EUROPEAN COMMISSION
DIRECTORATE-GENERAL
CLIMATE ACTION
Directorate A - International, Mainstreaming & Policy Coordination
CLIMA.A.3 - Adaptation

Adaptation preparedness scoreboard:

Draft country fiche for Spain

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.

Table of Contents

POLICY FRAMEWORK

Adaptation strategies

A1. National adaptation strategy

In Spain, a national adaptation strategy, the National Climate Change Adaptation Plan (PNACC in Spanish acronym), was adopted in 2006[1]. The PNACC constitutes the reference framework for the coordination of the public administrations to address the impacts of climate change over key sectors and resources in the country. It aims at supporting policymakers to confront adaptation to climate change, defining a cyclic process to generate knowledge and build capacity to address the effects of climate change.

A2. Adaptation strategies adopted at subnational levels

Apart from Asturias and Rioja, all Spanish regions have adopted regional action plans, or adaptation strategies.[2]

Adaptation action plans

B1. National adaptation plan

The PNACC is implemented through work programmes (WPs)[3], which identify, define and refine the priority activities to implement under its framework. WPs have become more complex and mature over the years, enlarging the number of sectors addressed, the governance and the involvement of stakeholders, showing a growing commitment to reinforcing coordination with all levels of administration. WP3 was adopted in December 2013, and aims at addressing adaptation and its governance comprehensively, by further integrating stakeholders vertically (across administrations) and horizontally (across sectors). For the first time, it contains a clear timeline (2014-2020), which has been aligned with the EU multiannual financial framework (MFF). It promotes actions to be implemented at national level, and seeks a reinforced coordination and synergy with the subnational (regional and local) strategies and EU adaptation strategy

B2. Adaptation plans adopted at sub-national level

Apart from Asturias and Rioja, all Spanish regions have adopted regional action plans, or adaptation strategies (97% of Spanish population and 97% of territory covered).[4] 284 cities are signatories to the Covenant of Mayors for Climate and Energy for the Adaptation commitment.

B3. Sectoral adaptation plans

The first work programme (WP1) was adopted in 2006 and focused on priority actions, namely the launch of a national programme on regionalised climate change scenarios, and the assessment of vulnerability in key horizontal sectors: water resources, biodiversity and coastal areas. The second work programme (WP2), adopted in 2009,

[1] PNACC (2006). Available at: http://climate-adapt.eea.europa.eu/metadata/publications/the-spanish-national-climate-change-adaptation-plan-pnacc

[2] http://cor.europa.eu/en/documentation/studies/Documents/Local%20and%20regional%20adaptation.pdf

[3] PNACC (2009). National Adaptation Plan, Spain. Available at: http://climate-adapt.eea.europa.eu/metadata/publications/national-adaptation-plan-spain

[4] http://cor.europa.eu/en/documentation/studies/Documents/Local%20and%20regional%20adaptation.pdf

continued the WP1 activities and set additional goals by enlarging the target sectors and reinforcing the adaptation goals within them, by promoting detailed vulnerability assessments, integrating adaptation into sectoral regulations and planning tools, and mobilising, building capacity and raising awareness of key actors. This sectoral approach would be complemented by setting up an indicators system, further promoting R&D+I, and strengthening the governance system by reinforcing inter-administrative coordination.

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

In Spain, the Spanish Climate Change Office (OECC by its Spanish acronym), a General Directorate of the Ministry of Agriculture and Fisheries, Food and Environment, is in charge of adaptation policy-making. The PNACC was written and since then is coordinated, managed and implemented by the OECC.

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

Yes / In progress / No

The main coordination and participation bodies dealing with Climate Change in Spain are the National Climate Council (CNC), The Coordination Commission of Climate Change Policies (CCPCC) and the Environmental Sector Conference.

The CCPCC[5] is the national coordination body in climate change and adaptation. It represents all key Spanish Ministries[6] (horizontal coordination and cooperation) and all regional Governments (17). The CCPCC adopts all the Spanish adaptation planning and reporting documents. The Impacts and Adaptation Working Group (GTIA) is a technical working group involving the central and regional governments, where coordination and integration of adaptation strategies and activities are pursued, and the activities to implement the PNACC are decided[7]. The GTIA meets regularly, usually twice a year, and the European Commission has often participated in the meetings. The GTIA reports to the CCPCC.

A further relevant group is the Interministry Climate Change Commission, which is a horizontal coordination body for the central administration.

