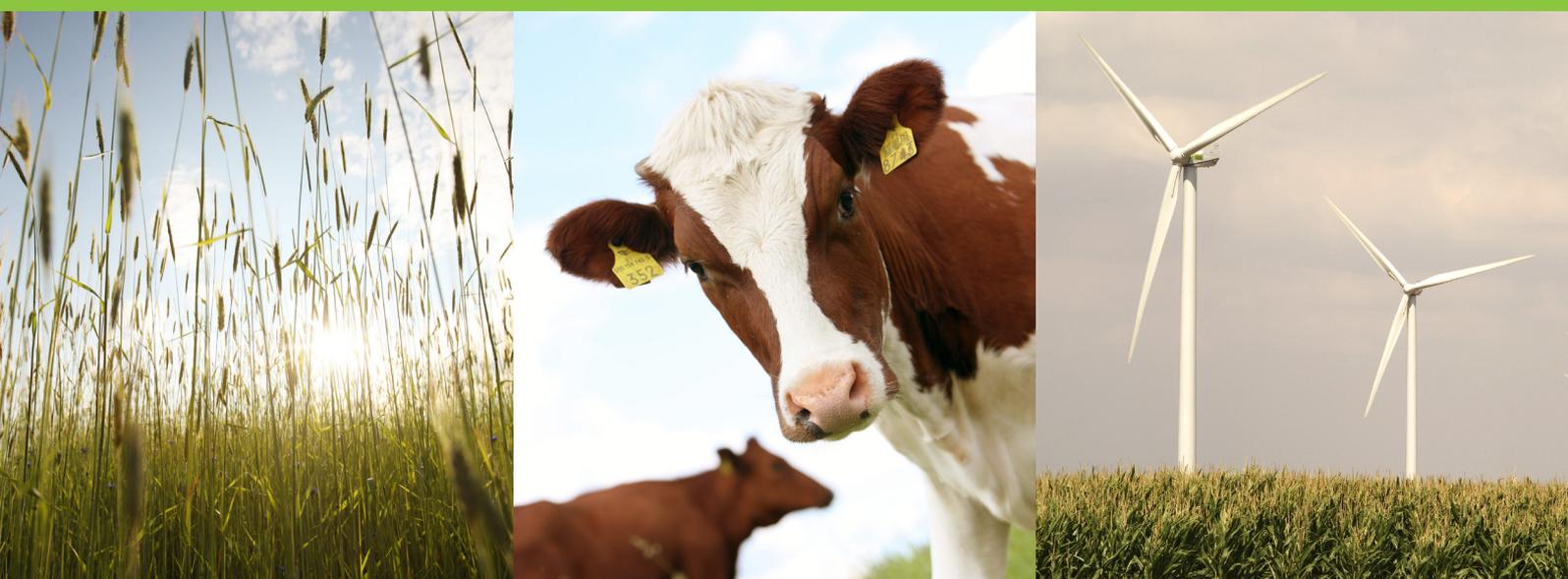




Agriculture, Food Security and Climate Change



FACCE JPI European and International Strategy

2016-2020

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EXECUTIVE SUMMARY

1. Introduction

The *Joint Programming Initiative on Agriculture, Food Security and Climate Change* ([FACCE-JPI](#)) brings together 21 European countries that are committed to promote greater alignment of their national research and innovation programmes and activities in order to tackle more effectively the societal challenges of sustainable agricultural development and food security in the face of climate change. Greater alignment should help avoid duplication and improve complementarities across national research activities, enhance the efficiency of national research funding, boost EU scientific excellence and strengthen the European Research Area.¹ Enhanced alignment should also help improve the collective impact of European research on EU and national policymaking and innovation for enhanced food security. FACCE-JPI Member-countries have developed a common Strategic Research Agenda and Implementation Plans for 2014-15 and for 2016-2018 which outline how such alignment will be carried out in practice via joint (transnational) research actions and instruments.

This paper **takes stock** of FACCE-JPI's current European and international interactions and proposes a "*Strategy for Coordination and Cooperation with European and International Initiatives and Actions*" (hereafter the Strategy) for 2016-20. The paper, which has been endorsed by the FACCE-JPI Governing Board in December 2015, aims to provide **broad guidance** for all research actions undertaken in the context of FACCE-JPI over the next five years. More specific action plans outlining how exactly and when to interact with which external partners will be developed subsequently. The Strategy aims to underpin **FACCE-JPI's strategic orientations** as a whole and support the execution of forthcoming Implementation Plans. FACCE-JPI already cooperates extensively with other European and international research initiatives and partners active in its thematic remit. Indeed, several FACCE-JPI priorities have been implemented via joint research actions with, respectively, the BiodivERsA European Research Area Network, the Belmont Forum, a group of international research funding agencies that work together to address global environmental challenges, and the Global Research Alliance on Agricultural Greenhouse Gas. In addition, selected (non-EU, non-Associated) third countries, such as New Zealand, have also participated in some FACCE-JPI joint research actions.

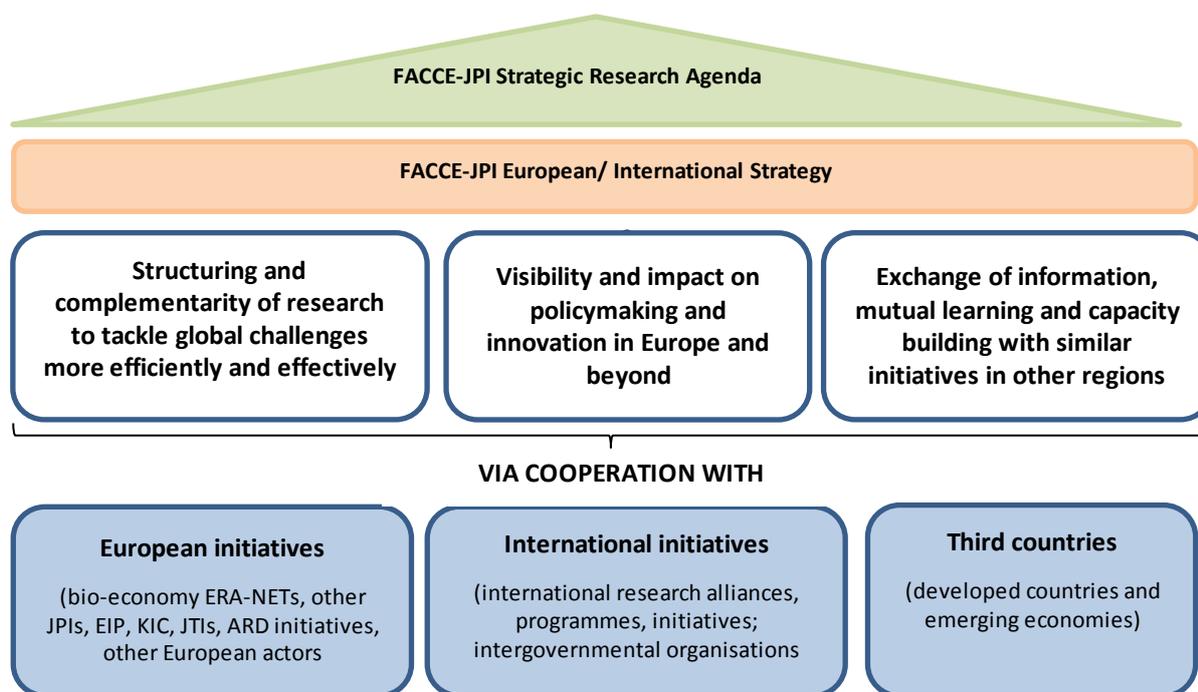
Looking ahead, FACCE-JPI will continue to interact with **three broad groups of actors** – European initiatives and partners, international initiatives and partners, and third countries- at both operational (joint research action) level and strategic (whole-of-JPI) level. The FACCE-JPI Strategic Research Agenda indeed highlights that in order to reach FACCE-JPI strategic goals, "*research should be integrated on a large scale.*" The main goals of such interactions and partnerships are to: (i) promote greater complementarity and structuring of research to address global challenges more effectively and efficiently; (ii) improve the international visibility and impact of FACCE-JPI and turn FACCE-JPI into *the* key EU player in research on sustainable agriculture and food security in the face of climate change; and (iii) facilitate the exchange of information and mutual learning with similar research initiatives in other regions of the world. The paper outlines the main **benefits and challenges** of interacting with each group, and identifies **key partners** with whom interaction would be mutually beneficial. The proposed key partners do however not constitute a "closed list", as cooperation is often opportunity-driven. The paper also suggests **different approaches and tools** to interact with external partners and proposes a **process and criteria** for considering external partners and for monitoring interactions and partnerships during the next five years. Below is a summary of the key recommendations of the paper.

2. Proposed target groups and key partners

As noted above, FACCE-JPI Member-countries propose to interact with three broad target groups: European partners, international partners/initiatives and third countries (see Figure 1).

¹ http://ec.europa.eu/research/era/joint-programming_en.html

Figure 1. Key goals and target groups of the FACCE-JPI European/ International Strategy



2.1 European initiatives and partners

European Research Area Networks (ERA-NETs)

Operating within Horizon2020, ERA-NETs promote the networking of national and regional research programmes with a view to stimulating the development of joint transnational research activities. FACCE-JPI Member-countries suggest continuing to reflect on the JPI's positioning and interactions vis-a-vis bio-economy ERA-NETs, in close collaboration with the EC Standing Committee on Agricultural Research (SCAR), which has an important advisory role vis-a-vis such instruments. Discussions with the **SCAR** should be intensified, especially if the latter takes on a more strategic and structuring role across the entire bio-economy-related European Research Area in the future.

At the operational (joint research action) level, FACCE-JPI Member-countries recommend in the short-term that the Secretariat advances its discussions with the ERA-NET Cofund on Sustainable Livestock Production (**SusAn**), the ERA-NET on Sustainable Food Production and Consumption (**SUSFOOD2**) and the ERA-NET on Integrated Pest Management (**C-IPM**) and initiates a discussion with ERA-NET on ICT and Robotics for Sustainable Agriculture (**ICT AGRI II**), in order to identify concrete joint research actions that cut across the scopes of FACCE-JPI and these ERA-NETs. Interactions with additional ERA-NETS such as **CoreOrganic Plus** and **SusCrop**, the forthcoming ERA-NET Cofund on Sustainable Crop Production, could be considered subsequently. These ERA-NETS have been deemed most relevant in light of FACCE-JPI's updated Strategic Research Agenda and because of the overlap in membership with FACCE-JPI. Cooperation with the latter would help trigger cost-efficiencies, strengthen FACCE-JPI's "**umbrella role**" vis-à-vis such ERA-NETS and strengthen the European Research Area in the food security-agriculture-climate change nexus.

Joint Programming Initiatives (JPIs)

FACCE-JPI Member-countries propose to continue engaging with the other nine Joint Programming Initiatives, to facilitate information-sharing, identification of good practices and mutual learning regarding joint programming. At the operational level, they recommend continuing the discussions with the JPI Healthy Diet for a Healthy Life (**JPI HDHL**) and **JPI Climate**, respectively, to identify possible collaborative research actions that would support the implementation of FACCE's Strategic Research Agenda, since these initiatives work on related themes. (Cooperation with the **Water JPI** is already well underway, as is explained in the paper). Close collaboration with these JPIs would be warranted to avoid duplication and further **structure research** at the European level, promote greater inter-disciplinarity and trigger critical mass to address the societal challenges FACCE is aiming to tackle.

European Innovation Partnerships, Knowledge and Innovation Communities and Joint Technology Initiatives

FACCE-JPI already interacts with several European Technology Platforms (industry-led stakeholder fora) via the Initiative's Stakeholder Advisory Board.² To further reach out to industry players, Member-countries recommend examining how to possibly work with the European Innovation Partnership on Productive and Sustainable Agriculture (**EIP AGRI**), the Knowledge and Innovation Community (**KIC Climate**) and Joint Technology Initiative for Bio-Based Industries (**JTI BBI**). **EIP Water** and **KIC Food** could be approached subsequently. FACCE-JPI could take advantage from these initiatives' (public-private) views on innovation-driven research needs. Likewise, these initiatives could benefit from FACCE-JPI's (publicly funded) scientific knowledge. Closer cooperation may, in the longer run, facilitate the **uptake of FACCE-JPI scientific research results by industry**, and as such promote (technological and behavioural) innovations, and improve FACCE-JPI's (longer-term) societal impact.

