

LIFE11 ENV GR 975

FLIRE: Floods and fire Risk assessment and management



Technical Report

Action A2

31/12/2012

Project location	Greece – Attiki region
Project starting date:	01/10/2012
Project ending date:	30/09/2015
Coordinating Beneficiary	National Technical University of Athens
Associated Beneficiary responsible for Action A2	National Technical University of Athens
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Other Associated Beneficiaries involved in Action A2	ALGOSYSTEMS S.A.
Contact Persons	George Eftychidis

Name of the Action: Identification of the current status of the study area

Starting date of the Action: 01/10/2012

Ending date of the Action: 28/06/2013

Short description of the Action

Aim

As implied by its title, the Preparatory Action A.2 aims to identify the current condition of both the rural and the urban zone of the study area and thus provide useful information for the sound implementation of the other core Actions of the Project.

Objectives

- Identification of existing hydrological, geomorphological, hydrolithological and fire risk conditions in the rural part of the study area
- Collection of information on urbanization and development rate in the urban zone of the study area
- Identification of locations within the study area that are vulnerable to flash floods and forest fires and need further attention
- Creation of spatial databases with information for the vegetation, fuel and other fire-related data in the area
- Visibility and vulnerability analysis of the area
- Production of a structural fire risk map
- Preparation of the status survey report of the study area that will serve as a reference for the initial conditions in the area

Expected outcomes

As foreseen in the submitter proposal, the expected outcomes of Action A.2 are:

- A database including extended hydrometeorological, geomorphological, hydrolithological datasets for flash flood modelling in the study area.
- Datasets concerning the urbanization and development of the urban part of the study area that are necessary for urban flood modelling.
- Forest fuel map layer of the area based on PROMETHEUS classification (PROMETHEUS project classification) necessary for fire risk assessment.
- Forest fuels Photo-keys guide (including description of fuelbeds, fuel loads, resilience data etc) that will be used in fire risk assessment, as well.

LIFE11 ENV GR 975

FLIRE: Floods and fire Risk assessment and management



- Vulnerability map layer concerning performance to forest fire and addressing vegetation species, agricultural activity, infrastructures and properties.
- Fire data map layer (fire statistics, fire prevention and fire fighting spatial data) that will be used in forest fire modelling.
- Preparation and on-line publication of a status survey report on the current hydrological, geomorphological, hydrolithological conditions and urbanization and development rate in the study area prior to the implementation of the FLIRE Project.

Regarding constraints for this Action, as also mentioned in the submitted proposal, the field work foreseen for Action A.2 may be affected by existing weather conditions. For this reason, field related tasks are scheduled for the beginning of the Action, to allow for delays without disruption of the Project. The first field trip in the area has already taken place and the information gathered will be evaluated and properly used in the relevant report.

Additionally, given the importance of the Project and its impact on the local society and the local environment, the cooperation with local entities involved both in flood and forest protection is expected to be seamless.

No deviations and/or amendment to the submitted proposal have been identified so far for Action A.2.

Tasks

1. Collection of extended datasets for topographic data (accurate DEM, detailed hydrographic network etc.), land use data, geological and hydrolithological maps (**NTUA**) [**High priority**]
2. Collection of extended datasets for fire risk conditions in the forested part of the study area (**ALGOSYSTEMS S.A.**) [**High priority**]
3. Collection of urban planning maps, demographic data and any relevant information on urban development (**NTUA, ALGOSYSTEMS S.A.**) [**High priority**]
4. In-situ field trips (3) (aiming to identify locations vulnerable to flash floods and forest fires) (**NTUA, ALGOSYSTEMS S.A.**) [**High priority**]
5. Field surveys to collect vegetation and forest fuel data (**ALGOSYSTEMS S.A.**) [**High priority**]
6. Consultation of local authorities and stakeholders to identify (i) hidden issues and constraints (as described in the submitted proposal) and (ii) locations vulnerable to flash floods and forest fires (**NTUA, ALGOSYSTEMS S.A.**) [**High priority**]
7. Thorough literature review (**NTUA, ALGOSYSTEMS S.A.**) [**High priority**]

