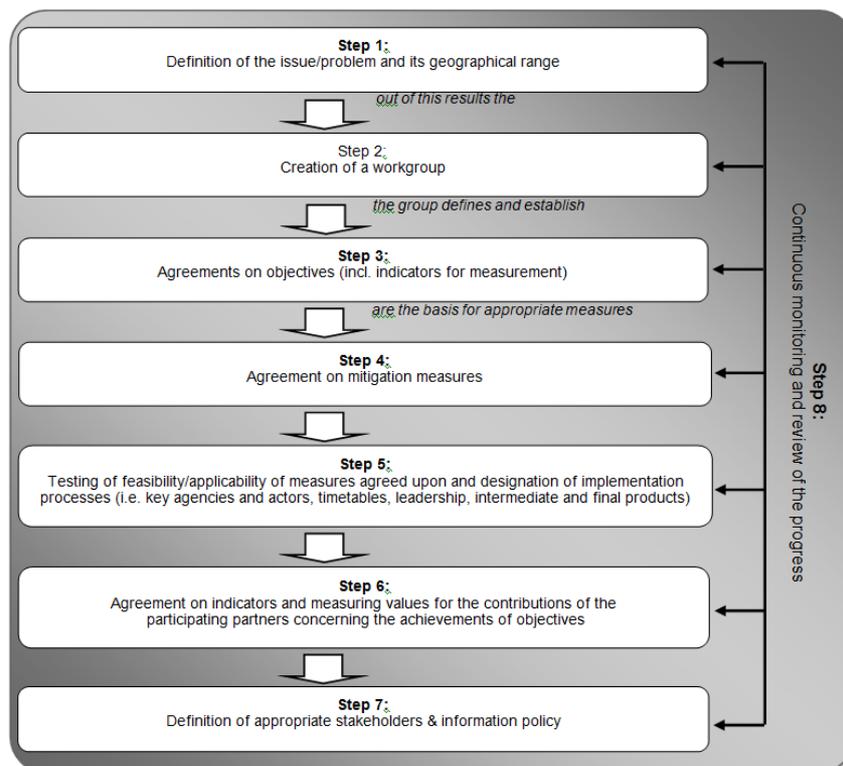




## Greece: An Innovative Forest Fire Prevention Effort

Fire management in Greece is generally focused on fire suppression. Fire prevention has been suffering as a weakened and underfunded Forest Service, to which a large part of fire prevention is assigned by law, has been unable to adequately carry out its forest management duties that would keep fuel loads under control (Xanthopoulos 2008). Fire prevention funding, in the last decade or so, is distributed through the General Secretariat for Civil Protection and is directed mainly to the local authorities (municipalities) around the country. Although this funding is not insignificant, as it reached 18.4 million euros in 2013, it is directed mainly to various technical works such as forest road and firebreak maintenance, construction of water tanks, development of networks of hydrants, forest fuel management next to high-use roads, etc.. On the other hand, little effort is directed towards reducing fire starts through citizen education and involvement.

In 2013, the Special Secretariat for Forests of the Ministry of Environment, Energy and Climate Change, funded an innovative project for forest fire prevention through the Ministry's Green Fund. The two-fire season project started in December 2012. It was carried out by researchers of the Institute of Mediterranean Forest Ecosystems and Forest Product Technology (IMFE&FPT) of the Hellenic Agricultural Organization "DEMETER" and aimed at organizing fire prevention activities around the country by applying a methodology called INCA that was developed three years earlier in the frame of a European project called "Linking civil protection and planning by agreement on objectives" – INCA (Greiving et al. 2012) (Fig. 1). The INCA methodology, which is generic and is meant to be used for all natural disasters and throughout the disaster management cycle, was adapted for use in the prevention of forest fires in Greece.



**Figure 1.** The steps of the INCA methodology for prevention through Agreement on Objectives

In applying the methodology a series of high-risk areas in Greece, mainly islands in the Aegean sea, were selected for carrying out workshops that would bring together officers from the local authorities,

volunteers and other interested citizens (Fig. 2). In each of these areas the researchers made contacts with people who could potentially organize a successful workshop that would attract interested people and could handle the organizational load (e.g. find an appropriate meeting space, make contact with the mass media, and even find sponsors to cover the [small] expenses). The persons who volunteered and committed themselves proved enthusiastic. They varied from Forest Service and Fire Service officers, to Municipality Civil Protection officers, and from University Academics to leaders of volunteer groups.



**Figure 2.** Some of the fire prevention workshops that took place in 2013

On the other side, the researchers provided them with guidance and the necessary public relations material (advertising material, before and after press releases, participation lists, etc.) and also made the information available through the Institute's internet site ([www.fria.gr](http://www.fria.gr)), which hosts a section on forest fire prevention, and through other relevant sites. Where possible, activities included joining forces with other similar initiatives.

Workshop participants included, in addition to officers of local authorities and volunteers, scouts, workers of the countryside (e.g. bee keepers, shepherds, farmers, etc.), other professionals (e.g. from the tourism sector), and even representatives of the Church. Obviously, the audience varied depending on the characteristics of each area.

