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# BACKGROUND INFORMATION

## Partner country

Republic of North Macedonia

## Contracting authority

Military academy „General Mihailo Apostolski “Vasko Karangeleski bb. Skopje, 1000, Republic of North Macedonia

## Country background

North Macedonia is a candidate country for EU membership expecting commencement of membership negotiations. The negotiation process of the Republic of North Macedonia for EU membership will signify completion of the approximation process to the European Union, adoption of its benefits and values as well as complete adaptation of the Macedonian institutions towards functioning to that of the Union institutions. The negotiations will also signify establishing grounds and preparation for a successful functioning of the Republic of North Macedonia as a Union Member State.

The IPA Cross-Border Cooperation Programme Greece - Republic of North Macedonia (hereinafter: CBC Programme) was adopted for the Programming Period 2014-2020 and intends to ensure better coordination of programs and activities among Greece as a Member State and the Republic of North Macedonia as a neighboring candidate country. The main objective of the project is to improve the operational efficiency and the administrative capacity of relevant services in natural disaster management. At the same time project’s goal is to enable education, awareness, and sensitization of the local population, so that in cooperation with the competent authorities to have coordinated action to deal with Natural and Technological Disasters and Risks.

## Current situation in the sector

The project's fundamental idea came about as a result of significant natural disasters, which have become more severe and frequent due to climate change. Additionally, the environment, the economics, and the growth of the CB region are all significantly impacted by these calamities. Floods, wildfires, droughts, and extremely high or low temperatures frequently affect the qualifying region. In the basins of the Vardar/Axios and Dragor rivers, there is river flooding (target areas of the project). In the target area, meteorological and hydrological dryness as well as agroforestry fires are frequent occurrences. Through acid rain, gas pollutants from fires or technological mishaps pollute rivers, lakes, and surface waters, harming the region's delicate vegetation.

Mitigating the risks of natural disasters harming the local environment, economy, and the population is one of the fundamental demands in the transboundary eligible region. Thus, among other things, the key priority in the qualifying area concern:

- Citizen participation in the preservation of the environment from technological and natural threats.

- Increased resilience, protection, and management of natural disasters while reducing the dangers and risks related to climate change.

Thus, the partnership considers it necessary to improve the operational efficiency and capacity of the authorities in the eligible area using cutting-edge information systems and forecasting tools, as well as to develop shared networks of cooperation, in order to effectively prevent and manage the risks and threats of natural disasters. Knowledge sharing and community building to better prepare students and communities to assist in crisis and extreme circumstances The scientific team of Laboratory ASSIST, IHU, with experience in related projects for the prevention and management of issues of risks and threats of natural disasters, tried to identify those partners who have similar interests, needs, and abilities within the framework of covering the aforementioned needs and challenges.

## Related programmes and other donor activities

The PREVEN-T project, at the European level, supports the "sustainable growth" objective of the EU2020 strategy by lowering cross-border risks from both natural and man-made disasters and strengthening local stakeholders' capacity for response. Additionally, it supports the goals of the Environmental Risks Priority Area (PA5) of the EU Strategy for the Danube Region as well as the Adriatic and Ionian Regions, which deals with the problems of water scarcity and droughts as well as ongoing efforts in the field of climate adaptation. Due to the fact that the project's implemented activities are associated with environmental protection, risk prevention, and management, it complies with the "7th Environment Action Programme," which sets the direction for European environmental policy through the year 2020 and aims to make the Union a resource-efficient and competitive economy. It has great consistency with the Regional OP of “Central Macedonia 2014-2020", and especially with the Priority Axis 5: “Promote climate change adaptation, risk prevention and management”–Specific Objective 511 “Improving prevention, emergency and risk management with emphasis on natural hazards”. At National level, the project reflects the National development strategies of Greece and in particular the O.P. “Infrastructure, Transports Environment and Sustainable Development 2014-2020” – Priority Axis 11: “Implementation of strategic adaptation climate change, prevention and risk management”. Also, the proposed project is in line with the priorities and objectives of the “Greek Environmental Network” (GEN), which is a member of “European Network of Environmental Authorities and Managing Authorities” (ENEA-MA). Its objectives are the thinking, training, sharing of experiences, and elaboration of methodologies related to environmental aspects. The project reflects also the environmental strategies of the Republic of North Macedonia and especially the “IPA Regional Development OP in the RNM”- “Priority 3: Improvement of Environmental Infrastructure”.

