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

Adaptation preparedness scoreboard:

Draft country fiche for Finland

Disclaimer

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

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

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POLICY FRAMEWORK

Adaptation strategies

A1. National adaptation strategy

In Finland, a national adaptation strategy (NAS) was adopted in 2005¹ as an independent element of the wider National Energy and Climate Strategy². The evaluation process resulted in a government resolution and publication of a new national climate change adaptation framework in November 2014, known as the National Climate Change Adaptation Plan 2022³. Finland's Climate Act⁴ (approved on 6 March 2015) stipulates that the Government approves long-term and medium-term strategic mitigation plans and it will approve a national plan on adaptation at least every ten years.

The first NAS (2005) describes the impacts of climate change and contains adaptation measures for 15 sectors: agriculture and food production, forestry, fisheries, reindeer husbandry, wildlife management, water resources, biodiversity, industry, energy, traffic, land use and communities, building, health, tourism and recreation, and insurance. The Updated National Adaptation Plan (2014) focuses on the horizontal aim that the Finnish society has the capacity to manage the risks associated with climate change and adapt to changes in the climate. Based on this, the following objectives are set until the year 2022:

- Adaptation has been integrated into the planning and activities of both the various sectors and their actors.

¹http://mmm.fi/documents/1410837/1721050/MMMjulkaisu2005_1a.pdf/63f5d78d-8492-4621-b019-fe38d7aeb709

²<http://tem.fi/en/energy-and-climate-strategy>

³<http://mmm.fi/en/nature-and-climate/climate-change-adaptation>

⁴ In Finnish: <https://www.finlex.fi/fi/esitykset/he/2014/20140082.pdf>

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- The actors have access to the necessary climate change assessment and management methods and
- Research and development work, communication, and education and training have enhanced the adaptive capacity of society, developed innovative solutions and improved citizens' awareness on climate change adaptation.

The Ministry of Agriculture and Forestry was responsible for the preparation of the National Climate Change Adaptation Plan (updated strategy), with the practical work steered by a broadly-based coordination group appointed by the ministry.

A2. Adaptation strategies adopted at subnational levels

In 2015, all the provinces who answered a survey reported that they have both climate change mitigation and adaptation actions⁵. Already 125 municipalities have a climate strategy and 60% of those reported that both climate change mitigation and adaptation are part of the climate measures in municipalities. Only 15% of the municipalities reported that they do not have any climate measures. By the end of 2012, 16 out of 18 regions had published a climate strategy, which includes some recognition of adaptation⁶.

The Helsinki Metropolitan Area (Helsinki, Espoo, Vantaa and Kauniainen) has a dedicated adaptation strategy for the period 2012-2020⁷, which includes measures for land use, traffic and technical networks, buildings and construction, water and waste management, rescue services and safety, health care and social services and research and information. Some other bigger cities have also focused on climate change adaptation and the vulnerability to extreme weather events (Pori, Turku) or by planning green infrastructure (Lahti, Jyväskylä). Other Finnish municipalities have climate change strategies which mostly focus on mitigation. Three Finnish cities are signatories to the Covenant of Mayors for Climate and Energy for the Adaptation commitment⁸.

Adaptation action plans

B1. National adaptation plan

The National Adaptation Plan aims to identify the most important tasks to promote adaptation nationally and in each sector in the next few years and ensure that the Finnish society has the capacity to manage the risks relating to climate change and adapt to the changes.

B2. Adaptation plans adopted at sub-national level

The National Adaptation Plan calls for municipalities to integrate climate proofing reviews into emergency preparedness and security of supplies planning. The Plan tasks the joint regional offices (ELY-keskus) of the Ministry of Employment and Economy, the Ministry of Environment, the Ministry of Transport and Communications and the Ministry of Agriculture and Forestry to develop climate resilience guidance for municipalities.

In 2017, most of the municipalities were undertaking systematic climate actions and, although their focus has been predominantly on climate change mitigation,

⁵ In Finnish: http://shop.kunnat.net/product_details.php?p=3159

⁶ <https://julkaisut.valtioneuvosto.fi/handle/10138/41419> (In Finnish, Documentation Page in English)

⁷ http://ilmastotyokalut.fi/files/2014/10/11_2012_Helsinki_Metropolitan_Area_Climate_Change_Adaptation_Strategy.pdf

⁸ As of 15th June 2017: Jyväskylä, Lappeenranta and Oulu. See: http://www.covenantofmayors.eu/about/about/signatories_en.html?q=Search+for+a+Signatory...&country_search=fi&population=&date_of_adhesion=&status=&commitments1=1&commitments2=1&commitments3=1

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climate change adaptation has also been promoted. By the end of 2015, regional flood risk management plans were published for every significant flood risk areas (21 areas), and currently the implementation of identified measures is ongoing. In addition, several bigger cities and municipalities have been active in adaptation, e.g. the city of Helsinki (in vulnerability assessment) and the city of Vantaa (nature based solutions in runoff water management).

In 2017, the project KUJA2 (2017-219) was developed. It builds on the results of the previous KUJA (2014-2016) project, and develops not only in municipalities, but also in the new counties, preparedness and continuity management. KUJA2 aims to strengthen the interconnectedness of municipalities, regional authorities and their key stakeholders and to promote common understanding related to preparedness. Climate change adaptation is part of the process. Both projects are implemented in cooperation between the Association of Finnish Local and Regional Authorities and the Finnish National Emergency Supply Agency (NESA).⁹

B3. Sectoral adaptation plans

The National Adaptation Plan aims to incorporate adaptation into regular planning and activities of all sectors and actors. Adaptation is included in the Climate Act (approved on 6.3.2015). According to this Act, the State authorities must, as far as possible, promote the implementation of the adaptation plan in their actions.