Agricultural Research for Development Initiatives (ARD)

FACCE-JPI Member-countries suggest promoting greater coordination with selected European ARD initiatives active in the FACCE-JPI remit and involving EU strategic partners. In a second phase, cooperation at joint research action level could be considered with selected initiatives to support the implementation of FACCE's and these initiatives' strategic research priorities. These include the ERA-NET on Coordination Agricultural Research in the Mediterranean Area (**ARIMNet2**), **IntensAfrica**, a European initiative aimed at working with Africa on sustainable agricultural intensification, and the proposed EU Partnership in Research and Innovation in the Mediterranean Area (**PRIMA**). Collaboration with the forthcoming EU-Africa Partnership on Food and Nutrition Security and Sustainable Agriculture could also be considered in the future. Interaction with such ARD initiatives would not only facilitate information-sharing on scientific results and methods and, as such, help widen the scope of possible solutions to the global challenges FACCE-JPI is aiming to address, but also promote greater complementarity between agricultural research and agricultural research for development efforts of FACCE-JPI Members and support European "**science diplomacy**" and development cooperation endeavours.

Other European interactions

Beyond the EC Standing Committee on Agricultural Research mentioned above, FACCE-JPI Member-countries propose to explore how to involve more systematically the EC Joint Research Centre (**JRC**) in all FACCE-JPI actions and activities (e.g., by granting it observer status in the FACCE-JPI Governing Board or by inviting the JRC to relevant FACCE-JPI meetings). In addition, they recommend exchanging more regularly with the European Strategic Forum for International Science and Technology Cooperation (**SFIC**) to ensure FACCE-JPI's international interactions are in line with the EU's strategic orientations, and with the European Strategy Forum on Research Infrastructures (**ESFRI**), to facilitate the sharing of research infrastructures *within and beyond* FACCE-JPI Member-countries.

2.2 International initiatives and partners

Extensive research is being conducted worldwide on food security and sustainable agricultural development in the face of climate change, as these issues are of global concern. The EU Strategy for International Cooperation in Research and Innovation³ indeed acknowledges that "*the [European] Union needs to strengthen its dialogues with international partners to build critical mass for tackling these [global] challenges.*" FACCE-JPI Member-countries therefore propose to examine how to cooperate more systematically with the UN Food and Agriculture Organisation (**FAO**), the Global Alliance on Climate Smart Agriculture (**GACSA**) and the **UN** Committee on World Food Security. Such cooperation would improve the visibility and impact of FACCE-JPI internationally while facilitating knowledge exchange and mutual learning with other (non-EU) researchers and institutions. Furthermore, Members recommend examining how to interact more closely with the CGIAR Research Programme on Climate Change, Agriculture and Food

² See <https://www.facejpi.com/About-Us/Stakeholder-Advisory-Board>

³ <http://ec.europa.eu/research/iscp/index.cfm?pg=strategy>

Security (**CCAFS**), which is an important international research programme that works in the same remit as FACCE-JPI but which has a developing country focus.

At the joint action level, Members propose advancing discussions with the OECD Network for Research Collaboration on Sustainable Temperate Agriculture (**OECD TempAg**), the Global Research Alliance on Agricultural Greenhouse Gas (**GRA**) and the **4/1000 International Research Initiative on Soil Carbon Sequestration**, in view of identifying possible new collaborative research actions with these partners that would be mutually beneficial. Subsequently, cooperation could also be discussed with the **Belmont Forum**, **Future Earth**, the **Wheat Initiative** and others. Collaboration with these initiatives is important to raise FACCE's visibility but also to better structure research at the global level, in view of addressing more effectively the global challenges of food security and sustainable agriculture while combating climate change -- issues which feature highly on the **international policy agenda**, namely the UN Sustainable Development Goals and the Paris Agreement of the Conference of Parties of the UN Framework Convention on Climate Change.

2.3 *Third countries*

Several third countries have similar strategic research objectives than FACCE-JPI. Moreover, more than 70% of scientific knowledge is generated *outside* of the EU, and one of Horizon2020's strategic priorities is to be "*Open to the World*". Against this background, FACCE Member-countries have agreed to work more closely with selected third countries. In a first instance, they decided to welcome **New Zealand** as the first **Associate Member** to the FACCE-JPI Governing Board (as of January 2016) since the latter has already successfully participated in several FACCE-JPI joint research actions, has similar research priorities as FACCE-JPI and has the capacity and willingness to engage with our Initiative. Other possible Associate Members could be considered in the future, such as the **USA** and **Canada**, which have prominent R&D sectors, extensive research on FACCE-JPI Core Themes and have already successfully participated in selected FACCE-JPI joint research actions. Closer cooperation with **Brazil** or with **China** could also be envisaged, pending their successful participation in selected FACCE-JPI activities. Cooperation with third countries at the operational level can take place via collaboration with international and ARD initiatives in which these countries are members, and/or via FACCE-JPI ERA-NET Cofunds, when the third country has available funding. Such partnerships would not only allow to better structure research internationally but also to **access new scientific knowledge** and infrastructures and support European **science diplomacy** efforts.

3. **Cooperation modes and tools**

A variety of tools and approaches can be used to operationalize coordination and cooperation with external partners. At the whole-of-JPI level, these include approaches to facilitate information-sharing, joint advocacy and awareness-raising (e.g., joint position papers) as well as strategic partnerships and associate membership. At the joint research action level, modalities for cooperation, for example, include joint mapping and horizon-scanning of existing research, joint calls for research proposals, participation in FACCE-JPI ERA-NETS and knowledge hubs, and the sharing of research infrastructures. The choice of cooperation mode will depend on the partner's profile and on the cooperation objectives sought.

4. **Proposed process for considering and monitoring partners**

FACCE-JPI Member-countries and the Secretariat have the possibility to **propose new strategic partners** for the JPI, yet such proposals need to be approved by the Governing Board before proceeding onwards. Criteria for considering partners are proposed in the paper. At the operational level, the FACCE-JPI Secretariat and Joint Action Working Groups are best placed to propose possible operational partners. In cases where external partners approach directly FACCE-JPI, the Secretariat (or the Joint Action Working Group) would be responsible for conducting an initial screening, then, in the case of strategic partners, approval by the Governing Board would be required. FACCE-JPI member-countries have recommended to **be selective**, as establishing collaborative activities with external partners, while bringing many benefits, can also be challenging and time-consuming: for example, identifying a call topic or an activity of common interest, harmonising operational procedures and timetables for funding and executing joint research, and finding the right counterpart within external partner organisations takes time. In order to monitor and coordinate all European/international interactions and promote the exchange of good practices across the entire JPI, the FACCE-JPI Secretariat will set up an **informal European/ International Relations Network**.

I. INTRODUCTION

1.1 Background

The *Joint Programming Initiative on Agriculture, Food Security and Climate Change* (FACCE-JPI) brings together 21 countries that are committed to strengthen the European Research Area by tackling together societal challenges at the crossroads of agriculture, food security and climate change. FACCE-JPI promotes the alignment of national research programming at the intersection of these three disciplines, in view of enhancing complementarities across countries' research programmes, improving efficiency of national research funding, addressing research gaps, developing EU scientific excellence, and ultimately, boosting the collective impact of EU research on policy-making and innovation for enhanced food security. To do so, Member States developed jointly a Common Vision, a Strategic Research Agenda (SRA) as well as an Implementation Plan for 2014-15 (IP). FACCE-JPI Member-countries have relied on various instruments to facilitate the alignment of national research programmes and activities, including researchers' knowledge hubs and joint transnational calls for research proposals.⁴ FACCE-JPI has also **interacted with several non-FACCE initiatives and partners** to carry out some of the 2014/15 Implementation Plan joint actions and activities, mainly via the elaboration of joint calls for research proposals and the organisation of workshops to exchange information (see below).

1.2 Objective and structure of the paper

While specific joint actions with selected non-FACCE partners will be identified during the elaboration and execution of FACCE-JPI Implementation Plans, it is at this point worthwhile considering **with whom it would be valuable to interact, why and how** in the course of the next five years. The aim of this paper is to take stock of FACCE-JPI's current European and international interactions and propose a "*FACCE-JPI Strategy for Coordination and Cooperation with European and International Initiatives and Actions*" (i.e., hereafter the Strategy) for the 2016-20 period. The paper aims to provide **strategic guidance** for all joint actions and activities undertaken in the context of FACCE-JPI.

The paper starts by outlining the rationale and objectives of the Strategy (section II) as well as the thematic areas in which cooperation is sought (section III; based on the updated Strategic Research Agenda). It then identifies and analyses three broad groups of European and international partners FACCE-JPI could be reaching out to, the cooperation achieved so far with each group, the advantages and disadvantages and possible difficulties in engaging with each of them, and possible ways forward with each of these target groups (section IV). Section V then proposes possible cooperation modes and tools, while section VI suggests a structured process and criteria for considering and monitoring partnerships at the operational (joint action) and strategic levels in the course of the next five years. Section VII provides some concluding remarks.

1.3 Methodology

The paper relies on a review of existing literature, work conducted in the first FACCE Coordination and Support Action⁵, experience in FACCE-JPI member organisations as well as on input provided by FACCE-JPI Governing Board members in the course of the elaboration of this Strategy.⁶ For Section IV, a **long list** of potential partners *within* each target group was initially prepared (based on the previous mapping exercise conducted in 2011).⁷ Subsequently, a selection of proposed key partners was elaborated, taking account of the goals of the Strategy and recommendations made by the FACCE-JPI Governing Board.

⁴ FACCE-JPI First Biennial Implementation Plan 2014-2015.

⁵ E.g., FACCE JPI Communication, Coordination and Outreach Strategy, May 2011.

⁶ March, June and November 2015 Governing Board meetings.

⁷ These « long lists » of potential partners per target group were prepared by WUR (ERA-NETs), MIPAAF (European innovation partnerships) and JULICH (European ARD initiatives).

II. KEY GOALS OF THE STRATEGY

The FACCE-JPI Strategy aims to underpin the strategic orientations of the JPI as a whole (updated Strategic Research Agenda) and support the execution of forthcoming Implementation Plans. The broad objectives of FACCE-JPI’s interactions with other European and international initiatives are three-fold, see Figure 1.

Figure 1. Key goals and target groups of the FACCE-JPI European/ International Strategy



2.1 Promote greater complementarity and structuring of research

Greater complementarity and structuring of research in Europe and worldwide, via increased cooperation and coordination between relevant European and international research and innovation actors, is key to tackle the global challenges of sustainable agricultural development and food security under climate change. Indeed, the updated FACCE-JPI Strategic Research Agenda highlights that *“to reach FACCE-JPI strategic goals, research should be integrated on a large scale.”* Likewise, in a recent Communication, the European Commission emphasises that *“the partnering approach can help address major societal challenges and strengthen Europe’s competitive position.”*⁸ Enhanced cooperation with relevant research and innovation actors would bring clear benefits on the managerial and scientific front. It would namely:

- Help avoid duplication of research and make better use of limited research resources (i.e., research staff and infrastructures), hence improving the efficiency in research funding.
- Enable access to, and sharing of, scientific methods and results beyond the FACCE-JPI membership.
- Promote the conduct of joint research/joint scientific publications and boost scientific excellence.
- Generate critical mass by having more experts working in the remit of FACCE-JPI.

In addition, benefits from better coordinated and structured research would also accrue on the policy/political front, thanks to the provision of joint knowledge, expertise and tools to support European and international policymaking in the areas of agriculture, food security and climate change. Global scientific cooperation can play an important role in facilitating cooperation on the policy/political front, namely by providing policymakers with internationally agreed-upon data and expertise (e.g., a common diagnosis of the current state-of-play). This type of benefits can however only be achieved if there is an effective “science-policy interface”, i.e., an effective translation of FACCE-JPI scientific results into policy options (“from knowledge to action”). This is further elaborated under point 2.2.

⁸ EC (2011), Partnering in Research and Innovation, SEC(2011)1072/FINAL.

2.2 Improve the visibility and impact of FACCE-JPI and help strengthen its position internationally

Better coordination with non-FACCE partners and initiatives could help:

- Raise the profile of FACCE-JPI internationally in view of turning FACCE-JPI into *the* key EU player in research and knowledge on agriculture, food security and climate change.
- Enhance the impact of European research on policymaking and innovation, by better disseminating and “translating” scientific knowledge to policymakers, firms and other end-users.
- Influence relevant regulatory regimes and standards that exist in other regions of the world.

FACCE-JPI-generated research should contribute to the knowledge base needed to support relevant **EU policies**, e.g., the 2030 Climate and Energy Framework, the Bio-economy Strategy, the Common Agricultural Policy, the Circular Economy Strategy and EU food security and nutrition strategies, policies and initiatives.⁹ The initial FACCE-JPI Strategic Research Agenda (December 2012) indeed highlighted the important role Europe has been playing in “*policy and action to decrease GHG emissions*”, and in R&D investments in the areas of agriculture, food security and climate change. Likewise, FACCE-JPI scientific results should contribute to the launch of **innovative European products and services as well as societal innovation** that can promote enhanced food security and agricultural development in the face of climate change. These for example include, but are not limited to, innovative irrigation and agricultural production systems, as well as changes in consumer behaviour.