# OBJECTIVE, PURPOSE & EXPECTED RESULTS

## Overall objective

The overall objective (Impact) to which this action contributes is through cross-border collaboration between beneficiaries to address in the common challenges of climate-related disasters, namely floods and wildland fires. The expected impact is the full utilization of the project results from the widest range of people and organizations aiming to mobilize citizens to increase disaster resilience and emergency preparedness and to improve the operational efficiency and the administrative capacity of relevant public services in natural disaster management.

## Specific objective(s)

The specific objectives (Outcomes) of this contract are as follows:

* Collaboration between beneficiaries to address the common challenges of climate-related disasters, namely floods and wildland fires. Within this context, the establishment of a cross-border cooperation network will result in many direct and immediate results.
* Exchange of knowledge. This will allow for a better specification of the requirements for joint actions toward the development of common practices, models, and tools.
* Design of protocols for the harmonization of methods and models. This is essential for ensuring that a consolidated set of services will be delivered.
* Increase the awareness of both public authorities and of the public, in order to create “sensitive” people with the appropriate behavior and attitude to deal with natural disasters and major accidents. This will result from the awareness and preparedness seminars and the joint dissemination activities that will be conducted with the purpose of highlighting the need for climate change resilience measures and tools, such as those that will be delivered in the frame of the proposed project.
* Create a cooperation network for the effective prevention and management of natural disasters and climate-related risks and hazards
* Improve the capacity and readiness to tackle natural disasters
* Improve the prevention, response, and resilience to natural disasters and risks, in order to minimize their impact on the natural and human environment. Conclusively, the anticipated exchange of knowledge, harmonization of methods, and joint planning and deployment of tools and models can be seen as an important advance toward the setup of a common framework of measures for increasing the resilience of land and forested areas to climate change. This is absolutely linked with Programme's result indicator concerning the "population benefiting from risk/hazards prevention and natural disasters management measures”. An existing Information Center in Pelister will be upgraded and a Laboratory for educational and research purposes will be implemented on Military Academy premises which will be in continuous connection with National Park Pelister’s information center.
* Emergency Management Frameworks, aiming to guide and strengthen the local governments to prevent/mitigate the natural threats and hazards in the RNM will be developed by Military Academy.
* Develop a plan for a joint master's (MSc) Program in the field of analysis and management of natural disasters and technological risks, which will be a cooperation between Hellenic University(ies) and Military Academy Skopje.

## Expected outputs to be achieved by the contractor

The expected outputs of this contract are as follows:

* Modelling Information System for monitoring of forest area, forest fire detection and early warning in Palister National Park
* Development of capacity for dealing with forest fires
* Surface water and fragile vegetation pollution model, due to acid rain caused by air pollutants
* High-resolution weather forecast model over the target area
* Local hydrological model for basin’s run-off and torrent discharge estimation in Pelister’s Park area
* Innovative techniques to detect the existence of discontinuities in Axios river embankments due to mammalian action
* Upgrade of the existing Information Center in Pelister National Park and the development of a Laboratory, in the topics of disaster and risk management, for educational and research purposes operated by the Military Academy
* Development of Emergency Management Frameworks in the Republic of North Macedonia and study of the possibility to use them for the improvement of the EMF in the Greek area
* A self-protection guide for natural disasters
* Educational and Training Seminars (virtual and Augmented Reality technologies), with the use of an e-Learning platform, aiming to awareness and preparedness against natural disasters and technological risks
* Schedule an MSc program, with the help of Distance Learning Techniques, related to natural and technological disasters and risks.

The project outputs are linked with output indicators concerning the population benefiting from flood and forest fire protection measures. Finally, evaluation and capitalization actions will provide the appropriate feedback for the project’s viability and continuation.

# ASSUMPTIONS & RISKS

## Assumptions underlying the project

The following assumptions can be made in order to reduce the risks related to delay or non-realization of the activities, subject to this Terms of Reference:

* Full cooperation between the Contracting Authority and the Contractor in view to fulfill the tasks on time, in the quality required, and within the budget limitation.
* Strong collaboration and knowledge exchange between project partners.
* The Contracting Authority will ensure timely and complete access to the relevant documents, other information, and staff related to projects.
* Clear understanding of the contract purpose and tasks on behalf of the Contractor.

## Risks

The following risks can be foreseen for this contract:

* Eventual changes to the work plan and/or disruption of information flow between project partners.

# SCOPE OF THE WORK

## General

### Description of the assignment

Lot 01 Develop a system for monitoring forest areas and early forest fire detection, and development of filters for better visibility of forest fires during the night (IoT Technology).

