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Directorate A - International, Mainstreaming & Policy Coordination
CLIMA.A.3 - Adaptation

Adaptation preparedness scoreboard

Draft country fiche for France

Disclaimer

This draft country fiche was prepared in the context of the implementation of the EU's Strategy for Adaptation to Climate Change (EUAS). The indicators were developed and agreed with experts from the Member States (MS). This draft version of the fiche is published as background information to the public stakeholder consultation about the evaluation of the EUAS running from early December 2017 to early March 2018. It constitutes work in progress, a particular stage of information collection and dialogue between the Commission and the Member States. It presents a snapshot of the status in the country as of September or October 2017. The fiches are planned to be finalised and published as an annex to the strategy's evaluation report in the fourth quarter of 2018, before which they will be further updated and modified. Should you have any specific comments on the draft fiche, please send it to the mailbox CLIMA-CLIMATE-CHANGE-ADAPTATION@ec.europa.eu

Please note that the assessments (yes/no/in progress) need to be read in conjunction with the narrative that accompanies them. They assess the state of play *within* each country. While all effort has been made to ensure the coherence across fiches in the assessment of the same indicator, it should not be directly compared across the MS. Two countries with a "yes" on the same indicator could have a different national situation leading to that assessment. Not all indicators have the "in progress" status, some can only be "yes" or "no". For a more detailed explanation of what each indicator means and how its value is determined, please refer to the description of the scoreboard, a document published alongside the country fiches.

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POLICY FRAMEWORK

Adaptation strategies

A1. National adaptation strategy

A National Adaptation Strategy (Stratégie nationale d'adaptation au changement climatique) was adopted in December 2006[1] (ONERC, 2007). It was developed via a wide consultation with stakeholders by the national observatory on global warming impacts, and presents key actors and principles for addressing climate adaptation.

A2. Adaptation strategies adopted at subnational levels

At the regional level, all the 26 (one per region) SRCAE's (Regional Scheme on Climate, Air and Energy) have been approved, covering 100% of the French population. They include mitigation, air and adaptation actions and measures. The section on adaptation measures is adapted to the regional context.

Adaptation action plans

B1. National adaptation plan

A National Adaptation Plan 2011-2015 (Plan National d'Adaptation au Changement Climatique - PNACC) (MEDTL, 2011) was adopted in 2011. It sets out a range of proposed actions and implementation processes, covering a wide range of sectors. The Plan was developed in concert with stakeholders. A process for revising the National Adaptation Strategy (NAS) has been launched, with the publication in November 2015 of an evaluation report[2], which was in turn incorporated into a wider set of recommendations for action by ONERC in 2016[3], and with the announcement in 2016 of a process for the revision of the NAP. The process for the revision of the Plan has started in June 2016 and is expected to conclude before the end of 2017[4].

B2. Adaptation plans adopted at sub-national level

Compatible with the SRCAE's strategic orientations and urban planning documents, the Territorial Climate-Energy Plans (EPCPs, in French PCAET) concern all levels, from the region to the municipality. They have become mandatory since 2010 for local authorities with more than 50 000 inhabitants.

B3. Sectoral adaptation plans

As established in the first NAP (2011-2015), River Basin Management Plans (Schémas directeurs d'aménagement et de gestion des eaux - SDAGE) (2016-2021) should include adaptation actions and measures. Several SDAGEs have been approved, but some are still being developed.

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[1] See https://www.ecologique-solidaire.gouv.fr/sites/default/files/ONERC_Rapport_2006_Strategie_Nationale_WEB.pdf

[2] See http:\\cgedd.documentation.developpement-durable.gouv.fr\documents\cgedd\010178-01_rapport.pdf

[3] See *Adaptation au changement climatique : Évaluation de la démarche nationale et recommandations*, ONERC report to the Prime Minister and to Parliament, 2016. http://www.ecologique-solidaire.gouv.fr/sites/default/files/ONERC_Rapport_2016_EvaluationNap_EN.pdf

[4] https://www.ecologique-solidaire.gouv.fr/nouveau-plan-national-dadaptation-au-changement-climatique-premieres-pistes

The National Sea and Coastline Strategy[5] (Stratégie Nationale pour la mer et le littoral) has been published in July 2017. This Strategy refers also to the National Strategy on integrated coastline management (Stratégie intégrée de gestion du trait de côte)[6].

The National Research Strategy[7] also includes a reference to Climate Change Adaptation.

[5] https://www.ecologique-solidaire.gouv.fr/sites/default/files/SNML_def.pdf
[6] https://www.ecologique-solidaire.gouv.fr/sites/default/files/12004-1_Strat%C3%A9gie%20gestion%20trait%20de%20c%C3%B4te%202017_light.pdf
[7] http://cache.media.enseignementsup-recherche.gouv.fr/file/Strategie_Recherche/26/9/strategie_nationale_recherche_397269.pdf

SCOREBOARD

Step A: preparing the ground for adaptation

1. Coordination structure

1a. A central administration body officially in charge of adaptation policy making

Yes / No

The Ministry of Ecological and Solidary Transition (or Ministère de la Transition écologique et solidaire) is in charge of climate change adaptation. One of the directorates of the ministry is called General Directorate on Energy and Climate.[8] The General Directorate designs and enforces policies on climate change mitigation and adaptation (MEEM, 2016a). Within the General Directorate, the National Observatory on the Effects of Global Warming (or Observatoire National sur les effets du réchauffement climatique - ONERC) is in charge of adaptation policy-making (MEEM, 2017a).

1b. Horizontal (i.e. sectoral) coordination mechanisms exist within the governance system, with division of responsibilities

Yes / In progress / No

There is not a specific horizontal governance structure for adaptation in France, but a clear division of responsibilities was identified in the first NAP. Actions were mentioned according to different sectors such as agriculture, the forestry sector, fishery, aquaculture, the energy sector, industry, the transport sector, infrastructure, buildings and tourism (MEDTL, 2011, p. 36-49). Sectoral departments were in charge of implementing measures in their area of competence while ONERC ensures overall implementation monitoring. Every action committed in the NAP identified the leading actors and partners to be considered for implementing each action. The NAP contained a set of identified transversal actions, where many sectoral Ministries were involved. More specific sectoral actions also involved several sectoral ministries, where relevant (MEDTL, 2011). Relevant sectoral Ministries were involved in the development of the first NAP. The governance is reinforced in the second NAP. A Specialized Commission of the National Committee for Ecological Transition (CNTE) has been settled to guide the actions of ONERC and will also be in charge of the NAP regular (three times a year) monitoring.

