



2018/0225(COD)

30.10.2018

OPINION

of the Committee on Agriculture and Rural Development

for the Committee on Industry, Research and Energy

on the proposal for a decision of the European Parliament and of the Council
on establishing the specific programme implementing Horizon Europe – the
Framework Programme for Research and Innovation
(COM(2018)0436 – C8-0253/2018 – 2018/0225(COD))

Rapporteur for opinion: Elsi Katainen

PA_Legam

SHORT JUSTIFICATION

The rapporteur welcomes the Horizon Europe Programme proposal by the Commission and the increased funding especially for the Food and Natural Resources' innovations. The Horizon Europe Programme is a key element for boosting the competitiveness of the EU globally and supporting the economic growth of the EU. Horizon Europe, directed to support scientific breakthroughs and innovative products and services, will help Europe to tackle the current challenges, such as climate change, and at the same time, it creates business opportunities.

The allocated funding of 10 billion EUR is much needed to meet the UN Sustainable Development Goals such as SG 2 - No Hunger. The rapporteur insists maintaining the funding at least at the proposed level of 10 billion EUR. However, if the overall budget of the Horizon Europe is to be increased the Food and Natural Resources cluster funding has to increase proportionally.

The rapporteur thinks that the AGRI Committee can offer the most valuable contribution on the fifth cluster "Food and Natural Resources", which specifically addresses agriculture-related issues. Therefore, the rapporteur would like to propose adding the word 'agriculture' to the title. The rapporteur would like to remind that the clusters of the second pillar "Global challenges and Industrial competitiveness" are not separate but contribute all to each other's specific areas. In addition, the rapporteur underlines the importance of the basic research funded under the first pillar "Open Science" as it also plays an important role in the process of creating innovations for bio-circular economy, which is a step forward from circular economy.

The seven specified areas of contribution in the cluster five cover the main elements contributing to innovations regarding food and natural resources. The rapporteur would still like to remind that the limiting the scope only to the sea and oceans as proposed on the area No. 4 leaves the fresh waters out of the scope. The rapporteur would like to add fresh waters to the context, as they are an important part of the aquatic territorial. The rapporteur welcomes the inclusion of the forestry in the areas of intervention, as forestry is a great example of the promotion of the bio circular economy.

A multiannual Strategic Planning, in which the synergy with other EU programmes must be taken into account, will ensure the implementation of Horizon Europe's programme-level objectives in an integrated manner. The rapporteur finds it crucially important that the synergies are guaranteed and for example in the fifth cluster the specific objectives of the Common Agricultural Policy should be included. She would still like underline that even the objectives should be harmonised the budgets allocated should remain separate in between different policy programs.

The rapporteur would like to propose a mission for the second pillar. The proposed mission is "Carbon neutral, resilient, nutritious and zero-waste food systems by 2035". This mission can be supported by other clusters and has a great spin off potential to create innovations in various sectors. The Europe needs to find alternative ways to shift towards climate-smart agriculture and sustainable use of natural resources. One key element is to reduce and eventually cut off waste and efficiently use the side-streams and waste from industrial

production chains.

AMENDMENTS

The Committee on Agriculture and Rural Development calls on the Committee on Industry, Research and Energy, as the committee responsible, to take into account the following amendments:

Amendment 1

Proposal for a decision

Recital 5

Text proposed by the Commission

(5) Reflecting the importance of tackling climate change in line with the Union's commitments to implement the Paris Agreement and the United Nations Sustainable Development Goals, this Specific Programme will contribute to mainstream climate actions and to the achievement of an overall target of 25 % of the EU budget expenditures supporting climate objectives. Actions under this Specific Programme are expected to contribute 35% of the overall financial envelope of the Specific Programme to climate objectives. Relevant actions will be identified during the Specific Programme's preparation and implementation, and reassessed in the context of the relevant evaluations and review processes.

Amendment

(5) Reflecting the importance of tackling climate change in line with the Union's commitments to implement the Paris Agreement and the United Nations Sustainable Development Goals, this Specific Programme will contribute to mainstream climate actions and to the achievement of an overall target of 25 % of the EU budget expenditures supporting climate objectives. Actions under this Specific Programme are expected to contribute 35% of the overall financial envelope of the Specific Programme to climate objectives. Relevant actions will be identified, ***in consultation with relevant stakeholders and civil society***, during the Specific Programme's preparation and implementation, and reassessed in the context of the relevant evaluations and review processes.

Amendment 2

Proposal for a regulation

Recital 6

Text proposed by the Commission

(6) The Specific Programme's actions should be used to address market failures

Amendment

(6) The Specific Programme's actions should be used to address market failures,

or sub-optimal investment *situations*, in a proportionate manner, without duplicating or crowding out private financing and have a clear European added value.

in particular through R&I addressing socio-economic challenges that suffer from sub-optimal investment, in a proportionate manner *for dissemination of information regarding funding opportunities* without duplicating or crowding out private financing and have a clear European added value.

Amendment 3

Proposal for a regulation

Recital 7

Text proposed by the Commission

(7) Reflecting the important contribution that research and innovation should make to address challenges in food, agriculture, rural development and the bioeconomy, and to seize the corresponding research and innovation opportunities in close synergy with Common Agricultural Policy, relevant actions under the Specific Programme will be supported with EUR 10 billion for the cluster 'Food and Natural Resources' for the period 2021-2027.

Amendment

(7) Reflecting the important contribution that research and innovation should make to address challenges in food, agriculture, rural development and the bioeconomy, and to seize the corresponding research and innovation opportunities *and the methods of implementation in the agricultural sector* in close synergy with Common Agricultural Policy, relevant actions under the Specific Programme will be supported with *the dedicated* EUR 10 billion for the cluster 'Food and Natural Resources' for the period 2021-2027. *Notes that precision farming is an important tool in increasing yields and productivity while creating a sustainable future for farming.*

Amendment 4

Proposal for a decision

Recital 8

Text proposed by the Commission

(8) The completion of the Digital Single Market and the growing opportunities from the convergence of digital and physical technologies requires a stepping up of investments. Horizon

Amendment

(8) The completion of the Digital Single Market and the growing opportunities from the convergence of digital and physical technologies requires a stepping up of investments. *and greater*

Europe will contribute to these efforts with a substantial increase of spending in main digital research and innovation activities compared to the Research and Innovation Framework Programme Horizon 2020⁶. This should ensure that Europe remains at the forefront of global research and innovation in the digital field.

access to funding programmes through better communication. Horizon Europe will contribute to these efforts with a substantial increase of spending in main digital research and innovation activities compared to the Research and Innovation Framework Programme Horizon 2020⁶. This should ensure that Europe remains at the forefront of global research and innovation in the digital field.

⁶ The Communication from the Commission "A new, modern Multiannual Financial Framework for a European Union that deliver efficiently on its priorities post-2020" identifies EUR 13 billion spent in main digital activities under the Research and Innovation Framework Programme Horizon 2020 (<https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52018DC0098>).

⁶ The Communication from the Commission "A new, modern Multiannual Financial Framework for a European Union that deliver efficiently on its priorities post-2020" identifies EUR 13 billion spent in main digital activities under the Research and Innovation Framework Programme Horizon 2020 (<https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52018DC0098>).

Amendment 5

Proposal for a decision Recital 9 a (new)

Text proposed by the Commission

Amendment

(9 a) The Specific Programme should aim to increase the level of involvement of relevant stakeholders and civil society throughout the Programme, including in research agenda setting, implementation and communication.

Amendment 6

Proposal for a decision Article 2 – paragraph 2 – point a

Text proposed by the Commission

Amendment

(a) reinforcing and spreading excellence;

(a) ***strengthening Europe's scientific base and*** reinforcing and spreading

excellence;

Amendment 7

Proposal for a decision

Article 2 – paragraph 2 – point c

Text proposed by the Commission

(c) connecting **and** developing research infrastructures across the European research area;

Amendment

(c) connecting, developing **and facilitating wide access to** research infrastructures across the European research area;

Amendment 8

Proposal for a decision

Article 2 – paragraph 2 – point i

Text proposed by the Commission

(i) reinforcing the link between research **and** innovation and other policies, including Sustainable Development Goals;

Amendment

(i) reinforcing the link between research, innovation **and education**, and other policies, including Sustainable Development Goals;

Amendment 9

Proposal for a decision

Article 2 – paragraph 2 – point k

Text proposed by the Commission

(k) involving citizens and end-users in co-design and co-creation processes;

Amendment

(k) involving **effectively** citizens, **relevant stakeholders** and end-users in co-design and co-creation processes, **strengthening the multi-actor approach**;

Amendment 10

Proposal for a decision

Article 2 – paragraph 2 – point l

Text proposed by the Commission

Amendment

(l) improving science communication.

