Joint Working Party on Agriculture and the Environment

SYNERGIES AND TRADE-OFFS BETWEEN AGRICULTURAL PRODUCTIVITY AND CLIMATE CHANGE MITIGATION AND ADAPTATION: FRENCH CASE STUDY

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Contact person:
Ada IGNACIUK, TAD/NRP
(ada.ignaciuk@oecd.org)

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EXECUTIVE SUMMARY

This paper assesses whether existing policies in France create synergies or trade-offs between agricultural productivity growth, climate change adaptation and mitigation goals. Although mainly designed to ensure stable and sustainable food production and a good standard of living for the agricultural community while trying to increase the market orientation of the sector, EU and French agricultural policies aim to gradually incorporate sustainability and climate objectives. However, the way in which farmers respond to climate change is complicated by the wide range of non-agricultural policies that affect their choices. Ultimately, a combination of both agricultural and non-agricultural policies will determine whether the agricultural sector can reduce its carbon footprint and adapt to changing climate and socio-economic circumstances.

A strong and growing emphasis on integrating climate and economic objectives in French agricultural policy making

France’s institutional framework reflects a recent shift towards promoting the integration of economic, environmental and climate considerations in agriculture, with government agencies and initiatives increasingly focused on the need to consider climate change and specific agricultural priorities together. Recent agricultural orientations and strategies seek to give stronger, if not equal, weight to climate considerations and to encourage mitigation and adaptation as well as competitiveness and productivity. France has also designed national climate-change mitigation and adaptation plans that include actions specific to the agriculture sector. The growing attention paid to improving agriculture’s climate footprint and adaptive capacity is mirrored by an institutional shift toward collaboration both within and between the ministries responsible for the policy areas.

Many recently-developed policies, as well as reforms made to existing policies, support at least two of the three objectives of productivity growth, adaptation, and mitigation, without any obvious discouragement of the third. The new policies seek to improve upon former policies in terms of trying to achieve synergies between the economic and climate change objectives. For instance, the Energy Methanisation and the Nitrogen Autonomy Plan (EMAA) shows potential to create synergies between productivity and mitigation by encouraging investments in more energy-efficient production. Synergies between adaptation and productivity are supported by the EcoPhyto Plan. Through the reduced use of phytosanitary products it decreases the reliance of crops on pesticide and encourages biodiversity and soil health improvement.

France’s focus on adopting a wide variety of different policy tools to address the many aspects of agriculture related to climate change adaptation or mitigation is commendable. In particular, France champions the use of soft policies in its policy mix as an alternative or supplement to regulations. A recent survey by the French ministry in charge of agriculture noted an increased awareness and acceptance by farmers of the agro-ecology project; an umbrella project for public policies designed to promote and sustain agro-ecological production systems that incorporate a number of public-awareness increasing tools.

This is also encouraged by EU policies

The latest Common Agricultural Policy incorporates climate change adaptation and mitigation measures and places a stronger emphasis on environmentally sustainable agricultural practices, even though the majority of its support remains targeted at maintaining productivity growth, the viability of farms, and socioeconomic objectives in agriculture. Both Pillar I and Pillar II programmes include agro-environmental and climate measures. Pillar I, for example, now incorporates payments to farmers - Good Agriculture and Environmental Condition (GAEC) requirements and ‘greening’ measures, for 30% of direct
payments - for undertaking certain actions to address environmental and climate change objectives. The effectiveness of these measures, however, especially these related to climate change objectives, has not yet been demonstrated.

**However, stimulating synergies does not always reduce trade-offs**

A lack of incentives to encourage a more restrained and efficient use of inputs, such as fuel and water, mean that in some cases competitiveness and productivity objectives are, in effect, prioritised over climate change mitigation objectives. Government policy does not always incentivise a reduction of the quantity of agricultural GHG-emitting by-products.

**Limited assessment of the effectiveness of climate change policies in agriculture**

Despite the development of monitoring and evaluation tools for the newly-introduced policies that specifically link agriculture and climate change, there is limited information available to assess whether and how former and existing agricultural policies achieve France’s climate objectives. As climate challenges have only recently been taken into account in agriculture policies, there is as yet little information available to determine their effectiveness at increasing productivity and achieving climate change adaptation and mitigation objectives. The older policies have been designed to achieve primarily stable and sustainable food production and better standard of living for the agricultural community objectives and have, therefore, not been monitored against climate change goals.

Additionally, existing evaluations largely focus on assessing whether programmes have been implemented and do not consider whether climate-change policy outcomes have been achieved. The monitoring tools in place are more oriented towards economic objectives, and the monitoring systems for mitigation and adaptation can be made more effective. Forest policy may provide a model for monitoring practices that address climate-related factors.

