



CASA

Common Agricultural
and wider bioeconomy
reSearch Agenda

D3.5 List of proposals on better alignment (in SCAR to foster impact)



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This document is the deliverable 3.5 of Task 3.4 to support SCAR on better alignment of research and innovation policies

The overall objective of CASA, a Coordination and Support Action (CSA), is a **consolidated common agricultural and wider bioeconomy research agenda** within the European Research Area.

CASA will achieve this by bringing the Standing Committee on Agricultural Research (SCAR), which has already contributed significantly to this objective in the past, to the next level of performance as a research policy think tank. CASA will efficiently strengthen the strengths and compensate for the insufficiencies of SCAR and thus help it evolve further into “SCAR plus”.

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LIST OF ABBREVIATIONS

BSW	Bioeconomy Strategic Working Group
CAP	Common Agricultural Policy
CASA	Common Agricultural and wider bioeconomy reSearch Agenda
CCAFS	CGIAR Research Program on Climate Change , Agriculture and Food Security
CWG	Collaborative Working Group
CWG AHW	Collaborative Working Group European Animal Health and Welfare Research
CWG-SAP	Collaborative Working Group on Sustainable Animal Production
CGIAR	The Consultative Group on International Agricultural Research
DG	Directorate-General
EC	European Commission
EIP	European Innovation Platform
EJP	European Joint Programming Cofund
ERA	European Research Area
ETP	European Technology Platform
EURAGRI	European Agricultural Research Initiative
FAO	Food and Agriculture Organisation of the United Nations
GACSA	Global Alliance for Climate Smart Agriculture
GPC	High Level Group on Joint Programming
GRA	Global Research Alliance on Agricultural Greenhouse Gases
HUE	Horizon Europe
IBF	International Bioeconomy Forum
JPI	Joint Programming Initiative
OECD	Organisation for Economic Co-operation and Development
P2P	Public-to-Public partnership
PPP	Public-Private Partnership
PRIMA	partnership on Research and Innovation in the Mediterranean Area
R&I	Research and Innovation
SCAR	Standing Committee on Agricultural Research
SCAR FISH	Strategic Working Group Fisheries and Aquaculture Research
SCAR FS SWG	SCAR Food Systems Strategic Working Group
SDG	Sustainable Development Goal
SG	Steering Group
SWG	Strategic Working Group
SWG AKIS	Strategic Working Group on Knowledge and innovation Systems
SWG ARCH	Strategic Working Group in European Agricultural Research towards greater impact on global challenges
SCAR FOREST	Strategic Working Group on Forests and Forestry Research and Innovation
TempAg	OECD-The Sustainable Temperate Agricultural Research Network
WG	Working Group

EXECUTIVE SUMMARY

Background

The Standing Committee on Agricultural Research (SCAR) originated in 1974 sometime before the concept of the European Research Area (ERA). Its main task at that time was to structure and coordinate national research efforts and to bring these in line with the aims of the Common Agricultural Policy (CAP). With the renewed and broadened mandate in 2005, SCAR established itself firmly in a role as one of the major structuring players in and of the ERA. The 2015 'Reflection Paper on the Role of the Standing Committee on Agricultural Research' (SCAR, 2015) served to establish future directions for SCAR, listing five challenges, among which alignment of national research programmes. Today, the ERA landscape has grown into a comprehensive and dense one, that includes a wide variety of public-to-public (P2P) and public-private (PPP) partnerships. This raises questions on their interlinkages with SCAR and on how SCAR itself is positioned in this landscape. In addition to this, national and European (research) policies are required more and more to align with international policies, priorities and frameworks of operation as the societal challenges we are facing today urge to take joint, focussed action. Recent international assessments have (again) highlighted pressing challenges in the 21st century with regard to how food and biological resources are produced and consumed, in light of a changing climate. A third dimension is alignment of SCAR Working Groups (WGs) themselves with the DGs. The aim of this desk study is to gather relevant information on existing and possible linkages between the SCAR WGs as well as between the SCAR and its WGs with important European and international players as a background document for SCAR to reflect on modes for alignment and strengthening collaboration at European and international level.

Alignment of SCAR for improved impact

While the overall focus of the SCAR WGs is still on their respective remits (interviews chairs 2017; Devaney, 2017), interest for mutual cooperation in order to create synergies seems to be growing. Given time, human resources and money constraints, collaborating amongst WGs is mostly considered if there is added value and a suitable topic of common interest. Many WGs have expressed their wish for improving participation, or at least communication, of their work towards other DGs than just DG RTD and DG AGRI. Such communication and cooperation is currently dependent on personal interest, but would ideally be formalised.

With the large number of players currently operating in the ERA, the demarcation between different responsibilities is becoming less clear. SCAR traditionally is *the* body where the national policy priorities are brought together – often resulting in dedicated ERA-NETs. At present, more networks and initiatives develop Strategic Research (and Innovation) Agendas (SRAs) and move from structuring agricultural research to offering policy advice on research priorities. This increased complexity may require more coordination at the national level between the representatives in the various networks. SCAR could position itself in this landscape as an overarching or umbrella body, a position it has taken since its renewal in 2005, and could still be of great value today. As for the WGs knowledge about other SRAs, mapping exercises and studies could provide valuable feed-in to their own work and may also provide opportunities to extend their connections with other relevant ERA players.

Given the global nature of the remit SCAR operates in, international developments affect policy advice. There are a number of ways such developments can be taken into account. SCAR (Plenary) needs to decide to what degree they will involve themselves in the international

arena. A clear focus on national and European policy will still mean international developments are taken into account. Since the launch of the International Bioeconomy Forum (IBF) in 2016, European Member States are represented in the IBF plenary through a delegate of SCAR. Other observers are FAO and the BIOEAST initiative. Establishing other connections, however, could also be an opportunity for SCAR to influence international policies and frameworks and gain more visibility. Many WGs already interact with international players in their domain and some have also established connections to more overarching organisations such as FAO or OECD. There are still opportunities to strengthen these links through enhanced exchanges of information and participatory meetings.

Figure 1 below gives an overview of existing connections (under the form of participations in meetings and workshops and/or joint publications or memberships) between the WGs, DGs, European and international organisations, based on a mapping exercise.

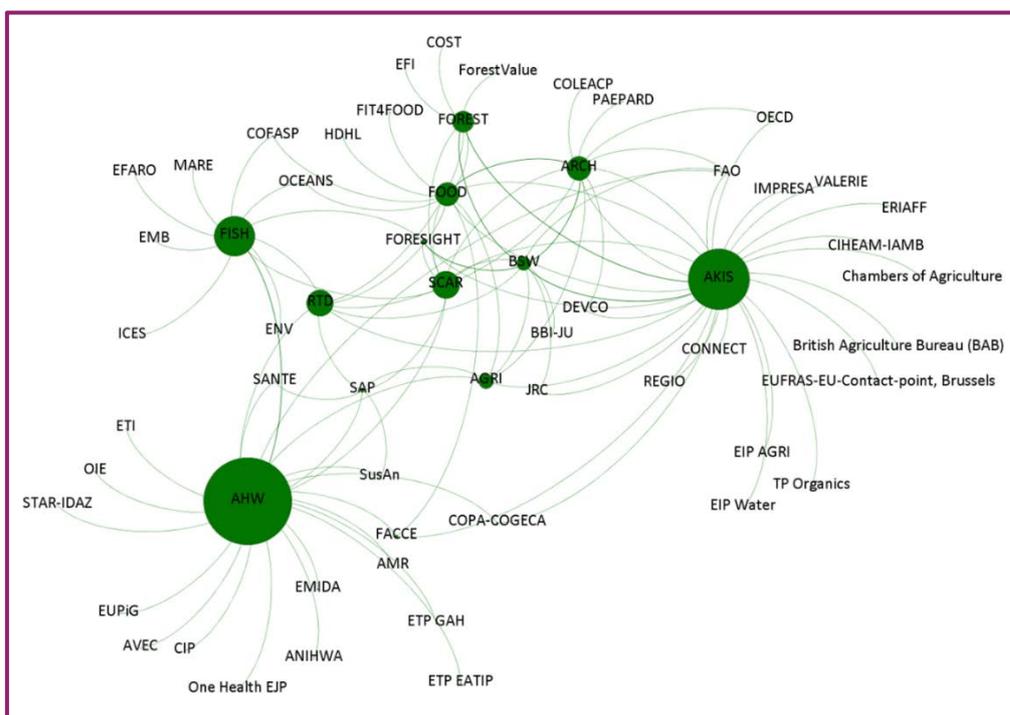


Figure 1: Connections of SCAR working Groups with other networks and organisations

Recommendations: List of proposals for alignment

To be able to improve alignment at WG, European and international level, the following suggestions are recommended:

The **knowledge produced by the SCAR WGs should be maximally used at the national level** to maximise impact on R&I and to stimulate alignment between the MS. Resources are needed to communicate and disseminate (including anticipative) on SCAR. SCAR mirror groups (with participation of funding agencies and high level regional authorities) contribute to be effective and increase the dissemination and use the SCAR outputs.