(l) improving science communication **and funding opportunities with a view to promoting social and political awareness of the potential of promising emerging tools and technologies.**

Amendment 11

Proposal for a decision

Article 2 – paragraph 2 – point n

Text proposed by the Commission

Amendment

(n) improving skills for innovation;

(n) improving skills for **research and** innovation;

Amendment 12

Proposal for a decision

Article 3 – paragraph 1 – point 2 – point e

Text proposed by the Commission

Amendment

(e) cluster Food and Natural Resources', as described in Annex I, Pillar II, section 5;

(e) cluster Food, **Agriculture** and Natural Resources', as described in Annex I, Pillar II, section 5;

(The change from "cluster Food and Natural Resources" to "cluster Food, Agriculture and Natural Resources" applies throughout the text.)

Amendment 13

Proposal for a regulation

Article 5 – paragraph 1 – introductory part

Text proposed by the Commission

Amendment

1. For each mission, a mission board may be established. It shall be composed of **around 15** high level individuals **including** relevant end-users' representatives. The mission board shall advise upon the following:

1. For each mission, a mission board may be established. It shall be composed of **10 to 20** high level individuals **which include** relevant **civil society and** end-users' representatives, **stakeholders and academic experts from different disciplines, who have knowledge of the**

subject matter to be considered by the mission. Each mission board shall be established following an open call for nominations or for expressions of interest.
The mission board shall advise upon the following:

Amendment 14

Proposal for a decision

Article 10 – paragraph 3 – subparagraph 1

Text proposed by the Commission

The EIC Board shall be composed of 15 to 20 high level individuals drawn from various parts of Europe's innovation ecosystem, including entrepreneurs, corporate leaders, investors and researchers. It shall contribute to outreach actions, with EIC Board members striving to enhance the prestige of the EIC brand.

Amendment

The EIC Board shall be composed of 15 to 20 high level individuals drawn from various parts of Europe's innovation ecosystem, including entrepreneurs, corporate leaders, investors, ***academic experts*** and researchers. It shall contribute to outreach actions, with EIC Board members striving to enhance the prestige of the EIC brand.

Amendment 15

Proposal for a decision

Annex I – paragraph 2

Text proposed by the Commission

The Strategic Planning will promote strong engagement with citizens and civil society ***organisations*** at all stages of research and innovation, the co-creation of knowledge, effective promotion of gender equality, including the integration of the gender dimension in research and innovation content, and will ensure and promote ***the*** adherence to the highest ethics and integrity standards.

Amendment

The Strategic Planning will promote strong engagement with citizens and civil society ***both within the Strategic Planning process itself and*** at all ***other*** stages of research and innovation, ***including agenda-setting. To facilitate this, a structured dialogue will be established with civil society. The process will also promote*** the co-creation of knowledge, effective promotion of gender equality, including the integration of the gender dimension in research and innovation content, and will ensure and promote ***Responsible Research and Innovation and*** adherence to the highest ethics and integrity standards.

Amendment 16

Proposal for a decision Annex I – paragraph 3

Text proposed by the Commission

It will include extensive consultations and exchanges with Member States, the European Parliament *as appropriate*, and with various stakeholders about priorities, including missions, under the 'Global Challenges and Industrial Competitiveness' pillar, and the suitable types of action to use, in particular European partnerships.

Amendment

It will include extensive consultations and exchanges with Member States, the European Parliament, and with various stakeholders about priorities, including missions, under the 'Global Challenges and Industrial Competitiveness' pillar, and the suitable types of action to use, in particular European partnerships. ***Such consultations should promote exchanges with the private sector in order to better leverage its participation and investments, helping to deliver innovations with exploitation potential.***

Amendment 17

Proposal for a decision Annex I – paragraph 15

Text proposed by the Commission

There will be appropriate support for mechanisms to communicate the programme to potential applicants (e.g. National Contact Points).

Amendment

There will be appropriate support for mechanisms to communicate the programme to potential applicants ***and citizens through awareness raising campaigns and other promotion initiatives*** (e.g. National Contact Points).

Amendment 18

Proposal for a decision Annex I – paragraph 16

Text proposed by the Commission

The Commission will also implement information and communication activities relating to Horizon Europe, to promote the fact that results were obtained with the

Amendment

The Commission will also implement information and communication activities relating to Horizon Europe, to promote ***existing financing and*** the fact that results

support of EU funding. They will also seek to raise public awareness on the importance of research and innovation and the broader impact and relevance of EU funded research and innovation, by means of e.g. publications, media relations, events, knowledge repositories, databases, multi-channel platforms, websites or a targeted use of social media. Horizon Europe will also provide support to the beneficiaries to communicate their work and its impact to society at large.

were obtained with the support of EU funding. They will also seek to raise public awareness on the importance of research and innovation and the broader impact and relevance of EU funded research and innovation, by means of e.g. publications, media relations, events, knowledge repositories, databases, multi-channel platforms, websites or a targeted use of social media. Horizon Europe will also provide support to the beneficiaries to communicate their work and its impact to society at large.

Amendment 19

Proposal for a decision

Annex I – part I – point 1 – point 1.2 – point 1.2.1 – paragraph 1

Text proposed by the Commission

Research funded by the ERC is expected to lead to advances at the frontier of knowledge, with scientific publications of the highest quality, to research results with high societal and economic potential impact and with the ERC setting a clear and inspirational target for frontier research across the EU, Europe and internationally. Aiming to make the EU a more attractive environment for the world's best scientists, the ERC will target a measurable improvement in the EU's share of the world's top 1 % most highly cited publications, and aim at a substantial increase in the number of excellent researchers from outside Europe which it funds. ERC funding shall be awarded in accordance with the following well-established principles. Scientific excellence shall be the sole criterion on which ERC grants are awarded. The ERC shall operate on a 'bottom-up' basis without predetermined priorities.

Amendment

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commercial products.

Amendment 20

Proposal for a decision

Annex I – part I – point 3 – point 3.2 – point 3.2.1 – paragraph 4 – indent 1

Text proposed by the Commission

– The life-cycle of pan European research infrastructures through the design of new research infrastructures; their preparatory and implementation phase, their early-phase operation in complementarity with other funding sources, as well as the consolidation and optimisation of the research infrastructure ecosystem by monitoring the ESFRI landmarks and facilitating service agreements, evolutions, mergers or decommissioning of pan-European research infrastructures;

Amendment

– The life-cycle of pan European research infrastructures through the design of new research infrastructures; their preparatory and implementation phase, their early-phase operation in complementarity with other funding sources, as well as the consolidation , ***adaptation, maintenance*** and optimisation of the research infrastructure ecosystem by monitoring the ESFRI landmarks and facilitating service agreements, evolutions, mergers or decommissioning of pan-European research infrastructures;

Amendment 21

Proposal for a decision

Annex I – part II – paragraph 1

Text proposed by the Commission

Many of the challenges which confront the EU are also global challenges. The scale and complexity of the problems are vast, and need to be matched by the appropriate money, resources and effort in order to find solutions. These are precisely the areas where the EU must work ***together***; smart, flexible and joined-up for the benefit and well-being of our citizens.

Amendment

Many of the challenges which confront the EU are also global challenges. The scale and complexity of the problems are vast, and need to be matched by the appropriate money, resources and effort in order to find solutions. These are precisely the areas where the EU must work ***collaboratively and with global partners***; smart, flexible and joined-up for the benefit and well-being of our citizens.

Amendment 22

Proposal for a decision

Annex I – part II – point 1 – point 1.1 – paragraph 3

Health research and innovation research and innovation have played a significant part in this achievement but also in improving productivity and quality in the health and care industry. However, the EU continues to face novel, newly emerging or persisting challenges that are threatening its citizens and public health, the sustainability of its health care and social protection systems, as well as the competitiveness of its health and care industry. Major health challenges in the EU include: the lack of effective health promotion and disease prevention; the rise of non-communicable diseases; the spread of antimicrobial drug resistance and the emergence of infectious epidemics; increased environmental pollution; the persistence of health inequalities among and within countries affecting disproportionately people that are disadvantaged or in vulnerable stages of life; the detection, understanding, control, prevention and mitigation of health risks in a rapidly changing social, urban and natural environment; the increasing costs for European health care systems and the progressive introduction of personalised medicine approaches and digitalisation in health and care; and the increasing pressure on the European health and care industry to remain competitive in and by developing health innovation vis-a-vis new and emerging global players.

Health research and innovation research and innovation have played a significant part in this achievement but also in improving productivity and quality in the health and care industry. However, the EU continues to face novel, newly emerging or persisting challenges that are threatening its citizens and public health, the sustainability of its health care and social protection systems, as well as the competitiveness of its health and care industry. Major health challenges in the EU include: the lack of effective health promotion and disease prevention; the rise of non-communicable diseases; the spread of antimicrobial drug resistance and the emergence of infectious epidemics; increased environmental pollution; ***the increase of diseases caused by unbalanced and unhealthy diet***; the persistence of health inequalities among and within countries affecting disproportionately people that are disadvantaged or in vulnerable stages of life; the detection, understanding, control, prevention and mitigation of health risks in a rapidly changing social, urban and natural environment; the increasing costs for European health care systems and the progressive introduction of personalised medicine approaches and digitalisation in health and care; and the increasing pressure on the European health and care industry to remain competitive in and by developing health innovation vis-a-vis new and emerging global players.