1c. Vertical (i.e. across levels of administration) coordination mechanisms exist within the governance system, enabling lower levels of administration to influence policy making

Yes / In progress / No

Regional planning is led by the Regional assemblies and local state representatives. Local adaptation planning is led by the local councils. There has been some vertical integration as regards climate change adaptation through the development of Regional Plans on Climate, Air and Energy (SRCAE) and Climate-Air-Energy Territorial Plans (PCAET). The SRCAE was created in 2010 by the law Grenelle II[9]. These plans were drawn up in collaboration between the state and the region, and include climate and energy goals, with a requirement for a section on climate adaptation. Since 2016, the duty to develop

[8] https://www.ecologique-solidaire.gouv.fr/organisation-generale-bulletin-officiel-et-projet-loi-finances

[9] Loi no 2010-788 du 12 juillet 2010 portant engagement national pour l'environnement.

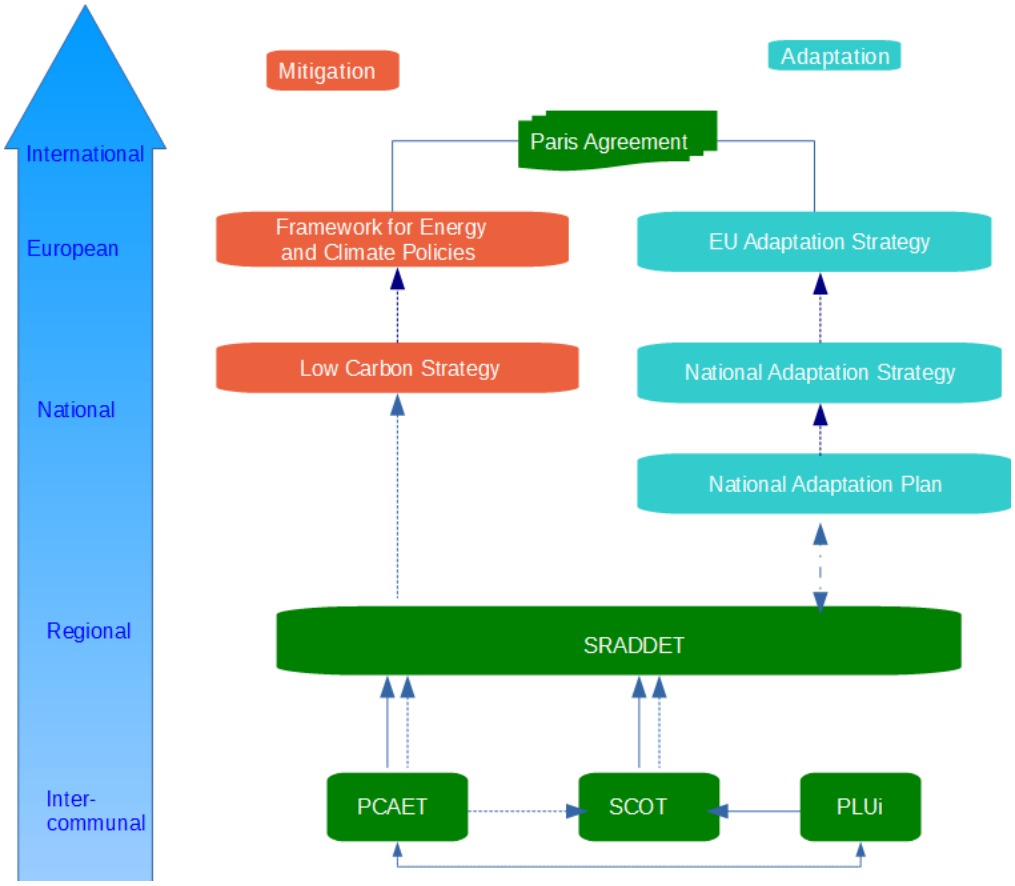
a SRCAE was replaced by a new requirement for regions to adopt a Regional Plan for Sustainable Development and Territorial Equality (or *Schéma regional d'aménagement, de développement durable et d'égalité des territoires* - SRADDET[10]).

To implement the SCRAE at a more local level, Climate-Air-Energy Territorial Plans (PCAET) were developed (Pole territoires et changement climatique, s.d.). PCAET's were defined by the National Adaptation Plan and integrated into the Grenelle laws. They were required for territories of more than 50,000 inhabitants; and could (at the choice of the region) be combined with the SCRAE. The territories are required to integrate the adaptation strategy in their territorial policies (PCAET, 2017). Climate change mitigation and adaptation are also integrated in the Local Urbanization Plans (PLU) and the Territorial Coherence Schemes (SCOT) (Pole territoires et changement climatique, s.d.).

The process for local and regional governments to influence national policy-making is less detailed; however, the Grenelle process of consultation which prepared the first NAP involved close engagement of local and regional authorities as one of 5 "colleges" (NGOs; state; employers; employees; territorial collectivities). The Ministry has provided for the involvement of local and regional authorities in developing the process for revision of the NAP, and in particular has called for the regional economic, social and environmental councils (Conseils économiques, sociaux et environnementaux régionaux - CESER) to be closely associated with the new national plan.

The coordination of cities is ensured by the Regional level, because the City or intercities Plans (PCAET) should be in coherence with the Regional Scheme (SRADDET), but also with the sectoral plans, schemes and strategies, such as River Basin Management Plans (SDAGE), Flood Risk Management Plans (PAPI, PPRI) or Coastline Management Strategy, Mountain Area Strategy, if relevant.

[10] See Décret n° 2016-1071 du 3 août 2016 relatif au schéma régional d'aménagement, de développement durable et d'égalité des territoires.