A **prioritisation of topics** is needed. Joint activities (e.g. like WG workshops) on cross sectoral issues and themes that are specifically linked to EU innovation and research policies should be

put in place. Cross sectoral issues include digitisation, climate and information systems. Themes relate to policies or (funding) programmes like Food 2030, CAP, EIP-AGRI, Rural Development Programmes, Smart Specialisation Strategies and Horizon Europe (HEU);

Financial resources should be allocated for human capacity to be able to organise joint activities between the different SCAR WGs;

To enhance collaboration and alignment, a **forum could be implemented to stimulate and interact at all levels** including the international level. Such a forum should allow active participation of all SCAR WGs and relevant international organisations;

To stimulate information exchange on international policies a **dedicated website containing relevant information** could be put in place;

To stimulate better information exchange between the WGs and the different DGs of the EC, in particular DG AGRI, DG RTD and DG ENV, a **sustainable link** needs to be present within all WGs in terms of personal interaction, participation in meetings and regular information exchange. Relevant DGs should be involved on a regular basis;

Clear **expectations and suggestions on how national ministries and regional governments can use the information** that is produced by the different WGs may help uptake of this information. To facilitate this, structures such as mirror SCAR groups at national level are highly recommended for each SCAR member.

The urgency of combating the societal challenges in the 21st century also creates an imperative need to speed up Research and Innovation (R&I) impact at national and EU level to guide a sustainable transition in Europe. **SCAR can play a major role in this transition through advising the EC and the MS, in particular in funding agencies, on including one or more high impact characteristics of R&I programmes at European and national level** such as:

- *Ex ante* selection impact criteria and impact indicators;
- Participation of professional communicators to maximize impact;
- Transdisciplinarity in research teams and the multi-actor approach to contribute to consistent communication in all steps of the value chain and as such impact;
- Impact assessment, evaluation and monitoring of the dissemination plan of projects.

Also **SCAR advice on the content and format of educational programmes at EU and national level in particular for young farmers** (such as an Erasmus +) in order to stimulate farm generation renewal would contribute to increase impact on the uptake of R&I outputs and agricultural innovation.

1. INTRODUCTION AND BACKGROUND

SCAR

The Standing Committee on Agricultural Research (SCAR) was established in 1974, in an environment where the concept of the European Research Area had not been formulated yet. SCAR was tasked with structuring and coordinating national research efforts and bringing them in line with the aims of the Common Agricultural Policy (CAP). With the introduction of the concept of the European Research Area, the issue of aligning (research) processes, topics and available money was firmly set within a conceptual framework. The aim of the ERA was to enhance transnational cooperation between Member States, thus enabling a more efficient use of money and resources. After the revival of SCAR in 2005, and being given its renewed and broadened mandate, its role as one of the major players in the ERA was critically reviewed in the 2015 'Reflection Paper on the Role of the Standing Committee on Agricultural Research' (SCAR, 2015). This reflection paper listed five challenges for SCAR, among which alignment of national research programmes.

Alignment of national research programmes: this has been described by the High Level Group on Joint Programming (GPC) as key for successful joint programming of research activities. With the evolved public-to-public partnerships' landscape (P2P), SCAR could provide inspiration, learning and exchange on how to approach the joint programming process. SCAR has shown its success in establishing ERA-NETs (mainly under FP6 and FP7) from dedicated Collaborative Working Groups. Self-sustainability of the ERA-NETs and JPI's is also included.

Rationale

In the 2016-2017 H2020 Societal Challenge 2 SFS Work Programme, the European Commission (EC) dedicated funds for support of SCAR, directly following the reflection paper. This resulted in the CASA project (Common Agricultural and wider bioeconomy reSearch Agenda), which aims to support SCAR directly (by financially supporting experts studies for the WGs, facilitation of WGs and support with the next Foresight), and indirectly, by tackling for example questions on inclusiveness, alignment and international cooperation. This document focuses on alignment of SCAR with external organisations, policies and frameworks, and to a lesser extent, alignment of the different WGs within SCAR. It aims at pointing out opportunities and challenges for alignment of SCAR WGs with each other, with the DGs; other European partnership initiatives and international policies and initiatives.

Alignment of national research agendas and with international ones is a long-standing means in the European Research Area to boost research and innovation, and -in more recent years- to effectively and efficiently combat societal challenges in a joint, coordinated fashion. The societal challenges we are facing today demand taking joint and focussed actions. Recent international assessments have (again) highlighted pressing challenges in the 21st century. In addition,, there is an urgent need to change the way we produce and consume food and the way we use biological resources in order to decrease its negative impacts on climate change (IPCC 2014? 2019), health and diet-related non-communicable diseases (Willet et al, 2019), and biodiversity and ecosystems (IPBES, 2019). The research and innovation of today will feed into the solutions we urgently need to manage this '*great transformation*', as called by the EAT LANCET commission. On the production side, our primary food producers are leaving agri-

businesses at an alarming rate and young farmers are difficult to attract into the business¹. These developments question both profitability and sustainability of farming, as well as landscape management and ecosystem services. Our food provision may be at risk on the longer term. Agricultural R&I can bring solutions and that are urgently needed to speed up and manage this transformation. In order to achieve this, improved coordination and cooperation in the use of European and national instruments is required. SCAR and its WGs can play a major role in focussing and increasing innovation potential, also in the present European Research Area, with its wide variety of public-to-public (P2P) players. It does require rethinking on the role of SCAR in the new European landscape, and in on how to align with international policies and priorities such as the Sustainable Development Goals (SDGs), as well as frameworks of operation from international organisations such as the Food and Agriculture Organisation of the United Nations (FAO) and the Organisation for Economic Co-operation and Development (OECD).

Alignments within SCAR are becoming important, as policies are increasingly becoming inclusive, holistic and multi-stakeholder. In practical terms this translates into questions like how the WGs collaborate with each other; how are linkages with the different EC Directorates-General (DGs) developed, and what improvements may be made here? This study builds on the results of the SWOT analysis (Devaney et al, 2018), the study on Representation and Inclusion (Boekhorst te, 2017) and the European Policy landscape review (Devaney et al, 2017). It includes the results of a survey conducted in December 2017 on alignment among WG members and interviews that have been conducted with chairs and co-chairs, and comprises a desk study on existing and possible linkages with relevant European and international players. In addition, in May 2019 short interviews were held with the WG (vice-/co-) chairs at the workshop *'Strengthening linkages between SCAR Groups and Directorates-General of the European Commission and international organisations'*². Finally, a dedicated session was organised on how SCAR can contribute in speeding up R&I impact at the SCAR Conference *'Contributing to shape the future'* in Brussels on June 12th.

¹ [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Distribution of working population by age groups, 2016 \(LFS\).png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Distribution_of_working_population_by_age_groups,_2016_(LFS).png)

² D.2.9 "Report on Linkages"

2. WHAT DOES ALIGNMENT MEAN FOR SCAR MEMBER STATES?

Alignment is defined by the High Level Group on Joint Programming (GPC) as *“The strategic approach taken by Member States’ programming authorities to modify their national programmes, priorities or activities as a consequence of the adoption of joint priorities in EU level Public-public partnerships”* and SCAR is considered to be able to play a major role in realising this alignment. SCAR can be characterised as a public-to-public (P2P) cooperation that stimulates joint programming across member states and the European Commission. Especially after the renewal of its mandate in 2005, SCAR was not only formally tasked with advising the EC on agricultural research policy, but also on a broader remit, including the Bioeconomy. SCAR has demonstrated its ability to align national priorities through a number of Collaborative Working Groups (CWG) that have led to ERA-NETs, produced Foresight studies, performed mapping exercises and played an important role in conceiving the first Joint Programming Initiatives (JPI) and the Agricultural European Innovation Platform (EIP AGRI).

A recent SWOT analysis performed by CASA indicates that for the majority, SCAR member states view alignment in terms of ‘connecting force, knowledge exchange, networking and collaboration between Members States’ (Devaney et al, 2018). Peer-to-peer learning and knowledge transfer at both research programming, research policy and research coordination levels are highlighted. For many Member States the true impact and strength of SCAR lies in its output activities related to the ERA-NETs (FP6 and FP7), JPIs, Cofunds (Horizon 2020), etc. According to many research participants in SCAR WGs, it is within and through these initiatives that SCAR succeeds in coordinating research, secures funding (particularly for agricultural research) and achieves its impact (including on policy).

The same study, however, also raised questions on the efficiency of these mechanisms (with issues of duplication and overlap) and ability to attribute their existence to the SCAR as a ‘parent’ structure (the role of SCAR in the realisation of some initiatives is not always clear to the initiatives themselves). The SWOT also indicated an increasing concern amongst interviewed WG participants that SCAR’s influence and impact on both European and national research and innovation (R&I) policy and programmes may be decreasing. According to the results of the SWOT, there is concern whether all the information and knowledge that is generated and gathered by SCAR WGs does not always reach or influence national or European policy circles (dubbed ‘implementation deficit’). Interviewees emphasised that while the knowledge exchange features of SCAR are important, this knowledge needs follow-up action and implementation to be effective. Given the restricted amount of resources under which SCAR and its bodies (e.g. WGs, SCAR Steering Group and SCAR Plenary) operate, effective follow-up is difficult. Looking more closely at alignment between WGs may help to increase efficiency in the use of resources, creating some room for follow-up activities.