The Action Plan for the Adaptation to Climate Change of the Environmental Administration (2016)¹⁰ covers the period up to 2022. It replaces the Ministry of the Environment's Action Plan in 2008, which was later supplemented by an update in 2011, following an assessment undertaken in 2013 (Assessment of the Environmental Administration's Action Plan for Adaptation to Climate Change). The action plan sets measures concerning biodiversity, land use, buildings and construction, environmental protection and the use and management of water resources. The plan also sets targets for research activities and communications.

The action plan for the Adaptation to Climate Change of the Ministry of Agriculture and Forestry 2011 to 2015 will be revised in 2017 to 2018, building on a comprehensive study¹¹ of vulnerability and adaptation in agriculture, forestry, fisheries, game and reindeer husbandry sectors that was completed in 2017 by Natural Resources Institute Finland (Luke).

The Climate Programme for Finnish Agriculture – Steps towards Climate Friendly Food (2014)¹² presents climate change adaptation and mitigation measures relating to the food system. The objectives of the National Forest Strategy 2025¹³ (replacing the National Forest Programme) include "increasingly diverse sustainable forest management supports climate change mitigation and adaptation".

The Climate Policy Programme for the Ministry of Transport and Communications' administrative sector for 2009–2020 aims to adapt to climate change without lowering the current service level in transport and communications. To attain this goal, the Ministry's together with the Transport Agency will update its instructions about transport infrastructure construction, maintenance and management, outline an action plan for exceptional circumstances and invest in research.

⁹ In Finnish: www.kuntaliitto.fi/kuja

¹⁰ <http://julkaisut.valtioneuvosto.fi/handle/10024/79789>

¹¹ In Finnish: <http://jukuri.luke.fi/handle/10024/538722>

¹² http://mmm.fi/documents/1410837/1890227/Climate_programme_agriculture_WEB_03072015.pdf/

¹³ <http://mmm.fi/documents/1410837/1504826/National+Forest+Strategy+2025/197e0aa4-2b6c-426c-b0d0-f8b0f277f332>

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In addition, there is the Energy and Climate Programme of the Finnish Defence Forces (2014).

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 Finland, the Ministry of Agriculture and Forestry is in charge of adaptation policy-making and coordination at the central government level.

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

Yes / In progress / No

The National Adaptation Plan (2014) was prepared in a coordination group appointed by the Ministry of Agriculture and Forestry, with representatives from the Prime Minister's Office and the relevant ministries (Ministry of Environment, Ministry of the Interior, Ministry of Education and Culture, Ministry of Economy and Employment, Ministry of Social Affairs and Health, research institutes (Finnish Meteorological Institute; Finnish Environment Institute and the Natural Resources Institute) and regional actors (ELY, Municipalities).¹⁴ In 2017, the group was updated with a new expert organisation in fire and rescue services, and financial services. In addition, experts from the Ministry of Foreign affairs, Ministry of Defence and from other organisations participate in the meetings if needed.

The various ministries are responsible for the implementation, monitoring and evaluation of the plan within their respective administrative branches. A national monitoring group is appointed to follow and evaluate the implementation of the adaptation plan, with representatives from the relevant ministries, research institutions, regional and local bodies and other actors. The group is responsible for the implementation, follow-up and communication relating to the adaptation plan.

Adaptation is included in the Climate Act (approved in 6.3.2015). According to this, the State authorities shall promote the implementation of the adaptation plan in their actions to the extent possible.

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 vertical coordination mechanisms within the governance system are in place and regional actors participated in the drafting of the National Adaptation Plan¹⁵. Representatives of municipalities (the Association of Finnish Local and Regional Authorities) and the Helsinki Metropolitan Region are also included in the

¹⁴ Membership of the coordination group is not static but evolves in time, usually with the addition of new members.

¹⁵ <http://mmm.fi/en/national-climate-change-adaptation-plan>

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coordination group. In addition, a significant share of the practical adaptation measures is taken in the regions or locally. The National Adaptation Plan also includes a key measure of promoting local and regional adaptation studies.

In Finland, the Covenant of Mayors initiative does not have dedicated coordination at national or regional level. However, the Association of Finnish Local and Regional Authorities (Kuntaliitto) is a powerful advocate for all Finnish municipalities and regions. In addition, the Association of Finnish Local and Regional Authorities and Ecofellows Ltd./City of Tampere are supporting partners in the Covenant of Mayors. In 2017, 12 Finnish municipalities were part of Covenant of Mayors, but only 3 had signed up to the adaptation commitment available since 2015.

Flood Risk Management Plans as well as River Basin Management Plans include evaluation of climate change impacts and climate-proofing of measures, if appropriate.

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 Ministry of Agriculture and Forestry was responsible for the preparation of the National Adaptation Plan, with the practical work steered by a broadly-based coordination group appointed by the ministry.

The strategy revision and preparation of the National Adaptation Plan involved consulting a wide range of stakeholders: The draft strategy was circulated for comments to 63 different organisations representing administration, research institutes, interest groups, NGOs, and universities¹⁶ and the comments were taken into consideration while finalising the plan. Also an open seminar for comments and discussion was organised in April 2014.

