



**FACCE-JPI EVALUATION FRAMEWORK**

**Framework for monitoring and evaluation of FACCE-JPI and its joint actions**

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## **A: Executive Summary**

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The FACCE-JPI monitoring and evaluation framework is the outcome of an analysis of the best suited procedures and tools for monitoring and evaluation of the joint activities launched by FACCE-JPI. Prior to the launch of the evaluation activities, this framework delivers guidelines for the monitoring and evaluation processes and raises principal discussion points for the FACCE-JPI Governing Board to decide.

A prerequisite for the implementation of the FACCE-JPI monitoring and evaluation framework is that the Governing Board allocates funds to conduct the recommended processes. Hence the scope and ambitions of the implementation of this monitoring and evaluation framework depend on the budget granted by the FACCE-JPI Governing Board.

Different approaches to the processes of monitoring and evaluating JPIs and similar public programmes have been explored as a first step, but overall the experiences are weak. JPIs TO CO-WORK<sup>1</sup> constructed a framework specifically tailored to the specific character of Joint Programming Initiatives and JPND (Neurodegenerative Diseases) has developed another framework based on the *Logical Framework Analysis*<sup>2</sup>. However none of the evaluations mentioned before have been conducted until now, which is a chance for FACCE-JPI to take a leading role in the development of evaluation guidelines for JPIs. Nonetheless, the frameworks constructed by JPND and JPIs TO CO-WORK provide the foundation for the FACCE-JPI evaluation framework.

In general the monitoring and evaluation framework identifies three targets of FACCE – JPI:

- Target 1.** to improve the alignment of national and European research programmes,
- Target 2.** to increase high quality transnational research activities within food security, agriculture and climate change, and
- Target 3.** to improve the societal impact on the challenge of food security, agriculture and climate change.

Monitoring is regarded as the iterative process of checking the progress of FACCE-JPIs joint actions and the respective projects by continuously collecting information to analyse the potential to make improvements and increase efficiency (= Part 1 of the framework paper). Furthermore, the collected data provides an integral source of information for the evaluation process. Monitoring needs to be specifically tailored to the respective joint action or project. In addition, a set of key questions aiming at the three FACCE JPI targets, specific aspects of each project have to be taken into account, thus making it necessary to further elaborate the monitoring according to the characteristics of the respective joint action. This has been done for the pilot action “*Knowledge Hub MACSUR*” and been integrated as a case study in this paper.

The FACCE-JPI evaluation will focus on the organisation, process and outcomes of target 1, which requires a continuous effort and forms the organisational basis of the JPI and will focus on outcomes of targets 2 and 3, which are iterative processes, at a later stage.

To be able to address the question of time lag, this document proposes to divide the evaluation activities into three cycles; the first cycle should be launched within 5 years after the launch of FACCE-JPI and will focus on the alignment of national and European research programmes. The second cycle and third cycle, evaluation of research activities and societal impacts respectively, is suggested to be carried out at a later stage according to the time lags identified in this paper. A central database containing all the relevant information from the monitoring for evaluation purposes is to be established.

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<sup>1</sup> JPIs TO CO-WORK is JPIs to Co-Work is a project funded by the European Commission under the 7th Framework Programme. The objective of this project is to provide a forum to continue the discussion, exchange of experiences and best practices, as well as the implementation of a process of mutual learning, amongst on-going and future JPIs.

<sup>2</sup> For more on the Logical Framework Analysis, see section 3.1.2.1

As soon as this monitoring and evaluation framework is adopted and the budgetary frame is defined, the monitoring of joint actions can commence and the evaluation processes can be tailored accordingly.

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## **C: Acknowledgements**

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## D: Glossary

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For ease of reading, a glossary is included.

<b>Effectiveness</b>	The capability of producing a desired result
<b>Efficiency</b>	Extent to which time, effort or cost is used for the intended task or purpose
<b>Evaluation</b>	A systematic determination of a subject's merit, worth and significance using criteria governed by a set of standards.
<b>Impact</b>	The effect or impression of one thing on another
<b>Indicator</b>	Performance measurement tool. Point of measurement relevant to a monitoring criteria
<b>Logical Framework Analysis (LFA)</b>	Management tool used in the design, monitoring and evaluation of international projects
<b>Monitoring</b>	To observe a situation for any changes which may occur over time on a selection of criteria
<b>Outcomes</b>	End result/consequence
<b>Output</b>	Intellectual production by an action/project
<b>Relevance</b>	Applicability to social issues
<b>Results</b>	Final consequence of an action/a sequence of actions expressed quantitatively or qualitatively
<b>Scientific impact</b>	The demonstrable contribution that excellent research makes to society and the economy
<b>Target</b>	Desired goal of FACCE-JPI

## **Part 1: Introduction**

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This paper is an analysis of the best suited procedures and tools for the monitoring and evaluation of FACCE – JPI and its actions. This paper consists of four main parts:

- Part 2 “*Monitoring FACCE-JPI actions and projects*” analyses the monitoring process and how it will interplay with the evaluation process. It also includes a case study based on the joint action MACSUR.
- Part 3 “*Evaluation of FACCE-JPI*” analyses the experiences of evaluation from similar public policy programs. Building on these experiences which constitutes the development of the evaluation framework for FACCE – JPI, the chapter concludes by presenting a framework for evaluation for FACCE-JPI.
- Part 4 “*Conclusions*” summarises the main findings of the paper.

### **1.1 Purpose of the paper**

The overall purpose of this paper is to provide a framework for the monitoring and evaluation of the FACCE–JPI and its actions. It is the intention that this paper will make recommendations to the FACCE-JPI Governing Board to begin the implementation of this Evaluation Framework. The First monitoring tasks will start during the course of FACCE CSA and especially concern the knowledge hub MACSUR, the first joint action, which will be used as a pilot. However, the evaluation itself will start at a later stage and therefore it is not possible to present any results or outcomes within this paper.

The decision of the FACCE-JPI Governing Board (GB) on specific issues constitutes a prerequisite for the implementation of the FACCE-JPI Evaluation Framework. The extent, objectives and timing of the evaluation depends on e.g. the funds allocated to conduct the evaluation activities. This is why this paper will not present an implementation plan on the FACCE-JPI evaluation framework but will identify initial issues to be considered by the FACCE-JPI Governing Board before initiating the evaluation activities.

The FACCE-JPI Evaluation Framework is intended as a concept for a self-assessment and will be discussed and adopted by the FACCE-JPI GB. It is foreseen that the evaluation framework is applied as a strategic tool for managing current and future FACCE-JPI joint actions. Monitoring and evaluation are on-going processes which will provide the FACCE-JPI GB with data and information on the progress of the FACCE-JPI towards its strategic objectives on a continuous and regular basis. This will support the strategic decisions of the FACCE-JPI GB on key management issues. The issue of an external evaluation is not excluded but is not addressed in this paper.

Existing evaluation systems were analysed, appropriate tools and procedures have been adapted to FACCE needs and discussed in the framework of an expert workshop in Copenhagen, in order ensure the relevance of this task with respect to the Strategic Research Agenda (SRA).

### **1.2 Definitions**

In this paper, monitoring is considered as the on-going practice of checking activities and their context, inputs, processes and results, communicating them to the FACCE-JPI GB and storing this information for use in evaluation. It involves collecting information and data on specific key questions that will allow the assessment (evaluation) of progress, impact and ultimately, whether the relevant targets were reached. Monitoring aims to ensure that the inputs, activities and outputs proceed according to plan, provide records and the strong improvement component in monitoring will assist the JPI in making decisions improving results. Monitoring will apply to all projects and actions and will concern three dimensions:

1. the organisation of a project or an action
2. the scientific impact of a project or an action and
3. the overall impact of the project or action in achieving FACCE – JPI goals<sup>3</sup>.

The evaluation will analyse in detail (every 5 years) the data collected in the monitoring process so as to be able to assess results and to evaluate outputs after completion in terms of relevance, effectiveness, efficiency and impact. Evaluation is needed for programme management, future planning and for policy making.

### **1.3 What is to be monitored and evaluated**

Joint programming is a Member State driven process that brings together European Member States and Associated Countries on a voluntary basis to tackle the societal challenge of agriculture for food security under climate change. To tackle these challenges, FACCE-JPI aims to increase alignment of research programming in Europe to bring about a greater coherence, to avoid duplication, cover gaps and to contribute to more efficient funding of research. To achieve these goals, the JPI will carry out actions, primarily transnational actions, which seek to align European research around a set of key questions defined in the Strategic Research Agenda of FACCE-JPI. The nature of these actions may vary. Currently, five different actions in the form of joint calls for projects are in various stages of advancement (see below):

1. The Knowledge Hub MACSUR aims to bring together the modelling community in Europe to perform research on the best models for looking at impacts of climate change on European agriculture and food security but also to network and to perform capacity building in this field.
2. The transnational multi-partner Call on Agricultural Greenhouse Gas Mitigation. Besides eleven of the FACCE partner countries, USA, Canada and New Zealand are also involved.
3. The collaborative research action with the Belmont Forum on Food Security and Land Use Change deals with an integrated food systems perspective: modelling, benchmarking and policy research.
4. The Joint Call of FACCE-JPI with the ERA-Net BiodivERsA aims to promote synergies and reduce trade-offs between food supply, biodiversity and ecosystem services.
5. The FACCE ERA-Net Plus on Climate Smart Agriculture deals with adaptation of European agriculture to climate change.

