



## External Evaluation Report

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| <b>Project Acronym:</b>    | <b>K-FORCE</b>                                  |
| <b>Project full title:</b> | <b>Knowledge for resilient society</b>          |
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|-----------------|--|
| <b>Abstract</b> | The <b>External Evaluation report</b> is prepared to assure optimal quality and results of the project and to assess whether the project objectives are achieved in accordance to the project proposal and project timeline. |
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## ABRIVATIONS

|                    |  |
|--------------------|--|
| <b>EU</b>          | European Union                                       |
| <b>HEI</b>         | Higher Education Institution                         |
| <b>WBC</b>         | Western Balkan Countries                             |
| <b>K-FORCE</b>     | Knowledge FOr Resilient soCiEty                      |
| <b>LFM</b>         | Logical Framework Matrix                             |
| <b>PST</b>         | Project Support Team                                 |
| <b>QAPT</b>        | Quality Assurance Project Team                       |
| <b>SC</b>          | Steering Committee                                   |
| <b>WP</b>          | Working Package                                      |
| <b>UNS</b>         | University of Novi Sad                               |
| <b>UKIM</b>        | University Ss. Cyril and Methodius                   |
| <b>LU</b>          | Lund University                                      |
| <b>UT</b>          | University of Tirana                                 |
| <b>DTU</b>         | Denmark Technical University                         |
| <b>AAL</b>         | Aalborg University                                   |
| <b>UNIZA</b>       | University of Zilina                                 |
| <b>EYPS</b>        | European Youth Parliament Serbia                     |
| <b>DRM&amp;FSE</b> | Disaster Risk Management and Fire Safety Engineering |
| <b>P1, P2 ....</b> | Partner 1, Partner 2.....                            |
| <b>ICT</b>         | Information and Communication Technology             |



## 1. EXECUTIVE SUMMARY

This document contains External Evaluation report on the ERASMUS+ project “K-FORCE - Knowledge FOr Resilient society”, Project No. 573942-EPP-1-2016-1-RS-EPPKA2-CBHE-JP. The Project was implemented and managed by Faculty of Technical Sciences, University of Novi Sad as a project leader.

The aim of the External Evaluation (EA) report is to assure optimal quality and results of the project and to assess whether the project objectives are achieved in accordance to the project proposal and project timeline. The time covered is three-year period, project lifetime (M1-M36) and also extension period of the project (M37 – M42).

According to the recommendations given in the Quality Assurance and Monitoring Manual, it was envisaged to engage an expert who will carry out the external evaluation of the project (QA audit of project implementation). The External quality control includes: keeping to the time plan, dissemination, horizontal & vertical coordination of WGs, peer-review of new learning material and efficiency of the whole process. At the project meeting in Zilina (February 2018), P11 as responsible for project Quality Assessment, nominated me as external evaluator for quality audit.

This external evaluation report is prepared based upon all available project documentation (Project proposal, LFM, Reports & Deliverables, Intermediate report, Monitoring visit reports by EACEA, Quality control and monitoring report, Project implementation and management plan, [K-FORCE web site](#) information, personal visits to UNS, VTSNS, UKIM and UNIZA and participation in several K-Force events.

Also, the strong point was given to conducted interviews with contact persons from partner institutions that were in charge for specific tasks. The independent external evaluation findings are presented together with the main deliverables achieved.

Following the indicators of progress defined in the Logical Framework Matrix of the project, it can be concluded that the wider and specific project objectives are completely realized. The activities of the K-FORCE project have been met according to project proposal, and also the main project goals are successfully delivered towards the project end. The professional and experienced project management was one of the mainstays for successful project implementation.

Recommendations are provided, aiming to the future activities and sustainability after the end of the project.

### 1.1 EXTERNAL EVALUATION OBJECTIVE

The main goal of this External Evaluation report is to assess whether the objectives of the K-FORCE project for the whole period of its execution (M01 –M42), described in the project proposal, have been achieved through the means proposed. Specifically, it will evaluate the



extent of the project's activities and deliverables being in line with the aims and objectives, as well as with regards to expected results and planned activities, outlined in the original application. Linked to that, this evaluation seeks to assess as to whether all project activities have been realized according in due course and to certify that no delays have occurred with a negative impact on the project results.

## 1.2 EXTERNAL EVALUATION METHODOLOGY

In order to carry out the External Evaluation, the author was given full access to all relevant external and internal documents, project consortium meetings presentations and deliverables. The content of the project's website <http://www.kforce.gradjevinans.net/> was used too.

Documentation comprises all relevant documents, including the original project proposal, the Logical Framework Matrix, Internal quality control and monitoring reports, Progress reports and Deliverables, Intermediate report and feedback monitoring visit reports by EACEA.

The evaluation was done through documentation analysis, but also through personal visits to UNS, VTSNS, UKIM and UNIZA and participation in several K-FORCE events organized by the project partner P11 (UKIM), responsible for the Project Quality Assessment.

Before the official nomination as External evaluator, I participated in the First international Symposium K-FORCE 2017, in Novi Sad in September 2017, as invited speaker. As External evaluator I participated in: Study visit & training event at the University of Zilina (February 2018); Study visit & training event organized by Ss. Cyril and Methodius University in Ohrid (July 2018); K-FORCE Consortium Project Management meeting at the University of Novi Sad and 1st International Symposium S-FORCE 2018 and EYP Workshop –Novi Sad (September 2018); K-FORCE project meeting at Ss. Cyril and Methodius University in Skopje (January 2020).

Direct communication with project coordinator Prof. Vlastimir Radonjanin, Project manager Prof. Mirjana Laban and project assistant Suzana Draganic was obtained almost on daily bases, as well as face-to-face and online communication (e-mail, Skype etc.) with contact persons from other project partner institutions in order to collect and summarize the important information for reporting and evaluation findings.

For the need of the External evaluation, a meeting with the K-force Steering Committee representatives and PMT was organized in April 2019. At the meeting I was informed about recent development of project activities; I was given a full access to all relevant external and internal documents, informed about the next two project consortium meetings preparation.

This also was an opportunity to observe the organization and quality assurance mechanism of SMS teaching mobility – the guest lecture was held in VTSNS, the other HEI from Novi Sad, Serbia.

As external evaluator, I was also introduced to all the contents of the projects' website.



The review process started with project overview and analysis of planned and achieved deliverables, and cross-matching with logical framework matrix in order to define to which extent the quality of results meet the plan according to the available indicators. Finally, the concluding remarks and progress findings of external evaluator are given.

## 2. ABOUT K-FORCE PROJECT

### 2.1 INTRODUCTION

Natural and man-made disasters - floods, landslides, earthquakes, storm winds, hail, drought, wild fires and building fires are on the rise in the last decades in the Western Balkans. Human casualties, extensive damages to the urban areas, negative impact on the environment and further weakening of the regional economy are amongst indicators of increasing vulnerability. Preliminary surveys, done by project partners in the project preparation phase, have shown that shortage of skills exists. Knowledge and skills of the existing staff in this area (state administration, public institutions and companies) is based on the education acquired from other engineering disciplines. The project team noticed very different levels of knowledge and skills, with many people learning on the job in an unstructured way. These competences, knowledge and skills are insufficient to solve the growing problems in the field of Disaster Risk Management and Fire Safety Engineering (DRM&FSE). Moreover, the lack of safety culture in society in general is notable.