For the strategy revision process, the stakeholder involvement included¹⁷:

- A "stock taking" questionnaire in spring 2013 to wide group of stakeholders on climate change impacts and risks, recognized sectoral or regional vulnerabilities and views about the strategic goals and other relevant aspects to be taken into consideration in revision process.
- An open "mid-process" seminar (29.10.2013) on the draft strategic goals.
- The draft proposal of the strategy (7.3.2014) was sent for comments; 63 organizations representing administration (national, regional), research institutes and universities, NGOs and interest groups sent comments. At least 57 organizations commented on the draft.
- Presentation and discussions on the draft strategy in different fora
- An open seminar ("public hearing") 10.4.2014 of the strategy
- Draft strategy was in the "Have your say" –eParticipation forum for public (April-May 2014)

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

Yes / No

Transnational co-operation is one of the actions in the 2014 National Adaptation Plan: Adaptation is included in the EU policies and international region-based cooperation projects. Namely, the action focuses on the development of the

¹⁶ <http://www.cbss.org/wp-content/uploads/2014/04/Finland-CCA-Strategy-Presentation.pdf>

¹⁷ <http://www.cbss.org/wp-content/uploads/2014/04/Finland-CCA-Strategy-Presentation.pdf>

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Finnish, Norwegian and Russian nature conservation cooperation in the Fennoscandia Green Belt, focusing also on threats to the ecosystem services from climate change. There is also an intention to step up cooperation with Russia on climate change adaptation, especially focusing on transboundary water use and management and invasive species.

Adaptation is also part of transnational co-operation (e.g. Arctic Council¹⁸, Barents Euro-Arctic Council¹⁹, cooperation in the Baltic Sea region²⁰). Finland has worked with the Arctic Resilience Action Framework²¹ during 2015-2017 with the Arctic Council and the implementation will start now in the Finland's chair period 2017-2019. Finland has participated to the co-operation with the Baltic2030 expert group of Council of the Baltic Sea States (CBSS)²² related to the sustainable development and climate change adaptation and resiliency. The transboundary river agreements between Finland and its neighbouring countries include prevention of flood damages.

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

Observation systems are in place to monitor climate change, extreme weather events and their impacts and are conducted by the following institutions:

- Finnish Meteorological Institute (FMI): Weather observations. The FMI established a Climate Service Centre unit in 2014²³. The Centre offers operational climate services and studies weather and climate, and their socio-economic aspects. FMI also monitors extreme weather events and their impacts.
- The Flood Centre of the Finnish Environment Institute and Finnish Meteorological Institute²⁴ started on 1 January 2014 and is responsible for flood forecasts and warnings and maintaining a national situation awareness on floods.
- Finnish Environment Institute (SYKE)²⁵: Monitoring for physical, chemical and biological state of inland waters and marine waters
- Finnish Museum of Natural History²⁶, Natural Resources Institute Finland²⁷, state enterprise Metsähallitus²⁸, and SYKE: Collecting information on the changes taking place in ecosystems and habitats, species and species communities, and genes and genotype.

FMI produces monthly climate monitoring bulletin and web material with information on extreme weather events. Information consists of numerical and graphical information and explanatory text. These analyses and bulletins contain time series of extreme weather information including impacts and extend back in

¹⁸ <http://www.arctic-council.org/index.php/en/>

¹⁹ <http://www.barentscooperation.org/en>

²⁰ <https://www.interreg-baltic.eu/home.html>

²¹ <https://oaarchive.arctic-council.org/handle/11374/1790>

²² <http://www.cbss.org/cbss-baltic-2030-expert-group-sustainable-development-16th-meeting/>

²³ <http://en.ilmatieteenlaitos.fi/climate-service-centre>

²⁴ <http://en.ilmatieteenlaitos.fi/press-release/340236095>

²⁵ <http://www.syke.fi/en-US>

²⁶ <https://www.luomus.fi/en>

²⁷ <https://www.luke.fi/en/>

²⁸ Metsähallitus is a state enterprise that administers the state-owned land and water areas.
<http://www.metsa.fi/web/en>

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time more than hundred years. Especially they hold monthly meteorological time series of relevant parameters, e.g. number of extreme events days (storm wind, cold and warm episodes, hail, etc.) based on meteorological data base. FMI is also collecting information on impacts of weather events, especially high-impacts events causing negative impacts on health, property or critical functions of the society. Information is based on data gathered by authorities, research institutes and/or private sector. Information on impacts of weather are produced sector wise, e.g. rescue operations, electricity distribution network failures, railway passage delays and cancellations. This data is located within operators but FMI has been developing its own weather impacts data base.

Information on floods and their impacts is mainly collected by SYKE. SYKE is the national centre for monitoring the physical, chemical and biological state of inland waters. SYKE acts as a coordinating body for the Finnish Long-Term Socio-Ecological network (FinLTSER), which brings together the Finnish research sites and scientists that conduct research on long-term socio-ecological processes and problems in a coordinated Finnish research infrastructure. The FinLTSER also belongs to the Europe-LTER and international LTER (ILTER) networks. The FinLTSER presently consists of nine highly instrumented sites/research platforms, representing the main ecosystems (marine, terrestrial, lake, sub-arctic, urban) in Finland, which provide a national infrastructure for long-term site-based ecosystem and biodiversity research in Finland, including climate change impacts.

The Forest Centre collects data on damage to forests including weather related damages. The forest damage advisory service at Luke is responsible for monitoring forest pests and diseases and the damage they make some of which may be related or initiated by weather events, especially storms.