[5] http://climate-adapt.eea.europa.eu/countries-regions/countries/spain

[6] Ministry of Agriculture and Fisheries, Food and Environment; Ministry of the Treasury and Public Function; Ministry of Public Works; Ministry of Justice; Ministry of Energy, Tourism and Digital Agenda; Ministry of Economic Affairs, Industry and Competition; Ministry of Health, Social Services and Equality; Ministry of Home Affairs; Ministry of the Presidency.

[7] PNACC (2006). Marco para la coordinación entre Administraciones Públicas para las actividades de evaluación de impactos, vulnerabilidad y adaptación al cambio climático.

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

The CCPCC is the coordination and collaboration body between the National and Regional Administrations for all matters related to climate change. The CCPCC is composed of seventeen members, representing the General State Administration, through members of each Autonomous Community, a member appointed by each of the cities of Ceuta and Melilla and a member representing local entities.

The Spanish Network of Cities for Climate (RECC)[8] is a thematic network created in 2009 by the Spanish Federation of Municipalities and Provinces and the Spanish Ministry of Environment for joint action in climate change adaptation and mitigation. The network coordinates, fosters, provides technical support and contributes to translate the national climate and energy objectives at the local level. As of October 2017, the network includes 306 Spanish cities, towns and villages (60% of Spanish population).

River Basin Management Plans consider climate change impacts, as indicated in Water Planning Instructions adopted in 2008[9] and National Reports on Climate Change Impacts on Water Resources[10]

A Working Group, including Watershed Management bodies, Regional Governments, the Civil Protection Authority and the Spanish Office of Climate Change, has agreed the measures included in the Flood Risk Management Plans. An improved evaluation of the effects of climate change on flood risks is one of the actions included[11].

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

The PNACC was adopted after a public consultation process channelled through various key national bodies namely the CCPCC, the CNC, the Interministry Climate Change Commission and the Sectoral Conference on Climate Change[12]. The consulted stakeholders included representatives from the public administration, NGOs and interested social sectors[13]. The CNC is the national participatory body where most relevant stakeholders are represented: national sectoral ministries, the regions (the Autonomous Communities), the local governments, key research institutions, social

[8] http://www.redciudadesclima.es
[9] ORDEN ARM/2656/2008, de 10 de septiembre, por la que se aprueba la instrucción de planificación hidrológica
[10] http://www.mapama.gob.es/es/agua/temas/planificacion-hidrologica/planificacion-hidrologica/EGest_CC_RH.aspx
[11] http://www.mapama.gob.es/es/agua/temas/gestion-de-los-riesgos-de-inundacion/resumenejecutivo_pgris_sept_2015_tcm7-408653.pdf
[12] PNACC (2006). LIFE SHARA. LIFE15 GIC/ES/000033
[13] Which NGOs and other parties these were is nowehere specified.

actors and non-governmental organisations. The CNC draws up proposals and recommendations about the Spanish climate change policies, and channels information to the Spanish society about climate change science and policies, including adaptation.

Other forums, such as the sectoral seminars described below or the activities with actors (administrations, private sector) are also used to frame and define the contents of the PNACC work plans, and the involvement of stakeholders therein.

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

Yes / No

Transboundary cooperation is not explicitly mentioned in either the PNACC nor in its work programmes. However, there are cooperation mechanisms in place.

In 2016, the Meteorology State Agency (AEMET) signed a transboundary agreement to initiate climate research in the Pyrenees area in a Consortium composed of Spanish, French and Andorran institutions. This Working Community of the Pyrenees (CTP, includes 6 regions from Spain, France and Andorra) decided to create the Pyrenees Climate Change Observatory (OPCC) in 2010, with the main objective to monitor and have a better understanding of the phenomena of climate change in the Pyrenees. Adaptation is its core activity[14]. This observatory is not mentioned in the PNACC. The project in question is called CLIM'PY[15], and its goal is to understand the climate evolution and trends in the area, compiling existing information and developing climate indicators for different sectors affected by climate change. The OECC has accepted in 2017 the CTP invitation to become a member of the Advisory Committee of the Observatory.

Next to that, transboundary agreements with Portugal exist for decades (e.g. the Albufeira Convention of 2000, revised in 2008[16]) to ensure and improve the ecological status of water bodies in shared river basins.

