

Adaptation preparedness scoreboard:

Country fiche for Luxembourg

NOTE TO THE READER

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

- Institutional structure
- Quality of national vulnerability assessments
- Knowledge creation (national observation systems in relevant sectors² and climate modelling), transfer and use
- Action plans:
 - Quality (incl. the basis used for assessment of adaptation options)
 - Actual implementation mechanisms
- Funding mechanisms
- Mainstreaming into sectoral policies, in particular:
 - Disaster risk reduction
 - Spatial planning
 - Environmental impact assessment (EIA) (how the Directive is transposed)
 - Insurance policy
- Transboundary cooperation
- Monitoring mechanisms in different sectors and governance levels

The fiches are based on internal work by the Commission and on targeted assistance from an external contractor. They also served as input to the assessment of Action 1 of the Strategy

¹ The first versions of the fiches, prepared in consultation with the Member States in 2014-15, were unpublished and used to fine-tune the scoreboard. The second drafts were published, after consulting the Member States, as background documents to the public consultation on this evaluation in December 2017.

https://ec.europa.eu/clima/consultations/evaluation-eus-strategy-adaptation-climate-change_en The final Member State consultation on the draft fiches took place in June 2018.

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

during its evaluation. Annex IX of the Commission's SWD(2018)461 on the evaluation of the Strategy presents a horizontal assessment of the 28 country fiches, while Annex X presents the list of scoreboard indicators and the methodology used in applying them.

The assessments in the country fiches (yes/no/in progress) need to be read in conjunction with the narrative that accompanies them. They assess the state of play within each EU Member State. While all effort has been made to ensure the coherence across fiches in the assessment of the same indicator, it should not be directly compared across the Member States. Two countries with a "yes" on the same indicator could have a different national situation leading to that assessment. Not all indicators have the "in progress" status, some can only be "yes" or "no".

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List of abbreviations

BENELUX	Belgium, Netherlands, Luxembourg
CIM	Commission Internationale de la Meuse
CIPMS	Commissions Internationales pour la Protection de la Moselle et de la Sarre
CLiSys	Climate Data Management System
ICPR	International Commission for the Protection of the Rhine
LIST	Luxembourg Institute for Science and Technology
NAS	National Adaptation Strategy
UNFCCC	United Nations Framework Convention on Climate Change

POLICY FRAMEWORK

Adaptation strategies

A1. National adaptation strategy

Luxembourg's Council of Ministers adopted a "National Adaptation Strategy on Climate Change"³ (NAS) in June 2011, prioritising four sectors: biodiversity, water, agriculture and forestry.

Luxembourg's NAS is not a free-standing document. Strategic considerations on adaptation are included as a section of the 2011 "Paquet Climat" (which lists 35 priority measures)⁴. The section on adaptation, the NAS, defines adaptation priorities in the four key areas mentioned above, but practical suggestions for implementing adaptation-related activities, sources of funding, attribution of responsibility for implementation and other key elements of a NAS are missing.

The 2011 NAS is currently being revised and extended, with an update expected to be published by the end of 2018 (as per Luxembourg's 7th Communication to the UNFCCC⁵). Luxembourg's Council of Ministers agreed a draft strategy on adaptation to the effects of climate change for the Grand Duchy of Luxembourg in April 2018⁶, which will now be subject to stakeholder consultation⁷. The updated NAS is expected to tackle several topics, particularly related to precipitation and water bodies, such as drinking water and agriculture. The NAS is expected to be finalised by the end of 2018.

