustainable
goods and
services**



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Work Programme 2016/2017

The Calls

Sustainable Food Security (SFS)



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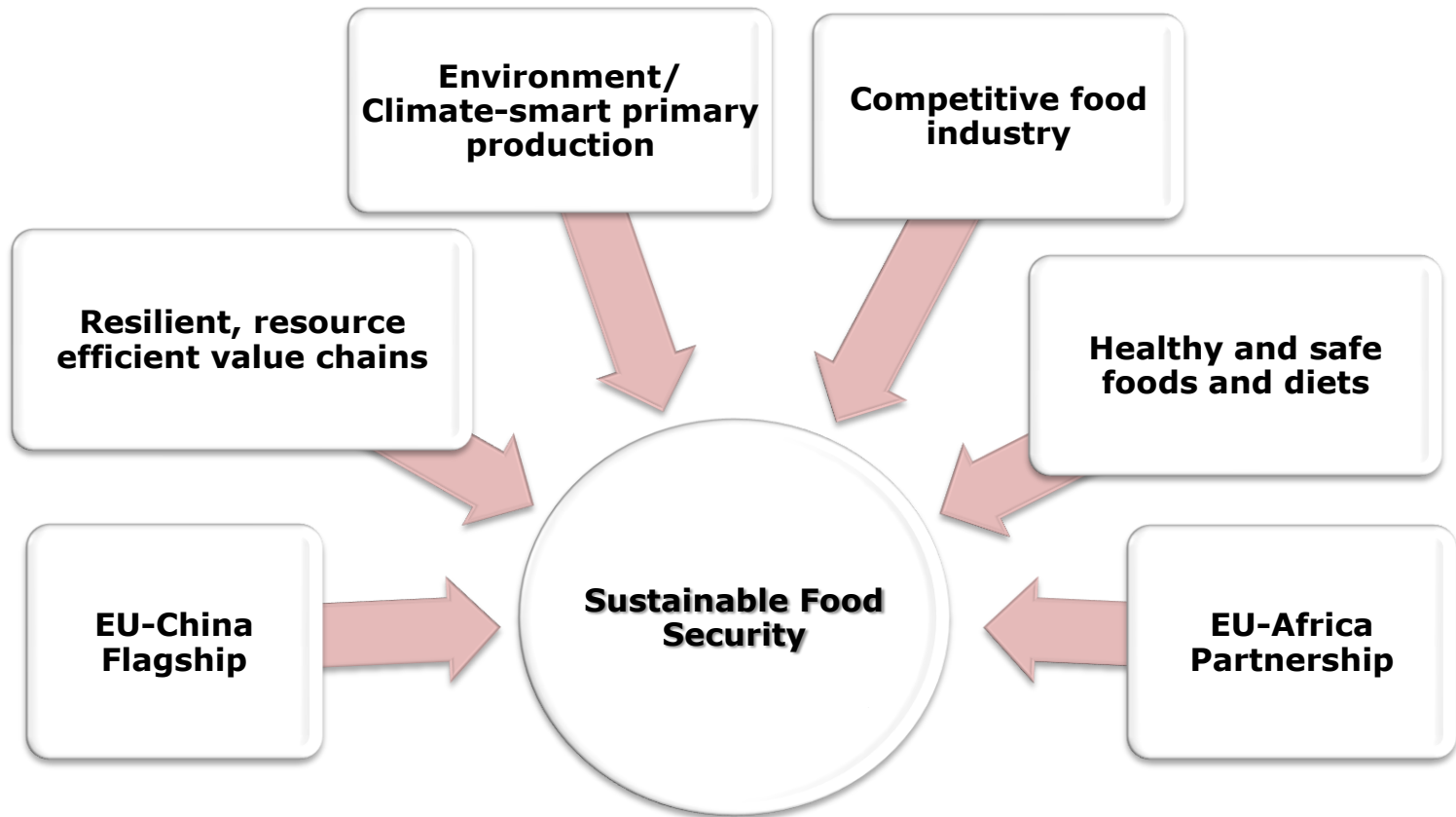


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Work Programme 2016/2017

Sustainable Food Security - AREAS





Work Programme 2016/2017

Sustainable food security – TOPICS AND BUDGET

**Resilient, resource
efficient value chains**

25 topics focusing on:

- Abiotic stresses (water, nutrients) and efficient resource use
- Biotic stresses (Plant and animal health; IPM approaches; diagnostic tools; bee health)
- Operationalising the resilience concept (diversity; genetic resources, plant and animal breeding)
- Optimising/reducing use of (critical) inputs (robotics ,weeding, pesticides)
- Specific actions for organic farming
- Sustainable fisheries and aquaculture management

Scope:

Increasing competitiveness of the **organic breeding and farming sectors**
Bee health and **sustainable pollination**

Smart **fisheries technologies** for an efficient, compliant and environmentally friendly fishing sector

Total: 206 M€



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Work Programme 2016/2017

Sustainable food security – TOPICS AND BUDGET

7 topics focusing on:

- Carbon and nitrogen cycling in agro-ecosystems
- Specific production systems (legumes, grassland)
- Ecosystem services (soil based, pollination, pest predators, economics of ES)
- Socio-economics, demography and resilience of farms

Environment/
Climate-smart primary
production

Scope:

Closing loops at farm and regional levels to **mitigate GHG emissions** and **environmental contamination**;

Promoting and supporting the **eco-intensification** of **aquaculture** production systems: inland, coastal zones and offshore

Socio-economics in ecological approaches

Total: 64 M€



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Work Programme 2016/2017

Sustainable food security – TOPICS AND BUDGET

Competitive food
industry

3 topics focusing on:

- Resource efficient, resilient, sustainable and transparent food value chains, as well as
- Linkages and interactions among different actors along the food value chains;
- The reduction of food waste;
- Innovative food packaging and labeling.

Scope:

Understanding **food value chains** and **networks dynamics**;

Innovative agri-food chains: unlocking the **competitiveness and sustainability potential**

Innovative solutions for sustainable **food packaging**

Total: 24M€



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Work Programme 2016/2017

Sustainable food security – TOPICS AND BUDGET

Healthy and safe
foods and diets

5 topics focusing on:

- The One-Health concept (the risks posed by "zoonoses", i.e. infectious diseases transmitted from animals to humans);
- Impacts of consumers practices (i.e. last part of the food value chains) on food safety, and risk mitigation strategies;
- The influence of diets and nutrition habits on human behaviour;
- Dietary choices of children, and trans-disciplinary and multi-actor approaches to reducing the childhood obesity epidemic;
- The prevalence and influence of sweeteners and sweetness enhancers on human health and behaviour

Scope:

Co-fund on "**One Health**" (**zoonoses** – emerging threats);

The impact of **consumer practices** in food safety

Impulsivity and compulsivity and the link with nutrition, lifestyle and the socio-economic environment

Total: 85,5M€



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Work Programme 2016/2017

Sustainable food security – TOPICS AND BUDGET

**EU-Africa
Partnership**

3 topics focusing on:

- Strengthening the EU-Africa Research and Innovation Partnership on food and nutrition security and sustainable agriculture
- Enhancing the role of innovation in promoting sustainable agriculture, food and nutrition security in Africa
- Increasing capabilities of Earth observation services for the monitoring of agricultural production in Africa

Scope:

ERANET on EU-Africa Research and Innovation partnership on food and nutrition security and sustainable agriculture;

The **role of innovation** in **promoting food and nutrition security** and **sustainable agriculture** in Africa.

Total: 25M€



Work Programme 2016/2017

Sustainable food security – TOPICS AND BUDGET

Five topics focusing on:

- Water retention in soils
- Breeding of protein crops
- Urban agriculture
- Food safety;
- Authentication and traceability

EU-China Flagship

Scope:

A **joint plant breeding** programme to decrease the EU's and China's dependency on protein imports

Soil water resources management in the EU and China and its impact on agro-ecosystem functions

Total: 27M€



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Work Programme 2016/2017

The Calls

Blue Growth (BG)



