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| From: | Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director |
| To: | Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union |
| No. Cion doc.: | SWD(2025) 30 final |
| Subject: | COMMISSION STAFF WORKING DOCUMENT<br>Third River Basin Management Plans<br>Second Flood Hazard and Risk Maps and Second Flood Risk Management Plans<br>Member State: Slovenia<br>Accompanying the document<br>REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT<br>on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC)<br>Third River Basin Management Plans<br>Second Flood Risk Management Plans |

Delegations will find attached document SWD(2025) 30 final.

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**COMMISSION STAFF WORKING DOCUMENT**

**Third River Basin Management Plans Second Flood Hazard and Risk Maps and Second Flood Risk Management Plans Member State: Slovenia**

***Accompanying the document***

**REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT**

**on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC)**
**Third River Basin Management Plans**
**Second Flood Risk Management Plans**

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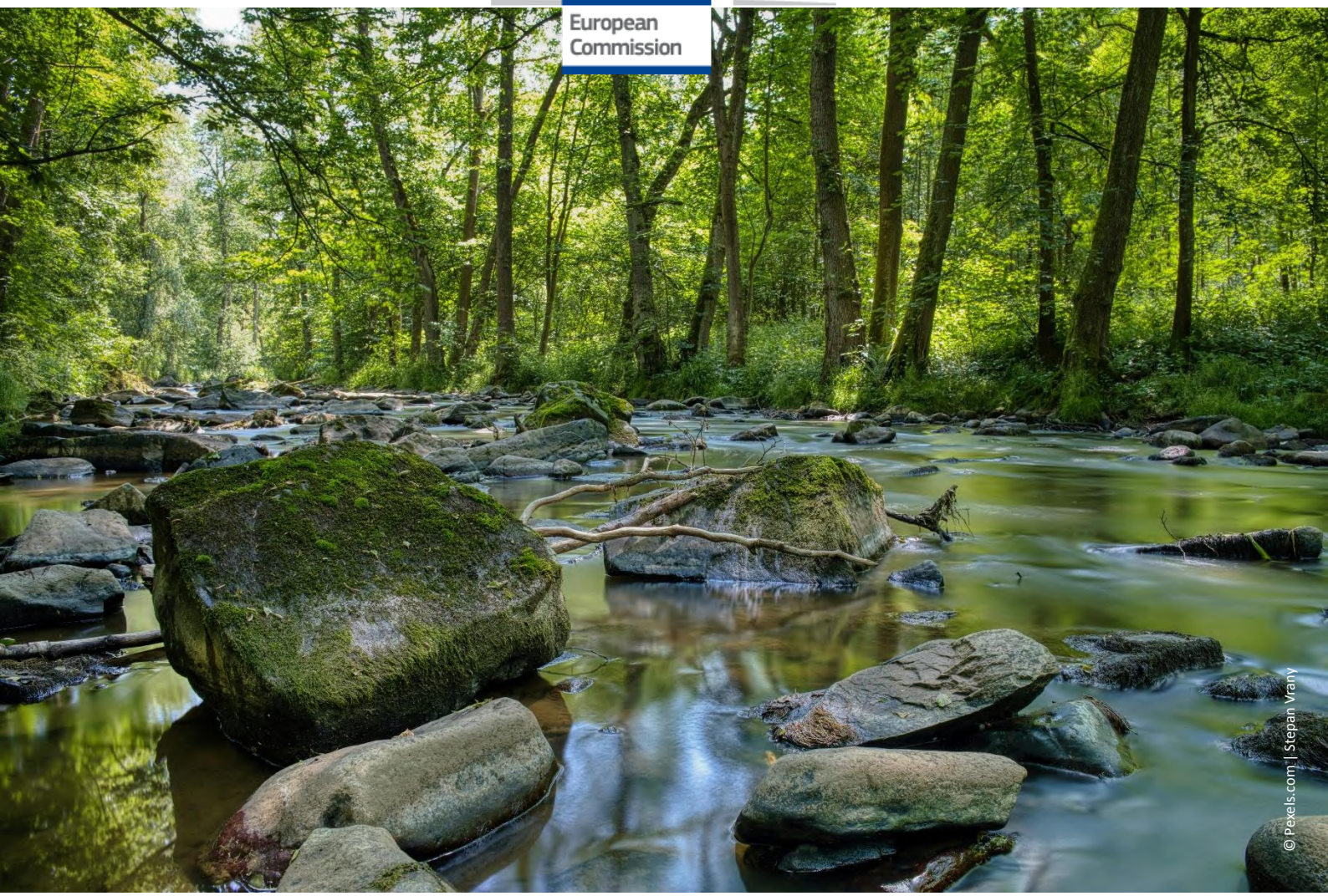


Country specific staff working document

# Slovenia

ENVIRONMENT

# Content

# SECTION A:

# WATER FRAMEWORK DIRECTIVE

Slovenia has failed to comply with its legal obligation and has not reported the 3rd RBMPs in time. The Commission has thus been bound to launch legal proceedings.

