



FACCE-MACSUR

WP6.3-4 Strategies for engagement on adaptation and mitigation with national and EU policy makers and with the agro-food chain sector (Update)

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Abstract/Executive summary

This report is grounded on the hypotheses, methodologies and approaches for stakeholder mapping designed during the early stages of MACSUR and described in the previous report¹. It describes the kind of activities conducted by the WPC6-3-4 MACSUR team and the emerging design of activities for the second phase of MACSUR (2015-2017).

The designed process of strategic stakeholder mapping was implemented by some of the teams involved in the task and through hub initiatives. Key actions were the (i) development of suitable intermediary objects to engage with stakeholders, through the regional pilot case studies, (ii) the design and implementation of key events (we report here the case of the Agrosceñari event at the case study scale, the national event between the MACSUR Italian partnership with Italian policy makers held in Rome in July 2014, the international stakeholder events at the MACSUR mid term meeting in Sassari (April 2014), and the one held in Bruxelles on 6 May 2015) and (iii) the process of stakeholder and stakeholding mapping at the case study scale.

Results indicate that when dealing with high level stakeholders (e.g. institutional or large agro-food enterprises), occasional stakeholder events will only serve as opportunity for showcasing and possibly for a data collection useful for researchers, with almost no impact on the ongoing social learning process sought by the designed activities. At the case study scale, instead, the long term and ongoing activities can generate new spaces for mutual learning and knowledge hybridization, through a variety of mediating objects emerging from the continuous interactions. The lesson learned is that the engagement of high level stakeholders can be effective insofar they are somehow involved in the interactions with stakeholders at the case study scale, as this can provide a key experience leading to a change in understanding about the nature of the issues that can ultimately result into a change in practice. These results will be the basis for the design of new strategies for engaging EU policy makers and large agro-food energy representatives in the second phase of MACSUR.

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¹ <http://ojs.macsur.eu/index.php/Reports/article/view/26/27>

Introduction

The rationale for action in this task was illustrated in a previous report¹ and relies on the following considerations:

- The lack of mutual understanding between scientist and policy makers is hampering the development of an effective EU climate change policy for food security. A similar gap, but with different implications, is that between climate change science and climate change business. There is even a lack of recognition of roles and actions to be taken at the scientific, policy and enterprise levels. Such gaps are generated by a deep diversity of background experiences between the different actors that shape science, business and policy. The implications of this situation are failures in the implementation of policies and increasing uncertainty around the future business of enterprises in the agro-food sector.
- The consensus among agricultural scientists about the causes and effects of climate change does not result into effective political or business actions. Climate change is generating “wicked issues” and scientists often fall in the “Cassandra syndrome” while attempting to construct such complex (and often unperceived) issues among potential stakeholders.
- Economics does not help in addressing these kind of issues, insofar the assessment of costs and benefits for future actions are uncertain and with a long term time horizon which results into the mistrust on uncertain future benefits vs. certain immediate costs and investments.

Our ability as scientists to design an effective stakeholder engagement strategy with all agro-sectors including policy makers and agro-food enterprises is challenged by this task of MACSUR. The outcome of MACSUR, particularly CropM, are often more focused on assessing the uncertainty of the forecasts than on actions to take and this generates some sort of lack of interest or even mistrust in our potential audience. There is a clear need for a strategic process which is able to raise the interest and proactive behaviour of relevant stakeholders: there would provide benefits for both researchers and stakeholders, but this requires a specific new design research praxis (Colvin et al, 2014).

In this report we rely on the lessons learned from some key cross-theme actions conducted in the context of MACSUR, that were designed consistently to the strategy outlined in the previous report¹. We describe the strategy and approaches designed for the stakeholder engagement at different levels by illustrating: (i) an example of stakeholder mapping; (ii) the construction of intermediary objects from the assessment of the impact of climate change at the regional case study scale; (iii) the design of critical events for stakeholder engagement at different levels, like the AgrosceNari event run in Sardinia in June 2013, the national events organized at the Ministry of the Agricultural policies in Italy in July 2014, the “stakeholder event” run at the MACSUR mid term meeting in Sassari in April 2014², and the stakeholder meeting with the StAB of the FACCE and other stakeholders in Bruxelles in May 2015³.