A2. Adaptation strategies adopted at sub-national levels

Given the small size and the nature of the administrative organisation of the country, climate adaptation policy is entirely driven at national level. There is no self-governing sub-national level in Luxembourg. While there is currently no mechanism for coordinating action on climate adaptation, municipalities (or communes in French) are involved in climate mitigation policy through a Climate Pact between the State and the communes, which entered into force in January 2013⁸. All 102 communes of Luxembourg are engaged under the Pact. Under this Pact, the national level can financially support communes to implement mitigation

³ Europaforum, 2011, Claude Wiseler et Marco Schank ont présenté le "paquet climat" luxembourgeois qui doit permettre d'atteindre l'objectif européen de réduction de 20 % des émissions de CO₂ d'ici 2020, URL: <http://www.europaforum.public.lu/fr/actualites/2011/05/parteneriat-paquet-climat/index.html> Date accessed: May 2018

⁴ Europaforum, 2011, Claude Wiseler et Marco Schank ont présenté le "paquet climat" luxembourgeois, qui doit permettre d'atteindre l'objectif européen de réduction de 20 % des émissions de CO₂ d'ici 2020, URL: <http://www.europaforum.public.lu/fr/actualites/2011/05/parteneriat-paquet-climat/index.html> Date accessed: May 2018

⁵ The Government of Luxembourg: Environment, 2018, Protection du climat. URL: <http://environnement.public.lu/fr/klima-an-energie/changement-climatique.html> Date accessed: May 2018

⁶ Gouvernement du Grand-Duché du Luxembourg, 2018, https://gouvernement.lu/fr/gouvernement/pierre-gramegna/actualites.gouvernement%2Bfr%2Bactualites%2Btoutes_actualites%2Bcommuniques%2B2018%2B04-avril%2B20-conseil-gouvernement.html Date accessed: May 2018

⁷ Personal communication with MS contact - http://environnement.public.lu/fr/actualites/2018/juin-2018/effets_changement_climatique.html Date accessed: May 2018

⁸ Ministère du Développement durable et des Infrastructures, undated, Pacte Climat, URL: <http://www.pacteclimat.lu/fr> Date accessed: May 2018

and energy efficiency measures. The Pact provides an appropriate platform for future engagement of the communes on climate adaptation.

Adaptation action plans

B1. National adaptation plan

In Luxembourg, a specific national adaptation plan (NAP) has not been adopted. However, in May 2013, the Government adopted the second Climate Action Plan⁹, which focuses on mitigation measures, and refers to the 2011 NAS. The third Climate Action Plan is under development and, according to Luxembourg's 7th National Communication to the UNFCCC, is foreseen to be adopted in 2018¹⁰. Section 2.7 (page 34) of the second Climate Action Plan document refers to developing an adaptation strategy. However, it has a rather narrow scope, mentioning land use, and agroforestry measures and optimising carbon storage in forests and agricultural soils¹¹. The aim for the third national Climate Action Plan is for it to be a strategic document, presenting Luxembourg's strategy until 2030 and beyond.

B2. Adaptation plans adopted at sub-national level

As the national adaptation policy process is at a relatively early phase of formulation, no sub-national adaptation plans have yet been formulated. This is in line with the fact that the subnational level is not relevant for Luxembourg, except for the communes.

B3. Sectoral adaptation plans

There are limited adaptation actions embedded in sectoral strategies and action plans. River basin and flood risk management plans contain adaptation actions mostly related to flood prevention and management. Luxembourg participated in the elaboration of the Adaptation Strategy for the Rhine Basin¹² by the International Commission for the Protection of the Rhine, which was adopted in 2015. There have also been efforts by Luxembourg to develop adaptation strategies for spatial planning¹³. Furthermore, Luxembourg has in place a sectoral strategy for international development, which includes strong support for climate adaptation efforts¹⁴.

