



# Adaptation preparedness scoreboard:

## Draft country fiche for Greece

### Disclaimer

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

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

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## **POLICY FRAMEWORK**

### **Adaptation strategies**

#### **A1. National adaptation strategy**

Following initial drafting and public consultation, the Greek National Adaptation Strategy (NAS) was finalised in April 2016 and formally endorsed by the Greek Parliament in August 2016, through Law 4414/2016 (article 45). The Greek NAS has a 10-year implementation horizon (i.e. it should be reviewed and revised by 2026). Law 4414/2016 defined the Ministry of Energy & Environment (MEEN) as the national competent authority for national adaptation policy and foresees the process for the revision of the NAS along a 10-year planning cycle.

The MEEN has signed a Memorandum of Understanding (MoU) with the Climate Change Impacts Study Committee of the Bank of Greece (CCISC) and the Biomedical Research Foundation of the Academy of Athens through which they have committed to undertaking climate change adaptation actions. The drafting of the NAS was part of this MoU. The CCISC, in cooperation with the MEEN, prepared a strategy draft document, building on its existing work and the extensive CCISC report<sup>1</sup> on climate change impacts and vulnerability assessment. The NAS underwent public consultation. The MEEN assessed the comments received during the public consultation and completed and finalised the draft NAS.

Law 4414/2016 also foresaw the establishment of a National Climate Change Adaptation Committee (NCCAC), to act as the formal advisory body of the MEEN at national level for adaptation policy design and implementation. The NCCAC comprises representatives from all Ministries that have a sectoral role in adaptation policy planning and in funding of adaptation actions, as well as representatives of other stakeholder bodies and governmental authorities with a role in adaptation policy support and knowledge enhancement.

#### **A2. Adaptation strategies adopted at subnational levels**

Work is ongoing on Regional Adaptation Action Plans (RAAPs).

Law 4414/2016 required the 13 Regional Authorities of Greece to develop and implement RAAPs within a 7-year planning cycle. Law 4414/2016 sets the minimum technical specifications for their content. The RAAPs content has been further elaborated by the Ministerial Decision (MD) 11258/2017 which provides the detailed specifications/template for the content of the RAAPs. The MD requires Regional Authorities to perform a detailed assessment of potential climate change impacts for a short, mid-term and long-term time horizon, to identify and map relevant climate-related risks, vulnerabilities and hotspots, to prioritise adaptation action on the basis of their cost-effectiveness and benefits, to identify synergies with other policies and regional plans (e.g. land-use plans, water management and flood risk management plans) and to integrate, as needed, priority measures into regional planning. Each RAAP will define priority adaptation actions on the basis of the specificities and characteristics of each Region.

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<sup>1</sup> [http://www.bankofgreece.gr/BogEkdoseis/ClimateChange\\_FullReport1.pdf](http://www.bankofgreece.gr/BogEkdoseis/ClimateChange_FullReport1.pdf)

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*After the publication of this fiche on 7 December 2017, the Commission services received the following text proposal from the Greek authorities, to replace the current section A2. The proposal will be analysed and used by the Commission services as appropriate in updating the fiche before its finalisation in the 2<sup>nd</sup> half of 2018.*

"Based on a careful assessment of needs, strategizing at the regional (subnational) level has been considered redundant and thus no adaptation regional (subnational) strategies will be developed.

The Greek NAS is an overarching policy document, which defines the goals, principles and priorities of adaptation and lists potential adaptation measures (actions) for all environmental and socio-economic sectors that are likely to be significantly affected by climate change in Greece. As such, it provides guidance, insight and priorities, which should be further downscaled (i.e. detailed) at regional level and translated into Regional Adaptation Action Plans. Vertical coordination (i.e. between the national and the regional level) is achieved through the MEEN, on the basis of the NAS priorities.

It should be noted that the diversity of climate, socio-economic and environmental conditions vary substantially across the country; as such detailed plans can only be developed and implemented at sub-national (i.e. regional) level to address regionally and locally vulnerable sectors and hotspots. To this end, each RAAP will define priority actions on the basis of the specificities and characteristics of each Region. Further information on the RAAPs is provided below."

### **Adaptation action plans**

#### **B1. National adaptation plan**

There is no national adaptation action plan, which exists independently from the NAS and the RAAPs. According to Greece, the National Action Plan will in due course be comprised of the 13 RAAPs.

The MEEN has submitted a proposal for funding in the September 2017 LIFE Climate Action Integrated Projects Call (hereafter called LIFE IP AdaptInGR project proposal). For this project, the MEEN would seek to further coordinate cross-regional and enhance national-regional-local adaptation action, in close collaboration with the Union of Greek Regions, the Central Union of Greek Municipalities and individual Regions and Municipalities that are full partners in the project proposal. The project foresees capacity building and training programmes for regional and national key stakeholders. The LIFE IP AdaptInGR project proposal includes proposed actions to support cross-regional cooperation and transnational cooperation with countries from the Balkans and the wider Mediterranean area. The proposal also calls for the development and operation of a National Adaptation Knowledge Hub. The AdaptInGR project would develop and test methodologies to monitor the progress achieved in the implementation of the NAS and RAAPs, and furthermore assess the existing level of mainstreaming and integration of climate change adaptation priorities to other sectors at national level. After the end of the project, the established monitoring structure will be run by the MEEN and the National Centre for Environment and Sustainable Development.