3. ALIGNMENT BETWEEN WORKING GROUPS AND BETWEEN SCAR AND EC DIRECTORATES-GENERAL

Rationale

Historically, the SCAR WGs have had a high level of autonomy, and cooperation between WGs is still largely dependent on a common interest in specific topics. If such topics do exist, there are benefits of joining forces: European policies broaden up to encompass more thematic areas (e.g. Bioeconomy Strategy, Food 2030), forcing WGs to broaden their own scope. Clever cooperation could increase knowledge exchange, effectiveness and efficiency. To obtain a better understanding of already ongoing cooperation, challenges and improvements, in summer 2017 a survey on alignment was held under all WG members known at that time. Its aim was to establish some base-line information on how the individual members of the WGs perceive the interactions and alignment of their WG with others, and with other European and international initiatives. However, given the limited response (about 10%), information from this survey is not suited to establish a base-line and will be provided here only in an anecdotal way. Falling back on the results of the SWOT analysis, these show a clear wish for SCAR WG members to establish a more direct and two-way contact with the different EC DGs. DG Research and Innovation (RTD) and, Agriculture and Rural Development (AGRI) are, not surprisingly, heavily involved in SCAR WG activities, and RTD serves as SCAR Secretariat for the Plenary and SG. Involvement of DGs relies also on the specific area of interest of the WGs. The DG Maritime Affairs and Fisheries (MARE) is very active in SWG Fish, SWG ARCH has established links with the DG International Cooperation and Development (DEVCO), CWG AHW with the DG Health and Food Safety (SANTE). In light of the broadened remit, the development of new, more inclusive policies and worldwide challenges like climate change that have impact on primary production, food & feed, and (agricultural) land use, SCAR members feel the need to include other DGs more in their work, or at least be given the opportunity to exchange information on what is being done by the WGs that may be of importance for those DGs. Especially the DG Internal Market, Industry, Entrepreneurship and SMEs (GROW), DG Environment (ENV), DG Communications Network, Content and Technology (CNECT), and the DG Climate Action (CLIMA), are mentioned as potentially important to connect to.

Cooperation

Working Groups of SCAR

At present, SCAR WGs seek opportunities to work together when topics of mutual interest exist. Data from the minutes of WGs, interviews conducted with (co-/ vice-) chairs and data from the survey indicate the following WG interaction map (Table 1). Notably, the WGs the most interacting with other WGs are AKIS, ARCH and BSW, not surprising given their horizontal coverage and broad, non-thematic mandate. The CWG Animal Health and Welfare (CWG AHW) has strong connections with the other CWG Sustainable Animal Production (CWG SAP), but its interaction with the SWGs seems rather limited (to SCAR FISH). This may be a result of the very specific niche AHW occupies, and their well-developed networks beyond SCAR bodies. SCAR FOREST and FISH seem to have limited interactions with other WGs. In the latest inventory (September 2018) of synergies between WGs, it was noted that the number of joint activities between WGs is growing. A number of WG partners also interact with their counterparts on the national level. For example in Austria and France there are one or two national meetings where the various national WG representatives come together to discuss ongoing activities and emerging topics in the WGs, and provide input on request. For example, in Austria, the CWG AHW provided input to SWG Food Systems on their request.

Table 1: Working Group interactions (could be mutual activities but also inviting each other’s members to meetings; e.g. any activity that goes beyond mere informing each other).
v=interactions, o=expressed wish to interact in joint activity.

	AKIS	FISH	FOOD	ARCH	BSW	FOREST	AHW	SAP
AKIS			V	V	V	V		
FISH			O				V	
FOOD	V	O		V	O	V		
ARCH	V		V		V			
BSW	V		O	V		V		
FOREST	V		V		V			
AHW		V						V
SAP							V	

Over the past years, a number of joint activities between the SWGs have taken place, as well as studies in particular on cross-cutting issues or cross sectoral themes in which areas covering more than one WG is being tackled. The latest examples of such cooperation are the joint SWG ARCH, AKIS, FOOD workshop ‘Programming Research and Innovation for Improved Impact’ that was held on April 6th, 2018 in Italy. This joint activity also led to a Policy Brief regarding *Ex Ante* impact assessment based on the discussions and conclusions from the workshop (launched October 31st, 2018). Another impact meeting was held by SWG ARCH and SWG AKIS in November 2017 in Brussels. A kick-off meeting for exploring the respective mandates and possibilities for joint activities and alignment, in particular in frame of the EIP-AGRI and Food 2030 was held with SWG AKIS and SWG Food on February 3rd, 2017.

As a follow up on 17th October 2017, a SWG AKIS and Food Systems joint workshop took place in Brussels with the support of DG RTD and DG AGRI. The workshop was linked to the European Commission Conference Harnessing Research and Innovation, a Science Policy Dialogue. About 60 participants, mainly representatives from Agri-food SMEs, but also intermediaries, policymakers, experts, retailers, consumers, innovation managers and others participated in this meeting. The objectives of the workshop were to have discussion and formulate recommendations and best practices on Agri-food SMEs’ main challenges, opportunities and collaborative innovation approaches; knowledge flows/exchange among Agri-food SMEs and along the supply chain; cross-fertilisation between Agri-food SMEs and all links in the chain; consumer expectations (quality, local, organic, traditional food) and environmental aspects; market opportunities and challenges (economic aspects). Also the studies that are currently conducted often cover cross-cutting topics that should benefit the work of more than one WG.

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Box 1: Studies conducted in 2017-2018 for/by WGs that cover cross-cutting topics

- **SWG ARCH (2018):** Global implications of the European Food System – A food systems approach (Berkhout, P. et al)
- **SWG FISH & CWG AHW (2018)** Strengthening Fish Welfare Research through a Gap analysis

study (Manfrin A. et al)

- **BSW (2018): Synthesis on bioeconomy monitoring systems in the EU Member States - MontBioeco (Lier, M. et al)**
- **BSW (2018): State of play of Central and Eastern Europe's bioeconomies (Piotrowski S.)**
- **SWG Food Systems (2018) Assessment of Research and Innovation on Food Systems by European Member States (Axelos M. et al)**
- **SWG Forestry (2018) Synthesis on forest bioeconomy research and innovation in Europe (Lovrić M. et al)**
- **CWG AHW (2018) EU Animal Health SRA – Update 2017 (Mariano V. et al)**
- **CWG AHW (2017): Gap Analysis on Animal Welfare research – Working toward common goal for researchers, farmers and industry (Bagni M. et al)**

The foresight studies conducted by SCAR are a separate task, but always seek input and ideas from the WGs.

Box 2: SCAR Foresight studies

- **1st Foresight Exercise - Disruption Scenarios (2006-2007): Towards future challenges of Agricultural Research in Europe - Key messages for research priority setting**
- **2nd Foresight Exercise - Resilience and Crisis (2008-2009): Sustainable development - a challenge for European Research**
- **3rd Foresight Exercise - Productivity and Sufficiency (2010-2011): Transition towards sustainable food consumption and production in a resource constrained world**
- **4th Foresight Exercise - Sustainable Agriculture, Forestry and Fisheries in the Bioeconomy (2014-2015)**
- **5th Foresight Exercise - Natural resources and food systems – Transitions towards a 'safe and just' operating space (2018-2020)**

The SWOT analysis indicates that strengthening of WG collaboration is not seen as a priority by the interviewed members of SCAR, although the organisation of joint activities is deemed beneficial and effective according by those WGs who have done so. Especially since each WG structurally reports back to the Steering Group meetings, WGs in general (and the chairs more specifically) are well aware of the existence and focus of other groups. They weigh the additional coordination efforts of working together with the output of such collaboration.

From interviews conducted with the WG chairs in 2016-2017, the SWOT results and supported by the survey, the most important reason for cooperation between WGs is the identification of relevant joint topics. While a regular flow of information between the WGs is mentioned as a challenge, this may rather point at a difficulty for WG members to be able to uptake and process the large amount of available information given the high workload of the WGs and the limited resources in terms of time (and to a lesser extent funding). In other words: cooperation between the different WGs largely depends on a combination of the availability of a suitable joint topic in combination with the availability of the necessary resources (in terms of time and money). Some respondents to the survey also mentioned that it would help the WGs if there is a common (SCAR-) strategy formulated by the SCAR Plenary or Steering Group, where the WGs could link to. Considering the global and interwoven nature of the challenges agriculture will be facing, paying attention to alignment of the work done in the different WGs of SCAR seems to make a lot of sense. This, however, also touches upon the current organisation of the WGs, the broadness of the topics they cover and the corresponding mandates. Increasing alignment is not just a matter of 'why' but just as much (and maybe even more) a matter of 'how'.

During the workshop on international linkages, April 8th 2019, Brussels, SCAR WG (co-/vice-) chairs were interviewed to gather more information on their views with respect to alignment with other WGs. In general it is perceived as a necessity to align with different WGs on cross-cutting issues or on funding programmes, in particular H2020 and Horizon Europe. The challenges for alignment and better coordination between the different WGs are mainly linked to human capacity, in particular lack of time of the persons involved, and insufficient financial resources. Joint activities such as the linkages' workshop, dedicated sessions on alignment of research agenda's on the bioeconomy and agriculture, and structures to bring different experts together working on cross sectoral themes are seen as a way forward to improve collaboration.