For these actions, monitoring and evaluation will consider the action itself (appropriateness of instruments, processes...) and the individual projects selected for e.g. their research outputs (see below).

Besides these activities, which will give rise to research projects, more joint actions are carried out, which should also be evaluated since they essentially contribute to reaching the FACCE targets.

- An innovative system of mapping and foresight activities on on-going and future research projects and programmes of the Member States was established. It focussed on each of the core themes defined in the Strategic Research Agenda. For these meetings, posters were prepared by each member country presenting their current and future national programmes as well as their participation in European and international actions with respect to the specific topic. They aimed

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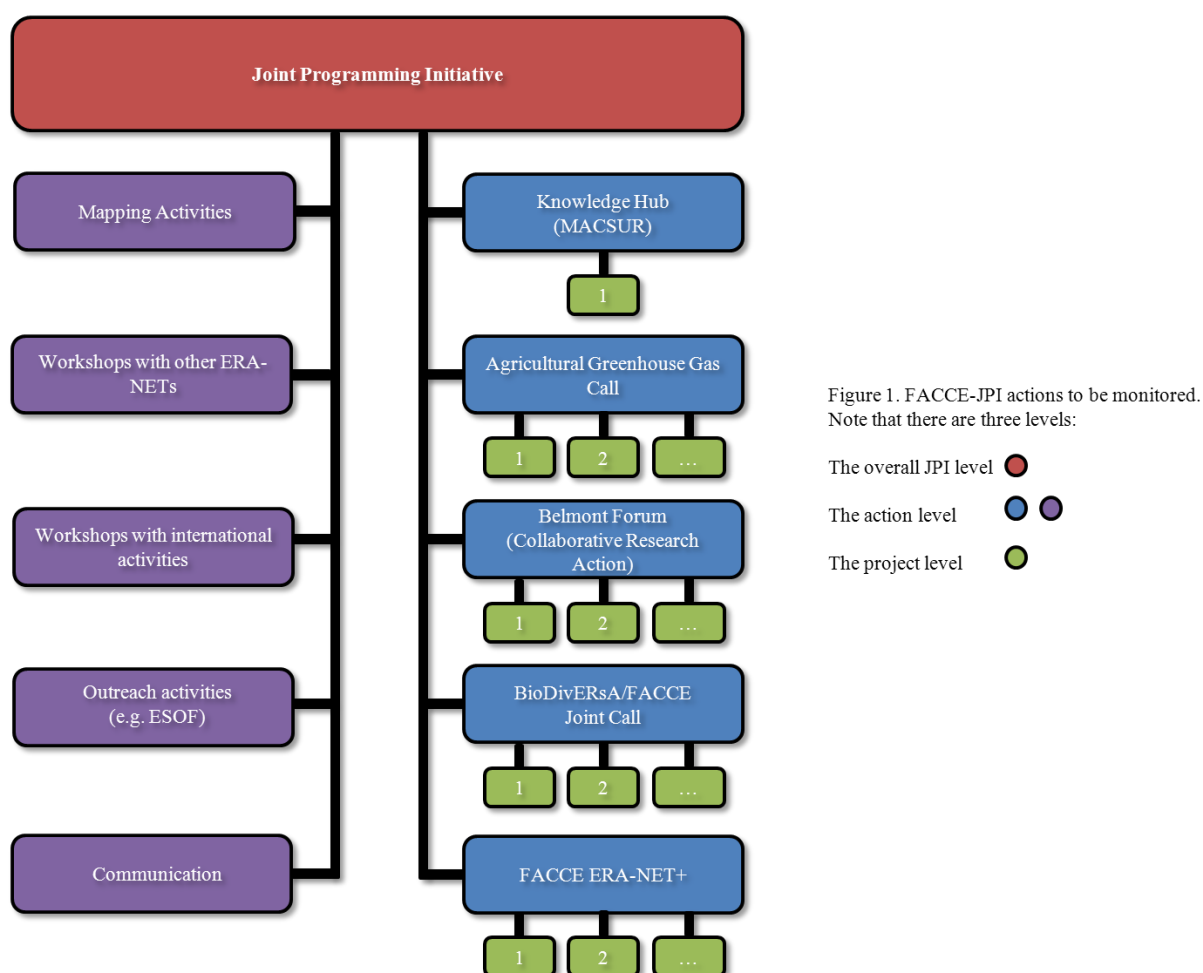
<sup>3</sup> The third dimension (overall impact) will thus include some elements from the other 2 dimensions (scientific output and organisational dimension).

to reveal research gaps or overlaps. A concluding meeting summarised the results which have been integrated into the FACCE-JPI Biennial Implementation Plan.

- Workshops with other ERA-NETs and international activities allowed a mapping of thematic complementarities and a more in-depth analysis of potential interactions and collaborations.
- Communication and outreach activities are a fundamental activity of FACCE- JPI to reach its target audiences, including the scientific community, stakeholders, funding organisations and policy makers.

The monitoring will be performed by the JPI partner(s) with the necessary capacity and expertise and will be coordinated by the FACCE-JPI secretariat. Depending on the budget, some tasks could be outsourced if that is deemed more efficient, or if it is expected to yield a better result.

**Figure 1: FACCE-JPI actions to be monitored**



## **Part 2: Monitoring FACCE- JPI actions and projects**

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### **2.1 Monitoring procedure**

In this paper, monitoring is considered as the iterative process of checking the progress of the JPI and its joint actions, including the projects arising thereof, by continuously collecting information and data in order to make improvements and increase efficiency through improved decision-making based on empirical evidence. The monitoring results will be communicated on the one hand to the Scientific Advisory Board (SAB) and the Stakeholder Advisory Board (StAB) who will look at the scientific results, and to the FACCE-JPI GB, for providing guidance on whether the joint actions proceed according to plan and assisting in making corrective actions (if necessary) for improving the outcome.

Results from monitoring will be stored for use in evaluation. This involves also collecting data on specific criteria that will allow the assessment (evaluation) of progress and ultimately the impact.

The monitoring process will, at the different levels (project level, joint action level), consider three different aspects: the organisation; the scientific impact and finally, the overall impact of a project or action in achieving the primary FACCE-JPI targets:

- To improve the alignment of national and European research programmes (T1)
- To increase high quality transnational research activities within food security, agriculture and climate change (T2)
- To improve the societal impact on the challenge of food security, agriculture and climate change (T3)

The monitoring is primarily performed on project and joint activity level; however, the results largely contribute to the evaluation of the overall JPI level (cf. figure 1). Any additional questions or information needed for the evaluation of the whole JPI will be taken into account.

#### **2.1.1 Sources of information**

The choice of sources of information depends on the sources available and the type of information or indicator that is required to conduct the evaluation. The following sources will be relevant to the FACCE-JPI evaluation framework:

- FACCE-JPI reporting; the wide quantity of information available through the FACCE-JPI reporting, budgets, meeting summaries etc.
- All FACCE-JPI project coordinators will be obliged to submit annual reports based on templates provided at the beginning of the project. These will be used as valuable sources of information. Most funding agencies require annual reports as well; to the extent possible, it would be most efficient to have these reports be in English so that they could be used also in the monitoring carried out by FACCE.
- National project partners reporting to their national funding organisations, partners will be obliged to fill in a questionnaire/ template in English.
- Governments or the appropriate funding agency will be asked also to provide annual reports indicating key figures such as percentage of research budget going to FACCE.
- Questionnaires to identified respondents, e.g. members of the FACCE JPI GB.

#### **2.1.2 Communication with the Governing Board**

The Governing Board will be informed on a regular basis of the monitoring results in the form of a written report. The report will contain information concerning projects and joint actions, including a summary of the quantifiable data and a qualitative analysis of the progress made on an overall level and a highlighting of possible problematic issues.