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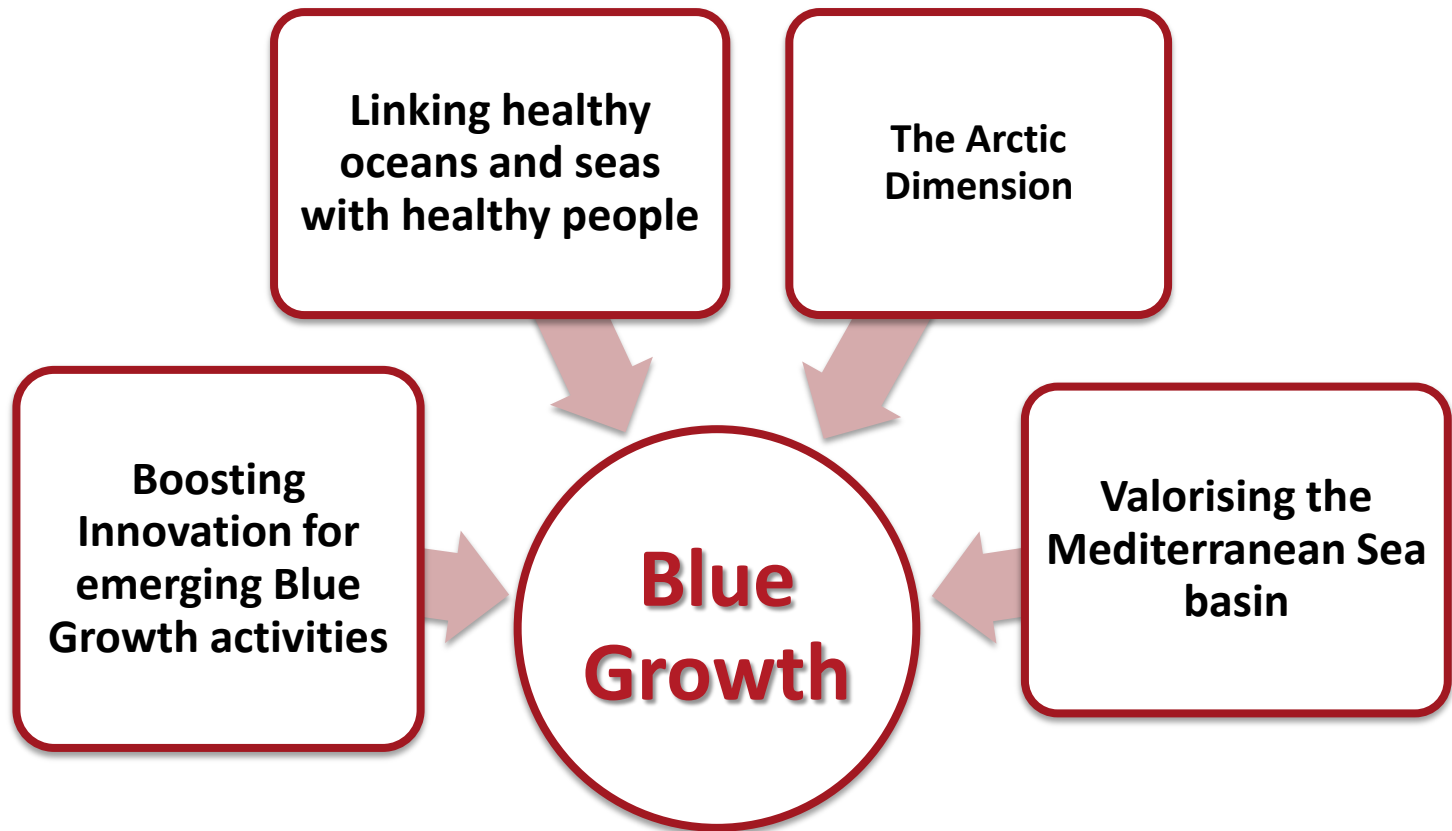


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Work Programme 2016/2017

Blue Growth - AREAS



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Work Programme 2016/2017

Blue Growth– TOPICS AND BUDGET

**Boosting
Innovation for
emerging Blue
Growth activities**

Five topics:

BG-01-2016: Large-scale algae biomass integrated biorefineries.

BG-02-2016/2017: High value-added specialised vessel concepts enabling more efficient servicing of emerging coastal and offshore activities..

BG-03-2016: Multi-use of the oceans marine space, offshore and near shore: compatibility, regulations, environmental and legal issues.

BG-04-2017: Multi-use of the oceans marine space, offshore and near shore: Enabling technologies.

BG-05-2016: ERA-NET Cofund on marine technologies.

