Reporting format for UNESCO's Water-related Chairs on activities for the period May 2020 – April 2022

1. Basic information

Full Name of the Chair		UNESCO Chair on Water-related Disaster Risk Reduction (WRDRR)
Name of Chair holder		Professor Matjaž Mikoš, dr. sc. techn. ETH
any other contacts (other focal points/co-chair, etc.)		Ms. Klaudija Lebar, PhD
E-mail		secretariat@unesco-floods.eu
Telephone number		+ 386 1 4768 500
Website		www.unesco-floods.eu
Mailing Address		c/o UL FGG, Jamova c. 2, SI-1000 Ljubljana
Geographic scope *		☒ global ☐ regional
Specify which Region(s) (if applicable)		-
Year of establishment		2016
Year of renewal		2020
Themes Of activities during reporting period	Focal Areas ♦	☒ groundwater ☒ urban water management ☒ rural water management ☐ arid / semi-arid zones ☐ humid tropics ☐ cryosphere (snow, ice, glaciers) ☒ water related disasters (drought/floods) ☒ Erosion/sedimentation, and landslides ☒ ecohydrology/ecosystems ☐ water law and policy ☐ social/cultural/gender dimension of water/youth ☒ transboundary river basins/ aquifers ☒ mathematical modelling ☒ hydroinformatics ☒ remote sensing/GIS ☐ IWRM ☒ Watershed processes/management ☐ global and change and impact assessment ☒ mathematical modelling ☒ water education ☐ water quality ☐ nano-technology ☐ waste water management/re-use ☒ water/energy/food nexus ☒ water systems and infrastructure ☐ Water Diplomacy ☒ Climate Change ☐ other: (please specify) _____
	Scope of Activities ♦	☐ vocational training ☒ postgraduate education ☒ continuing education ☒ public outreach ☒ research ☐ institutional capacity-building ☒ advising/ consulting

* check on appropriate box
♦ check all that apply

		☒ software development ☒ data-sets/data-bases development ☒Knowledge/sharing ☒ Policy Advice/Support ☒ Publication and documentation ☐ other: (please specify) _____
Existing networks /cooperation/partnerships [1]		i) International Research Centre on Artificial Intelligence under the auspices of UNESCO (IRCAI), Jožef Stefan Institute, Ljubljana, Slovenia. ii) UNESCO Chair on Open Technologies for Open Educational Resources and Open Learning, Institute Jožef Stefan, Slovenia. iii) International Consortium on Landslides (ICL), Kyoto, Japan. iv) The Adriatic-Balkan Network of the ICL v) World Centre of Excellence in Landslide Risk Reduction of the ICL, Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia. vi) UNITWIN/UNESCO/KU/ICL Landslide Risk Mitigation for Society and Environment Cooperation Programme, Kyoto University, Japan. vii) UNESCO Chair on prevention and sustainable management of geo-hydrological hazards, University of Florence, Italy. viii) UNESCO Chair on Integrated River Research and Management, University of Natural Resources and Life Sciences, Vienna, Austria. ix) UNESCO Chair/International Network of Water-Environment Centres for the Balkans on 'Sustainable Management on Water and Conflict Resolution', Greece. x) UNESCO Chair on Water for Ecological Sustainable Development (W4ESD), University of Belgrade, Serbia. xi) UNESCO Chair on Intersectoral Safety for Disaster Risk Reduction and Resilience SPRINT-Lab, University of Udine, Italy. xii) UNESCO Chair on Geoenvironmental Disaster Reduction, Shimane University, Matsue, Japan. xiii) UNESCO IHE Delft Institute for Water Education, the Netherlands. xiv) UNESCO category II center International Research and Training Centre on Urban Drainage (IRTCUD), Belgrade, Serbia. xv) UNESCO Chair on Open Water Science and Education, Vrije Universiteit Brussels, Belgium.
Please state any other Institutional affiliations of the chairholder		Chairholder is Full Professor employed by the University of Ljubljana and served as the Dean of Faculty of Civil and Geodetic Engineering (UL FGG, 2009-2021). In the period 2021-2025, he serves as the member of the Management Board of the University of Ljubljana; he is also Head of

[1] please indicate international networks, consortiums or projects that the chair/ network of Chairs is part of, or any other close links that the chair has with international organizations or programmes, which are not already mentioned above

	Research Institute for Geo- and Hydro-Threats (RIGHT) at UL FGG.
Number of staff and types of staff	total number of staff (full-time, or equivalent): 10 who are water experts:10 number of visiting scientists and postgraduate students: 3
Annual budget in USD	We do not have our own direct annual budget, but can support activities to up to 50.000 USD.
Sources of financial support [2]	i) Slovenian Research Agency - research core funding P2-0180 (2017-2021, 2022-2027) & diverse national and international research projects. ii) Slovenian National Commission for UNESCO within the framework of the National Committee for IHP UNESCO. iii) University of Ljubljana Research Fund.