Decision No 1313/2013/EU on a Union Civil Protection Mechanism, in view of the significant increase in the numbers and severity of natural and man-made disasters in recent years and in a situation where future disasters will be more extreme and more complex with far-reaching and longer-term consequences as a result, in particular, of climate change and the potential interaction between several natural and technological hazards, emphasize an integrated approach to disaster management as increasingly important. Prevention is of key importance for protection against disasters and requires further action as called for in the European Parliament Resolution (2010) entitled a "Community approach on the prevention of natural and manmade disasters". Reaching the prevention objectives and carrying out prevention actions, improving the disaster risk knowledge base and facilitating the sharing of knowledge, best practices and information, were defined as the first ranked action to take. Education and training (ET 2020) lie at the heart of the Europe 2020 strategy to exit the recession and establish the foundations for future knowledge-based growth and social cohesion.

The same goal is promoted in multiple EU documents, e.g.: European and Mediterranean Major Hazards Agreement (EUR-OPA), South East Europe 2020 Strategy – Jobs and Prosperity in the European Perspective (SEE 2020 Strategy) and Supporting growth and jobs – an agenda for the modernization of Europe's higher education systems COM (2011) 567 final.



The above listed are common objectives and goals both for EU and WBC region, considering the on-going European integration process in the Balkans. Both wider and specific objectives of the project are in compliance with Partner countries' national HE strategies and action plans, as well as national strategies in the field of fire protection and emergency situation.

Common regional needs to improve the resilience of the region to hazards are recognized:

- the need for human resources – experts, competent to operate in prevention, reaction and recovery phases of the catastrophic events and solve engineering problems in the field of DRM&FSE.
- the need to educate competitive experts, able to create sustainable financial plans for disaster preparedness and preventive measures, according to regional economy recourses.

According to officially available WBC HEIs records, HE provision in this area is very scarce. There is only one academic master study programme (P1) and one vocational Specialist (P2) programme, but both need to be modernized. Number of graduates is insufficient for regional/national needs.

## 2.2 PROJECT DESCRIPTION

The aims of the K-FORCE project are to improve regional resilience to hazards and capability for regional cooperation in risk prevention and response and to ensure national professional resources and regional capacities in aim to build regional-based disaster preparedness and a culture of safety and resilience at all levels according to EU Integration Strategies and National relevant strategies.

The specific project objectives are:

- Modernization of Disaster Risk Management and Fire Safety Engineering Master Program (P1) and development and implementation of new MPs/modules (P2-P6) in WBC partners HEIs, in accordance to regional needs and contemporary EU trends.
- Development and implementation of Disaster Risk Management and Fire Safety Engineering PhD study programme (P1) in accordance to available resources, regional needs and European partners expertize, in aim to ensure regional capacities and sustainable education and research in the field.
- Continuous professional development of employees in DRM&FSE sector in WBC, through creation and implementation of certified LLL courses for practitioners.
- To improve cooperation between project partners in order to modernize teaching and training process on novel technical and technological solutions, exploiting the ICT application.

These programs foster cooperation amongst HEIs in promoting and supporting mobility of master and doctoral candidates, develop infrastructure for mutual recognition of awarded master and doctoral degrees, initiate exchange of post-doctoral researchers, participate in





collaborative research grants in order to increase institutional capacities both in research expertise and infrastructure.

Implementation of interdisciplinary module/master programmes (both on academic and vocational level of studies) and academic doctoral study programme in the field of Technical Sciences, created in a way that enable continuation of the studies for a number of different profiles of engineering professions, also enables continuation of the studies of active professional experts.

To achieve these goals, K-FORCE project is planned in three phases: preparation, development and implementation and valorization phase. Phases are intertwined, following the natural course of development of study programmes and modules.

Modernization/Development of MPs is based on national/regional needs and know-how transfer from program partner HEIs. The syllabi core and common learning outcomes are aligned with NQF/EQF. For the process of modernization and the study programme needs, 6 educational ICT based labs at WBC HEIs are created (WP1).

DP development is based on WBR needs, disaster trends, available recourses and novel approach provided by PR (WP2).

Teaching methodologies (WP3) are improved through study visits and trainings, coordinated by PR HEIs. Blended learning material (EN/SR/AL/BH) are created, peer-reviewed by PR HEIs, evaluated and fine-tuned. B-learning materials are available via flexible ICT platform, timely for MPs' implementation. At least 120 students were planned to be enrolled during project period (WP4). PhD programme is planned to start in the 3rd project year, with at least 12 students enrolled. Research area and themes are selected based on WB priorities (WP5). Selected lectures are held by HEIs professors at MPs and DP.

Continuing education is implemented in blended way, based on WBC needs and learning outcomes according to NQF/EQF (WP6). Selected MPs Syllabi and learning material are adapted for LLL courses. DRM&FSE Glossary (EN/SR/AL/BH) are created, externally peer reviewed and published. QA mechanisms and procedures are implemented (WP7), monitoring is done by PR HEIs and external expert. Dissemination is realized through the K-FORCE Website, ICT platform, e-library, events and media (WP8). Project management is provided by the coordinator PMT (WP9).

### 3. EXTERNAL EVALUATION FINDINGS ON PROJECT IMPLEMENTATION

#### 3.1 PROJECT MANAGEMENT

**Project Management (WP9)** was led by University of Novi Sad. It consisted of planning, organizing, motivating, and controlling resources, procedures and protocols for achieving specific goals addressed in project. It resulted in partnership terms and conditions being



fully agreed upon, management procedures being fully established and teamwork culture being built. The objective to produce and deliver planned outputs was successfully realized.

The primary challenge of project management was to achieve all of the project goals and objectives while honoring the preconceived constraints. The primary constraints were scope, time, quality and budget. The secondary — and more ambitious — challenge was to optimize the allocation of necessary inputs and integrate them to meet pre-defined objectives.

Due to the size of the Consortium and the wide span of the project outcomes, the management team expected various challenges while the project picked up speed. Hence in order to establish mechanisms that will ensure a good project start and adherence to the time plan the Project Management and Reporting Guide was developed. The Project Management and Reporting Guide offered instruction on how to report upon an implemented activity, gave a detailed definition of eligible and ineligible costs, as well as necessary supporting documents that need to be provided in order to justify the costs. Taking into account that most of the rules are defined by the Grant Agreement, Project Management and Reporting Guide defined procedures for their practical implementation. By clear defined procedures for financial management and reporting, the communication between the project coordinator and other beneficiaries was simplified. Additionally, the beneficiaries were able to fulfill successfully their contractual obligations and to provide all necessary inputs with high quality to project coordinator whose responsibility was to further incorporate them in reports for the EACEA.

**The conclusion is that all beneficiaries were actively involved in the fulfillment of agreed procedures defined in the Project Management and Reporting Plan.**

### **3.1.1 Management structure**

The K- FORCE Consortium consisted of 14 members and 2 associated partners from Western Balkan (WB) and Program Countries (PR).