### **2.1.3 Key Questions**

#### **2.1.3.1 - Joint Action Level**

In order to evaluate the Joint Actions, targets have to be defined and corresponding key questions have to be answered and data collected in order to see whether the targets were reached. The monitoring will also look at the efficiency of the joint actions. As mentioned before, the monitoring relates to three different aspects: the organisation; the scientific impact and finally, the overall impact of the Joint Activity. The following list reflects the related key questions:

##### **Organisation**

- How was the quality of the overall organisation of the joint action itself, of arising calls (if applicable), could critical parts be identified?
- Was the instrument used appropriate?
- Have there been difficulties arising during the activity? - If yes how were they solved?
- How was the time frame, schedule, time table? Has there been enough time for the different phases /single steps? How was the reaction time/input/commitment of all involved?
- How was the communication between partners? Were the meetings (GB, CSC, WGs) effective or successful? How was the input during the different phases (preparatory, application, evaluation phase, is there a potential of improvement?
- Which funding model and what procedure for project evaluation was chosen? What were the advantages /disadvantages compared to other methods?
- How much budget was allocated to the action, to the single calls, in cash, in kind, for research, for administration? How many resources in cash and/or in kind did the participating countries contribute to the joint activity? Were key partners involved with sufficient budget?

##### **Scientific impact**

- Do partners consider the SRA when setting up national programs?
- How many researchers/ research groups/research organisations of how many different disciplines were involved in transnational projects arising from the activity?
- Were the economic, social, scientific aspects well covered with regard to the topic?
- Does the activity contribute to mobility /exchange of researchers?
- Compared to the expected added value of the activity, to what degree was it achieved?

##### **Overall impact**

- How does the activity contribute to alignment of national programmes?
- How does the activity contribute to the overall JPI goals of the SRA?
- Does the activity contribute to fill identified gaps, bottlenecks with respect to the topic addressed by the activity?
- Does the activity contribute to find answers in the particular field to respond to questions in the Strategic Research Agenda?
- Does the activity contribute to increase and facilitate transnational cooperation and coordination between excellent researchers and research organisations?
- How was the action presented to the public, was there a project website, have there been links from/to other websites, press announcements, newsletter, etc.

#### **2.1.3.2 - Project Level**

In order to evaluate the projects arising from an activity, generally the same conditions apply as mentioned under 1.2.1. Monitoring during the lifetime of a project may contribute to improve organisation or impact of a project if necessary. The following list reflects the related key questions:

## **Organisation**

- How did the consortium find its project partners? By existing networks, or by involving new partners? How many project partners does the consortium consist of?
- Communication: How was the communication among the different researchers/research groups within the project? How was the communication between coordinator and call secretariat? How was the communication between national research community and NCP?
- Were the economic, social, scientific aspects covered with regard to the topic?
- Have there been difficulties arising during the project, if yes how were they solved?
- How was collaboration between the different work packages?
- How was networking/cooperation and dissemination of results organised?

## **Scientific Impact**

- What was the level of interdisciplinarity?
- How did the project contribute to an integrated European Research Area addressing the core themes of the Strategic Research Agenda?
- How did the project contribute to capacity building/researcher mobility/exchange?
- Does the project contribute to fill identified gaps, bottlenecks with respect to the topic addressed by the call/project?

## **Overall Impact**

- How does the project contribute to the overall JPI goals of the SRA?
- Does the project contribute to find answers in the particular field to respond to questions in the Strategic Research Agenda?
- Does the project contribute to increase and facilitate transnational cooperation and coordination between excellent researchers and research organisations?
- Dissemination: How was the project presented to public, how are the results communicated to relevant stakeholders?

### **2.1.3.3 - JPI-Level**

Most of the answers to above questions will contribute to the evaluation of the JPI as a whole (see figure 1, above).

These above questions in combination with appendix 1 provide a comprehensive set of indicators. Since not every indicator is useful to be applied to every joint action/project, the indicators will individually be identified for each joint action and the questionnaires correspondingly tailored.

Note: Not all data derived from monitoring action will necessarily be used for evaluation but the main focus is to ensure that activities within the JPI run smoothly and to give the GB a means to rectify the process.

## **2.2. Pilot study on the Knowledge Hub MACSUR**

The “Knowledge Hub” is a new tool developed by FACCE-JPI to foster the transnational cooperation, collaboration and communication of the research communities in the key challenges addressed by FACCE-JPI of agriculture, food security and climate change. The Knowledge Hub is a network consisting of selected research groups from FACCE-JPI member countries within a defined area of research, in the case of MACSUR on core theme 1 of the Strategic Research Agenda on “sustainable food security under climate change”. For participating research groups, a Knowledge Hub has three objectives:

1. to perform excellent joint research in the particular field to respond to questions in the Strategic Research Agenda;

2. to increase and facilitate transnational cooperation and coordination between excellent researchers and research organisations, building a progressive and long-lasting network;
3. to provide an opportunity to develop research capacity in the particular field, to join learning/training activities (e.g. mobility) and to share infrastructures.

To achieve these goals, the Knowledge Hub shall

- I. provide resources to research groups in the form of existing or new national funding in the thematic area chosen,
- II. support cooperation,
- III. coordinate action avoiding overlaps,
- IV. overcome bottlenecks,
- V. further develop and optimise the area of research, and strengthen the outcome.

Expected outcomes are a joint research plan, as well as integration and training activities.

At the political level, the aims of a Knowledge Hub are to respond to scientific questions defined in the Strategic Research Agenda in order to tackle the challenges being addressed by the FACCE-JPI and to bring visibility to the JPI (FACCE-JPI branding).

For the European Research Area (ERA), a Knowledge Hub is expected to:

- increase the scientific and technological excellence
- facilitate the transfer of knowledge
- provide the opportunity to address new and emerging scientific questions of societal importance
- provide critical mass in a given thematic area through networking of excellent researchers with complementary expertise and also for capacity building (e.g., the training of new researchers, sharing of infrastructures)
- make common research efforts and provide financial support over a longer period of time that will allow significant results to be obtained
- facilitate data access and data sharing across the scientific community
- enhance communication and visibility at the European and international level
- deliver knowledge for policy making,
- anticipate scientific and technological needs (priorities) and
- provide efficient scientific support for strategic and political decision-making in its thematic field.

### **2.2.1 Sources of information**

As per the description of work (full proposal) of MACSUR and subthemes LiveM / CropM / TradeM:

- protocols of meetings
- annual reports, deliverables and milestones
- website
- newsletter

### **2.2.2 Monitoring dimensions**

#### **2.2.2.1 - Research**

- increase of scientific and technological excellence in the participating countries
- reporting findings in a stimulating environment for scientists to collaborate across the three themes, leading to e.g. joint publications, joint patents and improvement in IP rights
- promote the production of scientific journal papers to reach scientific excellence
- data access and data sharing across the scientific community
- data sharing, archiving and management: Is there a clear structure for the management and sharing of data across the Hub?



- technology development and scientific output of long lasting and large base research, tools and methods
- development of selected case studies
- developing an integrated modelling tool: reducing uncertainties over the impacts of climate change on European food security by adopting integrated models of crop production, animal production and trade
- support to policy makers

#### **2.2.2.2- Dissemination and communication**

- facilitating the transfer of knowledge, including between subthemes
- design of a communication strategy and implementation within and across the themes
- dissemination of the outputs of the network-activities: presentations, papers, data, and results of (amended) models
- MACSUR project and subtheme websites as internal management tool and as a tool to disseminate outputs and news
- participation in MACSUR Knowledge Hub and sub-theme meetings to report on progress
- added value to the visibility of FACCE-JPI by MACSUR (and vice-versa) and contribution to the FACCE-JPI brand
- feedback from the monitoring process to partners, leading to e.g. updated plans of work
- enhancing the visibility of European research in the international arena

#### **2.2.2.3 – Capacity building**

- organisation of specialist workshops and exchanges of established scientific staff to target key topics
- organisation of training courses and workshops targeting early career researchers
- training of a new generation of scientists to work across models which contribute to greater integration of models
- allow partners to either become part of the international community of researchers in this field or to further strengthen their own role
- opportunity to learn from others

#### **2.2.2.4 - Networking**

- European network bringing together the major European research groups thus creating links to and between national and European Research Infrastructures
- collaboration with other relevant European and international organisations and networks
- provide a means to build and strengthen the research communities in the sub-themes at the national, regional and European level
- organising workshops open for other interested researchers in order to maximise network effects
- equality of engagement of all research teams and/or countries
- links between national programmes and supercomputing facilities
- involvement of experts on climate change prediction involved and their input

#### **2.2.2.5 - Coordination and management**

- quality control of implementation process
- coordination across subthemes at project level
- coordination within subthemes: integration of work packages
- joint activities across subthemes
- delivery of the achievements according to specified quality and timeframe
- standardised procedures to be defined by the Main Coordinator to minimise the administrative burden of work-package and task coordinators without jeopardising accountability
- definition and agreement on procedures and annually updated plans of work

#### **2.2.3 Identification of Indicators**

- questionnaires to establish a baseline?