**Policy findings and recommendations**

Policies should encourage investment in innovative resource efficient practices: the French agricultural policy toolkit should continue to move closer to supporting investment in agri-food production practices that are efficient in their use of energy and inputs and resilient to climate change. It should ensure that investments are directed towards practices that reduce GHG emission and do not encourage emissions-intensive industrial practices.

Design incentives that discourage behaviours that undermine mitigation or adaptation goals: the government should, for instance, consider removing or decreasing the reduced rate of internal consumption tax on fuels.

Further increase efforts to identify and address trade-offs between productivity growth and climate goals: France has several policy mechanisms in place that aim to promote synergies between agricultural productivity growth and climate goals, and fewer mechanisms in place to address trade-offs between economic and climate interests. Addressing trade-offs can sometimes be a more effective tool in achieving the three linked objectives.

Further develop the monitoring system so that it evaluates impacts and not only programme operations: France could focus on developing indicators and targets that reveal information related to climate change mitigation and adaptation impacts.

Extend existing support to rural non-farming stakeholders, who provide environmental services, in particular those supporting climate change measures.
Develop policies that help farmers target the most efficient mitigation and adaptation actions: instead of multiplying the number of policies supporting specific mitigation or adaptation measures, France could prioritise the most efficient climate change measures through wide-ranging tools linking support to climate performance. This would also help reduce the number of instruments, simplify procedures for farmers, and may help increase the efficiency of public policies.
SYNERGIES AND TRADE-OFFS BETWEEN AGRICULTURAL PRODUCTIVITY AND CLIMATE CHANGE MITIGATION AND ADAPTATION: FRENCH CASE STUDY

Agriculture in France accounts for 1.7% of GDP, a value added of over EUR 30 billion. (MAAF Agreste, 2015) and the country ranks among the top European producers of agri-food products. The sector is at the centre of France’s rural development and socioeconomic policies, and has historic and cultural significance for French national identity (Bastié, 2015). For these economic and social reasons, France places a strong political emphasis on maintaining a certain level of agricultural production and rural activities in the face of a growing international competition (MAAF, 2013).

To preserve the economic and social contributions of agriculture and to meet growing demands for agri-food products, climate-change adaptation strategies will be critical (MEEM, 2011). Temperature changes, precipitation variability, and other factors associated with climate change will affect agricultural production in France. Furthermore, agriculture needs to address a broad range of policy goals, including socio-economic and environmental ones in addition to climate change adaptation and mitigation.

Agricultural production is also a significant source of greenhouse gas (GHG) emissions that contribute to climate change. Emissions from agriculture account for a fifth of France’s total GHG emissions. To reduce the effect of agriculture on climate change and support the country’s national emissions targets, France will need to continue employing mitigation strategies within the agriculture sector, including reducing energy use and emissions intensity and increasing carbon storage (MEEM, 2015a).

France’s institutional setting, policymaking process, agriculture policies, and non-agriculture policies affect agricultural productivity, climate change adaptation, and mitigation. This document outlines how French institutions and policies influence the three objectives of agricultural productivity growth, climate-change mitigation and adaptation. This analysis implements the policy analysis framework developed by the OECD [COM/TAD/CA/ENV/EPOC(2015)42], which provides a template to assess the synergies and trade-offs in policymaking between climate change goals and productivity growth goals. It is based on the background document prepared by MAAF.

1. **What are the institutional challenges to effectively mainstreaming climate-change objectives?**

   France’s institutional framework reflects a recent shift towards promoting the integration of economic, environmental and climate considerations in agriculture, with government agencies and initiatives increasingly focused on the need to consider climate change and specific agricultural priorities together. Until very recently, for the sector, the economic objectives and the climate change objectives were approached separately – within agricultural institutions for the former and environmental institutions for the latter. The integration of these objectives at the institutional level provides a framework for policymaking that supports both climate and economic aims in agriculture.

   While economic and social considerations remain priorities, recent agricultural laws and strategies seek to give stronger if not equal weight to climate considerations and encourage mitigation and adaptation. Recent French laws and national plans have integrated (i.e. mention or recognise the importance of) at least one climate objective (adaptation or mitigation) within agriculture strategies, and
agricultural objectives within adaptation and mitigation strategies. This provides the foundation to establish policies that aim to concurrently achieve at least two of the three objectives – productivity growth, adaptation and mitigation – while maintaining agricultural jobs and income as a principal goal. Improving economic and environmental performance of agricultural and agri-food value chains is, notably, an overarching goal of France’s 2012 agro-ecology project\(^1\) as well as its 2014 Law for the Future of Agriculture, Food, and Forests (LAAF) (MAAF, 2013). A hallmark of this law is the creation of Economic and Environmental Interest Groups (GIEE), which are platforms for individual farmers to undertake collective efforts that are officially recognized and may receive support for projects that advance economic and environmental interests simultaneously (MAAF, 2014a). Another example of the French commitment to enhance carbon storage and to increase farmer’s resilience is the 4 per mille initiative.