To achieve the goals, K-FORCE project was planned in three phases: preparation, development and implementation and valorization phase. Each phase consisted of Work Packages (WP) led by WG Chair and Co-chair, monitored by SCM. WPs consisted of several activities, each led by Activity leader, resulting with one or more deliverables. Competences, knowledge, experience, expertise and skills of project partners ensured reliable environment for realization of planned project activities as well as responsible, timely, cost effective and efficient task and project realization.

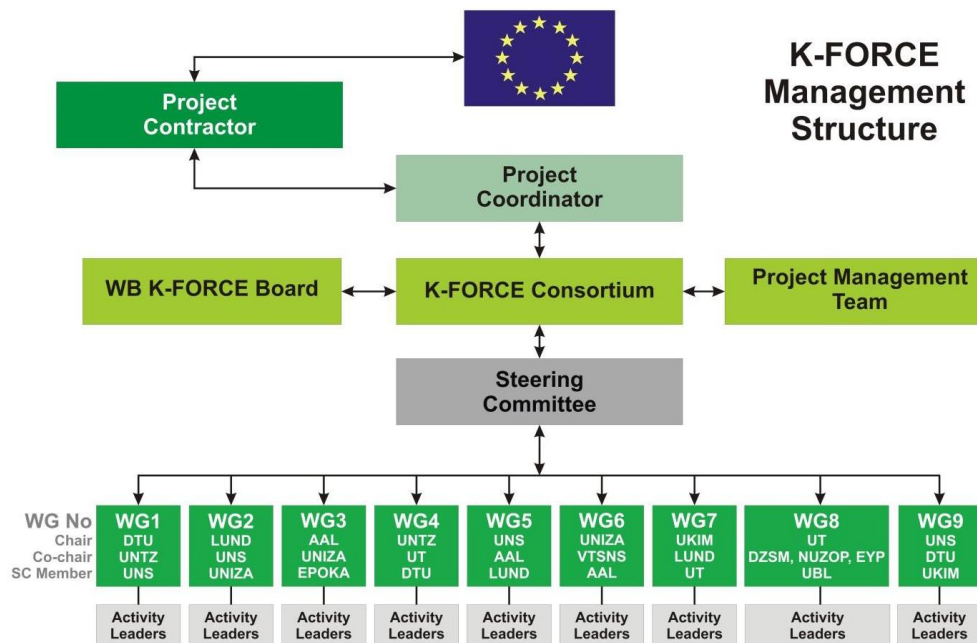


Figure 1. Management Structure Organogram

The project management structure was established and officially adopted at the kick-off meeting.

**K-FORCE Consortium** - consisting of two contact persons from every partner institution, provided strategic project management and monitored the overall progress. The Consortium members met four times during the project.

**Steering Committee** - The Steering Committee was led by Aalborg University (P8) with members from HEIs. Steering Committee met in full attendance twice a year, at and between Consortium meetings.

**WB K-FORCE Board** - a sub-body of K-FORCE Consortium, was formed from contact persons of partners from WB countries and met in person every six months.

**Project Management Team** - Finally, University of Novi Sad (P1) formed the Project Management Team (PMT), which included management, legal, administrative, financial and technical staff, from both University and Faculty structures. PMT provided continuous project management support. Led by the Project Coordinator, the PMT was accountable for overall project management and timely execution. It prepared, executed and documented of all K-FORCE bodies' meetings and ensured efficient follow-up.

PMT ensured permanent communication between all the bodies and persons described so far, on all levels. To fill the time gaps between meetings in person, the PMT encouraged SKYPE, telephone conversations, electronic communication and blog/discussions.

### 3.1.2 Project Meetings

The Project **Kick-off meeting** was organized in December 2016 in Novi Sad.



During the regular 3 year-period (M1-M36) and the extended period (M37-M42) **Steering Committee Board, Western Balkan Board and Project Management Team** organized 11 Project meetings. Meetings were organized at different partner institutions.

The **Consortium board** participated in 5 Project meetings.

In the framework of the Project meetings, **4 Study Visits and Training events and 2 Workshops** were organized.

As part of the internal evaluation, a survey was conducted for the quality of the meetings held. The results of the survey were processed by P11 and presented in the final Quality Assurance and Monitoring report. The general conclusion is that all meetings were organized at a high level and that the goals of the meetings were successfully realized. The average grade of all meetings is above 4.3.

**Monitoring visits:** The Management team from UNS realized 5 Monitoring visits to project partners: UKIM and PRDM, DTU and LU, AAL, UBL and UNIZA. Activities performed during monitoring visits included monitoring of financial and administrative documentation as well as project quality and management related meetings.

**External Evaluator monitoring visits:** In order to conduct the external evaluation, the selected External evaluator attended 4 Project meetings (Zilina 2018, Skopje 2019 Novi Sad 2019 and Skopje 2020) and additionally organized one meeting with PMT and Steering Committee Board at UNS in Novi Sad, in April 2019.

### 3.2 PROJECT OUTPUTS

All partner institutions were actively involved in all project activities, but their role and workload in specific Work Packages (WPs) differed. The expertise and capacity of every partner was matched with their contribution to the project outcomes, including the distribution of management tasks.

**Western Balkans (WB) HEI** partners led the implementation WPs, dissemination and overall management. **EU HEIs** led the preparation WPs, WP7 (Quality).

These leaderships were done via Chairs of Work Groups (WGs), underpinned by WG Co-Chairs and Steering Committee members assigned to monitor each WG.

**Non-HEI** partners and associated partners had significant role in managing tasks providing advice and guidance to WGs, according to their specific expertise.

The project was split into 9 WPs, which were managed by 9 Work Groups, each consisting of at least one representative from every partner. Working under guidance of PMT, WG Chairs and Co-Chairs enforced timely completion of sub-activities in their WGs, by delegating work to Activity Leaders and, when necessary, specific Task Teams consisting of several experts with a converging know-how. Each partner prepared a WG and/or activity progress report regarding work done on the WP/activity to its WG Chair and/or Activity Leader.



As a result of good mutual cooperation of the WGs members, perfect cooperation between all WGs and excellent management of the entire project, all set goals of the project were realized. Despite the fact that due to justified reasons there were delays in the implementation, these delays did not have a significant impact on the final result and all activities were successfully completed by the end of the project and in the extended period.

### 7.2.1 MPs, PhD Study Programme and LLL courses

The realization of the main project aims started with the analysis of the disaster risk management and fire safety engineering master programmes in WBC and in EU (**WP1**) and 2 corresponding reports were published.

The first report gives an overview on master programs related to the topic, being offered in K-FORCE project's Partner countries - Serbia, Bosnia & Herzegovina and Albania. A list of all master programs which related to the area was compiled, even though the title was not specifically "Disaster Risk Management and/or Fire Safety Engineering". Therefore, MPs in the field of Civil Engineering, Environmental Protection, Sustainable development and Climate Change, Environmental Engineering and other related fields have been listed. Besides this, list of Professional studies in Serbia, as well as in Bosnia & Herzegovina was provided within this report.