Amendment 23

Proposal for a decision

Annex I – part II – point 1 – point 1.1 – paragraph 7

Text proposed by the Commission

Amendment

Activities will contribute directly to the following Sustainable Development Goal

Activities will contribute directly to the following Sustainable Development Goal

(SDGs) in particular: SDG 3 – Good Health and Well-Being for People; SDG13 – Climate Action.

(SDGs) in particular: SDG 2 - **Zero Hunger**; SDG 3 – Good Health and Well-Being for People; SDG13 – Climate Action.

Amendment 24

Proposal for a decision

Annex I – part II – point 1 – point 1.2 – point 1.2.1 – paragraph 1 a (new)

Text proposed by the Commission

Amendment

Improved nutrition and personalised nutrition throughout the life course.

Amendment 25

Proposal for a decision

Annex I – part II – point 3 – point 3.2 – point 3.2.4 – paragraph 1

Text proposed by the Commission

Amendment

Making any object and device intelligent is one of the megatrends. Researchers and innovators developing Artificial Intelligence (AI) and offering applications in Robotics and other areas will be key drivers of future economic and productivity growth. Many sectors including health, manufacturing, construction, and farming will use and further develop this key enabling technology, in other parts of the Framework Programme. Developments must ensure the safety of AI-based applications, assess the risks and mitigate its potential for malicious use and unintended discrimination such as gender or racial bias. It must also be ensured that AI is developed within a framework which respects the EU's values and the Charter of Fundamental Rights of the European Union.

Making any object and device intelligent is one of the megatrends. Researchers and innovators developing Artificial Intelligence (AI) and offering applications in Robotics and other areas will be key drivers of future economic and productivity growth. Many sectors including health, manufacturing, construction, ***fishing*** and farming will use and further develop this key enabling technology, in other parts of the Framework Programme. Developments must ensure the safety of AI-based applications, assess the risks and mitigate its potential for malicious use and unintended discrimination such as gender or racial bias. It must also be ensured that AI is developed within a framework which respects the EU's values and the Charter of Fundamental Rights of the European Union.

Amendment 26

Proposal for a decision

Annex I – part II – point 5 – introductory part

Text proposed by the Commission

5. CLUSTER 'FOOD AND NATURAL RESOURCES'

Amendment

5. CLUSTER '**AGRICULTURE**, FOOD AND NATURAL RESOURCES'

Amendment 27

Proposal for a decision

Annex I – part II – point 5 – point 5.1 – paragraph 1

Text proposed by the Commission

Human activities are exerting increasing pressure on soils, seas and oceans, water, air, biodiversity and other natural resources. Nourishing the planet's growing population is directly dependent on the health of natural systems and resources. However, combined with climate change, humanity's growing demand for natural resources creates environmental pressures that go far beyond sustainable levels, affecting ecosystems and their capacity to provide services for human well-being. The concepts of the circular economy, the bioeconomy and the blue economy provide an opportunity to balance environmental, social and economic goals and to set human activities on a path to sustainability.

Amendment

Human activities are exerting increasing pressure on soils, seas and oceans, water, air, biodiversity and other natural resources. Nourishing the planet's growing population **and maintaining human well-being (physical and mental)** is directly dependent on **agriculture and food production as well as** the health of natural systems and sustainable use of resources. However, combined with climate change, humanity's growing demand for natural resources creates environmental pressures that go far beyond sustainable levels, affecting ecosystems and their capacity to provide services for human well-being. The concepts of the circular economy, **agroecology**, the bioeconomy and the blue economy provide an opportunity to balance environmental, social and economic goals and to set human activities on a path to sustainability.

Justification

The problem in the EU is not lack of food but rather low quality food and growing disconnection from the natural environment affecting people's well-being and health.

Amendment 28

Proposal for a regulation

Annex I – part II – point 5 – point 5.1 – paragraph 2

Text proposed by the Commission

Meeting the goals of sustainable development, guaranteeing the production and consumption of safe and healthy food, promoting sustainable practices in agriculture, aquaculture, fisheries and forestry, ensuring access to clean water, soil and air for all, cleaning up the seas and oceans, preserving and restoring the planet's vital natural systems and environment requires that we harness the potential of research and innovation. But the pathways for the transition to sustainability and ways to **overcome** resilient barriers are hardly understood. Making the transition to sustainable consumption and production and restoring planetary health requires investing in technologies, new business models, and **social** and environmental innovation. This creates new opportunities for a sustainable, resilient, innovative and responsible European economy, boosting resource efficiency, productivity and competitiveness, and generating jobs and growth.

Amendment

Meeting the goals of sustainable development, guaranteeing the production and consumption of safe, **nutritious** and healthy food, promoting sustainable practices in agriculture, aquaculture, fisheries and forestry, **promoting sustainable use of soil**, ensuring access to clean water, **fertile** soil and **clean** air for all cleaning up the seas and oceans, preserving and restoring the planet's vital natural systems and environment requires that we harness the potential of research and innovation. But the pathways for the transition to sustainability and ways to **overcome** resilient barriers are hardly understood. Making the transition to sustainable consumption and production **within the planet's boundaries** and restoring planetary health requires **identifying and gathering more and better quality data on the environmental impact of different policies** investing in technologies, new business models, **raw materials** and **socio-economic** and environmental innovation. This creates new opportunities for a sustainable, resilient, innovative and responsible European economy, boosting resource efficiency, productivity and competitiveness, **maintaining rural viability** and generating jobs and growth.

Amendment 29

Proposal for a regulation

Annex I – part II – point 5 – point 5.1 – paragraph 3

Text proposed by the Commission

Activities will build a knowledge base and deliver solutions to: sustainably manage and use natural resources from land and

Amendment

Activities will build a knowledge base and deliver solutions to: **ensuring that biodiversity is maintained in the face of**

sea - and enhance the role of terrestrial and aquatic systems *as* carbon *sinks*; ensure food and nutrition security, providing safe, healthy and nutritious diets; accelerate the transition from a fossil-based linear economy to a resource efficient, resilient, low emission, low-carbon circular economy, and supporting the development of a sustainable bio-based economy and the blue economy; and develop resilient and vibrant rural, coastal and urban areas.

growing demand on natural resources, sustainably manage and *efficiently* use natural resources from land and *water* - and enhance the role of terrestrial and aquatic systems *to increase sustainable growth of biomass and thus carbon sequestration, storage and substitution*; ensure *safe* food and nutrition *safety and* security, providing safe, healthy and nutritious diets; *support food and farming systems in implementation of agro-ecological approaches to benefit sustainable agriculture; support income diversification in rural areas*; accelerate the transition from a fossil-based linear economy to a resource efficient, resilient, low emission, low-carbon circular *bio* economy, and supporting the development of a sustainable bio-based economy and the blue economy; and develop resilient and vibrant rural, coastal and urban areas.

Amendment 30

Proposal for a regulation

Annex I – part II – point 5 – point 5.1 – paragraph 4

Text proposed by the Commission

They will help to maintain and enhance *the provision of* biodiversity and secure the long-term provision of ecosystem services, climate adaptation and carbon *sequestration* (both on land and *sea*). They will help reduce greenhouse gas (GHG) and other emissions, waste and pollution from primary production (both terrestrial and aquatic), processing, consumption and other human activities. They will trigger investments, supporting the shift towards a circular economy, bioeconomy and blue economy, whilst protecting environmental health and integrity.

Amendment

They will help to maintain and enhance biodiversity, *both wild and cultivated*, and secure the long-term provision of ecosystem services, climate *change* adaptation and carbon *storage* (both on land and *water*). They will *further* help reduce greenhouse gas (GHG) and other emissions, *ecotoxicity*, waste and pollution from primary production (both terrestrial and aquatic), processing, consumption and other human activities. They will trigger investments, supporting the shift towards a circular economy, *agroecology*, bioeconomy and blue economy, whilst protecting environmental health and integrity. *A precondition for this is improving the knowledge on the state of biodiversity. They will support solutions to*

promote the advanced multifunctionality of EU agriculture and to enhance local food production and the economic viability of the food production.

Amendment 31

Proposal for a regulation

Annex I – part II – point 5 – point 5.1 – paragraph 5

Text proposed by the Commission

They will also foster participatory approaches to research and innovation, including the multi-actor approach and develop knowledge and innovation systems at local, regional, national and European levels. Social innovation with citizens' engagement and trust in innovation will be crucial to encourage new governance, production and consumption patterns.