#### **B2. Adaptation plans adopted at sub-national level**

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Law 4414/2016 (article 43) institutionalised the RAAPs and the Ministerial Decision 11258/2017 (Government Gazette, issue B, 873/2017) set common technical specifications (i.e. their template) to ensure homogeneity and quality standards. The RAAPs will be developed by the regional authorities. The MEEN will check their compliance with the NAS. (Law 4412/2016, article 43).

The development of the 13 RAAPs is ongoing with several Regions being more advanced than others. It is expected that all RAAPs will have been finalised by the end of 2018, with the help of subcontractors.

As afore mentioned, the RAAPs will examine the potential measures/actions included in the NAS based on the particular regional circumstances, priorities and needs and will develop concrete regional action plans. Wherever there is a case for sector or sub-regional analysis, specific actions per sector or sub-regional area will be indicated (pursuant to RAAPs technical specifications, Ministerial Decision 11258/2017).

*After the publication of this fiche on 7 December 2017, the Commission services received the following text proposal from the Greek authorities, replacing the previous three paragraphs. The proposal will be analysed and used by the Commission services as appropriate in updating the fiche before its finalisation in the 2<sup>nd</sup> half of 2018.*

"Law 4414/2016 required the 13 Regional Authorities of Greece to develop and implement Regional Adaptation Action Plans (RAAPs (within a 7-year planning cycle. Law 4414/2016 sets the minimum technical specifications for their content. The RAAPs content has been further elaborated by the Ministerial Decision (MD) 11258/2017 (Government Gazette, issue B, 873/2017) which provides the detailed specifications/template for the content of the RAAPs. The MD requires Regional Authorities to perform a detailed assessment of potential climate change impacts for a short, mid-term and long-term time horizon, to identify and map relevant climate-related risks, vulnerabilities and hotspots, to prioritise adaptation action on the basis of their cost-effectiveness and benefits, to identify synergies with other policies and regional plans (e.g. land-use plans, water management and flood risk management plans) and to integrate, as needed, priority measures into regional planning. Each RAAP will examine the potential measures/actions included in the NAS based on the particular regional circumstances, priorities and needs and will develop concrete regional action plans. Wherever there is a case for sector or sub-regional analysis, specific actions per sector or sub-regional area will be indicated. The development of the 13 RAAPs is ongoing with several Regions being more advanced than others. It is expected that all RAAPs will have been finalised by the end of 2018, with the help of subcontractors."

Despite the significant progress made in the last two years, there are still significant needs with regard to policy coordination, development and dissemination of good practice, and most importantly in terms of capacity building. To further boost adaptation policy and better coordinate the NAS and the RAAPs, the Ministry of Environment and Energy has developed a plan to: a) build capacities and foster cooperation at local, regional and national level, b) allow information, knowledge and good practices sharing through an online platform (hub), c) implement and disseminate pilot projects and best practices, d) strengthen the existing monitoring and reviewing framework for NAS and NAP and e) identify funding priorities for implementing climate change adaptation in the post-2020 period (new EU programming period).

*After the publication of this fiche on 7 December 2017, the Commission services received a proposal from the Greek authorities to delete the second paragraph of section B1 and instead include the following text in this position. The proposal will be analysed and used by the Commission services as appropriate in updating the fiche before its finalisation in the 2<sup>nd</sup> half of 2018.*

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Due to the limited administrative and financial resources available, the MEEN has submitted a proposal in the September 2017 LIFE Climate Action Integrated Projects Call (here after called LIFE IP AdaptInGR project proposal). LIFE IP AdaptInGR is planned as 8-year period project. The project includes actions to a) coordinate cross-regional and enhance national-regional-local adaptation action, in close collaboration with the Union of Greek Regions, the Central Union of Greek Municipalities and individual Regions and Municipalities that are full partners in the project proposal; b) build capacity at national and regional stakeholders, c) support cross-regional cooperation and transnational cooperation with countries from the Balkans and the wider Mediterranean area, d) develop and operate a National Adaptation Knowledge Hub, e) develop and test methodologies to monitor the progress achieved in the implementation of the NAS and RAAPs, f) assess the existing level of mainstreaming and integration of climate change adaptation priorities to other sectors at national level. The National Centre for Environment and Sustainable Development and the MEEN will take over the training, information sharing and monitoring activities after the end of the project.

### B3. Sectoral adaptation plans

As aforementioned, actions per sector will be embedded in the RAAPs. After the conclusion of RAAPs, it will be possible to better mainstream adaptation to existing sectoral strategies and to identify potential additional needs for sectoral adaptation action plans. Nevertheless, adaptation-related actions have been already embedded in some sectoral strategies: i.e. National Biodiversity Strategy (available only in Greek), National Research & Innovation Strategy for Smart Specialisation (available only in Greek). Further information, on the sectoral aspects of NAS and RAAPs can be found at the indicators 3c, 6a and 8a-8e.

## SCOREBOARD

### Step A: preparing the ground for adaptation

#### 1. Coordination structure

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

Yes / No

The Ministry of Environment and Energy (MEEN) is the country-wide competent authority for climate change and works towards both mitigation and adaptation, as well as the enhancement of mechanisms and institutions for environmental governance. In this capacity, MEEN has been the leading body in the development of the National Adaptation Strategy (NAS). In addition, pursuant to the Law 4414/2016 (article 42), the MEEN is responsible for NAS's evaluation and revision.