The LIFE-SHARA project (LIFE15 GIC/ES/000033)[17] was selected in 2016 for the period 2016-2021. The Spanish Climate Change Office has the technical direction role of the project, with the general objective of strengthening the governance of adaptation and increasing the resilience against climate change. LIFE-SHARA brings together partners from Spain and Portugal, and its expected results include improving the Spanish adaptation platform AdapteCCa[18] (in terms of contents and functionalities), involving key stakeholders to work together and mainstream adaptation into their planning and managing activities, expanding the level of awareness and building capacities for adaptation to climate change. LIFE SHARA lays the grounds for a long term transnational cooperation mechanism between the Adaptation Units of Portugal and Spain, that will catalyse joint actions and projects and will conduct to the organization of the first Iberian Conference on Adaptation to Climate Change.

[14] OPCC (2007). Available at: http://www.opcc-ctp.org/en/who-are-we/historycontextobjectives
[15] AEMET. Available at: http://www.aemet.es/en/noticias/2016/02/convenio_pirineos
[16] UNESCO (2012). Managing water under uncertainty and risk
[17] PNACC (2006). LIFE SHARA. LIFE15 GIC/ES/000033
[18] Climate-ADAPT (2013). Spanish Adaptation Platform

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

Atmospheric climate data and analyses are provided by the Spanish Meteorological Agency (AEMET)[19]. Other essential climate variables are collected by several institutions such as the National Aerospace Technical Institute (INTA)[20], the Spanish Oceanographic Institute (IEO)[21], the State Ports authority (PE), while the OECC coordinates their compilation periodically. The OECC collected the main evidence available on impacts of climate change in Spain, covering several relevant systems and sectors (forestry, agriculture, extractive industries, extreme events, human and health), in a study published in 2012[22].

Droughts: According to Law 10/2001, Spanish Basin authorities have created Special Plans on Droughts (PES)[23]. These Plans include chapters analysing historical droughts. Basin authorities have developed systems of hydrological indicators to predict drought situations and assess the severity with which they occur.[24]

Floods: Directive 2007/60/EC requires EU countries to assess the risk of flooding in coastal regions and river basins by collecting information on those areas, such as past flood history. Flood Risk Management Plans identify areas prone to significant flood risks, including their flood history.

The Spanish Insurance Compensation Consortium ("Consorcio de Compensación de Seguros") is a public business institution attached to the Ministry of Economy and Competitiveness covering insurance on extraordinary risks. This Consortium has a register on insured damages caused by floods (riverine and coastal) and winds (wind speed up to 120 Km/h).

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 production of regional climate scenarios is identified as a key element of the PNACC.

[19] AEMET. Available at: http://www.aemet.es/es/portada
[20] INTA. Available at: http://www.inta.es/opencms/export/sites/default/INTA/es/
[21] IEO. Available at: http://www.ieo.es/
[22] PNACC (2012). Evidencias del cambio climático y sus evidencias en España
[23] http://www.mapama.gob.es/es/agua/temas/observatorio-nacional-de-la-sequia/planificacion-gestion-sequias/Observatorio_Nacional_Sequia_3_1_planes_especiales_sequia.aspx
[24] http://www.mapama.gob.es/es/agua/temas/observatorio-nacional-de-la-sequia/planificacion-gestion-sequias/Observatorio_Nacional_Sequia_3_2_sistemas_indicadores.aspx

The national Meteorological Service, AEMET, coordinates this element of the PNACC, providing a set of reference climate change projections for Spain. Regional scenarios have been produced by AEMET following the pace of the IPCC: a first generation was produced in 2007, based on IPCC-TAR scenarios; a second generation of regionalised projections made up the 'Scenarios-PNACC 2012' set, based on IPCC-4AR, offering both dynamic and statistical models; and a third collection of regional climate change scenarios based on the IPCC AR5 scenarios.

There is a complete set of new regional downscaled scenarios from AR5 global models, published by AEMET[25]. There is also a user friendly online viewing tool hosted in the adaptation platform[26] to consult and download regional climate change scenarios. These build on work begun in the ESCENA project (2008-2011)[27].

To facilitate the use and understanding of scenarios, some supporting material has been developed complementing the raw data they offer: a report "Generation of Regional Climate Change Scenarios for Spain"[28], and a set of user-tailored products offering indicators useful for different sectoral policies, graphs and other material to support communication to policymakers, the media, etc., which are the seed of a national climate service. All data scenarios and supporting materials are freely available and downloadable from AEMET's website.

