

Deliverable 6.3:2

Danube Floodplain Online Course

Summary report

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Introduction

Danube Floodplain Online Course (DFOC) is a Small Private Online Course freely available via an invitation link (<https://edge.edx.org/courses/course-v1:TUMx+FP101+2021/about>) on TUMx EdX platform. It has been created as the main capacity building product of DF, and is the main WP 6.3 deliverable. It is a result of cooperation of 21 lecturers from 10 organization and 2 invited stakeholders, coordinated by GWPCEE. It presents results of DF Project and disseminates them in attractive, accessible and effective way. It addresses young and mid-level professionals from local, regional or national water authorities and disaster risk reduction area, the SMEs working in flood, water management sector, and students –the future managers.

Course preparation

DFOC has been prepared since February 2021 and has been launched as fully operational on 30. September 2021. The preparation was coordinated by GWPCEE, who organized 2 creative workshops with the consortium, and coordinated whole production of the course. Technical University of Munich (TUM) had offered to host the course permanently on TUMx platform. Firstly, the didactic concept of an interactive and engaging course was drafted and presented together with the proposal of module content (created by GWPCEE team - Anna Smetanova, Sabina Bokal, and Francesca Perosa from TUM. Together 6 modules were selected, respectively representing different areas and products of DTP funded Danube Floodplain Project. In order to ensure the scientific quality of the modules, modules coordinators were assigned, and supported the coordination. The templates for concept of the modules was prepared by GWPCEE and distributed to the parties, and lecturers. At the second meeting, the content was discussed and approved and the overlaps eliminated. The timeline was agreed, and GWPCEE has provided several guidelines to prepare the content of the course. As the inputs have been delivered, the videos have been processed by professional video editor. GWPCEE ensured the communication between the lecturers and the video editor during several feedback

rounds, and controlled the quality. The course content was uploaded by coordinators and checked by audit learners. Besides the content of the course, the promotional campaign was launched, including several products such as promo video, social media posts, promotion on DF and other events.

Course structure

The course consists of six modules: Introduction, Flood Risk Management, Floodplain Management and lessons learned, Technical aspects of restoration studies, Supporting decisions in floodplain management, Decision support tools, and Conclusion (Figure 1).



Figure 1. Danube Floodplain Online Course content

Each module had several lecturers and has been coordinated by one or more cooperating partners. Figure 2 lists them in detail. Underlined are the names of the coordinators.

Danube Floodplain Online Course Contributors








 Introduction to the Course - Module introduces challenges and importance of floodplain management.	GWP CEE: Sabina Bokal, <u>Anna Smetanová</u> NARW: <u>Cristian Rusu</u> , ICPDR: <u>Igor Liska</u> , BOKU: Bernhard Schober
 Flood Risk Management - Module explains flood risk management and different policy frameworks.	TUM: Markus Disse, NARW: <u>Cristian Rusu</u> TUM: <u>Francesca Perosa</u>
 Floodplain Management and Lessons Learned - Module introduces practical examples of win-win measures.	NIWHM: Andreea Galie, KÖTIVIZIG: Judith Palatinus CUEI: Bernd Cyffka, NARW: Razvan Bogzianu NARW: <u>Cristian Rusu</u> , GWP CEE: <u>Anna Smetanová</u>
 Technical Aspects of Floodplain Restoration Studies - Module explains technical aspects and concepts of floodplain restoration.	TUM: Markus Disse, BOKU: Christoph Hauer USZ: Tímea Kiss, Péter Szilassi TUM: <u>Francesca Perosa</u> , CUEI: <u>Bernd Cyffka</u> GWP CEE: <u>Anna Smetanová</u>
 Supporting Decisions in Floodplain Management - Module focuses on planning and decision-making aspects of floodplain management.	GWP CEE: Sabina Bokal, Anna Smetanová, ICPDR: Hélène Masliah-Gilkarov, TUM: Francesca Perosa WWF RO: <u>Camelia Ionescu</u> , WWF HU: Andrea Samu
 Decision Support Tools - Module introduces two tools - Floodplain Evaluation Matrix and Floodplain GIS.	BOKU: Helmut Habersack, Markus Eder, USZ: <u>Boudewijn van Leeuwen</u> , Zalán Tobak
 Conclusions - Module includes concluding remarks, final test and post-course survey.	GWP CEE: Sabina Bokal, <u>Anna Smetanová</u>