2. Activities undertaken in the framework of IHP in the period May 2020 – April 2022 (e.g*. of activities Training, Publications, outreach, knowledge sharing, conference organized, papers presented, policy advice). Please, provide gender specific data.*

Many planned activities were postponed or executed as a hybrid event.
Field measurements and applied research in experimental river basins in Slovenia, supported by diverse technologies and measuring equipment.
Participation in the multidisciplinary ERASMUS+ master study program in Flood Risk Management (together with IHE Delft, TU Dresden, UPC BarcelonaTech).
5th World Landslide Forum (November 2–6, 2021, Kyoto, Japan) a hybrid event with over 400 participants from 5 continents, ca. 25% female beneficiaries over 24.
5th Adriatic-Balkan Regional Symposium on Landslides (March 23–25, 2022, Rijeka, Croatia) with over 70 participants, ca. one third female over 24.
Active participation to numerous international conferences, such as EGU Annual General Assembly meetings in Vienna, Austria & 29th IHP UNESCO Danube River basin Conference in Brno, Czech Republic in September 2021.
R workshop - an R language virtual (online) workshop focused on the field of hydrology, held as part of the XXIX Conference of the Danubian Countries in Brno, Czechia (one of the organizers) (November 2021).
Participation in the eMaster on Water Resources Management (eMWRE) Webinar Series on Stochastic Hydrology (March 2022).
16th international benchmark workshop on numerical analysis of dams (April 5-6, 2022, online) with over 80 participants from 18 countries.

These activities contributed to the following IHP themes:
Focal area 1.2 - Understanding coupled human and natural processes
Focal area 1.3 - Benefiting from global and local Earth observation systems
Focal area 1.5 - Improve scientific basis for hydrology and water sciences for preparation and response to extreme hydrological events
Focal area 6.1 - Enhancing tertiary water education and professional capabilities in the water sector

3. Collaboration and linkages *(Please specify also collaborations with other chairs or members of the water family - existence of MoUs, etc.)*

Link and cooperation in the UNITWIN/UNESCO/KU/ICL Landslide Risk Mitigation for Society and Environment Cooperation Programme, Kyoto University, Japan.
Activities in the International Consortium on Landslides (ICL) – cooperation with other 19 World Centres of Excellence in Landslide Risk Reduction being an active

[2] please specify sources of main budgetary and extra budgetary funds to implement projects

ICL member, supporting the ICL journal Landslides published by Springer Nature, contributing scientific and technical papers to triennial World Landslide Forums, regional cooperation within the ICL regional Adriatic-Balkan Network (Croatia, Bosnia & Hercegovina, Serbia, Albania, Northern Macedonia).
University of Brescia, Italy – cooperation in PhD "Civil and Environmental Engineering, International cooperation and Mathematics".
IHE Delft – cooperation together with TU Dresden and UPC Barcelona within the framework of the international & multidisciplinary 2-year ERASMUS+ Master in Flood Risk Management that is partially executed in Ljubljana at University of Ljubljana with the direct involvement of the UNESCO Chair in WRDRR.
Bilateral cooperation with Chongqing Technology and Business University, China under the framework of a bilateral research project "Evaluation of intelligent learning techniques for prediction of hydrological data: useful case studies in China and Slovenia« (2018-2020).
Bilateral cooperation with TU Braunschweig, Germany under the framework of a bilateral research project "Validation of precipitation reanalysis products for rainfall-runoff modelling in Slovenia (PRE-PROMISE)" (2021-2022).
Bilateral cooperation with KU Leuven, Belgium under the framework of the CELSA (Central Europe Leuven Strategic Alliance) research project "Rainfall interception experimentation and modelling for enhanced impact analysis of nature-based solutions" (2021-2023).
Cooperation within the EUTOPIA alliance, Eutopia Young Leaders Academy.
Cooperation in the International Water Resources Association (IWRA) LAND4FLOOD Task Force (https://www.iwra.org/land4flood-taskforce/).