2. Stakeholders' involvement in policy development

2a. A dedicated process is in place to facilitate stakeholders' involvement in the preparation of adaptation policies

Yes / No

A range of different stakeholders were involved in the development of the first National Adaptation Plan. In advance of its development, there was a concertation in 2010 of elected people, communities, the state, employers, unions and associations. National groups, overseas regions, interregional groups submitted reports in 2010. Also a report of public consultation on the internet was taken into account (MEDTL, 2011, p. 9). An active process of stakeholder involvement is in hand for the revision of the National Adaptation Plan. Six working groups were engaged from June 2016 to July 2017. They proposed 33 recommendations[11] which form the basis of the new National Adaptation Plan, expected to be released in December 2017.

2b. Transboundary cooperation is planned to address common challenges with relevant countries

Yes / No

The NAS contains some statements about transboundary coordination to ensure a sound territorial approach to the adaptation action, but there is no indication of action to prepare for transboundary cooperation on common challenges. While the NAP includes a

[11] https://www.ecologique-solidaire.gouv.fr/adaptation-france-au-changement-climatique#e

section on international and European cooperation, it focuses on development aid issues, and on EU-level policymaking, and does not address transboundary issues related to the French territory. However, there is some transboundary cooperation at national government level. Transboundary issues in France are mostly addressed via EU INTERREG projects, or via Transboundary River Basin Management Plans (Meuse, Rhine) or Transboundary observatories (Pyrenees) or international conventions (Alpine Convention, Mediterranean action plan, Indian Ocean Commission); it has not been possible to establish to what extent this is coordinated at national level, although there is active involvement of prefectoral services, representing the national government. There is some collaboration on climate change adaptation in these projects. For example, the INTERREG project POCTEFA between France and Spain (EU, 2017) and the INTERREG 2 MERS between France, England and the Netherlands (Pas-de-Calais, s.d.) and the INTERREG ALCOTRA between France and Italy (EC, 2017) have climate change adaptation cooperation among their goals; and the AMICE project under the INTERREG North West Europe programme specifically addressed climate adaptation in the Meuse river basin. France is also involved in the implementation of the EU Strategy for the Alpine Region (EUSALP).

In 2017, France committed an expert to participate in the Alpine Climate Board which was established under the Alpine Convention in order to bundle together existing climate change initiatives and contributions in the Alpine area and to elaborate proposals for a concrete system of objectives of the Alpine Convention in regard to the perspective of a "climate-neutral Alpine space"". In addition, close cooperation must be established with the various projects of the Alpine Space Program and the SUERA Action Groups.

Step B: assessing risks and vulnerabilities to climate change

3. Current and projected climate change

3a. Observation systems are in place to monitor climate change, extreme climate events and their impacts

Yes / In progress / No

The site of Météo-France (French national weather service) contains information on the climate in the past, present and the future[12]. Yearly and seasonal assessments, public climatologic data and extreme events early warning including storm surges are available to the public[13]. Data include knowledge on temperatures, rainfall, humidity, atmospheric pressure, wind, sunshine, storms, snow, droughts, etc. (Météo-France, 2017a). In addition, climate change indicators for France are available online and regularly updated on the ONERC website. They include climate indicators regarding the atmosphere, temperature and precipitations (MEEM, 2017b). An Onerc indicator is especially dedicated to population exposure to climate events[14]. This indicator is based on the climate events (Gaspar[15]) database crossed with the population database.

The Institut Pierre Simon Laplace contributes to climate studies on a global scale. They study the atmosphere, the oceans, the ice, the continental surfaces, marine biogeochemistry, radiative balance of the Earth, the water and carbon cycle (IPSL, 2017). The National Observation Services (NOS) are organisms entrusted to document

[12] See Tout savoir sur la météo, le climat et Météo-France. Available online (accessed the 14th March 2017) http://www.meteofrance.fr/climat-passe-et-futur
[13] http://pluiesextremes.meteo.fr/
[14] https://www.ecologique-solidaire.gouv.fr/impacts-du-changement-climatique-sante-et-societe
[15] https://www.data.gouv.fr/fr/datasets/gaspar/

on the long term the formation, evolution and the variability of the astronomical system and the terrestrial environment (CNRS, 2016).

3b. Scenarios and projections are used to assess the economic, social and environmental impacts of climate change, taking into account geographical specificities and best available science (e.g. in response to revised IPCC assessments)

Yes / In progress / No

The National Observatory on the Effects of Global Warming (ONERC) was established in 2001 and collects and disseminates information on the risks of climate change including climate projections. ONERC is in contact with scientific organisations such as the National Centre for Scientific Research (CNRS), the National meteorological and climatological service (Météo-France), the Research Institute for Development (IRD) and the National Institute of Agronomic Research (INRA) (MEEM, 2017a).

Climate projections are available through an extensive scientific approach via a reference climate scenarios report, sea level rise report and downscaled indices report. Since July 2012, there is free access to the latest French high resolution climate simulations and data (projections, parameters, indices) provided by the "Drias – les futurs du climat" website[16], which aims at providing climate services in France.

A scientific report assessing future climate projections until 2100 in France, "The climate in France in the 21th century" was published in 2014[17]. The report was commissioned by the ministry of sustainable development, and written by scientists from Météo-France in collaboration with scientists from IPSL (Institut Pierre Simon Laplace) and from Cerfacs (Centre européen de recherche et de formation avancée en calcul scientifique) (Météo-France, 2014). The evolution of precipitations and temperatures were studied. The scenarios are based on three of the four IPCC scenarios. The results are also available on the site of Drias[18] (Jouzel et al., 2014, p.3).

From 2009 to 2013, the Datar (now CGET) has entrusted the regional prefects with the steering of six studies addressing vulnerability and adaptation issues at the interregional level (outside Île-de-France and Overseas territories). Whenever possible, this work has been articulated with the preparation of the Regional Climate Air Energy Schemes (SRCAE) in conjunction with the Regional Councils. These six studies have also contributed to the Territorial Energy Climate Plans (PCAET).