Scope:

Large-scale algae biomass integrated bio-refineries
High value-added specialised vessel concepts enabling more efficient servicing of emerging coastal and offshore activities

Total: 57M€



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Work Programme 2016/2017

Blue Growth– TOPICS AND BUDGET

Linking healthy
oceans and seas
with healthy people

The three topics span from the interaction between people and the sea, to blue green innovation to cleaning coasts and seas or sustainable solutions for seafood.

Three topics on

- Interaction between people, oceans and seas
- Blue green innovation for clean coasts and seas
- Innovative sustainable solutions for improving the safety and dietary properties of seafood

Total: 21M€



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Work Programme 2016/2017

Blue Growth– TOPICS AND BUDGET

The Arctic Dimension

The three topics addressing "The Arctic dimension" feature a total budget of 40 M €, covering observation systems, impacts of Arctic changes on weather and climate impacts on the Arctic permafrost.

- An integrated Arctic observation system
- Impact of Arctic changes on the weather and climate of the Northern Hemisphere
- Climate impacts on Arctic permafrost and its socio-economic impact, with a focus on coastal areas

Total: 40M€



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Work Programme 2016/2017

Blue Growth– TOPICS AND BUDGET

**Valorising the
Mediterranean Sea
basin**

The Two topics address observing systems and support to the BLUEMED initiative

- Towards an integrated Mediterranean Sea Observing System
- Support to the BLUEMED Initiative: Coordination of marine and maritime research and innovation activities in the Mediterranean

Total: 11M€



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Work Programme 2016/2017

Marine & Maritime Research in other parts of H2020

SOCIETAL CHALLENGES:

- SC3 (Energy): 2 topics on ocean energy under Competitive Low Carbon Energy call & mentions across other 8 others.
- SC4 (Transport): 2 topics on waterborne transport under Mobility for Growth & mentions in 6 others.
- SC5 (Climate): 4 topics under Climate Services encompassing oceanic measurements, ocean climate, coastal areas, and plastic-free seas and oceans.

LEIT- NMBP

Two topics on materials for buildings and infrastructure including offshore and on biotechnology opportunities for industry.



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Work Programme 2016/2017

The Calls

Rural Renaissance (RUR)



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Rural renaissance: our territories € 128 million to grasp promising opportunities to boost rural growth and jobs



Invest in businesses:
new business models, new value chains and better connectivity



Invest in people:
boost innovation, co-creation and exploitation of knowledge by improving skills and innovation systems



Invest in better decision-making:
modernize policies and governance to make the most out of our resourceful territories sustainably