Furthermore, FACCE-JPI scientific results could be better linked to, or **feed into, activities of global scientific organisations, alliances and initiatives** that are well-connected to global policy fora and inform global policymaking (e.g., UN negotiations on climate change and sustainable development goals), in view of raising the voice of the EU in such initiatives and showcasing the successful experiences of Europe to others. Reinforcing Europe’s contribution to global public goods is indeed high on the agenda of FACCE-JPI members. A good case in point is the contribution of the FACCE-JPI knowledge hub “*Modelling European Agriculture with Climate Change for Food Security*” ([MACSUR](#)) to the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in part thanks to its partnership with a highly visible global initiative, the *Agricultural Model Intercomparison and Improvement Project*. Researchers from both initiatives co-published a scientific paper that fed into Working Group II of the IPCC Report. MACSUR’s work aims to illustrate how climate will affect regional farming systems and food production in Europe.

2.3 Facilitate the exchange of information, mutual learning and capacity building with similar initiatives in other geographical regions

Finally, cooperation with non-FACCE partners and initiatives is also key to:

- Exchange information on respective research agendas, methodologies and results, which could potentially lead to the elaboration of joint actions.
- Facilitate mutual learning and the identification of best practices across geographical regions.
- Conduct joint “horizon scanning” to identify upcoming trends of mutual interest.
- Support policy dialogue with these regions and thus reinforce FACCE-JPI members’ and the EU’s international relations strategies (“science diplomacy”).¹⁰

⁹ EC FP7 KBBE Research Theme, http://cordis.europa.eu/programme/rcn/851_en.html

¹⁰ EC (2012), Enhancing and Focusing EU International Cooperation in Research and Innovation, COM52012)497 FINAL.

III. THEMATIC AREAS IN WHICH COOPERATION IS SOUGHT

Cooperation with non-FACCE initiatives is expected to occur in all five Core Themes (CT) of the FACCE-JPI Strategic Research Agenda:

- CT1. Sustainable food security under climate change (*overarching theme*)
- CT2. Environmentally sustainable intensification of agricultural systems
- CT3. Developing synergies and reducing trade-offs between food supply, biodiversity and other ecosystem services
- CT4. Adaptation to climate change
- CT5. Mitigation of climate change

The FACCE-JPI Governing Board, Scientific Advisory Board and the Stakeholder Advisory Board have proposed new research priorities within each of the Core Themes, as part of their reflection regarding the update of the Strategic Research Agenda (see Table 1 and 2 below). These priorities will form the basis for elaborating the next FACCE-JPI Implementation Plans.

Table 1. Priorities of the updated Strategic Research Agenda¹¹

Core Theme(s)	Priority topics
CT 1	• Climate change risk assessment for agricultural production systems (plant and livestock), and food supplies
	• Climate change risk assessment for value chains, prices, international trade and food security, including changes in consumer behaviours and wastes
	• Reducing volatility in agricultural production and food markets in the bioeconomy to stabilize food security in the context of climatic variability
	• Assembling existing (and emerging) technologies for primary productions, fostering the adoption of improved technologies that are (on the edge of) being mature but not yet widely adopted
	• Identification of the impact of food losses in the whole chain, and identifying interventions to decrease the waste.
	• Pathways of economic development in Europe of non-food use of biomass, consequences for food supply and for land use change, biomass production, carbon sequestration and prices and trade.
	• Coordinating policies to support food and nutrition security in the context of climate change
CT 2	• Identifying crop yield potentials and yield gaps across regions in Europe under current and future climate scenarios. Implications for input use and management. Include considerations on quality of crop products
	• Identifying animal production potential and production gaps across regions in Europe under current and future climate scenarios. Implications for input use and management. Include considerations on quality of animal products
CT 3	• Assessing and valuing ecosystem services and their resilience in agricultural systems (crop, livestock and mixed farming) and landscapes under climate change
	• Designing and assessing the impact of incentive mechanisms to support increased provision of ecosystem services in agriculture, including conditions for uptake and socio-economic elements

¹¹ Updated SRA, October 2015.

CT 4	<ul style="list-style-type: none"> Identifying constraints to adapting agricultural land, soil and water management for a variety of local farming systems
	<ul style="list-style-type: none"> Phenotyping, genotyping, breeding and reproduction for adaptation to climate change with crop, pasture and livestock species and evaluating alternative species
	<ul style="list-style-type: none"> Climate change induced transformation of farming systems towards alternative types of production and links with changes in logistics and relocation of industries, investments. Scale of production is also an issue that we need to link to social and economic dimensions
	<ul style="list-style-type: none"> Adapting specific value chains to climate change from the field to the fork with special emphasis on nutritional quality, food safety and stability accounting for consumer preferences
	<ul style="list-style-type: none"> Integrated crop health management under climate change, with focus on emerging pests and diseases, epidemiology and deployment of resistance genes, links to soil and landscape biodiversity
	<ul style="list-style-type: none"> Integrated animal health management under climate change with focus on emerging pests and diseases, interactions between wild and domesticated components at landscape scale
	<ul style="list-style-type: none"> Increasing economically viable input use efficiency by improving water and soil physical, chemical and biological quality, restoring soil function and better use of organic fertilizers
CT 5	<ul style="list-style-type: none"> Alternative land use systems (agroforestry, hedges, mixed farming systems) and land and soil management systems (soil conservation, legumes and soil biology) for building above and below ground carbon stocks and increasing biomass production for food and non-food uses
	<ul style="list-style-type: none"> Technical and economic potential of GHG abatement, including enhanced soil carbon storage, in livestock and crop systems and in integrated systems
	<ul style="list-style-type: none"> Lifecycle analysis of products and of typical diets. Alternative food systems with low carbon footprint
	<ul style="list-style-type: none"> National inventories improvement; Measuring, Reporting and Verification (MRV) options
	<ul style="list-style-type: none"> Research forest fires: Smart forest management to decrease forest fires recurrence and increase forest resilience. Preservation of biomass and soil, avoiding CO₂ emissions. Study of future scenarios due to spreading risk of forest fires in Europe due to climate change

The following priorities relate to several Core Themes.

Table 2. Cross-cutting priorities of the updated Strategic Research Agenda

Core Theme(s)	Priorities
CT 2 and 4	<ul style="list-style-type: none"> Cooperation with ICT: smart farming and food security
CT 2 and 4	<ul style="list-style-type: none"> Sustainably increasing productivity, resilience and resource use efficiencies (including soil and water) at the agricultural system scale, across regions in Europe, based on improved use of genetic resources and advanced management technologies (management by measurement) in the context of climate change
CT 2 and 4	<ul style="list-style-type: none"> Plant and animal production systems for better human nutrition and resilience to climate change
CT 1, 2 and 3	<ul style="list-style-type: none"> Identification of the impact of urbanisation on organisation of food chains, and identifying new connections between water, food, energy and logistics to realise climate-robust and input-efficient production chains
CT 1, 2, 3, 4 and 5	<ul style="list-style-type: none"> Identifying the potential role of big-data for food security with a focus on collecting data, translating data into information, and promoting and facilitating use of the information by end-users
CT 1, 2 and 5	<ul style="list-style-type: none"> Explore and exploit refinery concepts for the multiple use of biomass under climate change, taking economic and environmental implications into account

IV. MAIN TARGET GROUPS AND CURRENT STATE-OF-PLAY

The broad objectives outlined in the previous section can be achieved by interacting with a mix of non-FACCE partners and initiatives. Such cooperation should mainly be sought with **three broad target groups** (see also Figure 1):

1. European initiatives and partners
2. International initiatives and partners
3. Third countries, i.e., individual non-EU and non-Associated countries

Cooperation with non-FACCE partners can be time-consuming and complex, due to differing procedures between FACCE-JPI members and non-FACCE initiatives (e.g., procedures for funding research). Hence, there is need to be selective and focus on partners with the highest added value for FACCE-JPI. In addition, while this section proposes key partners for each target group, it is important to remain flexible and retain the possibility to engage with additional European/international actors, if relevant opportunities arise.

4.1 European initiatives and partners

This target group includes:

- European Research Area Networks (ERA-NETs)
- Other Joint Programming Initiatives (JPIs)
- European innovation partnerships (European Innovation Partnerships, Joint Technology Initiatives and Knowledge and Innovation Communities). European Technology Platforms are not mentioned here as FACCE-JPI already interacts with six of them via the Stakeholder Advisory Board.¹²
- EU Agricultural Research for Development initiatives
- Other European interactions

Cooperation with this target group is key to build a European knowledge-based bio-economy as is called for by the EU Framework Programme for Research and Innovation, Horizon 2020, and to strengthen the European Research Area and Innovation Union as a whole as is recommended by the ERAC's High-Level Group for Joint Programming (GPC).¹³ **In fact, partnership and alignment with other European initiatives is consistent with the core mission of FACCE-JPI.**

4.1.1 European Research Area Networks (ERA-NETs)

What?

The ERA-NET instrument was introduced during the EC 6th Framework Programme (FP) (2003-2006). Its aim is to coordinate research programmes of EU Member States and Associated Countries and strengthen the European Research Area. The main action of an ERA-NET is the development of joint calls to fund transnational research projects. More than 30 ERA-NETs in the bio-economy sector have been funded under FP6 and FP7.¹⁴ Forthcoming ERA-NET Cofunds, some of which are of relevance to FACCE-JPI, are included in the EC's H2020 Work Programme for 2016/17.

Past and ongoing work:

At the strategic, whole-of-JPI level, discussions were held to assess how to best work with ERA-NETs:

- **Two FACCE-JPI workshops with relevant ERA-NETs** were organised to exchange on respective strategic orientations and scopes, timelines for implementation and operational modalities

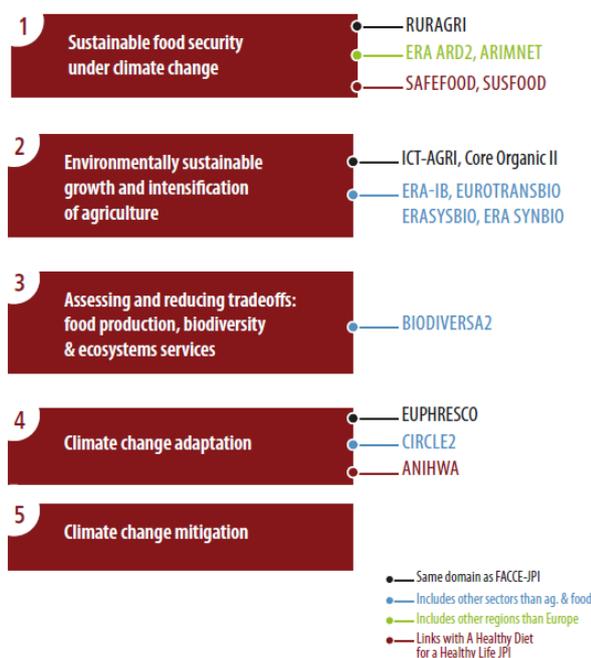
¹² Plants for the future; Farm Animal Breeding and Reproduction Technology Platform (FABRE-TP); Global Animal Health; TPOrganics; European Biofuels Technology Platform; Water Supply and Sanitation Technology Platform.

¹³ ERAC-GPC 1305/1/14/REV1, 30 October 2014

¹⁴ PLATFORM, Global Partnerships in ERA-NETs, August 2014.

(October 2011 and April 2013). The underlying idea was that JPIs could provide coherence among the ERA-NETs in a given research domain, acting as a sort of “umbrella framework”. The FACCE-JPI Secretariat then identified **15 ERA-NETs** with whom it would be worthwhile interacting (see Figure 2 below).¹⁵

Figure 2. Thematic complementarities between the FACCE-JPI Strategic Research Agenda and selected ERA-NETs, October 2011



Source: FACCE-JPI Strategic Research Agenda, December 2012

- FACCE-JPI also established a **Working Group of the Governing Board** to examine the question of how to work with ERA-NETs and produced a position paper in 2011 that concluded that “*JPIs should serve to focus ERA-NETs in the domain covered by FACCE- JPI.*” This means that:
 - If an existing ERA-NET already addresses one of the FACCE-JPI SRA research priorities, the JPI will explore if implementation can be achieved via the latter (e.g., BioDiversa-FACCE joint call).
 - If there is no ERA-NET, FACCE – JPI may propose a new ERA-NET under the umbrella of FACCE-JPI to the EC, to be included in the EU Framework Programme for Research and Innovation’s Work Programme (e.g., FACCE ERA-NET Plus on Climate Smart Agriculture)
 - For research areas that are less mature, FACCE – JPI could request to SCAR the creation of a Working Group to explore an area for a possible new ERA-NET.
 - Consequently, FACCE-JPI would be tasked with both the alignment of national programming and the organisation and coordination of a series of ERA-NET calls under its remit.
- In April 2015, a 2nd FACCE-JPI Position paper on ERA-NETS was released. It recommends to “*take a step back and evaluate the progress and success of these [ERA-NETS]*” before launching new ones.
- A member of the FACCE-JPI Secretariat also coordinates **PLATFORM**, a forum for funders and programme managers in **bio-economy ERA-NETs**. PLATFORM aims to improve information exchange and cooperation and strengthen ERA-NETs’ impact on the European Research Area.