⁹ Ministère du Développement durable et des Infrastructures, 2013, 2. Nationaler Aktionsplan Klimaschutz, URL: http://www.developpement-durable-infrastructures.public.lu/fr/actualites/articles/2013/05/presentation_plan_action_climat/2_Nationaler-Aktionsplan-Klimaschutz.pdf Date accessed: May 2018

¹⁰ Gouvernement du Grand-Duché de Luxembourg, 2014, Programme gouvernemental, URL: <http://environnement.public.lu/fr/klima-an-energie/changement-climatique.html> Date accessed: May 2018

¹¹ Ministère du Développement durable et des Infrastructures, 2013, 2. Nationaler Aktionsplan Klimaschutz, URL: http://www.developpement-durable-infrastructures.public.lu/fr/actualites/articles/2013/05/presentation_plan_action_climat/2_Nationaler-Aktionsplan-Klimaschutz.pdf Date accessed: May 2018

¹² ICPDR, 2015, The Danube River Basin District Management Plan, URL: <https://www.icpdr.org/main/management-plans-danube-river-basin-published> Date accessed: May 2018

¹³ ESPON, 2012, Adaptation to climate change: strategies for spatial planning in Luxembourg, URL: <http://www.espon-usespon.eu/library/adaptation-to-climate-change-strategies-for-the-spatial-planning-in-luxembourg-c-change-changing-climate-changing-lives-2012> Date accessed: May 2018

¹⁴ The Luxembourg Government: Directorate of Development Cooperation and Humanitarian Affairs, 2014, Environnement et changement climatique, URL: <https://cooperation.gouvernement.lu/en/publications/brochure->

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 Luxembourg, the Ministry of Sustainable Development and Infrastructures, (Ministère du Développement durable et des Infrastructures)¹⁵ and within it, the Department of the Environment, is in charge of adaptation policy-making. In relation to climate change specifically, the Department of the Environment is responsible for coordinating climate change action, following international negotiations, managing the Climate and Energy Fund (Fonds climat et énergie), managing the 'Pacte Climat', and, adapting to climate change within the context of managing flood risk.

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

Yes / **In progress** / No

There is no formal intersectoral or inter-ministerial committee currently in place for coordination of adaptation policy. Systematic coordination, including during the implementation phase of the NAS, is not yet established. However, coordination meetings and inter-ministerial consultations are held to develop the new NAS. As the NAS will define measures to be implemented for each sector, different relevant ministries will be indicated as responsible for these sectors.

In accordance with Luxembourg's 7th National Communication to the UNFCCC (published in February 2018), the sectors covered by the NAS are: construction and housing¹⁶, energy, forestry, infrastructure, disaster management, land planning, agriculture (including plant and cattle condition), human health, ecosystems and biodiversity, tourism, urban space, water use and water resources management, and economic activities.

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**

livre/minist-affaires-etrangeres-europeennes/dir-cooperation-action-humanitaire/strategies-et-orientation/strategie-environnement-et-changement-climatique.html Date accessed: May 2018

¹⁵ Portail du Développement durable et des Infrastructures - Grand-Duché de Luxembourg, UR: <http://www.developpement-durable-infrastructures.public.lu/fr/index.php>, Date accessed: May 2018

¹⁶ UNFCCC (2018). Seventh National Communication of Luxembourg under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/39752148_Luxembourg-NC7-1-LU_NC7_180212.pdf; https://unfccc.int/sites/default/files/resource/39752148_Luxembourg-NC7-1-LU_NC7_180212.pdf Date accessed: May 2018

While there are some local-level initiatives on climate change and the Pacte Climat ensures governance at lower levels of administration (municipality), there is no evidence of a vertical coordination mechanism within the governance system for adaptation policy.

Luxembourg has no signatories to the Covenant of Mayors for Climate and Energy with regard to adaptation.

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**

There was no stakeholder consultation during the development of the 2011 NAS. However, a public consultation and stakeholder involvement is foreseen during the ongoing revision of the NAS. In February 2018, Luxembourg's 7th National Communication to the UNFCCC was published, suggesting that the new NAS would be finalised in 2018. In April 2018, the Luxembourgish Council of Ministers approved the draft updated NAS and announced that stakeholders would be consulted¹⁷.