3c. Sound climate risks/vulnerability assessments for priority vulnerable sectors are undertaken to support adaptation decision making

Yes / In progress / No

The Ministry of Ecology, Energy, Sustainable Development and the Sea produced a report in 2009 on the costs of the impact of climate change, which was the result of meetings between ministries to assess the sectoral costs of the impact and adaptation to climate change. These groups were centrally organized by the Ministry of Ecology, Energy, Sustainable Development and the Sea. The groups consisted of experts from research, administration and the private sector. The knowledge base was built around various research projects at national, regional and local level. The sectoral costs in the

[16] http://www.drias-climat.fr/
[17] See http://www.meteofrance.fr/climat-passe-et-futur/le-climat-futur-en-france
[18] http://www.drias-climat.fr/

sectors of health, agriculture, forestry, water, transport infrastructure, building infrastructure, energy, tourism, natural risks and insurances, biodiversity and territories were presented (MEEDDM, 2009, p. 74).

In 1999, the Ministry of Ecology, Sustainable Development, Transports and Housing (MEDDTL) launched the federating research programme 'Management and Impacts of Climate Change' (GICC). Different organisms contribute to the programme such as the French Board for Economic Studies and Environmental Evaluation (D4E), the inter-ministry task-force on the greenhouse effect (MIES), the French Environment and Energy Management Agency (ADEME), ONERC, the French Biodiversity Institute, etc. They gather information on climate change impact, greenhouse gas limitation and adaptation measures to support public policies (GICC, 2017a). Studies include research on impacts on health, agriculture, coastal impacts, forests, fisheries, etc. (GICC, 2017b). In 2012, impacts, vulnerability and adaptation options in French overseas regions were evaluated for various sectors[19].

Nevertheless, the 2015 evaluation of the National Adaptation Plan mentions that no study has yet been carried out to identify the industrial sectors or tourism sectors most vulnerable to climate change or to indicate opportunities, as it was foreseen in the National Adaptation Plan (CGEDD, 2015, p.43). To fill the gaps, sectoral vulnerability assessment will be conducted in the second NAP.

3d. Climate risks/vulnerability assessments take transboundary risks into account, when relevant

Yes / **In progress** / No

The assessment report (3c) does not consider impacts spreading across borders. The NAS contains some statements about consistency of adaptation action across boundaries, but this objective is not developed in the NAP into specific action. Nevertheless, some detailed and structured assessment of specific transboundary risks is included in material developed under transboundary structure and projects referred to at 2b above.

4. Knowledge gaps

4. Work is being carried out to identify, prioritise and address the knowledge gaps

Yes / In progress / No

The first NAP contained a high percentage of detailed and focused research actions across most thematic sections, plus a specific additional section on research, where it can be assumed that the research priorities identified in the 'research' area of the NAP were based on an ex-ante assessment of the most relevant knowledge gaps for climate change adaptation. The ONERC is charged with making recommendations about knowledge needs to inform the NAS, and works in coordination with the relevant national research institutions.

Despite the fact that it is not fully clear what mechanisms exist for funding (e.g. there is not an explicit link of the needs identified in the NAP with the national research programme[20], or the GICC), a 2013 mid-term evaluation of implementation of the NAP[21]

[19] https://www.ecologique-solidaire.gouv.fr/sites/default/files/ONERC_Rapport_2012_OutreMer_WEB.pdf
[20] Stratégie nationale pour la recherche et l'innovation
[21] *Évaluation à mi-parcours du Plan national d'adaptation au changement climatique*, ONERC 2013

stated that, despite a significant shortfall in the funding initially expected, 94% of the research actions identified in the 'research' section of the NAP had been already funded. Similar figures have been reported for other knowledge gathering actions identified as a priority in other NAP sections, which seems to provide enough evidence that knowledge gaps are being identified and funding mobilised (including through the identification of new co-financing partners) to address them. The 2015 evaluation of the NAP also identifies knowledge gaps and makes recommendations, addressed to specific government ministries, to address them (CGEDD, 2015).

5. Knowledge transfer

5a. Adaptation relevant data and information is available to all stakeholders, including policy makers (e.g. through a dedicated website or other comparable means)

Yes / In progress / No

The National Observatory on the Effects of Global Warming (ONERC) collects and disseminates information on the risks of climate change. Reports are available on the site of the Ministry of Ecological and Solidary Transition (MEEM, 2017a).

The NAP mentioned the goal to develop a website to spread recent scientific information on climate change (MEDTL, 2011, p. 50). The Wiklimat is a platform that is developed within the framework of the national adaptation plan to climate change and came into existence in 2013. The website contains information on the initiatives regarding climate change adaptation. Different stakeholders can share their experiences and realisations. The website includes information on initiatives that is structured according to sectoral fields (agriculture, biodiversity, energy, forestry, etc.), environments (forests, sea, cities, etc.), on territories (international, Europe, outermost regions, regions) and on stakeholders (state, communities, associations, private sector, etc.) (Wiklimat, 2015).

5b. Capacity building activities take place; education and training materials on climate change adaptation concepts and practices are available and disseminated

Yes / In progress / No

A partnership between the national education ministry and Météo-France led to the creation of a website about the atmosphere, the climate and its evolution, related to education programs in primary school, middle school and high school[22].

The French Environment and Energy Management Agency (ADEME) gives advice and expertise including on climate change mitigation and adaptation to businesses, local authorities and communities, government bodies and the public at large. ADEME supports research and innovation and sets up communication campaigns to inform the public and raise awareness (ADEME, 2017).

In addition, the NAP mentions that the strategy on jobs in the green economy has to take into account the impact of climate change adaptation in different sectors. Fiches were to be produced with information on the impact of climate change adaptation per sector and to be made available on the website of the ministry of sustainable

[22] See http://education.meteofrance.fr/, (MEDTL, 2011, p. 52) (Météo-France, 2017b)

development; according to the 2013 mid-term evaluation, this action led to the publication of fiches and dossiers identifying climate impacts[23].

Step C: identifying adaptation options

6. Adaptation options' identification

6a. Adaptation options address the sectoral risks identified in 3c, the geographical specificities identified in 3b and follow best practices in similar contexts

Yes / No

Some progress has been made in specific sectors. For example, the project "Climator" assessed the impacts of climate change on agriculture in France from 2007 until 2010 and was carried out by 7 institutes and organisations. The project was financed by the National Research Agency (ANR). Estimations were done at 13 sites representative for France. The work of Climator consists of analyses of possible impacts according to different hypotheses about the climate in the future. Prospective models were created on a biotechnological level (INRA, s.d.). Local strategies for the management of the risk of flooding have been developed as well as coastal Risk Prevention Programs (PPR) that function as climate change adaptation measures (CGEDD, 2015, p.9).