As a result of this strategy, cooperation at operational level has consisted mainly in the organisations of joint calls for research proposals:

¹⁵ FACCE-JPI Workshop with ERA-NETS, October 2011. See also Updated SRA.

- **BiodivERsA-FACCE joint call:** There is a 2013-14 joint call for research proposals with the ERA-NET Cofund on Biodiversity (BiodivERsA). This is a pan-European call for research projects on “*promoting synergies and reducing trade-offs between food supply, biodiversity and ecosystem services*” (Core Theme 3). Based on the ranking established by an independent evaluation panel, the Call Steering Committee has funded the top 10 projects (total funding: €10.3M).
- *Under discussion:* Possible joint call with the H2020 ERA-NET Cofund on Sustainable Livestock Production (**SUSAN**) (under Core Themes 2 and 4).
- The FACCE-JPI secretariat has also exchanged information with the following initiatives in order to identify possible synergies between their research priorities and those of FACCE-JPI:
 - The ERA-NET on Sustainable Food Production and Consumption (**SUSFOOD2**), which deals with thematic issues at the intersection of FACCE and HDHL JPI.
 - The ERA-NET on Integrated Pest Management (**C-IPM**).

Benefits: The main benefits of cooperating with existing ERA-NETs in FACCE-JPI’s remit are to:

- Allow FACCE to implement cost-efficiently selected FACCE-JPI research priorities, by leveraging on knowledge and expertise generated by already existing ERA-NETs, in which some FACCE-JPI member-countries already participate. This would help rationalise existing research funding.
- Trigger greater complementarity and coherence amongst these ERA-NETs and FACCE-JPI and allow FACCE to play a structuring **umbrella role**, so as to strengthen the European Research Area.
- Leverage on an instrument that is already well-known by many research funding organisations.
- Facilitate the exchange of information on strategic orientations and operational modalities, outcomes of mapping exercises and scientific results.

Costs/Risks: The main risks are related to:

- Time constraints (e.g., organising a joint call with an existing ERA-NET can take up to two years).
- It is sometimes challenging to agree on a common priority or action between FACCE-JPI and selected ERA-NETs because of their differing scopes.
- Cooperation with ERA-NETS should not divert attention from cooperation with other European initiatives.

Proposed next steps:

At the strategic level, FACCE-JPI member-countries suggest proceeding as recommended in the recent *FACCE-JPI Position Paper on ERA-NETs* (April 2015) by **reflecting on FACCE’s future position** regarding existing and upcoming ERA-NETs and identify concrete actions for cooperation. This reflection should be conducted in collaboration with the **EC Standing Committee on Agricultural Research (SCAR)**, which has an important advisory role vis-a-vis Horizon2020 ERANETs (see *Other European interactions*, below). A dedicated Working Group of the Governing Board could be established again to coordinate this reflection.

At the operational level, members suggest that in the short-term, the FACCE-JPI Secretariat *continues* its discussions with the **SusAn**, **SUSFOOD2** and **C-IPM** ERA-NETs, and initiates a discussion with **ICT AGRI II**, which aims to strengthen European research in precision farming and develop a common European research agenda on ICT in agriculture¹⁶ in order to identify concrete joint actions that could help implement

the updated FACCE-JPI Strategic Research Agenda and forthcoming Implementation Plan. Interactions with additional ERA-NETS (e.g., **CoreOrganic Plus**, the forthcoming ERANET Cofund on Sustainable Crop Production, **SUSCROP**) could be considered subsequently. These bio-economy ERA-NETS have been deemed most relevant in light of FACCE-JPI's updated Strategic Research Agenda.

4.1.2 Other Joint Programming Initiatives

What?

There are currently nine other JPIs in operation, including four which work in areas closely related to that of FACCE-JPI (Healthy Diets for a Healthy Life, Climate, Water, Oceans).

Past and ongoing work:

At the strategic, whole-of-JPI level, FACCE-JPI and the nine other JPIs regularly exchange information and good practices via the High-Level Joint Programming Group (**GPC**), **JPI Chairs Meetings** and other meetings with two or more JPIs (e.g., regarding JPI framework conditions, international strategies and engagement with stakeholders).

At the operational level, cooperation often takes the form of a joint call that lies at the intersection of the two JPIs' Strategic Research Agendas:

- **Joint Programming Initiative on Water Challenges for a Changing World ([JPI Water](#))**: JPI Water and FACCE-JPI have proposed to launch a joint ERA-NET Cofund call entitled [WaterWorks 2015](#). The call, which is expected to open in early 2016, will focus on water use in agriculture, in view of increasing water use efficiency and reducing soil and water pollution (FACCE-JPI Core Theme 2). The Consortium agreement for this call is expected to be signed by 21 December 2015. National call funds plus EU top up will generate a call budget of a total of €25 M.
- **Joint Programming Initiative on a Healthy Diet for a Healthy Life ([JPI HDHL](#))**: In May 2015, JPI HDHL and FACCE-JPI organised a "*Grand Debate on Nutrition Security*" at the EXPO 2015 in Milan. Both initiatives subsequently issued a [paper](#) based on the key outcomes of this debate, entitled "*Joint Priority Actions to Contribute to the European Strategy on Food and Nutrition Security*". The paper identifies **two joint priority research topics** that cut across the two JPIs research agendas: (1) Coordinating policies to support food and nutrition security in the context of climate change (FACCE-JPI Core Theme 1); and (2) Plant and animal production systems for better human nutrition and resilience to climate change (FACCE-JPI Core Theme 4). These priorities will be reflected in the forthcoming Implementation Plans of the two respective JPIs, and further discussions will be held to identify concrete joint research actions for each of these topics (e.g., via the organisation of exploratory workshops).
- *Under discussion*: **Joint Programming Initiative on Connecting Climate Knowledge for Europe ([JPI Climate](#))**: JPI Climate and FACCE-JPI have participated in each others' events and have had preliminary discussions on how to best work together. One area on which both JPIs could work together is the *Measurement and Verification of GHGs* (FACCE-JPI Core Theme 5). Further dialogue with this JPI is currently ongoing in order to possibly identify a concrete action for cooperation, which would be in line with each of the JPIs' respective Implementation Plans.

Benefits:

- Cooperation with other JPIs at operational level would allow further promoting alignment and structuring the European Research Area (and hence a more efficient use of national research funding).
- Cooperation would also allow for greater inter-disciplinarity in research, by working on research issues that lie at the intersection of two or more JPIs.
- Mutual learning and exchange of 'good practices' across all JPIs.

- Elaborate whenever possible an aligned and common position of all JPIs vis-à-vis the GPC, the EC and other external actors, in view of increasing their visibility and impact on national and European policymaking

Costs/risks:

- Inter-operability between the timelines and operational procedures of different JPIs (e.g., elaboration of Implementation Plans).

Proposed next steps:

At the strategic level, FACCE-JPI member-countries suggest that FACCE-JPI continues to be engaged in information-sharing, identification of good practices and mutual learning with the other JPIs, as is already the case.

At the operational level, members suggest in the short-term continuing the discussions with **JPI HDHL** and **JPI Climate**, respectively, to identify concrete joint actions on which the two initiatives could cooperate in the context of their respective Strategic Research Agendas and Implementation Plans. As noted above, these two JPIs are active in thematic areas that are closely related to that of FACCE-JPI, hence further collaboration would be warranted.

4.1.3 European innovation partnerships, Knowledge and Innovation Communities and Joint Technology Initiatives

What?

- *European Innovation Partnerships (EIP)*: EIP is a (new) EU Innovation Union flagship initiative that **brings together all relevant innovation actors** at EU, national and regional levels. EIPs aim to step up research and development efforts and improve access to finance for R&D so that innovative ideas can be turned into **products and services**. EIPs build upon relevant existing R&I tools and actions and, where this makes sense, they integrate them into a single coherent policy framework. EIPs aim to trigger synergies amongst existing R&I tools and actions.¹⁷ The **EIP on Productive and Sustainable Agriculture (EIP AGRI)** has been identified as relevant to FACCE-JPI (Core theme 2).¹⁸ EIP-AGRI aims to foster competitive and sustainable farming and forestry that “achieves more and better from less”. The EIP AGRI brings together farmers, advisors, researchers, agribusinesses, NGOs and other actors as partners in agricultural and forestry innovation. In addition, the **EIP Water**, which aims to promote innovative solutions for water challenges, has been identified as relevant to FACCE-JPI’s Core Theme 4.
- *Knowledge and Innovation Communities (KIC)*: KICs are instruments designed by the European Institute of Innovation and Technology with a view to enhancing Europe’s ability to innovate. The **KIC Climate**, which is active in FACCE’s remit, has been identified as a relevant player to interact with (Core Themes 4 and 5). It is Europe’s largest **public-private innovation partnership**, working together to address the challenge of **climate change mitigation and adaptation**. KIC Climate aims to drive innovation in climate change through creative partnerships between the private, public and academic sectors. The main goal is to transform innovative ideas into new products, services and jobs to address climate change. Likewise, the forthcoming **KIC Food** has been identified as a relevant player for FACCE-JPI over the next five years. This KIC will focus on “Food4Future - Sustainable Supply Chain from Resources to Consumers”.¹⁹
- *Joint Technology Initiatives (JTI)*: JTIs are long-term Public-Private Partnerships that support multinational research activities in areas of major interest to European industrial competitiveness

¹⁷ http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=eip as well as the MIPAAF mapping, June 2015.

¹⁸ The International Role of FACCE-JPI, October 2013.

¹⁹ The call for proposals for this KIC was launched on 14 January 2016.

and on issues of high societal relevance. The [JTI for Bio-Based Industries](#) has been deemed particularly relevant for FACCE-JPI (Core themes 1 and 5). The Bio-Based Industries Joint Undertaking is a new €3.7 billion Public-Private Partnership between the EU and the Bio-based Industries Consortium. Its aim is to promote a strong European **bio-based industrial sector**, which will significantly reduce Europe's dependency on fossil-based products, help the EU meet climate change targets, and lead to greener and more environmentally friendly growth.

Past and ongoing work: FACCE-JPI has had no targeted interactions so far with JTIs, EIPs or KICs.

Benefits: The main benefits of interacting with such initiatives include:

- Better research dissemination and uptake by private companies, and enhanced longer-term impact of the JPI on innovation.
- Greater complementarity between publicly funded research and public-private funded research and innovation at EU level, which strengthens the European Research Area and the Innovation Union.
- Enhanced cost-efficiency and increased financial leverage of EU funding mechanisms.²⁰
- Sharing of (complementary) research findings and exchange good practices regarding strategic orientations and operational modalities (e.g., call implementation; mapping exercises, etc.)

Costs/Risks: The main risks are related to:

- Time constraints.
- Difficulties in identifying the right interlocutor for FACCE-JPI (as the governance of some of these initiatives can be sometimes complex).
- Inter-operability of funding rules, operational procedures and timelines.
- Lack of clarity regarding the future work of some of these European initiatives.

Proposed next steps:

At the whole-of-JPI level, we suggest exchanging information with such initiatives on ways to improve the dissemination of knowledge and bridging the knowledge-innovation gap.

At the operational joint action level, we suggest to examine how to possibly work together with the **EIP AGRI**, **KIC Climate** and **JTI for Bio-Based Industries**, respectively, in the context of the next FACCE-JPI Implementations Plan. EIP Water and KIC Food could be approached subsequently. These initiatives could benefit from FACCE's scientific knowledge and, in turn, FACCE-JPI could benefit from their views on innovation-driven research needs. Partnerships with such initiatives would be in line with the updated FACCE-JPI Strategic Research Agenda, which calls for a greater focus on "*impact-driven research*".

²⁰ EC 2011.

4.1.4 EU Agricultural Research for Development initiatives

What?

Besides the European initiatives listed above, several regional endeavours have also been undertaken in cooperation with developing countries. European initiatives in the area of Agricultural Research for Development (ARD) aim to promote research collaboration with developing countries in view of meeting the UN Sustainable Development Goals. Agricultural research in Europe and ARD are closely interlinked due to the global scale of the challenges they aim to address. Governing Board members and Secretariat members suggested the following ARD initiatives as relevant for FACCE-JPI²¹:

With Mediterranean countries

- **ARIMNet2 ERA-NET**: ARIMNet2 promotes the coordination of national research activities in the area of **agriculture and food security under climate change**. It is an ERA-NET that runs from 2014 to 2017. It promotes international collaborations to create research consortia in order to respond appropriately to the challenges Mediterranean agriculture is facing. As of January 2014, ARIMNet2 has been working with a network of 24 national funding agencies and research institutions from 15 countries (9 EU members, 2 Associated Countries, 4 MED countries).
- **AGRIFOOD MEDNET**: This project aims to design joint strategies to increase the efficiency of **agro-food cross-border trade** by means of the: adoption of common best practices relevant to agro food supply chain; processing/manufacturing and consolidation services in the port terminal; shared custom procedure and controls relevant to safety and health; exchange of knowledge as concerns technologies for goods tracking and quality certification; adoption of technology innovation in the supply chain; products/goods valorisation. The project involves 2 EU and 2 MED countries.
- The proposed “EU Partnership in Research and Innovation in the Mediterranean Area” - **PRIMA Article 185** initiative, is meant to be a strategic, long-term, **integrated joint research and innovation programme** that will aim to promote increased joint programming between EU and Mediterranean (MED) countries in view of tackling the socio-economic challenges and promoting sustainable development in the MED region. The programme will rely on the principles of co-ownership, co-decision and co-financing between EU and MED countries. Participating countries will include 7 EU members and 7 MED countries. One of PRIMA’s thematic foci is “**food systems**”. The future PRIMA has been identified as a relevant partner for FACCE-JPI.