# SECTION B:

# FLOODS DIRECTIVE

# 1. Flood risk management under floods directive (FD)

The Directive requires each Member State (MS) to scan its territory for flood risks, assess the potential adverse consequences of future floods for human health, the environment, cultural heritage and economic activity, identify the significant risks, map the flood extent and the potential adverse consequences, and take measures to reduce the flood risk. These activities are reflected in (a) the preliminary flood risk assessments, or PFRAs (including the identification of areas of potential significant flood risk, or APSFRs), (b) the preparation of flood hazard and risk maps, or FHRMs, and (c) the establishment of flood risk management plans, or FRMPs. The preliminary assessments, mapping and planning for flood risk are repeated in six-yearly cycles.

There are two Units of Management (UoMs) in Slovenia, which are the same as the Water Framework Directive's River Basin Districts (RBD). Fluvial and pluvial floods are considered as potentially significant sources of flooding in Slovenia. Slovenia has designated 86 Areas of Potential Significant Flood Risk (APSFRs). Climate change scenarios have been developed specifically for the MS. Slovenia stated that, as a part of the project "Climate Change Impact Assessments in the 21st Century", scenarios for three periods were developed (2011-2040, 2014-2070 and 2071-2100). The impact of climate change on the occurrence of floods has been considered at the time of the second preliminary flood risk assessment. This impact was considered in such a way that, based on expected / estimated changes in climatological and other meteorological variables, long-term projections of changes in high flows in Slovenia were prepared and taken into account. Changes (meaning the increase in extent of high flood waters) were carried out only where climate change will have an impact on the increase of high waters. In areas where it is estimated that climate change will affect the high waters in a way that they will be reduced in the future, Slovenia has not reduced the areas of hazard potential to stay on the safe side.

## 1.1 Flood hazard and risk maps

Slovenia's FHRMs (in pdf form) are published on a governmental portal[1]. Besides, Slovenia is using two GIS-based geoportals at a national level, "Water Management Atlas"[2], which is the official geoportal for publishing flood risk related information, and "Environmental Atlas[3], which is an older and widely used geoportal, operated by the Slovenian Environmental Agency[4]. They both show areas of potential significant flood risk (APSFRs), while the flood hazard maps and flood risk maps in pdf format developed for the APSFRs are offered in the Water Management Atlas (as links to pdf maps in the pop-up information box). FHRMs were prepared at the national level and show the whole country. Maps for floods with low probability (1/500 years), with medium probability (1/100 years) and with high probability (1/10 years) are provided. Flood extent is shown on all maps. Water depth is shown on all maps. Number of inhabitants is shown on all maps. Likewise, type of economic activity is shown on all maps. Flood risk maps show which land uses and objects are affected by the flood scenarios. Information on negative economic consequences is reported in EIONET for low probabilities only for about a third of the APSFRs[5]. IED installations are shown. Potentially affected protected areas identified in Annex IV(1)(i), (iii) and (v) to Directive 2000/60/EC are shown in the FHRMs.

A GIS based web-viewer covered the whole country already for the first FHRMs however, for the first FHRMs not all flood hazard maps were publicly available for all APSFRs, and no flood risk maps were publicly available. For the second FHRMs Slovenia has a single link to the official governmental webpage[6] with lists of flood hazard maps and flood risk maps and with links to pdf maps. It also provided a document[7] with a presentation of the methodology for preparation of the maps for the second FHRMs. This document also provides information on how the flood hazard maps and flood risk maps can be accessed through a national on-line GIS portal, the Water Management Atlas.

In terms of changes of contextual information (i.e. the way in which information about the maps is conveyed to the public) since the first FHRMs, a noteworthy change is that Slovenia added links to pdf maps as part of information on APSFRs that are presented in the on-line GIS national geoportal Water Management Atlas[8]. The on-line GIS information is updated with newer information on flood hazards approximately twice a year.

In terms of changes in methodologies used to prepare flood hazard maps since the first FHRMs, there is a national approach for flood hazard mapping based on a decreed methodology[9] that has been in force since 2007 and has not changed.

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[1] https://www.gov.si/teme/karte-poplavne-nevarnosti-in-karte-poplavne-ogrozenosti-za-obmocja-pomembnega-vpliva-poplav/

[2] https://geohub.gov.si/portal/apps/webappviewer/index.html?id=f89cc3835fcd48b5a980343570e0b64e

[3] http://gis.arso.gov.si/atlasokolja/profile.aspx?id=Atlas_Okolja_AXL@Arso&AspxAutoDetectCookieSupport=1

[4] The Slovenian Environmental Agency is part of a different ministry after the last reorganization of the Slovenian government.