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

Yes / In progress / No

Law 4414/2016 (Article 44) established the **National Climate Change Adaptation Committee (NCCAC)** as the formal coordination and advisory mechanism body for adaptation policy monitoring, evaluation and formulation.

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It is chaired by the Minister of Environment & Energy and comprises representatives of all competent ministries (Environment, Economics, Internal Affairs, Economy & Development, Tourism, Infrastructure & Transport, Health, Maritime Affairs & Insular Policy, Rural Development & Food, Education, Research & Religious Affairs, Culture and Sports, National Defence), as well as representatives from the Union of Greek Regions, the Central Union of Greek Municipalities, the Hellenic Meteorological Service, the Association of Industries; NGOs and members from the academia specialising on climate change adaptation issues. Additional participants can be invited to participate on the basis of identified needs.

The composition of the NCCAC reflects the need for the **horizontal coordination** of sectoral policies, for ensuring feedback and vertical coordination among different levels of government, as well as and for involving non-governmental authorities on all aspects relating to climate change adaptation.

The Ministerial Decision for the formal appointment of the NCCAC Members was issued on September 15<sup>th</sup> 2017, including also the procedures for its operation. According to the provisions of Law 4414/2016, the NCCAC is responsible for: (a) the specification/operationalization of adaptation policies, and the suggestion towards the MEEN and other competent Ministries of relevant policies, measures, actions and legislative/regulatory measures; (b) the specification of horizontal policies/actions included in the NAS, especially those concerning awareness, dissemination and capacity building; (c) the development of recommendations for the review or revision of the NAS and of the RAAPs; (d) the development of recommendations for any matter relating to climate change adaptation, as put forward by the Minister of Environment and Energy.

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

**Yes** / In progress / No

The formalised channel for (vertical) coordination among national, regional and local authorities is through the National Climate Change Adaptation Committee, which includes representatives from the Union of Greek Regions (UGR) and from the Central Union of Greek Municipalities (CUGM), as well as from the Ministry of the Interior (the competent authority for coordinating regional and local authorities).

In addition, several meetings and seminars are held regularly, both under the initiative of the MEEN and of UGR and CUGM, so as to spread awareness, exchange information on adaptation progress and issues and knowledge developments. Examples include: (a) consultation with the Regional Authorities in May 2015 for the priorities of the Greek National Adaptation Strategy and for the specifications of the RAAPs, (b) the consultation/information seminar in December 2016 for the specifications of the RAAPs, (c) conferences organised by CUGM on climate change adaptation in April 2017 and in June 2017 on adaptation needs, progress, and knowledge developments, etc. In order to further facilitate the exchange of information between national and regional experts, contact persons for climate change have been nominated in each region.

The consultation procedure, before the formal endorsement of RAAPs, ensures good vertical coordination across the three levels of governance (national, regional and local) as well. Specifically, pursuant to the Law 4414/2016 (article 43), the MEEN is checking the compliance of the RAAPs with the NAS, while the local authorities participate in the Regional Consultation Committees giving formal opinions on the RAAPs of the respective regions.

The Covenant of Mayors (CoM) also fosters vertical cooperation by enabling local authorities to influence climate change adaptation policy making. 48 signatories from Greece have joined the adaptation component of the CoM, 38 of which have also

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committed to the integrated 2030 Covenant for Climate and Energy<sup>2</sup>. Coordinators<sup>3</sup> of the CoM include the Regions of Attica, Crete, Central Macedonia and Western Macedonia, while Supporters<sup>4</sup> to the CoM, besides the Central Union of Greek Municipalities, include the Regional Union of Municipalities of Central Greece (which is the union of municipalities of the Region of Central Greece), the Regional Union of Municipalities of Attica (PEDA) which is the union of municipalities of Attica; the Network of Sustainable Greek Islands, the Network of Cities with Lakes, and the Association for the Sustainable Development of Cities. The CoM Coordinators and Supporters support and help to coordinate adaptation efforts by their corresponding members.

Adaptation is mainstreamed into regional planning. With regard to the regional plans, the river basin management plans (RBMPs) and the flood risk management plans (FRMPs) take into account possible impacts of climate change.

## 2. Stakeholders' involvement in policy development

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

**Yes / No**

The draft NAS had been subject to public consultation prior to its finalisation. Pursuant to Law 4414/2016 (article 42) any future revisions of the national climate change adaptation strategy (NAS) will be subject to open online public consultation. By the same Law, the revised NAS should be published on the MEEN website for minimum of 30 days to allow individual citizens, public authorities and other stakeholders to submit written views and contributions.

Stakeholder engagement and public consultation have been made mandatory for the development of the RAAPs through the Ministerial Decision 11258/2017. The main regional stakeholders (public authorities, scientific community, business and industry, civil society etc.) are invited to identify/submit their views on measures that can contribute to the adaptation of their region/area of interest. In addition, regional authorities are required to consult and coordinate with neighbouring regions, in the case of shared vulnerability hotspots (e.g. shared protected areas or river basins).

Public consultation on the RAAPs will be also effected through the Strategic Environmental Assessment (SEA) process, as the RAAPs will have to undergo this step as well before their final endorsement.