With African countries

- **IntensAfrica**: IntensAfrica is a European initiative aimed at working with Africa on sustainable intensification. It is led by CIRAD and Wageningen University, in collaboration with the Forum for Agricultural Research in Africa (FARA). The initiative aims to build a vast programme to coordinate **research on sustainable intensification in Sub-Saharan Africa**. The programme is one of the means for implementing the “Agriculture Science Agenda for Africa” (ASAA).
- The forthcoming **EU-Africa Partnership on Food and Nutrition Security and Sustainable Agriculture**: This ERA-NET Cofund action will support the EU-Africa High-Level Policy Dialogue on Science, Technology and Innovation. Research proposals can be submitted on the following topics: **sustainable intensification, agriculture and food systems** for nutrition, and improvements of agricultural markets and trade. The call, which must be implemented jointly by European and African countries, will result in grants to 3rd parties with EU co-funding.²²

²¹ 12 June 2015 GB meeting.

²² EC (2015), H2020 Work Programme for 2016/7.

General (relevant to all ARD initiatives)

- The *European Initiative for Agricultural Research for Development* (**EIARD**) facilitates the coordination of European policy for ARD. It is a permanent informal European **donor coordination platform** between the EC, EU Member States, Switzerland and Norway.
- The “Platform for African-European Partnership on Agricultural Research for Development” (**PAEPARD**) supports research collaboration between a wide range of organisations in Africa and Europe. It is coordinated by the Forum for Agricultural Research in Africa (FARA) in collaboration with AGRINATURA, a consortium of research and education organisations in Europe.

Past and ongoing work: None so far.

Benefits: Cooperating with European ARD initiatives would allow to:

- Help respond to the global challenges FACCE-JPI is aiming to address.
- Reach improved in-country coherence between AR and ARD policies, as several FACCE-JPI members are also involved in European ARD initiatives.
- Widen the scope of possible solutions and hence improve the impact of FACCE-JPI on innovation.
- Exchange information on research methodologies and scientific results obtained (and possibly harmonise research protocols to facilitate comparability).
- Facilitate the identification of best practices across regions.
- Promote networking and capacity building amongst researchers.
- Support policy dialogue and “science diplomacy” with these regions and as such contribute to FACCE-JPI Member States’ development cooperation strategies.²³

Costs/ Risks:

- Time-consuming: coordination and cooperation is likely to be more complicated and time-consuming with this group.
- Cooperation with ARD initiatives may also mean that interaction may be required with EU Member-Countries’ Foreign Ministries and development cooperation agencies (while FACCE-JPI is mainly in the remit of Research and/or Agricultural Ministries).
- Differing expectations and research needs: The expected research impacts may differ between FACCE-JPI and these initiatives (as innovation needs of FACCE and other initiatives may differ).
- These initiatives may lack a mechanism to finance joint research actions with FACCE-JPI. In addition, they may have different funding and implementation mechanisms and procedures.
- Intellectual property right issues.
- Cultural barriers to cooperation.

Proposed next steps:

FACCE-JPI member-countries suggest first **exchanging information** and promoting coordination at ‘**whole-of-JPI level**’ with selected European ARD initiatives active in the FACCE-JPI remit and involving EU strategic partners, e.g., **Mediterranean and African countries**. In a second phase, cooperation at joint action level could be considered, e.g., with PRIMA, ARIMNet2, IntensAfrica and the EU-Africa Partnership on Food and Nutrition Security and Sustainable Agriculture.

²³ See EC (2012), Overview of International Science, Technology and Innovation Cooperation between Member States and Countries Outside the EU.

4.1.5 Other European interactions

What?

Besides the initiatives and partners mentioned above, it is key for FACCE-JPI to continue interacting with:

- *EC Joint Research Centre (JRC)*: The JRC is the EC's in-house science service which provides independent scientific advice to EU policymakers. The JRC has 7 scientific institutes, including the Institute for Environment and Sustainability. The JRC collaborates with EU Member States in Horizon2020 projects, in scientific networks and via collaboration agreements.
- *EC Standing Committee on Agricultural Research (SCAR)*: SCAR is a source of advice on European agricultural and bioeconomy research, and acts as a major catalyst for the **coordination** of national research programmes. A reflection is currently ongoing on possibly increasing the role of SCAR in fostering alignment of all bio-economy related initiatives (ERA-NETs, JPIs, KIC, EIP, etc.) in view of structuring the European Research Area for the Bio-Economy.²⁴
- *European research infrastructure platforms*, e.g., those of [ESFRI](#), the European Strategy Forum on Research Infrastructures, which aims to support a coherent and strategy-led approach to policy-making on research infrastructures in Europe, and to facilitate multilateral initiatives leading to the better use and development of research infrastructures, at EU and international level. One example is [AnaEE](#), the EU infrastructure for analysis and experimentation of ecosystems.
- *European Strategic Forum for International Science and Technology Cooperation (SFIC)*: SFIC sets the strategic orientations of the EU's international cooperation in science and innovation.
- *Mutual learning platforms*, such as the EC-supported [ERALEARN2020](#) project (2015-18) which aims to spur mutual learning across all European public-to-public initiatives (including JPIs).

Past and ongoing work:

At the whole-of-JPI level:

- FACCE-JPI has had ongoing exchanges with the **EC Joint Research Centre** to discuss how to work together.²⁵ The JRC is welcomed not only as a potential partner in FACCE joint research actions but also to provide its expertise on specific questions of the JPI, for example on the modelling of climate change impacts, data collection and sharing, etc.
- Cooperation with the **Standing Committee on Agricultural Research (SCAR)**: FACCE-JPI has so far worked with SCAR to identify and propose new FACCE-JPI ERA-NETS. Several FACCE-JPI Governing Board members are SCAR members. Furthermore, SCAR has *observer status* in the FACCE-JPI Governing Board.
- The FACCE-JPI Secretariat is also participating in the **ERALEARN2020** project.

Benefits: The main benefits of interacting with such partners include:

- Greater complementarity in research and innovation at EU level, which strengthens the European Research Area.
- Enhanced cost-efficiency and increased financial leverage of EU funding mechanisms²⁶

Costs/Risks: The main risks are related to:

- Time constraints.

²⁴ Reflection Paper on the Role of SCAR, 4 June 2015.

²⁵ Bonn Workshop on the FACCE-JPI International Strategy, 2013.

²⁶ EC 2011.

- Inter-operability of funding rules, operational procedures and timelines.

Proposed next steps:

At the whole-of-JPI level, we suggest exploring how to involve more systematically the **EC Joint Research Centre** in all JPI actions and activities (e.g., by granting it observer status in the FACCE-JPI Governing Board or by inviting the JRC to relevant FACCE-JPI Governing Board meetings). In addition, we propose to exchange more regularly with **SFIC** to ensure the JPI's own strategy is in line with the EU's strategic orientations. Engagement with **ESFRI** could be further facilitated thanks to the participation of the same secretariat staff in both the FACCE-JPI and ESFRI Secretariats (see also *Cooperation Modes* below).

Furthermore, discussions with **SCAR should be intensified**, especially if the latter takes on a more strategic and structuring role across the entire bio-economy-related European Research Area.

4.2 International initiatives and partners

What?

Extensive research is being conducted worldwide on sustainable agricultural development and food security in the face of climate change, as these issues are of global concern. The **EU Strategy for International Cooperation in Research and Innovation**²⁷ indeed acknowledges that “*the Union needs to strengthen its dialogues with international partners to build critical mass for tackling these [global] challenges.*” A number of global scientific and policy initiatives have been assessed as particularly relevant for FACCE-JPI by Governing Board members²⁸, including:

- *Global scientific initiatives*, such as the **Global Research Alliance on Agricultural Greenhouse Gas (GRA)**, which aims to spur greater international cooperation in research focussed on how to grow more food without increasing GHG (Core Theme 5), the **Wheat Initiative**, which establishes strategic priorities for wheat research at the international level (Core Theme 1), **Future Earth**, a global platform for international scientific collaboration in the area of climate change and sustainable development (all Core Themes), and the Consultative Group on International Agricultural Research's (CGIAR) **Research Programme on Climate Change, Agriculture and Food Security** (CCAFS), which is very similar in terms of scope than FACCE-JPI (all Core Themes). The recently launched “**4 per mille**” **International Research Initiative** on soil carbon sequestration has also been deemed relevant for FACCE-JPI. Global research alliances are often voluntary networks with partners from governments, research institutes and private organisations.²⁹
- *Global policy initiatives*, such as the **Global Alliance on Climate Smart Agriculture** (GACSA), the **Committee on World Food Security** (CFS), both of which have secretariats hosted at the FAO, and the High-Level Panel of Experts on Global Food Security and Nutrition. The **G20** too has recently launched a **Food Nutrition and Security Framework**, which takes a long-term, integrated and sustainable “food systems” approach that should guide future policy actions on food security and nutrition and support the implementation of the post-2015 Sustainable Development Goals. The work of these initiatives often feed directly into high-level international policy negotiations.
- *Global funding networks*, such as the **Belmont Forum**, which is the council of principals of the International Group of Funding Agencies for Global Change Research (IGFA), a forum of national scientific funding agencies that collaborate to address the challenges of global environmental change. The Belmont Forum coordinates funding for collaborative research actions.

²⁷ SWD(2012) 258 final ; COM(2014)/567/final

²⁸ GB meetings of March and June 2015 and “*International Role of FACCE-JPI*”, paper endorsed in 2013.

²⁹ PLATFORM, August 2014.

- *Intergovernmental organisations and fora*, such as the UN Food and Agriculture Organisation ([FAO](#)), the International Fund for Agricultural Development ([IFAD](#)) and the [OECD](#) which work on effective policies for food security, agricultural development and climate change.

Past and ongoing work:

At the strategic, whole-of-JPI level, FACCE-JPI undertook the following activities:

- The FACCE-JPI Secretariat organised **two Workshops on International Interactions** (Dublin, July 2012 and Bonn, June 2013) to discuss cooperation with selected global initiatives (e.g., the Committee on World Food Security, the CGIAR Programme on Climate Change, Agriculture and Food Security, Future Earth and the Wheat Initiative). Participants then stressed the need to strengthen exchange of information and mutual learning, particularly on methodological issues (e.g., on joint foresight, impact evaluation and stakeholder engagement).
- The Secretariat released a **paper** on the “*International Role of FACCE-JPI*” (October 2013) which highlights the importance of engaging with key international initiatives (e.g., GRA, forthcoming GACSA) while raising FACCE’s visibility in key international political fora.
- More recently, the FACCE-JPI Secretariat also participated in the **GACSA Knowledge Action Group** meeting (March 2015) to assess possibilities for potential cooperation.

At the operational joint action level:

- [Multi-partner Call on Agricultural Greenhouse Gas Mitigation](#): In January 2013, FACCE-JPI launched an International Call with non-European countries from the **Global Research Alliance on Agricultural Greenhouse Gases (GRA)**. The call had a total of 14 participants, out of which 11 were FACCE-JPI member states and 3 GRA members (**US, Canada, New Zealand**). Eleven research consortia projects were selected for final funding (total budget: € 5.5 million, plus in-kind contributions) and project implementation began end 2013 (FACCE Core Theme 5)
- [Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change](#): This call was opened in July 2013. The call has a total of 14 participants, out of which 8 are FACCE-JPI members and 6 are non-FACCE countries, **Australia, Brazil, India, Japan, South Africa and the USA** (total budget: €9.485M). The first selected projects were launched in April 2014³⁰ (FACCE Core Theme 1). The call corresponds to one of Belmont Forum’s Collaborative Research Actions.
- [MACSUR-AgMip](#): On 12 February 2014, the **Agricultural Model Inter-Comparison and Improvement Project (AgMIP)** and the FACCE-JPI Knowledge Hub FACCE MACSUR (Modelling Climate Change with Agriculture for Food Security; FACCE Core Theme 1) concluded a scientific cooperation agreement that encompasses the following:
 - MACSUR will act as a scientific partner in the AgMIP global programme with expert capacity to advance specific topics and methodologies that are crucial to both programmes;
 - MACSUR will comply with the standards of conducts and principles of AgMIP within the constraints of FACCE-JPI for agreed contributions to AgMIP;
 - MACSUR and AgMIP will leverage existing resources to advance shared research priorities, and will jointly seek additional funding for emerging collaborative research priorities.³¹
- The Secretariat has also had preliminary discussions with the [OECD Network for Research Collaboration on Sustainable Temperate Agriculture \(OECD TempAg\)](#) in the context of the forthcoming *FACCE-JPI Knowledge Network on Sustainable Intensification of European Agriculture* (Core Theme 2)

³⁰ See the Governing Board paper on the Update of FACCE-JPI Activities.