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

Yes / No

Transboundary cooperation addresses common challenges with neighbouring countries (Belgium, France and Germany). Cooperation is mainly in the framework of the international bodies for the Rhine¹⁸, Moselle and Sarre¹⁹ and Meuse²⁰ river basins. As an example, Luxembourg took part in the development of the Adaptation Strategy for the Rhine Basin. Moreover, within the framework of the BENELUX cooperation, working groups dedicated to climate change and transboundary impacts take place²¹, in addition to the exercises simulating different scenarios²².

The 2011 NAS mentioned transboundary measures (e.g. monitoring of animal diseases due to transboundary movement of animals, management of transboundary ecological corridors). The NAS also referred to the transboundary work undertaken by the international river commissions – the International Commission for the Protection of the Rhine (ICPR), Commission Internationale de la Meuse (CIM) and Commissions Internationales pour la Protection de la Moselle et de la Sarre (CIPMS).

¹⁷ Personal communication with MS contact.

¹⁸ International Commission for the Protection of the Rhine, URL: <http://www.iksr.org>, Date accessed: May 2018

¹⁹ International Commission for the Protection of the Rhine, URL: <http://iksms-cipms.org>, Date accessed: May 2018

²⁰ La Commission Internationale de la Meuse, URL: <http://www.cipm-icbm.be>, Date accessed: May 2018

²¹ BENELUX, Adaptation au changement climatique au sein du Benelux, URL: <http://www.benelux.int/fr/publications/publications/adaptation-au-changement-climatique-au-sein-du-benelux>, Date accessed: May 2018

²² Personal communication with MS contact.

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

MeteoLux, the national weather service in Luxembourg, is a department of the Aviation Administration of the Ministry of Sustainable Development and Infrastructures. MeteoLux operates one meteorological synoptic station and one aeronautical meteorological station, both located at Luxembourg airport. Climate data is recorded by MeteoLux from the Administration de la Navigation Aérienne du Luxembourg, using data collection from the Findel/Airport meteorological station (WMO ID = 06590). The station has collected all relevant meteorological variables, such as air temperature, relative humidity, precipitation, wind speed, wind direction and various radiation variables, since 1947. Further climate data is obtained through collaboration, as Luxembourg is a member of the European National Meteorological Services Network and the European Space Agency.

In addition, Luxembourg has its own hydro-climatic monitoring network, with stations maintained by the Water Agency, the Civil Defence Service and the Agriculture Technical Services Administration. This monitoring is used, for instance, to help inform the design of flood protection measures.

MeteoLux publishes monthly summaries of the weather, using as a reference period 1981-2010. Annual climate reports compare annual data to the 1961-1990 reference period and note “extremes and peculiarities”, such as the heat wave in August 2016. The Climate Data Management System (CLiSys) has been implemented by MeteoLux since 2011, allowing the import of historical data and time series.

Extreme winter flooding has been recorded for January 1993, January 2003 and January 2011. The Luxembourg Institute of Science and Technology (LIST) has also been active in researching hydrological behaviour of waterways. Furthermore, according to the 7th National Communication to the UNFCCC, the Water Agency provides flood forecasts for all Luxembourgish water courses and in cases of alert, the flood-risk website is updated every 15 minutes (including a flood report where needed)²³. The Water Agency is responsible for all hydrometric monitoring in Luxembourg.

Impacts of extreme climatic events are not systematically monitored. Information on the amount of material and financial loss is only partially collected by some authorities. During environmental disasters, the Ministry of the Family sets up a Social Relief Commission ("Commission de secours sociaux demandés à la suite de catastrophes naturelles") to help victims. In the same way, the insurance commissioner has some information about the number of people compensated. However, not all affected persons make use of the Social Relief Commission or the insurance companies. The information collected, therefore, only concerns the persons who contact these two different institutions. Consequently, as not all data is being kept (e.g., on casualties or financial losses), this indicator is assessed as being ‘in progress’.