Strategy and approaches

The strategy for stakeholder engagement was designed consistently to the methodology described in the previous report¹. Stakeholders were mapped with different approaches according to the level of interest (local, regional, national, EU), around the regional case

² <http://www.macsur.eu/index.php/events/past-macsur-events>

³ <http://www.macsur.eu/index.php/events/macsur-workshop-for-policy-makers>

study issues. In this report we describe the steps designed to develop a strategy for stakeholder engagement. We show an example of stakeholder mapping related to the Sardinian case study, various examples on the construction of intermediary objects to engage stakeholders and on the design and implementation of “critical events” at case study, national and international level, including their debriefing. A synthesis of the lessons learned concludes the report.

Stakeholder mapping

The methodologies for stakeholder mapping was already illustrated in the previous report ¹. In this section we report an example of how a stakeholder map was built in the Sardinian case study. A similar process was implemented for the Finnish case study.

The Italian research team generated a stakeholder mapping from the regional case study “Oristanese”. The mapping was an outcome of several iterations generated by the ongoing co-researching process with stakeholders which started earlier than the start of MACSUR, in the context of the national projects. A mixed research team of nine, including PhD students, post docs and senior researchers, was engaged in identifying stakeholders, priority issues and providing scores (0 = none, 9 = max) in the stakeholder x priority issues matrix according to the relevance of each issue for each stakeholder from the perspective of the researcher. The interests were jointly identified by considering initially all proposals made by researchers, then the detailed issues were clustered into larger groups through a collective process. Individual scores were assigned independently by each researcher after a first exercise during which a general consensus was achieved in the score assignment criteria. The different scores assigned by each researcher were then averaged and a dispersion index calculated to identify the degree of convergence within the research team. The process generated a lot of debate inside the research team and was the matrix was synthesized into larger categories to check for consistency with stakeholders’ perceptions at case study scale by making specific interviews. A list of five main priorities extrapolated from the wider matrix built by researchers was submitted to main stakeholders (Managers of the producer’s co-op, dairy farmers, horticultural farmers, consumers) for each of the following topics: rural economic development, farm’s development, environment, research and education. The matrix construction process was a useful exercise to share the nature of the issues inside the research team and with main stakeholders. Furthermore, the matrix *per se* represents a benchmark of the learning process for future assessments.

Construction of intermediary objects to engage stakeholders

The basis for the stakeholder engagement strategy was the construction of intermediary objects grounded in the impact assessment made at the regional case study scale. The “intermediary object” is here understood according to Steyaert et al (2007) and the socio-technical object described by Toderi et al (2007). The intermediary object is constructed by researchers during the stakeholder mapping and transformed during the stakeholder engagement activities. It can be represented by the outcomes of an assessment in the form of tables, maps and charts, or by a tool (e.g. a mathematical model) able to mediate the different perspectives between the stakeholders and hence generate/facilitate dialogue and learning.

MACSUR produced three integrated and cross-cutting assessments for the regional case studies in Finland, Austria and Italy. The assessments provided a wide range of data and information on the expected changes in climate, crop, livestock and grassland response to these changes and related economic implications. This was the core business of the regional pilot case studies. The intermediary objects were therefore generated using different methodologies according to the different context in which they would mediate the learning process. The key activities underlying these outcomes were:

- the generation of climatic scenarios (in general with a near-future perspective, i.e. 2020-2030-2050),
- the assessment of the impact of climate change on crop production through crop system models and livestock and grassland simulations at the case study scale;
- the use of these outputs as input for Trade models for an integrated economic assessment.

Many of the activities run by the research teams at the case study scale were the outcome of a continuous interaction with local stakeholders that fed the models with contextualized information on specific crop and livestock management, allowed the collection of field data useful for the model calibrations, or provided the inputs for the identification and characterization of the farming systems.

A key feature of the modelling effort was that the results were not just the output of this or that model, but of an integrated assessment of the CC impacts on key farming systems at the case study scale, leading ultimately to the identification of “winners and losers” in economic terms and related drivers and implications (e.g. Dono et al, submitted to Agric Sys).

Such powerful “mediating objects” were used interactively in various ways by the different teams involved, with the aim of creating new learning spaces between researchers and other stakeholders in a interactive and iterative way.