Figure 2. Contributors and coordinators (underlined) to the Danube Floodplain Online Course Modules

Each module has an interactive structure within the Online Platform, containing following sections (Figure): About, Lectures (3-5), Recommended Learning Materials (publications, videos, websites), Assignments, and Take Home Messages (example, Figure 3)

▼ Module 1: Flood Risk Management

3 Section Highlights

▶ About
▶ 1.1 Flood Risk Management
▶ 1.2 EU Flood Directive
▶ 1.3 Directives related to floodplai...
▶ Recommended Learning Materials
▶ Take Home Messages

Figure 3. Example of Module structure – module 1.

The About section contained following parts: Introduction, Motivation, Learning Objectives, and presentation of Lectures and Lecturers (example, Figure 3). The 3-5 lectures per module consisted of several video lectures. Table 1 contains the listing of video lectures in the modules.

Table 1 : Video Lectures in Danube Floodplain Online Course

Module	Module Title	Video Lectures
	Introduction to the course	Welcome to the course!
		Need for Danube Floodplain Project
		Floodplain Management
1	Flood Risk Management	Flood Risk & Risk Elements
		Flood Risk Management Cycle
		Steps of the EU Floods directives
		Flood hazard and flood risk maps
		Examples of Flood risk maps
		Water Framework Directive
		Other directives related to floodplain management
2	Floodplain Management and Lessons learned	Win-win measures
		Win-win measures in Bistret Pilot Area
		Win-Win measures in Tisza Pilot Area

		Environmental effects of Danube regulation in the past
		Neuburg restoration project
		Implemented technical measures
		Lessons learned: Setting up a restoration project
		Lesson learned in putting theory to practice
3	Technical aspects of restoration studies	The flood chain and its modelling
		Hydrological models
		1D and 2D hydrodynamic models
		Theory of habitat modelling and ecohydraulic assessment
		Efficiency and uncertainties in habitat modelling for large rivers
		Examples of habitat modelling in practice
		Effect of vegetation on flood levels
		Measuring vegetation density and using it as an input data in hydrological modelling
		The evaluation of the level of biological invasion in floodplains
		Ecosystem Services – Concept and Valuation
		Ecosystem services modelling
4	Supporting decisions in floodplain management	Active participation of stakeholders
		Benefits of participation
		Stakeholder engagement methods
		Decision-Making and Cost-Benefit Analysis
		Ecosystem Services Evaluation
		Examples of Extended Cost-Benefit Analyses
		Feasibility study of a floodplain restoration
5	Decision support tools	Floodplain Evaluation Matrix for floodplain management
		Scaling approach in FEM
		Parameters in FEM
		Floodplain evaluation in FEM
		Identification of active floodplains
		Identification of potential floodplains
		Floodpeak reduction in floodplains along Danube
		End product of FEM
		FEM-Tool
		Vizualization of Data in Danube Floodplain GIS
		Data in Danube Floodplain GIS
		How Can You Manipulate the Content of DF GIS?
		Danube Floodplain Inventory
		Using Danube Floodplain Data in QGis
		Using Spatial Dataset in QGis Part 1
		Using Spatial Dataset in QGis Part 2
		Using Spatial Dataset in QGis Part 3
		Performing Floodplain Analysis in QGis
		Layer Styling and Map Decoration
		Visualizing Results and Map Layout
	Conclusion	Concluding words

Video lectures were followed by simple quizzes called Progress Check Questions, in which the participants interacted with the lecture and answered questions included in previous video to strengthen their learning (Figure 8). Each lecture contained Summary, in which the main lecture take aways were listed.