Examples of potential collaboration of WGs on different cross-cutting topics are:

- **Animal Health and Welfare:** SCAR Fish has already started working more closely together with AHW CWG on this topic as fish welfare is becoming increasingly important in many countries;
- **Food & Nutrition:** CWG SAP; SWG Food System and SWG Fish could collaborate around major questions relating to the recent movement away from animal products, towards plant-based ones. Question might include: What are the consequences for the sectors involved? What does this movement mean for food production and for chains? What are knowledge gaps?;
- **Blue Bioeconomy:** SWG Fish and BSW could collaborate as many bioeconomy strategies may be served with a stronger vision on the blue economy;
- **Primary production and the Bioeconomy:** BSW, SWG ARCH and Foresight could explore some cross cutting issues between bio-economy and primary production;
- **Digitisation and Climate Change** are major cross-cutting topics that are relevant for all WGs;
- **Agricultural Innovation and Knowledge Systems**, and hence AKIS work is relevant for all WGs;
- **International perspective** of ARCH is relevant for all WGs ;
- The **work of the Foresight Group** is relevant for all WGs.

In general it is felt that there should be more and more frequent exchange of information between the different WGs. Several of the interviewees explained it is difficult to follow the work done in all the other WGs. It helps to have information available in an updated, easily accessed way, such as through joint workshops, flyers and a website in which topics, projects, and documents are listed per WG.

SCAR and the European Commission

SCAR WGs are currently mainly interacting with DG RTD and DG AGRI. There is a general consensus that this interaction is (too) limited and this concern surfaces in every survey, SWOT, or other analysis held as part of the SCAR support project CASA. Structural exchange between WGs and policy officers from other DGs than RTD or AGRI seems either limited or absent altogether, with the exception of some of the WGs. It is the wish of many WGs to invite such policy officers to the WG meetings, or at least be able to present the work of their WG at the relevant DGs and in such a way raise visibility. When asked in 2017, establishing or strengthening connections with DGs other than RTD or AGRI was regarded as one of the priorities of many WGs. The interviews, conducted in April 2019, reconfirmed the importance of alignment between the SCAR WGs and the DGs, as well as proper linkages at the national level. Both are perceived as very challenging, in particular in frame of research and innovation

policies. With respect to the DGs of the EC, alignment is in particular needed in relation to H2020, HEU, existing partnerships like ERA-NETs and JPIs, the upcoming ones and the CAP. BSW is in contact with DG AGRI, DG RTD, and the JRC, in particular with relation to the new Bioeconomy Strategy and inputs that have been given by BSW. The main challenge for better alignment between the WGs and the EC DGs is to get the latter better involved in the activities of the different WG. Linkages between the DGs and SWGs are often based on personal relationships. If a policy offer changes position, the contact with his or her DG is often lost too. SWG AKIS has a strong link with DG AGRI but not all SWGs have the same connection. There is also a strong wish to connect with DG ENV (e.g. SWG Forest).

Table 2: Working Group interactions with the different Directorate-Generals in the EC. v=interaction/observer in WG, w=wish to establish contact/may be relevant to establish contact. ¹AKIS SWG indicated they link incidentally with the DGs relevant for a specific theme. The o indicates such incidental links.

	AKIS ¹	FISH	FOOD	ARCH	BSW	FOREST	AHW	SAP
RTD	V	V	V	V	V	V	V	V
AGRI	V		V	V	V		V	V
MARE		V			W		V	
SANTE			W				V	V
ENV		V			W	W		
CONNECT	O							
REGIO	O							
DEVCO	O			V				
GROWTH					W	W		
JRC	O				V			

Recommendations

WGs could benefit more from joint activities such as common workshops or studies on cross-sectoral themes and linked to EU innovation and research policies e.g. Food 2030, CAP, EIP-AGRI, Rural Development Programmes, Smart Specialisation Strategies et cetera. EC involvement in SCAR WGs is mainly limited to DG RTD and DG AGRI and the WGs have a clear wish to involve, or at least acquaint, more DGs with their work; this would also benefit alignment between the different SWGs and different research and innovation policies with regards to cross sectoral themes. Joint activities between WGs, but also between WGs and DGs such as the linkages' workshop (Brussels, 8th April 2019) are seen as a way forward to improve collaboration. This can also take the form of dedicated sessions on e.g. alignment of research agendas on the bioeconomy, and agriculture, and structures to bring different experts together working on cross sectoral themes. The SCAR Foresight Group could play an important role in aligning SCAR and directing WGs towards future challenges, pressing needs, and current research and innovation policies. This does, however, require more coordination efforts and human capacity.

4. ALIGNMENT OF SCAR WITH OTHER ERA BUILDING BLOCKS

Rationale

SCAR has played an important role in strengthening the ERA through its aligning work, and the establishment of structures to do so. The current ERA-landscape involves many initiatives, networks and other modes of cooperation. In that respect SCAR is not only an 'organising or enabling body' anymore, but has also become one of the *structures* in the ERA, that relates with the others. Many of the (P2P) networks have developed their own Strategic Research (and Innovation) Agendas, conduct mappings and write policy advice. In view of the partnerships' approach in the upcoming HEU Framework Programme, SCAR is discussing its position and role.

One way of demarcation could lie in positioning SCAR in terms of alignment of national and EU *policies*, where other networks serve to align at the *research(-ers) level*, be it research programming, infrastructures, Public-Private Partnerships (PPP), or alignment of fundamental research. SCAR is in a position to bring together and form a coordinating structure (an 'umbrella') for the various existing initiatives; a role that could fit naturally since SCAR has fostered many of those initiatives.

Cooperation

ERA-NETs

SCAR has played an important role in the envisioning and actual forming of P2P structures in the ERA. The CWGs of SCAR have been set up by European countries engaging voluntarily and on a variable-geometry basis to define, develop and implement common research agendas based on a common vision of how to address major challenges in the field of agricultural research. The dynamics and commitment of several CWGs paved the way for participation in the EC's Framework Programme ERA-NET scheme. Since 2005, more than twenty CWGs/SWGs either became ERA-NETs (see Annex 1) or led directly to the establishment of ERA-NETs. SCAR still plays an important role in the establishment of new ERA-NETs (and other ERA instruments) through the Moulinette process³.

The CWG AHW, one of the two currently existing CWGs in SCAR, is still a major linking pin between European initiatives on animal health and welfare and international ones. ERA-NETs in their domain are to date largely conceived through this WG or have at least strong ties to it (ERA-NETs EMIDA, ANIHWA). Other WGs that interact on a regular basis with ERA-NETs are Food Systems (ERA-NETs COFASP, SUSFOOD2), Fish (ERA-NET COFASP), and SWG FOREST (ERA-NET ForestValue). The Platform meta-network for public-to-public partnerships in the bioeconomy, has served as an umbrella for bioeconomy ERA-NETs (and other P2Ps), providing them with a place for exchange on best practices, masterclasses for project management aspects and linking up with each other's work. There are interactions with WGs of SCAR, but not in a formalised setting.

³The **Moulinette process** is a process in which Programme Committee (for Societal Challenge 2) and SCAR delegates discuss together on priority topics for (P2P) funding in the EC Framework Programme. This relates more specifically but not exclusively, to ERA-NET and European Joint Programming Cofunding. SCAR delegates are invited to bring in their national interests and priorities. Decisions on funding in the Framework Programmes are taken by the Programme Committee.

Joint Programming Initiatives

SCAR has also been active and influential in the joint programming process proposed by the EC in 2008 to 'further promote research alignment and common agendas'. In 2010 the Commission adopted two recommendations for JPIs: 'Agriculture, Food Security and Climate Change' (FACCE-JPI) and 'A Healthy Diet for a Healthy Life' (JPI HDHL), both of which were underpinned by SCAR activities. FACCE-JPI and JPI HDHL have since adopted their Strategic Research Agenda in 2011 and 2012 respectively and have provided a framework for the alignment of existing national programmes and established joint research efforts to achieve the objectives of their respective areas. There is a structural exchange between these JPIs and the relevant WGs of SCAR. Representatives from FACCE-JPI are invited (as observers) to WG meetings of SWG AKIS, SWG Food Systems, and CWG AHW. The JPI HDHL is observer in SWG Food Systems. The other way around, SCAR has a representative in the FACCE-JPI Governing Board. There are also other links between JPIs that are relevant for SCAR WGs: the 2011 JPI 'Healthy and Productive Seas and Oceans' (JPI Oceans) has representatives invited to SWG Fisheries and SWG Food Systems meetings, and the 2011 'Antimicrobial Resistance' (JPIAMR) and JPIAMR send representatives to CWG AHW meetings. Other JPIs that may be of interest for SCAR WGs but appear to have no structural linkages yet are the Climate and Water JPIs.

European Joint Programme Cofund (EJP) and Article 185 initiatives

The European Joint Programme Cofunds under Horizon 2020 are new instruments designed to support coordinated national research and innovation programmes. They are designed to pool together rather large institutional programmes, resources and capacities in order to align resources for funding but also for capacity building, networking, demonstration and dissemination activities. As such, the EJPs could be described as a 'research programming alignment' instrument. SCAR influences the conception of the EJPs also through the Moulinette process. Mutual exchange between the EJPs and SCAR WGs, in a similar fashion as is currently happening between the JPIs and WGs of SCAR seems a natural option for alignment. There is a direct link between CWG AHW and the One Health EJP.