In this report we describe how they were generated and used during the critical events designed at three different levels of stakeholder engagement: local (case study), national and EU.

Designing and implementing “critical events”

A critical event is here understood as an event that is able to generate the spaces and preconditions for a new learning process to occur among stakeholders around the MACSUR topics. A change in practices or praxes at any level can be generated by a change in understanding of a given situation (Ison et al 2007). In the case of climate change issues, the set up of a “technical fix” linear process in which adaptation is understood as “fitting to”, is not effective. Collins and Ison (2009) propose the concept of adaptation as co-evolution as more appropriate for climate change-related issues. Adaptation as co-evolution may arise from an ongoing pathway in which choices are to be made among different alternative options (Wise et al 2014). The challenge is to avoid options that may ultimately lead to a “maladaptive path” which may be irreversible.

In this context, critical events able to trigger learning may happen all the time (e.g. as an outcome of a critical climatic event leading to strong perception), but can be purposefully designed to support the adoption of adaptive pathways under contextualized situations.

In the context of the WPC6.3-4, a variety of critical events were designed to engage EU, national and agro-food stakeholders in an interactive learning process to feed a convergent pathway between researchers and policy makers.

Here we report an example of three events designed by the IT team at the local, national and international levels and the event designed by the MACSUR Hub to engage high level EU policy makers.

The design of a critical event at the **case study level** is probably the most demanding for a research team, insofar local multi-stakeholders must all feel comfortable and interested for actively participating to the event. The modality of research activity at the case study scale is also crucial to identify which stakeholders to involve in the event and to design a coherent facilitation process.

In this case, the Italian team used the results of the model simulations made for the assessment of the impact of near future climate expectations on cropping systems and dairy cattle farming to mediate the interactions during the participatory event held in

Cagliari in June 2013 in the context of the Agrosценari project⁴, which is closely linked with MACSUR. The Agrosценari meeting was designed for a mixed audience in which some local stakeholders (e.g. farmers) that were involved in the case study assessment, reinforced the credibility of the assessment by contributing to the discussion with additional contextual elements that are far beyond the capacity of models, while were considered very relevant by the policy makers.

The meeting was attended by over 130, including researchers, policy makers, farmers, farmers unions, entrepreneurs from the agro-food sector and practitioners. While the participation was open, targeted participants were invited personally by the organizers. The collaboration of the Sardinian Region Council for Agriculture was fundamental for achieving such a wide participation, as most attendants had expectations on future plans of the regional Government about rural development.

The event had been designed to address specific questions around the future of dairy farming, horticulture, rice production, rainfed grazing and cereal systems in the Mediterranean region. These were the objects constructed by the researchers to trigger and mediate the stakeholder engagement at this level. For each farming system, researchers illustrated the outcomes of the integrated assessment for a concrete contextualized situation, well known to most of the local audience involved. The national policy makers and other local stakeholders that were not involved in the research, instead, were not aware of the specific issues of the various farming systems. The participatory process following the researchers' presentations was designed according to the Metaplan methodology⁵ by professional facilitators recruited by the Sardinian Regional Council for Agriculture. The outcome of this event was summarized in a sort of instant report (in Italian) that was made available to the audience and was used as input for the Rural Development Policy in Sardinia.

An important feature of this kind of event is that some key participants (e.g. farmers) played a fundamental role in reinforcing the credibility of the research results. For instance, one relevant outcome of integrated assessment modelling was that livestock farmers were among the most threatened from the forecasted increased frequency of heat waves, leading to lower milk production and quality, higher risk of cow mortality, which was predicted to result in heavy economic consequences (-6 to -8% net income). Farmers reinforced this forecast by evidencing that dairy farmers were among the most vulnerable to climate change, despite their abundant availability of irrigation water, because of structural investments made in the latest decade, in response to the regional and EU agricultural policy. They had to invest in infrastructures also to accomplish the Nitrate Directive and hence were exposed because of the loans asked to the bank. Furthermore, their business is heavily dependent on the import of proteic and starch feeds, whose price is volatile and uncertain. Such discussion opened a space for intervention of other stakeholders not involved in the study but interested in the dairy farming business, thus leading to a deeper understanding of the nature of the climate change adaptation issues in terms of uncertainty, complexity, interdependencies and controversies. The same discussion and learning space would not be triggered if simulations were provided on a single crop, field or single farm basis. Hence the mediating object in this particular case was generated by combining integrated modelling and participatory processes designed to provide spaces for the integration of local and scientific knowledge (Nguyen et al 2014) and perspectives from the policy making side.