Collaboration by UNESCO Chairs/Centres:

i. UNESCO Chair on Open Technologies for Open Educational Resources and Open Learning, Institute Jožef Stefan, Slovenia.
ii. International Research Centre on Artificial Intelligence under the auspices of UNESCO (IRCAI), Institute Jožef Stefan, Slovenia.
iii. International Consortium on Landslides (ICL), Kyoto, Japan.
iv. The Adriatic-Balkan Network of the ICL.
v. World Centre of Excellence in Landslide Risk Reduction of the ICL, Faculty of Civil and Geodetic Engineering, University of Ljubljana, Slovenia.
vi. UNITWIN/UNESCO/KU/ICL Landslide Risk Mitigation for Society and Environment Cooperation Programme, Kyoto University, Japan.
vii. UNESCO Chair on prevention and sustainable management of geo-hydrological hazards, University of Florence, Italy.
viii. UNESCO Chair on Integrated River Research and Management, University of Natural Resources and Life Sciences Vienna, Austria.
ix. UNESCO Chair/International Network of Water-Environment Centres for the Balkans on 'Sustainable Management on Water and Conflict Resolution', Greece.
x. W4ESD – UNESCO Chair on Water for Ecological Sustainable Development, University of Belgrade, Serbia.
xi. UNESCO Chair on Intersectoral Safety for Disaster Risk Reduction and Resilience SPRINT-Lab, University of Udine, Italy.
xii. UNESCO Chair on Geoenvironmental Disaster Reduction, Shimane University, Matsue, Japan.
xiii. UNESCO IHE Delft Institute for Water Education, the Netherlands.
xiv. UNESCO category II center International Research and Training Centre on Urban Drainage (IRTCUD), Belgrade, Serbia.
xv. UNESCO Chair on Open Water Science and Education, Vrije Universiteit Brussels, Belgium.

4. Communication/Knowledge Sharing *(e.g. website/ platforms created or newsletters)*

Issuing journal Acta hydrotechnica (ISSN: 0352-3551, eISSN: 1581-0267, http://ksh.fgg.uni-lj.si/KSH/acta/index.htm) that is indexed in several databases: SCOPUS, ICONDA, Crossref, dLib, Google Scholar, Ulrich's Web, COBISS.

Scientific and technical contributions (papers) to international periodicals (journals) and scientific and professional conferences.
Chair web pages: www.unesco-floods.eu.
Since 2020, we added links to "Water-related news", "Sustainable-related News", and "Higher Education News", as well as links to international and national information and institutions relevant for the Chair activities. Furthermore, we added some tutorials (prepared within the COST action Land4Flood) and some practical exercises prepared using the .h5p software.

Scanning of available official scientific and technical reports, books and conference proceedings of the regional hydrological co-operation of the Danube Countries in the framework of the International Hydrological Program of UNESCO was finished.

5. Institutional changes/updates

No changes/updates yet.

6. Please provide examples of the Chair's Main achievement(s)/success stories/best practices

In the period May 2020–April 2022, the main outcome in this first phase after the chair's prolongation in May 2020, was to further strengthen its network and achieved position in the existing international networks (UNESCO, IHP, ICL, Interpraevent) by continuous contributions to organizational efforts for the following events: 5th World Landslide Forum in 2020 in Kyoto, Japan (hybrid event in November 2021), 14th INTERPRAEVENT Congress in Bergen, Norway (postponed from May 2020 to June 2021), and 5th Regional Symposium on Landslides in the Adriatic-Balkan Region in Rijeka, Croatia (postponed from October 2021 to face-to-face event in March 2022).
Unique Erasmus+ 2-year Flood risk management interdisciplinary master program (https://www.floodriskmaster.org/) produced several video lectures: http://videolectures.net/floodriskmaster2018_ljubljana/. Our UNESCO Chair contributes annually to this 2-year Master Programme.
Scientific reports on applied studies.
Active participation in scientific conferences and publishing scientific papers in international peer-reviewed journals.
Hydrological and hydraulic field experimentation and measurements in the experimental basins around Slovenia using advanced technologies and diverse equipment.
The Laboratory for aggregates under the umbrella of the Research Institute for Geo and Hydro Threats (RIGHT), Faculty of Civil and Geodetic Engineering, University of Ljubljana offers research facilities/equipment not only to study aggregates as building materials but also to study mineral aggregates (natural fluvial sediments) being part of the erosion and sedimentation cycle.

