EUROPEAN
COMMISSION

Adaptation preparedness scoreboard:

Country fiche for Portugal

NOTE TO THE READER

Under Action 1 of the EU's Strategy on adaptation to climate change (COM(2013)216), in collaboration with the Member States, the Commission developed an 'adaptation preparedness scoreboard'. Using the scoreboard, the Commission prepared country fiches on each Member State in an iterative consultation process.[1] The country fiches assess the Member States' adaptation policy as of June 2018, including the content of NASs and plans, for the following aspects:

- Institutional structure
- Quality of national vulnerability assessments
- Knowledge creation (national observation systems in relevant sectors[2] and climate modelling), transfer and use
- Action plans:
  - Quality (incl. the basis used for assessment of adaptation options)
  - Actual implementation mechanisms
- Funding mechanisms
- Mainstreaming into sectoral policies, in particular:
  - Disaster risk reduction
  - Spatial planning
  - Environmental impact assessment (EIA) (how the Directive is transposed)
  - Insurance policy
- Transboundary cooperation
- Monitoring mechanisms in different sectors and governance levels

[1] The first versions of the fiches, prepared in consultation with the Member States in 2014-15, were unpublished and used to fine-tune the scoreboard. The second drafts were published, after consulting the Member States, as background documents to the public consultation on this evaluation in December 2017. https://ec.europa.eu/clima/consultations/evaluation-eus-strategy-adaptation-climate-change_en The final Member State consultation on the draft fiches took place in June 2018.

[2] These relate for example to meteorology, floods, drought, sea level, coastal erosion, biodiversity, human/animal/plant health etc.

The fiches are based on internal work by the Commission and on targeted assistance from an external contractor. They also served as input to the assessment of Action 1 of the Strategy during its evaluation. Annex IX of the Commission's SWD(2018)461 on the evaluation of the Strategy presents a horizontal assessment of the 28 country fiches, while Annex X presents the list of scoreboard indicators and the methodology used in applying them.

The assessments in the country fiches (yes/no/in progress) need to be read in conjunction with the narrative that accompanies them. They assess the state of play within each EU Member State. 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 Member States. 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".

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List of abbreviations

ANACOM	Autoridade Nacional de Comunicações (National Authority for Communications)
ANMP	Associação Nacional De Municípios Portugueses (National Association of Portuguese Municipalities)
ANPC	Autoridade Nacional de Proteção Civil (National Authority for Civil Protection)
ANQIP	Associação Nacional para a Qualidade nas Instalações Prediais (National Association for Quality in Building Services)
APA	Agência Portuguesa do Ambiente (Portuguese Environment Agency)
APS	Associação Portuguesa de Seguradores (Portuguese Association of Insurers)
CFD	Critical factor for decision-making
CIAAC	Comissão Interministerial do Ar e das Alterações Climáticas (Inter-Ministerial Commission on Air and Climate Change)
CIRAC	Risco de Inundações em Cenários de Alterações Climáticas (Flood Maps and Risk in Climate Change Scenarios)
CLIMAAT	Clima e Meteorología dos Arquipélagos Atlânticos (Climate and Meteorology of the Atlantic Archipelagos)
DGADR	Direção-Geral de Agricultura e Desenvolvimento Rural (Directorate General for Agriculture and Rural Development)
DGAE	Direção-Geral das Atividades Económicas (General Directorate of Economic Activities)
DGEG	Direção-Geral da Energia e Geologia (Directorate General for Energy and Geology)
DGPM	Direção-Geral de Política do Mar (Directorate General for Maritime Policy)
DGS	Direção-Geral da Saúde (General Directorate of Health)
DGT	Direção-Geral do Território (Directorate General for Spatial Planning)
EEA	European Economic Area
EIA	Environmental Impact Assessment

ENAAC	Estratégia Nacional de Adaptação à Alterações Climáticas (National Adaptation Strategy)
ERAAC	Estratégia Regional de Adaptação às Alterações Climáticas (Regional Strategy for Climate Change)
EUAS	EU's Strategy for Adaptation to Climate Change
FCT	Foundation for Science and Technology
FFCUL	Fundação da Faculdade de Ciências da Universidade de Lisboa (Foundation of the Faculty of Science, University of Lisbon
GPP	Gabinete de Planeamento, Políticas e Administração Geral (Directorate of Planning and Policies)
HadCM3	Hadley Centre Coupled Model, version 3
HFA	Hyogo Framework for Action
ICNF	Instituto da Conservação da Natureza e das Florestas (Institute for Nature Conservation and Forests)
IMTT	Instituto da Mobilidade e dos Transportes (Institute of Mobility and Transports)
IPCC	Intergovernmental Panel on Climate Change
IPMA	Instituto Português do Mar e da Atmosfera (Portuguese Institute of Sea and Atmosphere)
MS	Member State
NAP	National Adaptation Plan
NAS	National Adaptation Strategy
PALOP	Portuguese Speaking African Countries (Países Africanos de Língua Oficial Portuguesa)
PAPVL	Plano de Ação de Proteção e Valorização do Litoral (Action Plan for the Protection and Enhancement of the Shore)
PNAC	Programa Nacional para as Alterações Climáticas (National Programme for Climate Change)
PNPOT	Programa Nacional da Politica de Ordenamento do Território (National Spatial Planning Policy)
PO SEUR	Programa Operacional Sustentabilidade e Eficiência no Uso de Recursos (Operational Programme for Sustainability and Efficient Use of Resources)

QEPiC	Quadro Estratégico para a Política Climática (Strategic Framework for Climate Policy)
RCM	Resolution of the Council of Ministers
SEA	Strategic Environmental Assessment
SIAM	Climate Change in Portugal: Scenarios, Impacts, and Adaptation Measures
SNIAmb	Sistema Nacional de Informação de Ambiente (National System of Environmental Information)
UNCCD	UN Convention to Combat Desertification

POLICY FRAMEWORK

Adaptation strategies

A1. National adaptation strategy

A Strategic Framework for Climate Policy (Quadro Estratégico para a Política Climática - QEPiC) was adopted by the Portuguese Government on 30th July 2015[3]. The QEPiC includes the National Programme for Climate Change 2020/2030 (Programa Nacional para as Alterações Climáticas 2020/2030 - PNAC)[4], addressing mitigation goals and action, and the follow-up of the National Adaptation Strategy (Estratégia Nacional de Adaptação às Alterações Climáticas 2020 - ENAAC 2020, which revises the earlier ENAAC 2010). It sets out the vision and objectives of national climate policy, reinforcing the commitment to develop a competitive, resilient and low-carbon economy, contributing to a new development paradigm for Portugal.

The ENAAC 2020 has as its vision for 2020: "A country adapted to the effects of climate change, through the continuous implementation of solutions based on technical-scientific knowledge and good practice." The three main goals that guide ENAAC 2020 are to:

1. Improve the level of knowledge about climate change. Update, develop and promote knowledge on climate change and potential impacts, risks and consequences, including those related to extreme weather events
2. Implement adaptation measures. Evaluate the current capacity to adapt and prioritize the implementation of options and adaptation measures that moderate future negative impacts and/or help to take advantage of opportunities arising from climate change
3. Promote mainstreaming of adaptation into sectoral policies. Promote integration and monitoring of adaptation to climate change in priority public and sectoral policies and in the main instruments of spatial planning at national, regional and local level.

A2. Adaptation strategies adopted at subnational levels

The National Adaptation Strategy (NAS - ENAAC 2020) is the main instrument of adaptation policy at a national scale, and sets out the guidelines for the development of subnational (municipal and inter-municipal) strategies and plans.[5] In addition, as Autonomous Regions have autonomy to define their own adaptation policy[6], Madeira[7] and Azores[8] have developed Regional Adaptation Strategies.

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[3] Conselho de Ministros, (2015). *Resolução do Conselho de Ministros n.º 56/2015.* URL: https://dre.pt/web/guest/pesquisa/-/search/69905665/details/normal?l=1, Date accessed 18/04/18

[4] Agência Portuguesa do Ambiente. (2018). *Programa Nacional para as Alterações Climáticas 2020/2030 (PNAC 2020/2030).* URL: https://www.apambiente.pt/index.php?ref=16&subref=81&sub2ref=117&sub3ref=1376, Date accessed 18/04/18

[5] Personal communication with MS contact

[6] Personal communication with MS contact

[7] Observatorio do Clima Madeira, (2018). *Adaptação*, URL: http://clima-madeira.pt/pt/sectores/adaptacao, Date accessed 18/04/18

[8] Conselho do Governo dos Açores, (2011). *Resolução do Conselho do Governo n.º 123/2011, de 19 de Outubro*, URL: http://servicos-sraa.azores.gov.pt/grastore/SRAM/Resolu%C3%A7ao%20-

Three municipalities stand out with their early adoption of local climate adaptation strategic plans: Almada, Cascais and Sintra.

Two programmes, in particular, have supported the development of adaptation strategies. First, the project ClimAdaPT.Local[9], under the European Economic Area (EEA) Grants Programme AdaPT[10], where local officers were trained on vulnerability assessment, and development of adaptation options. The project led to the development of 27 local adaptation strategies[11] and to mainstreaming adaptation into local planning. The second is the Operational Programme for Sustainability and Efficient Use of Resources (Programa Operacional Sustentabilidade e Eficiência no Uso de Recursos - PO SEUR), using EU Cohesion Fund funding. This drew on the capacity built by the ClimAdaPT.Local project which produced guiding manuals to standardise the further development of strategies at the subnational level.