The second report gives an overview on master programs related to the topic, being offered in K-FORCE project's Program countries + additional EU countries are included (Denmark, Sweden, Slovakia, Macedonia, as project partners, as well as Norway, UK, Netherland, Italy, Ireland, France, Germany, Czech Republic, Croatia, Greece, Hungary, Romania, Slovenia).

Upon results of the conducted analyses and the know-how of the project's Program countries, the skeleton of the established and accredited Master Programmes was defined.

A survey on the Youth Safety Culture in Western Balkan Countries and Survey of Professionals (jointly with **WP6, Task 6.1** - WBC needs for LLL courses) were conducted too and corresponding reports were published.

The aim of the Youth Safety Culture Survey was to gain and understand how safe and prepared for natural and manmade disasters the young generation in Western Balkan countries is. An additional aim was to acquire preliminary data about the existing interest among youth for future K-FORCE project activities. The information from the conducted survey was used to better develop and implement curricula in the field of DRM&FSE at partner Universities in Albania, Bosnia and Herzegovina and Serbia. The survey was conducted in all WBC HEIs institution and European Youth Parliament spread it through his network + additionally we distributed the questionnaire to faculties in Podgorica, Subotica, Zrenjanin, Belgrade etc. More than 1300 answers were collected.

Through the survey of professionals needs in DRM&FSE field a detailed understanding of the current LLL practices in the area of fire safety engineering and disaster and risk management in the countries of the Western Balkan region was obtained. The survey was carried out in



Serbia, Bosnia and Herzegovina, Albania and Macedonia and 235 answered questionnaires were collected in total. The needs for LLL courses were based on the survey results, on-site research and online provided data and new courses were designed, aimed to offer contemporary knowledge and skills and to improve the competences of WBC human resources according to EU trends.

Report on modernized/developed Disaster Risk Management and Fire Safety Engineering Master Programmes Curricula was published, too. [The Report 4.1](#) provided curricula and syllabi for DRM&FSE Master Programmes, modernized or developed in K-FORCE project's Partner countries - Serbia, Bosnia & Herzegovina and Albania. Proposed modernized or new curricula were aligned with regional needs and NQF/EQF, with agreed common learning outcomes. Accordingly, one curriculum was modernized, twice: Disaster Risk Management and Fire Safety academic master programme at University of Novi Sad in Serbia (in EN and SR), while five curricula were developed at WBC partner HEIs: Disaster Risk Management and Fire Safety Engineering academic master programme at University of Tuzla in Bosnia and Herzegovina (in BH); Disaster Risk Management – module for academic master programme Civil Engineering at University of Banja Luka in Bosnia and Herzegovina (in BH); Risk Management master academic programme at University of Tirana in Albania (in AL); Protection Engineering professional master programme at Higher Technical School of Professional Studies in Novi Sad, Serbia (in SR); and Disaster Risk Management and Fire Safety professional master programme at Epoka University in Albania (in EN). All 6 MPs were accredited on time and more than 150 students were successfully enrolled (**WP4**).

In-site research and on-line information provided data on the existing and future teaching staff resources for Disaster Risk Management and Fire Safety Engineering (DRM&FSE) Master and PhD study programs in K-FORCE project's Partner countries - Serbia, Bosnia & Herzegovina and Albania and the Report was published. Teaching staff resources were assessed in relation to analyzed WB needs and EU trends in the field. Based on the needs for teaching staff resources and their competences, WBC needs and EU trends in DRM&FSE PhD studies (**WP2**), DRM&FSE PhD models and curricula in EU are comparatively analyzed. DTU, LUND, AAL, Ziline and UKIM presented there PhD studies and trends in this field with the focus on: structure of the program, how they select PhD candidates, what are the conditions for enrollment, students' obligations during their studies, human resources, laboratories and other capacity for conducting research, research topics. This deliverable was included in a Report on compared PhD models and curricula in EU and was starting point for establishing the PhD curriculum and the content of the courses.

The [PhD Study Programme](#) was accredited (**WP5**) and the first generation of 12 students at UNS is enrolled.

Study and training visits to Program Partners P7, P8, P9, and P10 (DTU, LUND, AAL, Ziline and UKIM) were organized. The aim of the visits was to train the WBC teaching staff on both DRM&FSE topics and b-learning methodologies (**WP3**). More than 35 WBC teaching staff were trained.



Also, student centered learning methodologies workshop was organized at K-FORCE Consortium Project Management Meeting at UNS, and [Report on adopted learning methodologies: Student Centered Learning and Problem Based Learning](#) was published at project website.

In order to assess the quality of the study programs after the first project year, surveys were conducted at the University of Novi Sad, as follows:

- Survey for the evaluation of the study programme,
- Survey for evaluating the teaching staff,
- Survey for evaluating the individual courses,
- Survey for the evaluation of the work of the HEI and its services and bodies and
- Survey for evaluating the guest lectures.

The survey results were excellent and are presented in the [First Cohort Report](#) and these results encouraged the Project team to continue with the successful implementation of the study programmes.

The first Life Long Learning course developed and realized in the P2 was Risk resilience. 31 participants successfully passed the LLL course content and get the certificate. Two LLL courses were held in P4 on subjects “Dangerous substances” and “Floods and soil contamination“. 136 participants successfully passed the LLL courses content and got certificates.

[The Report on Delivery of LLL courses in Blended Way to Professionals](#) (6.5) shows the results of implementation of LLL courses which are beyond planned: During K-FORCE project 18 LLL courses were organized and 984 professionals were trained.

### 7.2.2 Teaching materials

Concerning the teaching materials (**WP3**), 2 scripts for two developed subjects at P1 and 2 textbooks [Fire Safety in Buildings](#) and [Disaster Risk Management in the Western Balkans](#) for MPs were prepared in English and translated into Serbian, Bosnian and Albanian language. Within the project, over the regular three years and during the extension period, 68 guest lectures (SMs) were organized at WBC HEIs. The lecture texts, presentations and webinars ([2017/2018](#), [2018/2019](#), [2019/2020](#)) are posted at the project web page and will be used as learning material for the established study programmes.

This new learning material was piloted on Master programme at P1. Survey evaluation of programme was conducted and fine tuning of programmes was performed based on P1 experience. Based on pilot experience and fine-tuning findings, P2-P6 partners prepared themselves for implementation of their MPs.

Learning material developed within WP3 is adapted for LLL purposes, and available at project website – [project result 6.4](#).



A large amount of learning material in ENG, SRB, BiH, ALB is available in E-Library in open access at project website ([Conference – Journal papers](#), [Lectures](#), [Workshops and case studies](#) ...)

### 7.2.3 Learning Platform

Partners discussed and agreed on modalities of using modern ICT (**WP3**) to support blended learning as choosing the right mix of modalities represents a key to designing an effective blended learning program. For that purpose, the Canvas platform was chosen. The project received free academic license, for all institutions. Working group for activation of ICT platform was formed. All b-learning material (scripts, webinars) prepared through SMS guest lectures and regular material used in MP implementation are posted on the Canvas platform.