* develop an information system for forest area monitoring, forest fire detection and early warning at Military Academy “General MihailoApostolski” – Skopje. This work assignment should be done in coordination with National Institution “National Park Pelister” in order to create a connection between information centre in National Institution “National Park Pelister” Bitola and the Information systems in the laboratory of Military Academy “General MihailoApostolski” – Skopje.

Lot 02 Develop a Laboratory for educational and research purposes on the premises of Military Academy - Skopje, which will be in continuous connection with National Park Pelister’s information center

* development of a laboratory, on disaster and risk management topics, for educational and research purposes managed by the Military Academy. The candidate has an obligation to develop a laboratory for educational and research purposes on the premises of Military Academy - Skopje, which will be in continuous connection with National Park Pelister's information center.

### The scope of the contract can be described by the foreseen activities of the contractors:

Under the supervision of the Project Manager and the responsible project staff, the external expert will cooperate with LB and P3 Staff members for achieving project outputs, by providing the following services:

Task 1:

* Develop a system for monitoring forest areas and early forest fire detection, and development of filters for better visibility of forest fires during the night (IoT Technology), specifically by:
  + - Development of IS plans and procedures,
    - Development of a model system for monitoring architecture,
    - Installation of the equipment,
    - Installation of needed software,
    - Implementing measures for information security and business continuity,
    - Testing of the model and ensuring full capacity effectiveness,
    - Surveillance, monitoring and control of recordings and alarms.

Task 2:

* Develop a Laboratory for educational and research purposes on the premises of Military Academy - Skopje, which will be in continuous connection with National Park Pelister’s information center, specifically by:
  + - Development of IS plans and procedures,
    - Development of IS architecture,
    - Installation of active and passive equipment,
    - Installation of needed software,
    - Implementing measures for information security and business continuity,
    - Testing of the model and ensuring full capacity effectiveness,
    - Providing systems support including hardware maintenance, troubleshooting, and support of all laboratory functionality,
    - Provide laboratory monitoring,
    - Providing connectivity between the Military academy’s laboratory with the information center of National Park Pelister.

### Geographical area to be covered

### The Republic of North Macedonia.

### Target groups

The project target groups concern: The Local/Regional/National stakeholders in civil protection, students, tourists, and the residents in the intervention area (general public).

## Specific work

The following tasks should be undertaken in order to achieve the contract results:

**Task 1 (defined as deliverable D3.2.1 in the project)**

• Develop a system for monitoring forest areas and early forest fire detection, and development of filters for better visibility of forest fires during the night (IoT Technology).

**Task 2 (defined as deliverable D5.2.1 in the project)**

* Develop a Laboratory for educational and research purposes on the premises of Military Academy - Skopje, which will be in continuous connection with National Park Pelister’s information center.

## Project management

### Responsible body

The effective management of the project will be ensured by the Contracting Authority. The project manager Prof. Mitko Bogdanoski will be in charge of the overall coordination.

The Contractor is fully responsible for the quality and timely delivery of the project results, according to the contractual provisions. In this sense, the Contractor shall ensure that the reports are delivered on time and the executed activities are in line with the ToR and the regulatory framework requirements.

### Management structure

The Contracting Authority is responsible for conducting the current tender procedure, signing the service contract, and carrying out the overall management and control of the contract implementation. The Contractor is fully responsible for the quality and timely delivery of the contract results. In this respect, the Contractor shall ensure that the reports are delivered on time and the executed activities are in line with the current Terms of Reference and the regulatory framework requirements.

### Facilities to be provided by the contracting authority and/or other parties

The Contractor should ensure the equipment and the provision of working space needed to fulfill the services assigned to it. No facilities or equipment will be provided by the Contracting Authority.

# LOGISTICS AND TIMING

## Location

Military academy „General Mihailo Apostolski “, The Republic of North Macedonia and National Institution “National Park Pelister” Bitola.

## Start date & period of implementation of tasks

Lot 01: The intended start date is 07.02.2023 and the period of implementation of the contract will be 5 months from this date. Please see Articles 19.1 and 19.2 of the special conditions for the actual start date and period of implementation.

Lot 02: The intended start date is 07.02.2023 and the period of implementation of the contract will be 6 months from this date. Please see Articles 19.1 and 19.2 of the special conditions for the actual start date and period of implementation.