The evaluation of the National Adaptation Plan notes that an intended study to identify the industrial sectors or touristic sectors most vulnerable to climate change or to indicate opportunities, has not in fact been carried out. Sectoral vulnerability assessment is now a priority foreseen in the second National Adaptation Plan (CGEDD, 2015, p.43).

6b. The selection of priority adaptation options is based on robust methods (e.g. multi-criteria analyses, stakeholders' consultation, etc.) and consistent with existing decision-making frameworks

Yes / No

Research was carried out in 2009 to identify sectoral costs and benefits of adaptation action (MEEDDM, 2009). The 2015 evaluation of the NAP notes the need for further work to identify costs and benefits of adaptation measures in different sectors. However, a stakeholders' consultation, which took place from June 2016 to July 2017, prioritized 33 recommendations grouped in 6 major domains.

6c. Mechanisms are in place to coordinate disaster risk management and climate change adaptation and to ensure coherence between the two policies

Yes / In progress /No

Several adaptation measures related to disaster risk reduction are being implemented. More specifically, the French NAS mentions reducing risk inequalities among its four objectives and as one of the four transversal approaches. This notion was translated into the first NAP, which included a dedicated section on natural hazards (28 measures out of 240). These measures are structured around five main areas : i/ developing knowledge in sensitive areas, ii/ developing observations, iii/ a flagship measure on sea level rise; generalising vigilance and alert mechanisms; iv/ integrating climate change impacts on natural hazards in urban management; and v/ reducing vulnerability and increasing

[23] http://www.statistiques.developpement-durable.gouv.fr/lessentiel/s/lemploi-metiers-leconomie-verte.html

resilience and adaptation to climate change. The second NAP will also contain a "resilience and prevention" domain.

The first National Adaptation Plan included 28 measures related to dealing with natural hazard. Information tools have been developed and practices by professionals on their assessment of natural hazard risks have been reviewed. An iterative process is intended to ensure tools are timely adapted. From 2009 to 2013, the Datar (now CGET) has entrusted the regional prefects with the steering of six studies addressing vulnerability and adaptation issues at the interregional level (outside Île-de-France and Overseas territories). Whenever possible, this work has been articulated with the preparation of the Regional Climate Air Energy Schemes (SRCAE) in conjunction with the Regional Councils. These six studies have also contributed to the Territorial Energy Climate Plans (PCAET).

Both climate adaptation and disaster risk management have clear structures at national and regional levels. Cooperation between the two is to some extent guaranteed by the role of Prefects in the hierarchy of both.

7. Funding resources identified and allocated

7. Funding is available to increase climate resilience in vulnerable sectors and for cross-cutting adaptation action

Yes / In Progress / No

It has been estimated that the implementation of the National Adaptation Plan costed 171 million euro excluding governmental staff costs. The budget of 171 million euro aimed to finance all the activities in the NAP, including sectoral, transversal and territorial actions. 391 million euro for future investments has contributed partially to climate adaptation. The financing of the Plan against Drought and the Fast Submersion Plan contributed with another 500 million euro for the period 2011-2016 to the adaptation needs. However, the final assessment was not able to conclude on the level of actual financial commitment, given the partial coverage of the financial monitoring.

The second NAP is still under consideration, but it is foreseen that the Specialized Commission of the National Committee for Ecological Transition (CNTE) will regularly monitor the budget allocation and execution.

In France, adaptation is also indirectly promoted via the State's role on insurance markets. The State acts as reinsurer of last resort. Moreover, insurers are directly involved in funding risk prevention policies. Levies collected by private insurers contribute to financing state-sponsored preventive action (via the so-called Barnier Fund[24]) such as relocating high-risk assets, risk reduction investments by individuals, and risk assessment and risk management undertakings by local authorities.

Step D: Implementing adaptation action

8. Mainstreaming adaptation in planning processes

8a. Consideration of climate change adaptation has been included in the national frameworks for environmental impact assessments

Yes / No

[24] http://www.doubs.gouv.fr/Politiques-publiques/Amenagement-du-territoire-Construction-Logement-et-Transports/Financement-des-projets-d-investissement/Fonds-de-prevention-des-riques-naturels-majeurs

The Directive 2014/52 on environmental impact assessment (EIA) has been implemented in France by a regulation from 2016[25]. The national legislation requirements are expressed in terms of the need to assess the impact of projects, (and, in the case of the Strategic Environmental Assessment directive) plans and programmes on the climate. A guide to climate change vulnerability assessment in the national EIA framework is under consideration.

8b. Prevention/preparedness strategies in place under national disaster risk management plans take into account climate change impacts and projections

Yes / **No**

This indicator has the assessment options "yes" and "no." However, some future risks are being considered in current French disaster risk management plans. Risk is considered in coastal planning through the July 2011 guidelines for storm surge risk zoning, including future sea level rise. Heat waves risks, which frequency and intensity will increased in the future, are included in the "Heatwave Plan" at national and local level.

For other risks, it remains unclear whether future risks are being considered in disaster risk management plans.

8c. Key land use, spatial planning, urban planning and maritime spatial planning policies take into account the impacts of climate change

Yes / No

The first NAP covered urban planning, coasts and mountain areas. The 2013 mid-term evaluation suggested that the integration of adaptation considerations into key land use and urban planning as well as in coastal and mountain areas was progressing satisfactorily. At the regional and local level, the SRADDET (SRCAE) and the PCAET (PCET) ensure also the inclusion of adaptation policy in local spatial/urban.

8d. National policy instruments promote adaptation at sectoral level, in line with national priorities and in areas where adaptation is mainstreamed in EU policies

Yes / **In progress** / No

The National Strategy for Adaptation mentions recommendations regarding agriculture, energy and industry, the transport sector, buildings and habitats, tourism, banks and insurances (ONERC, 2007, p. 63-72). The first NAP was clearly focused on ensuring that adaptation was mainstreamed in various sectoral policies. The sectoral coverage of the NAP was extensive. Concrete actions were mentioned regarding agriculture, the forestry sector, fishery, aquaculture, the energy sector, industry, the transport sector, infrastructure, buildings and tourism (MEDTL, 2011, p. 36-49). The final assessment suggested that the integration of adaptation considerations into resource management policies is progressing satisfactorily in biodiversity, forestry and agriculture. Some initial steps have also been taken to integrate adaptation into water management cycles, as river basin management plans are revised, including some achievements in specific river basins.