### 7.2.4 Equipment

One of the project tasks was the modernization of the laboratories and IT equipment. Although, at the beginning, in some of the WBCs there was a problem with the procurement procedures, finally this task has been finished successfully. Equipment was installed and activated in all 6 WBC institutions and the local teaching staff was trained in using it. Public procurement procedure for books, journals and e-books is finished too. [The Report](#) is published at website.

### 7.2.5 K-FORCE Glossary

[K-FORCE Glossary](#) of key words and terms is a result of several work packages. Glossary represents the selection of key words and the terms characteristic for the DRM&FSE area. Selection is done by all project partners with dominant role of P7-P11 who have, through the implementation of their studies and projects, as well as through their extensive experience, gained knowledge on key words and terms that are used specifically for the DRM&FSE profession. This glossary provides definitions of 167 terms used in the field of DRM&FSE. The definitions are being developed by project team members in aim to establish a common agreement on the translation of professional and technical names and terms and it is available in English, Serbian, Bosnian and Albanian language.

The Glossary was published as printed book (300) and E-book in open access.

## 7.3 DISSEMINATION AND EXPLOITATION

Developed Dissemination and Exploitation Plan (**WP8**) was developed and this plan defined strategies for dissemination and exploitation activities, tools, target groups to be addressed, visibility requirements, overall dissemination calendar detailed for each dissemination events, as well as the list of key results that could be exploited and multiplied after the project.





Report on dissemination activities was created.

Deferent campaigns and events were organized to promote newly developed study programmes and the project. National television and local televisions were involved as well project partner's institutions media services.

More than 130 participants at the kick-off meeting and more than 500 participants on all events were present. More than 500 brochures were distributed on enrolment events and more than 25 different campaigns were organized.

Ona of the most important dissemination activity was the K-FORCE Symposia organization.

P1 in cooperation with P2, P13, P14 organized [first international symposium Knowledge For Resilient soCiEty - K-FORCE 2017](#), within Erasmus + KFORCE project. The symposium was held on 14th of September, 2017 at the University of Novi Sad. More than 70 authors of 34 papers, 4 invited lectures and more than 70 participants (consortium + guests) 50 students participated in the working part of the Symposium. [The Book of proceedings](#) was published as printed book (80) and E-book at project website.

P1 in cooperation with P2, P13 and P14 organized [first international symposium Students For Resilient soCiEty - S-FORCE 2018](#). The symposium was held on 28th – 29th September, 2018 at the University of Novi Sad and Higher Education Technical School of Professional Studies in Novi Sad. 90+ authors, 42 papers, 6 invited lectures, 70+participants (consortium + guests) and 50+ students actively participated in the Symposium. [The book of proceedings](#) was published as printed book (80) and E-book at project website.

[The Second International K-FORCE Symposium](#) was organized in Tirana, on 9 September 2019, at EPOKA University and Faculty of Economy, University of Tirana. More than 70 authors and co-authors contributed to the scientific work of the Symposium, with a total of 33 papers published in the proceedings book. 3 keynote speakers gave presentations on the main topic - Building resilient society and resilient region. [The book of proceedings](#) was published as printed book and E-book at project website.

#### **7.4 COMUNICATION**

Internal communication within consortium was on a high level. Led by the Project Coordinator (University of Novi Sad), the PMT was accountable for overall project management and timely execution. It prepared, executed and documented all K-FORCE bodies' meetings and ensured an efficient follow-up.

PMT ensured permanent communication between all the bodies and persons involved in the project realization on all levels. To fill the time gaps between meetings in person, the PMT encouraged SKYPE, telephone conversation, electronic communication and blog/discussions via both SLACK and K-FORCE Website (which serves as the information nucleus). In such a way PMT kept all partners updated on project progress and upcoming events and issues.



A general PMT address for K-FORCE project was made: [k-force.pmt@uns.ac.rs](mailto:k-force.pmt@uns.ac.rs) which redirected to the addresses of each PMT member at the coordinator organisation (University of Novi Sad).

## 8. BOOKS AND SMS LECTURES REVIEW

Within the work package WP3, P1-P6 partners developed learning material that was reviewed and corrected by partners P7-P11 in order to raise its quality to a higher level. As the subject of the project is the implementation of Master, PhD programs and LLL courses, for which it is planned to be implemented both in the language of the PA partner and in English language, all materials were prepared in EN and then translated by external experts in cooperation with P1-P6 into SR, AL and B&H.

Within the project, over the regular three years and during the extension period, 68 guest lectures (SMS) were organized at WBC HEIs. Presentations, webinars and written lectures are posted on the project web-page. Most of the written lectures were in EN, only few were in SR and these lectures are translated into EN by external expert.

### 4.3 BOOKS INTERNAL REVIEW

The two books, written by experts from P1-P6 partners, are:

1. Fire Safety in Buildings: A Western Balkans' approach and practice
2. Disaster Risk Management in the Western Balkans: A comprehensive approach on technical and economic perspectives

The books originally written in EN, are translated into SR, BiH and AL. Translation is done by the authors or external expert in this field. The English versions are published as hard copy, while the translations are posted on the project web-page. Both books have positive review from partners P7-P11.

### 4.4 SMS LECTURES EXTERNAL REVIEW

Natural hazards, like: earthquakes, tsunamis, landslides, floods, wildfires, droughts, volcanic eruptions and etc. are caused by the natural forces. The manmade hazards, like: hazardous material spills, explosions, fires, etc. are caused by activities of people. Consequences of the natural and made hazards, as harm of human lives and property, are disasters. Our intentions, in case of natural disasters, are to minimize the effects, and in case of manmade hazards to avoid the ability of occurrence by careful planning and prevention methods.

A specific feature of natural and man-caused disasters is that they are practically in avoidable. Natural disasters are characterized by power and uncontrollability. Typical of man-caused events is that they result from the speedy development of super-modern technologies and a production whose management contains a weak link, that is, a man able to make with tragic consequences. Our intention is to predict possible disasters, localizing them and mitigating possible losses. Building a resilient society should be preceded by the



analysis of all possible types of natural or man-caused disasters in terms of the probability of occurrence, of the possibility of initiation of some secondary disasters, of the feasibility of the localization, of the preventive measures and, at last, of the damage in the case of occurrence.

A prediction of the type, the time and the size of the expected disaster, even if practicable, can only be probabilistic. Therefore, for the areas where natural disasters can take place the probabilistic approach and the use of the reliability theory can prove to be more efficient and necessary than in regular cases. The level of the development of many problems concerning the comprehension of natural disasters origination and hence, the level of the efficiency in predicting their time, conditions and the character of manifestation, as well as the development of measures for their prevention and mitigation of losses, lag behind with the practical needs of the national economy.