As already mentioned, the draft RAAPs will be subject to an opinion-giving procedure by the Regional Consultation Committee. The Regional Consultation Committee comprises the mayors of the relative municipalities and the representatives of the government authorities within the territorial boundaries of the respective region, as well as regional stakeholders and citizens representatives (Law 3852/2010 "Kallikratis Administrative Programme", article 178).

Obviously, the National Climate Change Adaptation Committee is an essential instrument for stakeholder engagement at the national level.

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<sup>2</sup> End of 2015, the Covenant of Mayors and the Mayors Adapt initiatives merged under the new integrated Covenant of Mayors.

<sup>3</sup> [http://www.covenantofmayors.eu/about/covenant-coordinators\\_en.html?q=Search+for+a+Covenant+Coordinator...&country\\_search=gr&signatories](http://www.covenantofmayors.eu/about/covenant-coordinators_en.html?q=Search+for+a+Covenant+Coordinator...&country_search=gr&signatories)

<sup>4</sup> [http://www.covenantofmayors.eu/about/covenant-supporters\\_en.html?q=Search+for+a+Covenant+Supporter...&country\\_search=gr&signatories](http://www.covenantofmayors.eu/about/covenant-supporters_en.html?q=Search+for+a+Covenant+Supporter...&country_search=gr&signatories)



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Besides formal consultation, required by the legislation, the MEEN regularly interacts and consults with regional and local authorities on adaptation issues, through dedicated meetings, seminars and questionnaires. A number of these initiatives have been briefly presented above.

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

**Yes** / No

The NAS recognises that Greece is sharing a significant amount of water resources, mountainous areas and forests with neighbouring countries and it is therefore important to establish communication channels with those countries. This will allow data to be exchanged and common adaptation policies to be developed. A number of specific actions are mentioned in the NAS, including actions on identifying and recording transboundary adaptation issues, creating processes for the development of common policies, creating shared data collection stations, training and capacity building. The development of these actions is still in progress.

Greece is involved in the EU Strategy for the Adriatic and Ionian Region (EUSAIR), a macro-regional strategy aiming to address common challenges in the region, including environmental quality.<sup>5</sup>

In addition to what is mentioned above, the RAAPs assess the transboundary character of climate change impacts (Ministerial Decision 11258/2017) to identify needs of international cooperation. There are already bilateral and sectoral programmes in this field. For example, a Greece-Bulgaria bilateral cooperation programme funded through INTERREG foresees the development of common technical specifications for the national flood risk management plans covering the border area and the subsequent revision of the existing ones to improve cohesion and coordination.

Cooperation on adaptation issues are a priority in the 2017 trilateral cooperation agreements between Greece-Cyprus-Israel and Greece-Cyprus-Egypt mainly focusing on the exchange of knowledge and know-how on adaptation policy monitoring, evaluation and good practice at regional and local scale.

Transboundary public consultations on the RAAPs will be also effected through the Strategic Environmental Assessment (SEA) process, as the RAAPs will have to undergo this step in case of transboundary impacts. Transboundary public consultations, as part of the SEA process, are currently ongoing for the transboundary river basin Flood Risk Management Plans (the consultation on river basin Evros shared by Greece and Bulgaria has recently been concluded).

### **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

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<sup>5</sup><http://www.adriatic-ionian.eu/about>

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Observation systems are in place to monitor climate change, extreme climate events and their impacts. The Hellenic National Meteorological Service<sup>6</sup> (HNMS) operates a network of 79 land surface and three upper air measurement stations<sup>7</sup>. The available data time series cover a period of 35-40 years. The majority of the stations have been in operation since 1955. Several other stations are operated by other entities, such as the Ministry of Rural Development and Food (agrometeorological stations), the Institute of Mediterranean Forest Ecosystems and Forest Products Technology<sup>8</sup>, by the National Observatory of Athens,<sup>9</sup> and a number of national research centres. Oceanic observation is very developed in Greece. Moreover, Greece is a member of the European organisation for the exploitation of Meteorological Satellites (EUMETSAT).

Further information on the observations system in place and Greece's contribution to the Global Climate Observing System can be found at the corresponding national report submitted to UNFCCC<sup>10</sup>. The HNMS is updating their monitoring strategy plans focusing also on climate change needs, and so does the National Observatory of Athens. The General Secretariat for Civil Protection also tracks records of extreme events showing impacts kept by relative national authorities, according to their competences.

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

**Yes** / In progress / No

The NAS built on a national multi-sectoral climate change impacts and vulnerability assessment (CCIV assessment) developed by the CCISC in 2011. The assessment used model simulation datasets for four IPCC GHGs emissions scenarios (A2, A1B, B2 and B1), developed by the Research Centre for Atmospheric Physics and Climatology of the Academy of Athens, to estimate the variation in the mean seasonal and annual values of six climate parameters (air temperature, precipitation, humidity, cloud cover, total incident short-wave radiation, wind speed) for the periods 2021-2050 and 2071-2100. Extreme weather events and their impacts were assessed as well. A regional climate model (ENSEMBLES) was used to project changes in maximum summer and minimum winter temperatures, number of warm days and nights, number of days with precipitation and dry days, number of frost days and growing seasons. The degree-days method was used to assess changes in energy demand for heating and cooling, the Forest Fire Weather Index (FFWI) to assess the wildland fire potential and the Humidex to estimate the number of days with high thermal discomfort. Moreover, the ECHAM5 and the HadCM3 models were used to assess changes in the intensity and distribution of landslides and floods. In addition, the change in mean sea level and its impact on Greece's shoreline were assessed. The risks and impacts of climate change by sector were eventually assessed -based on the outcomes of the aforementioned climate change projections - using state-of-the-art Impact Assessment Models. The economic cost of climate change was estimated using the GEM-E3 general equilibrium model (estimations per climate scenario and per sector). Priority sectors were identified based on the climate change costs per sector. The results per sector were further downscaled to