- joint publications/patents (in the field of MACSUR) between the partners of the Knowledge Hub  
number of new joint publications and/or patents resulting directly from joint working within the Knowledge Hub
- number of new collaborations and projects awarded nationally and/or at the European level, resulting directly from joint working within the Knowledge Hub
- number of trained scientists (e.g. number of graduates, contracts for modellers)
- number of work exchanges of scientists / cross-country / cross-sector mobility of scientists
- number of publications / exchange frequencies
- inventory of data exchange and databases: number of shared assets and number of groups participating in sharing their data across the Knowledge Hub
- protocols for model integration
- case study reports
- number of meetings and participation frequency of MACSUR partners
- new findings due to the networking
- how does MACSUR contribute to the objectives of the FACCE Strategic Research Agenda (SRA):  
how is collaboration fostered among national and transnational research actors?  
how / what innovation is developed at the service of society?
- MACSUR contribution to the FACCE vision: “An integrated European Research Area addressing the challenges of Agriculture, Food Security and Climate Change to achieve sustainable growth in agricultural production to meet increasing world food demand and contributing to sustainable economic growth and a European bio-based economy while maintaining and restoring ecosystem services under current and future climate change”
- MACSUR contribution to core theme 1

#### 2.2.4 Implementation plan and integration into Evaluation Process

This monitoring process along with the reporting and questionnaire templates will be communicated to the MACSUR coordinator to ensure that the outlined monitoring process is understood and feasible.

##### 2.2.4.1 - Timeline

Since the monitoring and evaluation framework was developed and finalised after start and during the first 18 months of MACSUR activities (Start: June 2012) the first MACSUR report was not able to consider the questions and data the framework requires from the project. In order to enable MACSUR to take into account the corresponding data for its second report, the following timeline is proposed. It also includes a proposal how to proceed with monitoring after FACCE CSA, which ends at the end of March 2014. (See table 1)

**Table 1**

#### Timeline for FACCE-JPI implementation

Draft version of the key questions sent to MACSUR	04.04.2013
Intermediate version to MACSUR:	10.05.2013
1 <sup>st</sup> MACSUR report :	02.08.2013
Review of 1 <sup>st</sup> report:	30.08.2013
Presentation of report to Governing Board	21./22.10.2013
Feedback to partners:	end of November
2 <sup>nd</sup> report	June 2014
Review of 2 <sup>nd</sup> report	September 2014
3 <sup>rd</sup> report (final report for first project period)	June 2015
Review of 3 <sup>rd</sup> report	August 2015
Summary of monitoring results for evaluation	October 2015

It is noted that coordination between the monitoring and evaluation procedures and the funding procedures as well as the relevant people involved in these activities will be required; e.g. for the decision to extend the MACSUR Knowledge Hub.

## **Part 3: Evaluation of FACCE–JPI**

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### **3.1 Experiences from other evaluation activities**

Part two is a description of the experiences of evaluating activities or programmes similar to FACCE-JPI. In addition some of the overall and general methodological issues regarding evaluation of public policy programmes are explored. These experiences and issues have been taken into account in the development of the evaluation framework for FACCE–JPI, also described in this chapter.

#### **3.1.1 Overall evaluation issues**

Before examining possible methods for evaluating FACCE-JPI joint actions, the overall issues concerning evaluation of public policy programmes are discussed. These include: time lag of intended impacts, establishment of a baseline and causality.

##### **3.1.1.1 - Time lag of intended impacts**

The intended impacts of FACCE-JPI are better alignment of national research programmes and the contribution to solving the societal challenge of food security under climate change. These impacts, however, are not expected to appear within a short period of time (e.g., 1-5 years after the launch of FACCE–JPI). The alignment of national research programmes and achieving food security under climate change are expected to appear within a longer period of time (e.g., 15 years or more). This raises the issue of time lag. When developing the evaluation framework it should be kept in mind that some of the expected results of FACCE-JPI will appear at a later stage than others, and perhaps not at the time of evaluation. Hence it will not be possible to assess the societal impact of FACCE-JPI joint actions on key targets within a short time frame.

##### **3.1.1.2 - Establishment of a baseline for comparison**

One of the objectives of an evaluation of FACCE-JPI is to assess if the FACCE-JPI joint activities are contributing to the alignment of national research programmes and the development of solutions addressing the challenges of food security and climate change. To be able to identify this development, the comparison of the situation before the launch of FACCE-JPI joint actions with the situation after the launch of FACCE-JPI joint actions is required. Hence this comparison requires a baseline to compare the development.

The process of choosing topics for new Joint Programming Initiatives as defined by the GPC involved assessing the state of research in Europe on the given societal challenge. This proposal serves as a baseline for the state of play in Europe prior to the JPI<sup>4</sup>, and will constitute the baseline required. In addition to this document, various reports and other sources of information on research investment in the FACCE-JPI Member States exist, which could be used.

##### **3.1.1.3 - Causality**

Experts invited to a workshop in monitoring and evaluation of FACCE-JPI<sup>5</sup> agreed that proving causality related to the actions of FACCE-JPI would constitute an unfeasibly large undertaking. Furthermore, even though FACCE-JPI contributes to an outcome, it cannot be established that FACCE-JPI alone can be credited for the outcome. Too many factors are in play to establish direct causality. Recognising that FACCE-JPI neither has a need, nor resources for undertaking such a comprehensive work, it was decided that causality would not be considered.

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<sup>4</sup> FACCE-JPI (2009): Agriculture, Food Security and Climate Change – Joint Programming Initiative; Proposal approved by the GPC 3 December 2009. <https://www.faccejpi.com/Document-library/Proposal-for-a-JPI-Agriculture-Food-Security-and-Climate-Change>.

<sup>5</sup> See the list of experts used in ‘Acknowledgements’ (Section C, page 6).

### **3.1.2 Identification of potential frameworks**

In preparation of this paper, a desktop analysis of the current methods and frameworks for evaluation of public policy programmes was conducted – specifically tailored at evaluating JPIs or similar research programmes. The desk top analysis identified the frameworks from similar programmes, including:

- Other JPIs
- JPIs TO CO-WORK
- Netwatch
- General methods for evaluating public policy

The desk top analysis showed that experiences with evaluation of JPIs are limited, due to the fact that JPIs in general are newly established. Out of all the current JPIs, only JPND has developed a framework for evaluation. The rest of the JPIs are in the process of developing an evaluation framework.

#### **3.1.2.1 - The experiences of JPND – The Logical Framework Analysis**

At this time, JPND has so far only developed, and not yet implemented, the evaluating framework. The actual evaluation activities have not yet been conducted.

The framework of the JPND is based on the “*Logical Framework Analysis*” (LFA), which is a widely used framework for evaluating public programmes<sup>6</sup>. Originally, the LFA was developed for U.S. AID at the end of the 1960’s, and has since been utilised by many of the larger donor organisations. The OECD’s Development Co-operation Directorate is promoting the use of the method among the member countries. In addition, the LFA has been used in studies of educational and social programmes. This makes the LFA a well proven method for evaluating public programmes.

The LFA is based on the idea that there is a linked chain of logic that shows how activities can be expected to produce immediate outputs connected to longer-term effects and eventually the realisation of the objectives (the impacts). This logical connection implies that one step of the LFA naturally leads to the next step and that one step is based on the work of the previous one.

In short, a LFA consists of the following steps:

1. The objectives and activities.
2. The necessary inputs, typically in terms of financial and other resources.
3. The direct outputs of the activities.
4. The indirect outcomes of the activities.
5. The wider societal impacts of the activities.

The conclusions of the LFA are based on the assumption that the different steps are connected causally (e.g., that the input of resources creates activities which in the long term have some impact on the overall objective). However, LFA is highly vulnerable to changes of the logic, and as such the conclusions can be affected if this assumption turns out to be wrong.

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<sup>6</sup> For more information, go to [www.netwatch.jrc.ec.europa.eu](http://www.netwatch.jrc.ec.europa.eu)

### **3.1.2.2 - Framework developed in JPIs TO CO-WORK - The intervention logic applied to joint programming**

Since all the JPIs are exploring different options on how to develop a framework for evaluating JPI activities, the issue was raised in the CSA “JPIs TO CO-WORK”. The objective of the JPIs TO CO-WORK project is to provide a forum to establish the discussion, exchange of experiences and best practices, as well as the implementation of a process of mutual learning, amongst on-going and future JPIs. It is the intention that the discussions in JPIs TO CO-WORK will lead to a common framework and procedures on evaluation among the JPIs. This will make it possible to develop synergies and share best practice between the JPIs on evaluation and if desired, compare the JPIs with each other.