Recent national climate-change mitigation and adaptation plans include actions specific to the agriculture sector. In support of the national goal to reduce emissions by 40% by 2030 and by 75% by 2050 compared with 1990 levels, the National Low Carbon Strategy sets a non-binding target of 12% emissions reduction from agriculture compared with 2013 levels by 2028 and 50% by 2050 compared with 1990 (MEEM, 2015b). While the inclusion of targets for agriculture is an important step, there is no legally binding target for any sector, including agriculture, to mitigate emissions. This approach allows for France’s Expert Committee for Energy Transition to periodically review and potentially revise the carbon budgets of the agriculture and other sectors, leaving flexibility to address trade-offs that may arise (MEEM, 2015c). The National Climate Change Adaptation Plan emphasises research, innovation, and knowledge transfer, decentralised incorporation of adaptation objectives in agricultural policies at the regional level, and efficient management of water and other natural resources (MEEM, 2011). The recent adoption of these mitigation and adaptation plans is indicative of a considerable shift towards the integration of climate objectives across sectors, including agriculture.

The shift toward increasingly holistic objectives mirrors an institutional shift toward inter-ministerial collaboration. The Ministry of Agriculture, Agri-food, and Forests (MAAF) and the Ministry of Environment, Energy, and the Sea (MEEM) are the main ministries responsible for identifying and addressing trade-offs and promoting synergies between agricultural productivity growth, climate change mitigation, and adaptation objectives. Shared objectives, agreement on indicators, and participation of each ministry’s leadership in the other ministry’s policymaking process are the main venues for collaboration. This takes place under the arbitration of the prime minister’s office. External parties, namely the National Ecological Transition Council (CNTE) and the Expert Committee of the Energy Transition, also serve to advance shared economic and climate goals, and encourage collaboration and mediation (MAAF & MEEM, 2016).

Intra-ministry restructuring also reflects the growing attention paid to reducing the climate footprint and increasing the adaptive capacity of agriculture. In 2008, MAAF merged its previously separate directorates focused on economic and environmental issues. The newly unified directorate was restructured

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1 In French agricultural policies, **agro-ecology** refers to public policies designed to promote and sustain agro-ecological production systems, including organic production, which combine economic, social performance, environment and health. This concept emphasises the self-sufficiency of farms with an aim to improve their competitiveness by maintaining or increasing economic efficiency, improving the value added of production and reducing the consumption of energy, water, fertilisers, plant protection products, and veterinary drugs, particularly antibiotics. Agro-ecological systems are based on biological interactions and the use of ecosystem services and the potential offered by natural resources, in particular water resources, biodiversity, photosynthesis, soil, and air. These systems aim to contribute to the mitigation and adaptation to climate change in agriculture.
again in 2015 in an effort to better integrate competitiveness and climate and environmental objectives. This shows that the Ministry is prioritising efforts to promote synergies between these two objectives.\(^2\)

The integration of climate change and productivity goals in research is coordinated mainly at the European Commission level. This happens through the Joint Research Programming Initiative on Agriculture, Food Security and Climate Change. At the national level, numerous research bodies and universities work on issues at the cross-roads of agriculture and climate, and their coordination is ensured by a thematic group of the national research alliance for environment (AllEnvi) which is not specific to the agriculture sector.

2. Compatibility of agricultural policies with achieving higher agricultural productivity and climate change adaptation and mitigation objectives

Many recent policies and additions to existing policies support at least two of the three objectives of productivity growth, adaptation, and mitigation, without any obvious discouragement of the third. The agro-ecology project, a cornerstone of France’s recent climate-oriented agricultural policy initiatives, has advancement of environmental and economic performance in agriculture as its overarching goal, and aims to give equal priority to climate and competitiveness. The agro-ecology project serves as a platform for a wide range of new policies and initiatives that consider climate change adaptation or mitigation in addition to economic performance. The 2012 Energy Methanisation, the Nitrogen Autonomy Plan (EMAA), and the 2014 Plan for Agricultural Competitiveness and Adaptation (PCAE) show potential to create synergies between productivity and mitigation by encouraging investments in more energy-efficient production and more efficiency in nitrogen use.\(^3,^4\) The EcoPhyto Plan, updated in 2015, will integrate adaptation and productivity growth objectives through reduced use of phytosanitary products. Sustainable phytosanitary management aims at decreasing reliance of crops on pesticide and encouraging biodiversity and soil health improvement (MAAF, 2014b), which also supports adaptation of agriculture to climate change.