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

Climate change projections based on the most recent (RCP-based) GCM and RCM simulations have been analysed for Finland and are explained in Ruosteenoja et al. (2016)²⁹. Different datasets have been developed to fulfil the needs of different user groups such as impact and vulnerability studies. Some of the climate scenarios have been developed on a 10x10 km grid. Ensemble based climate scenario analysis has been common in most studies in Finland. Work is currently being undertaken to develop national SSP-based socioeconomic scenarios e.g. in the Academy of Finland funded project PLUMES³⁰.

Various climate change impact and vulnerability studies are using these projections. Some of these results (e.g. from hydrological models) are also being portrayed in the national climate change portal Climate Guide³¹.

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

Yes / In progress / No

A general assessment of vulnerability across sectors was the basis for the NAS in 2005. For the publication of the National Adaptation Plan a comprehensive study of the impacts of the climate change and vulnerability of sectors was conducted in

²⁹ http://www.geophysica.fi/pdf/geophysica_2016_51_1-2_017_ruosteenoja.pdf

³⁰ <http://en.ilmatieteenlaitos.fi/plumes>

³¹ <https://ilmasto-opas.fi/en/datat/vaikutukset#SykeDataPlace:vaikutukset>

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2013³². After the publication of the National Adaptation Plan more detailed and systematic vulnerability assessments³³ have been done in specific sectors or specific environments and include water, indirect economic effects owing to floods, forestry, biodiversity, agriculture, transport, health, and for the Arctic Region.

There are various studies on the impacts of climate change and vulnerability assessments in different sectors. For example, the Academy of Finland funded the Finnish Research Programme of Climate Change (FICCA 2011-2014)³⁴. A list of the relevant research projects includes floods, urban water management, energy, forest, biodiversity, marine ecosystem and spatial planning, agriculture, transport, health, the Arctic region and urban planning.

Climate risk assessment and management are improved in natural resource sectors: thorough analysis of vulnerability of natural resources sectors (agriculture, forestry, game and fisheries and reindeer management) was carried out as a part of the State of adaptation assessment project (Sopeutumisen tila 2017 by Institute of Natural Resources Finland).

In central level active management of weather and climate related risks project ELASTINEN (2015–2016)³⁵ provided information and seeks solutions for strengthening the capabilities of different sectors to assess and manage risks related to weather, climate, and economic. The assessment and development project SIETO³⁶ (2017–2018) funded by the Government's analysis, assessment and research activities will eventually prepare a plan how to develop the production and collection of information and data for future vulnerability and risk assessments.

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

Yes / In progress / No

Vulnerability assessments have been conducted as parts of regional cooperation, i.e. for the Barents Region, the Arctic or the Baltic Sea (BACC II)³⁷. Finland is a participant in the Arctic Monitoring and Assessment Programme (AMAP), which is an intergovernmental monitoring and research programme under the Arctic Council. The main goal of AMAP is to provide reliable and sufficient information on the status of, and threats to, the Arctic Environment. Assessing the impacts of climate change on the Arctic environment is one of the priority areas.³⁸

Vulnerability studies take into account transboundary effects where relevant, for example trade flows in a project conducting a study on adaptation of the food sector and socio-economic impacts of climate change in North-East Europe³⁹.

³² Sorvali, J. 2013: Ilmastonmuutoksen haitalliset vaikutukset ja toimialojen haavoittuvuus (only available in Finnish).

³³ See more here: Vulnerability Assessment of ecosystem services for Climate Change Impacts and Adaptation (VACCIA): <http://www.syke.fi/projects/vaccia>; Climate change: a regional assessment of vulnerability and adaptive capacity for the Nordic countries (CARAVAN): <http://www.iav-mapping.net/CARAVAN/CARAVAN.html>; Assessing the adaptive capacity of the Finnish environment and society under a changing climate (FINADAPT): <http://www.syke.fi/projects/finadapt>; Map-based assessment of vulnerability to climate change employing regional indicators (MAVERIC): <http://www.syke.fi/projects/maveric>.

³⁴ <http://www.aka.fi/en/research-and-science-policy/academy-programmes/completed-programmes/ficca/>

³⁵ <http://en.ilmatieteenlaitos.fi/elasticinen>

³⁶ <http://en.ilmatieteenlaitos.fi/climate-service-centre-projects>

³⁷ <http://www.baltic-earth.eu/BACC2/>

³⁸ Finland's Sixth National Communication under the United Nations Framework Convention on Climate Change

³⁹ [http://www.aka.fi/Tiedostot/Tiedostot/FICCA/FICCA%20tutkijaseminaari%202014.12.2014/ADIOSO presentation FICCA%2003122014.pdf](http://www.aka.fi/Tiedostot/Tiedostot/FICCA/FICCA%20tutkijaseminaari%202014.12.2014/ADIOSO%20presentation%20FICCA%2003122014.pdf)

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4. Knowledge gaps

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

Yes / In progress / No

The National Adaptation Plan 2022 calls for conducting practical research for implementation of adaptation measures.

The knowledge gaps that have been identified throughout the policy process have triggered periodic research and programmes and projects. They have produced comprehensive knowledge on e.g. the impacts of climate change and vulnerability in different sectors for planning of the adaptation measures. Examples include the Climate Change Adaptation Research Programme ISTO (2006–2010) with its about 16 research projects, and Proactive management of weather and climate related risks project ELASTINEN (2015–2016) which provided information and seeks solutions for strengthening the capabilities of different sectors to assess and manage risks related to weather, climate, and economic.