Generally speaking, every natural phenomenon requires a scenario permitting to take the specificity into account and to obtain statistical data for generalizing the consequences. The elaboration and the analysis of the scenarios require a great professional effort of people acquainted with the specificity of the branch and the particular unique building. To specify qualitative and quantitative safety criteria of unique buildings and the occupants exposed to any types of natural effects, an integrated approach should be recommended as based on: systematic deterministic analysis of scenarios of the influence of natural disastrous factors on concrete unique buildings revealing particular quality criteria; probabilistic risk analysis determining particular and general probabilistic safety criteria that include those for limit states representing the extent of the failure, and criteria for the personnel and other people in terms of the threat for human life and health (individual risk, collective risk, etc.); “Cost-benefit” analysis to define more exactly safety basing on optimization of investments for protection against unfavorable effects with due regard for socio-economic factors.

Answers to all these questions and problems are given in the curricula on Disaster Risk Management and Fire Safety Engineering, prepared within the K-FORCE project. Preliminary surveys, done by project partners in the project preparation phase, have shown that shortage of skills in this field exists. Knowledge and skills of the existing staff in this area (state administration, public institutions and companies) is based on the education acquired from other engineering disciplines. The Project Consortium noticed very different levels of knowledge and skills, with many people learning on the job in an unstructured way. These competences, knowledge and skills are insufficient to solve the growing problems in the field of Disaster Risk Management and Fire Safety Engineering (DRM&FSE). Moreover, the lack of safety culture in society in general is notable.

The above listed are common objectives and goals both for EU and Western Balkans region, considering the on-going European integration process in the Balkans. The need for establishing WB society resilient to natural disasters and fire-related hazards was recognised and as a procest result, an academic Master Study Programme was established at all 6 Partner institutions, a PhD Study Programme was developed and established at UNS, Novi



Sad, Serbia. LLL courses were prepared too, and the realisation of the courses has already started.

All these curricula and courses are supported by written lectures, presentations and webinars, prepared by experts in the field of Disaster Risk Management and Fire Safety Engineering. During the 3 years of project duration, a total of 70 lectures were given by eminent experts in this field.

During the first year, in summer semester of 2017/2018 school year, 11 lectures were held at Faculty of Technical Sciences, University of Novi Sad-**UNS**, Novi Sad, Serbia.

During the second year of the Project, 2018/2019 school year, 6 lectures were held at UNS, Novi Sad, Serbia, 8 lectures were held at **EPOKA** University in Tirana, Albania, 7 lectures were held at Tirana University, Faculty of Economy-**TU**, in Tirana, Albania, 10 lectures were held at Faculty of Architecture, Civil Engineering and Geodesy, University of Bankja Luka-**UBL**, Bosna and Hercegovina, 7 lectures were held at Faculty of Mining, Geology and Civil Engineering, University of Tuzla-**UNTZ**, Bosnia and Herzegovina and 7 lectures were held at Higher Technical School in Novi Sad-**VTSNS**, Novi Sad, Serbia.

During the third year of the project, in 2019/2020 school year, 8 lectures were held at UNS, 2 lectures were held at UNTZ and 2 lectures at UBL.

The materials (lectures) posted at the web-page are written in English and cover all aspects of Disaster Risk Management and Fire Safety Engineering.

After each lecture, an **evaluation** of the lecturer, the presented material and the quality of teaching was conducted. For this purpose, P11 prepared questionnaires to be filled out by both lecturers and participants (students) to these lectures, and after that, as part of internal quality control, these questionnaires were processed and the results presented in a **QA report** and presented on Consortium meetings.

**All lectures and all lecturers were graded between 4 and 5.**

One of the topics covered by written materials is **Risk assessment, risk management and accidents prevention**. The sustainable growth of the company assumes that the company managers are able to anticipate the potential risks and manage changes and in this way to prevent the possible crisis. Risk management provides guideline and methods how to facilitate decision-making with a focus on anticipating what can happen, why and how it can affect various objectives. The education material is intended for students, employees and managers who deal with security and safety engineering and crisis management. Furthermore, it can be used in companies dealing with risk assessment issues for fulfilling regulation requirements, for avoiding risks in managing the processes, or detecting the possible risks at workplaces from aspect of safety and health protection.

A special attention is paid to multi-hazards risk assessment and decision making processes. Although the term 'multi-hazards' has been used extensively in literature, there are still very limited approaches to analyze the effects of more than one hazard in the same area,



especially related to their interaction. An overview of the problem of multi-hazard risk assessment is given and various types of multi-hazard interactions, such as independent events, coupled events, concatenated events, and events changing the predisposing factors for other ones are described. The three methods for risk mapping: Quantitative risk assessment (QRA), Event-Tree Analysis (ETA), Risk matrix approach (RMA) are described. A lot of case studies on disaster risk preparedness and management are illustrated, too.

**Financial resilience to hazards and tools and methods for disaster risk finance** are part of the lectures, too. Disasters cause major impacts on the economic performance of developing countries and on the livelihoods of millions of poor people around the world. With economic development and growing investment, along with the growing risk of extreme weather events, disaster costs are projected to increase rapidly over the decades. An appropriate evaluation of the costs of a natural disaster is necessary to guide the plan for financial resilience. Dealing with the consequences requires a multidimensional approach. The lectures connected with this topic offer a thorough analysis of financing sources in case of disasters, classifying them according to the approach, time frame and nature. Case studies have also been included to illustrate the use of different financial instruments in the developing and developed countries. A section on climate finance is given, as an important topic in international public discussions. **Insurance and reinsurance in risk disaster management** are treated in the lectures, too

Special attention is given to methods supporting **Fire risk assessment and risk management**. Fire risks may be described using a probabilistic approach to take account for the uncertainties in the description of scenarios. This is different from a pure deterministic approach using models that predict precise outcomes based on a set of defined input data. There are different philosophies to describe fire risks as the frequentist approach relying on failure statistics of e.g. components or the Bayesian Believe Networks. More recently approaches to better describe the dynamic behaviour of systems are being developed. These models are used to establish the essential information for risk informed decision support. They are further useful to design the proper fire risk management for the respective systems that goes beyond the risk assessment and includes maintenance of safety barriers. All these is included in the lectures.

This education material covers the topic of **Fire safety engineering** from the perspective of its application and principles. It covers the role of fire safety engineering in the fire safety design framework and should provide student with introductory knowledge of its underlying principles, intended use and potential caveats. The material presents the concept of fire safety objectives, functional requirements and performance criteria, fire hazard identification and fire risk assessment, fire and behavior design scenario construction. Since fire safety engineering is an advanced fire safety design approach, the prerequisite is the knowledge of general fire safety design and supporting engineering disciplines such as thermodynamics, fluid dynamics, human behavior, etc.



Several lectures are dedicated to **behavior of concrete, steel and timber structures in fire**, calculation methods for defining the fire resistance of structures, as well as **repair methods** for fire damaged structures. Understanding the performance and the response of the structures in fire is of a particular importance for structural fire design. According to Eurocodes, fire is treated as accidental load on structures and structural elements have to be designed to withstand fire during the prescribed period of time. Fire induced temperatures cause reduction of the load bearing characteristics of the constitutive materials of the structural elements and this effect directly reflects on the reduction of their bearing capacity. Stresses and strains caused by temperature additionally reduce the fire resistance of structures. The lectures that are treating this problem are focused on the fire resistance and the behavior of different types of structural elements and whole structures. By several case studies the influence of the fire on temperature distribution within the structural elements, the fire resistance of the whole structure and the time dependent internal forces and deformations are explained.