JPIs TO CO WORK has suggested a preliminary evaluation framework directly tailored to evaluating JPIs. This approach is inspired by the work done in JPND, but further develops the LFA to fit the objectives and organisation of JPIs. At the moment, this framework has not been adopted by the JPIs, and since the framework is only voluntary, it is not certain that it will be. However, since all the JPIs, except JPND, are looking at ways to evaluate their joint actions, the framework will probably provide inspiration to other JPIs. A common framework will provide FACCE-JPI with valuable synergies and the possibility to exchange experiences on evaluation with other JPIs. As such, the FACCE-JPI evaluation framework should be developed using the model developed in JPIs TO CO WORK to facilitate cooperation with other JPIs.

The steps of *the intervention logic applied to joint programming* are the following:

1. A societal challenge (e.g. climate change or food security) was assessed to be best tackled by a JPI to address the issue.
2. In response to the societal challenge, a JPI is launched.
3. The JPI puts in place joint actions, which give rise to one or more projects. The actions address the challenges in three ways; 1) governing policy making (e.g., the need for alignment of research programmes), 2) research performance (e.g., the need for increasing European research activities) and 3) societal needs (e.g., adoption of research in society’s solutions to the challenge).
4. All this leads to new and better ways of addressing the societal challenges.

Thus, the intervention logic of joint programming evaluates the JPI’s ability to reach its objectives on the following primary targets (T1-3):

These targets may be assessed accordingly to the following dimensions influencing the FACCE performance:

- The structure – the ability of the JPI to construct the necessary structures.
- The process – the ability of the JPI to make efficient decision making.
- The outcome – the ability of the JPI to produce long-term outcome or impact.

### **3.1.3 Determining indicators**

Choosing indicators is an essential part of evaluating FACCE-JPI impact on the alignment of national research programmes, the research performance and the adoption of solutions on societal challenges. The impacts are not feasible for evaluation through direct observation. Hence a set of indicators should be developed to evaluate FACCE-JPI results.

Indicators can be both qualitative and quantitative. Quantitative indicators are often preferred since they allow comparison with other quantitative indicators. However quantitative indicators are not always the most valid indicators. In terms of in depth knowledge on specific cases qualitative indicators provide a more reliable picture of the development. Since the evaluation of FACCE-JPI requires data on both a general level and more in depth knowledge on specific issues, both quantitative and qualitative indicators are necessary.

### **3.1.3.1 - S.M.A.R.T. indicators**

When choosing indicators it is important that the indicators are relevant to the evaluation, that the data is accessible, that the costs are balanced according to the knowledge obtained and that the results are reliable. More specifically, the indicators should be S.M.A.R.T<sup>7</sup>:

- **Specific:** The target of the indicator is clear and unambiguous
- **Measurable:** Concrete criteria for measuring progress toward the attainment of the goal
- **Attainable:** The goals are realistic and attainable
- **Relevant:** The goal should matter
- **Time-bound:** The goal should be grounded within a time frame

### **3.1.4 Sources of information**

The choice of sources of information depends on the sources available and the type of information or indicator, which is required to conduct the monitoring and evaluation. The following sources will be relevant to the FACCE-JPI monitoring and evaluation framework:

- FACCE-JPI reporting; the wide quantity of information available through the FACCE-JPI reporting, budgets, meeting summaries etc.
- FACCE-JPI monitoring outcomes
- Questionnaires to identified respondents (e.g., members of the FACCE-JPI Governing Board)
- In depth interviews with identified respondents
- Case studies
- Log files
- Expert opinion

Another potential source of information is bibliometric analysis of research performance. This is a very expensive and time-consuming exercise however, and is not regarded as necessary at this time.

Not all sources of information will be equally relevant to all monitoring and evaluation tasks. Similarly, not all sources of information will be equally relevant to monitoring and evaluation of a single activity. However, some sources will only be relevant for monitoring, and some only for evaluation. The Logical Framework Analysis allows for such a distinction, and the monitoring and evaluation framework for FACCE-JPI will therefore allow it too.

## **3.2 Evaluation framework for FACCE-JPI**

While section 3.1 describes the experiences of evaluation of programmes similar to FACCE-JPI, the methodological issues related to evaluation of FACCE-JPI and how to develop relevant indicators, section 3.2 will focus on the suggestion for an evaluation framework for FACCE-JPI.

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<sup>7</sup> For a more comprehensive walkthrough of the SMART criteria, see [http://en.wikipedia.org/wiki/SMART\\_criteria](http://en.wikipedia.org/wiki/SMART_criteria)

This section develops a framework for evaluation of the progress and results of the FACCE-JPI joint activities. This framework is based on the experiences from chapter two. Hence “*The intervention logic applied to joint programming*” constitutes the foundation of the FACCE-JPI evaluation framework. In addition the evaluation issues raised in section 1.1 have been incorporated into the FACCE-JPI evaluation framework.

### **3.2.1 The intervention logic of Joint programming for evaluation applied to FACCE-JPI**

As described in 1.2.2, “*the intervention logic applied to joint programming*” is a general framework for JPIs. Since the JPIs differ in terms of challenges, research themes and organisation the “*intervention logic of Joint Programming for evaluation*” will be specifically tailored to the FACCE-JPI needs.

#### **3.2.1.1 - Identification of targets and dimensions of FACCE-JPI**

According to “*the intervention logic of Joint Programming for evaluation*” the three targets (T1-3) regarding the challenge of food security, agriculture and climate change are identified.

These targets are interdependent: alignment and coordination of national and European programmes is needed to ensure high quality transnational research activities. These research activities in turn will contribute to the overall goal of the JPI: contributing to tackling the societal challenge. *The alignment of national and European research programmes (T1)* covers the extent to which FACCE-JPI is able to increase the alignment and coordination of the national and European research activities. This constitutes the political aspects of the FACCE-JPI in terms of e.g. commitment of member states. *Increasing high quality transnational research activities within food security, agriculture and climate change (T2)* covers the FACCE-JPI’s ability to launch joint calls, fund research projects and increase the scientific impact of the European research within food security, agriculture and climate change. This includes the ability, e.g., to implement the FACCE-JPI strategic research agenda and to mobilise research communities. *The societal impact on the challenge of food security, agriculture and climate change (T3)* covers the FACCE-JPI’s ability to create an impact on the societal issue of the JPI: food security under climate change. This includes the FACCE-JPI contribution to, e.g., a more efficient use of scarce resources or the development of the European bio-economy.

These three main aspects constitute the targets on which FACCE-JPI will be evaluated. As such they will each be analysed individually according to the three dimensions of “*the intervention logic applied to joint programming*”:

- The organisational structure (D1)
- The process (D2)
- The outcome (D3)

*The organisational structure* covers the FACCE-JPI’s ability to build the necessary organisational structures to be able to reach the three targets. *The process* covers the ability of the FACCE-JPI to facilitate efficient decision making in terms of, e.g., implementation of joint actions or identification of relevant research areas. *The outcome* covers the ability of the FACCE-JPI to produce long term impacts on the three targets of FACCE-JPI such as aligning national research programmes.

The targets will be evaluated using specific indicators, and to the extent possible using the S.M.A.R.T. criteria described in 1.3.1.

It should be stressed, that the list of potential targets is non-exhaustive, and that the full effect of FACCE-JPI on some of these targets will appear later than on other targets.

### 3.2.2. –Time frame for evaluation

When developing the evaluation framework it should be kept in mind that some of the expected results of FACCE-JPI will appear at a later stage than others, and the time frame has to be set appropriately. Many of the objectives of FACCE-JPI are expected to appear within 10 years or more. Considering the identified targets of the FACCE–JPI (T1-3), the impact or results of FACCE-JPI are predicted to appear in the following years:

It should be stressed that these are only educated assumptions and therefore the actual results might appear before or after the assumed timelines. In addition it should be stressed that the development of the results is an on-going process (e.g., the alignment of national and European research programmes might be even stronger in 10 years than in 5 years). Hence, the evaluation of alignment of national and European research programmes will continue to be relevant after 10 years.

### 3.2.3. Identification of indicators of the identified objectives

As explained in section 2.1.1, the three targets T1, T2, T3 will be evaluated individually according to the three dimensions; the organisational structure, the process and the outcome. The concrete objectives within the specific targets and dimensions are summarised in table 2, below.

Using the criteria on constructing indicators explained in section 1.3, potential indicators of each individual target are identified. In addition, as explained in section 1.4, the sources of information depend on the indicators in question and will as such differ between the different sources identified in section 1.4: FACCE-JPI reporting, questionnaire to Member States, interviews and bibliometric analysis. The sources of information will be identified for each individual objective.

The potential objectives will be analysed according to the identified dimensions and the source of information. To review the potential indicators, please consult appendix 1.