[5] Subsequently, Slovenia clarified that they have shown economic activity only where there is and if it is at risk of being flooded.

[6] https://www.gov.si/teme/karte-poplavne-nevarnosti-in-karte-poplavne-ogrozenosti-za-obmocja-pomembnega-vpliva-poplav/

[7] Posodobitev in izdelava kart poplavne nevarnosti in kart poplavne ogroženosti za območja pomembnega vpliva poplav (opis metodologije), MOP, November 2020.

[8] Subsequently, Slovenia removed all the links to pdf maps from both GIS-based national geoportals, possibly in response to the August 2023 flood.

[9] Pravilnik o metodologiji za določanje območij, ogroženih zaradi poplav in z njimi povezane erozije celinskih voda in morja, ter o načinu razvrščanja zemljišč v razrede ogroženosti, Uradni list RS, št. 60/07.

In terms of changes in methodologies used to prepare flood risk maps since the first FHRMs, the same approach for all potential adverse consequences is applied as for the first FHRMs. The difference is mainly due to updated data used for the second FHRMs.

**Climate change in the second FHRMs**

Climate change has been taken into account in the production of flood hazard maps. The "flood hazard potential map", takes into account a fluvial flood scenario for 2040, based on the RCP4.5_median scenario, with a 500-year return period for the period 2011-2040 and with probability distribution Pearson III, was used in the preparation of flood risk models and contributed to the review of the APSFRs at the time of the second PFRA.

## 1.2 Flood risk management plans

**Objectives and measures**

The FRMP can be easily found on the Natural Resources and Spatial Planning Ministry's website[10]. The FRMP has four general objectives: (1) preventing new risks from floods, (2) reducing existing flood risks, (3) decreasing current flood dangers during and after floods and (4) enhancing awareness about flood risks. The fourth objective focuses on strengthening public awareness. Slovenia's FRMP defines 20 generic measures that are implemented via projects in each UoM and sub-basin. The FRMP does not provide details on specific measures that will follow from the generic ones. The generic measures have been prioritised at national level, using a survey of water experts. Slovenia reported the priority of each of its measures. The largest share, 26 measures (65 % of the total), were reported as high priority, including eight measures each for prevention, protection, and preparedness measures. Two prevention and two preparedness measures were reported as low priority (one of each aspect in each UoM), while the remaining 10 measures (25 % of the total) were reported as moderate priority. The FRMP identifies the authorities responsible for monitoring the progress of the measures and notes that the government publishes a report on progress every two years[11] (the progress report for the period 2017-21 is Annex I of the FRMP).

While the FRMP does not provide information on the costs of each generic measure or the cost of individual projects at sub-basin level, it does provide an overall estimate of the cost of measures and projects for the country as a whole. Funding is provided by national and EU budgets. Next to the total budget for its measures, the FRMP describes a cost-benefit method to be used at project level, though it does not provide information where this has been used or the results. Slovenia reported several areas of coordination with the WFD; however, there is little information in the FRMP on this coordination. The generic measures include natural water retention measures (NWRMs). The FRMP mentions studies to designate natural flood areas, and notes that structural measures need to be assessed for their environmental impacts, including on Natura 2000 sites. The generic objectives have been assessed and designated into three categories with regard to their role vis-à-vis the WFD objectives: (1) synergetic influence, (2) potential conflict, and (3) not relevant. The FRMP identifies generic measures for prevention, protection and preparedness and Slovenia reported 12 prevention

[10] https://www.gov.si/teme/nacrt-zmanjsevanja-poplavne-ogrozenosti/

[11] https://www.gov.si/assets/ministrstva/MOP/Dokumenti/Voda/NZPO/porocilo_o_izvajanju_ukrepovo_NZPO_2017_2019.pdf

measures, 12 protection measures and 12 preparedness measures to EIONET. Its measures include early warning systems. The FRMP also identifies generic measures for spatial planning and land use. Moreover, the plan states that flood risks are to be integrated into spatial planning. The second FRMP provides information on the progress of the measures in the first FRMP, but not for the achievement of the objectives. Slovenia reported to EIONET the progress of measures in three categories: ongoing construction, ongoing (recurrent e.g., maintenance works), and in preparation. The majority were reported as ongoing (recurrent e.g., maintenance works): 34 measures (85 % of the total), including 10 measures each for prevention, protection, and preparedness, plus four recovery and review measures). Two prevention measures were reported as in preparation, and four measures as ongoing construction, two each for protection and preparedness. In the first FRMPs, 96 % of the measures were reported as progress ongoing, with the remaining 4 % were reported as not started. The FRMP provides information on the progress of all measures in Appendix I12, which provides an overview of each measure and then a brief note on progress at either national level and/or within the sub-basins. For example, on measure U6 for flood risk education and awareness, the FRMP highlights work carried out in several sub-basins under international projects as well as national work on education. For measure U16 on flood warning, the FRMP describes updates to the national flood warning system. The FRMP13 also provides a list of flood prevention/protection construction projects with basic information on the progress of each project and a list of 38 already finished projects under the first FRMP. The implementation of ongoing construction projects is monitored through seven technical and administrative steps.