²³ Flood prediction centre Luxembourg, 2018, URL: www.inondations.lu, Date accessed: May 2018

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

Scenarios and projections are presented in the 7th National Communication to the UNFCCC using a combination of Global and Regional Climate Models. Impacts are analysed based on the FP6 ENSEMBLES project²⁴. In addition, the Luxembourg Institute of Science and Technology (LIST, previously the Centre de Recherche Public Gabriel Lippmann) is working on the detailed analysis of the high-resolution COSMO-CLM²⁵ projections for Luxembourg, including for rainfall and extreme flooding. It is also intended to include data provided by the CORDEX project²⁶ in the analyses.

These scenarios and projections are only used to assess the environmental impacts of climate change (see Indicator 3c for references). An assessment of economic and social impacts of climate change remains to be done.

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

Yes / In progress / No

Luxembourg's 6th National Communication to the UNFCCC (2014) mentions that “a thorough vulnerability assessment has not been done yet”. The 7th Communication states that sector-based vulnerability assessments were completed through a water lens, with some cases (e.g. vegetation vulnerability) relying on models, such as used in the ENSEMBLES project. The 7th Communication also includes some vulnerability assessments focusing on human health, agriculture and forestry. Preliminary sectoral vulnerability analyses were completed for agriculture, forestry, biodiversity, drought, human health, infrastructure and economy on the basis of expert judgement. The vulnerability analysis for water and floods is more sophisticated and based on monitoring data and projections from the International Commission for the Protection of the Rhine (ICPR) and the International Commission for the Protection of the Moselle and the Saar (ICPMS). A more robust climate risk and vulnerability assessment is expected in updating the NAS. The four sectors prioritised in the 2011 NAS received most attention in the vulnerability and impact assessments led at national level by the observatory for climate and environment at the Luxembourg Institute for Science and Technology (LIST)²⁷.

²⁴ Ministère du Développement durable et des Infrastructures, 2018, 7th National Communication of Luxembourg under the United Nations Framework Convention on Climate Change, URL: https://unfccc.int/sites/default/files/resource/39752148_Luxembourg-NC7-1-LU_NC7_180212.pdf Date accessed: May 2018

²⁵ Climate Limited-area Modelling Community (2018). URL: <https://www.clm-community.eu> <https://www.clm-community.eu> Date accessed: May 2018

²⁶ Coordinated Regional Climate Downscaling Experiment, URL: <http://www.cordex.org/> Date accessed: May 2018

²⁷ LIST, 2015, Observatory for climate and environment, URL: <https://www.list.lu/en/institute/rd-infrastructures/environmental-research-and-technology/observatory-for-climate-and-environment/> Date accessed: May 2018

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

Yes / **In progress** / No

Transboundary risks have been taken into account in the water and floods sector (see Indicator 2b). Whether other sectors have considered transboundary risks remains unclear.

4. Knowledge gaps

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

Yes / In progress / **No**

Climate adaptation is a relatively new topic for the environment and climate action discourse in Luxembourg. As such, there appears to be a lack of discourse between the key stakeholders (research/science, administration, private sector) on the research priorities with regards to adaptation. Nevertheless, the 7th Communication to the UNFCCC and the ongoing update of the NAS indicate a comprehensive assessment of existing knowledge and related gaps on climate change and climate adaptation is now underway.

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**

Luxembourg does not appear to have a source of information dedicated to adaptation. The Centre for Ecological Learning in Luxembourg (founded in 2010), in collaboration with Transition Luxembourg and under the umbrella of the Pacte Climat, promotes citizen participation in climate change issues. However, the focus of this effort is on raising awareness and education to achieve reduced emissions through encouraging behavioural change rather than explicitly on adaptation²⁸.

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**

There is no evidence of regular dissemination of education and training materials specifically focused on adaptation. Nevertheless, the Centre for Ecological Learning Luxembourg (CELL) has a project focused on resilience research, indicating some consideration of climate adaptation and resilience and awareness-raising on the topic.²⁹ However, systematic actions to build capacity are not carried out in a coordinated way.