# REQUIREMENTS

## Staff

Note that civil servants and other staff of the public administration of the partner country, or of international/regional organizations based in the country, shall only be approved to work as experts if well justified. The justification should be submitted with the tender and shall include information on the added value the expert will bring as well as proof that the expert is seconded or on personal leave.

### Key experts

Key experts are foreseen and defined, and they must submit CVs and signed Statements of Exclusivity and Availability.

All experts who have a crucial role in implementing the contract are referred to as key experts.

The profiles of the key experts for this contract are as follows:

**Key expert 1(provider of services under Lot 01):**

Necessary qualifications and skills

* Postgraduation degree in the field of information sciences, preferable to hold a MSc in computer engineering.
* Fluent in Macedonian and English language

General professional experience

* Minimum 5 years of experience in the field of IT communications and services, advantage will have candidates with more than that.

Specific professional experience

In order to be able to realize tasks 1, the candidate(s) has to have an experience in all of the areas of interest of this tender.

* The candidate should have experience in deploying and maintaining server virtualization, Microsoft Server, and client-based infrastructure.
* The candidate should possess one of the following certificates: CEH/ CISSP/ CND or an equivalent certificate, due to the complexity of working with information equipment and the possible occurrence of risks and threats to the information network.
* The candidate is required to have a valid national security clearance certificate at the minimum "secret" level due to the complexity of the work that takes place on the premises of a state institution.
* It is recommended that the candidate has completed Windows Server courses.

**Key expert 2 (provider of services under Lot 02):**

Necessary Qualifications and skills

* Postgraduation degree in the field of information engineering, educational sciences, preferable to hold a MSc in technical sciences, (information technologies);
* Fluent in Macedonian and English language.

General professional experience

* 5 years of experience in the field of IT communications and services, advantage will have candidates with more than that.

**Specific professional experience**

In order to be able to realize tasks 2, the candidate(s) has to have an experience in all of the areas of interest of this tender.

* The candidate should have experience in deploying and maintaining server virtualization, Microsoft Server, and client-based infrastructure.
* The candidate should possess one of the following certificates: CEH/ CISSP/ CND or an equivalent certificate, due to the complexity of working with information equipment and the possible occurrence of risks and threats to the information network.
* The candidate is required to have a valid national security clearance certificate at the minimum "secret" level due to the complexity of the work that takes place on the premises of a state institution.
* It is recommended that the candidate has completed Windows Server courses.

All experts must be independent and free from conflicts of interest in the responsibilities they take on.

### Other experts, support staff & backstopping

No other experts are foreseen.

## Office accommodation

Office accommodation for each staff working on the contract is to be provided by The Contractor.

## Facilities to be provided by the contractor

The contractor shall ensure that experts are adequately supported and equipped. In particular, it must ensure that there is sufficient administrative, secretarial, and interpreting provision to enable experts to concentrate on their primary responsibilities. It must also transfer funds as necessary to support its work under the contract and to ensure that its employees are paid regularly and in a timely fashion.

## Equipment

No equipment is to be purchased on behalf of the contracting authority/partner country as part of this service contract or transferred to the contracting authority/partner country at the end of this contract. Any equipment related to this contract that is to be acquired by the partner country must be purchased by means of a separate supply tender procedure.

# REPORTS

## Reporting requirements

The Contractor will submit the following reports in the English language:

* **Draft final report** shall be submitted no later than 5 days after the end of the period of implementation of each Task.
* **Final report** with the same specifications as each draft final report, incorporating any comments received from the parties on the draft report. The deadline for sending the final report is 5 days after receipt of comments on the draft final report. This report should provide conclusions and clear evidence on the implementation of all requested services. The final report must be provided along with the corresponding invoice.

The reports provided by the Contractor should be prepared in English language and submitted in the following copies:

* 1 (one) electronic version.

## Submission and approval of reports

The report referred to above must be submitted to the project manager identified in the contract. The project manager is responsible for approving the reports.

# MONITORING AND EVALUATION

## Definition of indicators

The successful implementation of the contract will be assessed on the base of the following indicators of achievement:

• Reports submitted by the Contractor and approved by the Contracting Authority according to the timetable given below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Task No. / Deliverable No.** | **Start/Finish date** | **Report/date and activities** | **Max budget in Euro** |
| Task 1 / D3.3.1 | February 2023 / July 2023 | Not later than 15th July 2023 | 19.000,00 |
| Task 2 / D5.3.1 | February 2023 / August 2023 | Not later than 15th August 2023 | 8.506,80 |

## Special requirements

Not applicable.