Looking at the three targets, a few critical questions may be assessed for each one.

**Table 2**

Target	Key questions
Target 1: Alignment of national and European research programmes:	<ul style="list-style-type: none"> <li>• To what extent is the JPI taken into consideration when planning and setting priorities for national programmes?</li> <li>• How big is the commitment of the MS?</li> <li>• How many actions, and with what commitment, has the JPI undertaken?</li> <li>• To what extent does the JPI influence European Commission programming?</li> </ul>
Target 2: Increasing high quality transnational research activities	<ul style="list-style-type: none"> <li>• To what extent has the JPI increased the level of transnational research carried out in participating MS?</li> <li>• To what extent have JPI generated projects contributed to the publication of high quality papers in international journals?</li> </ul>
Target 3: Societal impact on the challenge of food security,	<ul style="list-style-type: none"> <li>• To what extent have the JPI generated project outcomes contributed to solving problems relevant to tackling the</li> </ul>



agriculture and climate change

societal challenge?

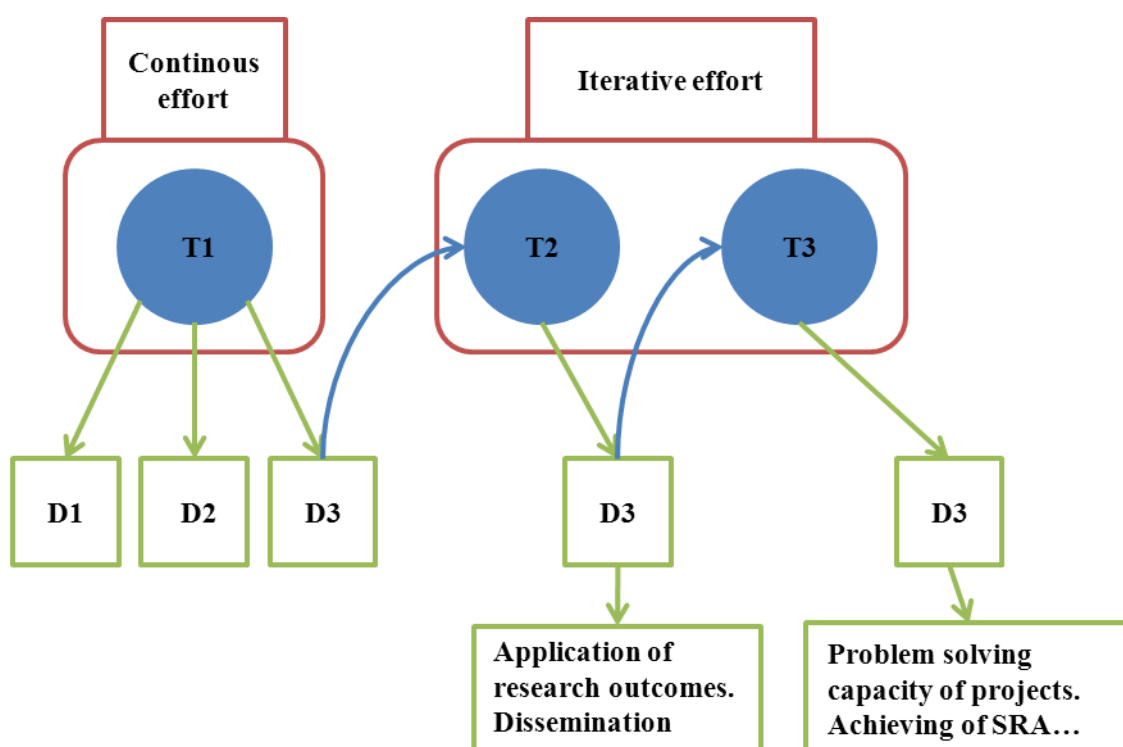
- To what extent have project outcomes influenced the update of FACCE SRA?

Accordingly, the FACCE-JPI evaluation will focus on the organisation, process and outcomes of target 1, which requires a continuous monitoring effort and which forms the organisational basis of the JPI and for targets 2 and 3. The latter are outcome-based targets and focus on the projects generated by FACCE. Here only the outcome dimension is relevant. In this domain mainly science parameter and problem-solving capacity are the items to assess/ measure, which are evaluated according to their quality, fitness for application and innovation (T2), and to their problem-solving capacity (T3). In addition, new trends in science and societal challenges should be reconsidered and feed into the update of the FACCE SRA, as an iterative processes.

Monitoring/evaluation of T1 should be performed by the coordination (as the most practical model) in order to guarantee the functionality/good performance of FACCE, while monitoring/evaluation of T2 and T3 would best be performed by (natural) scientists and experts in the field and generate both an impact assessment and a feedback to the FACCE SRA.

For a graphical overview of the approach suggested by this paper, see figure 2 (next page).

*Figure 2 – Monitoring/Evaluation of targets (By Christian Listabarth)*



#### **Targets**

T1 – Alignment of national and European Research programmes

T2 – Increasing high quality transnational research activities within food security, agriculture and climate change

T3 – Societal impact on the challenge of food security, agriculture and climate change

#### **Dimensions**

D1 – Organisational structure

D2 – Process

D3 – Outcome

The figure represents an approach to monitoring and evaluation as a step by step exercise according to the targets of FACCE-JPI (T1-3). It shows that while T1 will require monitoring and evaluation on all dimensions (D1-3), the subsequent targets (T2 and T3) will only need to be evaluated according to their outcomes (D3).

### **3.2.4 Summary of evaluation framework for FACCE-JPI**

Part two presents the evaluation framework for FACCE-JPI based on the logical framework analysis and intervention logic of joint programming.

The evaluation framework identifies three targets in the FACCE–JPI (T1-3), and within each of these targets, relevant objectives and derived indicators within the three dimensions (D1-3).

Key questions for all targets, in the relevant dimensions are assessed using the S.M.A.R.T. criteria to the extent possible, as described in part 1, with examples of indicators included in Appendix 1.

## **Part 4: Conclusions**

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The FACCE-JPI monitoring and evaluation framework is the outcome of an analysis of the best suited procedures and tools for monitoring and evaluation of the joint activities launched by FACCE-JPI. Prior to the launch of the evaluation activities, this framework delivers guidelines for the monitoring and evaluation processes to the FACCE-JPI Governing Board to decide.

A prerequisite for the implementation of the FACCE-JPI monitoring and evaluation framework is that the Governing Board allocates funds to conduct the recommended processes. Hence the scope and ambitions of the implementation of this monitoring and evaluation framework depend on the budget granted by the FACCE-JPI Governing Board.

Different approaches to the processes of monitoring and evaluating JPIs and similar public programmes have been explored as a first step but overall the experiences are weak. JPIs TO CO-WORK constructed a framework specifically tailored to the specific character of Joint Programming Initiatives and JPND (Neurodegenerative Diseases) has developed another framework based on the *Logical Framework Analysis*. However none of the evaluations mentioned before have been conducted until now, a chance for FACCE-JPI to take a leading role in the development of evaluation guidelines for JPIs. Nonetheless, the frameworks constructed by JPND and JPIs TO CO-WORK provide the basis for the FACCE-JPI evaluation framework.

In general the monitoring and evaluation framework identifies the three targets of FACCE – JPI:

- to improve alignment of national and European research programmes,
- To increase high quality transnational research activities within food security, agriculture and climate change, and
- To improve the societal impact on the challenge of food security, agriculture and climate change.

Monitoring is regarded as the iterative process of checking the progress of FACCE-JPIs joint actions and the respective projects by continuously collecting information in order to analyse the potential to make improvements and increase efficiency (= Part 1 of the framework paper). Further, the collected data provides an integral source of information for the evaluation process. Monitoring needs to be specifically tailored to the respective joint action or project. Additional to a set of key questions aiming at the three FACCE JPI targets, specific aspects of each project have to be taken into account, thus making it necessary to further elaborate the monitoring according to the characteristics of the respective joint action. This has been done for the pilot action “*Knowledge Hub MACSUR*” and is also part of this paper (see 2.2).

The FACCE-JPI evaluation will focus on the organisation, process and outcomes of target 1 within 5 years, which requires a continuous effort also during later evaluation cycles and forms the organisational basis of the JPI. Later evaluation cycles will start staggered and will focus on outcomes of target 2 (within 10 years) and 3 (within 15 years) and are iterative processes that will be done for each of the projects generated in the joint actions in the context of problem solving.

The construction of a central database containing all the relevant information from the monitoring for evaluation is a prerequisite for the FACCE-JPI evaluation. Therefore we recommend using the model and technique of DASTI’s Meta Knowledge Database, which DASTI has agreed to share with FACCE-JPI.