Amendment

They will also foster participatory approaches to research and innovation, including the multi-actor approach and develop knowledge and innovation systems ***and the spread of excellence*** at local, regional, national and European levels. Social innovation with citizens' engagement and trust in innovation ***and food systems - through an increasing transparency of the food chain*** –will be crucial to encourage new governance, production and consumption patterns, ***which is also dependent on the information sharing by labelling of sustainable products to help the consumers to choose sustainable products and be aware of their recyclability.*** ***Through this multi-actor approach along the agri-food supply chain they will work towards guaranteeing that knowledge is transferred to end-users and will involve farmers and other users of agricultural technologies and products in the process of developing and implementing innovative developments to address challenges across food systems.***

Amendment 32

Proposal for a decision

Annex I – part II – point 5 – point 5.1 – paragraph 6

Text proposed by the Commission

As these challenges are complex, interlinked and global in nature, activities will follow a systemic approach, cooperating with Member States and international partners, with other funding sources and with other policy initiatives. This will involve user-driven exploitation of environmental big data sources, such as those from Copernicus, EGNOS/Galileo, INSPIRE, EOSC, GEOSS, CEOS, EMODnet.

Amendment

As these challenges are complex, interlinked and global in nature, activities will follow a systemic approach, cooperating with Member States and international partners, with other funding sources and with other policy initiatives. This will involve user-driven exploitation of environmental big data sources, such as those from Copernicus, EGNOS/Galileo, INSPIRE, EOSC, GEOSS, CEOS, EMODnet. ***The practical approach can be maintained by using the already existing networks established by other programs such as European Innovation Partnership (EIP) in the Common Agriculture Policy.***

Justification

The have the most efficient use of the funds the existing networks should be exploited. This will also bring the policy sectors closer to the scientific discussion.

Amendment 33

Proposal for a decision

Annex I – part II – point 5 – point 5.1 – paragraph 6 a (new)

Text proposed by the Commission

Amendment

The Cluster V will especially contribute to the mission "“Carbon neutral, resilient, nutritious and zero-waste food systems by 2035”, specified in the specific Work Programme.

Justification

This mission helps to meet the UN SDG and shift to climate-smart and efficient agriculture and food systems. Minimising food waste and returning the by-products back to the chain are a very important part of sustainable food system. The mission has interactions with various sectors along the chain from 'farm to fork' and has a close connection to the other clusters such as energy, health and digitalisation.

Amendment 34

Proposal for a decision

Annex I – part II – point 5 – point 5.1 – paragraph 7

Text proposed by the Commission

Research and innovation activities under this Cluster contribute in particular to the implementation of the goals of: the Environmental Action Programme, **the Common Agricultural Policy**, the Common Fisheries policy, the Food Law legislation, the Maritime policy, the Circular Economy Action Plan, the EU Bioeconomy Strategy, and the 2030 climate and energy framework as well as EU legal provisions to reduce air pollution.

Amendment

Research and innovation activities under this Cluster contribute in particular to the implementation of the goals of: the **Common Agricultural Policy**, the Environmental Action Programme, the Common Fisheries policy, the Food Law legislation, the Maritime policy, the Circular Economy Action Plan, the EU Bioeconomy Strategy, **the EU 2020 Biodiversity Strategy, the EU Green Infrastructure strategy, the EU Forest strategy** and the 2030 climate and energy framework as well as EU legal provisions to reduce air pollution.

Justification

The EU Forest Strategy is important part of the sustainable management of natural resources.

Amendment 35

Proposal for a regulation

Annex I – part II – point 5 – point 5.1 – paragraph 8

Text proposed by the Commission

Activities will contribute directly to the **following** Sustainable Development Goals (SDGs) in particular: SDG 2 – Zero Hunger; **SD 6** - Clean Water and Sanitation; SDG 11 – Sustainable Cities and Communities; SDG 12 - Responsible Consumption and Production; SDG 13 – Climate Action; SDG 14 – Life Below Water; SDG 15 - Life on Land.

Amendment

Activities will contribute directly to the **achievement of** Sustainable Development Goals (SDGs), in particular: SDG 2 – Zero Hunger; **SDG 3 – Good Health and Well-being; SDG 6** - Clean Water and Sanitation; **SDG 7 - Affordable and Clean Energy; SDG 8 - Decent Work and Economic Growth; SDG 9 - Industry, Innovation and Infrastructure** SDG 11 – Sustainable Cities and Communities; SDG 12 - Responsible Consumption and

Amendment 36

Proposal for a decision

Annex I – part II – point 5 – point 5.1 a (new)

Text proposed by the Commission

Amendment

5.1 a. As farmers are the major stewards of the environment in Europe they need continued access to innovation and research, enabling them to produce food, feed and other products in a sustainable and cost-effective way. Innovation and research shall be accessible to all farmers including small-scale producers, rural areas and outermost and mountainous regions.

Amendment 37

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.1 – paragraph 1

Text proposed by the Commission

Amendment

The capacity to observe the environment underpins research and innovation¹⁹ for the sustainable use and monitoring of food and natural resources. Improved spatio-temporal coverage and sampling intervals at reduced cost, as well as big data access and integration from multiple sources provide new ways to monitor, understand and predict the Earth system. There is a need for a wider deployment, exploitation and update of new technologies and continued research and innovation to address gaps in Earth Observation (EO) on ***land and sea*** and in the atmosphere, collaborating in particular through the Global Earth Observation System of Systems (GEOSS) and its European

The capacity to observe the environment underpins research and innovation¹⁹ for the sustainable use and monitoring of food and natural resources. Improved spatio-temporal coverage and sampling intervals at reduced cost, as well as big data access and integration from multiple sources provide new ways to monitor, understand and predict the Earth ***processes and*** system. There is a need for a wider deployment, exploitation and update of new technologies and continued research and innovation to address gaps in Earth Observation (EO) on ***planetary surface*** and in the atmosphere, collaborating in particular through the Global Earth Observation System of Systems (GEOSS)

component EuroGEOSS.

and its European component EuroGEOSS.

¹⁹ Earth Observation will support research and innovation under other intervention areas within this Global Challenge as well as other relevant parts of Horizon Europe.

¹⁹ Earth Observation will support research and innovation under other intervention areas within this Global Challenge as well as other relevant parts of Horizon Europe.

Justification

Planetary surface is broader term than land and sea as it includes also air.

Amendment 38

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.1 – paragraph 2 – indent 1

Text proposed by the Commission

Amendment

– User driven and systemic approaches including open ***data, to environmental data and information for complex modelling and predictive systems;***

– User driven and systemic approaches including open environmental ***and spatial data from multiple sources and powerful analysis of big data to allow process-based modelling, prediction and the recognition of emerging risks;***

Justification

Spatial data is one of the main tools for analysing natural resources.

Amendment 39

Proposal for a regulation

Annex I – part II – point 5 – point 5.2 – point 5.2.1 – paragraph 2 – indent 3

Text proposed by the Commission

Amendment

– Biodiversity status, ecosystem protection, climate mitigation and adaptation, food security, agriculture and forestry, land use and land use change, urban and peri-urban development, natural resources management, ocean exploitation and conservation, maritime security, and

– Biodiversity status, ecosystem protection, climate mitigation and adaptation, ***carbon sequestration and storage in soils, food security and safety, sustainable*** agriculture and forestry, ***soil quality,*** land use and land use change, urban and peri-urban development, natural resources management, ocean exploitation

other relevant domains;

and conservation, maritime security, and other relevant domains;

Amendment 40

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.1 – paragraph 2 – indent 4 a (new)

Text proposed by the Commission

Amendment

- ***Co-creation, exploitation and valorisation of existing and new data offer potential for value-generating business opportunities***

Justification

Data solutions will be the key for new innovations and it should be acknowledged.

Amendment 41

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.1 – paragraph 2 – indent 4 a (new)

Text proposed by the Commission

Amendment

- ***Strengthening the synergies between different policy sectors utilising the data on environment and natural resources.***

Amendment 42

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.2 – paragraph 1

Text proposed by the Commission

Amendment

Improved understanding of biodiversity and ecosystems, the multiple services they provide and planetary 'boundaries' as well as solutions harnessing nature's power and complexity is needed to address societal challenges, to enhance sustainability and to attain the EU objective of 'Living well

Improved understanding of biodiversity and ecosystems, ***trends in their changes and threats they are facing***, the multiple services they provide and planetary 'boundaries' as well as solutions harnessing nature's power and complexity is needed to address societal challenges, to enhance

within the limits of our planet' by 2050 as laid down in the 7th EU Environmental Action Programme. Due account must be taken throughout whole value chains of potential upstream impacts. International cooperation and contribution to international efforts and initiatives, such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, are essential to achieve the objectives in this area. There is a need to better understand the governance of the transition to **sustainability** in the **economic**, social and natural system, from the local to the global level.

sustainability and to attain the EU objective of 'Living well within the limits of our planet' by 2050 as laid down in the 7th EU Environmental Action Programme. Due account must be taken throughout whole value chains of potential upstream impacts. **Research is needed to develop and contribute to the protections of biodiversity retaining forestry management concepts and agricultural production.** International cooperation and contribution to international efforts and initiatives, such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, are essential to achieve the objectives in this area. There is a need to better understand the governance of the transition to **sustainability** in the **economic**, social and natural system, from the local to the global level.