Article 185 Initiatives have been operational since 2003, based on the 'Article 185 of the Treaty of the Functioning of the European Union' (TFEU, 2007, ex Article 169) of the Treaty establishing the European Community (TEC, 1992). This Treaty enables the EU to participate in research programmes undertaken jointly by several Member States. Article 185 initiatives are P2P partnerships between Member States (and Associated States) and the European Union. It is a heavy instrument that can take years to put in place. The most relevant article 185 Initiative for SCAR is likely the latest partnership on Research and Innovation in the Mediterranean Area (PRIMA) that focuses on developing solutions for sustainable management of water and agri-food systems and water improvement and availability, including sustainable agriculture production in the Mediterranean region.

Other partnerships

European Technology Platforms (ETP)

The European Technology Platforms were intended to have a strategic mobilisation and dissemination function. In this role, they develop industry-focused strategic research and innovation agendas including technology roadmaps and implementation plans. ETPs are as such public-private partnerships (PPPs) and at first glance less relevant to SCAR in its role as policy advising and aligning body for public agricultural research. However, the ETPs also play a role in encouraging industry participation in the Framework Programmes (starting with H2020)

and they cooperate with networks in Member States. Even though they could be considered more 'stakeholder groups' in relation to SCAR, some WGs interact on a more or less regular basis with ETPs. TP Organics, the Global Animal Health ETP (GAH) and the Aquaculture ETP (EATIP) are observers in AKIS and AHW (both GAH and EATIP) respectively. SWG FOREST has links with the Forest-based Technology Platform. A quick inspection of the ETP landscape shows other links that may be possibly interesting.

ETPs are classified by the sector they operate in. In the bioeconomy, platforms which could be of interest to SCAR WGs, in addition to the ones mentioned in the previous paragraph, are *FABRE TP* (focus on sustainable animal breeding), *ETP Plants for the Future* and *ETP Food for Life*. In the energy sector *TP Biofuels*, *TP Ocean* and the *Renewable Heating and Cooling TPs (RHC TP) Biomass Technology Panel*, and the *European Technology and Innovation Platform (ETIP) Bioenergy* are of interest. To a lesser extent this may be the case for the environment-sector based *WssTPs Water Supply and Sanitation Technology Platform*, the ICT-sector based *ARTEMIS Industry Association (Internet of Things, Digital Platforms)*, the production and processes sector based *SusChem TP* through their 'Sustainable Bioeconomy Initiative', and the transport-sector based: *Alice TP* (Alliance for Logistics Innovation through collaboration in Europe) which has produced a '[Sustainable, Safe and Secure Supply Chain' R&I Roadmap](#) (even though not specifically focussing on agriculture, may be linking up with the 'systems approach' of SWG Food Systems).

European Innovation Partnerships (EIP)

European Innovation Partnerships are initiatives within the EU 2020 Innovation Union. They are a challenge-driven mechanism across the entire research and innovation chain bringing together relevant actors at EU, national and regional level. The general aim of an EIP is to step up research and development efforts, coordinate investments in demonstration and pilots, anticipate and fast-track any necessary regulation and standards, to mobilise 'demand' through better coordinated public procurement and to ensure that any breakthroughs are quickly brought to market. The innovation partnerships are also PPPs (as are ETPs), and seem a bit less relevant for SCAR. However, their clear focus on innovation could occasionally link up with work of specific SCAR WGs, as is the case between AKIS and EIP Water. The other most relevant EIP for SCAR is likely EIP AGRI, with its focus on Agricultural Productivity and Sustainability. Both EIPs work through Focus Groups that produce reports and studies in a limited time. They also organise processes to bring research results to applied practices and to co-create innovations at the application level.

The EIP-AGRI has been launched by the EC in 2012 to promote innovation in the agricultural and forestry sectors and bring research and practice close together and helping the agricultural and forestry sectors to be more productive, sustainable and capable of tackling current challenges such as fiercer competition, more volatile market prices, climate change and stricter environmental rules. The EIP-AGRI network builds on different types of activities such as the Focus Groups, Operational Groups, Thematic Networks and other types of multi-actor H2020 projects. The EIP-AGRI network contributes to the EU Agricultural Knowledge and Innovation System at EU level through connecting the different activities at several levels and including all actors: farmers, researchers, innovation brokers, businesses, authorities, vocational schools, environmental groups, consumer interest groups etc. The SCAR has engaged in assisting the EIP-AGRI through the development of innovative H2020 instruments. In particular the SWG AKIS is involved by providing advice to the EIP-AGRI.

Bio-based Industries Joint Undertaking

The Bio-Based Industries Joint Undertaking (BBI JU) is a €3.7 billion Public-Private Partnership between the EU and the Bio-based Industries Consortium (BIC) operating under Horizon 2020. BIC is a non-profit organisation whose members are small, medium and large enterprises, SME clusters and Brand-owners, accompanied by associate members that range from universities to European technology platforms and regional institutions. BIC was set up in Brussels in 2013 to represent the private sector in BBI JU.

The BBI JU aims at increasing investment in the development of a sustainable bio-based industry sector in Europe, thus providing environmental and socio-economic benefits for European citizens, increasing the competitiveness of Europe and contributing to establishing Europe as a key player in research, demonstration and deployment of advanced bio-based products and biofuels. The objectives are to contribute to a more resource efficient and sustainable low-carbon economy and to increase economic growth and employment, in particular in rural areas, by developing sustainable and competitive bio-based industries in Europe, based on advanced bio-refineries that source their biomass sustainably. Its mission is to implement, under Horizon 2020 rules, the Strategic Innovation and Research Agenda (SIRA) developed by the industry and validated by the European Commission.

BBI JU organises calls for proposals to support research, demonstration and deployment activities enabling the collaboration between stakeholders along the entire value chains covering primary production of biomass, processing industry and final use. A representative from BBI JU's States Representatives Group (BBI SRG) is always invited to the BSW meetings. A stronger collaboration between the BSW and the BBI SRG, including joint activities, is planned.

The European Agricultural Research Initiative (EURAGRI)

EURAGRI is a not-for profit organization that act as a forum for representatives from public research institutes, universities, funding bodies and ministries engaged in research and innovation and the broader bio-economy. Relevant research and innovation policy issues of strategic importance on EU member state and organizational level are debated on workshops and annual conferences. The last and XXXII Conference held in Oslo in September 2018 was on "*Cross Sectoral Opportunities in the Bio-economy and the Implementation of the SDGs*" and addressed the various dimensions of the SDGs and their implementation in research and innovation. A representative of EURAGRI was present at the SCAR Conference 2017 (Tallinn) on R&I policy, state-of-play and the role of SCAR in the European Bioeconomy, with a presentation on increasing involvement of underrepresented regions and/or organizations.

Domain-specific or WG-specific linkages

Several WGs have established links with other European networks or actors that are relevant for their work. These range from policy-oriented networks to Chambers of Agriculture and incidentally stakeholder organisations. The following overview of current interactions is derived from a 2017 inquiry across WG (vice-/co-) chairs and a desk study on WG participants. *SWG AKIS*: COPA-COGECA, The British Agriculture Bureau (BAB), the European Regions for Innovation in Agriculture, Food and Forestry (ERIAFF), the European Forum for Agricultural and Rural Advisory Services (EUFRA-EU) -Contact-point and Chambers of Agriculture. *SWG Fisheries*: European Fisheries and Aquaculture Research Organisations (EFARO) and the European Marine Board (EMB). *BSW*: BBI JU. *SWG FOREST*: the European Forest Institute (EFI). *CWG Animal Health and Welfare*: European Cattle Innovation Partnership (ECIP), European innovation group pig industry EU (EUPiG), AVEC (the poultry sector), EATip (aquaculture platform) and COPA-COGECA.

Recommendations

While the 'borders' of operation between the various ERA building blocks are becoming more and more diffuse, there may be overlapping activities between SCAR and other initiatives. This requires a clearer demarcation of responsibilities and remits of those involved. It also requires coordination of efforts at the national levels, coordination between national representatives in the various partnerships, especially with the new emerging partnerships under HUE. SCAR could play a structuring role (or 'umbrella function' in this as well, by taking a coordinating role towards these partnerships.

The Strategic Research Agendas and mapping exercises that are, or have been developed by the various initiatives may feed into the work of the SCAR WGs and could provide an opportunity for WGs to cooperate with them through joint studies, workshops or common meetings or feed into policy advice from WGs. In practical terms this could include bringing in representatives from other relevant partnerships in the WGs to enhance exchange of information and stimulate a multi-actor approach.

5. INTERNATIONAL COOPERATION

Rationale

While SCAR is a body driven by European Member States, it is clear that its remit well surpasses European boundaries and is tightly linked to global challenges through i.a. global frameworks, alliances, and networks, and clearly policies. In that light, it is also important for SCAR to realise and define its role at the international level. Moreover, global frameworks and agreements such as the SDGs and the Paris agreement on combating climate change determine to an increasing extent European policies. Whether or not this also would mean SCAR should try to influence such policy agendas remains for the SCAR Plenary to decide. However, the SWOT analyses conducted in 2017 indicates that global drivers related to environmental, social and economic challenges could also provide a potential opportunity for SCAR to extend its influence and impact beyond the European scale, if so desired. The use of existing structures such as the International Bioeconomy Forum (IBF) has been mentioned particularly.