²⁸ Transition Network, URL: <https://transitionnetwork.org/transition-near-me/hubs/luxembourg/>, Date accessed: May 2018

²⁹ Centre for Ecological Learning Luxembourg, URL: <https://cell.lu/all-project-list/resilience-research/>, Date accessed: May 2018

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 2011 NAS mentions some potential adaptation actions for the priority sectors identified: biodiversity, water, agriculture and forestry. The range and number of measures identified under each of these four sectors varies markedly. Several measures are underdeveloped or too unspecific (e.g. "conservation and restoration of wetlands"). Furthermore, it is unclear whether the measures result from risk assessments, as they appear to result from exchange of information among central administration bodies or expert groups. Nevertheless, the updated NAS expected in 2018 may improve consideration of adaptation options.

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

It is not evident that the adaptation options considered have been prioritised on the basis of a robust methodology. The updated NAS expected by the end of 2018, is likely elaborate the selection of adaptation options. It is currently proposed that the new NAS will assign priority to measures according to an evaluation grid taking into account the probability of implementation as well as the degree of importance for Luxembourg³⁰.

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 High Commissioner for the National Protection (HCPN) is an administration coordinating disaster risk management. It was created by a law that describes its missions³¹. However, no evidence could be found of an institutional mechanism in place to coordinate disaster risk management and climate adaptation, indicating a need for improved coherence.

7. Funding resources identified and allocated

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

Yes / In progress / No

³⁰ Personal communication with Member State representative.

³¹ Journal Officiel du Grand-Duché de Luxembourg, 2016, Loi du 23 juillet 2016 portant création d'un Haut-Commissariat à la Protection nationale, URL: <http://data.legilux.public.lu/file/eli-etat-leg-memorial-2016-137-fr-pdf.pdf> Date accessed: May 2018

The NAS is not backed by a specific funding allocation and commitment. No evidence could be found of adaptation-related funding for vulnerable sectors or for cross-cutting measures. While some funding for the development of green infrastructure has been made available, that is insufficient to qualify a positive assessment in relation to this indicator³².

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

Climate change is not mentioned in Luxembourg's 2008 law on environmental impact assessment (EIA) and strategic environmental assessment (SEA)³³.

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

Yes / No

Floods present the most significant natural disaster risk in Luxembourg. Early-warning systems are in place for flood hazards, with outreach to communities and a specific website as a communication platform³⁴. The Flood Risk Management Plan (2015-2021) has taken account of climate scenarios (e.g. the COSMO-CLM 4.8 simulation)³⁵.

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

Yes / No

Formal consultations between the various government sectors take place on a regular basis, both at the ministerial level and at the level of the agents working with the various ministries. For example, government or ministry officials participate in inter-ministerial working groups in the fields of land-use planning, spatial planning and economic development. The National Nature Protection Plan was also updated in 2017, including emphasis on the multiple benefits of green infrastructure, for example, as an important measure for climate adaptation (e.g. through conservation of biodiversity and essential ecological and landscape elements to

³² Biodiversity Information System for Europe, 2018, Green Infrastructure in Luxembourg, URL: <https://biodiversity.europa.eu/countries/gi/luxembourg> Date accessed: May 2018

³³ Environmental legislation in Luxembourg, URL: <http://data.legilux.public.lu/file/eli-etat-leg-memorial-2008-82-fr-pdf.pdf> <http://data.legilux.public.lu/file/eli-etat-leg-memorial-2008-82-fr-pdf.pdf>, Date accessed: May 2018

³⁴ URL: www.inondations.lu Date accessed: May 2018

³⁵ Ministry of Sustainable Development and Infrastructure, 2015, https://eau.public.lu/directive_cadre_eau/directive_inondation/1er-cycle/HWRML-PL_final/HWRM-PL_2015_final_FR_1609201.pdf Date accessed: May 2018

restore resilience)³⁶. Furthermore, in 2012 a national document on spatial planning was published, which took consideration of climate change³⁷.