Justification

The Horizon Europe Cluster V should support the specific objectives of the CAP.

Amendment 43

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.2 – paragraph 2 – indent 1

Text proposed by the Commission

– The state and value of biodiversity, terrestrial and **marine** ecosystems, natural capital and ecosystem services;

Amendment

– The state and value of biodiversity, terrestrial and **aquatic** ecosystems, natural capital and ecosystem services **and sustainability of primary production**;

Justification

Marine ecosystem is too narrow concept, we should refer to aquatic ecosystems which includes all the seas, oceans and inland waters.

Amendment 44

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.2 – paragraph 2 – indent 3

Text proposed by the Commission

Amendment

– Modelling of trends and integrated scenarios for biodiversity, ecosystem services and good quality of life at different scales and horizons; the potential contribution of biotopes and ecosystems as carbon sinks under various climate change scenarios;

– Modelling of trends and integrated scenarios for biodiversity, ecosystem services and good quality of life at different scales and horizons; the potential contribution of biotopes and ecosystems as carbon sinks under various climate change scenarios; ***links between use of compounds and increased mortality rates for pollinators;***

Amendment 45

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.2 – paragraph 2 – indent 5

Text proposed by the Commission

Amendment

– Mainstreaming biodiversity and ecosystem services in decision-making frameworks and accounting systems of governments and businesses, as well as quantification of their benefits;

– Mainstreaming biodiversity and ecosystem services in decision-making frameworks and accounting systems of governments and businesses, as well as quantification of their benefits; ***providing reliable scientific research for accurately rewarding farmers under CAP agricultural schemes for benefits provided in terms of improved biodiversity and environmental performance.***

Amendment 46

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.2 – paragraph 2 – indent 6

Text proposed by the Commission

Amendment

– Adaptable and multi-functional nature-based solutions, addressing challenges in cities, rural and coastal areas related to climate change, natural disasters, biodiversity loss, ecosystem degradation, pollution, and citizens' health and well-being;

– Adaptable and multi-functional nature-based solutions, addressing challenges in cities, rural and coastal areas related to ***agricultural productivity and competitiveness***, climate change, natural disasters, biodiversity loss, ecosystem degradation, pollution, and citizens' health and well-being;

Justification

Agricultural productivity and competitiveness is a key factor in sustainable food production as we must have an efficient agricultural sector.

Amendment 47

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.2 – paragraph 2 – indent 7

Text proposed by the Commission

– Multi-actor living labs approaches engaging authorities, stakeholders, business and civil society in co-designing and co-creating systemic solutions for the preservation, restoration and sustainable use of natural capital the governance of the transition to sustainability and sustainable management options in economic activities throughout whole value loops.

Amendment

– Multi-actor living labs approaches engaging authorities, stakeholders, **producers**, business and civil society in co-designing and co-creating systemic solutions for the preservation, restoration and sustainable use of natural capital the governance of the transition to sustainability and sustainable management options in economic activities throughout whole value loops.

Justification

Producers are the key actor in the food supply chain.

Amendment 48

Proposal for a regulation

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 1

Text proposed by the Commission

Resilient and sustainable farming and forestry systems provide economic, environmental and social benefits in a changing context for primary production. In addition to **contributing to** food and nutrition security, they feed into dynamic value chains, manage land and natural resources as well as deliver a range of vital public goods including carbon sequestration, biodiversity preservation, pollination and public health. Integrated

Amendment

Resilient and sustainable farming and forestry systems provide economic, environmental and social benefits in a changing context for primary production. In addition to **ensuring** food and nutrition security, they feed into dynamic value chains, manage land and natural resources as well as deliver a range of vital public goods including carbon sequestration, biodiversity preservation, pollination and public health. Integrated approaches are

approaches are needed to promote the multiple functions of agro- and forest (eco)systems taking into account the changing context for primary production, notably in relation to climate and environment, resource availability, demography and consumption patterns. It is also necessary to address the spatial and socio-economic dimension of agriculture and forestry activities and mobilise the potential of rural areas.

needed to promote the multiple functions of agro- and forest (eco)systems taking into account ***objectives of the CAP and*** the changing context for primary production, notably in relation to climate and environment, resource availability, ***competitiveness***, demography and consumption patterns ***as well as new emerging pests and diseases***. ***This presupposes acquiring a better scientific understanding of the impact of different farming systems on the preservation of biodiversity and ecosystems***. It is also necessary to address the spatial and socio-economic dimension of agriculture and forestry activities and mobilise the potential of rural areas. ***Farmers also need continued access to innovation, to new technology and to research in order to produce food in a sustainable way so that we can both feed the world and protect the environment for future generations***. ***In addition, it is important to address the dynamism of the rural-urban interface in the context of the expanding cities versus farming/forestry landscapes, residence versus work place dynamism and liveable countryside***.

Amendment 49

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 1 a (new)

Text proposed by the Commission

Amendment

Organic and agroecological farming carry a high potential to achieve the SDGs. Therefore, Horizon Europe aims at upscaling these farming practices. Currently, less than 10% of the EU's total agricultural land area is farmed organically. To allow upscaling, the budget dedicated to research aimed specifically at agroecological approaches to benefit both organic and conventional systems shall be ring-fenced at 20% of the total budget spent on agriculture, forestry,

rural areas and food systems. Particular focus shall be given to High Nature Value systems given their high biodiversity and cultural values, and to identifying optimal routes to income diversification, retaining rural vitality and overall sustainability to ensure that all of its dimensions are coherently addressed.

Amendment 50

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 1 a (new)

Text proposed by the Commission

Amendment

Clear and scientifically correct information for all citizens on primary food production processes in order to foster understanding, acceptance and support for the need of agricultural innovations;

Amendment 51

Proposal for a regulation

Annex I – part II – point 5 – point 5.2.3. – paragraph 2 – indent 1

Text proposed by the Commission

Amendment

– Methods, technologies and tools for sustainable and resilient production in farming and forestry;

– Methods, technologies and tools for sustainable and resilient production in farming and forestry *and solutions for carbon neutral agriculture and sustainable use of natural resources including methods for improved and more efficient plant and animal breeding;*

Amendment 52

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 2

Text proposed by the Commission

Amendment

– Sustainable **management and efficient** use of natural resources (e.g. soils, water, nutrients and biodiversity including genetic resources) in agriculture and forestry; alternatives to fossil-based resources and adoption of circular **economy** principles;

– Sustainable use of natural resources (e.g. soils, water, nutrients and biodiversity including genetic resources) in agriculture and forestry; alternatives to fossil-based resources and adoption of circular **and bioeconomy** principles, **nutrient recovery and circulation concepts for resilient agriculture and food chain**; ;

Justification

To have synergies in between different programs the objectives of the CAP should be taken into account especially in the fifth cluster of Pillar II.

Amendment 53

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 3

Text proposed by the Commission

Amendment

– Climate and environmental impact of activities in the primary sector; potential of agriculture and forestry as carbon sinks and for mitigation of greenhouse gas emissions including negative emissions approaches;

– Climate and environmental impact of activities in the primary sector **and along the value chain**; potential of agriculture and forestry as carbon sinks and for mitigation of greenhouse gas emissions including negative emissions approaches, **role of soil as carbon sequestration and substitution and technologies and methods to increase its carbon storage capacity**;

Justification

The soil has also a great capacity of carbon sequestration and storing which is important to acknowledge.

Amendment 54

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 3 a (new)

Text proposed by the Commission

Amendment

- ***Employing modern breeding and genomics for diversifying biomass feedstock supply and to accelerate growth and biosynthesis, and thereby CO2 sequestration both in forestry and in agriculture, also to ensure food production;***

Justification

Modern breeding technologies are needed to maintain our ability to feed the growing population.

Amendment 55

Proposal for a regulation

Annex I – part II – point 5 – point 5.2.3. – paragraph 2 – indent 4

Text proposed by the Commission

Amendment

– Plant pests and diseases and animal health and welfare; alternatives to the use of contentious pesticides, antibiotics and other substances;

– Plant pests and diseases and animal health and welfare, ***including the development of integrated farming strategies***; alternatives to the use of contentious pesticides, ***herbicides, fungicides***, antibiotics and other ***potentially harmful*** substances; ***emphasis on nature-based solutions and health promoting living conditions; research in low-risk pesticides as a way to support integrated pest management***;

Amendment 56

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 8

Text proposed by the Commission

Amendment

– Innovations in farming at the interfaces between agriculture, aquaculture and forestry and in urban areas;

– Innovations in farming at the interfaces between agriculture, aquaculture and forestry and in urban areas, ***interfaces***

between rural and urban landscapes and effects to expanding cities on farming and forestry landscapes and facilitating business development in rural areas;

Justification

As the increasing share of the population is living in the urban areas should this taken into account in agriculture and equally finding solutions to able the business in the rural areas.