On the day of each workshop, one of the researchers, a forest fires specialist, delivered a short introductory presentation about forest fires and then a second one about the content of forest fire prevention. This was followed by an explanation of steps of the INCA methodology. Then the participants were asked to apply it for preventing forest fires in their area.

In the second part of the workshop they discussed about the problem of forest fires in the area and what they considered as the most prevalent and most dangerous causes. As a rule it did not take long to reach a majority consensus. Starting to discuss about how to mitigate the problem they created a volunteer work group to carry out fire prevention acts that sprung out of brainstorming between all participants. In many cases, people with special skills (e.g., a play writer, a painter, a graphics designer, many teachers, etc.) volunteered their time. Through this process many innovative

ideas came-up and the group arranged a schedule of regular meetings, usually led by one of the professional officers at a space (e.g., office) of the authority he/she was from.

The major achievement of the workshops was steering of an interest in the local societies about forest fire prevention, identification of specific problems and mobilization of local resources to work for their mitigation. The presence of mass media (local TV and newspapers) during the workshops and the publication of an extended press release after the event helped in broad dissemination of the ideas expressed. In many cases the forest fire specialist was also interviewed by the mass media, spreading the prevention message further. Although most of the groups worked actually very well, bringing many initiatives to fruition, in general there was little effort devoted to data collection and evaluation of the agreed indicators.

In conclusion, it became evident that such voluntary efforts can be important for fire prevention and can trigger the participation and contribution of many people who otherwise would remain distant from a subject that can directly affect them. However, there is a need for similar on-going initiatives by specialists who focus on prevention year-round and it is also necessary for the authorities to secure a small level of funding in order to facilitate low-cost high-gain efforts directed towards the public.

As mentioned earlier, the fire prevention project joined efforts with various other activities with similar objectives. Among them, the most worthwhile activity took place at the Evgenideio Conference Center, in Athens, on 14 May 2013. It was a National Round Table Discussion on "Integrated Fire Management in Greece in Times of Economic Crisis". This Round Table was prompted by a very large and destructive fire on Chios island in August 2012 that created a huge impression and attracted international attention, including a Congress on "Our response to the fires-Working together for a better Chios", held in Chios, in October 2012, and a post fire field visit (in February 2013) and a study carried out by the Global Fire Monitoring Center (GFMC) on behalf of the EUR-OPA Major Hazards Agreement of the Council of Europe (GFMC 2012). Then, on April 24, IMFE&FPT organized one of the prevention workshops on Chios Island, in an effort to help the people learn from the disaster of 2012 and mobilize for prevention for the future.

The Round Table that was held nearly a month later, aimed at promoting an integrated forest fire management in the times of economic crisis that Greece is facing, by sharing knowledge, responsibilities and resources, in order to avoid disasters, such as the one in Chios, in the future. The event was organized by IMFE&FPT and the GFMC, and was under the aegis of the General Secretariat for Civil Protection and the Special Secretariat for Forests of the Ministry of Environment, Energy and Climate Change, and under the co-auspices and support of the "Maria Tsakos" Public Benefit Foundation Centre for Maritime Research and Tradition. It was also supported internationally by the EUR-OPA Major Hazards Agreement and the United Nations International Strategy for Disaster Risk Reduction (UNISDR). In addition to participation of the relevant Greek authorities, academics, researchers, operational professionals, there was also participation of members of UNISDR's Wildland Fire Advisory Group, as external observers.

During the event, a number of introductory presentations by representatives of the participating organizations (Fig. 3) were followed by an open and frank discussion among attendees on the topic of today's forest fire management organization in Greece and its existing weaknesses. The impact of the current economic crunch in the various fields of fire management was addressed and suggestions were made on how to avoid potential overlaps and to make better use of funds. A number of available technological tools that can help increase effectiveness and efficiency were identified. On the other side, the attendees stressed the importance of good forest management in keeping fire hazard under control. Particular emphasis was placed on the existing shortcomings in cooperation between organizations and institutions. Also, the need to put emphasis on fire prevention was highlighted, pointing out that each euro spent on prevention saves many more from the amount spent on suppression, provided, of course, that there is already a capable firefighting mechanism in place.



**Figures 3 and 4.** Left: Prof. Johann Goldammer, head of the GFMC, addressed the relationships between fire and people in the Mediterranean at the opening of the Round Table. Right: Captain Panagiotis Tsakos addressing the audience.

Finally, post-fire measures were discussed not so much from the technical point of view but from the environmental and socio-economic dimension. Notably, when making reference to the large disaster in Chios, the burning of thousands of precious and unique in the world mastic trees and the need to avoid animal grazing in the burn area, the founder of the “Maria Tsakos” Foundation, Captain Panagiotis Tsakos (Fig. 4), announced that he would open his (privately owned) lands for grazing for Chios islanders, to assist them to overcome the problems of fire-degraded pastures.

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