Other municipalities are developing their adaptation plans within the scope of international networks, such as the UN campaign: 'Making Cities Resilient: My City is getting ready'[12] and the 'Covenant of Mayors for Energy and Climate'[13]. More than 126 Portuguese cities have signed up to the Covenant of Mayors on Energy and Climate so far (although only 22 with adaptation commitments).

The Autonomous Region of the Azores has developed a targeted approach to their particular vulnerabilities through their Regional Strategy for Climate Change (Estratégia Regional de Adaptação às Alterações Climáticas - ERAAC), which was approved by the Government of Azores in October 2011.[14] The Strategy of Adaptation to Climate Change of the Autonomous Region of Madeira was adopted through a Resolution of the Regional Government of Madeira[15], after being published in September 2015[16].

%20estrat%C=3%A9gia%20para%20as%20altera%C3%A7%C3%B5es%20clim%C3%A1ticas.pdf, Date accessed on 18/04/18

[11] http://climadapt-local.pt/en/municipal-strategies/

[12] Throughout 2010-2020 and beyond, the United Nations Office for Disaster Risk Reduction (UNISDR) Making Cities Resilient Campaign (MCRC), together with partners, aim to support sustainable urban development by promoting resilience activities and increasing local level understanding of disaster risk.
See more on the campaign here: UNISDR, (2018). *Making Cities Resilient: My City is Getting Ready*. URL: http://www.unisdr.org/campaign/resilientcities/home, Date accessed on 18/04/18 and details on Portugal's participation here: Autoridade Nacional de Proteção Civil, *Cidades Resilientes em Portugal Resilient Cities In Portugal 2016.* URL: http://www.prociv.pt/bk/RISCOSPREV/REDRISCOCATASTROFE/Documents/Cidades_Resilientes_em_Portugal_2016_PNRRC.pdf, Date accessed on 18/04/18

[13] *Global Covenant of Mayors for Climate and Energy* URL: https://www.globalcovenantofmayors.org/, Date accessed on 19/04/2018.

[14] Conselho do Governo dos Açores, (2011). *Resolução do Conselho do Governo n.º 123/2011, de 19 de Outubro*, URL: http://servicos-sraa.azores.gov.pt/grastore/SRAM/Resolu%C3%A7ao%20-%20estrat%C=3%A9gia%20para%20as%20altera%C3%A7%C3%B5es%20clim%C3%A1ticas.pdf, Date accessed on 18/04/18

[15] Governo Região Autonoma da Madeira, (2015). *Resolução n.º 1062/2015*. URL: http://joram.madeira.gov.pt/joram/1serie/Ano%20de%202015/ISerie-188-2015-12-02.pdf [Date accessed 18/04/18

Adaptation action plans

B1. National adaptation plan

The National Programme for Action on Adaptation to Climate Change (P-3AC), which corresponds to the National Adaptation Plan (NAP), is under development. It is currently undergoing internal consultation, and is expected to be submitted shortly for policy validation and public consultation.[17]

The priority measures identified in subnational adaptation plans as well as the work at sectoral level are being taken into account in the development of the NAP. In addition, they informed the preparation of a EUR 1,000,000 funding programme under the national Environmental Fund launched in February 2018 and dedicated to the implementation of these measures. [18]

B2. Adaptation plans adopted at subnational level

As mentioned above, the adaptation plans at municipal and inter-municipal levels have been developed using NAS (ENAAC 2020) guidance, which defined the work developed under the ClimAdaPT.Local and PO SEUR programmes. At the regional level, plans have been developed with greater autonomy. At present, plans at the subnational level, covering around 80% of the national territory, are under development using PO SEUR funding.[19]

Most municipalities with adaptation policy instruments have either an adaptation strategy or a plan, and the majority of plans are still under development, principally using PO SEUR funding. Almost all of the inter-municipal regions in Portugal received PO SEUR financing for designing adaptation plans, these were: Alto Minho, Cávado, Ave, Alto Tâmega, Área Metropolitana do Porto, Tâmega e Sousa, Douro, Viseu Dão Lafões, Beiras e Serra da Estrela, Região de Coimbra, Médio Tejo, Oeste, Lezíria do Tejo, Área Metropolitana de Lisboa, Alentejo Central, Baixo Alentejo, Algarve. Furthermore, two of the six regions of the inter-municipal communities not included on this list are also developing adaptation policy instruments under PO SEUR financing but with a different geographical scope. These are: the two municipalities associations Terra Quente Transmontana and Terra Fria do Nordeste Transmontano (which together cover the inter-municipal region of Terras de Trás-os-Montes), and the Regional Coordination and Development Commission of Alentejo (which covers the inter-municipal regions of Alto Alentejo, Alentejo Central, Alentejo Litoral and Baixo Alentejo)[20].

In addition, the ClimAdaPT.Local project has created a network of municipalities working on adaptation planning (Rede de Municípios para a Adaptação Local às Alterações Climáticas).

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[16] Governo Região Autonoma da Madeira, (2015). *Estratégia Clima- Madeira – Estrategia de Adaptação às Alterações Climáticas da Região Autonomoma da Madeira.* URL: http://clima-madeira.pt/uploads/public/estr_clima_web.pdf, Date accessed 18/04/18

[17] Personal communication with MS contact

[18] Personal communication with MS contact

[19] Personal communication with MS contact

[20] Calls: POSEUR-08-2016-46; POSEUR-08-2016-57; POSEUR-08-2016-74; https://poseur.portugal2020.pt/pt/candidaturas/avisos/?v=all&s=Expired&ai=84&an=AxisII)

Some municipalities are ahead and have already finalised their plans (e.g. Cascais, Leiria, Ílhavo). [21]

The Azores strategy will be operationalized through a Regional Plan for Climate Change, which will integrate the measures and actions considered relevant to each sector, particularly those that are already underway. The plan was finalised in November 2017[22]. It has been subject to public consultation and is awaiting approval and publication at this time[23].

No regional action plan is currently being prepared for Madeira.

B3. Sectoral adaptation plans

The ENAAC 2020 governance is structured in nine sectoral working groups and six cross-cutting "thematic area" working groups. [24] Regarding the sectoral work, by 2013 initial plans had been developed for the agriculture and forestry; biodiversity; energy and industry; city and territory management; health; insurance of people and goods; water resources and coastal zones.[25]

Since then, as the interim update report on the implementation of the ENAAC 2020 explains, the working groups have been undertaking a number of actions to meet the specified objectives of the NAS. Among these is the objective of implementing adaptation measures, which entails identifying and implementing adaptation actions within the working group's remit.[26] These measures are being taken into consideration in the development of the NAP.

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 Portugal, the Environment Agency (Agência Portuguesa do Ambiente - APA) is in charge of national adaptation policy coordination, under the political approval of the Ministry of

[21] Personal communication with MS contact

[22] Governo dos Açores, (2017). *Plano Regional para as Alterações Climáticas em conferência final a 16 de novembro,* URL: http://www.azores.gov.pt/Portal/pt/novidades/Plano+Regional+para+as+Altera%C3%A7%C3%B5es+Clim%C3%A1ticas+em+confer%C3%AAncia+final+a+16+de+novembro.htm?lang=pt&area=ct , Date accessed on 23/04/18

[23] Personal communication with MS contact

[24] Agência Portuguesa do Ambiente, (2013). Relatório de Progresso Estratégia Nacional de Adaptação às Alterações Climáticas

[25] Agência Portuguesa do Ambiente, (2013). Relatório de Progresso Estratégia Nacional de Adaptação às Alterações Climáticas

[26] Agência Portuguesa do Ambiente, (2016). Estratégia Nacional de Adaptação às Alterações Climáticas - *RELATÓRIO INTERCALAR #1 - 2015-2016*

Environment and with the decision-making process submitted to the Inter-ministerial Commission for Air and Climate Change[27] , created under QEPiC.[28].

The implementation of the ENAAC 2020 is supported by a coordination group chaired by the APA and composed of the coordinators of the thematic areas and of the sectoral working groups, as well as the representatives of the Autonomous Regions of Azores and Madeira and of the National Association of Portuguese Municipalities. In this way, the coordination group brings together the central administration bodies, which in turn engage their specific stakeholders.