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

Yes / In progress / No

The first report that summarized and integrated the foreseeable impacts of climate change on a variety of socio-economic sectors and ecological systems is the 'Preliminary Assessment of the Impacts in Spain due to the Effects of Climate Change' from 2005[29]. Promoted by the OECC and with the participation of over 400 experts, the report laid the foundations for the Spanish adaptation strategy, by identifying key sectors and revising the situation of knowledge on impacts, vulnerability, adaptation options and knowledge gaps in Spain. It assessed the following sectors: terrestrial ecosystems, agriculture, inland aquatic ecosystems, coastal areas, marine ecosystems and the fisheries, natural hazards of climatic origin, plant biodiversity, energy, animal biodiversity, tourism, water resources, insurance, soil resources, human health, forestry.

Sectoral vulnerability assessments are always planned in cooperation with the relevant sectoral authorities, and aim at integrating the knowledge generated into specific policymaking tools and instruments; the OECC finances and coordinates periodic updates of the state of the art of impacts, vulnerability and adaptation in different sectors, systems and resources, by engaging experts and top researchers.

Since the release of the 2015 report many sectoral assessments on impacts and vulnerability to climate change have been produced within the PNACC framework, including on water resources, forestry, biodiversity, winery, aquaculture, energy, tourism, the private sector, and the local level. One of the most recent ones is an OECC

[25] AEMET. Available at: http://www.aemet.es/es/serviciosclimaticos/cambio_climat/result_graficos?opc6=0
[26] AdapteCCa. Scenarios
[27] SMG. ESCENA. Available at: http://www.meteo.unican.es/en/node/73284
[28] SMG. Available at: http://www.meteo.unican.es/en/research/climate_change
[29] MAPAMA (2005). A Preliminary General Assessment of the Impacts in Spain due to the Effects of Climate Change

report[30] from 2016 on the impacts of climate change in the desertification process of Spain. It offers desertification maps based on the analysis of physical and biological indicators (e.g. soil erosion, acidity levels, overexploitation of aquifers) used in the National Action Against Desertification (PAND) programme. Another study by the OECC from 2016[31] focuses on the impact of climate change on the marine environment where they assess various physicochemical indicators of climate change in the marine environment; or a similar study[32] on climate impacts and adaptation for the agriculture sector.

For all sectors prioritised in the WPs developing the PNACC, dedicated vulnerability assessments are promoted as the starting point for sectoral adaptation action. Vulnerability assessments are built on detailed modelling using regional climate scenarios, expert judgement, or both.

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

Yes / **In progress** / No

Transboundary impacts are not systematically addressed, and neither the PNACC nor its work programmes consider them explicitly. However, for some sectors there have been joint efforts with neighbouring countries to evaluate impacts beyond country boundaries (e.g. biodiversity).

Iberian cooperation is planned in the LIFE SHARA project, which includes:
- Organizing an Iberian Conference on adaptation to climate change in order to know the state of the art in Spain and Portugal, promote cooperation and identify knowledge gaps.
- Establishing a cooperation framework between the climate change adaptation units of Spain and Portugal, in order to identify common risks and vulnerabilities and common priorities and actions. Cooperation between Spain and Portugal on adaptation issues will be permanent: annual coordination meetings will continue after the end of the LIFE project.
- Organising workshops to address sectoral issues, e.g. water resources and climate change or biodiversity conservation in border areas.

4 Knowledge gaps

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

Yes / In progress / No

The PNACC is mostly defined as a knowledge-generation and capacity-building programme. The PNACC has been supported by the national research strategies and various programmes since it was launched. Concretely, it is supported by the National Strategy for Science, Technology and Innovation (2013-2020), where adaptation is