The new policies seek to improve upon former policies in terms of trying to achieve synergies between the economic and climate change objectives. For example, MAAF has recognised the importance of crop diversification for climate change adaptation, and it is also a key feature of the new greening measures contained in the CAP. Progress in this area has been found to be lacking despite its incorporation in various policy measures (Levraut, 2013). Crop diversification and biodiversity is now better supported under the CAP and the agro-ecology project. Another example is the former Plan to Modernise Animal Housing (PMBE), which intended to give equal weight to economic and environmental objectives. However, environmental activities under the PMBE were not climate-oriented and mainly focused on water, and pollution management activities were only partially carried out (MAAF, Epices & ADE, 2011).

\(^2\) MEEM recently announced the creation of a new French Agency for Biodiversity. Supporting public policies for nature protection and ecological transition, it will help to find a balance between economic flows and ecosystems capacity. While it is not clear at this stage how the policies of this new agency will relate to agricultural policies, given the importance of crop diversification and soil biodiversity for adaptation, there is opportunity for synergies between climate change adaptation and agricultural productivity growth by fostering biodiversity among crop varieties and in soils.

\(^3\) The PCAE supports mitigation, by improving both the energy efficiency of production systems, as well as their economic viability, enhancing farms’ capacity to adapt to markets. It also supports adaptation, by improving soil fertility, water savings, biodiversity. The Energy Methanisation and Nitrogen Autonomy Plan (EMAA) aims to support renewable energy production, reduced input use, and job creation and economic development from methanisation and nitrogen management.

\(^4\) Under the PCEA farmers are encouraged to invest in measures that have a potential to increase farmer’s adaptive capacity. The final set of measures is, however, determined at the regional level; i.e. the relative importance of the three objectives may vary regionally.
The PMBE is now part of the PCAE, which has a larger role for climate change mitigation and aims to incentivise investments in energy efficiency to reduce emissions of farms (MAAF, 2014c).

Support measures for modernisation (and innovation) of agriculture, such as those under the PCAE, may in some cases induce synergies between increased productivity and mitigation when they result in appropriate investments to improve the climate performance of farms. For instance methanisation offers the potential to create synergies between production and climate change mitigation by creating lower-GHG energy. For a project to be allowed to benefit from PCAE, it has to prove that it increases the performance of the farm and that it does not harm the environment (including climate change) (RDR 2013, art17.1.a and art 45.1). However, it is unclear yet what percentage of the PCAE modernisation support will actually be used for sustainability and in particular climate change goals.

Forestry policy serves as an important vehicle for France to promote synergies between economic and climate interests in the broader agriculture sector. MAAF has also proposed a programme, the National Forests and Timber Programme (PNFB), that aims to advance both the economic performance of the timber industry and the climate change adaptation and mitigation potential of forests. It will provide guidance for foresters to adopt practices that are in the interest of both climate change adaptation and mitigation, and adapted to local regional contexts (MAAF, 2013). This programme is expected to be finalised in 2016, with regional programs under PNFB adopted in the following two years.

This range of policies relating to both climate and agricultural productivity, as outlined in the preceding paragraphs, illustrates France’s focus on adopting a wide variety of different policy measures to address the many aspects of agriculture that involve climate change adaptation or mitigation. France is using a series of tailored approaches to target specific challenges. The breadth of new policies that target both productivity and climate concerns in agriculture is extensive and underscores France’s push for more climate-oriented and environmentally sustainable policies. It also, however, increases the complexity of the operating space of farmers and may sometimes result in some options being underutilised as they may be considered too complicated or too burdensome.

France champions the use of soft policies in its policy mix as an alternative or supplement to regulations. The agro-ecology project includes soft policy tools such as information campaigns, training, research and development, and raising awareness. The project, alongside other soft policies, emphasises the systematic incorporation of mitigation and adaptation practices into agricultural production. The objective is to promote the mutually beneficial nature of farming systems that consider climate change mitigation, adaptation, and economic performance. The project provides training, education, and other resources to adopt practices that support climate and productivity goals equally (MAAF, 2014b).

As these policies related to agriculture and climate change have only recently been adopted, there is little information available to determine their effectiveness at increasing productivity and at the same time contributing to climate change adaptation and mitigation goals. This precludes the possibility of ex-post evaluation, while, additionally, the evaluation of soft and broad policies like the agro-ecology project is not straightforward.