7. Future activities that will contribute directly to IHP and/or to WWAP

UNESCO Chair in WRDDR at University of Ljubljana will continue to support IHP in years to come by the following activities:

- Supporting the activities of the Slovenian National Committee for IHP UNESCO (UNESCO Chairholder is also chairing the NC IHP UNESCO in Slovenia and is a member of the Slovenian National Commission for UNESCO, and two more members of the UNESCO Chair are members of the Slovenian NC IHP UNESCO).
- Slovenia was coordinating national committees for IHP UNESCO in the Danube River Basin and their research efforts.
- We have supported the work of IHP Bureau and IHP Council in Paris – from 2022 on, Slovenia is not an IHP Council member anymore. We will support the IHP project World's Large Rivers Initiative (WLRI).

- We will further on develop and intensify our research activities in experimental basins and cooperation in the Euro-Mediterranean Network of Experimental and Representative Basins (ERB, https://erb-network.simdif.com/).
- UNESCO Chair in WRDRR contributed to the draft of the 9th Programme of IHP UNESCO, and will support its implementation plan; it will continue to support activities of other UNESCO chairs within the existing network, especially through the ICL community in the field of landslide risk reduction, and through already established cooperation within the international hydrology community.
- We will support the forthcoming 4th Congress on Waters in Slovenia to be held in 2023.
- We will proceed supporting publishing of the SCOPUS journal Acta hydrotechnica.
- We will further support all kind of national and international University of Ljubljana educational efforts and activities in the field of hydrological sciences and integrated water management, as well as in flood risk management and community (society) capacity building and development through risk dialogue with diverse stakeholders.
- Cooperation on development of the new International Glossary of Water (IGW).
- Maintenance and development of the existing Experimental river basins.

8. Activities implemented within the framework of the United Nations 2030 Agenda for Sustainable development and the SDGs (please specify which SDG(s) and its/their targets)

Our activities are mainly related to the following two SDGs:
13. Climate action
(target: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries & Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning).
17. Partnerships for the goals
(target Technology: Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism).

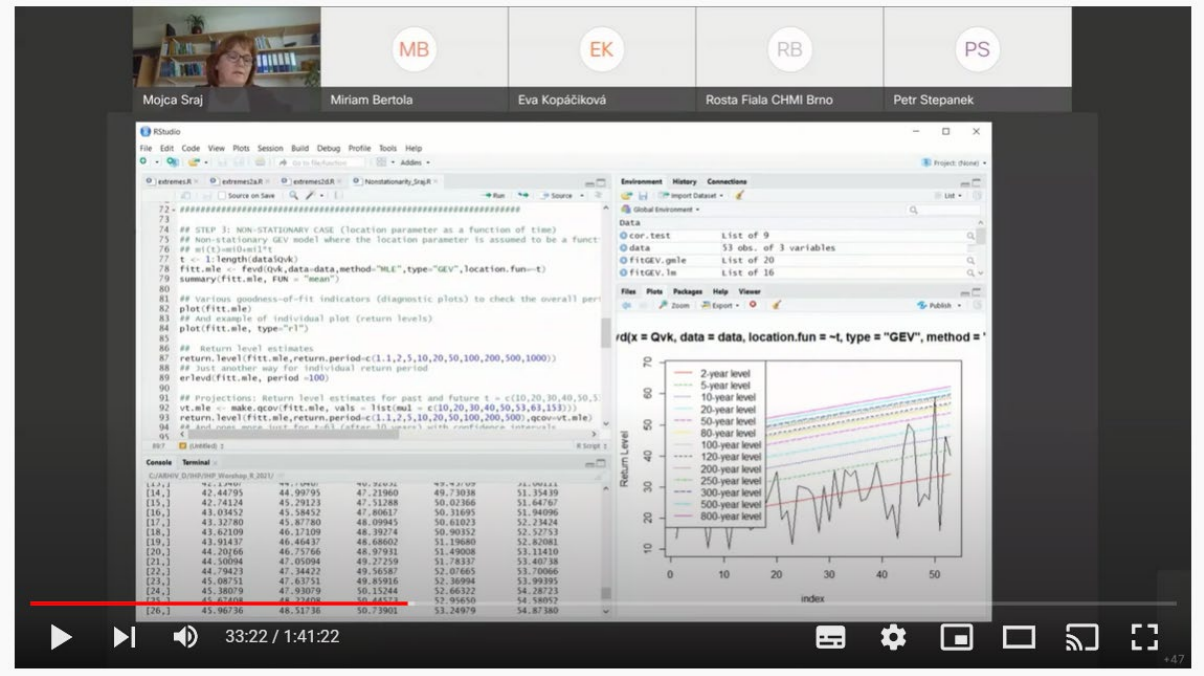
Our activities are also related to the following two SDGs:
6. Clean water and sanitation
(target: By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate. By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate).
9. Industry, innovation and infrastructure.
(target: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all).