The design of a critical event with **high level national policy makers** implies first of all that there is a strong reason for them to participate. In this case the mediating object has to be strong enough and consistent with the specific interests of the policy maker(s) to invite. This is a precondition for engagement, which implies of course that the expectations generated by the mediating object are consistent with what will be the core

⁴ www.agrosценari.it

⁵ <https://en.wikipedia.org/wiki/Metaplan>

business of the event. The event organized by the Italian team at the Ministry of Agricultural Food and Forestry Policies (MIPAAF) in the context of MACSUR was intended to engage the high level policy makers that are responsible for the Rural Development Policies at national level, including climate change adaptation and scientific research. The event was organized following an analysis of the stakes of the targeted Ministry Staff in the context of their mandate. In this case, the interest of the Staff was to build a strategy to increase the national capacity of implementing EU Rural Development Policy in such a way that it is effective in spending the funds made available by the EU and can generate a cascade of opportunities at different levels. One key point identified by the researchers was to share with them a common view on the nature of the issues related to climate change adaptation and the implications for rural development. The event was designed as an informal meeting between the Italian researchers joining the MACSUR partnership and the targeted policy makers. The presence of the General Director of the European, International and Rural Development Policies Department was key to get the participation of the relevant staff, hence the object of discussion was designed around the key stakeholder, which also was responsible for the final decision on the funding of MACSUR-IT and expected a mid-term report in view of a possible follow-up with MACSUR-2. The presence of the key stakeholder at the meeting was negotiated through Officers that participated to the earlier phases of MACSUR and the AgrosceNari project (funded by the same Ministry). Their role was fundamental in mediating the presence of the key stakeholder, which was itself an outcome of the iterative process of interaction between researchers and Ministry Officers.

The construction of the mediating object for this event was tailored around the three objectives of the meeting set by the researchers in agreement with the Ministry Officers:

- To show the opportunities offered by MACSUR to the Italian scientific community and to MIPAAF in the context of the European policies on climate change
- Make a mid-term synthesis report of what was done by MACSUR-IT
- Make proposals in relation to the request for a prosecution of MACSUR-2 submitted to JPI FACCE by the MACSUR consortium
- Generate a space for reflection to develop concerted win-win strategies between researchers and policy makers

The situation was framed around the burning priority of the key stakeholder, which at that time was struggling to identify priorities for the Italian rural development policy in the context of climate change adaptation, focusing efforts towards concrete objectives, that could result into more funding spent by the regional governments for effective policies⁶.

In this context, the mid-term synthesis report of some eleven Italian research teams was transformed by researchers into a collective 30 min presentation (some two minutes e.g. - 2 slides - for each IT partner) framed around the three objectives described above and followed by an interactive discussion involving all participants.

The emerging mediating object here was constructed to focus on the opportunities and outcomes of the CC impact assessments, generated by the ongoing changes in the context of the evolving policies. The interdisciplinary scientific partnership of MACSUR-IT that attended the meeting was a strength, as the policy makers that attended the meeting appreciated the complexity of our interpretation of the CC adaptation issues in agriculture and contributed to a learning space for understanding the potential for win-win investments.

The stakes of the researchers, aiming to the prosecution of MACSUR-2, were declared to the audience since the beginning. Hence it was clear that the task of the meeting was to understand how an investment of MIPAAF funding on international research could serve as a support and/or multiplier of resources for the national policies.

⁶ In Italy the Rural Development Plan is implemented by the Regional governments (21 regions, 21 plans) under the supervision of MIPAAF. A permanent Region-State conference is the political space where the national strategy is designed and implemented. This space is chaired by the Head of the Rural Development Department of MIPAAF.

The meeting was designed to generate an informal atmosphere enhanced by the interactive participation of the interdisciplinary research team and the engagement of the MIPAAF staff in the discussion (some 12 officers), some of which attended the MACSUR stakeholder event held at the mid-term meeting in Sassari in April 2014.