[30] MAPAMA (2016). Impactos del cambio climático en los procesos de desertificación en España
[31] MAPAMA (2016). Cambio Climático en el Medio Marino Español: Impactos, Vulnerabilidad y Adaptación
[32] MAPAMA (2016) Impactos, Vulnerabilidad Y Adaptación Al Cambio Climático En El Sector Agrario

explicitly considered. One of its eight defined challenges is 'Climate Change action and resource and raw materials efficiency'; adaptation is also mentioned in other challenges. The Strategy is implemented through four-year Plans that reflect most European priorities in the research field. The State Plan for Scientific and Technical Research and Innovation 2013-2016[33] explicitly refers to the priority given to the knowledge gaps identified by the PNACC in the fields of systematic observation, climate scenarios and projections, and vulnerability, impacts and adaptation. The Plan is implemented through annual calls. The last one (2016) was supported by a budget of € 243,906,000 (overall, not just climate change).The OECC is currently delivering its input into the new Plan 2017-2020 for mainstreaming climate change needs into research priorities at a national level. Next to these strategies, adaptation knowledge is funded at the national level through grants for research on global change in protected areas such as national parks, and through grants from the Biodiversity Foundation for climate change and adaptation projects. At the regional level, there are so called strategies and instruments for planning and management system of research, development and innovation in place.

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

Spain has a dedicated web-based adaptation platform developed by the OECC: AdapteCCa[34]. The platform is available to experts, organisations, institutions and interested stakeholders, for the exchange and consultation (query) of information, knowledge and experience about impacts, vulnerability and adaptation to climate change. It provides information on territorial (vertical) and sectoral (horizontal) adaptation action in Spain, as well as technical resources, tools, links, news, funding opportunities, etc. It is also an instrument for communication within the adaptation community in Spain. AdapteCCa also facilitates the use of the downscaled climate change scenarios produced. The tool has a visual and intuitive interface with graphic and cartographic facilities and products.

Sectoral workshops are held regularly where science-policy interfaces are created, and focus mostly on identifying knowledge needs and availability. The OECC and the national centre for environmental education (CENEAM) develop, in the framework of the PNACC, a programme of 'sectoral seminars', where researchers, policymakers from the central and the regional administrations and the civil society present and examine research results, the outcomes of sectoral vulnerability assessments, policy experiences, and discuss on their use and further priorities for informing policies. This initiative is known as "Answers to Climate Change from Communication and Education"[35]. The seminars have addressed the following topics: climate scenarios and projections, climate change and biodiversity conservation, forestry, agriculture and the marine environment.

[33] PECTI (2013). Plan Estatal de Investigación Científica, Técnica y de Innovación

[34] AdapteCCa. Scenarios.

[35] MAPAMA. Available at: http://www.mapama.gob.es/es/ceneam/recursos/documentos/s-cambio-climatico.aspx

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

The PNACC is presented in many capacity building and training initiatives, such as university courses, summer schools, masters, etc. For example, the OECC developed and taught a training course for civil servants in the central administration, entitled 'Integration of adaptation to climate change in the policies of the Ministry for Agriculture and Environment'. Officials from the fields of biodiversity, water management, coastal areas, forestry, desertification, agriculture and farming, were among the course participants.

The PNACC is producing educational and awareness-raising materials to disseminate knowledge about impacts, vulnerability and adaptation options, mostly targeting a technically-proficient audience: books and leaflets[36] about the PNACC and presenting the results of risk assessments, as well as other sectoral publications, have been produced. The OECC has also compiled and produced its own brochure on the latest findings from the IPCC AR5[37]. There are also specific web resources (e.g. a mapviewer for impacts in coastal areas), periodic brochures (e.g. on impacts in national parks), summaries of IPCC reports for non-specialists, etc.

The PNACC has evolved, since it was adopted, from an ad-hoc approach towards a more coordinated one. In WP2, a 'mobilisation of key actors' axis was included, and in WP3, a more systematic approach to sectoral capacity and awareness raising activities has been adopted.

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

The preliminary assessment of the impacts of climate change in Spain (report published in 2005 - see 3c.) identified adaptation options conceived by the sectoral specialists in charge of each of the sectoral chapters. The sectoral impacts and vulnerability assessments carried out since then (e.g. for coastal areas, biodiversity, water resources, forestry, health, tourism), also aim to identify adaptation options. Other reports and works carried out within the PNACC aimed at identifying existing planning and management practices and options that can be considered for adaptation (i.e. low-regret, good practice, etc.).