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

Yes / In progress / No

The development of the first NAS (ENAAC) between 2007 and 2010 was coordinated by the Climate Change Commission and was the result of a process of inter-ministerial consultation and analysis, including preliminary studies by the former Environment Institute. In 2009, an inter-ministerial working group was formed, composed of representatives of about 30 public bodies. Bases for the ENAAC proposal were presented to the Forum on Climate Change in 2009 and a Strategy proposal, approved by the Commission, was the subject of a Public Consultation. The ENAAC was adopted as Resolution of the Council of Ministers no. 24/2010 on 1 April 2010.[29]

Since the first ENAAC, sectoral working groups have been defined. Presently, each working group is coordinated or chaired by the relevant central body (or bodies) of the central administration, which ensures the involvement of the various sectoral agents:

- Agriculture - Directorate of Planning and Policies (Gabinete de Planeamento, Políticas e Administração Geral- GPP); Directorate General for Agriculture and Rural Development (Direção-Geral de Agricultura e Desenvolvimento Rural - DGADR)
- Biodiversity - Institute for Nature Conservation and Forests (Instituto da Conservação da Natureza e das Florestas - ICNF)
- Economy - General Directorate of Economic Activities (Direção-Geral das Atividades Económicas - DGAE)
- Energy - Directorate General for Energy and Geology (Direção-Geral da Energia e Geologia - DGEG)
- Forests - ICNF
- Health - General Directorate of Health (Direção-Geral da Saúde - DGS)
- Safety of people and assets – National Authority for Civil Protection (Autoridade Nacional de Proteção Civil - ANPC)

[27] Presently also including Circular Economy.
[28] See http://www.apambiente.pt/index.php?ref=16&subref=81&sub2ref=118&sub3ref=955
[29] Agência Portuguesa do Ambiente, Estratégia Nacional de Adaptação às Alterações Climáticas - Fase 1, URL: https://www.apambiente.pt/index.php?ref=16&subref=81&sub2ref=118&sub3ref=391, Date accessed on 15/05/18

- Transports and communications – Institute of Mobility and Transports (Instituto da Mobilidade e dos Transportes - IMTT); National Authority for Communications (Autoridade Nacional de Comunicações - ANACOM)
- Coastal areas and sea - APA; Directorate General for Maritime Policy (Direção-Geral de Política do Mar -DGPM)

Lessons from the implementation of the first NAS were taken into consideration in developing the second NAS, the ENAAC 2020. The ENAAC 2020 was adopted as Resolution of the Council of Ministers no. 56/2015 on 30 July.[30] In addition to the sectoral working groups defined above, six cross-cutting "thematic area" working groups were created (all coordinated by the APA and the competent authority in the area, where applicable):

1. Research and innovation (co-coordination by Foundation for Science and Technology - FCT)
2. Financing adaptation
3. International cooperation (co-coordination by Camões – Institute for Cooperation and Portuguese Language)
4. Communication and promotion (co-coordination by Portuguese Met Office – IPMA)
5. Integrating adaptation into spatial planning policy (co-coordination by Directorate General for Spatial Planning and Portuguese Municipalities Association)
6. Integrating adaptation in water management

Taking into account the ENAAC 2020's vision, objectives and thematic areas, each working group has the following competencies:

a. Identify impacts, vulnerabilities and adaptation measures
b. Integrate adaptation into sectoral policies
c. Identify knowledge needs and failures
d. Promote sectoral studies, identify funding sources and monitoring mechanisms
e. Prepare plan and activity report
f. Contribute to the work of the thematic areas
g. Articulate, when necessary, with other working groups.

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

Vertical coordination mechanisms were/are present within the governance systems for the drafting and implementation of the first and second NAS.

[30] Agência Portuguesa do Ambiente, A Estratégia Nacional de Adaptação às Alterações Climáticas 2020, URL: https://www.apambiente.pt/index.php?ref=16&subref=81&sub2ref=118&sub3ref=955, Date accessed on 15/05/18

The governance structures include the Autonomous Regions of Azores and Madeira, and the National Association of Portuguese Municipalities (Associação Nacional De Municípios Portugueses - ANMP) under the Coordination Group. During the drafting of the first NAS, vertical coordination was assured through the Climate Change Commission, which included representatives of the Autonomous Regions of Azores and Madeira[31].The Coordination Group of the first NAS (ENAAC) supported the revision of the Strategy that led to the second NAS (ENAAC 2020).

Vertical coordination is currently also assured in NAS implementation focused on the work programme of Thematic Area 5 ("Integrating adaptation into spatial planning policy), which identifies relevant work for mainstreaming adaptation into all territorial scales and instruments (see more information in Indicator 8c.).

Under the Regional Strategy for Climate Change, the Autonomous region of Azores has created a specific governance structure related to climate change, the Climate Change Commission for the Autonomous Region of the Azores[32], gathering entities responsible for health, agriculture, forestry, civil protection, transport, spatial planning, coastal protection, and climate experts.

For the purposes of implementing the regional strategy, Madeira has established an adaptation community, which includes a coordination structure and a stakeholders panel; the latter includes private as well as public entities.

The ANMP promotes Covenant of Mayors for Energy and Climate initiatives at national level and also articulation between municipalities, enhancing their participation in this framework, as established in a partnership agreement between ANMP and the Commission.[33] As of May 2018, over 126 Portuguese cities are signatories, the largest of which are: Almada, Barcelos, Braga, Cascais, Funchal, Guimarães, Leiria, Lisboa, Loures, Matosinhos, Oeiras, Porto, Setúbal, Sintra, Vila Nova de Famalicão, Vila Nova de Gaia, Viseu.[34] The ENAAC 2020 also promoted the ClimAdaPT.Local project, which led to the development of 27 municipal adaptation strategies and to mainstreaming adaptation into local planning.

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

[31] As stated in the Council of Ministers resolution no. 72/1998, of 29th June

[32] Governo dos Açores, Azores will have commission for climate change http://www.azores.gov.pt/Portal/en/entidades/sraf/noticias/Azores+will+have+commission+for+climate+change.htm?WBCMODE=ybtaemgtvxscpta Date accessed: 05/06/2018

[33] Associação Nacional Municipios Portuguese, URL: http://www.anmp.pt/index.php/a-anmp/117 Date accessed: 05/06/2018

[34] See: *Global Covenant of Mayors for Climate and Energy* URL: https://www.globalcovenantofmayors.org/, Date accessed on 19/04/2018.

The consultative process during the first stage of the ENAAC (2010-2013) involved stakeholders and experts in defining and working on research priorities for each of the sectors. This often resulted in an exhaustive collection of key action areas and adaptation measures published in sectoral reports.

The revision of the strategy (ENAAC 2020) was submitted to public consultation during 2015. The process for revising the Strategy followed the principle of stakeholder involvement in policy development and was widely discussed within its coordination group, and by the respective coordinators and chairs of the sectoral working groups.

The ENAAC 2020 reiterates the importance of engaging a large number of stakeholders in the definition of adaptation policies and planning. The organisational structure consists of nine sectoral working groups and six cross-cutting "thematic area" working groups, as shown in Table 1. [35]

Table 1 – Working groups in the ENAAC 2020

Thematic areas (cross-cutting) working groups	**Sectoral working groups**
1. Research and innovation 2. Financing adaptation 3. International cooperation 4. Communication and promotion 5. Integrating adaptation into spatial planning policy 6. Integrating adaptation in water management	1. Agriculture 2. Biodiversity 3. Economy 4. Energy 5. Forest 6. Health 7. Safety of people and assets 8. Transport and Communications 9. Coastal zones

Each of these groups has responsibility for involving and consulting with stakeholders, who provided important contributions for the sectoral strategies and reports. Universities, academics, NGOs, relevant associations, the private sector and social partners were actively involved in the review and planning process at the sector level.

Stakeholder consultation is supported by two other structures: a scientific panel and the Inter-Ministerial Commission on Air and Climate Change (Comissão Interministerial do Ar e das Alterações Climáticas - CIAAC). The scientific panel guarantees the engagement of the scientific community and can provide knowledge-based support to the ENAAC's coordination group. The CIAAC[36] guarantees political support.

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

Yes / No

[35] Agência Portuguesa do Ambiente, (2013). Relatório de Progresso Estratégia Nacional de Adaptação às Alterações Climáticas

[36] CIAAC was created for the monitoring of climate policy and sectoral policies impacting on national air quality and climate goals and presently includes also Circular Economy.

One of the cross-cutting thematic areas of the ENAAC 2020 is 'International Cooperation'. The objectives of the thematic area are to enable collaboration with other countries, where necessary, to implement the ENAAC 2020[37]. The main responsibilities include to:

- Identify priority areas for international collaboration, and ensuring coherence with Portugal's wider foreign affair priorities
- Establish an Iberian cooperation system for adaptation to support implementation of strategies, an integrated intervention in border regions, and to streamline the current mechanisms for water resources management of river basins shared by both countries
- Participate in international networks with a focus on climate adaptation, promoting knowledge exchange and the establishment of project development partnerships.

According to the 2015-2016 interim progress report on the implementation of the ENAAC 2020[38], particular progress has been made with the establishment of an Iberian cooperation system. This was due to the launch of the LIFE SHARA project (Sharing Awareness and Governance of Adaptation to Climate Change in Spain), which is co-financed by the EU and aims to strengthen climate adaptation governance in Spain and Portugal, and thereby increase resilience to climate impacts. It includes an action dedicated to establishing a framework for Iberian cooperation to identify common risks, vulnerabilities, priorities and actions. Other specific objectives include holding an Iberian conference on adaptation. The LIFE SHARA project began in September 2016 and will last until February 2021. A number of information-exchange workshops are being organised on a routine basis.

Historically, Spain has been Portugal's key partner for transboundary cooperation. Spain and Portugal share five important river basins, with two-thirds of their borders delineated by these rivers or their tributaries, the Miño/Minho, Lima/Lima, Duero/Douro, Tajo/Tejo, and Guadiana. Cooperation with Spain is longstanding, including an agreement on water management. In 1998, the Albufeira Convention on Cooperation for the Protection and Sustainable Use of the Waters of the Portuguese-Spanish River Basins was signed.

Moreover, the interim progress report also states the intention of the International Cooperation Thematic Area to continue supporting traditional partners of Portuguese cooperation (Portuguese-speaking African countries) on matters of climate adaptation in the period 2017-2020.