The final outcome of the event was the revised proposal of the activities of the IT partnership for MACSUR-2, which was made more consistent to the expectation of the MIPAAF policy makers.

One key feature of the national event described above is that those Officers which closely collaborated with the key stakeholders, were iteratively involved in the research progress and hence provided the necessary positive feedback at the higher level. This is an important point, as such level of interaction is essential to generate a follow-up from single critical events, which cannot of course be at the high level of policy making, because of the increasing load of commitments at that level.

The engagement of high level policy makers at **international level** is rarely the outcome of an ongoing iterative interaction between researchers and policy makers, given the wider number of researchers and policy makers involved around climate change issues in agriculture. Here we report two kinds of critical events, one designed in the context of the MACSUR mid term conference held in Sassari in April 2014 and the other designed to meet the mapped MACSUR stakeholders at EU level, including members of the JPI FACCE Stakeholder Advisory Board. The two events had similar objectives, that is to show what were the MACSUR outcomes and to ask stakeholder to help researchers to generate new research questions able to support the EU agricultural policies on climate change adaptation.

The *stakeholder event held in Sassari* was designed around the three MACSUR regional case studies (Finland, Austria and Italy) with the objective of raising the interest of stakeholders on climate change adaptation and share research questions and expectations through addressing concrete issues and solutions proposed in the three different EU contexts.

In this case, the WPC6-3-4 team designed a variety of situations:

- a) a traditional showcase of the results obtained and future perspective
 - b) an interactive stakeholder workshop session around regional pilot case studies
 - c) an informal convivial space for researchers and policy makers
 - d) a variety of spaces for listening and informing the “stakeholders out there” (i.e. farmers and general public?), which could not attend or communicate directly during the international venue, including a field trip.
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- a) The traditional showcase was designed to illustrate the evidence of the Integrated Assessment Modelling at the regional pilot case level. This happened in a plenary session, with a typical Powerpoint presentation followed by a Q&As debate. This was attended by an audience of researchers, the chair and members of the Governing board of the FACCE, and by national policy makers. While this was scheduled as a necessary formal situation, little or no feedbacks were returned from this session, either from the scientific or stakeholder audience.
 - b) The interactive stakeholder workshop was structured into three stages: (1) three “narratives” linked to the three regional pilot case studies were explored from the point of view of the MACSUR scientists through a “carousel participatory workshop” approach⁷; (2) institutional stakeholders were invited to share their personal and professional experiences around climate change adaptation issues possibly grounded on the regional case studies; (3) small groups were encharged to identify

⁷ Chambers R., 2002. Participatory workshops: a sourcebook of 21 sets of ideas and activities. Earthscan, London.

common issues, priorities and possible future strategies to be addressed and developed at research and governance level.

The carousel approach was organized by dividing the audience (some 35 among researchers, regional, national and international policy makers) into three self-organized groups, each including at least one participant able to illustrate one of the three case studies, which engaged the carousel. Each group had 15 minutes to discuss a poster on the case study, in which all group members had a role assigned in interviewing, enquiring or reporting about each case. Another poster was designed to frame the participant contributions (through post-its) to highlight different levels of response to climate change (scored 1-6, from no response to Champion organizations) and five key questions: (i) what kind of knowledge is needed? (ii) what role for researchers? (iii) what kind of changes are needed? At what scale/level? (iv) who should be involved and how? (v) open question. At the end of the carousel, an instant report was prepared by the policy makers of each small group, that illustrated their outcome in the plenary session.

This kind of process generated a lot of discussion within the groups in the context of an informal situation and engaged institutional stakeholders in the plenary session of final reporting (Box 1).