Cooperation

Although limited, several WGs have different forms of cooperation with international organisations or networks. BSW has invited FAO representative Olivier Dubois (Senior Natural Resources Officer) to one of their 2018 meetings. In 2011, the SWG AKIS group has participated in the OECD conference on Agricultural Knowledge Systems (AKS): Responding to Global Food Security and Climate Change Challenges, with a presentation on its findings on agriculture knowledge and innovation system in transition. Also other multilateral organisations, such as the Consortium of International Agricultural Research Centers (CGIAR), were present at this meeting. More recently, SWG AKIS has invited experts from FAO and OECD during several WG sessions to discuss particular themes. For example, at the SCAR SWG AKIS third 2016 meeting in Budapest, partly dedicated to interactive innovation projects, Nevena Alexandrova, Agriculture Innovation and Knowledge Sharing Officer at the FAO Regional Office for Europe and Central Asia, presented the FAO concept of Agricultural Innovation Systems.

Catherine Moreddu, Senior Economist at OECD, participated in the kick-off meeting of SCAR SWGs AKIS and Food Systems (February 2017), at which an open discussion was held to define topics of common interest between the two SWGs. The OECD presented its work at the SCAR Conference 2017 in Tallinn. SWG Fisheries has links with the International Council for the Exploration of the Sea (ICES). SWG ARCH interacts with the Platform for African European Partnership on Agricultural Research for Development (PAEPARD) and the Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP).

The CWG Animal Health and Welfare is well-connected with the World Organisation for Animal Health (OIE) as well as firmly embedded in the International Research Consortium on Animal Health (STAR-IDAZ), thus linking to many global research alliances such as GARA (Global Research Alliance on African Swine Fever), GRAbTB (Global Research Alliance on bovine Tuberculosis), OFFLU (OIE-FAO Network of Expertise on Animal Influenza) and others. In February 2015 the CWH AHW was invited by FAO (Animal Production and Health Division, AGAH Unit) to present the AH SRA with particular focus on FOREMed (Building a SRA on Animal Health for the Mediterranean) exercise and methodology of foresight implemented. Subsequently, CWG AHW was invited to contribute to FAO AGAH foresight exercise on animal infectious diseases (2017).

Such linkages are highly relevant for the involved WGs, but have an ad-hoc character of cooperation in common. In other words: it has been up to the WGs whether or not links are pursued, and to what extent cooperation takes place. It has not been institutionalised in a SCAR-wide general strategy on international cooperation.

Interviews conducted with WG chairs and/or co-chairs in April 2019, revealed that collaboration and alignment with international policies is considered of major importance but quite challenging because of the high level and broad scopes. Several of the interviewees expressed the need for more information exchange, and even for a continuous follow-up of international policies and activities of relevant international organisations and initiatives to be able to find ways to interact and plan joint activities. It was suggested that for this purpose, a central database with all necessary and pertinent information, that is regularly updated, would help significantly. Financial support is, however, needed for that in order to create and sustain such a database.

In view of several interviewees the most important international framework with which to align is the SDGs, although the SDGs have been recently criticized⁴. Having said that, European policies have to take all international policies into account. The COP21-Climate agreement of Paris, FAO and OECD, as well as the Bill Gates Foundation (SWG ARCH) are perceived as the most important international organisations with which to align within the framework of agricultural and bio-economy research. The identification of themes with related international initiatives, including bottlenecks, interactions and specified actions that are needed to solve these, is the way forward.

As part of this study, an overview of relevant international policy institutions, frameworks and networks, relevant for SCAR, has been made.

United Nations - Food and Agriculture Organisation

The Food and Agriculture Organisation (FAO) of the United Nations (UN) acts as knowledge and policy broker for countries. The FAO has five strategic objectives (SOs):

1. Contribute to the eradication of hunger, food insecurity and malnutrition;
2. Make agriculture, forestry and fisheries more productive and sustainable;
3. Reduce rural poverty;
4. Enable more inclusive and efficient agricultural and food systems;
5. Increase the resilience of livelihoods to threats and crises;

and one additional objective:

6. Technical quality, statistics and cross-cutting themes (climate change, gender, governance and nutrition).

All objectives are strongly interlinked with the Sustainable Development Goals (SDGs). FAO programmes are currently organized under four themes: Sustainable food and agriculture, climate change, antimicrobial resistance and resilience, all of which are connected in many ways to themes of the different SCAR WGs. On a country level, FAO has published a series of [country reports](#), describing the bilateral relationship of the respective countries or partners with FAO and the projects that are being carried out.

⁴ <https://blogs.lse.ac.uk/africaatlse/2015/09/23/five-reasons-to-think-twice-about-the-uns-sustainable-development-goals/>

Sustainable Development Goals (SDGs)

The Sustainable Development Goals were developed to succeed the Millennium Development Goals which ended in 2015. In succession, on 25 September 2015, the 2030 Development Agenda 'Transforming our world: the 2030 Agenda for Sustainable Development' (UN, 2015) was adopted by the 193 countries of the UN General Assembly. Associated with the seventeen goals (Box 3), there are 169 targets associated, each having between 1 and 3 indicators used to measure progress.

Box 3: Sustainable Development Goals.

- Goal 1.** End poverty in all its forms everywhere
- Goal 2.** End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3.** Ensure healthy lives and promote well-being for all at all ages
- Goal 4.** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5.** Achieve gender equality and empower all women and girls
- Goal 6.** Ensure availability and sustainable management of water and sanitation for all
- Goal 7.** Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8.** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9.** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10.** Reduce inequality within and among countries
- Goal 11.** Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12.** Ensure sustainable consumption and production patterns
- Goal 13.** Take urgent action to combat climate change and its impacts
- Goal 14.** Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15.** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16.** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17.** Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Efforts have been made by FAO to translate the SDGs into interconnected actions for agriculture. The document 'Transforming food and agriculture to achieve the SDGs' (FAO, 2018) is a guide for decision-makers with the indication of twenty interconnected actions which embrace the 2030 Agenda's vision for sustainable development. Food and agriculture, people's livelihoods and the management of natural resources are addressed. This vision for sustainable food and agriculture is built on five key principles that balance the social, economic and environmental dimensions:

- increase productivity, employment and value addition in food systems;
- protect and enhance natural resources;
- improve livelihoods and foster inclusive economic growth;
- enhance the resilience of people, communities and ecosystems;
- adopt governance to new challenges.

FAO - International Sustainable Bioeconomy Working Group (ISBWG)

The International Sustainable Bioeconomy Working Group (ISBWG) was established in 2016 as a result of the recommendations of sixty-two Ministers of Agriculture at the Global Forum for

Food and Agriculture in 2015 that FAO should coordinate international work on the bioeconomy. The ISBWG includes twenty-three members from eleven countries (Argentina, Brazil, China, Germany, Italy, Kazakhstan, Malaysia, Netherlands, South Africa, Uruguay and US), the German Bioeconomy Council, the EC, OECD, the international centre for tropical agriculture CIAT, the Stockholm Environment Institute, United Nations Environment Programme, World Wildlife Fund, the Nordic Council of Ministers, the EU Bio-Based Industries Consortium, Wageningen University, and the World Business Council for Development and FAO.

FAO - Relevant documents

- FAO** (2012) Voluntary Guidelines on the responsible Governance of tenure of land, fisheries and forests in the Context of national food security
- FAO** (2013) Climate change guidelines for forest managers
- FAO** (2013) Tackling climate change through livestock
- OECD and FAO** (2015) OECD-FAO Agricultural Outlook 2015-2024
- FAO** (2016) How sustainability is addressed in official bioeconomy strategies at international, national and regional levels
- FAO** (2016) FAO Action plan on AMR
- FAO** (2016) Food and Agriculture
- Carus, M.** (2017) Bio-based economy and climate change – Important links, pitfalls and opportunities Prepared for the UN Food and Agriculture Organization (FAO)
- FAO** (2017) FAO's Publication on Climate Change.
- FAO** (2017) Aquaculture development - Aquaculture governance and sector development.
- FAO** (2017) The future of Food and Agriculture
- FAO** (2017) Factsheet FAO, OIE, WHO Global action plan on AMR
- Committee on World Food Security** (2017) Global Strategic Framework for Food Security and Nutrition
- FAO** (2018) Impacts of climate change on fisheries and aquaculture
- FAO** (2018) Transforming food and agriculture to achieve the SDGs
- FAO** (2018) State of Agricultural Commodity Markets 2018

Initiatives established in the wake of UN meetings

Global Alliance for Climate-Smart Agriculture (GACSA)

The Global Alliance for Climate-Smart Agriculture was founded in 2014 at the UN Climate Summit. It is an inclusive, voluntary and action-oriented multi-stakeholder platform on Climate-Smart Agriculture (CSA). Its vision is to improve food security, nutrition and resilience in the face of climate change. GACSA aims to catalyse and help create transformational partnerships to encourage actions that reflect an integrated approach to the three pillars of climate-smart agriculture: To improve farmers' agricultural productivity and incomes in a sustainable way; to build farmers' resilience to extreme weather and changing climate and to reduce greenhouse gas emissions associated with agriculture, when possible.

GACSA is a forum that enables partners to share and exchange experiences, information and views on issues that need immediate attention what works and what does not when adapting to climate change and mitigating greenhouse gases in the agriculture sector. Its main objective is to share and disseminate information and provide access to expertise. The Alliance aims to bring stakeholders together to discuss and promote climate smart agriculture and food systems in an integrated manner aligned with local, national and regional priorities. Within the Alliance there are three action groups working on: Knowledge; Investment and Enabling environments.