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<sup>6</sup><http://www.hnms.gr/hnms/english/climatology/climatology.html>

<sup>7</sup>[http://www.hnms.gr/hnms/english/observation/observation\\_region.html](http://www.hnms.gr/hnms/english/observation/observation_region.html)

<sup>8</sup><http://www.fria.gr/EngPage/>

<sup>9</sup>[http://www.meteo.noa.gr/ENG/iersd\\_research.htm](http://www.meteo.noa.gr/ENG/iersd_research.htm)

<sup>10</sup>[http://unfccc.int/files/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/application/pdf/gcos\\_2014\\_greece.pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/gcos_2014_greece.pdf)

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regional level in the NAS report, based on the mix and intensity of economic activities in each Region.

Pursuant to Law 4414/2016 (article 42) multi-sectoral CCIV assessments will be an integral part of future NASs. In particular, future NASs will include projections of future climate trends for various GHG emission scenarios, climate change vulnerability analyses of various sectors and activities and assessments of climate change impacts on most vulnerable sectors at national level. Priority sectors for action will be identified based on the vulnerability analyses and impact assessments.

Geographical specificities have been considered in the NAS but will be further analysed within the regional CCIV assessments of the RAAPs. According to the Technical Specifications, the RAAP CCIV assessments will include:

- a. Analysis of projections of future climate conditions at regional level. More specifically, analysis of the trends of the main climate parameters for the short, mid (2050) and long (2100) term and for more than one scenario, using existing data and well-established regional climate models. The analysis will include existing trends and potential changes in extreme weather events, temperature, sea-level rise, etc.
- b. Vulnerability assessment of specific sectors and/or geographical areas within each region based on the outcomes of the climate condition projections.
- c. Assessment of climate change impacts (environmental, social, economic etc.) on the previously identified sectors and/or geographical areas at the short, mid (2050) and long (2100) term. The impacts are assessed based on their: probability, magnitude (area and/or population affected), intensity, complexity, timing, reversibility/possibility to mitigate, cross-border and/or cross-sectoral character etc.
- d. Identifications of priority sectors and priority geographical areas for action.

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

Yes / In progress / No

As mentioned in the indicator "3b" above, the NAS has built on a national multi-sectoral CCIV assessment developed by the CCISC on 2011, while the RAAPs will include regional multi-sectoral CCIV assessments. After the finalisation of the RAAPs, it will be possible to identify needs for better sectoral CCIV information.

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

Yes / In progress / No

Transboundary risks and raising awareness around vulnerable sectors on a transboundary level is mentioned in the NAS. The regional CCIV assessments will take transboundary risks into account. According to the RAAPs technical specifications (Ministerial Decision 11258/2017), the impacts will be assessed based on, inter alia,

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their cross-border character. Adaptation plans in areas shared by neighbouring regions should be compatible and coordinated accordingly (art. 2 para 7 of the previously mentioned Ministerial Decision).

Greece does have international cooperation on transboundary waters (shared rivers in the north of the country), but this historic cooperation is linked to the protection and management of the water resources of Greece, rather than to climate change considerations.

### 4. Knowledge gaps

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

Yes / In progress / No

The research priorities and knowledge gaps outlined in the NAS have been based on a thorough assessment of available information through the CCSIC (Climate Change Impacts Study Committee of the Bank of Greece), and have been subjected to stakeholder and public consultation. Under each sector, the NAS also outlines sectoral knowledge gaps that need to be filled-in.

It is expected that the development of the RAAPs will allow the MEEN to identify additional regional/and or sectoral knowledge and information needs, as arising from the climate and impact assessment and/or for specific geographical areas/hotspots.

This information will be communicated to the relevant bodies, e.g. the academic community and the Ministry of Education, Research and Religious Affairs through the National Climate Change Adaptation Committee to inform their work as well.

### 5. Knowledge transfer

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

Yes / In progress / No

The need to create an online National Adaptation Knowledge Hub that pools together adaptation relevant data, information, good practices and approaches has already been identified, but has not been yet implemented due to limited resources available. The MEEN is trying to secure necessary funding as mentioned in B2.

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

Yes / In progress / No

The need to train and build the relative capacities of the key national, regional and local stakeholders and create training material has been identified at an earlier stage, however no evidence seems to be available for a systematic and coordinated approach driven by the NAS process seems to be available. The MEEN is trying to secure necessary funding (ref. B2) to provide a capacity building and training programme targeting regional and national key stakeholders.

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It is worth noting here a number of projects under the Seventh Framework Program for Research (FP7) as they cover a range of relevant research that could lead to capacity building in the future (ClimateCost<sup>11</sup>, MEECE — Marine Ecosystem Evolution in Life-IPa Changing Environment<sup>12</sup>, ADAGIO<sup>13</sup>, SERPEC-CC<sup>14</sup>, Climate-KIC<sup>15</sup>).