[36] MAPAMA. Available at: http://www.mapama.gob.es/es/cambio-climatico/publicaciones/publicaciones/folletos.aspx
[37] MAPAMA. Available at: http://www.mapama.gob.es/es/cambio-climatico/publicaciones/publicaciones/cuatriptico_ipcc-ar5_tcm7-311197.pdf

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**

A pilot project (called Iniciativa ADAPTA[38]) has been developed by the OECC in collaboration with five main national companies in key sectors of the Spanish economy: tourism, energy, transport, construction and food industry, pioneers in adaptation to climate change. Its main aim is to explore adaptation options and tools to incorporate risk and vulnerability considerations into different business strategies. A second phase of this pilot project (ADAPTA-2[39]) has recently concluded, with the application of several methods to assess economic costs and benefits of different adaptation measures in two main energy and infrastructure companies. Other than this, Spain has not reported significant progress from the evaluation of vulnerability and identification of adaptation options to a more advanced stage, where adaptation options are selected or analysed in specific contexts or projects, be they sectoral or spatially specific. Further developing frameworks to allow cost-benefit analyses of adaptation options are contained in the WPs of the PNACC. However, it is unclear whether the selection of priority adaptation options is based on robust methods and consistent with existing decision-making frameworks.

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

In Spain, there are institutional frameworks and procedures entailed for coordination of disaster risk management and climate change adaptation.

There is a National Committee on DRR that includes institutions with complementary competences related with disasters. The Spanish Climate Change Office is a member of this Committee. Further planned coordination activities include: mainstreaming of climate change risks into strategic infrastructures (nuclear, waste treatment, energy); assessment of the lessons learnt after extreme events; assessment of impacts of climate change on forest fires; and assessment of impacts of climate change on the Insurance Compensation Consortium's Extraordinary Risks Cover. Next to this, the Spanish Climate Change Office belongs and actively participates in the Spanish Committee of the International Strategy on Disaster Risk Reduction, coordinated by the Civil Protection Authority.

Disaster Risk Reduction (DRR) planning is, however, insufficiently taking into account climate change impacts and projections, as well as the PNACC's WPs insufficiently include DRR measures. DRR is a field recently considered in adaptation to climate change planning in Spain at the national level. The PNACC's WP3 considers this issue as a crosscutting matter to be included in all sectors and territories and recognises the

[38] IAGUA. Iniciativa ADAPTA.
[39] http://www.adaptaclima.eu/

importance of enhancing coordination with the Civil Protection Authorities (Ministry of Internal Affairs).

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

Since 2015, there is a dedicated financing line for adaptation projects in the framework of the PNACC. Indeed, the Plan to Support the Environment for Adapting to Climate Change in Spain (PIMA Adapta) includes an investment of 12.1 million euros for more than 46 actions in a few sectors, i.e. the coast, the public water domain and the National Parks.[40] In 2016-2017, PIMA-Adapta has also funded 68 small projects on adaptation (total amount: 2.490.000 €).

The OECC also mobilises funds from its partners (Fundación Biodiversidad, AEMET, CENEAM, regional authorities, etc.) to ensure the funding of crosscutting and coordinated actions such as the maintenance of the AdapteCCa website, the national programme for regionalisation of climate scenarios, the coordination of the PNACC, capacity building, science-policy forums and the involvement of stakeholders.

Therefore, adaptation is financed in a few sectors and there is some funding for cross-cutting adaptation action. However, the relevant priority sectors do not receive consistent funding for implementation. Sectoral ministries or departments have financed one-off impacts and adaptation evaluations and other activities on an ad hoc basis (e.g. health, tourism, water, coasts). Moreover, the current WP3 includes a statement conditioning the implementation of actions to the resources that can be channelled, from sources including public, private, national and EU funding. The WP3 contains extensive reference to EU funds as potential sources of funding, and its timing is aligned with the multiannual financial framework 2014-2020.

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

Spain, by the recent Act 21/2013[41], on environmental evaluation, has integrated the consideration of climate change (adaptation and mitigation) at all stages and in all plans, programmes (following the Strategic Environmental Assessment –SEA- Directive 2001/42/EC) and projects (following the Environmental Impact Assessment –EIA-

[40] MAPAMA. Available at: http://www.mapama.gob.es/es/red-parques-nacionales/red-seguimiento/pima-adapta/garciatejerinapresentaplanpimaadapta_tcm7-364855_noticia_tcm7-403615.pdf; MAPAMA. Available at: http://www.mapama.gob.es/es/agua/planes-y-estrategias/plan-pima-adapta-agua.aspx; MAPAMA. Available at: http://www.mapama.gob.es/es/red-parques-nacionales/red-seguimiento/pima-adapta/PIMA.aspx.

[41] Practical Law. Act 21/2013

Directive 2014/52/UE) with potential environmental effects, by using best available knowledge and techniques at any time.

