



*Assessment of **Forest Fire Risks** and
Innovative **Strategies** for **Fire Prevention***

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the inadequate understanding of the impacts of forest fires on the spatial and temporal provision of goods and services (e.g. how the quality and quantity of a good or service is affected and for how long); the potential effect of the changes caused by forest fires on society's wellbeing (e.g. what is the value of the losses); the impact of fire management measures on risk, extent and severity of forest fires (e.g. quantify the effects of different management measures).

Short biography

Robert Mavsar is senior researcher in the EFI Mediterranean Regional Office EFIMED. He is working in the fields of environmental and forest economics and the valuation of non-market goods and services, and economics of forest fires.

INCA Project: Risk Prevention Through «Agreements on Objectives» Between the Stakeholders

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Natural hazards are a significant problem in our modern world which strives for growth, stability and safety, but often sees its efforts fall short. Natural disasters make the news more often, becoming especially impressive and painful where human-caused actions, such as poorly planned population concentration in large urban centers, lead to increased risks and vulnerability. Moreover, current and projected climate changes are very likely to lead to new challenges of uncertainty and an increase of extreme events. This calls for more flexibility and better coordination of response strategies with an emphasis on prevention, as, through numerous examples, it has become clear worldwide that even the best response to a risk once the event is in progress does little to avert the disaster.

One of the main reasons natural disasters are on the rise is that current prevention of risks caused by natural hazards is fragmented, among others, between civil protection and spatial planning. Considering this fragmentation as an area in which significant improvements can be made, nine European organizations from Germany, Greece and Italy (table 1) work on a project called INCA aiming to address this weakness in a fresh and innovative way.

Table 1. The organizations participating in the INCA project.

National Research Council, Institute of Research on Population and Social Policies (coordinator), Italy
Dortmund University of Technology, Germany
City of Dortmund, Germany
T6 Ecosystems srl, Italy
Associazione Nazionale Comuni Italiani Lazio, Italy
Lazio Region - Regional Civil Protection Department, Italy
Harokopio University of Athens, Greece
National Agricultural Research Foundation,
Institute of Mediterranean Forest Ecosystems and Forest Products Technology, Greece
Region of Attica, Greece

INCA is a project realised with the contribution of the Civil Protection Financial Instrument of the European Commission. The project aims to bridge spatial, functional and operational gaps and divergence in approach, competence and perspective between civil protection and spatial planning by a collaborative process with concrete results to make measures and actions of risk prevention and mitigation efficient, effective, strategically aligned and sustainable. In order to achieve this, the project proposes a new concept called «Agreements on Objectives». The concept aims on risk prevention and damage mitigation by integrating non-structural and structural measures and activities in both fields. It offers a practical, goal-oriented, consensual alternative to the more rigid and restrictive spatial planning.

The concept is being developed in three regions in Europe that serve as test areas. These regions differ from each other in their profile and character as regards human, spatial development and physical geography. They are the City of Dortmund in Germany, the Area of Eastern Attica in Greece, and the Province of Viterbo in Italy. The three countries represent among others different legal-administrative systems. In the three areas it is tried to develop concrete agreements on objectives for flood (in Dortmund) and forest fires (in Eastern Attica and Viterbo) prevention and protection. Once these agreements are achieved, they will guide the daily work of the involved civil protection operators as well as spatial planners.

The basic idea behind the definition of commonly agreed protection goals and objectives is that spatial planning and civil protection should decide together by means of a structured governance process on the paths, policies and actions towards the reduction of a given risk level (e. g. in % within a certain period of time). This refers to decisions at both the strategic and operational level; success is going to be measured by means of a quantitative outcome control. This will lead to aligned and targeted planning and implementation measures that are compatible with the whole disaster cycle. In short, the steps to be followed for applying the INCA methodology are as follows:

- Step 1: Definition of problem/issue
- Step 2: Creation of working group
- Step 3: Definition and agreement on common objectives
- Step 4: Agreement on mitigation measures
- Step 5: Agreement on indicators and measuring values
- Step 6: Definition of appropriate stakeholders (target group) and information policy
- Step 7: Continuous monitoring and review of risk governance process as well as continuous consultation

This is a new planning philosophy intended to substitute the current one that leads to inefficient funding and implementation of disconnected single projects and an overall disregard for effectiveness and meaningful end results.

The project started at 1st January 2009 and will last twenty months. In Eastern Attica forest fires is one of the most serious problems manifesting itself practically every year. It is a multi-dimensional problem: its causes and impacts involve such issues as public administration fragmentation and bureaucracy, lack of communication between Forest and Spatial policies, the civil society and prevailing political culture, fluidity of land ownership rights and their historical origins etc. Therefore the main challenge of forest risk mitigation has been specified to several sub-objectives:

1. Elimination of forest fires (and ensuing losses) owing to negligence;
2. Intensification of research for the detection of the mostly unknown causes of the phenomenon;
3. Active enrolment of the civil society in forest fire prevention, preparedness and reforestation issues;
4. Enhancement of the role of Spatial Planning (administrative and legislative) in Forest Fire Risk mitigation.

Through multiple meetings involving INCA partners and other shareholders, mainly local authorities (figure 1) certain mitigation measures were agreed upon and are currently being tested in practice. The results so far, especially in regard to the willingness of certain people from the staff of state and local authorities to contribute to the participatory process are very encouraging. It is hoped that once fully developed and applied, the INCA concept will lead to more efficient regional governance and flexibility in local risk prevention and response actions. The concept is flexible and transferable to all spatial levels for all hazard types and all EU Member States.

More information about the INCA project can be found at www.project-inca.eu

Assessment of Forest Fire Risk in France in 2030 and 2050 and Adaptation Policies

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A methodology of the study on the extension of the risk of forest fires in France in 2030 and 2050 related to climate change was conducted at the initiative of the French Ministers of Agriculture, Ecology and Interior. They asked their general inspection to realize this mission in order to assess the effects of climate change on public policy prevention of fire risks in French forests. This study was conducted with the four main following topics:

1. Taking into account the evolution of climatic factors.

The study was based on analysis of the Forest Weather Index (FWI) commonly used in Europe (see for example the website of the European Commission EFFIS). Meteo-France has calculated the FWI on a daily 8km x 8km grid over the last 50 years. Once the calibrated model, it was able to project the value of the FWI 2010-2100, using three climate scenarios of the IPCC.

2. Taking into account the sensitivity of vegetation and its crossing with climatic factors. The National Forestry Board (ONF) and the National Forest Inventory (IFN) have developed a sensitivity index of vegetation, especially based on a factor related to vegetation (Forest types, Bio-geographical regions, Altitude) and a factor related to the available water (soil, exposure, slope). By combining climatic data and vegetation data the joint mission can then propose a national map of areas potentially sensitive to forest fires at different times.

For example the three maps below show the sensitivity of summer forest fires forests over 100 ha.

These maps are working documents, reproduced for illustrative purposes only, the sole purpose of clarifying the method. They clearly show a strong and rapid expansion of sensitive areas in the coming decades: at maturity in 2050, half of the metropolitan forests will be affected by forest fire hazards.