The Academy of Finland – i.e. the national research council – has a climate change research portfolio of tens of millions of euros as part of its annual grants and other annual funding. The national climate change research programme FICCA (2011–2014) funded by the Academy of Finland responded to the scientific knowledge gaps posed by climate change on a broad front including ones of adaptation research.

The main examples of the current projects targeted to fill adaptation knowledge gaps include the assessment and development project SIETO (2017–2018) funded by the Government's analysis, assessment and research activities. The project will eventually prepare a plan how to develop the production and collection of information and data for future vulnerability and risk assessments.

The national Strategic Research Council SRC has large programmes that identify and include adaptation and resilience for sustainable growth. Some of the large consortium projects funded in the SRC programmes are Sustainable, climate-neutral and resource-efficient forest-based bioeconomy FORBIO⁴⁰ (2015–2020) that will contribute to the renewal of the scientific knowledge base and provides for decision making smart means, solutions and tools needed to sustainably improve resource-efficiency and climate-neutrality of management and utilization of Finnish forests and to adapt to the changing operational environment, and the research project From Failand to Winland⁴¹ (2016–2019) which provides an insight possible futures with the help of scenario, decision analysis and co-creation methods. The project studies how water, food and energy related pressures, shocks and policy responses affect Finland's overall security.

The Ministry of Agriculture and Forestry is currently funding projects to fill knowledge gaps in policy relevant information for climate change adaptation. Other current research initiatives include the ones by the Climate Research Centre at the Finnish Meteorological Institute and the Flood Centre of the Finnish Environment Institute and Finnish Meteorological Institute.

⁴⁰ <http://www.uef.fi/en/web/forbio>

⁴¹ <http://winlandtutkimus.fi/english/>

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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

Adaptation relevant data and information is available to all stakeholders on a web portal⁴². The portal, available in Finnish, Swedish and English, offers research information including mapping tools, data and infographics and also case studies, observational data, climate scenarios, impacts and step-by-step guidance to support both mitigation and adaptation actions.

The website www.climateguide.fi, co-ordinated by the FMI and SYKE, provides an overview of observed and projected climate (temperature and precipitation) and the impacts of climate change on water resources, potential energy demand and natural decomposition rate of dead plant material. The maps show impacts for the present-day as well as future climate. Other knowledge transfer services are flood maps co-ordinated by SYKE and the wind atlas co-ordinated by FMI.

The Finnish Climate Change Panel was established in December 2011 to enhance science-policy interaction for the climate and energy sectors as well as public discussion⁴³. The Government nominated the third Climate Panel in January 2016 for the period of 2016-2019⁴⁴.

The Panel's members represent different branches of science from educational sciences to atmospheric sciences. It produces reports to support the preparation and implementation of climate policy and legislation in Finland. The Panel can receive assignments from different Ministries and Ministerial working groups or it can launch its own projects. The status and the general assignment of the Finnish Climate Panel is determined in the Climate Change Act (2015).

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

Yes / In progress / No

Capacity building activities take place in Finland, and education and training materials on climate change adaptation concepts and practices are available and disseminated⁴⁵.

Teachers' Climate Guide for primary and secondary school teachers was published in 2016. The material is available in Finnish and can also be downloaded as a PDF⁴⁶. An overview in English about the material can be found here⁴⁷. For University students there is a high quality, interdisciplinary elementary course in

⁴² www.Climateguide.fi

⁴³ Finland's Sixth National Communication under the United Nations Framework Convention on Climate Change

⁴⁴ <http://www.ilmastopaneeli.fi/fi/in-english/>

⁴⁵ Information of the recent events is listed here: <http://mmm.fi/luonto-ja-ilmasto/ilmastonmuutokseen-sopeutuminen>.

⁴⁶ In Finnish: <http://openilmasto-opas.fi/wp/wp-content/uploads/2016/09/open-ilmasto-opas-2016.pdf>

⁴⁷ <http://openilmasto-opas.fi/english/>

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climate change that is publically accessible⁴⁸. The National Adaptation Plan contains actions to develop and implement a communication plan on adaptation issues and educational material for adaptation for all levels of education. Therefore, it is expected that the examples presented above on climate change will be accompanied with some further training materials focusing on climate change adaptation.

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 National Adaptation Plan identifies horizontal measures for the objectives mentioned in A1 and preliminary timing for implementation. The objectives have twelve separate fields of actions and measures in the National Adaptation Plan. The adaptation objective has been integrated into the planning and activities of both the various sectors and their actors focus to the sectoral adaptation options.

According the evaluation of the NAS in 2013 many sectors such as water resources, agriculture, land use, energy, health and tourism received a score 3 or higher implying that impacts of climate change are relatively well known including quantitative information and adaptation measures are identified and their implementation has already started. However there are sectors where more work is required (e.g. insurance, biodiversity, fisheries).

The ELASTINEN (2015–2016) project provided information and suggested solutions for strengthening the capabilities of different sectors to assess and manage weather, climate and economic risks.

Climate risk assessment and management are improved in natural resource sectors: thorough analysis of vulnerability of natural resources sectors (agriculture, forestry, game and fisheries and reindeer management) was carried out as a part of the State of adaptation assessment project (Sopeutumisen tila 2017).

The SIETO (2017–2018) project will prepare a plan on how to develop the production and collection of information and data for future vulnerability and risk assessments as well as how the assessment could be arranged.

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

Finland has selected adaptation options based on expert judgement and participatory processes⁴⁹. However, the adopted mainstreaming approach implies that sectors have adopted different procedures and some are more advanced than others in their adaptation work and the level of detail of the processes preceding the selection of the adaptation measures vary.