Agricultural policies in France are determined, to a large extent, at the European level by the Common Agricultural Policy (CAP). France has an influential role in EU-level policymaking, and the most recent version of the CAF gives more flexibility to individual states than previous iterations (ECPA, n.d.).

France’s decisions regarding the application of CAP funding affect agricultural productivity and climate change efforts. France is attempting to use the CAP as a vehicle for new agricultural policies and initiatives that aim to advance mitigation or adaptation goals.

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The majority of support under the CAP is still, however, directed towards maintaining food production, viability of farms, and using agriculture to achieve socioeconomic objectives. Historic concerns over the ability to compete on the international markets and farmers’ livelihoods provide the impetus behind many CAP measures, which provide direct payments to farms that had traditionally received CAP support associated with arable crops and livestock. Agricultural policy also seeks to maintain the income of farmers and supports small-holder farmers and farmers in regions considered to be geographically disadvantaged, such as farmers in mountainous regions (MAAF & MEEM, 2016).

The current iteration of the CAP incorporates climate change adaptation and mitigation measures and places a stronger emphasis on environmentally sustainable agricultural practices. Pillar I programmes, for example, incorporates Good Agriculture and Environmental Condition (GAEC) requirements and green payments, to address environmental and climate change objectives. While the aim of the ‘new’ CAP is still to encourage farm investments to increase competitiveness and productivity, the addition of these measures addresses climate concerns more than the former CAP, and provides a platform for integration of climate and productivity considerations in agriculture. It should be noted however, that the conditions related to green payments are based on practices rather than performance. There is, however, a disagreement in the literature about the effectiveness of these measures in delivering additional climate benefits. For instance Pellerin (2014) calculates that the ‘greening’ can result in a significant reduction of GHGs, others question its climate benefits (Matthews, 2013).

For Pillar II, depending on the way of accounting, an estimate of 30% to 66% of the budget targets climate. These include agro–environmental and climate measures (AECM), less favoured areas (LFA) forestry measures and investments (MAAF, 2015). For the programming period 2015-2020, AECMs directly contribute to climate change mitigation. The effectiveness of these greening measures is subject to controversial assessments, with doubts expressed regarding the actual additional environmental gains to be expected. Some studies conclude that green measures such as maintaining ecological focus areas do not always have meaningful impacts for climate change mitigation, and may even in some cases result in increased emissions overall and are not synergetic with productivity (Pelikan et al., 2015). But measures such as preservation of permanent grasslands can provide benefits in terms of mitigation (carbon sequestration) and adaptation. Further analyses will be required to determine the real impact of the CAP greening measures for climate change mitigation and adaptation.

The livestock sector production, targeted by support coupled to production, namely suckler (beef) and dairy cattle, plays a major role in GHG emissions; emissions from enteric fermentation and livestock manure alone account for about 43% of emissions from agriculture in France (MAAF, 2014d). Support to such production, represents 93% of coupled payments under the current CAP in France (MAAF, 2015). Support to the livestock sector is done through a diverse set of instruments. Around half of this incentivises a production not linked to climate friendly practices and that does not particularly encourage

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5 Under Pillar I of the CAP, 30% of payments are tied to environmental goals (conditions for farmers to receive green payments) many of which address climate goals, such as maintenance of permanent grassland or ecological focus areas. The remaining 70% are subject to GAEC that do not always target climate change, but often, indirectly.

6 The design of measures takes into account recommendations of the INRA’s study (INRA, 2013,) on the mitigation potential of the agricultural sector.

7 It includes measures coupled to production (approximately EUR 1M for France), some of which promote more environmental-friendly practices, and decoupled measures, including measures with clear climate goals and measures to support permanent pasture lands. Pasture lands, if properly managed, can serve to sequester carbon and offset some of the GHG emissions of livestock production.
resource-efficient practices. While maintaining pasture lands may help offset livestock emissions, even in favourable, well-managed soil conditions, the resulting carbon sequestration is not likely to counter the quantity of emissions from cattle (Haspel, 2015).  

France is also looking to mitigate emissions from the livestock sector through policies such as the Energy Methanisation and Nitrogen Autonomy (EMAA) and the Plant Protein Plan and development of pasture lands (MAAF, 2015). Emissions from livestock decreased by 11.3% from 1990 to 2012.