Global Research Alliance on Agricultural Greenhouse Gases (GRA)

The Global Research Alliance (GRA) was launched in 2009 in the margins of the Conference of Parties (COP15) in Copenhagen. The GRA is focused on research, development and extension of technologies and practices that help deliver ways to grow more food (and more climate-resilient food systems) without growing greenhouse gas emissions. Its members are governments, research institutions and other partners from the public sector, from more than fifty countries.

The GRA aims to support the agriculture sector by developing and implementing practical on-farm solutions for reducing greenhouse gas intensity while increasing food supply. The focus is on improving the efficiency and resilience of agriculture systems, identifying and capitalising on the synergies between adaptation and mitigation and by promoting best practice. The research is used by members to support national policy development and decision making in accordance with the specific (national) circumstances, objectives and priorities. The GRA has organised its work through three research groups: Croplands, Livestock; and Paddy Rice. There are also two cross-cutting groups that work on Soil Carbon and Nitrogen Cycling and Inventories and Monitoring.

Organisation for Economic Co-operation and Development

The Organisation for Economic Co-operation and Development (OECD), founded 1961, is a forum in which thirty-six countries participate. Its mission is to promote policies that will improve the economic and social well-being of people around the world. Through the OECD, governments can work together to share experiences and seek solutions to common problems. The OECD provides data on productivity, global flows of trade and investment and offers analyses and trend predictions. They also establish international standards on a wide range of things, from agriculture and tax to the safety of chemicals. OECD works on a wide range of topics, most important to SCAR being 'Agriculture', 'Green Growth and sustainable growth', 'Science and technology', 'Innovation' and 'regional, rural and urban development'.

OECD - The Sustainable Temperate Agriculture Research Network (TempAg)

The Sustainable Temperate Agriculture Research Network from the OECD was kicked off on 22nd April 2015 at INRA France. Through its activities, TempAg enables policy makers, funding bodies, scientists, and other decision makers, to align national and transnational research agendas to allow innovations and policy interventions for sustainable agriculture in temperate zones. Its mission includes serving as an international network for national governments with a focus on agriculture research in temperate climates thus aiming to increase impact and return on investment that members make in their national research programmes. Through communication and coordination of existing research and technology, the network seeks to identify areas of research relevant to scientists and policy makers currently not addressed at international level. Currently, ten countries are member of TempAg and it is open to all interested national governments represented by a designated agency, research institution or consortium of institutions.

The network started with covering three main themes: Resilient Agricultural Production Systems (Multiple spatio-temporal level), Optimal land management for food production and other ecosystems services (landscape level), and Sustainable improve food productivity (Farm/enterprise level). A series of pilot activities have been set up of which the first results have been published. In 2016, a foresight workshop was organised, after which two main

future themes were added; Food losses and food waste, and synthesis and foresight analysis where currently work is being conducted.

OECD - Relevant documents

OECD and FAO (2015) [OECD-FAO Agricultural Outlook 2015-2024](#)

OECD (2018) [Meeting Policy Challenges for a Sustainable Bioeconomy](#)

OECD (2018) [The role of agriculture in global GHG emission](#)

International Bioeconomy Forum (IBF)

The International Bioeconomy Forum (IBF) was officially launched on 30th November 2017 in Brussels with a first plenary meeting, co-chaired by the European Commission and AgriFood Canada. Its launch addressed an important objective of the European Bioeconomy strategy (EC, 2012): to ensure that the importance of the bioeconomy is raised at international level, in particular, and in line with the current 'Open to the world' priority, the opportunity to better structure international R&I cooperation to contribute to bioeconomy policy targets.

The IBF functions as a co-owned platform, organised in ad-hoc WGs, to guide international cooperation on a limited number of R&I priorities and horizontal activities which are crucial for the development of a global, sustainable bioeconomy and addressing related global challenges (e.g.: COP 21, SDGs, circular economy, sustainable food security). The WGs focus on specific subjects related to the bioeconomy. Participation in the WG is in principle open to any kind of expert regardless of their affiliation (public or private, governmental or academic, etc.) provided that he or she has been nominated by one of the institutions sitting in the plenary. Two WGs, reporting directly to the plenary, have been officially constituted: one on the Microbiome and one on ICT in Food Systems. WGs on Plant Health; Forestry; and Bioeconomy Indicators are planned.

The plenary of the IBF consists of the EC, Canada, US, Argentina, South Africa, India, China and New Zealand. The European Member States are represented in the plenary through a delegate of the Standing Committee on Agricultural Research (SCAR). Australia, South Korea, the FAO and the BIOEAST initiative joined the first plenary as observers.

The Consultative Group on International Agricultural Research (CGIAR)

The Consultative Group on International Agricultural Research (CGIAR) was established as a global partnership in 1971. After several reforms, in December 2009, a new framework of overarching principles was agreed between the centres and the funders to give rise to a reformed CGIAR, followed by the establishment of the Consortium of International Agricultural Research Centers ('CGIAR Consortium') in 2010. CGIAR is a strategic partnership of countries, international and regional organizations and private foundations supporting the work of 15 international Centers. In collaboration with national agricultural research systems, civil society and the private sector, the CGIAR fosters sustainable agricultural growth through high-quality science aimed at benefiting the poor through stronger food security, better human nutrition and health, higher incomes and improved management of natural resources. CGIAR works along the vision of 'a world free of poverty, hunger and environmental degradation' and hence contributes strongly to the United Nation's Sustainable Development Goals. Their three goals, known as System Level Outcomes, are to 1) reduce poverty, 2) improve food and nutrition security, and 3) improve natural resources and ecosystem services. CGIAR works with a number of programmes, of which the [CGIAR Research Program on Climate Change, Agriculture and Food Security \(CCAFS\)](#) programme is most relevant for SCAR.

CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS)

CAAFS addresses the increasing challenge of global warming and declining food security on agricultural practices, policies and measures through strategic, broad-based global partnerships. The overall goal of CCAFS is to catalyse positive change towards climate-smart agriculture, food systems and landscapes. Its research priorities are climate-smart agriculture, gender and inclusive growth, genetic improvement, nutrition and health, nurturing diversity, natural resources and ecosystem services, agricultural systems and enabling policies and institutions.

The Bill and Melinda Gates Foundation

The Bill and Melinda Gates Foundation is based in Seattle. The primary aims of the foundation are globally as it wants to contribute to enhanced healthcare, the eradication of poverty and the iniquities that go with it. Therefore the Development Policy and Strategy Unit team supports research and analysis that can lead to new policy ideas and financing innovations. Partners are the African Development Bank, Brookings Institute, Center for Global Development, Development Initiatives, European Network on Debt and Development, Lancet Commission on Investing in Health, Overseas Development Institute, Oxfam International, University of Washington, and the World Bank.

The Bill and Melinda Gates Foundation commit a great deal of funding to agriculture research, agricultural development, agricultural policy and administrative management.

Recently Bill Gates has signed as the Chairman of Breakthrough Energy Ventures an MOU to establish the Breakthrough Energy Europe investment fund with EU Commissioner for Research and Innovation.

Recommendations

Global challenges and the framework of the Sustainable Development Goals urge SCAR to align with international research and innovation policies. Given the global nature of the remit of SCAR, alignment is inevitable. The intensity of interaction however, will be challenging because of the high level and broad scopes. In order to effectively feed into a global level, there is need for increased exchange of information and a more continuous follow-up of international policy development. It would also require identification of themes with related international initiatives, including bottlenecks, interactions and specific actions to remove such bottlenecks.

6. SPEEDING UP R&I IMPACT AT NATIONAL AND EU LEVEL AND ACCELERATING THE TRANSITION TO A SUSTAINABLE EUROPE

Introduction

As a follow-up action to this study, a session at the SCAR 2019 conference in Brussels was dedicated to the role of SCAR in speeding up R&I impact at national and EU level taking into account the international context.

Taking into account these challenges and the role SCAR has in linking the national and EU level, the question is how SCAR can improve focus on the R&I priorities needed for a transition to a more sustainable food production and ensure that the innovation potential of results and outputs from research projects at national and EU level is better exploited. Better coordination and cooperation in the use of EU and national R&I instruments to bring solutions are needed. At the SCAR 2019 conference, the discussions during the session focussed on how SCAR and the WGs can contribute to improving the impact of R&I at EU and national level and in particular the transition to fully sustainable development in agriculture and the wider bioeconomy. The discussions in SWGs SCAR AKIS, ARCH and FOOD and the resulting Policy brief '*Programming R&I for improved impact*', served as an input for this discussion. The main questions that were addressed at the 2019 SCAR conference were:

- How can SCAR contribute to enhanced research impact for sustainable agriculture and wider bioeconomy at national and EU level?
This may also concern the interplay between different actors at national and EU level, coordination of research and/or innovation initiatives between the different geographical levels, global policies, specific partnerships
- Which concrete incentives can help to ensure research results are sufficiently transformed into concrete solutions as well as taken up by end-users? How to mobilise quicker involvement by end-users to speed up the practical implementation? Which critical factors play a role?
This may also concern interactive innovation, living labs, demonstration projects and groups, operational groups and cross-border exchanges, co-creation, multi-actor approach, value chain interaction and cooperation, means to enhance knowledge flows between research, networks and practice, CAP AKIS, Strategic Plans, financial instruments, better synergies between national and EU instruments,...
- Overall, how can SCAR have more impact at the EU and national levels to assist the take-up of research results which help to speed up the transition to more sustainable agriculture and wider bioeconomy

Contribution of SCAR to enhanced research impact for sustainable agriculture and wider bioeconomy at national and EU level

When formulating calls for the Framework Programme it is strongly recommended to include ex ante selection impact criteria, use impact indicators and request for a multi-

actor approach. To enhance the impact in terms of dissemination, it is advised to include professional communicators into all projects. Transdisciplinarity in research teams is a must as scientists often base their research on data from the past. In addition, there is a need to better link scientists and experts in all fields with different backgrounds. The structure of SCAR should be better used in advising the SCAR SG through the knowledge produced by the WG experts.