Most of the lectures present an overview of a common procedure to follow in a performance-based fire-safety engineering process. The concepts of performance-based codes and fire-safety engineering are described, together with the associated procedure to follow during fire-safety design. The procedure consists of a fire strategy, a quantitative analysis of time to critical conditions and total evacuation of a particular building, together with a following comparison of the solution against the requirements. An international approach is selected and often used acceptance criteria for visibility, thermal radiation, smoke free height, toxic gases, oxygen levels etc., with respect to human safety, are thoroughly described and values of these are given.

**Forest fires and Identification, classification and mapping of forest fire risks**, as well as **reduction of ecological damages caused by the forest fires**, are subjects of the lectures, too. A model based on the combination of Service Oriented Geographical Information System and Multi-Criteria Decision Analysis using Analytic Hierarchy Process and Weighted Linear Combination for mapping and assessment of forest fire risk is described.

One of the very important aspect of the Disaster Risk Management and Fire Safety Engineering is the **human behavior in fire** and consequently the **evacuation modelling**. The educational document (i.e., lecture notes) on this topic briefly introduces some of the basic concepts concerning human behavior in fire and evacuation modelling. While not exhaustive, it presents a selection of the key explanatory theories of human behavior in fire along with some introductory concepts on the psychology of mass behavior. Additional concepts that are discussed include the use of the engineering time-line of evacuation and level of service as currently employed by evacuation modelling tools. The document also discusses the use of evacuation calculations and models in the context of performance-based design for fire safety engineering. To address this issue, examples of pedestrian evacuation movement models are presented, including Helbing's social force model and the



hydraulic capacity model included in the Society of Fire Protection Engineering handbook. An overview of the main type of results provided by evacuation models is also given.

A larger number of students come with studies in civil engineering, consequently special lectures are dedicated to **Risk and Safety in Civil Engineering**. The aim of the course is to provide to the students both the basic and more advanced skills and tools of risk and reliability in engineering. Emphasis is directed on the application and the reasoning behind the application of these skills and tools for the purpose of enhancing engineering decision making. The purpose of the course is the students to acquire the required theoretical basis and technical skills such as to feel comfortable with the theory, methods and application of risk and reliability analysis and the use of the theory for the purpose of engineering risk assessment and decision making.

**Earthquake** destructive effects upon urban areas, buildings, economies, are huge challenges for each society located in a seismically prone region. The society should be very well prepared and organized to „survive“ 60 seconds of ground trembling with minimum losses. Sank houses, overturned buildings, cut off pipelines, collapsed bridge-decks, uplifted manholes, blocked roads by soil mass and rock debris, huge area moved downwards, artificial dams formed instant water reservoirs, large ground subsidence are post-earthquake nightmares for each engineer. In part of the lectures, special attention is paid to these topics.

**Flood** is natural disaster that often happens in Balkan countries. The spatial planning system is a very important instrument for implementation of strategic and local measures for flood protection. Implementation of systemic flood protection measures implies improvement of spatial planning methodology from land-use to the strategic and integrated approach and new spatial info-documentation base relevant for planning in conditions of climate change, such as river basin management, integrated flood management, flood risk assessment, risk maps etc. All these topics are covered by the lectures.

**The landslides** as a phenomenon is a complex process that arises due to the presence of a number of influencing factors in a particular area, and can cause great damage to people and material goods. Due to the increasing need for the construction of residential and infrastructural facilities, combined with significant climate change in the form of extreme precipitation, the hazard and risk associated with landslides is increasing every year. Therefore, the assessment of the landslides hazards and risk is becoming increasingly important in defining the conditions for the construction of facilities in certain areas, and in order to avoid the risks associated with landslide occurrence. This problem is treated in few lectures.

**All lectures held within the project, for which there are written lectures, as well as textbooks prepared within the project, completely cover the issues related to the Study programmes on Disaster Risk Management and Fire Safety Engineering.**



## 5. SELF-EVALUATION PROCESS AND RESULTS

### 5.2 INTERNAL QUALITY ASSESSMENT

**WP7** of the K-FORCE project was 'QUALITY ASSURANCE AND MONITORING'. The aim of this work package was to assure the optimal quality and sustainability of project outcomes and outputs. Internal evaluation is seen as support and counselling mechanism which aims at ensuring good cooperation, high quality of outputs, user orientation etc. In general, it is the goal to support the project management in ensuring good project performance and to outline improvement potentials.

The Quality Assurance Project Team-QAPT was comprised of:

- Chair of the QAPT- University "Ss. Cyril and Methodius in Skopje" (UKIM),
- Co-Chair - Lund University (LU) and
- Steering Committee member - University of Tirana (UT).

Quality control included the content of the project, development & implementation methodologies, keeping to the time plan, dissemination, horizontal & vertical coordination of WGs and efficiency of the whole process. It facilitated a critical overview of the project progress every 6 months, done by the Consortium and/or Steering Committee.

The leader of WP7 (UKIM) with support of all partners (in form of feedback, inputs about developments in their countries and institutions, different reports etc.) conducted continuous monitoring of the project and steered the project into the right direction. The activities were based on regular bi-monthly reports prepared by local teams and submitted to PMT. According to the Quality Assurance and Monitoring manual, the established quality control procedures were performed through the evaluation of the project meetings, activities and 68 SMS organized at Partners institutions.

The manual defined the procedures for:

- Internal monitoring, quality and risk management,
- External monitoring, and
- Partners' technical and financial reporting.

The manual also defined the quality expectations regarding the project deliverables:

- Reports, documents, teaching materials and glossary;
- Events, workshops and meetings;
- procedures for internal and external monitoring.

This self-evaluation procedure, defined in the QAM manual, was followed by all project partners and the conclusion is that this procedure was comprehensive and interactive and was based on appropriate and quality sources and documentation.





### 5.2.1 Evaluation of Lectures

The first Evaluation of 6 lectures, organized as Special Mobility Strands - SMS, and recommendations for improvement of future SMS, was done after the first year of project implementation. The results were presented at the meeting in Zilina, in February 2018.

The evaluation was based on questionnaires for guest lectures and for participants.

The questions for the guest lecturers were about the lecture content and methods used, discussions, cooperation and interaction with the participants, participant's relevant knowledge in the field of DRM&FSE, lecture organisation and achievements. According to analysed answers, **the participant relevant knowledge was rated the lowest grade 3.83**. All other questions were rated higher than 4.5 and in general, all 6 lectures were grade between 4 and 5.

The questions for the participants were about the lecture content and structure, the activities, the level of difficulty and the complexity of teaching and practical use of knowledge gained. All questions were grade higher than 4.0 and the average grades for all lectures were higher than 4.4.

The third questionnaire was about the teaching material, how interesting it was, was it a challenge, was it very hard and was the presentation interesting or not. In accordance with the question about the level of knowledge of students (grade 3.83) , **the difficulty of the lectures was rated with lowest grade**, usually 2.5. All other questions were rated above 4. In general the lectures were grade between 3.4 and 4.2.