⁴⁸ <http://www.ilmastonyt.fi/studies.html>

⁴⁹ Self-assessment survey findings (EEA): <http://www.eea.europa.eu/publications/national-adaptation-policy-processes>

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There are some studies identifying the costs and benefits of climate change and adaptations for certain sectors, however Finland reports considerable uncertainties and information gaps in estimated the potential costs and benefits of impacts and measures.

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

The 2014 National Adaptation Plan contains measures on disaster risk reduction as part of international cooperation. The National Adaptation Plan recognises the important link between climate change adaptation and the National Platform for Disaster Risk Reduction. The National progress report on the implementation of the Hyogo Framework for Action (2013-2015) a core indicator 'Disaster Risk Reduction is an integral objective of environmental related policies and plans, including for land use, natural resource management and adaptation to climate change' and the level of progress achieved is 4/5⁵⁰.

There are procedures in place for coordination. The National Risk Assessment (Kansallinen Riskiarvio⁵¹) recognises climate change as an important source of risk. The national monitoring group for adaptation also acts as a coordination mechanism with the authorities responsible for DRR both at national and sub-national level.

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

Although no detailed budget could be found for cross-cutting/coordinated adaptation action, the Ministry of Agriculture and Forestry carries out these duties as part of its regular work or through projects. As adaptation is integrated into the planning and activities of the sectors it is difficult to estimate how much of the resources are allocated to adaptation. Ministries are responsible for providing funding to increase climate resilience in their administrative branches. For example adaptation actions in the agricultural sector have been funded mainly through the Rural Development Programme for Mainland Finland 2007–2013.

The state budget has an allocated budget for communications, guidance and studies for climate and energy policies (no information on adaptation)⁵². Some key funding sources for adaptation work includes the Government's analysis, assessment and research activities for ELASTINEN project (assessment of the management of weather and climate risks and evaluated ways to promote management of these risks in various sectors) and SIETO project (preparing a national weather and climate vulnerability and change assessment). National scenarios and climate services are funded through the budget of FMI or other institutions, or through research programmes.

⁵⁰ http://www.preventionweb.net/files/40147_FIN_NationalHFAprogress_2013-15.pdf

⁵¹ In Finnish: <http://urn.fi/URN:ISBN978-952-324-059-9>

⁵² Finland's Sixth National Communication under the United Nations Framework Convention on Climate Change

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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 new Environmental Impact Assessment (EIA) legislation came into force on 16th of May 2017 and includes an assessment of climate change risks for the projects.⁵³ The legislation includes assessing direct and indirect impacts of the project on e.g. climate, including the nature and magnitude of greenhouse gas emissions and the vulnerability of the project to climate change.

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

Yes / **No**

It is unclear to what extent *future* climate extremes are factored into disaster risk management plans and associated risk analyses, other than those for flood risks.

Flood risk maps and flood risk management plans have been prepared according to EU Floods Directive (2007/60/EC), under the responsibility of the Ministry of Agriculture and Forestry. The future flood risks have been taken into account in the preliminary flood risk assessment, which has been done for all river basins, coastal area and municipalities of Finland. Several climate scenarios were used in the preliminary flood risk assessment to model their impact on floods during the next 100 years and the impact was taken into account when the areas of potential significant flood risk were identified.

The LUOVA (multi-hazard) early warning system was initially developed for natural hazard warnings, it is now used for weather, marine, flood, earthquake, tsunami and space weather warning in close cooperation with other technical agencies..⁵⁴ LUOVA provides an assessment of possible events during a *restricted time* of danger.

The policies on preparedness in municipalities and developing rescue activities adopted by the Board of the Association of Finnish Local and Regional Authorities state that municipalities should take the consequences of climate change into account in their own plans for preparedness. There is no evidence on how future climate risks have indeed been incorporated in this planning and preparedness.

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

Yes / No

The update of the national governmental land-use guidelines in 2008 mentions the need to consider storms, heavy rains and urban flooding and the risks of major accidents during land-use planning processes. The guidelines were revised so that they would better be able to meet the new challenges of land use, especially climate

⁵³ In Finnish: <https://www.edilex.fi/lainsaadanto/20170252>

⁵⁴ http://ec.europa.eu/echo/files/news/20140717_FinlandPeerReport.pdf

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change⁵⁵. The Guidelines implement the Land Use and Building Act and Decree and help to ensure that issues of national interest are taken into account in land use planning and in the activities of the government authorities in Finland.

In 2015 The Association of Finnish Local and Regional Authorities published a report on the climate work in the municipalities. The need for adaptation measures is increasingly recognised in municipalities although the need varies between the regions and municipalities. The most common measures are related to heavy rain and disruptions due to other extreme weather events. The adaptation work is also closely related to preparedness and contingency planning in the municipalities.

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

Both the National Adaptation Plan 2022 and the 2005 NAS promote sectoral adaptation.

In Finland, climate change is relatively well recognised in different sectors, which are in differing stages of adaptation. The most advanced sector is water management, where adaptation has already been integrated into decision making. For example, a digital monitoring and risk management process has been developed for dam safety regulation, flood risk management legislation and the Water Services Act.

Specific measures for mainstreaming adaptation into sectoral activities and planning processes are detailed in the sectoral adaptation plans described in section B3. Sectoral adaptation plans

. For example, the *Action Plan for Adaptation to Climate Change of the Environmental Administration (2016)*⁵⁶ details how adaptation has been integrated into land use planning and the building sector, along with additional measures still to be taken to strengthen mainstreaming. Likewise measures are included for mainstreaming adaptation into nature conservation, water management and environmental protection.