³¹ See <http://www.agmip.org/blog/2014/02/12/agmip-facce-macsur-memorandum-of-understanding-signed/>

Benefits: Cooperation with international initiatives and partners allows to:

- Combine FACCE-JPI's scientific results with other initiatives' knowledge, which can in turn speed up innovation and support international policymaking.
- Facilitate exchange of information and mutual learning with experts outside of FACCE-JPI, in view of adopting a more global approach for addressing the global challenges FACCE is aiming to address.
- Generate cost-efficiency, by combining research budgets.
- Cooperation with highly visible and well-connected international initiatives would help raise FACCE's profile and impact internationally, both at scientific and policy levels. FACCE-JPI could for example act as the "European node" of selected international initiatives.
- Finally, cooperation with international initiatives allows interacting with third countries at the operational level (e.g., the multi-partner call with the GRA allowed FACCE to work with New Zealand, Canada and the US).

Costs/Risks: The main risks are related to:

- Time constraints.
- Inter-operability of operational rules, operational procedures and timelines between FACCE-JPI and these initiatives. Input into international initiatives can be complicated when the timelines of delivery are different.
- Some of these international initiatives are loose networks of countries and not all countries are interested in interacting with FACCE-JPI. Alternatively, some have a governance structure that makes it difficult to cooperate at the "whole of JPI" level.
- Difficulties in coordinating engagement *within* FACCE-JPI member-countries, as FACCE is mostly overseen by national Research and/or Agricultural Ministries and agencies, while some global initiatives may be overseen by Foreign Ministries in FACCE countries.
- Lack of clarity regarding the future work of some of these initiatives and how they might interact amongst themselves (e.g., GRA and GACSA).

Proposed next steps:

At the whole-of-JPI, FACCE-JPI member-countries suggest exploring how to cooperate at the institutional level more systematically with the **FAO**, **GACSA** and the **Committee on World Food Security**³², which are highly visible politically. Such cooperation could improve the visibility and impact of FACCE-JPI internationally.

Furthermore, members recommend examining how to interact more closely with the **CGIAR/CCAFS**, which is an important international research programme that reaches out to developing countries.

At the operational joint action level, FACCE-JPI member-countries suggest in the short-term to continue the discussions with **OECD TempAg** (e.g., in the context of the FACCE-JPI Knowledge Network and beyond, Core Theme 2); with the **GRA** (Core Theme 5), in view of identifying possible *new* joint actions with this partner for future FACCE-JPI Implementation Plans, and with the "**4 per mille**" **international research initiative** (Core Theme 2). Subsequently, potential cooperation could also be discussed with the Belmont Forum, the Wheat Initiative, Future Earth and others.

³² The GACSA and CFS secretariats are both based at FAO.

4.3 Third countries

What?

Several non-EU and non-Associated Countries³³ (“third countries”) have similar strategic research objectives to FACCE-JPI and aim to address similar global policy challenges. This target group includes mainly **developed countries** such as the US, New Zealand, and Canada, which are leading R&D performers³⁴ and **emerging economies** such as China, India, South Africa, Russia and Brazil (BRICS). (FACCE members suggest interacting with developing countries via international and Agricultural Research for Development initiatives, such as CGIAR/CCAFs, IntensAfrica and others).

Again, the EU Strategy for International Cooperation in Research and Innovation³⁵ acknowledges the importance of cooperating with third countries, including BRICs economies, which have strengthened their research and innovation systems and exert increasing influence worldwide. It notes that nowadays, more than 70% of scientific knowledge is generated *outside* of the EU. Likewise, the EC’s Horizon2020 Work Programme for 2016/17 flags 30% of all topics under Societal Challenge 2, “Food security, Sustainable Agriculture and the Bioeconomy”, as specifically relevant for international cooperation.³⁶

Past/ongoing work:

At the strategic, whole-of-JPI level, FACCE-JPI is open to a selected number of non-EU countries as **Associate Members**. The Terms of Reference of the FACCE-JPI Governing Board have been updated in November 2015 in order to accommodate for this new category. **Criteria** for considering possible Associate Members are proposed in section VI of this paper. (Associate members will be able to participate in *all* FACCE-JPI joint actions). **New Zealand** has recently expressed its interest in joining FACCE-JPI as an Associate Member. In November 2015, Members accepted to welcome it (New Zealand will become an Associate Member as of January 2016). The table below provides, for information, an overview of other JPIs’ strategic relations with third countries.

Table 3. Third country members in other Joint Programming Initiatives

JPI	Third Country members
Neurodegenerative Disease Research (JPND)	Albania, Canada
Healthy Diet for a Healthy Life (HDHL)	Canada, New Zealand
More Years Better Lives (MYBL)	Canada
Antimicrobial Resistance (AMR)	Argentina, Canada, Japan
Water	Moldova

Source: Presentation by the GPC Chair, SFIC Meeting, 29 September 2015, and Summary, Second JPI Chairs Meeting, 10 March 2015.

At operational/joint action level, FACCE-JPI has so far interacted with third countries mainly via the organisation of **joint calls with international initiatives in which these countries are members** (GRA, Belmont Forum) but also via participation of third countries in selected FACCE-JPI **ERA-NET Cofund** calls (see Table 4 below).

³³ Associated Countries to Horizon2020 include : Iceland; Norway; Albania; Bosnia and Herzegovina; the former Yugoslav Republic of Macedonia; Montenegro; Serbia; Turkey; Israel; Moldova; Switzerland; Faroe Islands; Ukraine

³⁴ OECD, Science, Technology and Industry Scoreboard 2015

³⁵ SWD(2012) 258 final ; COM(2014)/567/final

³⁶ Presentation by M. Arentoft, EC, H2020 Open to the World, November 2015.

Table 4. FACCE-JPI cooperation with third countries at joint action level (as of December 2015)

Third country	FACCE-JPI Joint Action	SRA	Cooperation mode
Australia	Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change	CT1	Joint call with an international partner
New Zealand	Multi-partner Call on Agricultural Greenhouse Gas Mitigation (FACCE-Global Research Alliance)	CT5	Joint call with an international partner
	FACCE-JPI ERA-NET Cofund on Sustainable and Resilient Agriculture for Food and Non-Food Systems (FACCE SURPLUS)	CT2	FACCE-JPI H2020 call (new ERA-NET proposed to the EC)
	<i>Under discussion:</i> FACCE-JPI ERA-NET Cofund on Monitoring and Mitigation of Agricultural and Forestry Greenhouse Gases (ERAGAS)	CT5	FACCE-JPI H2020 call (new ERA-NET proposed to the EC)
	<i>Under discussion:</i> FACCE-JPI-WaterJPI joint “Waterworks 2015” ERA-NET Cofund	CT4	H2020 call with an existing JPI
USA	Multi-partner Call on Agricultural Greenhouse Gas Mitigation (FACCE-GRA)	CT5	Joint call with an international partner
	Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change	CT1	Joint call with an international partner
	<i>Under discussion:</i> FACCE-JPI ERA-NET Cofund on Monitoring and Mitigation of Agricultural and Forestry Greenhouse Gases (ERAGAS)	CT5	FACCE-JPI H2020 call (new ERA-NET proposed to the EC)
Canada	Multi-partner call on Agricultural Greenhouse Gas Mitigation (FACCE-GRA)	CT5	Joint call with an international partner
	FACCE-JPI-WaterJPI joint “Waterworks 2015” ERA-NET Cofund	CT4	Joint call with an existing JPI
Japan	Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change	CT1	Joint call with an international partner
China	Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change	CT1	Joint call with an international partner
Taiwan	FACCE-JPI-WaterJPI joint “Waterworks 2015” ERA-NET Cofund	CT4	H2020 call with an existing JPI
Brazil	Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change	CT1	Joint call with an international partner
	<i>Under discussion:</i> FACCE-JPI ERA-NET Cofund on Monitoring and Mitigation of Agricultural and Forestry Greenhouse Gases (ERAGAS)	CT5	FACCE-JPI H2020 call (new ERA-NET proposed to the EC)
	<i>Under discussion:</i> FACCE-JPI ERA-NET Cofund on Sustainable and Resilient Agriculture for Food and Non-Food Systems (FACCE SURPLUS)	CT2	FACCE-JPI H2020 call (new ERA-NET proposed to the EC)
India	Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change	CT1	Joint call with an international partner
South Africa	Joint Belmont Forum-FACCE-JPI Call on Food Security and Land Use Change	CT1	Joint call with an international partner
	FACCE-JPI-WaterJPI joint “Waterworks 2015” ERA-NET Cofund	CT4	H2020 call with an existing JPI
Tunisia	FACCE-JPI-WaterJPI joint “Waterworks 2015” ERA-NET Cofund	CT4	H2020 call with an existing JPI
Egypt	FACCE-JPI-WaterJPI joint “Waterworks 2015” ERA-NET Cofund	CT4	H2020 call with an existing JPI
Moldova	FACCE-JPI-WaterJPI joint “Waterworks 2015” ERA-NET Cofund	CT4	Joint call with an existing JPI

Benefits: Cooperating with third countries allows to:

- Better structure existing research at the international level in order to reach the critical mass needed to tackle global challenges.
- Leverage research funding from these countries to conduct joint research in areas of mutual interest, and as such trigger greater cost-efficiencies.
- Gain access to new knowledge, expertise and additional research infrastructure.
- Gain greater visibility at the international level.
- Reinforce the internationalisation strategy of EU members participating in FACCE-JPI and contribute to “science diplomacy”.
- Exchange information on research methodologies and scientific results obtained (and possibly harmonising research protocols to facilitate comparability).

Costs/ Risks:

- Time-consuming: coordination and cooperation is likely to be more complicated and time-consuming with this target group, especially with emerging countries.
- Differing expectations and research needs: The expected research impacts may differ between FACCE-JPI members and these countries.
- Third countries may lack mechanisms to finance joint research actions with the FACCE-JPI. In addition, they may have different funding and implementation mechanisms and procedures, which makes alignment of research programming difficult (inter-operability issue).
- Intellectual property right issues need to be addressed.
- Cultural barriers to cooperation.

Proposed next steps:

At the whole-of-JPI level, FACCE-JPI member-countries suggest welcoming **New Zealand** as the first “Associate Member” (to be effective as of January 2016). Other potential Associate Members could be considered afterwards: e.g., the **US and Canada**, which have prominent R&D sectors, are long-standing research partners of the EU³⁷, have extensive research on FACCE-JPI Core Themes and have already successfully participated in a FACCE-JPI joint action. **Brazil** could be considered too as it is an important partner of the EU in the areas of Food and Nutrition Security and bio-economy.³⁸ Members however suggest first interacting with Brazil via specific joint actions. Other strategic partners of the EU in the area of R&D for food security and climate change, such as **China**, could be considered subsequently. China captures an increasing share of total global R&D expenditures (20% in 2013)³⁹ and is engaged in a *Food, Agriculture and Biotechnology Flagship Initiative* jointly with the EU.⁴⁰

At operational level, FACCE-JPI members suggest cooperating with third countries **via relevant international and ARD initiatives and FACCE-JPI ERA-NET Cofunds**, when possible and when national funding on the part of the third country is available. ERA-NET Cofunds can involve the implementation of additional transnational activities that do not benefit from any EC funding, and in which it may be possible to involve third countries that have available national funding (or in-kind resources). **Figures 5 and 6 of Annex II** provide a synthetic overview of current and possible partners at whole-of-JPI level as well as joint action level (per Core Theme).

³⁷ Cf. Report on the Implementation of the Strategy for International Cooperation in Research and Innovation, COM(2014)/567/FINAL.

³⁸ <http://ec.europa.eu/research/iscp/index.cfm?lg=en&pg=brazil>

³⁹ China’s share stood at 4.6% in 2000, and was close to 20% in 2013. Source: UNESCO Science Report 2015.

⁴⁰ EC (2015), Horizon2020 Work Programme 2016/7.