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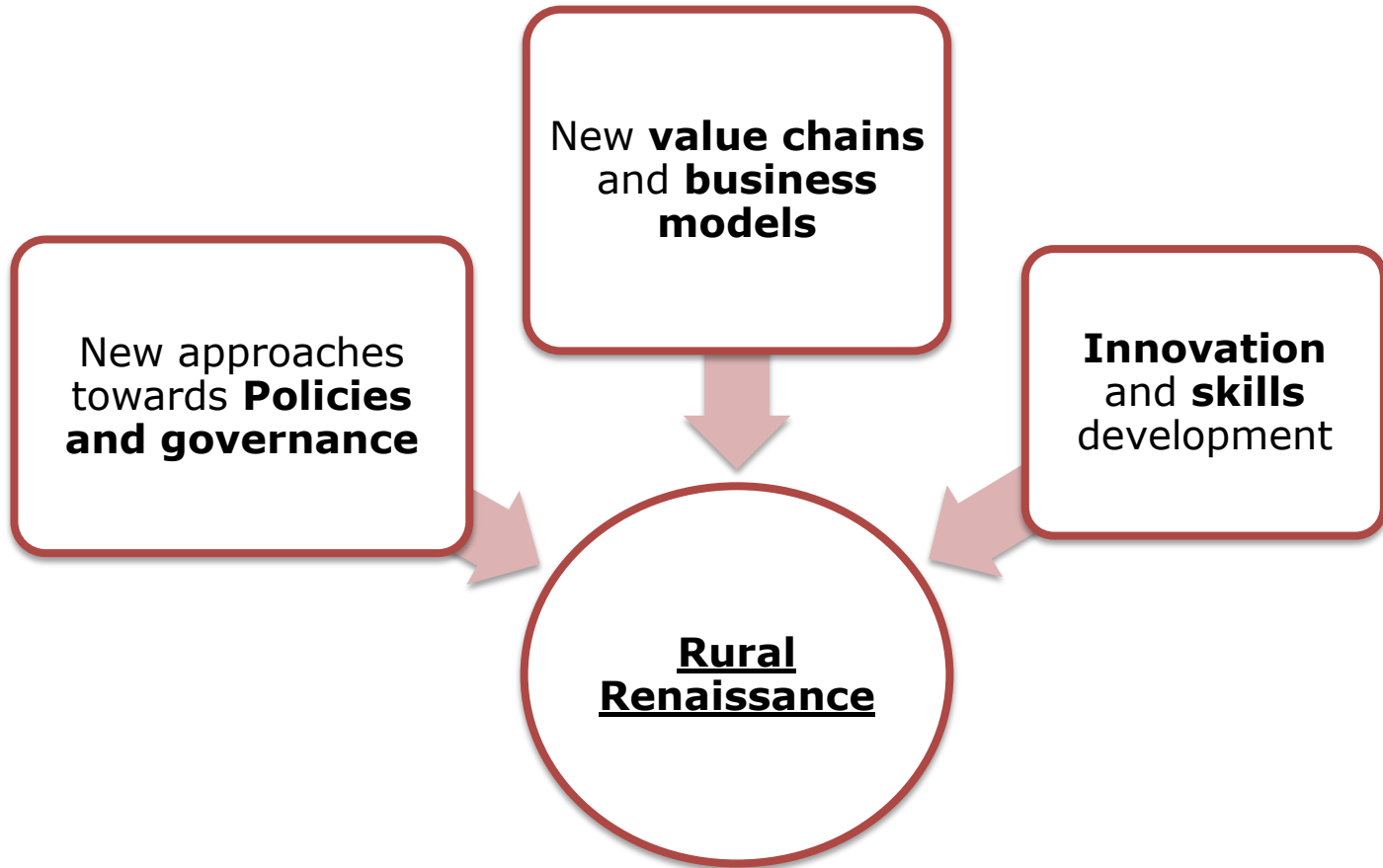


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Work Programme 2016/2017

Rural Renaissance areas



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Work Programme 2016/2017

Rural Renaissance – TOPICS AND BUDGET

New approaches
towards **Policies
and governance**

- Enhancing **synergies in territorial interactions**,
- seeking to adapt policies and to foster cross-sectoral cooperation
- Policies and decision-support tools for an integrated management of natural resources
- advantages of ecosystem services and public goods from land management

Coastal-rural interactions: enhancing **synergies between land and sea-based activities**

Sustainable supply of **forest ecosystem services**

Total: 32 M€



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Work Programme 2016/2017

Rural Renaissance – TOPICS AND BUDGET

New **value chains**
and **business**
models

- Crop diversification systems for delivery of food, feed, industrial products and ecosystem services
- Demonstration of integrated logistics for food and non-food applications
- Business models for modern rural economies
- Resource-efficient and profitable **industrial crops** on **marginal land**
- **Integrated logistics centres** for food and non-food applications

Total: 47 M€



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Work Programme 2016/2017

Rural Renaissance – TOPICS AND BUDGET

Innovation
and **skills**
development

- Deepening **farmer-to-farmer learning** mechanisms
- Building a future **science and education system** fit to deliver to practice
- The benefits of working with others – fostering **social capital** in the farming sector
- **Optimising interactive innovation projects and policies for innovation**

Total: 49 M€



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Work Programme 2016/2017

The Calls

Bio-based innovation for sustainable goods and services (BB)



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Work Programme 2016/2017

The Calls

Bio-based Innovation for Sustainable Goods and Services CALL
a global €27 million budget to:

Boost bio-based markets (ex: to create over 3% growth/year in the bio-based chemistry sector)



Re-industrialise the EU through new bio-based value chains, securing sustainable biomass

Activities of this call are complementary to the Joint Technology Initiative on Bio-based Industries 2016-17 Indicative Budget €300 million"