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

Yes / **No**

Flood insurance is a key instrument in Finland. In 2014, flood damages compensation through governmental funds was replaced with a private-insurance-based system. Also forest and crop damages are compensated from private insurances from 2016. Under the new scheme, private insurance companies will provide damage compensation for all types of floods, including urban pluvial floods. However, this will apply only to floods above a threshold, pre-defined in insurance policies. National Flood Centre gives expert opinion if this threshold was exceeded or not. Flood insurance is included in a package with home insurance, with no increase to insurance premiums (at the start of policies). After a few years, it is expected that premiums will be recalculated to eventually reflect the risk level.

⁵⁵ Ministry of Environment, 2009. The Future of land use is being decided now. The revised land use guidelines of Finland. <http://www.ym.fi/download/noname/%7B331CBF76-8C6B-4AAF-93E6-95DCCF1E2AC2%7D/58466>

⁵⁶ <http://julkaisut.valtioneuvosto.fi/handle/10024/79789>

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Insurance companies may use the flood-risk maps prepared during implementation of the EU Floods Directive.⁵⁷

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

The 2013 evaluation of the NAS found that progress has been made in adaptation in all sectors, giving no indicator for the overall level of adaptation. The need for adaptation measures is recognized in most sectors, impacts of climate change are known reasonably well, and that adaptation measures have been identified and their implementation has started.

The sectors of water resources and agriculture and food production are the most advanced, while transport and communication, forestry, health, energy, tourism are starting in the adaptation process. Fisheries, insurance, game management and biodiversity are the least advanced.

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

Yes / No

Implementation of the National Adaptation Plan 2022 is monitored and promoted by a National Monitoring Group for Adaptation to Climate Change, which is steered by the Ministry of Agriculture and Forestry. The municipal and regional perspective in the group is represented by the Association of Finnish Local and Regional Authorities. The National Monitoring group is the main mechanism for both horizontal and also vertical coordination. The objective of the monitoring group is, among others, to promote cooperation on adaptation between the government authorities and sectors of business and society. The current term of the monitoring group runs from 2015 to 2018.

The Government has recently produced new research on managing the climate and weather risks particularly in the municipalities including a policy brief on how municipalities can increase climate resilience by assessing and managing risks. The brief is based on research carried out in the ELASTINEN-project that provides information and solutions for sectors and actors to manage weather and climate risks.

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**

We could not find any procedures or guidelines to assess the potential impact of climate change on major projects or programmes and facilitate the choice of alternative options. The National Adaptation Plan 2022 includes measures to include climate change impacts in the draft proposal for impact assessment guidelines for legislation, plans and programmes.

There are some informal guidelines on increasing climate resilience in the public sector and public procurement⁵⁸.

⁵⁷ http://ec.europa.eu/echo/files/news/20140717_FinlandPeerReport.pdf

⁵⁸ https://prezi.com/ydwrtd0fcb_y/julkinen-sektori-ilmastokestavvyden-tyokalut/

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

Yes / No

The coordination Group for Adaptation to Climate Change was formed in 2008 to monitor and promote the implementation of the adaptation strategy together with the network of the stakeholders. Its work is continued in a Monitoring Group on Climate Change Adaptation which was appointed in 2015. The monitoring group has a broad representation with representatives from the Prime Minister's Office and the relevant ministries, agencies, regional and local actors, research institutes, expert organisation in fire and rescue services, and financial services. The group is responsible for implementation, follow-up and communication relating to the adaptation plan and also for enhancing the cooperation between administrations and actors.

In line with the Government proposal to the Parliament concerning a new Climate Act [609/2015], the implementation of the adaptation plan is monitored and reported to the Parliament once during the electoral term as part as the annual climate report. There are also sectoral mechanisms for stakeholder engagement including regular meetings.

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

Information on adaptation actions is collected and disseminated, either through general reviews (such as the 2013 evaluation of the NAS⁵⁹ and 2009 review of the 2005 NAS⁶⁰) or sectoral action plans and updates (e.g. Ministry of Agriculture and Forestry, Ministry of Environment⁶¹).

The monitoring and evaluation of adaptation to climate change has been promoted in 2015 to 2017 by building a national adaptation monitoring framework and its indicators in cross-sectoral work. In particular, climate change related risks to the society and its various functions have been emphasized. Indicators include risks to human health and adaptation measures executed in flood risk areas. Assembling of

⁵⁹ Maa- ja metsätalousministeriö 2013. Ilmastonmuutoksen kansallisen sopeutumisstrategian arviointi 2013. Maa- ja metsätalousministeriön työryhmämuistio 2013. In Finnish: <http://mmm.fi/documents/1410837/1723887/MMM-TRM-2013-5/04793e45-0685-44ad-ae8a-53cdaed4e03c>

Abstract MMM 2013 in English:

http://mmm.fi/documents/1410837/5120838/2017_07950_Ilmastonmuutoksen_sopeutumisstrategia_arviointi_2013_tiivistelm%C3%A4_en.pdf/203be3e9-db33-445b-a635-a58710d9074b

⁶⁰ Ministry of Agriculture and Forestry, 2009, Evaluation of the Implementation of Finland's National Strategy For Adaptation to Climate Change 2009. Available at: http://mmm.fi/documents/1410837/1721034/Adaptation_Strategy_evaluation.pdf/043c0964-58c5-4fce-8924-cc47748cf766

⁶¹ Ympäristöministeriö, 2013, Ympäristöministeriön hallinnonalan sopeutumisohjelman arviointi. Available at: http://julkaisut.valtioneuvosto.fi/bitstream/handle/10138/41467/YMra_3_2013_Ymparistoministerion.pdf?sequence=2 (In Finnish, Documentation Page in English)

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the indicators was completed, and the associated report has been released in May 2017.⁶²

Information on adaptation related expenditures at national level has not yet been addressed.