[25] Ordonnance no 2016-1058 du 3 août 2016 relative à la modification des règles applicables à l'évaluation environnementale des projets, plans et programmes

8e. Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention

Yes / **No**

The French system has a long history of investigating the role of insurance in risk management, includes a public mechanism to avoid social exclusion and adverse-selection phenomena in the natural catastrophe insurance market: the Bureau Central de Tarification (BCT). It provides insurance to those that cannot obtain it through regular market venues, for either availability or affordability reasons. No indication of other types of public-private cooperation for the financing of adaptation action could be found.

The reinforcement of insurance as a tool to face climate change was one of the objectives of the NAP, together with the provision of other incentives for investments. The mid-term evaluation of 2013, however, concluded that it was too early to consider that insurance objectives have been met, given the complexity of the issue, and noted that there are significant works still to be implemented to introduce the consideration of resilience to climate change into public investments, and to identify financial resources to finance adaptation. The 2015 evaluation addresses the trade-off between solidarity and incentives to adaptation action (CGEDD, 2015, p. 83), notes that new mechanisms have been introduced in the forestry sector to remove some climate risks from solidarity mechanisms and encourage private insurance, in order to improve incentives to action, and suggests that this should be adopted more widely.

9. Implementing adaptation

9a. Adaptation policies and measures are implemented, e.g. as defined in action plans or sectoral policy documents

Yes / **In Progress** / No

Most actions and measures have been implemented under the first NAP covering the period 2011-2015 and only less than 10% were abandoned, due to lack of budget or human resource, or because they were no longer relevant. Actions related mostly to the theme of biodiversity, forestry, research and especially financing and insurance (9 actions) were abandoned (CGEDD, 2015, p.38). The second NAP is being developed and should be available before the end of 2017.

9b. Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)

Yes / **No**

Regional and local governments are not directly involved in implementing the NAP. One of the first NAP actions included reporting about the consistency of national and regional strategies (i.e. a posteriori), instead of identifying cooperation and coordination mechanisms to build adaptation strategies that are territorially consistent (a priori). Regional administrations were mentioned as partners of the NAP. For local administrations, the provision of guidance was mostly considered. A dedicated set of measures in the NAP focused on reinforcing the coherence of adaptation action at subnational level. It mostly consisted in providing guidance and developing the framework for additional coordination. The second NAP will reinforce the vertical integration mechanisms.

9c. Procedures or guidelines are available to assess the potential impact of climate change on major projects or programmes, and facilitate the choice of alternative options, e.g. green infrastructure

Yes / No

From 2009 to 2013, the Datar (now CGET) has entrusted the regional prefects with the steering of six studies addressing vulnerability and adaptation issues at the interregional level (outside Île-de-France and Overseas territories). Whenever possible, this work has been articulated with the preparation of the Regional Climate Air Energy Schemes (SRCAE) in conjunction with the Regional Councils. These six studies have also contributed to the Territorial Energy Climate Plans (PCAET).

Ademe produced guidelines to support the assessment of impacts of climate change in major projects and programmes. Some measures are planned, and there is progress in some of them, but they cannot be considered as implemented.

Regarding infrastructure, France has reviewed design codes and infrastructure standards in the transport sector that are related to climate change variables. Besides, France is developing methodology on assessing vulnerability of French airports to climate change. A guide looking at transport networks in general is under development. A network of infrastructure managers has been set up with regular meetings and exchange of experience.

9d. There are processes for stakeholders' involvement in the implementation of adaptation policies and measures

Yes / **No**

The 2015 evaluation document mentions that for the implementation of the National Adaptation Plan, there is a lack of involvement of territorial communities and too little involvement of professional sectors. In the evaluation it is indicated that the first NAP is mostly implemented by the state and its organisms and focusses on national measures (CGEDD, 2015, p. 43). However, both the NAP and the NAS were prepared and are being revised on the basis of a fully participatory process, and the evaluation is calling for a deepening of the existing processes. A special body has been created as an Advisory Council and will monitor the NAP implementation progress.

Step E: Monitoring and evaluation of adaptation activities

10. Monitoring and reporting

10a. NAS/NAP implementation is monitored and the results of the monitoring are disseminated

Yes / No

An annual follow-up of the achievements of the NAP was foreseen in the plan. This annual follow-up is coordinated by ONERC. At the end of 2011, there was a first meeting between the actors in charge of the different themes to discuss the implementation of the plan. A first synthesis of the implementation of the NAP was presented in 2012 at the National Committee of Sustainable Development and the Grenelle of the Environment (CNDDGE).[26]

[26] (CGEDD, 2015, p.41).

The General Council for the Environment and Sustainable Development (or Conseil général de l'environnement et du développement durable - CGEDD) has monitored the implementation of the National Adaptation Plan in the evaluation report of 2015. The report includes quantitative and qualitative information. Around 80 % of the actions and 75 % of measures of the National Adaptation Plan were achieved according to the evaluation.[27]

10b. The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated

Yes / No

The implementation of the first NAP in different sectors is presented in a central evaluation report. The report indicates the amount of actions per theme that were implemented, delayed or canceled. In addition, the overall implementation per theme and sector is briefly discussed as poorly, partially or strongly implemented. [28]

10c. Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated

Yes / **No**

Cooperation with local and regional administrations on monitoring adaptation action seems quite limited. In the absence of a territorial governance system, a procedure for collecting information on actions carried out below the national level does not exist, apparently. As part of the 'governance' actions of the NAP, some studies will focus on assessing the coherence between national and territorial approaches to climate change adaptation. It does not seem that at this stage this cooperation considers potential feedback and strengthened coordination on the performance of adaptation action across administrative levels. The second NAP will address this gap, but at this moment no process is in place.