A lack of incentives to support a more restrained and efficient use of inputs, such as fuels and water, induces trade-offs between cost-reduction and productivity growth objectives and climate change mitigation and adaptation objectives. French farmers, among other sectors, benefit from a reduced rate of internal consumption tax (TIC) on their fuel. The reduced cost of fuel resulting from the measure incentivises its use and supports agricultural production at the expense of increased emissions. Similarly, irrigators are also exempt from certain fees on water use, which may stimulate inefficient use, contribute to more emissions (Levraut, 2013) and make climate change adaptation difficult.

Reducing GHG-emitting by-products of agricultural production to achieve climate change goals is also not always incentivised by government policy. For example, French manure policy is only partially successful at reducing GHG emissions, because the policy’s focus is on subsidising the disposal of manure, while farms that produce surplus manure are not penalised (Le Goffe, 2013). The European nitrates directive of 1991 aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters. It requires Member States to designate nitrate vulnerable zones and to establish within these zones action programmes to be implemented by farmers on a compulsory basis. In 2013 and 2014, the Court of Justice of the European Union condemned France for an insufficient designation of vulnerable zones and insufficient measures in some parts of the nitrates action programmes. To comply with these rulings, France adopted the following evolutions in the implementation of the Nitrate Directive: i) the revision of nitrate vulnerable zones in 2015 and ii) the proposal for a revised action programme, to be adopted by mid-2016. Voluntary measures are also supported in France. For example, the EMAA Plan is a non-regulatory approach which seeks to promote innovative livestock waste management and reduce pollution and at the same time to reduce emissions from fertiliser and livestock. It was established in 2012. The plan’s effectiveness at addressing nitrate pollution has yet to be determined (MAAF & MEEM, 2013).

2.1 How does the Ministry deal with synergies and trade-offs?

MAAF’s current approach to dealing with issues of climate and agriculture is to introduce new policies that offer potential to stimulate synergies between productivity and climate objectives. While this contributes to addressing policy challenges that affect productivity growth and climate change mitigation or adaptation, effort is also needed to remove or reform existing policies that encourage economic interests but are not in line with climate-change mitigation or adaptation goals.

Policies indicating an effort to address trade-offs, as opposed to those supporting synergies, appear to flow down primarily from EU policies, such as greening of the CAP and the Nitrate Directive. Policies

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8 However, France considers that there is a global carbon leakage risk of producing livestock outside of the country with likely worse climate performance (i.e. shift of the production to places where more GHG would be emitted to produce a similar product, or grassland turned into crop in the case that livestock is abandoned) and the synergy with other environment aspects such as biodiversity or water must be taken into account. Additionally, the diversification of livestock production, by promoting pasture lands, is considered a significant way of enhancing agriculture adaptation to climate change.

9 The Plant Protein Plan seeks to encourage production of plant proteins for use as animal feed.

How are synergies and trade-offs identified?

There is no specific mechanism to identify trade-offs, but rather, the Ministry focuses on promoting synergies while developing new policies related to climate and productivity. French farmers are encouraged to adopt synergetic measures. The approach involves compensating farmers for eventual financial losses associated with adoption of agro-environmental and climate measures, and using positive incentives to encourage uptake of such measures. The new policies to stimulate synergies in climate sustainability and agricultural productivity growth are an integral part of advancing climate and economic goals in agriculture, but do not fully address existing trade-offs.

Where a public policy evaluation programme already exists, there is no well-established structure yet to specifically seek out and revise policies that result in trade-offs between the pursuit of productivity growth and actions taken to mitigate or adapt to climate change. France appears to focus less on the identification of trade-offs resulting from older policies between production and environment at the national level. Recent efforts have been made to identify trade-offs, such as the use of evaluation tools within MAAF, such as its public policies evaluation programme and auditing bodies at various levels.

How are synergies and trade-offs monitored?

MAAF is developing monitoring and evaluation tools for new policies that relate to climate, but there is limited information available to assess how well former and existing agricultural policies achieve climate objectives. There is an extensive plan in place to monitor the agro-ecology project, for example. Through developing monitoring plans, establishing evaluation committees, and scheduling evaluations at various stages of implementation, the Ministry demonstrates an effort to conduct quantitative and qualitative evaluations. The emphasis on regular monitoring and measurement relates to new policies, with less emphasis placed on existing policies that have been in place for longer and that may have had greater effects to date. Without substantial evaluation of the climate impact of existing policies that have been in place for some time, it may be difficult to identify and address trade-offs between agricultural policies and climate objectives.