Box 1 - Synthesis of the outcomes of the Stakeholder workshop held at the mid-term Macsur conference, Sassari, 1-4 April 2015 (by Alberto Masci, Mipaaf, Rome, Italy)

Relevant issues emerged from the workshop brainstorming from a policy maker's point of view:

- It is necessary, in order to engage relevant stakeholders from a very early stage, to use the models in a creative way, trying to use them also as a mean of communication;
- Models should define scenarios compliant with the existing policy (2014-2020), but trying to look further in time;
- Farmers currently perceive the impact of CAP likely to be stronger than climate change impacts, but at the same time, CAP should take into account climate change issues and develop measures to address future needs in terms of adaptation and mitigation;
- It is important to achieve a growing integration between farmers and researchers, in this respect it is possible to exploit the existing instruments developed by the Commission such as EIP (European Innovation Partnership) to bridge the opportunities available both from CAP and Horizon 2020 framework programme.
- In this respect the role of extension services is crucial in order to stimulate farmers and their attitude to:
 - Training
 - Use of ICT
 - Use of Research and Development opportunities
 - Diversification of productions in order to build some kind of resilience in the occurrence of extreme weather events
- It is important to continue to support agriculture in the framework of its multifunctional approach (farmers as sentinel of the agricultural and natural environment);
- Improve the decision making, based on scientific evidence;
- Carry out a stakeholder analysis in order to find out the right issues to address them with, or the information to deliver considering their specificity (policy makers, researchers and farmers).

- c) the “informal convivial space” was designed during the MACSUR mid term conference to use the 2-3 hrs time of the social dinner as an opportunity for developing informal relations between researchers and researchers and policy makers. The physical space for the event⁸ was designed to allow people to move around to get food and beverages and also find seats and tables where to talk informally. During the event, professional artists provided a music and theatre performance by mixing local traditional songs with texts from the international literature (e.g. Shakespeare) related to climate change. Such space was ideal to break the formal barriers and at the same time contained a lot of informal opportunities to reflect on the interactions between human behaviour and climate processes⁹. While this event was difficult to assess in terms of outcomes, all

⁸ The location was at the Officials Club of the “Brigata Sassari” which is a glorious Division of the Italian Army, based in Sassari.

⁹ For instance all food and drinks were labelled to inform attendants about the CO₂ equivalent emissions associated to their production and this generated some discussion among the participants.

participants showed appreciation on how that particular settings was so conducive in generating dialogue and interactions between participants.

- d) Another informal space for learning at the MACSUR mid-term meeting held in Sassari was designed to bring the voice of the general public and farmers at the conference. This was designed through a number of 1 minute video spots entitled “Male male male...” (badly badly badly...¹⁰) that were broadcast at the end of each formal session. The video had been recorded before the meeting and reported the interviews of the general public at the Farmers’ Market in Sassari and interviews to farmers in the Sardinian case study areas. People answered some key questions about climate change, thus providing a “fresh” witness of what common people think about the core topic of MACSUR. To overcome language barriers, the video was subtitled in English. Again, this was a way (sometimes hilarious...) to trigger reflection and stimulate discussion besides the scientific and formal discussions during the meeting. A special session was designed to interact with stakeholders at local level during the field trip, in which participants, both researchers and policy makers, had the chance to understand what kind of farming systems were considered in the regional case study and had the opportunity to directly interview the farmers on specific issues. The end-of-the-day dinner prepared by the Farmers’ Cooperative, including the video spots, also provided more learning spaces in the context of a convivial venue.

The *stakeholder event held in Bruxelles on 5 May 2015* was designed by the MACSUR Hub coordination to engage EU relevant stakeholders such as member of the Stakeholders advisory board of the JPI FACCE and Officers from the EU DG-AGRI. The event was designed as an afternoon session relying on regional case studies and presentations of the rationale and examples of activities run in the context of each of the three MACSUR Themes (CropM, LiveM and TradeM), followed by a round table with four of the most representative stakeholders. In the context of the conference, participants (some 30 people) were asked to fill a simple questionnaire¹¹ to survey their own perspective about the involvement of policy makers and other stakeholders in Europe that might be relevant to engage in the context of MACSUR. Some ten questionnaires were collected, which provide some insights and suggestions about the stakeholder engagement strategy. The event provided an opportunity for making new contacts with policy makers and other stakeholders. The “Male male male...” video spots were also broadcasted during coffee break.

In this case, participants were involved in an interactive discussion and the event provided an opportunity to understand the perspective of stakeholders on how MACSUR is expected to contribute to address the priorities of adaptation and mitigation illustrated in the introductory section. In the context of the MACSUR stakeholder engagement strategy, the event also offered an opportunity to map those (absent) stakeholders that were indicated by those attending the meeting as relevant to consider for MACSUR.