Amendment 57

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 9

Text proposed by the Commission

– Land use, rural development and territorial linkages; capitalising on the social, cultural, economic and environmental assets of rural areas for new services, business models, value chains and public goods;

Amendment

– Land use, rural development and territorial ***innovation ecosystem*** linkages; capitalising on the social, cultural, economic and environmental assets of rural areas for new services, business models, value chains and public goods; ***identifying opportunities to support skill development and knowledge transfer in these areas, including by means of training and apprenticeships for young and new entrants.***

Amendment 58

Proposal for a regulation

Annex I – part II – point 5 – point 5.2.3. – paragraph 2 – indent 10

Text proposed by the Commission

– Digital innovations in farming, forestry and across value chains and rural areas through the use of data and development of infrastructures, technologies and governance models;

Amendment

– Digital innovations ***and development of smart solutions*** in farming, forestry and across value chains and rural areas through the use of data and development of infrastructures, technologies and governance models ***to improve resource efficiency and environmental performance*** models ***that***

are accessible for farmers; identifying existing or potential means of integrating precision farming systems into small and medium sized holdings; identifying existing or potential solutions for processing large volumes of data from different types of precision farming sensors, as well as identifying existing or potential solutions for integrating these data into user-friendly farm management support systems;

Amendment 59

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 11

Text proposed by the Commission

– Agricultural knowledge and innovation systems and their interconnection at various scales; advice, building skills and information sharing.

Amendment

– Agricultural knowledge and innovation systems and their interconnection at various scales; advice, building skills and information sharing; *improvement of knowledge exchange and promotion of new approaches, such as benchmarking farm performance, in order to help farmers adapt and the management of their farms.*

Amendment 60

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 11 a (new)

Text proposed by the Commission

Amendment

- Transition towards integrated and diversified food and farming systems and agronomic practices, including the use of agroecological approaches to benefit both conventional and organic agriculture;

Amendment 61

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 11 a (new)

Text proposed by the Commission

Amendment

- Improving communication with the public on primary production processes to build a better understanding and acceptance of the role of agricultural innovations.

Amendment 62

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 11 a (new)

Text proposed by the Commission

Amendment

- Developing new protein sources to improve EU's self-sufficiency in protein production.

Amendment 63

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.3 – paragraph 2 – indent 11 b (new)

Text proposed by the Commission

Amendment

- Putting plant breeding innovation into practice: further development and improvement of the latest plant breeding methods and also enabling technologies such as genome sequencing and gene discovery for sustained and increased crop yields, enhanced nutrition and improved food quality to reduce food waste.

Amendment 64

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.4 – paragraph 1

Text proposed by the Commission

Amendment

Seas **and** oceans' natural capital and ecosystem services offer significant socio-

Seas, oceans' **and fresh waters**' natural capital and ecosystem services offer

economic and welfare benefits. This potential is at risk because of the severe pressure from human and natural stressors such as pollution, overfishing, climate change, sea-level rise and extreme weather events. To prevent seas **and** oceans from reaching a point of no return, it is necessary to strengthen our knowledge and understanding in order to sustainably manage, protect and restore marine and coastal ecosystems and prevent marine pollution, in a context of an improved and responsible ocean governance framework. This will also include research to sustainably unlock the vast and unexploited economic potential of seas **and** oceans aiming at producing more food without increasing pressures on them, and also contribute to alleviate pressure on land, freshwater and ocean resources. There is a need for partnering approaches, including sea basin and macro-regional strategies, extending beyond the EU (e.g. in the Mediterranean, the Baltic, the Black Sea, the Atlantic, the Caribbean Sea and in the Indian Ocean); and for contributing to International Ocean Governance commitments, initiatives like the United Nations Decade of Ocean Science for Sustainable Development and commitments linked to the conservation of **marine** biological diversity in areas beyond national jurisdiction.

significant socio-economic and welfare benefits. This potential is at risk because of the severe pressure from human and natural stressors such as pollution, **nutrient leakage**, overfishing, climate change, sea-level rise and extreme weather events. To prevent seas, oceans **and fresh waters** from reaching a point of no return **and in order to promote the value chains of the blue economy**, it is necessary to strengthen our knowledge and understanding in order to sustainably manage, protect and restore marine and coastal ecosystems and prevent marine pollution, in a context of an improved and responsible ocean governance framework. This will also include research to sustainably unlock the vast and unexploited economic potential of seas, oceans **and fresh waters** aiming at producing more food without increasing pressures on them, and also contribute to alleviate pressure on land, freshwater and ocean resources. There is a need for partnering approaches, including sea **basins, fishing districts** and macro-regional strategies, **including those** extending beyond the EU (e.g. in the Mediterranean, the Baltic, the Black Sea, the Atlantic, the Caribbean Sea and in the Indian Ocean); and for contributing to International Ocean Governance commitments, initiatives like the United Nations Decade of Ocean Science for Sustainable Development and commitments linked to the conservation of **aquatic** biological diversity in areas beyond national jurisdiction.

Justification

Sea and oceans is too narrowly scoped, fresh waters must be included too. The amendment refers to fishing districts because of their increasing international importance as an integral part of the European Union's strategy for a sustainable unlocking of the economic potential of the seas, particularly in the context of partnerships with non-EU countries.

Amendment 65

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.4 – paragraph 2 – indent 1

Text proposed by the Commission

– Sustainable sea **and** ocean farming, fisheries and **mariculture** for food, including alternative sources of protein with increased food security, food sovereignty and climate resilience;

Amendment

– Sustainable sea, ocean **and fresh water** farming, fisheries and **aquatic culture** for food, including **aquatic environments as** alternative sources of protein with increased food security, food sovereignty and climate resilience;

Justification

Sea and oceans is too narrowly scoped, fresh waters must be included too.

Amendment 66

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.4 – paragraph 2 – indent 2

Text proposed by the Commission

– Strengthened resilience of **marine** ecosystems thereby ensuring seas **and ocean** health, combating and mitigating the effects of natural and human pressures like pollution and plastics, eutrophication, acidification, seas and oceans warming, sea level rise, considering the intersection between land and **sea** and fostering a circular approach;

Amendment

– Strengthened resilience of **aquatic** ecosystems thereby ensuring seas, **oceans' and fresh waters** health, combating and mitigating the effects of natural and human pressures like pollution and plastics, eutrophication, acidification, seas and oceans warming, sea level rise, considering the intersection between land and **aquatic environment** and fostering a circular approach;

Justification

Sea and oceans is too narrowly scoped, fresh waters must be included too.

Amendment 67

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.4 – paragraph 2 – indent 6

Text proposed by the Commission

Amendment

– Blue value-chains, the multiple-use of marine space and growth of the renewable energy sector from seas and oceans, including sustainable micro- and macro- algae;

– Blue value-chains, the multiple-use of marine space and growth of the renewable energy sector from seas and oceans, including sustainable micro- and macro- algae, ***investing in maritime technologies and services such as ocean energy and marine biotechnology***;

Justification

The amendment specifies certain strategic priorities already set out by the EU in other instruments, such as the European Maritime and Fisheries Fund, within the scope of scientific innovation and research.

Amendment 68

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.4 – paragraph 2 – indent 8

Text proposed by the Commission

Amendment

– Blue innovation including in the blue and digital economies, across coastline areas, coastal cities and ports in order to strengthen resilience of coastal areas and ***increase citizens' benefits***.

– Blue innovation including in the blue and digital economies, across coastline areas, coastal cities and ports in order to strengthen resilience of coastal areas and ***combat their gradual depopulation by supporting employment and encouraging sustainable tourism over time***.

Justification

The amendment mentions the problem of depopulation in coastal areas, particularly the absence of younger people, because of the lack of work, the abandonment of activities linked to fishing or difficulties in keeping it sustainable, and the lack of support for tourism.