Further global transboundary cooperation takes place under the UN Convention to Combat Desertification (UNCCD). Portugal participates in joint actions with several countries of the Mediterranean basin (including non-European ones), contributing to knowledge sharing and knowledge transfer on climate adaptation. Finally, under the UNFCCC commitments, Portugal has also supported several adaptation projects meeting priority targets of the Portuguese Cooperation Policy, i.e. Portuguese Speaking African Countries (Países Africanos de Língua Oficial Portuguesa - PALOP) and East Timor. Annual reporting of these actions take place under Article 16 of the EU's Mechanism for Monitoring and Reporting (MMR).

[37] Agência Portuguesa do Ambiente, (2015). Estratégia Nacional de Adaptação às Alterações Climáticas (ENAAC 2020)

[38] Agência Portuguesa do Ambiente, (2016). Estratégia Nacional de Adaptação às Alterações Climáticas - *RELATÓRIO INTERCALAR #1 - 2015-2016*

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

There are observation systems in place to monitor climate change, extreme climate events and their impacts in Portugal. The Portuguese Institute of Sea and Atmosphere (Instituto Português do Mar e da Atmosfera - IPMA[39]) is the body responsible for carrying out observations for meteorological and climatological purposes. These activities mainly concern availability and quality of long-term climate data series. These data are essential for studies of climate change, particularly in terms of trends and extreme temperatures. Furthermore, IPMA is managing the project "MeteoGlobal"[40] that allows any citizen to report, in almost real-time, the occurrence of severe weather events.

IPMA is also responsible for monitoring extreme events, such as droughts, heatwaves, heavy rainfall and strong winds. It has established several indicators for climate modelling, which are available at Portugal's Climate Portal[41], including aridity, drought, fire risk, evapotranspiration and heatwave duration.

Apart from the Climate Portal, there are two other related national databases focusing on extreme weather-related events:

- Since 2006, the National Authority of Civil Protection (ANPC)[42] has maintained a national database on disaster response and losses and publishes this information in the yearbooks of civil protection events
- The APA keeps the records of the historical marks of floods and of its network of meteorological and hydrological monitoring stations. These data are available on the National System of Environmental Information (*Sistema Nacional de Informação de Ambiente* - SNIAmb)[43].

Finally, Portugal participates in several European and international weather monitoring projects.

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

[39] Instituto Português do Mar e da Atmosfera, URL: http://www.ipma.pt/pt/index.html Date accessed: 05/06/2018
[40] MetoGlobal, URL: http://meteoglobal.ipma.pt/ Date accessed: 05/06/2018
[41] Portal do Clima, URL: http://portaldoclima.pt/en/ Date accessed: 05/06/2018
[42] Autoridade Nacional de Proteção Civil, http://www.prociv.pt/en-us/Pages/default.aspx Date accessed: 05/06/2018
[43] Sistema Nacional de Informação de Ambiente, URL: http://sniamb.apambiente.pt Date accessed: 05/06/2018

The "Climate Change in Portugal: Scenarios, Impacts, and Adaptation Measures" (SIAM)[44] projects are the most comprehensive and integrated assessments on the impacts and vulnerabilities associated with climate on mainland Portugal, Azores and Madeira. The first report was published in 2001 (SIAM I) for mainland Portugal, and was updated with information on Azores and Madeira in 2006 (SIAM II). The studies were based on future climate scenarios and associated effects on a number of socio-economic sectors and biophysical systems, including hydrological resources, coastal areas, energy, forests and biodiversity, fishing, agriculture and health. A sociological analysis of climate change in Portugal was also performed. Although there is no overall assessment of climate impacts on the economy, annual costs associated with forest fires (not counting the recent huge fires of 2017) are estimated at EUR 60-140 million. The estimated costs of droughts are around EUR 290 million for 2005, more than EUR 200 million for 2012, mainly due impacts on agricultural production, and a similar figure for the most recent drought in 2017-18.

The 'Strategic Plans in the face of Climate Change' of Sintra[45] and Cascais[46] drew upon two multi-sectoral studies aimed at characterizing impacts and opportunities at the municipal level in an integrated way. Socio-economic and climate scenarios were published for those municipalities in 2009 and 2010 using the Temez climate model and Hadley Centre Coupled Model – Version 3 (HadCM3) respectively. Despite these projects not being very recent, they remain as reference points for climate scenarios and impacts in Portugal and are still consistently used to support adaptation projects. In order to improve the quality and access to this kind of information, the Climate Portal was developed by IPMA under the Programme AdaPT. It has become an easy access platform[47] with data from the historical time series, climate projections and sectoral climatic indicators for mainland Portugal.

Furthermore, within ClimAdaPT.Local, 27 local adaptation strategies were developed and published in 2016, with the involvement of municipalities. These strategies used scenarios and climate projections to identify current and future geographical vulnerabilities as well as adaptation options, including their evaluation and integration in territorial management instruments.

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

Yes / In progress / No

The main impacts and risks identified in the SIAM projects (see Indicator 3b above) include:

- Changes in flood and drought regimes, as well as changes in the quality and availability of water
- Loss of land in coastal areas
- A significant increase in the risk of fire hazards

[44] In the SIAM project, phase 1 (2003) and phase 2 (2006), a series of scenarios and models were considered, including the IPCC 2002 SRES Scenarios, Global Climate Models and Hadley Centre regional climate models.

[45] Camara Municipal Sintra, Planos Municipais Adaptação Climatica, URL http://www.cm-sintra.pt/index.php?option=com_phocadownload&view=category&download=500:plano-estrategico-do-csnt-face-as-alteracoes-climaticas&id=74:planos-municipais, Date accessed: 05/06/2018

[46] Plano Estrategico de Cascaise Face às Alterações Climaticas, URL: http://cciam.fc.ul.pt/prj/pecac/, Date accessed: 05/06/2018

[47] Portal do Clima, URL: http://portaldoclima.pt/en/ Date accessed: 05/06/2018

- A considerable increase in air pollution levels and ecological disturbances, which may lead to significant changes in the dynamics of infectious disease transmission, as well as regional variations in agricultural productivity
- An increase in erosion processes and consequently of flooded areas
- An increase in irrigation water requirements and in water stress in dryland crops.

The SIAM and Climate and Meteorology of the Atlantic Archipelagos (Clima e Meteorología dos Arquipélagos Atlânticos – CLIMAAT, see Indicator 3d below) projects constitute an initial light pre-screening that identified priority sectors and some potential adaptation measures.

Sound climate risk and vulnerability assessments for priority vulnerable sectors have been produced as part of the Sectoral Strategies under Phase 1 of the ENAAC[48], covering the sectors under all of the ENAAC's sectoral working groups, except economy and transport. These activities were coordinated under the ENAAC coordination group led by the executive committee for climate change. There was also a progress report produced by the Environment Agency in September 2013[49], which included key outcomes of each of the studies below. Furthermore, it included an Annex, prepared by the Directorate General of Territories and Urban Areas, with a number of international case studies covering climate change risks, governance of adaptation, financing and adaptation measures identified.[50]

Table 2 - Details of risks/vulnerability assessments studies produced by each working group

Sectoral working groups	Details of risk and vulnerability assessments
Agriculture	A study on adaptation in agriculture and forests was produced by the Ministry of Agriculture. Another report was published in April 2013,[51] which covers evolution in climate, sectoral characterisation, potential impacts and adaptive capacity, and proposed adaptive measures.
Forestry	In January 2013, a study was produced by the ICNF on adaptation in forests,[52] which covers characterisation of the forestry sector, future scenarios, impacts and potential response capacity, forest

[48] Agência Portuguesa do Ambiente, Estratégia Nacional de Adaptação às Alterações Climáticas - Fase 1, URL: https://www.apambiente.pt/index.php?ref=16&subref=81&sub2ref=118&sub3ref=391, Date accessed on 15/05/18

[49] Agência Portuguesa do Ambiente, (2013). Relatório de Progresso Estratégia Nacional de Adaptação às Alterações Climáticas

[50] Direcção Geral do Ordenamento do Território e Desenvolvimento Urbano, (2013). Análise de Estratégias Internacionais no âmbito das Alterações Climáticas, URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relat_Setor_ENAAC_Ordenamento_do_Territorio.pdf, Date accessed on 16/05/2018.

[51] Ministerio da Agriculture, do Mar, do Ambiente e do Ordenamento do Território, (2013). Estratégia De Adaptação Da Agricultura E Das Florestas Às Alterações Climáticas. URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relat_Setor_ENAAC_Agricultura.pdf, Date accessed on 16/05/2018.

[52] Instituto da Conservação da Natureza e das Florestas, (2013), Adaptação Das Florestas às Alterações Climáticas, URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relat_Setor_ENAAC_Florestas.pdf, Date accessed on 16/05/2018.

	fires, and a synthesis.
Biodiversity	In February 2013, a study was produced by the ICNF on adaptation in forests,[53] which covers the legal framework for biodiversity, conservation of biodiversity in Portugal, forestry sector characterisation, future scenarios, impacts of climate change on biodiversity, adaptation measures, and financing mechanisms.
Energy	A study was produced by the Portuguese Directorate General for Energy and Geology on adaptation in the energy sector in December 2012[54] covering the vulnerabilities of the energy sector, recommended adaptation measures and barriers to adaptation.
Water resources and coastal areas	In August 2012, a study was produced by the APA[55] covering climate impacts and associated adaptation strategies, including in water management and usage. Relevant sectors include those included in this table plus tourism and coastal zones.
Health	In July 2011, a study[56] was produced by the Directorate General of Health on the implications for health of climate impacts on extreme thermal events, water, air, disease transmission vectors, food, and extreme hydrological events.
Safety of people and assets	In December 2012, a study was produced by the Ministry of Internal Administration on climate impacts on the safety of people and assets[57], covering key vulnerabilities, forest-fire and flooding scenarios, and adaptation measures.