Besides, existing evaluations are mostly programmatic in nature rather than focused on policy outcomes. Available evaluation indicators are often not specific or relevant to evaluating synergies, and do not provide substantive information about climate impact. The mid-term evaluation of the Rural Development Programme for continental France under Pillar II of CAP employed only output indicators, such as number of recipients or amount of funding spent (MAAF, Epices & ADE, 2011). MAAF has established a set of output indicators and of impact indicators for the Agro-ecology Project (MAAF, 2014e). Indicators to monitor the EMAA Plan are few, and are tied to economic performance rather than emissions mitigation (MAAF & MEEM, 2013). However, there are on-going efforts within MAAF to improve measurement of impact as well as output.

The monitoring tools in place for evaluating climate measures are more oriented towards economic objectives, and room for improvement exists for mitigation and adaptation monitoring systems. Research studies have noted a need for improvement of France’s GHG inventory and inventory methods to more effectively measure emissions from agriculture (Pellerin et al., 2013). France’s current inventory methods are in line with international standards and continuous efforts are made to improve them (for instance through the “tier2” method developed for CH₄, and ongoing for N₂O and soils). There are systems in place for monitoring pesticide use and organic farming, which entails limited use of pesticides and therefore the material and energy use to produce them (MAAF, 2016).
Forest policy may be a model for monitoring practices that address climate-related factors. To monitor progress in sustainable forest management, France uses a set of more than 50 indicators, a large share of which are quantitative, relate to climate impact, and were developed based on input from numerous stakeholders. MAAF recently took a similar approach to establishing a monitoring plan for the new National Forest and Timber Programme. The programme is undergoing an environmental assessment, indicating an attention to environmental and climate effects in monitoring of forest policy (NFI, 2011).

2.2 How does the Ministry make decisions about synergies and trade-offs?

The priority that the Ministry gives to competitiveness and socioeconomic concerns influences decisions that involve trade-offs between productivity and climate objectives. An aversion to the risk of eventual production cost increase is behind policy choices such as the lingering fuel tax rebates for farmers. The high political priority of socio-economic, cultural and environmental concerns for rural development influences the decision to maintain support coupled to production for livestock production (Lefebvre, 2014). There may be, however, other policy choices, both within and outside agriculture, to be made in order to maintain the socio-economic goals but without compromising climate change objectives. For instance, France could consider linking support to rural activities that would improve sustainability and in particular climate change goals without any conditional link to agricultural production.

The available budget for agricultural payments and relevant programmes influences decisions made about trade-offs, as well. While notable efforts have been made to improve the climate-friendliness of the CAP, their impact on adaptation or mitigation goals remain to be assessed.

3. Compatibility of other policies with achieving higher agricultural productivity and climate change adaptation and mitigation objectives

As in the case of agricultural policies, the importance of reconciling environmental and economic objectives across sectors, including agriculture is receiving increasing attention in non-agricultural policies. MEEM has been promoting climate-change mitigation and adaptation strategies for economic growth, including within agriculture, such as the National Low Carbon Strategy.

Energy policies affecting agricultural productivity, climate-change adaptation and mitigation demonstrate some synergies and offer potential to address trade-offs. The increased focus on efficiency in French energy policy has led to synergies between productivity and at least one climate objective, most often mitigation. Support to investment in energy efficiency for greenhouses under the National Energy Efficiency Action Plan led to an 8% reduction in energy use without a reported negative effect on production (MEEM, 2014). The Energy Transition Act and the National Low Carbon Strategy emphasise the use of biomass as an alternative to fossil fuel energy, which may provide opportunities for synergies between agricultural production (for biomass for energy) and mitigation.

Carbon pricing policy in the form of a tax added to some fossil fuel products also provides potential to address a trade-off between agricultural production and climate change mitigation. France plans to gradually increase the price of carbon to EUR 100 per tonne by 2030 (White, 2015). If applied to farmers, the higher cost of fossil-fuels could serve as an incentive for farmers to more efficiently use fuels or to transition to renewable energy sources. Combined with existing support available to farmers for investments in energy efficiency, this should lead to reduced emissions without hampering competitiveness, as long as farmers are subject to the increased price of carbon on fossil fuels.

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10 Extensive livestock production helps maintaining permanent pastures.
Efforts to reduce water pollution – and thus encourage mitigation – can be hampered by non-agricultural policies, such as exemptions for irrigator groups from sharing the cost related to pollution. France implements the “polluter pays principle” mainly via environmental taxes collected by water agencies on pesticides sales, livestock farms, and water withdrawals. Water pollution is caused by energy-intensive inputs for crops (fertilisers and pesticides) and so policies that reduce pollution could benefit mitigation directly (less N₂O) and indirectly (less energy use for input production). But the elasticity of pesticides use related to their price is not clearly established. However there are concerns that the level of taxation is not commensurate to the costs incurred because of agricultural pollution (Levraut, 2013). A lack of incentives to reduce water pollution may also affect the future resilience of agriculture as the sector depends on water. Irrigators are exempted from certain water access fees when they are organised into groups for the collective management of water. The objective of collective management is to ensure a better allocation of the volume of water which was dedicated to irrigation after specific studies. As these groups have only recently been created, their impact on water use and pollution has yet to be assessed.