Amendment 69

Proposal for a regulation

Annex I – part II – point 5 – point 5.2.5. – paragraph 1

The combined effects of population growth, resource scarcity and overexploitation, environmental degradation, climate change and migration create unprecedented challenges which require food system transformation (FOOD 2030)²⁰. Current food production and consumption are *largely* unsustainable while we are confronted with the double burden of malnutrition, characterised by the coexistence of undernutrition and obesity. Future food systems need to deliver sufficient safe, healthy and quality food for all, underpinned by resource efficiency, sustainability (including the reduction of GHG emissions, pollution and waste production), linking land and *sea*, reducing food waste, enhancing food production from the seas and oceans and encompassing the entire 'food value chain' from producers to consumers – and back again. This needs to go hand in hand with development of the food safety system of the future and the design, development and delivery of tools, technologies and digital solutions that provide significant benefits *for consumers* and improve the competitiveness and sustainability of the food value chain. Furthermore, there is a need to foster behavioural changes in food consumption and production patterns as well as to engage primary producers, industry (including SMEs), retailers, food service sectors, consumers, and public services. ***Broad Lines***

The combined effects of population growth, resource scarcity and overexploitation, environmental degradation, climate change and migration create unprecedented challenges which require food system transformation (FOOD 2030).²⁰ ***Especially the food security and sustainable production of protein is a global challenge for which answers must be found.*** Current food production and consumption *patterns* are *to some extent* unsustainable while we are confronted with the double burden of malnutrition, characterised by the coexistence of undernutrition and obesity. Future food systems need to ***be resilient and aim at carbon neutrality and*** deliver sufficient safe, ***diverse, affordable,*** healthy and quality food for all, underpinned by resource efficiency, ***economic and environmental*** sustainability (including the reduction of GHG emissions, pollution and waste production), linking land and ***aquatic environments,*** reducing ***and recycling*** food waste, enhancing food production from the seas and oceans and encompassing the entire 'food value chain' from producers to consumers – and back again. This needs to go hand in hand with development of the food safety system of the future and the design, development and delivery of tools, technologies and digital solutions that provide significant benefits ***to all actors of the food chain*** and improve the competitiveness and sustainability of the food value chain. ***Agricultural technologies can provide sustainable solutions across all farming systems.*** Furthermore, there is a need to foster behavioural changes in food consumption and production patterns ***towards nutritious and healthy diets*** as well as to engage primary producers, industry (including SMEs), retailers, food service sectors, consumers, and public services.

²⁰ SWD(2016) 319 final: European Research and Innovation for Food and Nutrition Security

²⁰ SWD(2016) 319 final: European Research and Innovation for Food and Nutrition Security

Amendment 70

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.5 – paragraph 2 – indent 3

Text proposed by the Commission

– Consumers' behaviour, lifestyle and motivations, promoting social innovation and societal engagement for better health **and** environmental sustainability throughout the entire food value chain;

Amendment

– Consumers' behaviour, lifestyle and motivations, promoting social innovation and societal engagement for better health, environmental sustainability **and animal welfare** throughout the entire food value chain;

Amendment 71

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.5 – paragraph 2 – indent 4

Text proposed by the Commission

– Modern food safety and authenticity systems, enhancing consumer confidence in the food system;

Amendment

– Modern food safety and authenticity systems, enhancing consumer confidence in the food system, **including technologies that assist traceability and clean labelling of the products**;

Justification

Labelling and traceability of sustainable products is extremely important for the consumers to know what products are actually sustainable.

Amendment 72

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.5 – paragraph 2 – indent 5

Text proposed by the Commission

- Food system mitigation of and adaptation to climate change, including the exploration of the potential and use of the microbiome, forgotten crops, alternative proteins;

Amendment

- ***Resilience of food systems***, food system mitigation of and adaptation to climate change, including the exploration of the potential and use of the microbiome, forgotten crops, alternative proteins, ***new ways and technologies of producing food***;

Justification

We must invest in innovations that provide us new ways of producing food in a sustainable way so that we can face the challenges the EU's food production has, such as climate change.

Amendment 73

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.5 – paragraph 2 – indent 6

Text proposed by the Commission

- Environmentally sustainable, circular and resource efficient food systems from land and *sea*, towards zero food waste throughout the entire food system, through reuse of food and biomass, recycling of food waste, new food packaging, demand for tailored and local food;

Amendment

- Environmentally, ***socially and economically*** sustainable, circular and resource efficient food systems from land and ***aquatic environments that take the biodiversity and ecosystem services into account***, towards zero food waste throughout the entire food system, through reuse of food and biomass ***including production side-streams***, recycling of food waste, new food packaging, demand for tailored and local food;

Justification

Estimating the sustainability of the food systems builds on environmental, social and economic aspect and all of these must be taken into account.

Amendment 74

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.5 – paragraph 2 – indent 6 a (new)

Text proposed by the Commission

Amendment

- ***development of closed circulation systems, which combine food and energy production as well as recycling of nutrients, water, heat and CO2 back to the production;***

Justification

The discussion from the circular economy should be directed towards bio circular economy where all the materials, energy and waste circulates leaving us with zero waste.

Amendment 75

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.5 – paragraph 2 – indent 7

Text proposed by the Commission

Amendment

– Innovation and food systems for place-based innovation and empowerment of communities, fostering fair trade and pricing, inclusiveness and sustainability through partnerships between industry, local authorities, researchers and society.

– Innovation and food systems for place-based innovation and empowerment of communities, fostering fair ***food chains through fair*** trade and pricing, inclusiveness and sustainability, ***promoting partnerships among the various actors of the food chain and*** between ***primary production***, industry, local authorities, researchers and society.

Justification

Primary production is a key sector in food systems.

Amendment 76

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.5 – paragraph 2 – indent 7 a (new)

Text proposed by the Commission

Amendment

- ***Addressing the four central challenges of sustainability, production, nutrition and economic growth at a global***

level through dedicated Sustainable Development Infrastructure for Agrifood SDIA. Future economies will be built, not on the physical resources of the past, but on data flows, knowledge and collaboration.

The objective of the SDIAs will be to:

i) enable the EU & Lesser Developed Countries (LDCs) develop a shared future based on sustainable development;

ii) facilitate collaboration bringing knowledge, capacity and infrastructure to support actions on both sides;

iii) meet regional and local needs, in such way that allows the sharing of baseline knowledge across a network of institutes participating in the SDIA within Europe. This connected network will be the driver on ongoing European competitiveness in the crucial agrifood sector;

iv) develop synergies with the EU Neighbourhood, Development and International Co-operation Instrument(2021-27) under Horizon Europe rules.

Amendment 77

Proposal for a regulation

Annex I – part II – point 5 – point 5.2.6. – paragraph 1

Text proposed by the Commission

Bio-based innovation lays the foundations for the transition away from a fossil-based economy by encompassing the sustainable sourcing, industrial processing and conversion of biomass from land and *sea* into bio-based materials and products. It also capitalises on the potential of living resources, life sciences and industrial biotechnology for new discoveries, products and processes. Bio-based innovation, including technologies, can bring new economic activities and

Amendment

Bio-based innovation lays the foundations for the transition away from a fossil-based economy by encompassing the sustainable sourcing, industrial processing ***linked with research on primary production*** and conversion of biomass from land and ***aquatic environments*** into bio-based materials and products. It also capitalises on the potential of living resources, life sciences and industrial ***and agricultural*** biotechnology for new discoveries, products and processes. Bio-based

employment to regions and cities, contribute to revitalising rural and coastal economies and strengthen the circularity of the bioeconomy.

innovation, including technologies, can bring new economic activities and employment to regions and cities, contribute to revitalising rural and coastal economies and strengthen the circularity of the bioeconomy ***thus making the transition to a low-carbon resource efficient society.***

Amendment 78

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 1

Text proposed by the Commission

– Sustainable biomass sourcing and production systems, focusing on high-value applications and uses, social ***and*** environmental sustainability, impact on climate and biodiversity reduction targets and overall resource efficiency;

Amendment

– Sustainable biomass sourcing and production systems, focusing on high-value applications and uses, social, environmental ***and economic*** sustainability, impact on climate and biodiversity reduction targets and overall resource efficiency;

Justification

Estimating the sustainability of biomass sourcing and production systems environmental, social and economic aspects must be taken into account.

Amendment 79

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 1 a (new)

Text proposed by the Commission

Amendment

- ***Increased understanding of the drivers and barriers for an uptake of bio-based products through research on CE-marking, labelling, application of standards, certification schemes, public procurement and regulatory activities, including from a global competition perspective;***

Justification

It will be important for the bio-based sector to have a scientific basis for drivers and barriers to unlock the full potential of this emerging sector, in particular with regards to EU regulation and legislation.

Amendment 80

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 3

Text proposed by the Commission

– Bio-based value chains, materials, including bio-inspired materials, products and processes with novel qualities, functionalities and improved sustainability (including reducing greenhouse gases emissions), fostering the development of advanced biorefineries using a wider range of biomass;

Amendment

– Bio-based value chains, materials, including bio-inspired materials, products and processes with novel qualities, functionalities and improved sustainability (including reducing greenhouse gases emissions), fostering the development of advanced biorefineries using a wider range of biomass ***including bio-waste as well as industrial waste and side-streams and exploiting advanced biomass deconstruction technologies should be developed; ;***

Justification

In a bio circular economy also bio-waste, industrial waste and side streams are recycled.