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

Yes / In progress / No

Climate impacts on the coastal area of Spain bordering Portugal are briefly mentioned in SIAM I (2003) and then examined in SIAM II (2006). The need for cooperation to avoid increased damage is underlined as an outcome of the project.

[53] Instituto da Conservação da Natureza e das Florestas, (2013), Estratégia Nacional De Adaptação às Alterações Climáticas - Sector Da Biodiversidade -URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relat_Setor_ENAAC_Biodiversidade.pdf, Date accessed on 16/05/2018.

[54] Direção-Geral de Energia e Geologia (2012), Estratégia Nacional de Adaptação às Alterações Climáticas Medidas e Ações de Adaptação do Setor Energético, URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relat_Setor_ENAAC_Energia.pdf, Date accessed on 16/05/2018.

[55] Agência Portuguesa do Ambiente, (2013), Estratégia Setorial De Adaptação Aos Impactos Das Alterações Climáticas Relacionados Com Os Recursos Hídricos. URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relt_Setor_ENAAC_Recursos_Hidricos.pdf, Date accessed on 16/05/2018.

[56] Direção Geral da Saude, (2011), Alterações Climáticas E Saúde Humana 'Estado Da Arte'. URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relat_Setor_ENAAC_Saude.pdf, Date accessed on 16/05/2018.

[57] Ministerio da Admninstraçao Interna, (2012). Alteraçoes Climáticas. URL: https://www.apambiente.pt/_zdata/Politicas/AlteracoesClimaticas/Adaptacao/ENAAC/RelatDetalhados/Relat_Setor_ENAAC_Saude.pdf, Date accessed on 16/05/2018.

In the 2003 CLIMAAT project[58], a consortium of several institutions of the Azores and Canary Islands, which included Madeira in 2006 (under the CLIMAAT II Interreg IIIB Project) sought to improve methodologies and knowledge in the field of meteorology and climatology, including climate change, with a focus on those islands' environments. From this initiative some significant common climate impacts on the Atlantic Archipelagos were identified.

Ongoing revisions to river basin management plans are making use of climate scenarios that include data from the common river basins shared between Spain and Portugal. The data was collected by IPMA through the EURO-CORDEX programme[59].

The Transnational Operational Programme for Madeira-Azores-Canary Islands (MAC 2014-2020)[60] is a further example of transboundary cooperation involving regional authorities from Madeira, Azores and the Canary Islands: (Portugal and Spain).

Moreover, it is the responsibility of the NAS (ENAAC 2020) 'International Cooperation' Thematic Area to take such transboundary risks into consideration, as described in Indicator 2b.

4. Knowledge gaps

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

Yes / In progress / No

In the 2013 ENAAC's Progress Report, specific knowledge gaps were identified at sector level, particularly for the agriculture, water and spatial planning sectors. Furthermore, the report highlighted the need for a dedicated research programme on climate change for Portugal. This gap was first addressed through adaptation-focused research programmes within CIRCLE-2, under the EU's Seventh Framework Programme for research (FP7). CIRCLE-2 is a European network of 34 institutions from 23 countries that funds research, shares knowledge on climate adaptation, and promotes long-term cooperation among national and regional climate change programmes.

The second NAS (ENAAC 2020) has a specific overarching objective to "Improve the level of knowledge about climate change" and has created a dedicated cross-cutting thematic area on "Research and Innovation". As a part of the implementation of the NAS, the Research and Innovation Working Group and sectoral working groups must report progress against the aforementioned objective. The first such progress report covers the period 2015-2016, with further iterations in 2018 and 2020. In the first report, each sectoral working group reported extensively on the actions taken against the objective, such as the creation of dedicated research programmes within relevant ministries (e.g. the Energy Working Group reported on the research being carried out within the Directorate General of Energy and Geology to update the vulnerabilities identified in the first NAS). In addition, the working groups had to

[58] Centro do Clima, meteorologia, e mudanças globais da universidade dos Açores, Projectos CLIMAAT e CLIMARCOST, URL: http://www.climaat.angra.uac.pt/ , Date accessed: 15/06/2018

[59] EURO-CORDEX - Coordinated Downscaling Experiment - European Domain, URL: http://www.euro-cordex.net/, Date accessed: 15/06/2018

[60] Governo dos Açores, Açores 2020, URL: http://poacores2020.azores.gov.pt/en/noticias/azores-and-the-european-territorial-cooperation-2020-new-challenges-and-opportunity/ Date accessed: 15/06/2018

identify knowledge gaps, and list the actions being taken to resolve these (e.g. the Agriculture Working Group has put forward a proposal to develop a prioritised national agenda on adaptation research)[61].

Meanwhile, the cross-cutting Working Group on Research and Innovation focused principally on creating opportunities for Portuguese scientists to participate in national and international research projects on adaptation. This was achieved principally by disseminating knowledge about funding opportunities to the scientific community, particularly EU-level funding (H2020, LIFE, INTERREG, ERA4CS, etc.), and Portuguese institutions already participate in several relevant EU-funded research projects.[62] In addition, the Working Group aimed to map research activities and to improve their financing. Furthermore, the scientific panel that integrates the governance of the ENAAC 2020 is presently developing a research agenda dedicated to climate change that will serve as a framework for research priorities. It is coordinated by the Foundation for Science and Technology (FCT), the Portuguese public agency that supports science, technology and innovation in all scientific domains, and receives support from the APA.

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

Information about adaptation policy is currently available within the APA's website.[63] IPMA's project (mentioned above) has also created an easy access platform[64] with data from historical time series, climate projections and sectoral climatic indicators for the geographical coverage of mainland Portugal. A project financed by Programme AdaPT consisted of a collaborative platform for the adoption of climate adaptation measures in industry and

[61] Agência Portuguesa do Ambiente, (2016). Estratégia Nacional de Adaptação às Alterações Climáticas - *RELATÓRIO INTERCALAR #1 - 2015-2016*

[62] a) BRIGAID - BRIdges the GAp for Innovations in Disaster resilience (ongoing project); b) CERES (ongoing project) - Climate change and European aquatic RESources; c) HYDRALAB+ (ongoing project) Adapting to climate change; d) PLACARD (ongoing project) - PLAtform for Climate Adaptation and Risk reduction; e) RESCCUE (ongoing project) - RESilience to cope with Climate Change in Urban arEas - a multisectorial approach focusing on water; f) BINGO (ongoing project) - Bringing INnovation to onGOing water management – A better future under climate change; g) KNOWHOW (closed project) - Knowledge production, communication and negotiation for coastal governance under climate change; h) ERA4CS (ongoing project) - European Research Area for Climate Services; i) MATRIX (closed project) - New Multi-HAzard and MulTi-RIsK Assessment MethodS for Europe; j) CIRCLE-2 (closed project) - Climate Impact Research & Response Coordination for a Larger Europe - 2nd Generation ERA-Net -Science meets Policy; k) BASE (closed project) - Bottom-up Climate Adaptation Strategies towards a Sustainable Europe; l) BRIDGE SMS (ongoing project) - Intelligent Bridge Assessment Maintenance and Management System; m) IMPRESSIONS (ongoing project) - Impacts and risks from higher-end scenarios: Strategies for innovative solutions; n) EnviCOP (closed project) - Environmentally Friendly Coastal Protection in a Changing Climate.

[63] Agência Portuguesa do Ambiente, Adaptação, URL: http://www.apambiente.pt/index.php?ref=16&subref=81&sub2ref=118, Date accessed on 15/05/18

[64] Portal do Clima, URL: http://portaldoclima.pt/en/ Date accessed: 05/06/2018

services. This platform, adaptIS[65], is now a reference platform that collects adaptation measures, tools and case studies.

In addition, an ESIF application is being prepared in relation to the ENAAC 2020 to develop a national adaptation portal where all relevant information will be made available to all stakeholders, including the general public.

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

Capacity building is a specific objective that has been formulated in the ENAAC. Capacity building mainly takes place through delivery of project's climate adaptation objectives. Several national and regional projects and activities have taken place in Portugal to raise awareness and understanding of adaptation and to promote information sharing, including:

- INTERREG IVC project Facts! (Forms for Adapting to Climate Change through Territorial Strategies)[66]. The project exchanges good practices, and transfer knowledge about climate adaptation. Key outcomes:
    - A handbook that provides a framework to define and implement territorial integrated strategies in the context of climate adaptation in risk-prone areas.
    - A pilot study on the Landscape Multi-functionality of Baixo Vouga Lagunar, which is directed to climate adaptation in a specific coastal area.
- Several events about climate adaptation through territorial strategies, including study visits, workshops to promote involvement of local stakeholders, and coaching visits from foreign partners to increase the adaptive capacity of local stakeholders.
- CLIMAAT I and II, which developed specific methodologies for studying the meteorology and climate regions of the Atlantic islands and their surroundings. The projects produced and disseminated information that spurred scientific cooperation.
- Programme AdaPT, which developed under the EEA Grants 2009-2014 programming. AdaPT focused on two main areas of activity:
    - Increasing capacity to assess vulnerability to climate change. The project ClimAdaPT.Local mentioned in Indicator 9b was a key initiative for building the capacities of municipalities on adaptation issues. The project provided local adaptation strategies for 27 participating municipalities (out of a total of 308 in Portugal) and guidelines for mainstreaming adaptation into planning for use by other municipalities in the country. Several other sectoral pilot projects were developed under the programme ClimAdaPT.Local, namely on water resources, forestry, tourism and biodiversity[67].
    - Raising awareness and education on climate change. The University of Oporto developed a project with 30 schools all over the country, with the overall objective to communicate with, train and raise the awareness of the school

[65] Adaptis, URL: http://www.adaptis.uc.pt/, Date Accessed: 05/06/2018
[66] Interreg IVC, F:ACTS, URL: http://www.interreg4c.eu/projects/project-details/index-project=66-forms-for-adapting-to-climate-change-through-territorial-strategies&.html, Date accessed: 05/06/2018
[67] Agência Portuguesa do Ambiente, Sectoral Projects, URL: http://apambiente.wixsite.com/adapt/sectorial-projects, Date accessed: 05/06/2018

community on how to prevent climate impacts and implement adaptation measures[68].