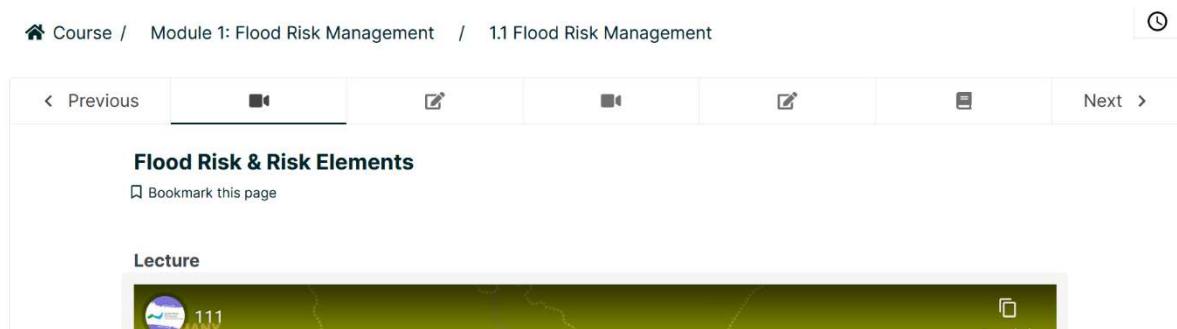


Figure 4. Example of a participant interface in Lecture 1.1 Flood Risk Management. Lecture contained videos, progress check questions, and the lecture summary.

Conclusion module had slightly different structure as it contained Conclusions (About and video lecture: Concluding words), final Take Home Messages, Final Exam, Post-course Survey, and final word titled Thank you! The Final Exam was obligatory in the first course launch (Sept 30 – Dec 1, 2021) to receive the Confirmation of participation (upon passed exam).

Together 57 video lectures, 3 assignments, mandatory readings, 50 progress check questions, 10 discussion forums, course take away, final test, and post-course survey made the Danube Online Course an attractive and appreciated capacity building product.

First Launch of the course

The first launch was 30 September 2021, and the course was open for 6 six week. Together 128 participants were enrolled in the first launch. From the TUMx EdX platform, there is possible to extract a statistics. It should be taken with caution as it is based solely on the data provided by their registration to EdX platform. After their enrolment in course, their profiles data can be analysed.

Total number of 31 countries or regions were present. Hungary and Romania were the top country by enrollment (13% of learners), and Germany the third (12%).

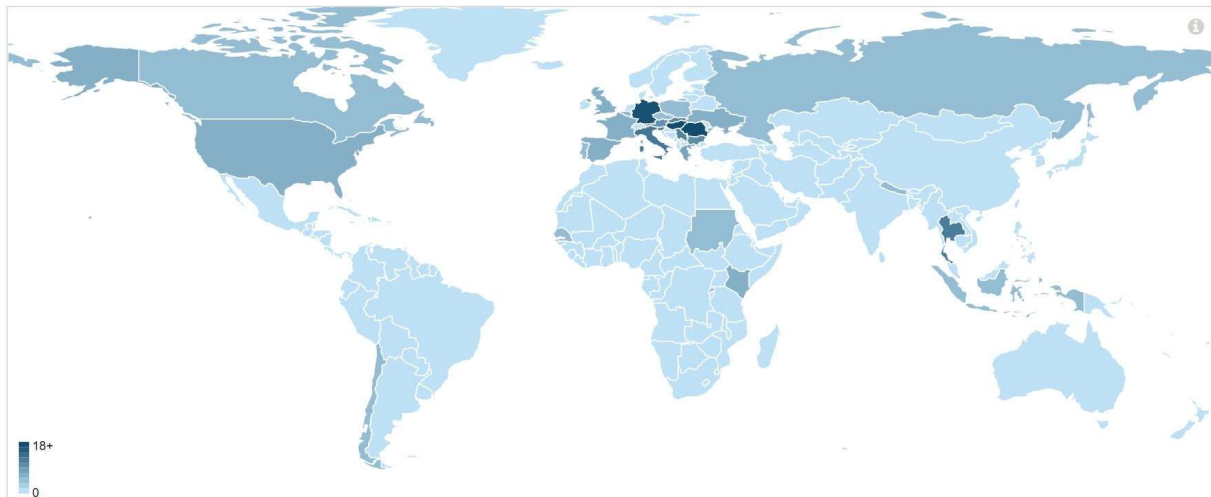


Figure 5. Geographical location of the participants

The median age of a learner was 34,5 year, 15% were 25 years old or younger. More than half (53%) were between 26 to 40 years, and 32% over 41 years old. Together 71% had highest education doctorate, and 23% master. More than 56% were women, and 43% men.

Course re-opening and permanent access

The DFOC will be re-opened by 1.May 2022 as and self-paced, free to enroll course hosted by TUMx EdX website. The promo will be launched on 27 April. 2022. The access link will be permanently located on the web of the project lead partner Administrația Națională Apele Române.