11. Evaluation

11a. A periodic review of the national adaptation strategy and action plans is planned

Yes / No

The French government published a roadmap in June 2016 on the ecological transition[29]. This roadmap defines the revision process of the National Adaptation Plan to concord with the Paris agreement of 2015. In July 2017, the 19th Axe of the Plan Climat[30] welcomed the second NAP release before the end of 2017. At the national level no update of the risk or vulnerability assessments has been taken but, from 2009 to 2013, the Datar (now CGET) has entrusted the regional prefects with the steering of six studies addressing vulnerability and adaptation issues at the interregional level (outside Île-de-France and Overseas territories).

[27] (CGEDD, 2015, p.8)
[28] (CGEDD, 2015, p. 38, 56-57)

[29] http://www.ecologique-solidaire.gouv.fr/sites/default/files/Feuille%20de%20route%20gouvernementale%20pour%20la%20transition%20%C3%A9cologique%202016.pdf
[30] https://www.ecologique-solidaire.gouv.fr/sites/default/files/2017.07.06%20-%20Plan%20Climat.pdf

11b. Stakeholders are involved in the assessment, evaluation and review of national adaptation policy

Yes / No

The different stakeholders have not been involved in the follow-up of the implementation or evaluation of the first National Adaptation Plan, although this has been the case for the second NAP. The first NAP defined that the General Director of Energy and Climate had to chair an evaluation committee together with stakeholders such as representatives of the administration in charge of the implementation of the NAP, national and local representatives and scientists. Annual meetings on the implementation and evaluation were foreseen. This committee has not been created, instead the National Council on the Ecological Transition acted as the monitoring and evaluation committee (CGEDD, 2015, p. 43-44).

Stakeholders are actively participating in the preparatory work that will be leading to the updated National Adaptation Plan. A special body has been created as an Advisory Council that will monitor the NAP implementation progress.

Based on the available information, it can be concluded that stakeholders are involved in the evaluation of the NAP.

SUMMARY TABLE

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
Step A: Preparing the ground for adaptation		
1 Coordination structure		
1a	A central administration body officially in charge of adaptation policy making	**Yes** / No
1b	Horizontal (i.e. sectoral) coordination mechanisms exist within the governance system, with division of responsibilities	**Yes** / In progress / No
1c	Vertical (i.e. across levels of administration) coordination mechanisms exist within the governance system, enabling lower levels of administration to influence policy making.	**Yes** / In progress / No
2 Stakeholders' involvement in policy development		
2a	A dedicated process is in place to facilitate stakeholders' involvement in the preparation of adaptation policies	**Yes** / No
2b	Transboundary cooperation is planned to address common challenges with relevant countries	**Yes** / No
Step B: Assessing risks and vulnerabilities to climate change		
3 Current and projected climate change		
3a	Observation systems are in place to monitor climate change, extreme climate events and their impacts	**Yes** /In progress/ No
3b	Scenarios and projections are used to assess the economic, social and environmental impacts of climate change, taking into account geographical specificities and best available science (e.g. in response to revised IPCC assessments) Yes / In progress / No (e.g. in response to revised IPCC assessments)	**Yes** / In progress / No
3c	Sound climate risks/vulnerability assessments for priority vulnerable sectors are undertaken to support adaptation decision making.	**Yes** / In progress / No
3d	Climate risks/vulnerability assessments take transboundary risks into account, when relevant	Yes / **In progress** / No
4 Knowledge gaps		
4	Work is being carried out to identify, prioritise and address the knowledge gaps	**Yes** / In progress / No
5 Knowledge transfer		

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
5a	Adaptation relevant data and information is available to all stakeholders, including policy makers (e.g. through a dedicated website or other comparable means).	**Yes** / In progress / No
5b	Capacity building activities take place; education and training materials on climate change adaptation concepts and practices are available and disseminated	**Yes** / In progress / No
Step C: Identifying adaptation options		
6 Identification of adaptation options		
6a	Adaptation options address the sectoral risks identified in 3c, the geographical specificities identified in 3b and follow best practices in similar contexts	**Yes** / No
6b	The selection of priority adaptation options is based on robust methods (e.g. multi-criteria analyses, stakeholders' consultation, etc.) and consistent with existing decision-making frameworks	**Yes** / No
6c	Mechanisms are in place to coordinate disaster risk management and climate change adaptation and to ensure coherence between the two policies	**Yes** / In progress /No
7 Funding resources identified and allocated		
7	Funding is available to increase climate resilience in vulnerable sectors and for cross-cutting adaptation action	**Yes** / In Progress / No
Step D: Implementing adaptation action		
8 Mainstreaming adaptation in planning processes		
8a	Consideration of climate change adaptation has been included in the national frameworks for environmental impact assessments	**Yes** / No
8b	Prevention/preparedness strategies in place under national disaster risk management plans take into account climate change impacts and projections	Yes / **No**
8c	Key land use, spatial planning, urban planning and maritime spatial planning policies take into account the impacts of climate change	**Yes** / No
8d	National policy instruments promote adaptation at sectoral level, in line with national priorities and in areas where adaptation is mainstreamed in EU policies	Yes / **In progress** / No
8e	Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention	Yes / **No**
9 Implementing adaptation		
9a	Adaptation policies and measures are implemented, e.g.	Yes / **In Progress** /

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
	as defined in action plans or sectoral policy documents	No
9b	Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)	Yes / **No**
9c	Procedures or guidelines are available to assess the potential impact of climate change on major projects or programmes, and facilitate the choice of alternative options, e.g. green infrastructure	**Yes** / No
9d	There are processes for stakeholders' involvement in the implementation of adaptation policies and measures.	Yes / **No**
Step E: Monitoring and evaluation of adaptation activities		
10 Monitoring and reporting		
10a	NAS/NAP implementation is monitored and the results of the monitoring are disseminated	**Yes** / No
10b	The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated	**Yes** / No
10c	Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated	Yes / **No**
11 Evaluation		
11a	A periodic review of the national adaptation strategy and action plans is planned	**Yes** / No
11b	Stakeholders are involved in the assessment, evaluation and review of national adaptation policy	**Yes** / No

REFERENCES

Agence de l'environnement et de la maîtrise de l'énergie (ADEME) (2017) About ADEME. Available online (accessed the 15th March 2017) http://www.ademe.fr/en/about-ademe

Bonduelle, A. and Jouzel, J. (2014) L'adaptation de la France au changement climatique mondial. Journal officiel de la république française. Available online (accessed the 17th February 2017) http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/144000273.pdf