The monitoring and evaluation framework is adopted and the budgetary frame is defined, the monitoring of joint actions can commence and the evaluation processes can be tailored accordingly.

### **Appendix 1: Potential indicators for FACCE–JPI**

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Appendix 1 lists potential indicators for FACCE-JPI. It should be stressed, that these are potential indicators; hence when the evaluation activities are launched the most appropriate indicators should be chosen by the evaluators. As such appendix 1 will work as inspiration for the evaluators.

These indicators will be S.M.A.R.T. to the extent possible, for example the first line of table A.1:

- S - Specific - National programs aligned – scope and processes are the same.  
M - Measurable - Joint documents across Europe  
A - Attainable- Is this achievable at all?  
R - Relevant - Does this make alignment? To which degree is this needed to align programs?  
T - Time-bound - Done by 201X

**Indicators on the alignment of national and European research programmes**

As described in section 3.1 the alignment of national and European research programmes constitutes the first target of the FACCE-JPI evaluation. Based on the identified targets in table 2 the following indicators, sources of information and methodological issues on alignment of national and European research programmes are identified according to the three dimensions:

- The organisational structure
- The process
- The outcome

The relevance of the three methodological issues described in section 2.1 is assessed in relation to the individual indicators.

Note that these indicators are examples of potential indicators, and objectives may be narrowed as the indicators are implemented in order to ensure as precise data as possible.

**Table A.1: Potential indicators on the organisational structure of the alignment of national and European research programmes**

Objective	Criteria	Indicator	Source
Aligning national programmes across Member States	Member states allocate national funds for joint calls.	Percentage of national funds allocated to joint calls	Questionnaire to member states
Aligning national programmes across Member States	FACCE-JPI influence the national focus of research policies and instruments	The extent of member states indicating that FACCE-JPI influenced the national focus of research programmes	Questionnaire to member states
Aligning national programmes across Member States	The content of research funding programmes is adapted based on the scientific priorities as defined in FACCE-JPI research strategy to be complementary or match with programmes in other countries	Extent of member states indicating that national research funding programmes is adapted to match or complement FACCE-JPI research strategy	Questionnaire to member states

Aligning national programmes across Member States	The funding allocated annually via joint calls for proposals within FACCE-JPI increases	Percentage increase in funding allocated to joint calls for proposals within FACCE-JPI	Questionnaire to member states
Avoiding duplication and filling gaps between Member States and creating critical mass	Member states assess that FACCE-JPI has avoided duplication, filled gaps and created critical mass	Percentage of member states answering that FACCE-JPI has avoided duplication, filled gaps and created critical mass	Questionnaire to member states
Alignment of funders schedules to that of the JPI	Member states assess that their schedule has changed as a result of joining FACCE-JPI	Percentage of member states answering that FACCE-JPI has influenced their schedule	Questionnaire to member states

**Table A.2: Potential indicators on the process of the alignment of national and European research programmes**

Objective	Criteria	Indicator	Source
Member States identify and exchange information on relevant national programmes and research activities	Template filled in for each GB and discussion of new programmes in GB meetings	Number of countries describing their new and upcoming programmes	FACCE-JPI reporting
Implementation of joint activities	FACCE-JPI Governing Board launches joint activities	The quantity of launched joint activities	FACCE-JPI reporting
Development of funding specifically tailored to each joint activity	The variety of different funding actions	The quantity of different funding actions	FACCE-JPI reporting

**Table A.3: Potential indicators on the outcome of the alignment of national and European research programmes**

Objective	Criteria	Indicator	Source
Aligning national programmes across Member States	Member states allocate national funds for joint calls	Percentage of national funds allocated to joint calls	Questionnaire to member states
Aligning national programmes across Member States	FACCE-JPI has influenced the national focus of research policies and instruments	The extent of member states indicating that FACCE-JPI influenced the national focus of research programmes	Questionnaire to member states

Aligning national programmes across Member States	The content of research funding programmes is adapted based on the scientific priorities as defined in FACCE-JPI research strategy to be complementary or match with programmes in other countries	Extent of member states indicating that national research funding programmes is adapted to match or complement FACCE-JPI research strategy	Questionnaire to member states
Aligning national programmes across Member States	The funding allocated annually via joint calls for proposals within FACCE-JPI increases	Percentage increase in funding allocated to joint calls for proposals within FACCE-JPI	Questionnaire to member states
Avoiding duplication and filling gaps between Member States and creating critical mass	Member states assess that FACCE-JPI has avoided duplication, filled gaps and created critical mass	Percentage of member states answering that FACCE-JPI has avoided duplication, filled gaps and created critical mass	Questionnaire to member states

#### **Indicators on high quality transnational research activities**

As described in section 3.1 the high quality transnational research activities constitutes the second target of the FACCE-JPI evaluation. Based on the identified targets in table 2 the following indicators, sources of information and methodological issues on research activities are identified according to the three dimensions:

- The organisational structure
- The process
- The outcome

**Table A.4: Potential indicators on the organisational structure of increasing high quality transnational research activities**

Objective	Criteria	Indicator	Source
FACCE-JPI mobilises the research community across Europe to work together and meet grand societal challenges	Scientists working on FACCE SRA research issues.	Quantity of scientists working on FACCE SRA research areas	FACCE-JPI reporting
FACCE-JPI joint activities facilitate research groups participation in transnational projects	Number of researchers taking part for first time in transnational projects	Number of researchers taking part for first time in transnational projects	Questionnaire to scientists participating in FACCE-JPI activities

Member States share, where appropriate, existing research infrastructures or develops new facilities	Member states cooperate on sharing infrastructure.	Quantity of agreements on sharing of infrastructure among FACCE-JPI member states	Questionnaire to member states
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**Table A.5: Potential indicators on the process of increasing high quality transnational research activities**

Objective	Criteria	Indicator	Source
Address the research questions defined in the Strategic Research Agenda	Joint calls launched covering FACCE SRA research issues	Percentage of FACCE SRA research issues covered in joint calls	FACCE-JPI reporting
Extent to which Strategic Research Agenda is taken up in national research programming and also in EC programming	Strategic Research Agenda themes covered in national research programmes and EC programming	Number of transnational projects funded by national programmes	Questionnaire to member states
Identifying areas or research activities that would benefit from coordination or joint calls for proposals or pooling of resources or other novel means of integration	Quantity of Knowledge Hubs and other joint activities	Quantity of Knowledge Hubs and other joint activities	FACCE-JPI reporting
Defining the procedures for research to be undertaken jointly	Procedures for joint calls decided smoothly	Satisfaction among member states on decided procedures	Questionnaire to member states

**Table A.6: Potential indicators on the outcome of increasing high quality transnational research activities**

Objective	Criteria	Indicator	Source
Increase European research visibility and impact at the transnational level	Increase the number of research articles published within FACCE-JPI SRA research areas	Quantity of articles financed by FACCE-JPI published	Bibliometric analysis
To what extent has the JPI increased the level of transnational research carried out in participating MS?	Increase the number of transnational research projects and their funding	How many transnational projects? How much dedicated funding?	Questionnaire to Member States

### Indicators on the societal impact on the challenge of food security, agriculture and climate change

As described in section 3.1, the societal impact on the challenge of food security, agriculture and climate change constitutes the third target in the FACCE-JPI evaluation framework. Based on the identified targets in table 2, the following indicators, sources of information and methodological issues on the societal impact on the challenge of food security, agriculture and climate change have been identified:

- The organisational structure
- The process
- The outcome

**Table A.7: Potential indicators on the organisational structure of the societal impact**

Objective	Criteria	Indicator	Source
Development of a trans-disciplinary research base, encompassing economic and social aspects in additions to scientific ones	Trans disciplinary research areas encompassed in research base	Quantity of research areas encompassed in research base	FACCE-JPI reporting
Encouraging better collaboration between the public and private sectors, together with open innovation between different business sectors	Research projects with participation from private sector	Quantity and percentage of research projects with industry participation	Questionnaire to member states
Use of regional initiatives to tackle societal challenges in addition to cooperation with global initiatives	Use of regional initiatives to tackle societal challenges in addition to cooperation with global initiatives	Quantity of joint actions with regional initiatives launched	FACCE-JPI reporting

**Table A.8: Potential indicators on the outcome of high quality transnational research activities**

Objective	Criteria	Indicator	Source
FACCE-JPI supports the developing a strong European bio-economy	FACCE-JPI contributing to the development of the European bio-economy	Quantity of “bio-economy” companies involved in FACCE-JPI projects	Questionnaire to member states
FACCE-JPI supports the developing a strong European bio-economy	Stakeholders assess FACCE-JPI projects to contribute a more efficient utilisation of scarce resources	Perception of stakeholders on FACCE-JPI contribution to the development of the European Bio-economy	Questionnaire to stakeholders