4. Does the policy framework effectively promote synergies and address trade-offs between productivity, climate change mitigation and adaptation?

4.1 Successes of the policy framework

Overall, the ministry should be commended for its recent efforts to promote synergies and integrate environmental considerations into agricultural policies. The recognition of the importance of reconciling agricultural productivity and climate-change adaptation and mitigation is commendable, and there are a number of recent policy initiatives with a strong potential to promote synergies. France has set ambitious emissions reduction commitments, acknowledges the role of agriculture in contributing to meeting climate objectives, and appears to take these commitments seriously (CITEPA, 2015).

The Ministry uses public communications as a tool to raise awareness about the importance of environmental and climate considerations for agriculture. It disseminates information about the importance of integrating climate-change mitigation and adaptation in agriculture, and provides tools for farmers to improve environmental performance. Tools and educational resources are accessible, user friendly, and oriented toward producers and consumers. A recent survey by MAAF noted an increased awareness and acceptance of agro-ecology by farmers (Gramond, 2015).

The agro-ecology project illustrates this meaningful shift in the approach and priorities of the ministry towards the integration of strategies that advance both climate objectives and economic performance. The plans and policies under the agro-ecology project are far-reaching and affect farming systems, agricultural education and research, public communications, and mentalities of farmers and MAAF civil servants. As previously mentioned, the agro-ecology project is recent and the formal information available to assess its impact over the time is not available at this stage. However, the project offers potential to integrate climate change adaptation and mitigation with agricultural productivity in a meaningful way; already there is evidence to suggest an increased awareness of and priority to agro-ecological and climate-oriented practices within the Ministry and among farmers.

4.2 Recommendations to improve the policy framework

The French agricultural policy toolkit should continue to move closer to supporting investment in agri-food production practices that are efficient in their use of energy and inputs and resilient to climate change. France should encourage policies that support investment in innovation and energy-efficiency of agricultural production, and ensure investments are directed appropriately towards practices that reduce GHG emission and do not encourage emissions-intensive industrial practices.
In addition to incorporating climate change objectives in new agricultural policies, MAAF should consider expanding its efforts to assess how existing agricultural policies address adaptation and mitigation. France has several policy mechanisms in place that aim to promote synergies between agricultural productivity growth and one or more climate goals, and fewer mechanisms in place to address trade-offs between economic and climate interests. The emphasis on promoting synergies rather than addressing trade-offs between climate and productivity objectives may stem from the limited structures in place to identify trade-offs, and in turn limited knowledge of which policies or elements of policies compromise one or more climate or productivity goal.

France may also consider designing incentives that discourage behaviours that undermine mitigation or adaptation goals as well as encourage synergies. The ministry should, for instance, consider removing or decreasing payments and subsidies that do not promote synergies, such as the reduced rate of internal consumption tax on fuels.

MAAF and MEEM should ensure regular monitoring, evaluation, and reporting of the impact new institutional and policy changes have on farmers’ behaviour and in turn on agricultural productivity and climate change mitigation and adaptation. The extent to which the policies influence the behaviour of farmers in practice is difficult to determine, especially in the case of soft policies. Given how recently these laws were passed, more time and subsequent impact evaluations will be required to assess their effectiveness, similarly to what has been started under the agro-ecology project. Therefore, France could further develop monitoring system to evaluate impacts as well as programme operations, specifically by developing indicators and targets that will reveal information that are focused on climate change mitigation and adaptation impacts and not only programme administration.

France could improve synergies between viability of rural areas and climate objectives by considering extending support to any rural stakeholders that provide environmental services, in particular supporting climate change measures. An important goal of the payments under the CAP that are oriented towards livestock production and rural development is the viability and livelihoods in rural and disadvantaged areas. There are valid social, economic, and cultural merits to this aim, but alternative responses to these challenges beyond farming should be considered.

Following the recent approach of using more tailored approaches to achieve climate change objectives, for instance by designing the agro-ecology project, France could improve synergies by addressing the most efficient mitigation actions and the most important adaptation challenges, without compromising productivity objectives. As a second step, France could simplify procedures for farmers by simultaneously addressing climate change and productivity objectives. It could reduce the complexity of procedures for farmers and may help to increase the efficiency of public policies.
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