**Governance**

The national FRMP states the coordination took place in bilateral water management commissions with Austria, Croatia, Hungary and Italy, and it provides a link[14] to the minutes of the meetings of these commissions.

The national FRMP reports that the public consultation on the draft plan was held for two months[15]. The sub-basin plans refer to the national government webpage[16] where the draft national FRMP was presented for consultation. No further information on the consultation process is provided, however, on that page or in the national FRMP itself[17].

**Consideration of climate change**

The second FRMP describes how climate projections were considered in the second PFRA, however the link to measures in the FRMP is not clear. The second FRMP also refers to Slovenia's policy framework for adaptation to climate change. The FRMP states that climate change impacts were integrated into the second PFRA, and provides an overview of some impacts of climate change on flood risks. The FRMP refers to a 2016-17 project, carried out by the Slovenian Environmental Agency, the "Assessment of Climate Change in Slovenia by the end of the 21st Century", explaining that the project

[12] FRMP, Chapter 13, pp. 416-446.
[13] FRMP, Appendix C, section 7.2, pp. 377-393
[14] http://www.evode.gov.si/index.php?id=92
[15] This is noted in the sub-basin plans. For example, section 3.1.1.7 for the Soča sub-basin.
[16] https://www.gov.si/zbirke/javne-objave/osnutek-nacrta-zmanjsevanja-poplavne-ogrozenosti-2022-2027/
[17] In the previous FRMP, it was reported that comments were collected at all public presentations but did not provide information on how these comments were used to amend the draft FRMP. The FRMP noted that information about relevant construction projects planned at municipal level were collected and included in an informative list of construction projects to be considered (p. 38, Assessment of Slovenia's FRMP Assessment SWD_2019_74).

'will further enable the preparation of an action plan for measures to adapt to climate change'18. The FRMP notes that the project results were used for the second PFRA. The following shifts for the first period until 2040 and in the second period until 2070 are presented for the moderately optimistic scenario, RCP 4.5: (1) increase in average air temperature by between 0.5 and 1 °C in the first period, and to the end of the second period by 2 °C; (2) changes in annual precipitation are only apparent in the second thirty-year period until 2070, when the amount of precipitation will increase in the eastern half of Slovenia, and summers are expected to be drier compared to the average in the reference period; (3) the changes are also reflected in the flow of surface water – in general in both periods for most of the northern part of the country shows an increase, especially in the north-eastern part of the country.

**Progress identified in the second FRMPs**

While the FRMP does not specifically identify baselines for its measures, the descriptions of some measures include information that can serve as a baseline. The progress report annexed to the FRMP provides overviews of the implementation of measures and thus provides elements that can be used as baselines for the plan's measures. In the second national FRMP, the climate change topic is well covered, it is described how climate projections were considered in the second PFRA, however the link to measures in the FRMP is not clear. The second national FRMP refers to Slovenia's policy framework for adaptation to climate change. A report on public participation was prepared separately (and provided to the Commission), but no link to it was found in the FRMP. Slovenia participated in Interreg projects with Austria and Croatia aimed at raising public awareness.

# 2. FD recommendations

Based on the reported information and the FHRMs and FRMPs assessed, the following recommendations are made to enhance flood risk management:

- The FHRMs should cover all APSFRs as both flood hazard and flood risk maps;
- The FHRMs should show water depths also for the low probability scenario;
- Pluvial flooding should be considered in the FHRM;
- The FRMP should provide detail on how the FHRM was used in the choice of objectives and measures;
- The FRMP's objectives should be specific and where possible linked to quantitative indicators and be timebound;
- The FRMP should provide details of both structural and non-structural measures, beyond generic measures;

[18] FRMP, Section 10, p. 398.

- The FRMP should provide information on the costs of measures (next to the overall cost which is provided);

- Provisions for the protection of cultural heritage at risk from flooding should be discussed in the FRMP;

- Where relevant, the FRMP should incorporate CBA for the prioritisation of measures that lend themselves to it and provide a clear description of the methodology used;

- Public consultation for the FRMP should aim for a six-month duration. The FRMP should provide detail on the public consultation and active stakeholder involvement, in particular, the comments received, and how they were taken into account;

- The FRMP should set out clearly coordination with the RBMP;

- Where appropriate, the FHRM should consider flow velocity or relevant water flow and the FRMP flood conveyance routes, as these are relevant to emergency response.