Conseil général de l'environnement et du développement durable (CGEDD) (2015) Evaluation du plan national d'adaptation au changement climatique. Available online (accessed the 14th March 2017) http://cgedd.documentation.developpement-durable.gouv.fr/documents/cgedd/010178-01_rapport.pdf

Centre National de Recherche Scientifique (CNRS) (2016) Services Nationaux d'Observation. Available online (accessed the 14th March 2017) http://www.insu.cnrs.fr/node/1228

Drias (2017) Espace Découverte. Available online (accessed the 16th March 2017) http://www.drias-climat.fr/decouverte

European Commission (EC) (2017) (Interreg V-A) FR-IT - France-Italy (ALCOTRA). Available online (accessed the 15th March 2017) http://ec.europa.eu/regional_policy/fr/atlas/programmes/2014-2020/france/2014tc16rfcb034

EU (2017) Coopération transfrontalière / POCTEFA. Available online (accessed the 15th March 2017) http://www.europe-en-lrmp.eu/POCTEFA/#.WMlIgE0zVfw

Gestion et Impacts du Changement Climatique (GICC) (2017a) Presentation of the GICC programme. Available online (accessed the 16th March 2017) http://www.gip-ecofor.org/gicc/?q=en/node/119

Gestion et Impacts du Changement Climatique (GICC) (2017b) Topics. Available online (accessed the 16th March 2017) http://www.gip-ecofor.org/gicc/?q=en/list

Institut National de la Recherche Agronomique (INRA) (s.d.) Projet Climator. Available online (accessed the 15th March 2017) http://w3.avignon.inra.fr/projet_climator/

Institut Pierre Simon Laplace (IPSL) (2017) A propos de l'IPSL. Available online (accessed the 14th March 2017) https://www.ipsl.fr/Organisation/A-propos-de-l-IPSL

Jouzel, J., Ouzeau, G., Déqué, M., Jouini, M., Planton, S. and Vautard, R. (2014) Le climat de la France au XXIe siècle. Volume 4. Scénarios régionalisés : édition 2014 pour la métropole et les régions d'outre-mer. Available online (accessed the 16th March 2017) http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/144000543.pdf

Météo-France (2014) Rapport sur le climat de la France au 21e siècle. Available online (accessed the 15th March 2017) http://www.meteofrance.fr/actualites/12576645-rapport-sur-le-climat-de-la-france-au-21e-siecle

Météo-France (2017a) Comprendre. Tout savoir sur la météo, le climat et Météo-France. Available online (accessed the 14th March 2017) http://www.meteofrance.fr/climat-passe-et-futur

Météo-France (2017b) Éducation. Ressources et outils conçus pour l'enseignement. Available online (accessed the 16th March 2017) http://education.meteofrance.fr/

Ministère de l'Écologie, du Développement durable, des Transports et du Logement (MEDTL) (2011) Plan national d'Adaptation au Changement Climatique. Available online (accessed the 13th March 2017) http://www.ecologique-solidaire.gouv.fr/sites/default/files/ONERC_PNACC_1_complet.pdf

Ministère de l'Ecologie, de l'Energie, du Développement Durable et de la Mer (MEEDDM) (2009) Changement climatique : Coûts des impacts et pistes d'adaptation. Available online (accessed the 16th March 2017) http://www.ecologique-solidaire.gouv.fr/sites/default/files/ONERC_rapport_Climate%20change_Costs%20of%20impacts%20and%20lines%20of%20adaptation_ENG.pdf

Ministère de l'Environnement, de l'Energie et de la Mer (MEEM) (2016a) Direction générale de l'énergie et du climat (DGEC). Available online (accessed the 26th October 2017) https://www.ecologique-solidaire.gouv.fr/direction-generale-lenergie-et-du-climat-dgec

Ministère de l'Environnement, de l'Energie et de la Mer (MEEM) (2016b) Révision du plan national d'adaptation au changement climatique (PNACC) en mobilisant l'ensemble des parties prenantes. Available online (accessed the 15th March 2017) https://www.ecologique-solidaire.gouv.fr/adaptation-france-au-changement-climatique#e4

Ministère de l'Environnement, de l'Energie et de la Mer (MEEM) (2017a) Observatoire national sur les effets du réchauffement climatique – ONERC. Available online (accessed the 26th October 2017) https://www.ecologique-solidaire.gouv.fr/observatoire-national-sur-effets-du-rechauffement-climatique-onerc

Ministère de l'Environnement, de l'Energie et de la Mer (MEEM) (2017b) Impacts du changement climatique. Available online (accessed the 26th October 2017) https://www.ecologique-solidaire.gouv.fr/observatoire-national-sur-effets-du-rechauffement-climatique-onerc#e3

Observatoire national sur les effets du réchauffement climatique (ONERC) (2007) Stratégie nationale d'adaptation au changement climatique. Available online (accessed the 26th October 2017) http://www.ecologique-solidaire.gouv.fr/sites/default/files/ONERC_Rapport_2006_Strategie_Nationale_WEB.pdf

Pas-de-Calais (s.d.) Interreg 2 Mers : coopération transfrontalière avec la France, l'Angleterre et les Pays-Bas. Available online (accessed the 15th March 2017) http://www.pasdecalais.fr/Europe/Monter-un-projet-europeen-ou-une-action-internationale/Identifier-les-financements-adaptes-a-votre-projet/Environnement/Interreg-2-Mers-cooperation-transfrontaliere-avec-la-France-l-Angleterre-et-les-Pays-Bas

Centre de ressources pour les Plans Climat-Air-Énergie Territoriaux (PCAET) (2017) Qu'est-ce qu'un Plan Climat-Energie Territorial ? Available online (accessed the 14th March 2017) http://www.territoires-climat.ademe.fr/elus/qu%E2%80%99est-qu%E2%80%99un-plan-climat-energie-territorial%C2%A0

Pole territoires et changement climatique (s.d.) Approbation des SRCAE. Available online (accessed the 15th March 2017) http://www.srcae.fr/spip.php?rubrique2

Wiklimat (2015) Wiklimat : Accueil. Available online (accessed the 26th October 2017) http://wiklimat.developpement-durable.gouv.fr/index.php/Portail:Wiklimat