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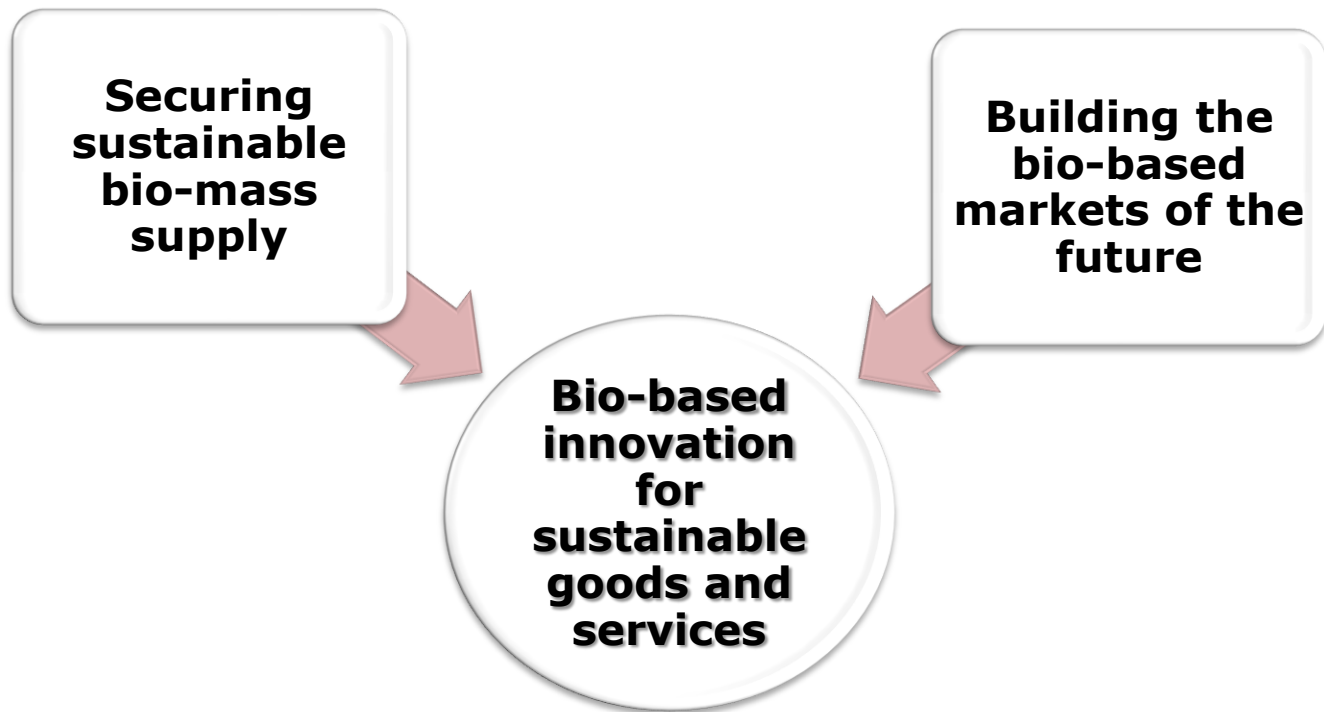


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Work Programme 2016/2017

Bio-based innovation - AREAS



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Work Programme 2016/2017

Bio-based innovation for sustainable goods and services – TOPICS AND BUDGET

**Securing
sustainable
bio-mass
supply**

- **Sustainability schemes for the bio-based economy**
- Towards a methodology for the **collection of statistical data** on bio-based industries and bio-based products
- Adaptive tree breeding strategies and tools for **forest production systems** resilient to climate change and natural disturbances

Total: 23 M€



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Work Programme 2016/2017

Bio-based innovation for sustainable goods and services – TOPICS AND BUDGET

**Building the
bio-based
markets of the
future**

Bio-based products: mobilisation and mutual learning action plan

Bio-based products: raising awareness of and engaging with the citizens on the bio-based products

Bio-based industries regional dimension

Platform of regional and local organisations interested in developing ambitious strategies in support of bio-based products/industries

Total: 4 M€



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SC2 contributions to other calls

- **SME dedicated call:**

- **"Land"- 58M€:** Stimulating the innovation potential of SMEs for sustainable and competitive agriculture, forestry, agri-food and bio-based sectors (SME-Inst07)
- **"Sea" – 19,5M€:** Supporting SMEs efforts for the development - deployment and market replication of innovative solutions for blue growth (SME-Inst08)

- Cross-cutting activities:

- Unlocking the potential of urban organic waste (Industry 2020 and the circular economy; CIRC-05 – 3M€)
- Large scale pilot on smart farming (Internet of Things; Iot-01 – Pilot 2 - 30M€)

- Fast-track to innovation;



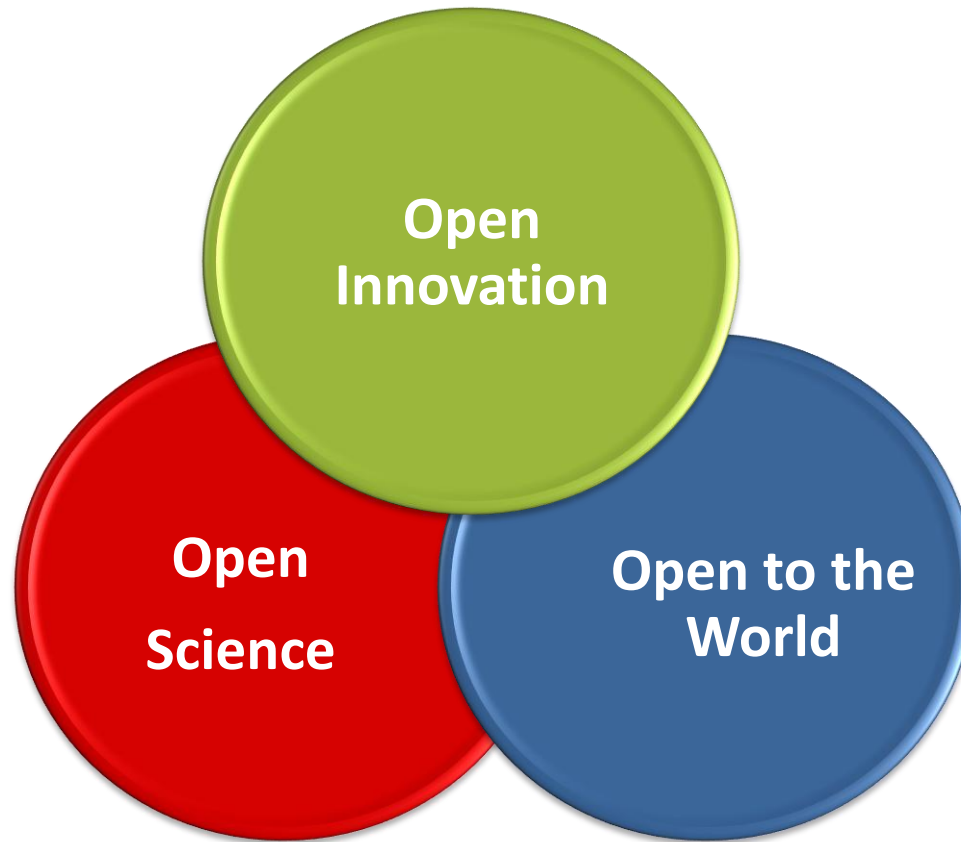
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The Work Programme addresses three priorities



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»» The multi-actor approach under WP2016-2017

Key elements

- Description now in the WP introduction -38 tagged topics
- Multi-actor projects are about interactive innovation
- Beyond dissemination requirement and stakeholders' board
- Genuine and sufficient involvement of various actors all along the project, from planning to demonstration
- Demonstrate how project will respond to end-users needs
- Substantial practical knowledge easily accessible and understandable
- Material → EIP-AGRI (for EIP-AGRI related areas)
 - Common format
 - Connect with operational groups



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Calls Timetable

Publication	Submission		<u>Deadlines</u>	Information to applicants	Grant Agreements
14 OCT 2015	two-stage submission (RIA with some exceptions)	1st stage	17 Feb 2016	May 2016	-
		2nd stage	13 Sept 2016	Nov 2016	May 2017
	single stage submission (IA, CSA, ERA Net)	Single stage	17 Feb 2016	May 2016	October 2016



EN

Horizon 2020

Work Programme 2016 - 2017

9. Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

Important notice on the second Horizon 2020 Work Programme

This Work Programme covers 2016 and 2017. The parts of the Work Programme that relate to 2017 are provided at this stage on an indicative basis. Such Work Programme parts will be decided during 2016.

(European Commission Decision C (2015)6776 of 13 October 2015)



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Thank you for your
attention.

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