9. Annexes *(please include if possible the detailed list of activities and/or publications, or any other supporting documentation)*

A comprehensive list of WRDRR actions is published on the main Chair's web page: https://www.unesco-floods.eu/ and under *News*: https://www.unesco-floods.eu/category/news/.

A comprehensive list of publications related to activities WRDRR is published on the Chair's web page under *Publications*: https://www.unesco-floods.eu/category/publications/.

Working meeting in the scope of the bilateral research project Slovenia-Germany (Braunschweig, Germany, October 2021).



Screenshot of the online R workshop within eWRME in 2022.

Field discharge measurements.

Field bathymetry measurements.

Appendix 1

Overview of the Core Programme Themes of the Eighth Phase of the IHP (2014-2021)
WATER SECURITY: ADDRESSING LOCAL, REGIONAL, AND GLOBAL CHALLENGES

THEME 1: WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE

- Focal area 1.1 - Risk management as adaptation to global changes
- Focal area 1.2 - Understanding coupled human and natural processes
- Focal area 1.3 - Benefiting from global and local Earth observation systems
- Focal area 1.4 - Addressing uncertainty and improving its communication
- Focal area 1.5 - Improve scientific basis for hydrology and water sciences for preparation and response to extreme hydrological events

THEME 2: GROUNDWATER IN A CHANGING ENVIRONMENT

- Focal area 2.1 - Enhancing sustainable groundwater resources management
- Focal area 2.2 - Addressing strategies for management of aquifers recharge
- Focal area 2.3 - Adapting to the impacts of climate change on aquifer systems
- Focal area 2.4 - Promoting groundwater quality protection
- Focal area 2.5 - Promoting management of transboundary aquifers

THEME 3: ADDRESSING WATER SCARCITY AND QUALITY

- Focal area 3.1 - Improving governance, planning, management, allocation, and efficient use of water resources
- Focal area 3.2 - Dealing with present water scarcity and developing foresight to prevent undesirable trends
- Focal area 3.3 - Promoting tools for stakeholders involvement and awareness and conflict resolution
- Focal area 3.4 - Addressing water quality and pollution issues within an IWRM framework - improving legal, policy, institutional, and human capacity
- Focal area 3.5 - Promoting innovative tools for safety of water supplies and controlling pollution

THEME 4: WATER AND HUMAN SETTLEMENTS OF THE FUTURE

- Focal area 4.1 - Game changing approaches and technologies
- Focal area 4.2 - System wide changes for integrated management approaches
- Focal area 4.3 - Institution and leadership for beneficiation and integration
- Focal area 4.4 - Opportunities in emerging cities in developing countries
- Focal area 4.5 - Integrated development in rural human settlement

THEME 5: ECOHYDROLOGY, ENGINEERING HARMONY FOR A SUSTAINABLE WORLD

- Focal area 5.1 - Hydrological dimension of a catchment– identification of potential threats and opportunities for a sustainable development
- Focal area 5.2 - Shaping of the catchment ecological structure for ecosystem potential enhancement ─ biological productivity and biodiversity
- Focal area 5.3 - Ecohydrology system solution and ecological engineering for the enhancement of water and ecosystem resilience and ecosystem services
- Focal area 5.4 - Urban Ecohydrology – storm water purification and retention in the city landscape, potential for improvement of health and quality of life
- Focal area 5.5 - Ecohydrological regulation for sustaining and restoring continental to coastal connectivity and ecosystem functioning

THEME 6: WATER EDUCATION, KEY FOR WATER SECURITY

- Focal area 6.1 - Enhancing tertiary water education and professional capabilities in the water sector
- Focal area 6.2 - Addressing vocational education and training of water technicians
- Focal area 6.3 - Water education for children and youth
- Focal area 6.4 - Promoting awareness of water issues through informal water education
- Focal area 6.5 - Education for transboundary water cooperation and governance