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

Adaptation options considered are consistent with the results of sectoral risk assessments, albeit the latter are sometimes based on a light screening (e.g. SIAM projects, the ENAAC sectoral reports). Geographical issues are included, especially within the scope of local adaptation strategies and of sectors, such as biodiversity and coastal areas.

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

For the first phase of the ENAAC, the methods and detail for prioritising adaptation options varied from sector to sector. Actions were discussed with a large number of stakeholders (see Indicator 2a), but clear priorities were not set in most cases. For each sector a long list of measures was listed without indication of their importance, possible outputs and impacts.

Building upon the knowledge and involvement of stakeholders, a prioritised list of sectoral groups was selected that was intended to maintain the overall coherence of the ENAAC and the ENAAC 2020.

Measures are already being developed in some sectors, which either directly or indirectly contribute to the objectives of the ENAAC 2020. Similarly, regional and local level assessments of climate impacts were considered in the development of the ENAAC 2020. More work is ongoing under the ENAAC 2020 to further streamline and develop these measures, including clearer implementation, monitoring and financing. Moreover, more effective sector cooperation has been established under the thematic areas and through the coordination group to foster synergies and avoid inconsistencies. The Action Plan in development is a step in this direction.

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

[68] Agência Portuguesa do Ambiente, Education and Climate Change, URL: http://apambiente.wixsite.com/adapt/education-and-award-climate-change, Date accessed: 05/06/2018

The establishment of the Portuguese National Platform for Disaster Risk Reduction, in May 2010, was a key measure towards better coordination of prevention, preparedness and response activities. The Platform is chaired by the Minister for Internal Affairs and composed of delegates from other ministries and other national entities[69]. A consultative sub-committee of the Platform was created to promote disaster risk reduction activities. This sub-committee includes representatives from ministries and from the private sector, academic institutions, cities and professional associations (e.g. engineers, architects). The national authority for civil protection (ANPC) is liaising with the Platform about climate adaptation and is coordinating one of the sectoral working groups of the ENAAC 2020. In this way, a close cooperation and articulation between disaster risk management and climate adaptation is assured.

Under the first phase of the ENAAC, the sector working group "safety of people and assets" developed several initiatives such as:

- A Report on National Risks Assessment, including in relation to climate change, published in 2014[70].
- Acts to support disaster reduction policy at the sectoral level, namely in forest fires, floods, climate adaptation and critical infrastructure protection.
- Good practices, including early warning systems, under adverse weather conditions, monitoring of water resources (droughts and floods), heat waves, etc.

Since then, the working group on safety of people and assets has contributed to the delivery of the ENAAC 2020 with the publication of two manuals on best practices in relation to:

- Flood risk management; and
- Risk prevention and management – resilient cities in Portugal 2016.

Another manual is being prepared about best practices for resilience within the private sector.

Portugal adopted the Hyogo Framework for Action (HFA) in 2005 and the Sendai Framework in 2015.

7. Funding resources identified and allocated

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

Yes / In progress /No

[69] Delegates of the Ministries responsible for the areas of: Defence; Justice; Economy, Transports and Communications; Public Works; Agriculture and Forests, Environment; Social Security; Health; Education and Scientific Research; The President of the National Authority for Civil Protection; Representatives of the National Association of Portuguese Municipalities, National Association of Portuguese Parishes, General Staff of the Armed Forces, National Guard, Public Security Police, Association of Professional Fire-fighters, League of Portuguese Fire-fighters (organisation representing the associations of Volunteer Fire-fighters), Judiciary Police, Security Coordination Office, Maritime and Aeronautical Authorities, National Institute for Medical Emergency, Madeira and the Azores Regional Governments.

[70] : Autoridade Nacional de Proteção Civil, *Avaliação Nacional de Risco,* 2014. URL: http://www.prociv.pt/bk/RISCOSPREV/AVALIACAONACIONALRISCO/Documents/2016_Avaliacao_Nacional_Riscos.pdf , Date accessed: 05/06/2018

The development of funding mechanisms and of selection criteria for applications are some of the issues that are addressed under the thematic area "Funding and implementing adaptation" of the ENAAC 2020.

The Programme AdaPT was implemented under the EEA Grants 2009-2014[71] with a total budget of EUR 3,529,412 (EUR 3,000,000 from EEA plus EUR 529,412 from the Portuguese Carbon Fund – FPC). AdaPT built upon the needs identified by the 2013 ENAAC progress report.

Further adaptation finance is secured by the ESIF Common Strategic Framework 2014 – 2020, as well as programmes, such as Horizon 2020, the Interreg IV-C and LIFE. Some significant programmes that implement the Common Strategic Framework at national level include:

- Several national Programmes (e.g. Portugal 2020[72]).
- The Operational Programme on Sustainability and Resource Use Efficiency (referred to as PO SEUR above), which is the most important programme for adaptation purposes in this context. It foresees funding for awareness and implementing action in adaptation – Under Axis II – "Promote climate change adaptation and risk prevention and management". Several planning instruments and tools are financed, along with specific actions, such as coastline protection and reinforcement of risk resilience, namely flood protection and forest fire risk.[73] This funding is mainly being used to develop adaptation plans at the municipal, intermunicipal and regional level covering approximately 80% of the country.[74]
- The Rural Development Programme 2020[75], which under Heading 3 – "Environment, Resource Efficiency Use and Climate" supports several actions on soil conservation, water efficient use in agriculture, local breeds and plant varieties, forest management and forest fire preventions, among others.
- The Transnational Operational Programme for Madeira-Azores-Canary Islands (MAC 2014-2020).

Grants from the Foundation for Science and Technology (FCT) and from the Environmental Fund (which replaced the Portuguese Carbon Fund, Decree law No.42-A/2016) are also worth mentioning as finance sources at the national level. The Environmental Fund particularly aims to support environmental policies, including climate adaptation with a special focus on actions on coastal areas and on water resources. In February 2018, the Environment Fund launched a call for funding for applications dedicated to the

[71] Agência Portuguesa do Ambiente, Sectoral Projects, URL: http://apambiente.wixsite.com/adapt, Date accessed: 05/06/2018
[72] Portugal 2020, URL: https://www.portugal2020.pt/Portal2020/FAQs-Tema1#3, Date accessed 05/06/2018
[73] PO SEUR, Axis II, Promote climate changes adaptation and risk prevention and management, URL: https://poseur.portugal2020.pt/en/investment-axes/axis-ii/, Date accessed 05/06/2018
[74] https://poseur.portugal2020.pt/en/applications/calls-for-applications/
[75] Programa de Desenvolvimento Rural 2013-2020, URL: http://www.pdr-2020.pt/site/O-PDR2020/Arquitetura, Date assessed 05/06/2018

implementation of adaptation measures identified in strategies and plans at the municipal or intermunicipal level, and a total of EUR 1,000,000 is being made available.[76]

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

The current legal framework for environmental impact assessment (EIA) in Portugal is established by Decree-Law No. 151-B/2013, amended by Decree-Law no. 152-B/2017, which transposes the EIA Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment.[77]

The Environment Agency provides an overview of the steps for compliance with Decree-Law no. 151-B/2013. In addition, templates and guidance documents, as well as methodological guides on the development of EIA, are easily available on the Environment Agency website.[78]

Climate Change is considered in Strategic Environmental Assessment (SEA) at the screening stage and is frequently identified as a critical factor for decision-making (CFD) in the scoping phase. When considered a CFD, adaptation is addressed (e.g. flood risk plans/maps in the context of different land uses) at an early stage of the decision-making process.

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

Yes / No

A National Risk Assessment was carried out by the National Authority for Civil Protection (ANPC) in January 2014[79]. This identifies and characterizes likely natural, technological and hybrid risks and, where relevant, take account of how they may be accentuated or attenuated by the impact of climate change.

For each risk, the study describes the assessment methodology and data used, a prioritisation (on the basis of probability and extent of damages), and measures to reduce the risks, including climate adaptation. The report describes the different types of adaptation measures

[76] Fundo Ambiental Portugal, *Apoiar a Adaptação às Alterações Climáticas*, URL: http://www.fundoambiental.pt/avisos-2018/apoiar-a-adaptacao-as-alteracoes-climaticas.aspx, Date accessed: 17/05/2018

[77] Agência Portuguesa do Ambiente, Avaliação de Impacte Ambiental > Legislação Aplicável. URL: https://www.apambiente.pt/index.php?ref=17&subref=146&sub2ref=477, Date accessed on 16/05/2018.