The conclusions of the first internal review of 6 SMS lectures, lecturers and participants were used for taking measures for improvement the subsequent SMS events.

The second Evaluation of 42 lectures (SMS) was done at the end of the second school year. The results were presented at the meeting in Banja Luka, in June 2019. The analysis of the questionnaires showed that the quality of students has improved and that they are now graded with an average grade of 4.4.

**All lecturers and all lectures were grade higher than 4.**

The analysis results of all 68 SMS lectures are given in the final QA Report and the grades have positive trend.

### 5.1.2 Evaluation of Events

According to the QAM manual, all events within the project should be organized professionally. The organizers should provide in due time a full information package to the participants including the draft agenda, letter of invitation and a note on the logistics (informing about travel arrangements, venue, suggested hotels, etc.).

The Questionnaire on quality of the events was divided in 4 parts: event content, organization, event results and event general assessment.



The results of the questionnaire analysis are presented in the first and second report given in Zilina and Banja Luka and the final findings are presented in the Final QA report. All events are grade with more than 4.4.

### 5.1.3 Internal evaluation of project activities

After the first year of the project implementation, a questionnaire on internal evaluation of the project activities was conducted. It was answered by 25 project participants. The questions were organized in 5 groups: Relevance, Objectives, Communication and management, Implementation and Dissemination.

#### The general conclusions on PROJECT RELEVANCE:

- Master and PhD programmes and LLL courses in DRM&FSE, as project outcomes, are novelty in education process in WB Countries.
- Natural hazards (earthquakes, winds, floods, landslides, forest fires), are often in the Balkan region, therefore the need of experts is more emphasized.
- In WBC there are not enough professionals educated in this field. This fact guarantees the sustainability of the project.
- The option for involving these programmes in other WBC (which are not partners in the project) **has to be investigated**. Overall opinion is that possibilities exist.

#### The general conclusions on PROJECT OBJECTIVES:

- The 6 MPs and 1 PhD program were developed and in process of accreditation, but it was too early for measuring the indicators and for discussion were the wider and the specific objectives fulfilled.
- The project outcomes are realistic and correspond to the needs of all institutions involved in the project.

#### General conclusions on COMUNICATION AND MANAGEMENT:

- Good communication has been established between WBC institutions.
- Communication with **program countries** maybe is not so good due to sporadic involvement in project activities.
- According to the score transparency in project realization and connection between partners could be improved.
- Project management team is doing his job well, some improvement is possible from aspect of giving information on time.

#### General conclusions on project IMPLEMENTATION:

- There is always option for improvement, particularly in the dissemination activities.
- WP leaders could involve other partners more. Most of the partners can contribute more than they have done so far.
- Most of the activities are following the Working Plan and are finished on time. The rest are in progress.



### General conclusions on DISSEMINATION:

- The web-page is well structured but, according to some respondents, not always launched on time.
- All institutions are not linked to the official web-page.
- Dissemination activities have to be improved. There is a need more institutions to be interested in the project outcomes.

These comments helped the project to be complete successfully, to meet all the set goals, to obtain quality materials and to ensure sustainability even after its completion.

## 6. CONCLUSIONS

### 6.3 PROJECT RELEVANCE

The aims of the K-FORCE project were to improve regional resilience to hazards and capability for regional cooperation in risk prevention and response and to ensure national professional resources and regional capacities in aim to build regional-based disaster preparedness and a culture of safety and resilience at all levels according to EU Integration Strategies and National relevant strategies.

Modernization of existing or development and implementation of new Master Programmes on Disaster Risk Management and Fire Safety Engineering in WBC partners HEIs, in accordance to regional needs and contemporary EU trends, was one of the main project tasks and was completely realized.

The second aim was development and implementation of Disaster Risk Management and Fire Safety Engineering PhD study programme and this task was realized too. This PhD programme is in accordance with available resources, regional needs and European partners expertise.

For continuous professional development of employees in DRM&FSE sector in WBC, certified LLL courses were created and already implemented.

In order to modernize teaching and training process with novel technical and technological solutions, ICT application is exploited.

The realized activities defined in the project **correspond** to the *project objectives* and addressed real needs. The project partners have analyzed and defined priorities in Disaster Risk Management and Fire Safety Engineering and developed curricula and LLL courses that raise awareness and expertise about natural and man-made disasters. The *target beneficiaries*, as defined within the project proposal have participated in planned activities and organized events (lectures, trainings, workshops, symposia etc.) and other measures were taken to support the project realization.

All lectures and presentations were carefully prepared and organized. Final reports on all organized events and delivered presentations are transparent and accessible on the web



containing details on the organization, intended goal, lecturers and participants. Relevance can be confirmed by a relatively high number of participants, quality of presentations and evaluation reports of these events.

#### **6.4 EFFICIENCY**

The project was coordinated and managed in a professional manner. All participants were communicated and informed about project activities on time, which makes the efficiency to be on a high level. The web site, personal e-mail communication, Skype conversations and other electronic supported technologies helped in better realization of all activities, as well as in coordination of a relatively huge number of project participants.

The reporting is realized to a high level, and all activities, organized events, lectures, trainings and workshops are well documented and relevant docs are shared on the project web site.

Analyzing how are the inputs and activities transformed into outputs, one can conclude that all scheduled tasks started and are executed according to planned deadline. No severe deviations have been noticed in project executions, and the small delays for some tasks were justified.

#### **6.5 EFFECTIVITY**

All wider and specific objectives defined in the project proposal are fulfilled and all main outputs delivered. The reports shared on the project web site confirm that the project purpose was reached by a high number of participants on the organized events.

Dissemination strategy is realized on a high level and all relevant promotional materials have been sufficiently developed.

There are several quality assurance and monitoring activities successfully realized in WP7.

#### **6.4 IMPACT**

The overall impression of the project is that it contributes to the realization of the project's general goal. All planned outcomes are being delivered according to the project plan.

#### **6.6 SUSTAINABILITY**

6 Master Study programmes and 1 PhD Study programme are accredited and students are enrolled. 18 LLL courses have been organized and almost 1000 participants were trained, more than 600 got certificates. All these is a guarantee for the Sustainability of the project.

Organized events, such as: SMS lectures, trainings, workshops, study visits included in average 30 project participants. The each Symposia were organized with more than 70 participants.

The realized self-evaluation marks for held events realized via questionnaires among project participants were very high, not lower than 4.0.



All the institutions signed MoU in order to confirm the ambition to follow the K\*-FORCE cooperation and continue jointly in new projects.

## 7. RECOMMENDATION

Considering the importance of the topic, it is expected that the interest in studying the established study programs will increase significantly. In order to achieve better enrolment, beside actuality of the topic and ongoing modernization of teaching disciplines, more intensive promotion of the studies among the young generation is needed. The role of the Youth Parliament, as one of the project partners, is very important. The Internet, social networks, television, brochures and the organization of promotional meetings is of great importance for achieving the goal.

Also, it is of great importance to continue with organization of K-FORCE Symposiums as well as to plan new mobilities and join research work.