Incentives to ensure research results are sufficiently transformed into concrete solutions as well as taken up by end-users.

SCAR has an advisory role and as such, it does not need to reflect itself on concrete incentives, but have in place other dedicated instruments. SCAR can (support) in defining the strategic agenda and give recommendations. SCAR could act as the bridge between its member countries and the European Commission and it can support and motivate its members to use the recommendations of the SWGs.

Clear expectations and suggestions can give guidance on how national ministries and regional governments could use the information that is produced by the different WGs.

Education is important for farm regeneration renewal and to enhance attractiveness of the sector.

Improving overall impact of SCAR at national and EU level

Consistent information flows are important in terms of effective communication across the value chain and between the various stakeholders. Monitoring and impact assessment of ERA-NETs have shown that dissemination plans are often not revisited after research projects have ended. This may mean missed opportunities for effective communication and dissemination of project results, and might slow down impact of research. It also implies that impact evaluation is needed and should be included in the work programmes of projects by the funding agencies. Impact of SCAR is viewed as underestimated, given its pivotal role in establishing EIP-AGRI, ERA-NETs, JPIs, and other transnational cooperation actions. There is a lack of visibility that also influences the perceived importance at national ministry levels. This calls for improved communication and dissemination of SCAR work, and improved timing of results, and the communication on these results. This will also mean reserving additional resources. An excellent way to maximise interaction, communication and dissemination at the national level, is seen in the organization of national SCAR mirror groups that include funding agencies and high level regional authorities.

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ANNEX 1. LIST OF CWGS RESULTING IN FRAMEWORK PROGRAMME ACTIONS

Name of CWG	Year	Name	Action
Animal Health and Welfare	2008-2011	EMIDA	ERA-NET
Relevant Issues for Mediterranean Agriculture	2008-2013	ARIMNet	ERA-NET
Coordinated research agenda for EU rural policy	2009-2014	RURAGRI	ERA-NET
Agriculture and Sustainable Development	2009-2014	RURAGRI	ERA-NET
ICT and Robotics in Agro-Food Industries	2009-2014	ICT-AGRI I	ERA-NET
Sustainable food production for wealth, welfare and health	2011-2014	SUSFOOD	ERA-NET
Animal Health and Welfare	2012-2015	ANIHWA	ERA-NET
Integrated pest management for the reduction of pesticide risks and use	2014-2016	C-IPM	ERA-NET
Forest value chain in the light of climate change - ERCF	2014-2017	SUMFOREST	ERA-NET
Sustainable Animal Production	2016-2020	SusAn	ERA-NET
Animal Health and Welfare	2016-2021	SIRCAH	CSA
Risk Research on Genetically Modified Organisms	FP7	PRESTO	CSA
Animal Health and Welfare	FP7	STAR-IDAZ	CSA

ANNEX 2. ANALYSIS OF SURVEY ON ALIGNMENT

Survey sent date:	December 2017
Number of invitees:	363
Respondents:	30

1. Respondents characteristics

Respondents are participants of all WGs (Table 1). The survey was send out to all participants known at that time to be participating in a WG (Participants' count; 363). Due to the highly liquid nature of participation in some WGs, and the fact that in several countries, colleagues alternate their participation in WGs, this count is likely to be on the high side. Therefore, we assume the actual response percentage is likely somewhat higher.

Table 1: Respondents per Working Group

R = Number of respondents per Working Group. % = Percentage of response, based on participants' count conducted in summer 2017.

Working Group	R	%
CWG Animal Health and Welfare	6	9.7%
CWG Sustainable Animal Production	1	1.4%
SWG AKIS	6	12.0%
SWG FISH	6	13.6%
SWG ARCH	1	3.8%
SWG Bioeconomy	5	14.3%
SWG Forestry	2	8.3%
SWG Food Systems	1	1.9%
Number of respondents	28	
Average response across WG		8.3%

Table 2: Respondents role

R = Number of respondents. % = Percentage total response (in Number of respondents).

Role	R	%
Policy delegate	6	20%
Funding Agency delegate	6	20%
Expert	12	40%
Stakeholder	4	13.3%
Observer	1	3.3%
Facilitator	1	3.3%
Number of respondents	30	

57% of the respondents are representing a national or regional Ministry, followed by members from another institution or organisation (20%). Some are participating on personal title (13%). 10% of respondents indicate something other (likely Funding Agency representatives). Most respondents are participants (80%), while the other (20%) is either chair or vice-chair. Table 2 shows most respondents act as expert in their respective WG (40%) or policy / funding agency delegate (40%).

2. Alignment between Working Groups

When asked about alignment activities between WGs (Table 3), the majority indicated alignment is established through the information flow via the SCAR Steering Group and Plenary meetings, and in the exchange between experts from different WGs (34%). Also joint workshops and policy papers are seen as alignment activities (34% and 13% respectively mentioned such activity). 5% of the responses indicated there is no alignment effort between their WG and others. If asked whether there is overlap between the WGs on themes, the

majority of the respondents to this question (14 of the 31 respondents) answer the overlap being very low to low (86%).

Table 3: Activity stimulating inter-Working Group alignment

R = Number of responses. % = Percentage total response (in Number of responses). ¹The number of responses is higher than the number of respondents because multiple answers were possible.

Activity	R	%
Information flow	13	34%
Joint workshops	13	34%
Joint policy papers	5	13%
Other	5	13%
No activities	2	5%
Number of responses¹	38	

Table 4: Challenges for alignment

R = Number of responses. % = Percentage total response (in Number of responses). ¹The number of responses is higher than the number of respondents because multiple answers were possible.

Challenge	R	%
Common themes	9	22%
Information / communication	9	22%
Initiatives from both sides	6	14.6%
Personal contacts	7	17.1%
Financial support	6	14.6%
Joint Strategies	4	9.7%
Number of responses¹	41	

The frequency of communication between the various WGs differs, but all groups indicate to have interactions with others at least once a year. Members of AHW, SAP and Fish give a high indication for their group to never interact with others (43%, 60% and 50% respectively). This is more balanced in other groups, where members indicate interactions with other groups ranging from never to tri-yearly.

Most communication is via mutual attendance at meetings, and to lesser extent via newsletters or websites. More than half (65%) of the respondents indicate the level of access to information on the activities of other WGs to be low. This indicates an information and exchange bias: while several WGs interact on a more or less regular base with each other, and hence have access to each other's plans and activities, other groups work in isolation.

When asked about the challenges for alignment between the WGs (Table 4), not surprisingly, the flow of information and common themes of interest are mentioned as the most important ones. Interestingly, some responses also indicate (a lack of) joint strategy and financial support as challenges, indicating the structural autonomy and diversity in WG operations may have caused a barrier for cooperation.

The influence of the SCAR SG on the development of new activities of the WGs is seen as high by 39% of the respondents, and low by 18% of the respondents. The other 48% did not respond to this question. Suggestions for SCAR Steering Group to improve effectiveness of the WGs include making the focus, chairs, minutes, working plans, output dates and relevant documents of the other WGs available for all. Given the limited time and financial resources of the participants, one respondent asked for a limitation of the need for the chair to be present at all SG meetings. A need for a general SCAR strategy was also expressed, including ideas for joint activities, and where to focus attention on. Effective means of communication are mostly a SCAR website and the SCAR Plenary / SG meetings, closely followed by reports and policy papers from the other WGs.

3. Alignment with other initiatives and organisations in the ERA

Not surprisingly, the level of alignment between the various WGs and other ERA-Networks is quite strong, especially so for P2P Framework Programme Initiatives. Interestingly, this connection diminishes quickly with organisation level (at the regional level, there is limited interaction: 5% indicates RIS at regional levels (e.g. regional is the level below the national level)).

Table 5: Alignment between Working Groups and other ERA building blocks

R = Number of responses. % = Percentage total response (in Number of responses). ¹The number of responses is higher than the number of respondents because multiple answers were possible.

Alignment with	R	%
H2020	9	24%
ERA-net Cofunds	10	26%
JPIs	7	18%
EJP Cofunds	3	8%
Thematic networks	3	8%
Research infrastructures	3	8%
Smart specialisation (RIS3)	2	5%
Vanguard Initiative	1	3%
Number of responses¹	38	

4. Alignment with international initiatives, policies and frameworks (FAO and OECD)

To the question whether the WG links up with relevant policies and frameworks, from -most notably- the FAO and OECD, sixteen of the thirty respondents answered (53%). Of these responders, 63% and 19% respectively indicate such linkage or suspect there is a linkage (e.g. 'maybe'). These linkages are related to all FAO policies that deal with animal health and welfare, global food security; the bioeconomy, climate change and the OECD cooperative research programs.