LIFE11 ENV GR 975

FLIRE: Floods and fire Risk assessment and management



8. Collection of relevant data from undergraduate and postgraduate thesis, the Hydrological Observatory of Athens and relevant research activities (NTUA) [High priority]
9. Collection of administrative and satellite data for fire analysis (ALGOSYSTEMS S.A.) [High priority]
10. Creation of the spatial database with the vegetation, fuel and other fire-related data and the production of the respective map layers including the forest fuel map (ALGOSYSTEMS S.A.) [High priority]
11. Visibility analysis (ALGOSYSTEMS S.A.) [High priority]
12. Vulnerability analysis (vulnerability map layer) (ALGOSYSTEMS S.A.) [High priority]
13. A map representing the structural fire risk will be produced for the study area and serve as input to Action B.4 (ALGOSYSTEMS S.A.) [High priority]
14. Setting up of a shared dropbox database for collecting and sharing information between Beneficiaries (NTUA) [Medium priority] (already completed)
15. Regular uploading of information concerning the progress of the Action to the website of the Project (NTUA) [High priority]
16. Preparation of the report for the current status of the study area (NTUA, ALGOSYSTEMS S.A.) [High priority]
17. Identification of any factors that hindered efficient flash flood and forest fire risk assessment and management in the area so far (NTUA, ALGOSYSTEMS S.A.) [Medium priority], e.g.
 - physical/technical particularities of the study area
 - knowledge gaps
 - institutional and governance barriers

Working Team

NTUA

- **Maria Mimikou** – Project Coordinator, who will work on the coordination of the NTUA team.
- **Chrysoula Papathanasiou** – Civil Engineer, Hydrologist, flood modeler, who will work on:
 - The collection of extended datasets for the existing hydrological, geomorphological and hydrolithological conditions in the rural part of the study area
 - The collection of urban planning maps, demographic data and any relevant information on urban development
 - The consultation of local authorities and stakeholders
 - The identification of locations vulnerable to flash floods participating in in-situ field trips
 - The thorough literature review

LIFE11 ENV GR 975

FLIRE: Floods and fire Risk assessment and management



- The collection of relevant data from undergraduate and postgraduate thesis, the Hydrological Observatory of Athens and relevant research activities
- The preparation of the report for the current status of the study area
- **George Papoutsoglou** – Tech. Agronomist, responsible for the hydrometeorological stations of NTUA in the study area, who will work on:
 - The collection of urban planning maps, demographic data and any relevant information on urban development
 - The consultation of local authorities and stakeholders
 - The collection of relevant data from the Hydrological Observatory of Athens
 - The identification of locations vulnerable to flash floods participating in in-situ field trips
 - The regular uploading of information concerning the progress of the Action to the website of the Project
- **Evangelos Baltas** – Senior Engineer, Hydrologist and flood modeler, who will work on:
 - The consultation of local authorities and stakeholders
 - The identification of locations vulnerable to flash floods participating in in-situ field trips
 - The preparation of the report for the current status of the study area
 - The identification of any factors that hindered efficient flash flood and forest fire risk assessment and management in the area so far
- **Kimon Hadjibiros** – Senior environmental scientist, who will work on:
 - The consultation of local authorities and stakeholders
 - The thorough literature review
 - The preparation of the report for the current status of the study area

ALGOSYSTEMS S.A.

- **George Eftychidis** – Forester, Forest fire behaviour analyst, who will work on:
 - Collection of datasets related to fire data and fire risk conditions in the study area
 - Arrangements for using available data sets
 - Literature review
 - Collection of administrative and satellite data for fire analysis
 - Analysis of the structural risk parameters
 - Consultation of local authorities and stakeholders
 - In-situ field visits
 - Collection of vegetation and forest fuel data by means of field surveys

LIFE11 ENV GR 975

FLIRE: Floods and fire Risk assessment and management



- Identification of any factors that hindered efficient flash flood and forest fire risk assessment and management in the area so far
- Preparation of the report for the current status of the study area
- **Vassiliki Varela** – Forester, Forest fire modeler, GIS programming expert, who will work on:
 - Creation of the spatial database with the vegetation, fuel and other fire-related data and production of the respective map layers including the forest fuel map
 - Collection of vegetation and forest fuel data by means of field surveys
 - Visibility and vulnerability analysis
 - Production of a structural fire risk map
 - Setting up the required spatial data sets for running the fire propagation model
 - Identification of any factors that hindered efficient flash flood and forest fire risk assessment and management in the area so far
 - Preparation of the report for the current status of the study area
- **Christos Pateritsas**, Electrical engineer and Computer Science expert, who will work on:
 - Organization of collected material in digital spatial data sets
 - Collection of vegetation and forest fuel data by means of field surveys

Deliverables

The Preparatory Action A.2 has two deliverables:

1. ***A status survey report for the study area*** that has to be ready by **28/06/2013**
2. ***A forest fuel map of the region*** that has to be ready by **28/06/2013**

Details on the status survey report and the procedure for the production of a forest fuel map are presented in the previous fields “Short description of the Action” and “Tasks”.