V. COOPERATION MODES AND INSTRUMENTS

5.1 Strategic, whole-of-JPI level

This sub-section outlines tools and approaches that could be used to interact and cooperate with external partners at a strategic, whole-of-JPI level. This includes approaches to facilitate information exchange and coordination as well as tools to engage in closer cooperation:

- *Regular exchange of information and coordination via the organisation of joint workshops and the participation of FACCE-JPI representatives in other initiatives' events* (e.g., events from other JPIs, the GPC, other European initiatives; FACCE-JPI Workshops with other European/International Initiatives). FACCE-JPI could be represented in these meetings by members of the Secretariat; the Chair or Vice-Chairs of the Governing Board, or by relevant members of the Scientific Advisory Board or Stakeholder Advisory Board. This in fact already occurs regularly.
- *Development of joint advocacy and awareness-raising activities vis-à-vis the EC and other international policy-making bodies* (e.g., UN) via the elaboration of joint position and policy papers. This also already occurs, e.g., the joint JPI chairs' Declaration for the 2015 Lund Conference on Joint Programming (December 2015)⁴¹; and the Grand Debate on Nutrition Security organised by FACCE JPI and JPI HDHL at the EXPO 2015 in May 2015.⁴²
- *Granting of Associate Membership status in the JPI for selected third countries*. This has required to modify the Terms of Reference of the FACCE-JPI Governing Board, in order to accommodate for this new status. New Zealand is the first country to benefit from this (as of January 2016).
- *Granting of Observership status to key European partners* (e.g., the EC Joint Research Centre).
- *Conclusion of strategic partnership agreements with selected European and international initiatives*. Such agreements would outline on what and how to cooperate. They could enable FACCE-JPI to act as the European node of selected global initiatives, by feeding the latter with consolidated European knowledge. Such strategic partnerships will only be possible if and when FACCE-JPI becomes a legal entity.

5.2 Operational/ joint action level

Some of the modalities and tools for interaction with non-FACCE initiatives are similar to the tools designed to facilitate alignment *amongst* FACCE-JPI members⁴³, namely:

- *Joint mapping and horizon-scanning*: Mapping is an activity that aims to identify and map ongoing and planned national research programmes, and identify possible research gaps amongst participating countries. Non-FACCE JPI partners that are active in the same remit as FACCE and that aim to address similar societal challenges may have interesting insights to bring to FACCE-JPI mapping exercises.
- *Joint calls for research proposals (e.g., Multi-Partner Call)*: Joint calls allow tapping various research funding streams while enabling transnational teams of researchers to work together on joint research projects. Such calls also promote joint publications of research results in international scientific journals.
- *Participation of third countries in FACCE-JPI knowledge hubs, knowledge networks and FACCE-JPI ERA-NET Cofund projects (e.g., FACCE SURPLUS)*, contingent on available national funding on the third country side.
- *Institutional cooperation between research performing organisations* from FACCE-JPI member states and partner countries: Such cooperation could take various forms, e.g., loose network of research performing organisations from FACCE-JPI members as well as from partners; or the establishment of a formal

⁴¹ <https://www.faccejpi.com/News/European-JPI-Chairs-in-Lund>

⁴² <https://www.faccejpi.com/Document-library/Outcomes-of-the-Grand-Debate>

⁴³ For an overview of existing alignment modalities and tools used by JPIs and other public to public partnerships, see ERALEARN2020, Developing a Typology of Alignment (Deliverable 4.1), www.era-learn.eu.

Research Alliance or consortium (via the conclusion of a Memorandum of Understanding between interested research performing organisations).

- *Joint or shared research infrastructure*: Having access to world-class infrastructure for observation and measurement of scientific phenomena and for harmonising and integrating scientific data is key to achieve the objectives of FACCE-JPI.⁴⁴ An agreement between selected FACCE-JPI member countries and third countries could be concluded to facilitate the sharing of key research infrastructure.⁴⁵ Such an action could be supported by **ESFRI**, mentioned above.
- *Sharing of research data and harmonisation of research methods*: Granting access to each other's databases could be a cost-efficient way to implement the priorities of the FACCE-JPI Strategic Research Agenda. In addition, harmonisation of modelling systems would also help compare FACCE-JPI scientific results with results from research initiatives conducted in other regions of the world (e.g., MACSUR-AgMip cooperation).
- *Joint capacity building and mobility of researchers*: e.g., via mobility schemes and grants, joint seminars and training sessions on inter-disciplinary issues in FACCE's remit. Joint mobility schemes and grants for scientists are widely used by the EU in its Research and Innovation cooperation with third countries.⁴⁶

The choice of cooperation mode will depend on the profile and needs of the external partner and on the mutual cooperation objectives sought. In addition, several cooperation modes could be used with one same partner.

⁴⁴ See Updated FACCE-JPI Strategic Research Agenda, July 2015.

⁴⁵ https://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri

⁴⁶ Gnamus, October 2011.

VI. PROCESS AND CRITERIA FOR CONSIDERING PARTNERS

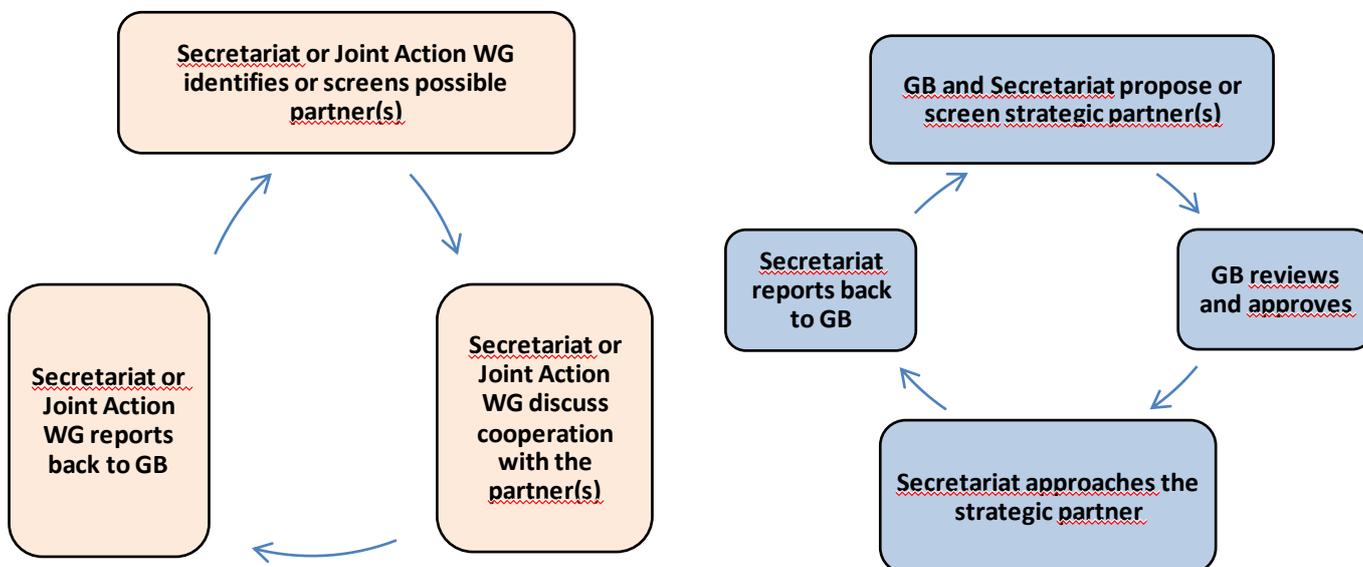
6.1 Process for selecting and evaluating partners

At the **strategic, whole-of-JPI** level, FACCE-JPI member-countries suggest that the Governing Board and the Secretariat be responsible for proposing possible strategic partners. Such proposals should be reviewed and approved by the Governing Board before proceeding onwards (e.g., FACCE-JPI interaction with GACSA). Criteria for evaluating partners are proposed below (Box 1).

At the **operational, joint action** level, the Secretariat and management/coordination teams of existing (and forthcoming) joint actions should propose possible European/international partners. The Governing Board should however be kept informed of such interactions and partnerships on a regular basis (e.g., MACSUR’s cooperation with AgMip) ((see Figure 5). However, when a joint action *mainly relies* on cooperation with non-FACCE partners (e.g., Joint Belmont Forum-FACCE-JPI Call), this action would need to be considered and approved by the Governing Board before proceeding onwards.

Finally, in cases where partners **express an interest in working with FACCE-JPI** (e.g., by contacting the Secretariat or the Chair of the Governing Board directly), a similar process could be adopted, i.e., initial screening by the Secretariat and/or joint action Working Group, then, in the case of strategic partners, approval by the Governing Board would be required (see Figures 3, 4).

Figure 3. Process for considering partners at joint action level Figure 4. Process for considering partners at whole-of-JPI level



6.2 Process for monitoring partnerships at the joint action level

In order to monitor effectively existing and future partnerships at joint action level, Members propose to set up an **informal FACCE-JPI international relations network** composed of one contact person per relevant FACCE-JPI joint action. That network could be coordinated by the FACCE-JPI Secretariat. The network could also be leveraged to exchange good practices and coordinate outreach activities across JPI joint actions.

6.3 Criteria for evaluating future partners

FACCE-JPI member-countries suggest taking account of the following criteria when assessing possible partners.

BOX 1. SUGGESTED CRITERIA FOR FUTURE PARTNERS

European and global initiatives/ players (other than ERA-NETs):

- Active in the same field as FACCE (cf. the FACCE-JPI Core Themes) and conducts similar or complementary work to FACCE or plans to do so in the future;
- Important player in that field, e.g., in terms of publications and/or public R&D investments; could add value to the FACCE Joint Action;
- With high impact and visibility vis-a-vis “end-users”, e.g., policymakers, farmers, SMEs and other actors of the agricultural or food value chain;
- Has some degree of overlapping membership with FACCE-JPI;
- Open to work with external partners (e.g., also has an international strategy) and, where relevant, has a budget to finance joint actions;
- Has expressed interest in interacting with FACCE-JPI.

Third countries– FACCE-JPI Associate Members:

- Has similar national research objectives and approaches to FACCE-JPI and considers the FACCE Core Themes as important in its national research strategy;
- Is an important player in that field and could thus add value to the FACCE Joint Action;
- Has ongoing work on one/more FACCE-JPI Core Themes and the possibility to finance (new) joint work;
- Has already cooperated in a satisfactory way with FACCE via specific joint actions;
- Already has close research and innovation ties with one or more FACCE member-countries or with the EC, which the JPI could leverage;
- Has expressed interest in working with FACCE.

Regional/Agricultural Research for Development initiatives:

- Research initiative active in the same field as FACCE (cf. the FACCE-JPI Core Themes) and conducts similar or complementary work to FACCE or plans to do so in the future;
- Targeted at a region of strategic importance to the EU (e.g., Mediterranean region, Africa);
- Has high visibility vis-a-vis “end-users” in their respective region;
- Has an interest in interacting with FACCE-JPI.

VII. CONCLUSIONS AND RECOMMENDATIONS

FACCE-JPI has since its outset been cooperating extensively with European and international partners, in particular at the operational level. Indeed, several FACCE-JPI strategic priorities have been implemented via **joint research actions with such partners** (e.g., joint calls for research proposals with, respectively, the BiodivERsA ERA-NET, three GRA countries, and six Belmont Forum countries), or by involving external partners in joint actions undertaken by FACCE-JPI members (e.g., third countries participating in the FACCE SURPLUS call). In addition, at the whole-of-JPI level, FACCE-JPI has held several discussions on possible cooperation with bio-economy ERANETs, other JPIs and international initiatives via workshops, JPI Chair meetings and other events.

Looking ahead, FACCE-JPI member-countries suggest interacting with **three broad categories of partners** in order to: promote greater structuring of research at European and international levels, improve the visibility and impact of FACCE-JPI on policymaking and innovation, and facilitate the exchange of information and mutual learning with similar research initiatives in other regions of the world. The paper also identifies a number of **key partners** within each of these categories that could be considered for future interaction, **at joint action (operational) level** and **“whole of JPI” (strategic) level**. This is not to say that other relevant partners could not be considered nor that FACCE-JPI should not be open to arising opportunities, but rather that these key partners should be considered *in priority*.

While there are many expected benefits for FACCE-JPI from cooperating with European and international partners, such as enhanced research complementarity, greater cost-efficiency of research funding, and better research uptake and impact, there are also possible difficulties, such as low inter-operability between different initiatives' timelines and procedures (e.g., in terms of call calendars, funding rules), and the sometimes differing expectations and research needs across different initiatives. In addition, the JPI Secretariat has limited human resources and the JPI is not a legal entity, which makes it more difficult to engage in formal strategic partnerships with other initiatives. This Strategy indeed suggests being **selective** and focussing on partners with the **highest added value** for FACCE-JPI in the next five years.

Finally, in order to implement the *Strategy for Cooperation and Coordination with European and International Initiatives* in an efficient way, members recommend to:

- **Better leverage on all FACCE-JPI actors** (e.g., members of the Governing Board, Secretariat, SAB and StAB) who are already engaged with/in some of the proposed external partners/ initiatives, in order to identify synergies and concrete cooperation modes with the latter.
- **Set up an informal network of international relations contact points** across relevant FACCE-JPI (existing and future) joint actions, in view of facilitating the monitoring, coordination and exchange of good practices at the operational level.
- **Introduce a process and criteria for considering potential partners** across all joint actions in the future, to ensure consistency across the entire JPI, and
- **Better communicate FACCE's key scientific results and achievements** and “translate” FACCE-JPI results into possible policy options. Effective communications of the JPI's key achievements and added value is essential to attract external partners.