### Step C: identifying adaptation options

#### 6. Adaptation options' identification

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

**Yes** / No

The RAAPs will include actions aiming to address impacts on the priority sectors and/or geographical areas, identified through the CCIV assessments mentioned in the indicators "3b" and "3c". The NAS is a guiding document and contains a list of potential actions per sector based on best available scientific knowledge, international and European practice.

The elaborate risk assessment for all priority sectors at national level has been performed by the CCSIC in 2011 which provided the background evidence for the development of the NAS.

##### **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 methodology used to identify **priority sectors and/or priority geographical areas** please refer back to what is described in indicators "3b" and "3c" above. The NAS priority sectors have been identified through the CCIV assessment conducted by the CCISC, using robust modeling methods to quantify risks and the potential economic losses associated with climate change impacts.

The list of **potential actions** included in the NAS was the outcome of an extensive consultation with experts from various disciplines, the national administration, which has thorough knowledge of sectoral planning, as well of a public consultation with stakeholders.

Pursuant to the respective technical specifications for RAAPs, **the adaptations actions per section or geographical area are prioritized** based on cost-effectiveness and cost-benefit analyses. The effectiveness corresponds to the climate change prevention, mitigation and restoration capacity (in order of priority) of the actions, while the benefit to the wider economic, environmental and social benefits from their implementation, so as to facilitate focus on 'win-win' and 'no-regret' actions. The analyses aim to prioritize cost-effective and environmentally, economically and socially beneficial actions. Stakeholders will be involved in adaptation actions selection through the public consultation processes described in indicator "2a" as well.

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<sup>11</sup><http://www.climatecost.cc/>

<sup>12</sup><http://www.meece.eu/>

<sup>13</sup><http://www.adagio-eu.org/>

<sup>14</sup>[http://cordis.europa.eu/project/rcn/84044\\_en.html](http://cordis.europa.eu/project/rcn/84044_en.html)

<sup>15</sup><http://www.climate-kic.org/>

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### **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

There are mechanisms in place to coordinate disaster risk management and climate change adaptation in order to ensure coherence between the two policies.

The MEEN (notably the Climate Change Directorate, the Forest Protection & Forest Environment Directorate and the Special Secretariat for Water) is represented within the structure of the Hellenic National Platform for Disaster Risk Reduction. The Platform is coordinated by the Ministry of Interior (i.e. General Secretariat for Civil Protection).<sup>16</sup>

The National Climate Change Adaptation Committee (NCCAC) is chaired by the MEEN Minister and includes representatives of the Ministry of Interior (see indicator "1b" above), which holds the responsibility for Civil Protection.

### **7. Funding resources identified and allocated**

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

Yes / **In progress** / No

The Sectoral Operational Programme on 'Transport Infrastructure, Environment and Sustainable development' and the 13 Regional Operational Programmes (one for each administrative region of Greece) of the National Strategic Reference Framework 2014-2020 (NSRF, cohesion policy) **include** specific budget and measures under the Thematic Objective #5 'Climate Change Adaptation & Disaster Risk Management'. These instruments, together with the Rural Development Programme are the main funding source of adaptation actions at national level and in the 13 administrative regions until 2020.

No evidence could be found of a budget for cross-cutting adaptation action.

#### **Step D: Implementing adaptation action**

##### **8 Mainstreaming adaptation in planning processes**

Pursuant to the Law 4416/2014 (article 43) and the Ministerial Decision 11258/2017 (article 2 paras 6 and 7) the RAAPs will analyse the synergies of proposed adaptation actions with other existing national policies, such as biodiversity, disaster risk management and infrastructure-related policies, and will suggest ways of integrating adaptation. They will also investigate their complementarity and compatibility with other regional plans (e.g. spatial plans, flood risk management plans), in order to inform these plans and to include adaptation considerations. In addition, the climate projections and the CCIV assessments will be conducted as part of the RAAPs, and provide useful data and information about future climate conditions and their impacts, to planners and decision makers.

**In short, the RAAPs will provide the necessary information to support mainstreaming adaptation into planning processes and more specifically to revise existing plans and policies in order to include adaptation considerations.**

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<sup>16</sup> <https://www.unisdr.org/partners/countries/grc>.

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

Yes / No

The transposition of the revised EIA directive will be completed shortly, and will take all necessary provisions into account.

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

Yes / No

The General Secretariat for Civil Protection is the national competent authority for the coordination of all actions for prevention, preparedness, response and recovery concerning natural and manmade disasters. Climate change is considered during the formation of national disaster risk management plans. Long-term climate risk prevention, which is the focus of climate adaptation planning, will be integrated into the RAAPs. As already mentioned, RAAPs have to take into account synergies with existing planning (e.g. for flood risk management) and integrate the relevant measures as relevant into the sectoral plans.

*After the publication of this fiche on 7 December 2017, the Commission services received the following text proposal from the Greek authorities, to be included at this point in the text. The proposal will be analysed and used by the Commission services as appropriate in updating the fiche before its finalisation in the 2<sup>nd</sup> half of 2018.*

"In addition, the regional CCIV assessments (to be conducted as part of the RAAPs) will improve climate-related disaster risk analyses and thus enable better integrating climate change considerations into the disaster risk management plans. As mentioned previously, the RAAPs will analyse the synergies of proposed adaptation actions with disaster risk management policies and plans, and will suggest ways to integrate adaptation."