The Ministry of Agriculture and Fisheries, Food and Environment has prepared a draft law[42] in order to modify Act 21/2013 including the provisions from the EIA Directive. The public consultation of the draft law finished in June 2017. In the draft law, the effects of projects on climate must be identified, Vulnerability of the project to climate change must be considered too.

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

Yes / **No**

The civil protection mechanism does not integrate climate projections in its plans. WP3, adopted in December 2013, calls for coordination with the department in charge of civil protection and emergencies (Ministry of Interior), but this has not been implemented yet. The OECC has, however, influenced some policies related to disaster risk reduction and management, by mainstreaming adaptation into some key policies and planning documents such as Regulation 903/2010, for the evaluation and management of flood risks, or the Plans for drought situations.

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

Yes / **No**

The national administration, and the OECC in particular, has undertaken significant effort in integrating adaptation in the land use and resource planning policies where it has competence to act or where it has a role for coordination. Proposals for the integration of adaptation have been included in the strategic planning documents that concern the full country, among which: the National Rural Development Programme for Spain[43] 2010-2014; the National Strategy for the Sustainable Modernization of irrigation; the Strategic Plan on Natural Heritage and Biodiversity; the National for Renewable energies Energy Action 2011-2020[44]; and, the Adaptation Strategy for Coastal Areas, for the protection and sustainable use of Coasts[45]. Additionally, climate change adaptation has been integrated into other plans/programmes of smaller geographic scope but also linked to land use or management: plans for airports, ports, forestry plans, management plans of protected areas, urban land use/management plans, hydrologic plans of Spanish river basins, drought plans, and the National Action Programme to fight Desertification (PAND).

However, there is no evidence that land use and spatial/urban policies explicitly addressing climate impacts are followed in practice across the majority of the Member

[42] http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/participacion-publica/2017-05-11aplmodificalea_tcm7-457294.pdf
[43] EC. Factsheet on 2014-2020 National Rural Development Programme for Spain
[44] MAPAMA (2012). Estrategia Nacional para la Modernización Sostenible de los Regadíos
[45] Law 2/2013 of 29th of May.

State (at regional or local levels). Most land use and resources management planning policies are responsibility of the regional administrations in Spain, and there is not a full overview of progress implementing the integration at this level, where most decision making is made. Reinforced coordination on this topic would improve the PNACC's capacity to influence and report on integration in planning policies.

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

National policy instruments promote adaptation at sectoral level and relevant sectors are considered. Under the PNACC, an evaluation of entry points for adaptation in key environmental regulation was carried out, and a similar exercise took place with the Health regulations and policies. Some significant progress has been made integrating adaptation into national sectoral policy instruments. Progress responds to an opportunistic rather than a programmatic approach, except in the environment-related policies, where a more systematic approach takes place. Significant cases where mainstreaming has taken place are Law 2/2013 of 29th of May for the protection and sustainable use of Coasts, Law 41/2010 for the protection of the marine environment, Royal Decree 903/2010 of 9 July on Assessment and Management of flood risks, or Law 33/2011 on Public Health.[46] For other sectoral policies see 8c. All these show growing awareness about the effects of climate change among sectoral policymakers in the country, but integration should be enhanced in the future.

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

Yes / **No**

Adaptation is currently not mainstreamed in insurance or alternative policy instruments, to provide incentives for investments in risk prevention, with the exception of some risk signalling capacity of insurance in the agricultural sector. A framework agreement exists with the agriculture authorities and universities, which comprehends the plan to work on the potential integration of climate change in the Spanish Agricultural Insurance System. Further action on the topic is planned in WP3. WP3 also includes the insurance sector as one of the targets for the period 2014-2020, with 5 activities planned that would provide the foundations for full integration of adaptation in the sector. In terms of private property, so far the only effective action in place is the close collaboration with Compensation Consortium's Extraordinary Risks Cover, in order to assess the impacts of climate change on the insurance of extreme events.

[46] MAPAMA. Integración en la normativa de la adaptación al cambio climático (last accessed on 6 July 2017).

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 adaptation activities in Spain until today were reports assessing impacts and vulnerability, capacity building actions and significant mainstreaming.