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ANNEX I. OVERVIEW OF THE TARGET GROUPS, OBJECTIVES AND POSSIBLE TYPES OF INTERACTIONS

Target group	Main objectives of interaction	Benefits/Opportunities	Costs/Risks	Possible cooperation modes/tools
ERA-NETs	<ul style="list-style-type: none"> - Structuring of the European research landscape and strengthening of the European Research Area - Exchange of information, mutual learning and networking 	<ul style="list-style-type: none"> - Avoid duplication and trigger greater research complementarity and research funding efficiency - Allow FACCE to implement cost-efficiently selected short-term SRA/IP priorities, by leveraging on knowledge and expertise generated by relevant ERA-NETs - Cost-efficiency thanks to overlapping membership: some FACCE-JPI member-countries also participate in these ERA-NETs 	<ul style="list-style-type: none"> - Time constraints (e.g., organising a joint call with an existing ERA-NET can take up to two years) - Inter-operability of funding rules, operational procedures and timelines for completion between the FACCE-JPI and the ERA-NET in question - Finding the right topic at the intersection of both initiatives? 	<ul style="list-style-type: none"> - Joint calls - Joint scientific publications - Aligned research methods and protocols - Sharing of research data - Joint training of researchers - Joint workshops to exchange information and lessons learnt - Participation in each other's events to boost mutual learning - Joint advocacy vis-à-vis the EC

Target group	Main objectives of interaction	Benefits/Opportunities	Costs/Risks	Possible cooperation modes/tools
JPIs and European innovation partnerships	<ul style="list-style-type: none"> - Structuring of the European research landscape and strengthening of the European Research Area - Greater impact at European level - Exchange of information, mutual learning and networking 	<ul style="list-style-type: none"> - Greater complementarity in research - Increased cost-efficiency (overlapping membership; possibility to leverage StAB members to engage with private-led initiatives) - Better research uptake by private companies, which would improve impact on innovation; - Enhanced impact on EU and Member-State policymaking. - Exchange good practices regarding strategic orientations and operational modalities 	<ul style="list-style-type: none"> - Time constraints - Inter-operability of funding rules, operational procedures and timelines - Lack of clarity regarding the future work of some of these European initiatives 	<ul style="list-style-type: none"> - Joint mapping - Joint calls and joint scientific publications - Sharing of research data - Joint/shared research infrastructure - Joint events to exchange information and lessons learnt - Participation in each other's events to boost mutual learning - Joint advocacy vis-à-vis the EC
Agricultural Research for Development initiatives	Exchange of information, mutual learning and networking	<ul style="list-style-type: none"> - Greater in-country/EU coherence between AR and ARD policies - Greater cost-efficiency by conducting joint research in areas of mutual interest - Widen the scope of possible solutions to global challenges; - Facilitating the identification of best practices across regions - Promoting networking and capacity building amongst researchers; - Supporting policy dialogue and “science diplomacy” with these regions 	<ul style="list-style-type: none"> - Time-consuming: some key players may be located remotely - Interaction may be required with Foreign Ministries (while FACCE is mainly in the remit of Research and/or Agricultural Ministries) - Differing research needs - These initiatives may lack a mechanism to finance joint research actions with the FACCE-JPI or have different funding and implementation mechanisms - Intellectual property right issues - Misconceptions regarding ARD vs. AR - Cultural barriers to cooperation 	<ul style="list-style-type: none"> - Joint foresight - Joint calls for research proposals and joint scientific publications - Sharing of research data and scientific results - Aligned research methods and protocols - Institutional cooperation - FACCE participation in ARD events (via StAB/SAB/GB) - Joint training of researchers - Joint advocacy

Target group	Main objectives	Benefits/Opportunities	Costs/Risks	Possible cooperation modes/tools
International initiatives/ partners	<ul style="list-style-type: none"> - Adoption of global approaches and structuring of scientific knowledge at the global level - Higher visibility and impact for FACCE internationally (possibility of uptake at UN level) - Exchange of information, mutual learning and networking 	<ul style="list-style-type: none"> - Generate critical mass to tackle global challenges - Combining FACCE-JPI's scientific results with other initiatives' knowledge can speed up innovation and inform global negotiations and policymaking. Cooperation with highly visible and well-connected global initiatives would help raise FACCE's profile internationally - Facilitates coordination and synergies between FACCE and other global initiatives - Greater cost-efficiency, by combining research budgets 	<ul style="list-style-type: none"> - Time and resources constraints - Inter-operability of procedures and timelines; Input into global initiatives can be complicated when the timelines of delivery are different (e.g., some FACCE scientific results will only be generated in a couple of years' time) - Difficulties in coordination, as FACCE is mostly overseen by national Research and/or Agricultural Ministries while some of these initiatives may be overseen by Foreign Ministries - Lack of clarity regarding the future work of some initiatives and how these could interact amongst each other 	<ul style="list-style-type: none"> - Joint mapping - Joint calls for research proposals and joint scientific publications - Sharing of research data and scientific results - Aligned research methods and protocols - FACCE participation in global events (via StAB/SAB/GB) - Strategic partnership agreement: FACCE as the European node of global initiatives - Joint advocacy vis-a-vis the UN
Third countries	<ul style="list-style-type: none"> - Structuring of research at the global level - Exchange of information, mutual learning and networking 	<ul style="list-style-type: none"> - Reach the critical mass needed to tackle global challenges - Leverage research funding to trigger greater cost-efficiencies - Gaining access to new knowledge and expertise and additional research infrastructure relevant to FACCE-JPI - Reinforcing the internationalisation strategy of FACCE members and contribute to "science diplomacy". - Exchanging information on research methodologies and scientific results 	<ul style="list-style-type: none"> - Time-consuming as some key players may be located remotely - Differing expectations and research needs - Different research funding and implementation mechanisms and procedures (inter-operability issue) - Intellectual property right issues - Cultural barriers to cooperation 	<ul style="list-style-type: none"> - Joint foresight - Joint calls and joint scientific publications - Joint workshops to exchange information on research data and methods - Strategic cooperation: Associate Membership

ANNEX II. SYNTHETIC OVERVIEW OF EXISTING AND POSSIBLE FUTURE EXTERNAL PARTNERS

Figure 5. Existing and potential partners at the *whole-of-JPI* level (i.e., relevant for all FACCE-JPI work)

(normal= ongoing; *italics*= under discussion; ***bold and italics***= could be considered/strengthened in the future)

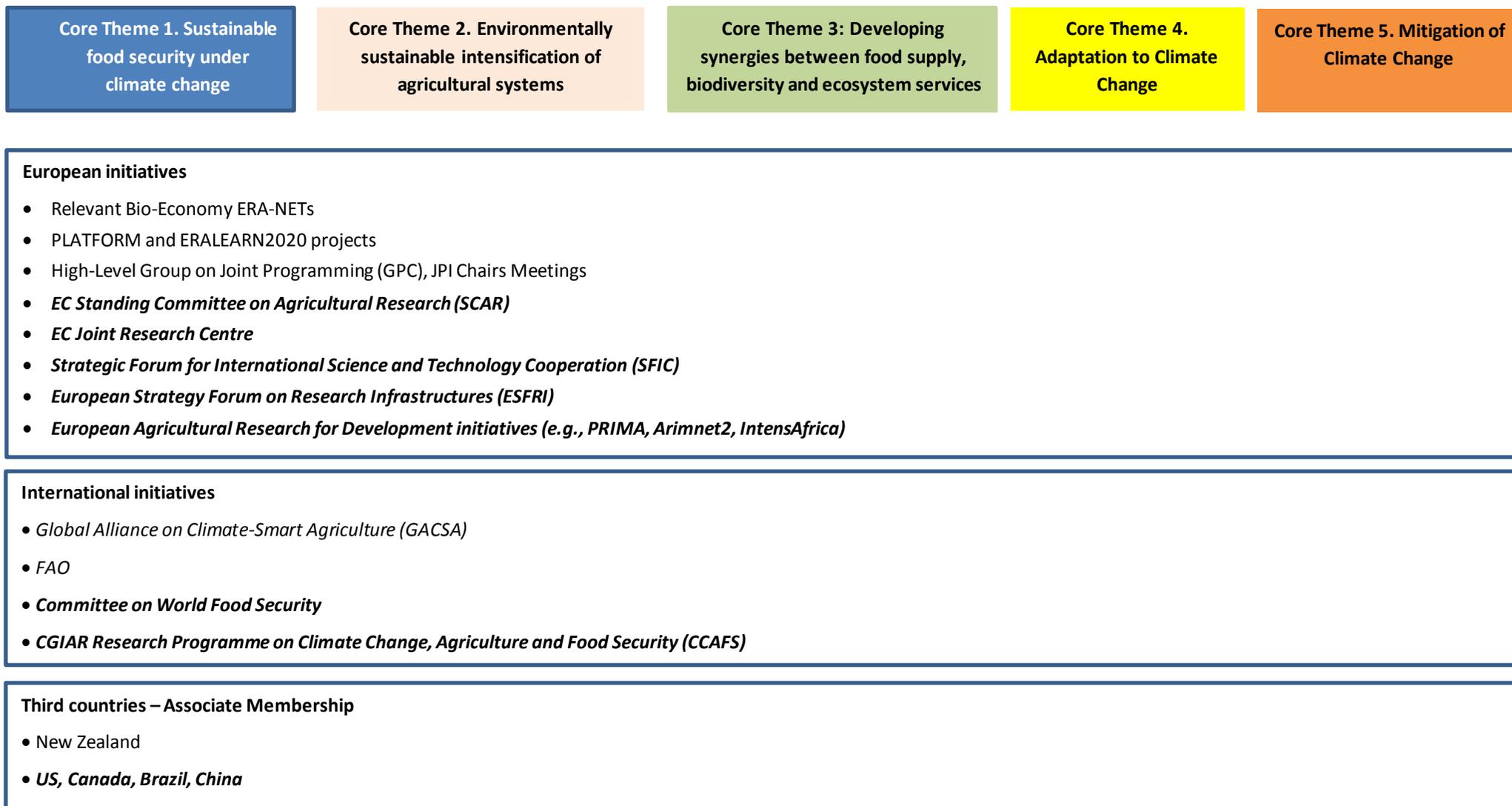


Figure 6. Existing and potential external partners at the *joint action level*

(normal font= ongoing; *italics*= under discussion; ***bold and italics***= could be considered/strengthened in the future)

Core Theme 1. Sustainable food security under climate change	Core Theme 2. Environmentally sustainable intensification of agricultural systems	Core Theme 3: Developing synergies between food supply, biodiversity and	Core Theme 4. Adaptation to Climate Change	Core Theme 5. Mitigation of Climate Change
<p>European initiatives</p> <ul style="list-style-type: none"> • <i>JPI HDHL</i> • <i>SUSFOOD 2 ERA-NET</i> • <i>JTI on Bio-Based Industries</i> • <i>KIC Food</i> 	<p>European initiatives</p> <ul style="list-style-type: none"> • Water JPI (WaterWorks 2015 joint call) • <i>SusAn ERA-NET</i> • <i>CoreOrganic Plus ERA-NET</i> • <i>ICT AGRI II ERA-NET</i> • <i>SUSCROP</i> • <i>EIP AGRI</i> 	<p>European partners</p> <ul style="list-style-type: none"> • BioDiversa ERA-NET (joint call) • <i>2015 BioDiversa call on soil biodiversity</i> 	<p>European initiatives</p> <ul style="list-style-type: none"> • Water JPI (“WaterWorks 2015” joint call) • <i>SusAn ERA-NET</i> • <i>SUSFOOD 2 ERA-NET</i> • <i>ICT AGRI ERANET</i> • <i>C-IPM ERA-NET</i> • <i>KIC Climate</i> • <i>EIP Water</i> 	<p>European initiatives</p> <ul style="list-style-type: none"> • <i>JPI Climate</i> • <i>KIC Climate</i> • <i>JTI on Bio-Based Industries</i>
<p>International initiatives</p> <ul style="list-style-type: none"> • Belmont Forum (via joint call) <p>Agmip (partnership on modeling with MACSUR)</p>				<p>International initiatives</p> <ul style="list-style-type: none"> • GRA (via multipartner call) • <i>Additional cooperation with GRA</i> • <i>“4 per mille” international initiative</i>
<p>Third countries</p> <ul style="list-style-type: none"> • USA, AUS, BRA, IND, JPN, CHN, ZAR (via the joint call with the Belmont Forum) • <i>Brazil</i> 	<p>Third countries</p> <ul style="list-style-type: none"> • NZ, CAN, USA, ZAR, Taiwan (via FACCE SURPLUS and WaterWorks 2015) • Egypt, Tunisia (WaterWorks 2015) 			<p>Third countries</p> <ul style="list-style-type: none"> • USA, CAN, NZ (via the joint call with the GRA) • <i>Brazil</i>