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

Yes / No

Links with climate change in land use and spatial planning policies appear to be indirect. The General National Framework for Spatial Planning and Sustainable Development 2008<sup>17</sup> includes priorities that could be considered as contributing to climate change adaptation, such as energy saving measures, forest fire prevention and reforestation measures, implementation of bioclimatic energy, food etc.

On coastal zone management, reference is made to the law concerning the creation of new settlements or the expansion of existing ones. Additional useful provisions exist in the Specific Framework Spatial Plans published in 2009<sup>18</sup> and refer to climate change with regards to fisheries, tourism, industry, renewable energy and sustainable development. The majority of Spatial Plans date back to 2009. Several of these Spatial Plans are being or will be revised.

<sup>17</sup><http://www.ypeka.gr/LinkClick.aspx?fileticket=znJpFQj917U%3d&tabid=513&language=el-GR>

<sup>18</sup><http://www.ypeka.gr/?tabid=513>

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Furthermore, as mentioned above, the RAAPs will propose ways to integrate adaptation into existing strategies, policies and plans, including urban and spatial (land/sea) policies and plans. In addition, the future climate projections and CCIV assessments of the RAAPs will be a valuable input for land use, urban and spatial planning plans and studies, and the same applies to other sectoral planning such as the FRMPs.

### **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

Mainstreaming of adaptation has been done in some sectors, but it is not clear whether the NAS was the driver for mainstreaming. Examples of sectors where adaptation has been mainstreamed include:

- Agriculture and Forests, concerning operations to prevent forest fires and natural disasters<sup>19</sup>, reforestation and mountain anti-flood actions for burned forest areas<sup>20</sup>;
- Biodiversity: the National Biodiversity Strategy<sup>21</sup> includes an objective of "Prevention & reduction of climate change impacts on biodiversity"
- Health: the National Action Plan for the 'Response to Environmental Hazards Threatening Health' for 2008-2012<sup>22</sup> includes a special action dedicated to 'Exploring Climate Change Impacts on Health'.

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

Yes / **No**

The NAS recognises that insurance schemes could be updated to ensure that they incentivise climate change adaptation. However, no evidence could be found that adaptation is already mainstreamed in insurance policies or alternative policy instruments in order to provide incentives for investments in risk prevention.

## **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**

Some sectoral adaptation measures were undertaken in specific areas of identified vulnerabilities. They include responding to sectoral impacts at a regional level, inter alia regional river basin management plans, regional framework spatial plans, and the anti-flooding measures implemented by important coastal cities and regions (City of Thessaloniki, Heraklion), etc. Several research projects/programmes are aimed at climate change adaptation options (such as MEDROPLAN, ORIENTGATE etc.).

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<sup>19</sup><http://civilprotection.gr/el>

<sup>20</sup><http://civilprotection.gr/el/εγκυκλιες>

<sup>21</sup><http://www.ypeka.gr/Default.aspx?tabid=237&language=el-GR#biodiv>

<sup>22</sup><http://www.moh.gov.gr/articles/health/domes-kai-drases-gia-thn-ygeia/ethnika-sxedia-drashs/95-ethnika-sxedia-drashs?fdl=223>



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Furthermore, implementation of adaptation actions or actions that have an adaptation dimension or integrate climate risks is ongoing both at sectoral and at regional and at local level. For example, the bioclimatic restoration of urban areas, already ongoing in several regions of Greece is an action with an adaptation dimension but is embedded in the sustainable urban development plans that municipalities have already developed and/or started to implement.

However, coordinated implementation of the NAS is only starting.

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

Yes / In progress / **No**

The implementation of adaptation actions has not yet started. However, the framework to foster and support implementation of adaptation at local and regional level is in place and is described under indicators "B1-B3" and "1c" above.

### **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**

Apart from various guidelines issued by the European Commission, no specific procedures or guidelines issued or used by the Greek authorities for assessing the impact of climate change on major projects or programmes and for facilitating their adaptation could be identified.

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

**Yes** / No

As already mentioned in the indicator "2a" above, the main regional stakeholders (public authorities, scientific community, business and industry, civil society etc.) will be invited to identify measures they could take to contribute to the climate resilience of their region, and of course support their implementation.

## **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**

Pursuant to the Law 4416/2014 (article 44), the NCCAC will regularly monitor the national climate change adaptation progress (covering both policies and measures) and suggest necessary political, legislative or other means and arrangements. Pursuant to the same Law (article 43) and the Ministerial Decision 11258/2017 (article 2, para 11) an indicator-based monitoring system will be developed per Region's Adaptation Action Plans aiming to continually monitor both the progress and the effectiveness of implemented actions.

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

Yes / No

Sector-specific adaptation actions will be foreseen in RAAPs and will be monitored through the respective regional monitoring plans. The RAAPs will be mostly funded by the Regional Operational Programmes 2014-2020 and thus information on the related expenditure could be obtained through the Integrated Information System of the respective Managing Authority.

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

Yes / No

The mechanism to monitor RAAPs and report to national level is described under 10a.

Furthermore, the Central Union of Greek Municipalities and the Union of Greek Regions will provide feedback to the NCCAC.