Implementation is currently supported by the European funding instrument LIFE, as part of the EU Strategy on adaptation to climate change (2013-2020) and through national funding as part of the PIMA-Adapta[47] initiative, which is financing adaptation projects in the sectors/field on water resources, coastal areas and biodiversity in National Parks since 2015. Other than that, there are no specific national projects or programmes to implement adaptation measures as such, at least with a deliberate attribution to the topic of adaptation, despite the fact that many activities being carried out to manage resources (water, biodiversity, etc.), could have an adaptive nature. However, implementation is not yet systematic. Adaptation options are usually listed but not evaluated versus economic assessments, different time frames or other criteria.

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

Yes / No

Spain has strong coordination and cooperation mechanisms for fostering and supporting adaptation, both with regions and local authorities, and with other stakeholders. A significant amount of the work carried out in the framework of the PNACC aims at developing these cooperation mechanisms with administrations, sectoral ministries, private entities and other stakeholders.[48]

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

The integration of climate change into EIA and SEA legislation has partially been supported, for the moment, by the elaboration and publications of procedures or guidelines to assess the effects of climate change on major projects or programmes and facilitate the choice of alternatives.

The Spanish Association of Environmental Impact Assessment has created a website on "Resources to integrate climate change in environmental assessments"[49].. This website

[47] MAPAMA. Plan PIMA Adapta en la Red de Parques Nacionales
[48] MAPAMA (2014). Plan Nacional de Adaptación al Cambio climático - Tercer Informe de Seguimiento
[49] http://cambioclimatico.eia.es

compiles 50 existing tools and conceptual frameworks from different countries, including Spain, and categorised by sectors. The project has been funded by the OECC and Fundación Biodiversidad.

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

Yes / **No**

The PNACC defines a strong collaborative framework for adaptation in the country, but the status of the adaptation cycle is not yet sufficiently advanced so as to provide evidence of actual cooperative implementation of adaptation policies and measures. There have been some collaborative efforts in projects carried out at local level (e.g. LIFE-Act project[50]) or by NGOs (e.g. WWF), which could be the seeds for enhanced cooperation and stakeholder involvement in the future.

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

A report on the assessment of the implementation of the PNACC is published by the OECC every three years, the latest being the third assessment report from January 2014[51] (previous reports were published in 2011 and 2008). These reports include progress on the actions to be carried out, results achieved, as well as an overall assessment of the work programme in question. Progress is presented per sector. They do not report on budget or expenditure.

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

Yes / No

Monitoring of adaptation across sectors is done through the PNACC progress reports mentioned in 10a. The progress reports provide a descriptive account of activities carried out implementing each of the priorities defined, and also a set of qualitative process indicators on the implementation of the planned measures.

[50] ACT. Available at: http://www.actlife.eu/EN/index.xhtml
[51] MAPAMA (2014). Plan Nacional de Adaptación al Cambio climático - Tercer Informe de Seguimiento

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

Yes / No

The PNACC progress reports contain information (compiled but not much elaborated) about the adaptation activities of the Spanish regions. Although the reports deal with progress of the PNACC overall, factsheets of the actions carried out at the regional level are included as Annex. The reports are elaborated by the OECC, coordinated with the GTIA, and adopted by the CCPCC and the CNC, and are publicly available in the OECC website. The regional administrations provide their reports on activities regularly and following a template, but there is not a real integration of the reports, or any processing (regions are responsible for most management competencies). The adaptation platform AdapteCCa also has a specific section for regional information[52].

11. Evaluation

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

Yes / No

PNACC progress reports are used as the evaluation tool which act as a review tool for the action plans. Successive work plans are adopted accordingly. These work plans update the objectives pursued, building on these reports, the experience gathered (learning by doing), or the growing engagement of specific stakeholders (e.g. the private sectors is involved when there is an option of getting them as partners of the PNACC). WP3 contains, for the first time, a specific schedule (2014-2020). The PNACC does not contain any plan for review; reviews take place at the WP level.

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

Yes / No

The review process involves the stakeholders at two stages: the progress reports, which are the basis for the review, and the draft reviewed WPs are both complemented with feedback from and agreed with the stakeholders represented in the PNACC coordination bodies. The reviewed WPs also seek for convergence and alignment with the EU's adaptation initiatives.

[52] AdapteCCa. Scenarios

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***	
5a	Adaptation relevant data and information is available to all stakeholders, including policy makers (e.g. through a	**Yes** / In progress / No

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
	dedicated website or other comparable means).	
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. as defined in action plans or sectoral policy documents	Yes / **In progress** / No
9b	Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)	**Yes** / No

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
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