FACCE-JPI address the challenge of food security in the context of demographic growth, global environmental changes, globalisation of the economy and dwindling natural resources such as fossil fuels, water and arable land	Stakeholders assess FACCE-JPI projects to address the challenge of food security in the context of demographic growth, global environmental changes, globalisation of the economy and dwindling natural resources such as fossil fuels and water	Quantity of stakeholders who assess FACCE-JPI projects to address the challenge of food security in the context of demographic growth, global environmental changes, globalisation of the economy and dwindling natural resources such as fossil fuels and water	Questionnaire to stakeholders
Increasing the competitiveness of European research through enhanced linkages with and implementation by farmers, industry and SMEs	Demand side recommendation developed in FACCE-JPI joint activities and adopted by stakeholders	Quantity of recommendation adopted by stakeholders	Questionnaire to stakeholders
Increasing the competitiveness of European research through enhanced linkages with and implementation by farmers, industry and SMEs	Private partners assess FACCE-JPI to have an impact on the competitiveness of European research through enhanced linkages with and implementation by farmers, industry and SMEs	Quantity of FACCE-JPI projects solutions implemented by private actors	Questionnaire to stakeholders
Exporting and disseminating public domain knowledge, innovation and interdisciplinary approaches to other parts of Europe and worldwide and ensuring the effective use of research outputs to enhance European competitiveness and policy making	FACCE-JPI newsletter read outside the Consortium	Quantity of readers of FACCE-JPI newsletter outside the Consortium	FACCE-JPI reporting
Support SMEs and industry in the agriculture and food sectors, including societal innovation and consumer behaviour	SME participate in FACCE-JPI projects	Quantities of private partners assess FACCE-JPI to have an impact on the competitiveness of European research	Questionnaire to stakeholders

		through enhanced linkages with and implementation by farmers, industry and SMEs	
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## Appendix 2: Template for questionnaire to the Member States

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### **Introduction text**

*To be able to discuss the results of the FACCE – JPI, it was decided by the FACCE-JPI Governing Board to initiate an evaluation of the joint activities of FACCE-JPI. The first step of this evaluation is to evaluate the ability of FACCE-JPI to align national and European research programmes. As part of this work, FACCE-JPI will analyse the perceptions and expectations among the Members of the FACCE-JPI Governing Board on the ability of FACCE-JPI to align national research programmes.*

*As member of the FACCE-JPI Governing Board, you have been invited to answer this questionnaire.*

*The questionnaire is divided into the following sections;*

- 1. Information about your organisation*
- 2. Coordination among FACCE-JPI members*
- 3. Alignment of research strategies*
- 4. Alignment of research funding*
- 5. Future expectations*

*If you have any questions, please contact...*

*We appreciate your help.*

### **Section 1 - Information about your organisation**

*This first section concerns the background information of your organisation. Please provide us with information that characterises you, the country and organisation you represent in the FACCE-JPI Governing Board - Please provide:*

1.1. Name:

1.2. Position in your organisation:

1.3. Which country do you represent in the FACCE-JPI Governing Board?

1.4. Which organisation do you represent in the FACCE-JPI Governing Board?

1.5. Is your organisation a funding agency?

1.5. If you have additional comments, please elaborate:

## **Section 2 – Coordination among FACCE - JPI members**

*Section 2 concerns the FACCE-JPI ability to coordinate among the FACCE-JPI members.*

2.1. On a scale from 1-5, where 5 is highest, to which extent do you agree that FACCE-JPI has established the necessary infrastructure to facilitate efficient decision making procedures:

1. –
2. –
3. –
4. –
5. –
6. Don't know

2.2. If you have additional comments, please elaborate:

2.3. If you have any suggestions for improvement of the FACCE-JPI decision making procedures, please elaborate:

## **Section 3 – Alignment of national research strategies**

*Section 3 concerns the FACCE-JPI ability to facilitate the necessary decisions procedures for alignment of the national research strategies within food security, agriculture and climate change.*

3.1. On a scale from 1-5, where 5 is highest, to which extent do you agree that the FACCE-JPI Strategic Research Agenda has influenced the focus of the national research programmes within food security, agriculture and climate change in your country:

1. –
2. –
3. –
4. –
5. –
6. Don't know

3.2. If you have any comments, please elaborate:

3.3. On a scale from 1-5, where 5 is highest, to which extent do you assess that the national research programmes within food security, agriculture and climate change in your country is adapted to match or complement the FACCE - JPI Strategic Research Agenda:

1. –
2. –
3. –
4. –

5. –
6. Don't know

3.4. If you have any comments, please elaborate:

3.5. On a scale from 1-5, where 5 is highest, to which extent do you assess that specific content from the FACCE - JPI Strategic Research Agenda has been taken up in national research programmes within food security, agriculture and climate change in your country:

1. –
2. –
3. –
4. –
5. –
6. Don't know

3.6. If you have any comments on the alignment of research strategies, please elaborate:

3.7. If any, what do you regard to be the main obstacles for the adoption of the FACCE-JPI Strategic Research Agenda into the national research programmes in your country?

3.8. On a scale from 1-5, where 5 is highest, to which extent do you agree that FACCE-JPI has contributed to avoid duplication and filling gaps between member states?

1. –
2. –
3. –
4. –
5. –
6. Don't know

3.9. If you have additional comments, please elaborate:

#### **Section 4 – Alignment of national research funding**

*Section 4 addresses the contribution of the FACCE-JPI on the alignment of national research funding within food security, agriculture and climate change.*

4.1. Please indicate the total amount of money (Euro) your organisation has allocated for FACCE-JPI joint activities in the following year:

1. 2009\_\_\_\_ EUR
2. 2010\_\_\_\_ EUR
3. 2011\_\_\_\_ EUR
4. 2012\_\_\_\_ EUR

5. 2013\_\_\_\_ EUR

4.2. Please indicate the total amount of money (Euro) your organisation has allocated for research programmes within food security, agriculture and climate change in the following year:

1. 2009
2. 2010
3. 2011
4. 2012
5. 2013

4.3. On a scale from 1-5, where 5 is highest, to which extent do you assess that FACCE-JPI has contributed to the development of funds allocated for research programmes within food security, agriculture and climate change in your organisation in the following years?

1. –
2. –
3. –
4. –
5. –
6. Don't know

## **Section 5 – Future expectations**

*Section 5 addresses the expectations on the future output of FACCE-JPI.*

5.1. Please estimate how large a decrease or increase in your funds allocated for research within food security, agriculture and climate change in your organisation you expect in the coming years:

1. More than 5% decrease
2. Between 0,1 % and 5% decrease
3. Status quo
4. Between 0,1 % and 5% increase
5. More than 5% increase
6. Don't know

5.2. On a scale from 1-5, where 5 is highest, to which extent do you assess that FACCE-JPI will contribute to the development of allocation of future funds to food security, agriculture and climate change in your organization?

1. –
2. –
3. –
4. –
5. –
6. Don't know

5.3 On a scale from 1-5, where 5 is highest, to which extent do you assess the importance of the following:

1. Further align the national research strategies on food security, agriculture and climate change
2. Increase the national funding allocated to research within food security, agriculture and climate change
3. Increase the national funding allocated to joint activities within food security, agriculture and climate change
4. Increase the EC funding of research within food security, agriculture and climate change
5. Increase the number of researchers within food security, agriculture and climate change
6. Increase collaboration between current researchers within food security, agriculture and climate change
7. Increase the scientific impact of European research on food security, agriculture and climate change
8. Increase collaboration in sharing existing research infrastructure within food security, agriculture and climate change
9. Increase the new research infrastructures within food security, agriculture and climate change

5.4. On a scale from 1-5, where 5 is highest, to which extent do you expect that FACCE-JPI will contribute to the following outputs within the next 3 years?

1. Further align the national research strategies on food security, agriculture and climate change
2. Increase the national funding allocated to research within food security, agriculture and climate change
3. Increase the national funding allocated to joint activities within food security, agriculture and climate change
4. Increase the EC funding of research within food security, agriculture and climate change
5. Increase the number of researchers within food security, agriculture and climate change
6. Increase collaboration between current researchers within food security, agriculture and climate change
7. Increase the scientific impact of European research on food security, agriculture and climate change
8. Increase collaboration in sharing existing research infrastructure within food security, agriculture and climate change
9. Increase the new research infrastructures within food security, agriculture and climate change

3.2. On a scale from 1-5, where 5 is highest, to which extent do you expect the FACCE-JPI Strategic Research Agenda to be adopted into the national research programme in the future (10-15 years)?

1. –
2. –
3. –
4. –
5. –
6. Don't know

5.3. If you have any comments on the expectations of the future output of FACCE-JPI, please elaborate:

*Thank you for your help*