## **11. Evaluation**

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

Yes / No

The NAS and RAAPs will be subject to evaluation and revision at least once every ten years and at least once every seven years respectively (pursuant to Law 4414/2016, article 42-43). Nevertheless, the National Climate Change Adaptation Committee will regularly monitor and evaluate the national climate adaptation policy and suggest necessary political, legislative or other measures and arrangements.

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

Yes / No

The stakeholder engagement process is similar to the one foreseen for the development of NAS and RAAPs, which is described in the indicator "2a" above." This indicates that stakeholder involvement will take place mainly in the evaluation and review of the NAS. No information seems to be available on the stakeholders' involvement in monitoring.

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### SUMMARY TABLE

<b>Adaptation Preparedness Scoreboard</b>		
<b>No.</b>	<b>Indicator</b>	<b>Met?</b>
<b>Step A: Preparing the ground for adaptation</b>		
<b>1      <i>Coordination structure</i></b>		
1a	A central administration body officially in charge of adaptation policy making	<b><u>Yes</u></b> / No
1b	Horizontal (i.e. sectoral) coordination mechanisms exist within the governance system, with division of responsibilities	<b><u>Yes</u></b> / 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.	<b><u>Yes</u></b> / In progress / No
<b>2      <i>Stakeholders' involvement in policy development</i></b>		
2a	A dedicated process is in place to facilitate stakeholders' involvement in the preparation of adaptation policies	<b><u>Yes</u></b> / No
2b	Transboundary cooperation is planned to address common challenges with relevant countries	<b><u>Yes</u></b> / No
<b>Step B: Assessing risks and vulnerabilities to climate change</b>		
<b>3      <i>Current and projected climate change</i></b>		
3a	Observation systems are in place to monitor climate change, extreme climate events and their impacts	<b><u>Yes</u></b> / 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)	<b><u>Yes</u></b> / In progress / No
3c	Sound climate risks/vulnerability assessments for priority vulnerable sectors are undertaken to support adaptation decision making.	Yes / <b><u>In progress</u></b> / No
3d	Climate risks/vulnerability assessments take transboundary risks into account, when relevant	<b><u>Yes</u></b> / In progress / No
<b>4      <i>Knowledge gaps</i></b>		

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<b>Adaptation Preparedness Scoreboard</b>		
<b>No.</b>	<b>Indicator</b>	<b>Met?</b>
4	Work is being carried out to identify, prioritise and address the knowledge gaps	Yes / <b><u>In progress</u></b> / No
<b>5 Knowledge transfer</b>		
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 / <b><u>No</u></b>
5b	Capacity building activities take place; education and training materials on climate change adaptation concepts and practices are available and disseminated	Yes / In progress / <b><u>No</u></b>
<b>Step C: Identifying adaptation options</b>		
<b>6 Identification of adaptation options</b>		
6a	Adaptation options address the sectoral risks identified in 3c, the geographical specificities identified in 3b and follow best practices in similar contexts	<b><u>Yes</u></b> / 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	<b><u>Yes</u></b> / No
6c	Mechanisms are in place to coordinate disaster risk management and climate change adaptation and to ensure coherence between the two policies	<b><u>Yes</u></b> / In progress / No
<b>7 Funding resources identified and allocated</b>		
7	Funding is available to increase climate resilience in vulnerable sectors and for cross-cutting adaptation action	Yes / <b><u>In progress</u></b> / No
<b>Step D: Implementing adaptation action</b>		
<b>8 Mainstreaming adaptation in planning processes</b>		
8a	Consideration of climate change adaptation has been included in the national frameworks for environmental impact assessments	Yes / <b><u>No</u></b>
8b	Prevention/preparedness strategies in place under national disaster risk management plans take into account climate change impacts and projections	Yes / <b><u>No</u></b>
8c	Key land use, spatial planning, urban planning and maritime spatial planning policies take into account the impacts of climate change	Yes / <b><u>No</u></b>

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<b>Adaptation Preparedness Scoreboard</b>		
<b>No.</b>	<b>Indicator</b>	<b>Met?</b>
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 / <b><u>In progress</u></b> / No
8e	Adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention	Yes / <b><u>No</u></b>
<b>9      <i>Implementing adaptation</i></b>		
9a	Adaptation policies and measures are implemented, e.g. as defined in action plans or sectoral policy documents	Yes / In progress / <b><u>No</u></b>
9b	Cooperation mechanisms in place to foster and support adaptation at relevant scales (e.g. local, subnational)	<b><u>Yes</u></b> / 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 / <b><u>No</u></b>
9d	There are processes for stakeholders' involvement in the implementation of adaptation policies and measures.	<b><u>Yes</u></b> / No
<b>Step E: Monitoring and evaluation of adaptation activities</b>		
<b>10      <i>Monitoring and reporting</i></b>		
10a	NAS/NAP implementation is monitored and the results of the monitoring are disseminated	Yes / <b><u>No</u></b>
10b	The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated	Yes / <b><u>No</u></b>
10c	Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated	Yes / <b><u>No</u></b>
<b>11      <i>Evaluation</i></b>		
11a	A periodic review of the national adaptation strategy and action plans is planned	<b><u>Yes</u></b> / No
11b	Stakeholders are involved in the assessment, evaluation and review of national adaptation policy	<b><u>Yes</u></b> / No