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**

Despite the ongoing update of the NAS, which addresses 13 different sectors³⁸, there is no indication that other national policy instruments promote adaptation at sectoral level. The Rural Development Programme 2014-2020 recognises the threats of climate change, mainly to agriculture and proposes several measures (e.g. preserve soil quality, protecting animals against heat, use resilient crops, intensification of land use). However, adaptation is not specifically addressed.

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

Yes / **No**

No evidence could be found that adaptation is mainstreamed in insurance or alternative policy instruments to provide incentives for investments in risk prevention. However, insurance considerations are taken into account as part of the sector-based assessment in the draft updated NAS³⁹.

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 second Climate Action Plan has been in place since 2013 and makes reference to the NAS. Furthermore, the third Climate Action Plan is being developed, although primarily illustrating action on from a mitigation perspective. Similarly, although the 7th National Communication to the UNFCCC presents a selection of climate change policy actions and plans at the sector level, these focus most prominently on climate mitigation.

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

Yes / **No**

³⁶ Biodiversity Information System for Europe, 2018, Green Infrastructure in Luxembourg, URL: <https://biodiversity.europa.eu/countries/gi/luxembourg> Date accessed: May 2018

³⁷ ESPON, 2012, Adaptation to climate change – strategies for the spatial planning in Luxembourg, URL: <http://www.espon-usespon.eu/library/adaptation-to-climate-change-strategies-for-the-spatial-planning-in-luxembourg-c-change-changing-climate-changing-lives-2012> Date accessed: May 2018

³⁸ Personal communication with MS contact.

³⁹ Based on a preliminary check of the draft NAS, as yet unpublished.

Systematic cooperation mechanisms for fostering adaptation at a sub-national level do not seem to be yet in place. However, cooperation at the level of local stakeholders took place in 2018 with the aim of collaboratively influencing the third Climate Action Plan, which indicates some level of local cooperation on climate change but not necessarily on adaptation⁴⁰.

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**

Although there are policy efforts to promote resilience through green infrastructure⁴¹, it is unclear whether specific procedures or guidelines are available to assess potential climate impacts on the resilience of infrastructure. Nevertheless, there are funds available for investments in green infrastructure (such as in urban planning) and earmarked for the period 2017-2021, which indicate a degree of focus on its benefits for climate resilience.

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

Yes / **No**

As the NAS is still being finalised, it is unclear to what extent stakeholders have been involved in the implementation of adaptation policies and measures. However, there are plans to involve stakeholders in the development of the NAS. Furthermore, there are some local-level organisations involved in the implementation of climate mitigation measures that could be of relevance for adaptation, e.g. Klim-Buendnis.

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**

Aside from the upcoming update of the NAS (see Indicator 11a), no other evidence could be found that previous NAS implementation was rigorously monitored and results disseminated.

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

Yes / **No**

⁴⁰ Elaboration du nouveau plan climat national: Climate Innovation Lab et "wake up" weekend le 3/4 février 2018, URL : http://environnement.public.lu/fr/actualites/2018/01/11_wakeup.html, Date accessed: May 2018

⁴¹ Biodiversity Information System for Europe, 2018, Green Infrastructure in Luxembourg, URL: <https://biodiversity.europa.eu/countries/gi/luxembourg> Date accessed: May 2018

The legal framework and the NAS foresee the integration of climate adaptation in sectoral policies, but this is not done systematically and evidence of indicators and monitoring is not yet available.

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

Yes / **No**

No evidence could be found of vertical cooperation across governance levels allowing the collection of information for monitoring adaptation action at the subnational level.

11. Evaluation

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

Yes / No

The 2011 NAS was planned to be revised and updated for 2016 but the date was delayed until 2018. A periodic review of the NAS and action plans has not yet been established. However, the updated NAS is expected to be published by the end of 2018, which demonstrates that periodic review does in fact take place.

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

Yes / **No**

While stakeholders have not yet been involved in the assessment of the NAS, they will be consulted in finalising the updated NAS⁴².

⁴² Personal communication with MS contact.

SUMMARY TABLE

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

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

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