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

Yes / No

A preliminary indicator of the level of adaptation on a scale from one to five was developed in connection with the evaluation of the NAS implementation conducted in 2009. In addition to the adaptation measures launched in a specific sector, this indicator takes account of the adaptation research in the sector, cooperation between sectors and recognition of the need for adaptation. The exercise was repeated in the 2013 evaluation of the NAS and included in the National Adaptation Plan 2022.

Recent and ongoing monitoring studies of risks and vulnerability by different sector include the sectors of water, forest, biodiversity, agriculture, natural resources, infrastructure and the built environment, health, and social vulnerability at the local level.

Tools to help actors consider possible impacts and vulnerabilities have been developed and have also been made available through the web portal Climateguide.fi. Climateguide.fi also allows stakeholders to get access to spatially disaggregated information on climate projections and projected impacts.

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

Yes / No

The 2009 evaluation of the NAS found that there is a need for more detailed regional and local information on the impacts of climate change and means of adaptation as well as an inventory of the particularly vulnerable areas in Finland. The National Adaptation Plan 2022 from 2014 includes measures to promote regional and local adaptation. For example, the Plan contains an action to develop tools to support regional adaptation work (regional climate models, decision support systems). The Plan tasks the joint regional offices (ELY-keskus) of the Ministry of Employment and Economy, the Ministry of Environment, The Ministry of Agriculture and Forestry and the Ministry of Transport and Communications to develop climate resilience guidance for municipalities⁶³.

The suggested monitoring framework for the National Adaptation Plan recognises the importance of the adaptation action at local and regional level and discusses potential indicators⁶⁴.

⁶² Arnkil, N., Lilja-Rothsten, S., Juntunen, R., Koistinen A. & Lahti, E. (2017). Ilmastomuutokseen sopeutumisen indikaattorit seurannan työkaluna [Indicators As a Tool For Monitoring Climate Change Adaptation]. (in Finnish) Tapio raportteja nro 17. <http://tapio.fi/wp-content/uploads/2017/05/Ilmastomuutokseen-sopeutumisen-indikaattorit.pdf>

⁶³ http://mmm.fi/documents/1410837/5120838/MMM-193086-v1-Finland_s_National_climate_Change_Adaptation_Plan_2022.pdf/582041ee-3518-4a63-bf60-7133aed95a9c

⁶⁴ Lilja-Rothsten et al., 2015, Ilmastomuutoksen sopeutumisen seurannan järjestäminen. Seurantakehikko. *Tapio*. In Finnish: : <http://mmm.fi/documents/1410837/1516663/MMM-%23220285->

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In addition, monitoring and reporting also take place at the sub-national level, e.g. the Helsinki Metropolitan Region Adaptation Strategy (2012) has its own monitoring and reporting framework.

11. Evaluation

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

Yes / No

The first evaluation report on the implementation of the 2005 NAS was published in 2009. A broader evaluation was conducted in 2013 to assess the progress in adaptation and to give feedback and recommendation for the revision of the strategy. These evaluations led to the National Climate Change Adaptation Plan 2022.

The mid-term evaluation of the National Adaptation Plan is foreseen for 2018.

The National Climate Change Adaptation Plan is part of the planning system for climate change policy under the Climate Change Act.

The Government adopts the adaptation plan at least once every ten years. The plan contains a risk and vulnerability assessment and sector-specific action programmes for adaptation, as considered necessary.

A report on the implementation, adequacy and effectiveness of the adaptation measures is to be submitted at least once in every electoral term as part of the climate change report.⁶⁵

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

Yes / No

The Monitoring Group of the National Adaptation Plan is responsible for the implementation, follow-up and communication relating to the adaptation plan and promotes cooperation between sectors in adaptation actions and the overall awareness raising on adaptation. It is composed of the Ministry of Agriculture and Forestry, other ministries, research institutes, local, regional and other relevant actors and associations.

[v1-sopeutumisen seurannan j%C3%A4rjest%C3%A4minen_loppuraportti.pdf/0aebf686-d8e3-47a8-a213-ca3bb7e4cae8](http://mmmm.fi/en/nature-and-climate/climate-change-adaptation)

⁶⁵ <http://mmmm.fi/en/nature-and-climate/climate-change-adaptation>

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SUMMARY TABLE

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

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

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Adaptation Preparedness Scoreboard		
No.	Indicator	Met?
	options, e.g. green infrastructure	
9d	There are processes for stakeholders' involvement in the implementation of adaptation policies and measures.	<u>Yes</u> / 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	<u>Yes</u> / No
10b	The integration of climate change adaptation in sectoral policies is monitored and the results of the monitoring are disseminated	<u>Yes</u> / No
10c	Regional-, sub-national or local action is monitored and the results of the monitoring are disseminated	<u>Yes</u> / No
11 Evaluation		
11a	A periodic review of the national adaptation strategy and action plans is planned	<u>Yes</u> / No
11b	Stakeholders are involved in the assessment, evaluation and review of national adaptation policy	<u>Yes</u> / No