¹⁰ The video spots were designed by Sante Maurizi in collaboration with Francesco Ruiu and are available on the web at https://www.youtube.com/watch?v=tzWxH-6_dFk and in the Macsur website: http://www.macsur.eu/#vbVideo_4023742429

¹¹ The questionnaire was articulated into three main questions: (1) suggest any relevant institutional contact in your country that is responsible for climate change and agriculture issues; (2) What priorities do you see for responding to climate change in relation to agriculture in Europe?; (3) How could the MACSUR project contribute to the priorities that you identified above, and what would be the best way to do this? (4) open question.

Outcomes

The outcomes of the variety and level of experiences made in the context of MACSUR C6.3-4 and cross-theme activities, provided some relevant methodological insights on the stakeholder engagement strategy and the follow-up of the project.

The outcomes from the **stakeholder mapping exercise** at the case study level confirmed the iterative and dynamic nature of the process, which goes far beyond the need of stabilizing a map, while should be designed to feed the social learning process which in turns shape stakes and stakeholding.

The outcomes of the experiences of stakeholder engagement made **at the case study level** revealed that design praxis of involving endusers through the recurrent and iterative relationship between researchers and farmers, e.g. through on-farm participatory experiments or action researching, can contribute to strengthening the research results in the eyes of the policy makers at all levels, even when critical events are occasionally designed. This requires the design of a research process in which farmers, or group of farmers (e.g. a coop or producer organization), are involved from the beginning and have the opportunity to understand why and how the research is done and contribute to shape the research questions while perceiving the usefulness of it. This research approach is consistent with the case study approach, in which researchers develop on-farm experiments, while it is constrained by the unfamiliar context for farmers when researching under controlled environments (plot or lab).

The outcomes of the experiences of stakeholder engagement of high level policy makers **at national level** revealed that the participation of key stakeholders is crucial to involve the executive staff in the learning process between researchers and policy makers. The constant climate of urgency and burning issues to be addressed in the policy making context makes it difficult for the researcher to design critical events that can be of interest for the policy makers. Furthermore, politicians and high level policy makers change often and hence it is difficult to design a long-lasting engagement aiming at an iterative learning process. The positive experience made at the Italian Ministry of Agricultural policies relied on a consolidated relationships between researchers and the staff of the high level policy maker. Their active involvement in some key milestones of the project (e.g. the MACSUR mid-term meeting) was crucial. Also in this case, their perception about the close link between the ongoing research and the needs of local stakeholders was important to gain their trust and commitment.

However, already at this level the spaces for interaction between researchers and policy makers are constrained by the number of projects that at national level policy makers can actually follow-up. It is clear that well-designed institutionalized spaces for mutual learning between researchers and policy makers are missing.

The experience gained in the MACSUR mid-term meeting at international level revealed the clear need for more spaces of interaction with policy makers in scientific meetings. The policy makers that attended the meeting showed a distinct behaviour during the conventional or the interactive sessions. The conventional meeting structure is designed for a public of experts interested in scientific advancements which must kept distinct from other formal (e.g. the stakeholder interactive session) or informal (e.g. the video spots or the social dinner) learning spaces. Careful design of the physical spaces, logistics and time spaces for informal interaction was crucial for the success of the event. However, this can just be a spot interaction which may not result into effective learning if a careful follow-up is not designed.

The Bruxelles meeting revealed that there is a clear interest on the advancements of research on climate change adaptation and mitigation from the policy making side at all levels. However it also revealed, again, that continuous interaction and careful designed

follow up is necessary for the effectiveness of the process of integration between science and policy.

Synthesis of lessons learned and closing remarks

The combination of qualitative and quantitative approaches can provide insights into stakeholder processes to address strategic decisions at different levels, to face scenarios of future uncertainties.

The experiences gained from the implementation of the stakeholder engagement strategy offer useful insights for a new iteration of designing the strategy.