[78] Agência Portuguesa do Ambiente, Modelos e Documentos de Orientação. URL: https://www.apambiente.pt/index.php?ref=17&subref=146&sub2ref=672, and Guias Metodológicos para a Elaboração de Estudos de Impacte Ambiental URL: https://www.apambiente.pt/index.php?ref=17&subref=146&sub2ref=673, Date accessed on 16/05/2018.

[79] Autoridade Nacional de Proteção Civil, *Avaliação Nacional de Risco*, 2014. URL: http://www.prociv.pt/bk/RISCOSPREV/AVALIACAONACIONALRISCO/Documents/2016_Avaliacao_Nacional_Riscos.pdf , Date accessed: 05/06/2018

(autonomous, planned and anticipative) and indicates the need for a systematic analysis of past weather events, the development of an early warning system and the importance of building capacity to respond to climate extremes. In addition, it presents other risk reduction measures being taken within the framework of the NAS (ENAAC 2020).

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

Yes / No

One of the cross cutting thematic areas for ENAAC 2020 is dedicated to "Integrating adaptation into spatial planning policy." Apart from coordinating with sectoral working groups covering Coastal Zones (which includes maritime planning) and Transport and Communications (which has some on spatial and urban planning), the specific objectives of this thematic area include: [80]

- Promote the dissemination of information and other resources to guide the management of climate adaptation at local and regional levels
- Promote the integration of analysis and mapping of vulnerabilities and adaptation measures in territorial policy planning tools
- Promote the development of technical guidelines to ensure the integration of the adaptation to climate change in territorial management instruments
- Promote integration of adaptation into the National Spatial Planning Policy (Programa Nacional da Politica de Ordenamento do Território- PNPOT)[81]
- Promote the integration of adaptation to climate change in the Sustainable Urban Development;

Of particular importance has been the integration of the outputs of adaptation plans at national and subnational levels (municipal, inter-municipal and regional) into the revision of the national spatial planning strategic policy documents and action plan (PNPOT) which was in public consultation until 15th June 2018.[82] The proposed strategic document highlights climate change as a critical trend the spatial planning policy must take into consideration[83] when designing territorial planning policies. The action plan identifies measures in the following domains and scope: [84]

- Natural domain – includes specific measures for protecting coastal and urban areas, therefore covering maritime and urban planning

[80] Agência Portuguesa do Ambiente, (2015). Estratégia Nacional de Adaptação às Alterações Climáticas (ENAAC 2020)
[81] Direcção Geral do Ordenamento do Território e Desenvolvimento Urbano, Alteração Do PNPOT – Documentos Para Discussão Pública Disponíveis, URL: http://pnpot.dgterritorio.pt/node/275, Date accessed on 16/05/2018.
[82] Personal communication with MS contact
[83] Direcção Geral do Ordenamento do Território e Desenvolvimento Urbano, (2018). PNPOT – Alteração Estratégia E Modelo Territorial Versão para Discussão Pública, URL: http://pnpot.dgterritorio.pt/node/275, Date accessed on 16/05/2018.
[84] Direcção Geral do Ordenamento do Território e Desenvolvimento Urbano, (2018). PNPOT | Alteração Agenda para o Território (Programa de Ação) Versão para Discussão Pública, URL: http://pnpot.dgterritorio.pt/node/275, Date accessed on 16/05/2018.

- Territorial governance domain – proposes specific measures to improve territorial and multi-governmental collaboration, including geographical scope – local (rural, urban, inter-municipal) regional and transboundary.

As for coastal management, the Action Plan for the Protection and Enhancement of the Shore (Plano de Ação de Proteção e Valorização do Litoral - PAPVL) 2012-2015 highlights the risks and impacts connected to climate change and population development for the coastal areas of Portugal. Adaptation measures are identified for all the zones at risk. The main aim is to carry out interventions protecting people and assets and reducing the risk of damage. Rehabilitation interventions are also envisaged. The new Programmes for Coastal Areas take into consideration the findings of a Specific Working Group that focused on coastal dynamics and climate change impacts[85], and are progressively including climate change impacts for future interventions[86].

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 main driver for mainstreaming policy at the sectoral level is the NAS's organisational structure, which provides a clear indication of the willingness to promote adaptation at sectoral level. The sectoral working groups below form part of the coordination group for the NAS's implementation.

While a comprehensive list of the policy instruments promoting adaptation in each sector has not been found, the table below provides an overview of the work that each sectoral working group has undertaken to promote mainstreaming of adaptation into sectoral policies. The information is taken from the first interim progress report on implementation of ENAAC 2020, reporting against the third objective of "promote mainstreaming of adaptation into sectoral policies." [87]

Sectoral working groups	Existing and future policy which will mainstream adaptation in sectoral policy (identified in 2015-2016)
Agriculture	Adaptation measures identified in the ENAAC 2020 will inform the sector level policy strategy document "AGRI-ADAPT 2020" which is under development.
Biodiversity	The first NAS (ENAAC 2010) is being used as a starting point to integrate adaptation in a wide range of future policies for nature conservation and biodiversity, and related policy documents including financing.

[85] Agência Portuguesa do Ambiente , Relatório do Grupo de Trabalho do Litoral- Gestão da Zona Costeira O Desafio da Mudança, (2014). URL: http://sniamb.apambiente.pt/infos/geoportaldocs/docs/Relatorio_Final_GTL2015.pdf, Date accessed: 05/06/2018

[86] Agência Portuguesa do Ambiente, Progamas de Orla Costeira, URL: https://www.apambiente.pt/index.php?ref=16&subref=7&sub2ref=10&sub3ref=1193 Date accessed: 05/06/2018

[87] Agência Portuguesa do Ambiente, (2016). Estratégia Nacional de Adaptação às Alterações Climáticas - *RELATÓRIO INTERCALAR #1 - 2015-2016*

Energy	Existing policy around security of energy supply and climate change mitigation are broadly in line with adaptation objectives, including policies to increase networks, adopt smart grids and promoted distributed production. An area identified for further policy development is climate proofing of energy assets.
Forest	The climate adaptation component in territorial management instruments has been strengthened, particularly the Regional Plans of Forest Management (PROF).
Safety of people and assets	The legislative framework for civil protection at the municipal level has been amended to integrate vulnerability to climatic risks and climate adaptation measures. In addition, the National Strategy for Preventive Civil Protection has incorporated climate adaptation[88].
Water Resources and coastal areas	As part the "Integrated Management of Coastal Zones" policy, data is being collected for a section on the `Coastal Adaptation Strategy'. In addition, existing and future coastal action plans (Plano de Ação para o Litoral – Litoral XXI) will integrate adaptation, as the National Maritime Strategy (Estratégia Nacional para o Mar 2013-2020) and action plan (Plano Mar-Portugal).
Health	Interim reports of the regional health administrations and the Directorate General of Health integrate adaptation priorities. Future policy documents include the regional strategies for the adaptation in the health sector in Lisbon and Tejo Valley (Estratégias Regionais de Adaptação às Alterações Climáticas - Sector Saúde por duas Administrações Regionais de Saúde (Centro e Lisboa e Vale do Tejo).
Azores	2017 regional plan for climate change (Plano Regional para as Alterações Climáticas) integrated adaptation.
Madeira	Climate adaptation is gradually being integrated in sectoral plans.

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

Yes / **No**

The Portuguese Association of Insurers (Associação Portuguesa de Seguradores - APS) and the Foundation of the Faculty of Science, University of Lisbon (Fundação da Faculdade de Ciências da Universidade de Lisboa - FFCUL) developed Flood Maps and Risk in Climate Change Scenarios (Risco em Cenários de Alterações Climáticas - CIRAC). CIRAC enables the assessment of risk by providing benchmark indices that allow for different types of vulnerability and assist stakeholders to make strategic decisions. It defines flooding, the links with climate change mitigation and adaptation, and maps climate vulnerabilities and risks in Portugal.

[88] Conselho de Ministros, (2017). Resolução do Conselho de Ministros n.º 160/2017. URL: https://dre.pt/pesquisa/-/search/114123460/details/normal?q=Estrat%C3%A9gia+Nacional+para+uma+Prote%C3%A7%C3%A3o+Civil+Preventiva, Date accessed 20/06/18

However, there is no clear evidence that adaptation is mainstreamed in insurance or alternative policy instruments. The topic is not covered in the ENAAC 2020 policy document or the interim update report[89]. In a joint statement, the APS and FFCUL stated in 2017 that it was their hope that the CIRAC project could become a tool to assess hazards.[90] Insurance companies responded to the publication of the CIRAC report, by stating that premiums will be adapted according to the degree of flood risk linked to climate change in each of the country's zones.

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

At the national level, the ENAAC and ENAAC 2020 are high-level strategies which promote mainstreaming to encourage the sectoral groups to develop and adopt their own adaptation action plans. P-3AC, which is the equivalent of a NAP, is under-development at the national level and has not yet been implemented. It is currently the subject of internal consultation and is expected to be submitted shortly for political validation and public consultation. It takes into consideration the prioritised adaptation measures for sectors and thematic areas identified in the NAS, as well as the subnational action plans (municipal, inter-municipal and to some extent regional).

At the subnational level, adaptation strategies and plans covering about 80% of the national territory have either been developed or are under development at present. As described in Section A2, ClimAdaPT.Local led to the development of 27 local adaptation strategies. The remainder of activities have been started under the PO SEUR programmes, as described in Section B2. At present very few plans at subnational level have been finalised or implemented, but exceptions include the municipalities of Cascais, Leiria, and Ílhavo.[91] In February 2018, the Environment Fund launched a call for funding for applications dedicated to the implementation of adaptation measures identified in strategies and plans at the subnational level, and a total of EUR 1,000,000 is being made available.[92]

At the regional level, Azores finalised their action plan in November 2017, while Madeira has not yet developed an action plan.