Amendment 81

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 4

Text proposed by the Commission

– Biotechnology, including cross sectoral cutting-edge biotechnology, for application in competitive, sustainable and novel industrial processes, environmental services and consumer products²¹ ;

Amendment

– Biotechnology, including cross sectoral cutting-edge biotechnology, for application in competitive, sustainable and novel industrial ***and agricultural*** processes, environmental services and consumer products²¹ ;

²¹ Health biotechnology applications will

²¹ Health biotechnology applications will

be addressed by the Health cluster under this pillar.

be addressed by the Health cluster under this pillar.

Amendment 82

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 5

Text proposed by the Commission

– Circularity of the bio-based economy through technological, systemic, social and business model innovation to radically increase the value generated per unit of biological resources, keeping the value of such resources in the economy for longer and supporting the principle of the cascading use of sustainable biomass through research and innovation;

Amendment

– Circularity of the bio-based economy through technological, systemic, social and business model innovation to radically increase the value generated per unit of biological resources, keeping the value of such resources in the economy for longer and supporting ***substitution of non-renewable materials and innovating new bio-based products*** and the principle of the cascading use of sustainable biomass through research and innovation;

Justification

Substitution of non-renewable materials should be one of the key priorities of circular economy innovations.

Amendment 83

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 6

Text proposed by the Commission

– Inclusive bioeconomy patterns with different actors participating in the creation of value, maximising societal impact.

Amendment

– Inclusive bioeconomy patterns with different actors participating in the creation of value, maximising societal, ***economic and scientific*** impact.

Justification

In estimating the value of patterns we should also take into account the economic and scientific impacts.

Amendment 84

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 7

Text proposed by the Commission

Amendment

– Increased understanding of the boundaries of the bio-based economy and its synergies and trade-offs with a healthy environment.

– Increased understanding of the **possibilities and** boundaries of the bio-based economy and its **benefits**, synergies and trade-offs with a healthy environment.

Justification

Where the bio-based economy might still have some boundaries, it offers huge possibilities and benefits if there is only enough financial support for the innovations and research.

Amendment 85

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 7 a (new)

Text proposed by the Commission

Amendment

- **Design-driven solid wood products (interior, wood construction, hybrid materials) being efficient carbon sinks should be developed.**

Amendment 86

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.6 – paragraph 2 – indent 7 a (new)

Text proposed by the Commission

Amendment

- **Bio-based value chains for the manufacturing and fabrication industry including new multi-material and multi-functional concepts and products;**

Justification

In bio circular economy the multi-functionality must be included.

Amendment 87

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.7 – paragraph 1

Text proposed by the Commission

Circular production and consumption systems will provide benefits to the European economy by reducing resource dependency and increasing the competitiveness of enterprises, and to European citizens by creating new job opportunities and reducing pressures on the environment and climate. Beyond industrial transformation, the transition to a low-emission, resource efficient and circular economy will also need a broader system shift that requires systemic eco-innovative solutions, new business models, markets and investments, enabling infrastructure, social innovation changes in consumer behaviour, and governance models stimulating multi-stakeholder collaboration to ensure that the intended system change achieves better economic, environmental and social outcomes²². Opening for international cooperation will be important for comparability, generating and sharing knowledge and avoiding duplication of efforts, e.g. through international initiatives such as the International Resource Panel.

²² The activities in Circular Systems Area of Intervention are complementary to those of Low-Carbon and Clean Industry in the Digital and Industry cluster.

Amendment

Circular production and consumption systems will provide benefits to the European economy by reducing resource dependency and increasing the competitiveness of enterprises, and to European citizens by creating new job opportunities and reducing pressures on the environment and climate. Beyond industrial transformation, the transition to a low-emission, resource efficient and circular economy will also need a broader system shift that requires systemic eco-innovative solutions, ***eco-design***, new business models, markets and investments, enabling infrastructure, social innovation changes in consumer behaviour, and governance models stimulating multi-stakeholder collaboration to ensure that the intended system change achieves better economic, environmental and social outcomes²², ***e.g. related sustainable and nutritious food systems, sustainable and healthy living and housing, and energy solutions, and new sustainable materials and products***. Opening for international cooperation will be important for comparability, generating and sharing knowledge and avoiding duplication of efforts, e.g. through international initiatives such as the International Resource Panel.

²² The activities in Circular Systems Area of Intervention are complementary to those of Low-Carbon and Clean Industry in the Digital and Industry cluster.

Amendment 88

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.7 – paragraph 2 – indent 2

Text proposed by the Commission

- Metrics and indicators for measuring the circular economy and life cycle performance; governance systems which accelerate expansion of the circular economy and resource efficiency while creating markets for secondary materials; multi-stakeholder and cross-value chain collaboration; instruments for investment in the circular economy;

Amendment

- Metrics and indicators for measuring the circular economy, ***its impact on SDG's***, and life cycle performance; governance systems which accelerate expansion of the circular economy and resource efficiency while creating markets for secondary materials; multi-stakeholder and cross-value chain collaboration; instruments for investment in the circular economy;

Amendment 89

Proposal for a decision

Annex I – part II – point 5 – point 5.2 – point 5.2.7 – paragraph 2 – indent 5

Text proposed by the Commission

- Circular use of water resources, including reduction of water demand, prevention of losses, water reuse, recycling and valorisation of wastewater and governance models for smart water allocation, addressing sources of pollution and tackling other pressures on water resources.

Amendment

- Circular use of water resources, including reduction of water demand ***especially in the areas suffering from water shortage***, prevention of losses, water reuse, recycling and valorisation of wastewater, ***smart circulation of nutrients*** and governance models for smart water allocation, addressing sources of pollution and tackling other pressures on water resources.

Justification

Circulation of nutrients is key issue in circular economy.

Amendment 90

Proposal for a decision

Annex I – part II – point 6 – point 6.2 – point 6.2.2 – paragraph 2 – point 5 – indent 6 a (new)

Text proposed by the Commission

- ***Methods for assessment of naturally occurring substances as plant***

Amendment

health care products;

PROCEDURE – COMMITTEE ASKED FOR OPINION

Title	Proposal for a decision of the European Parliament and of the Council on establishing the specific programme implementing Horizon Europe – the Framework Programme for Research and Innovation
References	COM(2018)0436 – C8-0253/2018 – 2018/0225(COD)
Committee responsible Date announced in plenary	ITRE 14.6.2018
Opinion by Date announced in plenary	AGRI 5.7.2018
Rapporteur Date appointed	Elsi Katainen 3.7.2018
Date adopted	22.10.2018
Result of final vote	+: 33 –: 4 0: 2
Members present for the final vote	John Stuart Agnew, Clara Eugenia Aguilera García, Eric Andrieu, Daniel Buda, Nicola Caputo, Matt Carthy, Paolo De Castro, Albert Deß, Diane Dodds, Jørn Dohrmann, Herbert Dorfmann, Norbert Erdős, Luke Ming Flanagan, Martin Häusling, Anja Hazekamp, Esther Herranz García, Peter Jahr, Jarosław Kalinowski, Zbigniew Kuźmiuk, Norbert Lins, Philippe Loiseau, Nuno Melo, Giulia Moi, James Nicholson, Maria Noichl, Marijana Petir, Bronis Ropė, Maria Lidia Senra Rodríguez, Ricardo Serrão Santos, Czesław Adam Siekierski, Marc Tarabella, Maria Gabriela Zoană, Marco Zullo
Substitutes present for the final vote	Franc Bogovič, Elsi Katainen, Anthea McIntyre, Momchil Nekov, Sofia Ribeiro, Molly Scott Cato
Substitutes under Rule 200(2) present for the final vote	John Flack

FINAL VOTE BY ROLL CALL IN COMMITTEE ASKED FOR OPINION

33	+
ALDE	Elsi Katainen
ECR	Jørn Dohrmann, John Flack, Zbigniew Kuźmiuk, Anthea McIntyre, James Nicholson
EFDD	Giulia Moi, Marco Zullo
ENF	Philippe Loiseau
GUE/NGL	Matt Carthy, Luke Ming Flanagan
PPE	Franc Bogovič, Daniel Buda, Albert Deß, Herbert Dorfmann, Norbert Erdős, Esther Herranz García, Peter Jahr, Jarosław Kalinowski, Norbert Lins, Nuno Melo, Marijana Petir, Sofia Ribeiro, Czesław Adam Siekierski
S&D	Clara Eugenia Aguilera García, Eric Andrieu, Nicola Caputo, Paolo De Castro, Karine Gloanec Maurin, Karin Kadenbach, Momchil Nekov, Maria Noichl, Marc Tarabella

4	-
EFDD	John Stuart Agnew
GUE/NGL	Anja Hazekamp
Verts/ALE	Martin Häusling, Bronis Ropè

2	0
GUE/NGL	Maria Lidia Senra Rodríguez
S&D	Ricardo Serrão Santos

Key to symbols:

+ : in favour

- : against

0 : abstention