The proposed **stakeholder mapping** strategy provided the bases for the identification of the potential conflicts of interests between interdependent stakeholders in the context of grounded issues at the case study scale. This is also a way to track the learning process inside the research team, by comparing stakeholders' maps built by the same team over time: a change in stakes, weights or stakeholder list are indicators of the progress in learning about the nature of the issue and a prerequisite for more effective engagement with stakeholders at higher levels. The mapping of stakeholders at higher levels (e.g. policy making at international scale) is still missing at this stage of the project. This depends on the relatively few interactions between the StAB or Governing Board of the FACCE JPI on one side, and the wide arena of policy makers involved in each member state of the EU and at EU level on the other. The few occasional meetings with stakeholders were not sufficient to build a stakeholder map at that level. This was an apparent gap in the MACSUR-1 process, not a methodological issue per se, but one that should be covered in further prosecution of the project.

The construction of specific **mediating objects** around contextualized issues, either at district and/or farming systems level, proved to be strategic in mapping stakeholders and stake-holdings at all levels and to gain trust in engaging policy makers or industry managers in an effective learning process. The construction of the mediating object is generally responsibility of the process designers and may come out from a stakeholder mapping at case study scale. The regional case studies proved to be effective mediating objects when dealing with higher level (e.g. national or international) policy makers. The case studies provide a number of topics of discussion and a wide picture of the complexity and context dependence of climate change-related issues, which is consistent with policy maker concerns, i.e. not focused on the response of just one crop or cropping system to changes in climate. The feedbacks received from the high level stakeholders in Bruxelles clearly indicate the relevance of addressing climate change adaptation by integrating different levels of knowledge and integrated modelling assessments. The outcomes of such assessments will gain credibility with policy makers when end-users (e.g. farmers) are directly involved in the constructions of climate impact scenarios which take into account the farmers' perception of change that are already driving changes in practices (e.g. investments or other adaptive behaviours). The ongoing learning process both at case study scale or higher level stakeholder scale will always require starting from focusing on a specific object which can trigger the discussion towards the wider picture of the system's complexity. The integrated impact assessments delivered by MACSUR proved to be very effective as mediating objects, providing that the scientific assessment is well contextualized, and that it emerges from integration of scientific and farmers' knowledge.

The design of **critical events** for stakeholder engagement poses different challenges according to the kind of stakeholders involved and the kind of process sought by the researchers. The experiences gained in MACSUR clearly show that occasional events, even if accurately designed and effective *per se*, may not be sufficient to trigger a learning process leading to pro-active follow-up. However, there is an objective difficulty in

engaging high level stakeholders that potentially are a target for so many research projects and teams, and may often change as a consequence of the political changes that inevitably occur at local, national or EU levels. The engagement of Intermediate Officers in playing an active role in some critical phases of the project may help to fill this gap and obtain the attention of the top managers when necessary, by tailoring the mediating object on the “burning issues” that can be addressed by the research programme. MACSUR offers a wide range of expertises, results and outcomes, but above all case studies, again, can provide the necessary links and insights for this kind of stakeholder engagement.

The assignment of an active role to stakeholders at critical events, as happened in Bruxelles (round table) and Sassari (Carousel report), is a prerequisite for their engagement in the project learning process. However these activities require a follow-up and the design of other spaces for interaction mediated by situations such as field visits, farmers’ interviews etc. which will allow stakeholders to learn about the nature of the issues addressed by the project and the kind of research process designed.

Other complementary engagement strategies at critical events for stakeholder engagement, such as those designed and implemented at the MACSUR mid-term meeting (e.g. videos, field trips, interactive social dinners etc.) helped to create the necessary informal atmosphere for developing networks and extending the interactions among researchers and between researchers and policy makers. A comfortable situation helps in generating learning spaces at all levels and the mixture of science, media and arts can be very effective in generating a conducive process.

The JPI FACCE programme provides a new opportunity of structured interaction between researchers, stakeholders and policy makers, through the Governing Board, the Stakeholder Advisory Board, and the Scientific Advisory Board. This calls for a more intensive interaction between MACSUR researchers and these three Boards, particularly the StAB. The experience gained in the work reported here revealed that the regional case studies can provide the necessary spaces for the construction of mediating objects to facilitate the dialogue. However, to be effective, these interactions will require a sound design of more systematic meetings between researchers and stakeholders, which would very much benefit from field visits and outcomes of co-learning processes between researchers and farmers. This researching pathway is being designed for the prosecution of MACSUR-2 and will be shared with the StAB at the Braunschweig meeting scheduled for the end of October 2015.

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