During the first NAS (ENAAC 2010), nine sectoral strategies were prepared by the sectoral working groups, and became actions to be implemented in the second NAS (ENAAC 2020).

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[89] Agência Portuguesa do Ambiente, (2015). Estratégia Nacional de Adaptação às Alterações Climáticas (ENAAC 2020) and (2016). Estratégia Nacional de Adaptação às Alterações Climáticas - *RELATÓRIO INTERCALAR #1 - 2015-2016*

[90] Associação Portuguesa de Seguradores, (2017). Projeto CIRAC - Sessão Técnica no Ministério do Ambiente, URL: https://www.apseguradores.pt/Portal/Content_Show.aspx?ContentId=2743&PageId=51&MicrositeId=1&CategoryId=37, Date accessed: 17/05/2018

[91] Personal communication with MS contact

[92] Fundo Ambiental Portugal, *Apoiar a Adaptação às Alterações Climáticas*, URL: http://www.fundoambiental.pt/avisos-2018/apoiar-a-adaptacao-as-alteracoes-climaticas.aspx, Date accessed: 17/05/2018

The ENAAC 2020 interim progress report indicates the progress made with implementation by each sectoral and cross-cutting thematic area working group. These are measured against the three objectives of the NAS (identified in Section A1) and the actions identified in sectoral strategies. An example of a measure under implementation includes actions by the Biodiversity Working Group aimed at "improving the level of knowledge about climate change" by making available to society and decision makers the latest scientific knowledge about biodiversity and climate adaptation. Hundreds of other actions are identified, which range from being at the proposal stage to under implementation.

In addition, one of the cross-cutting thematic area working groups (Integrating adaptation into spatial planning policy) has a crucial role to play in supporting the implementation of adaptation plans at subnational level. One of its primary objectives is to produce guidelines for transposing the adaptation measures identified in subnational plans into subnational special planning policy instruments, such as municipal master plans, thereby enshrining the plans in the relevant legal framework.[93]

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

Yes / No

As mentioned in Section B2 and in relation to Indicator 1c, the relevant scales at which to foster and support adaptation include the municipal, inter-municipal and regional levels. The implementation of the ENAAC 2020 is supported by a coordination group chaired by the APA and composed of the representatives of the Autonomous Regions of Azores and Madeira and of the National Association of Portuguese Municipalities, as well as the coordinators of the thematic areas and of the sectoral working groups. This group formalises cooperation in adaptation planning and implementation at the national level (sectoral and cross-cutting) and subnational level.

In addition, adaptation plans at municipal and inter-municipal levels have been developed using NAS (ENAAC 2020) guidance, which defined the work developed under the ClimAdaPT.Local and PO SEUR programmes described for the previous indicator. While the autonomous regions have greater flexibility in this respect, they may nonetheless benefit from the guidance on collaboration. The NAP will draw explicitly on the measures identified at subnational levels.

Finally, one of the cross-cutting thematic area working groups (Integrating adaptation into spatial planning policy) will be playing a crucial role in supporting the transposition of subnational plans into spatial planning legislation. As such, the collaboration between the national level cross-cutting and sectoral working groups with the subnational levels is considered to be strongly active and integral to the implementation of the action plans at all levels.

[93] Personal communication with MS contact

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**

Climate change is one of the factors to be assessed, formally specified under the national legislation that transposes SEA Directive and reflected in the published guidance. Also specific national guidance on the integration of climate change under EIA procedure is being developed by APA.

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

Yes / No

Stakeholders (NGOs in particular) are encouraged to actively engage in implementing actions. As stated in the law, the composition of the sectoral groups of the ENAAC includes relevant stakeholders, such as major associations, NGOs and the biggest companies. They take an active part in the development of all planning and action related to sectoral and horizontal work. Climadapt.local was developed through a consortium that included a major NGO, other NGOs are involved in Programme AdaPT and in LIFE projects.

The involvement of the private sector has been motivated by self-interest. For example, EPAL, the largest production, transport and water distribution company in Portugal, is aware of the vulnerability of its activities under a likely climate scenario and has completed a study to define its medium and long-term adaptation strategy. In the water sector, the ANQIP, an NGO that promotes quality and efficiency in the water cycle in buildings, has recently decided to develop a technical specification on reuse and recycling of grey water.

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 progress report for the first phase of the NAS (ENAAC) was published by the APA in 2013. It identified the vulnerable sectors, the strengths and weaknesses observed during the implementation of the ENAAC and proposed measures.[94] The report highlighted the main difficulties and gaps that should be addressed in the ENAAC 2020. Furthermore, during the first phase of the NAS, nine sectoral strategies were prepared by the sectoral working groups, identifying actions to be implemented in the second NAS (ENAAC 2020).

As part of the implementation of the NAS (ENAAC 2020), the coordination group has a responsibility to contribute to three interim progress reports planned for 2016, 2018, and the

[94] Agência Portuguesa do Ambiente, (2013). Relatório de Progresso Estratégia Nacional de Adaptação às Alterações Climáticas

final report and evaluation in 2020. This group will monitor the progress of work undertaken by the different sectoral and thematic areas, namely in terms of the three objectives of the Strategy.

The first interim report, regarding 2015-2016, has been published.[95] The report contains a description of the events and activities that were undertaken by the working groups during that year, and a list of the key actions for each sectoral working group against the NAS objectives. For each action it is indicated whether the action is at "proposal" stage, or "initiated/underway".

A more formal procedure is addressed in the ENAAC 2020 under the 'Financing Adaptation' Thematic Area, in order to establish a monitoring and review system for the overall adaptation process. The first interim progress report states that the working group is still developing a methodology and indicators to track the level of implementation of the measures established in adaptation plans and strategies. No evidence has been found of a mechanism to track allocated budgets and costs of actions.

The current NAP proposal establishes a monitoring, reporting and evaluation system to track allocated budgets, costs and implementation of the actions identified.

Furthermore, PO SEUR has an outcome indicator on adaptation investment to measure the "level of implementation of adaptation measures identified in strategies or plans" (R511). The APA was responsible for the indicator's development. For this purpose, the scoreboard methodology was established, and all relevant central, regional and local entities were asked to provide feedback on implementation of adaptation actions. Quantitative results were supplied under the reporting mechanisms for ESIF funding[96]. Qualitative results are being analysed and are an important source of information on adaptation action in Portugal.

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

Yes / No

The first interim report of the ENAAC's coordination group (see Indicator 10a) lists the progress made towards integration of adaptation in prioritised policy sectors (which also indicates the difficulties of limited available knowledge about climate impacts on many of these sectors).

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

Yes / **No**

As stated in Indicator 10a, a Common Adaptation Indicator under PO SEUR is in place, after the establishment of a methodology to determine the "Level of implementation of adaptation measures identified in strategies and plans". This indicator is used to measure implementation

[95] Agência Portuguesa do Ambiente, (2016). Estratégia Nacional de Adaptação às Alterações Climáticas - *RELATÓRIO INTERCALAR #1 - 2015-2016*

[96] Reported to European Commission on May 2018: Implementation+report_2014PT16CFOP001_2017_0_pt

of adaptation at national, regional and local level, and all organisations responsible for implementation are addressed by means of a questionnaire/scorecard.

Aggregate results were reported under the ESIF reporting mechanism in May 2018.

The ENAAC interim report, which is available currently, is not a mechanism for subnational or local monitoring and reporting. However, a report is expected by the end of 2018, which will reflect the detailed results of the PO SEUR indicator.

11. Evaluation

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

Yes / No

Three evaluations of the Strategy have been foreseen by Resolutions of the Council of Ministers in 2016, 2018 and 2020. As stated under Indicator 10a, the 1st interim report, which corresponds to the first evaluation in 2016, is already available.

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

Yes / No

As mentioned under Indicator 1a, a coordination group chaired by the APA supported the revision of the first ENAAC. The group is composed of the coordinators of the thematic areas and of the sectoral working groups, as well as the representatives of the Autonomous Regions of Azores and Madeira and of the National Association of Portuguese Municipalities.

The analysis that led to the progress report was based on the contributions from the working groups, which, in turn, involved their sectoral stakeholders. As such, stakeholders are involved in monitoring the implementation of adaptation measures. The review undertaken since then is a further follow up to the Strategy and a definition of the actions and measures that could be implemented at sectoral level, which build on the current involvement of stakeholders.

Stakeholder consultation is further supported by two other structures: a scientific panel and the Inter-Ministerial Commission on Air and Climate Change (CIAAC). The scientific panel guarantees the engagement of the scientific community and can provide knowledge-based support to the ENAAC's coordination group. The CIAAC[97] guarantees political support.

[97] CIAAC was created for the monitoring of climate policy and sectoral policies impacting on national air quality and climate goals.

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
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***	
4a	Work is being carried out to identify, prioritise and	**Yes** /In progress /No

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
	address the knowledge gaps	
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
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***	
7a	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	**Yes** / No

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
	maritime spatial planning policies take into account the impacts of climate change	
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
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-, subnational 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,	**Yes** / No

Adaptation Preparedness Scoreboard		
No.	**Indicator**	**Met?**
	evaluation and review of national adaptation policy	