It has to be noted that, as stated in the submitted proposal, the status survey report will be ready “*9 months after the starting date of Action A2*”, i.e. by 28/06/2013 and not 29/03/2013 as it was stated by mistake in the list of deliverables in the proposal.

Milestones

In the submitted proposal, no milestones were reported for the Preparatory Action A.2. However, the prioritized tasks, mentioned in the corresponding

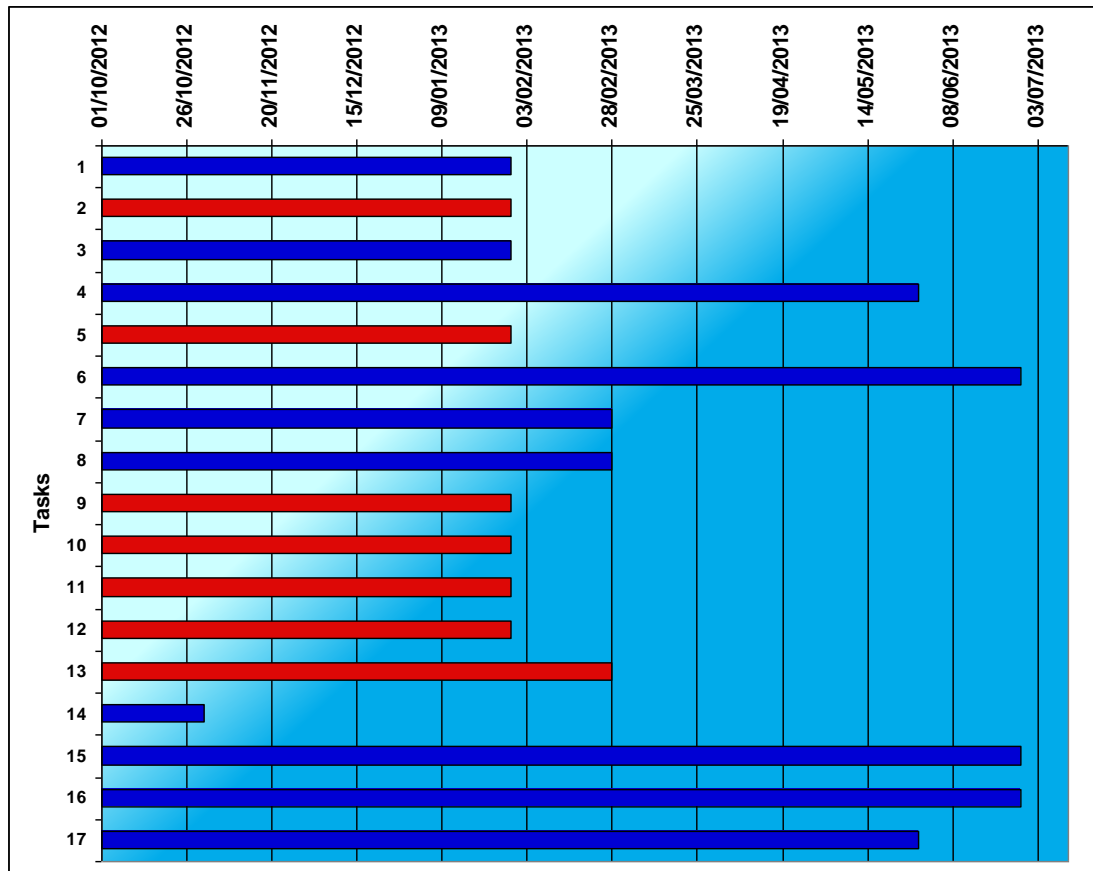
LIFE11 ENV GR 975

FLIRE: Floods and fire Risk assessment and management



field of this report, can be considered as a sort of milestones that are selected for the sound implementation of this Action.

Gantt-chart



Key references

- Keetch, J. and Byram, G., (1968), *A drought index for forest fire control*, Res. Paper SE-38. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station, pp. 32.
- Papathanasiou, C., Alonistioti, D., Kasella, A., Makropoulos, C. and Mimikou, M., (2012), *The impact of forest fires on the vulnerability of peri-urban catchments to flood events: the case of the Eastern Attica region,*), Special Issue of the Global NEST Journal on Hydrology and Water Resources, September 2012, Vol. 14, No 3, pp. 294-302.
- Stocks, B.J., Lawson, B.D. Alexander, M.E., Van Wagner C.E., McAlpine, R.S., Lynham, T.J. and Dube, D.E., (1989), *The Canadian Forest Fire Danger Rating System: An Overview*, Forestry Chronicle Vol. 65 issue 6 : 450-457.

LIFE11 ENV GR 975

FLIRE: Floods and fire Risk assessment and management

