

# Common template for risk assessment and management operational tools and best practices identification (Action B1)

Title: Operational Tools and Best Practices for Risk Assessment and Management

The identification of tools and best practices on risk assessment and management helps providing an idea of the state of the art in the field. By completing this form, the best practice will be included in the knowledge repository platforms and available for the practitioner community to use. We encourage the user to complete as many fields as possible from the template in order to provide the most relevant information needed to apply the best practice to other practitioners.

Instructions:

- Blue boxes are mandatory fields
- More than one item can be selected in multiple choice boxes

## Document classification

<b>Title</b>	<b>PREFER</b>
<b>Description</b> <i>[1 sentence]</i>	<b>Space-based Information Support for Prevention and Recovery of Forest Fires Emergency in the MediteRanean Area</b>
<b>Country, location</b>	<b>Italy, Greece, Portugal, France, Spain</b>
<b>Date</b>	<b>1st December 2012</b>
<b>Contact e-mail</b>	<a href="mailto:gemanca@regione.sardegna.it">gemanca@regione.sardegna.it</a>
<b>Institution</b>	<b>Autonomous Sardinia Region</b>
<b>Net Risk Work Partner</b>	<b>DGPC RAS</b>
<b>Document type</b>	<b>Best practice</b>
<b>Language</b>	<input type="checkbox"/> Catalan <input checked="" type="checkbox"/> English <input type="checkbox"/> French <input type="checkbox"/> German <input checked="" type="checkbox"/> Italian <input type="checkbox"/> Spanish <input type="checkbox"/> Other
<b>Source/origin</b>	<input checked="" type="checkbox"/> Partner's expertise <input checked="" type="checkbox"/> Expertise from the network <input type="checkbox"/> Other (internet)

## Topic

<b>Area</b>	<input checked="" type="checkbox"/> Risk assessment	<input checked="" type="checkbox"/> Risk Planning	<input checked="" type="checkbox"/> Risk Management
<b>Risk</b>	<input checked="" type="checkbox"/> <b>Wildfires</b>	<input checked="" type="checkbox"/> Fire behaviour patterns and typologies <input checked="" type="checkbox"/> Fire ignition and spread models <input checked="" type="checkbox"/> Wildland urban interface	<input checked="" type="checkbox"/> Fuel management <input checked="" type="checkbox"/> Fire service needs <input checked="" type="checkbox"/> Prescribed burning <input checked="" type="checkbox"/> Other <i>[Monitoring, controlling]</i>
	<input type="checkbox"/> <b>Storms</b>	<input type="checkbox"/> First measures after storm <input type="checkbox"/> Work safety during salvage logging <input type="checkbox"/> Timber storage and cost containment <input type="checkbox"/> Forest protection and pest control	<input type="checkbox"/> Regeneration and afforestation <input type="checkbox"/> Preventive silvicultural measures <input type="checkbox"/> Other <i>[Introduce which ones]</i>
	<input type="checkbox"/> <b>Avalanches</b>	<input type="checkbox"/> Technical protective measures <input type="checkbox"/> Maintenance of protection forests	<input type="checkbox"/> Other <i>[Introduce which ones]</i>
	<input type="checkbox"/> <b>Floods</b>	<input type="checkbox"/> Prevention through land use management <input type="checkbox"/> Technical protective measures	<input type="checkbox"/> Other <i>[Monitoring, controlling, assistance to the population]</i>
<b>Cross-sectoral topics</b>	<input type="checkbox"/> Risk and vulnerability assessment and mitigation	<input checked="" type="checkbox"/> Risk planning, governance and policy framework	

	<input type="checkbox"/> Cost-effectiveness assessment <input type="checkbox"/> Civil protection, emergency and post-disaster management <input checked="" type="checkbox"/> Community involvement and risk communication <input type="checkbox"/> Other: [Introduce which ones]
<b>Level</b>	<input checked="" type="checkbox"/> Local <input checked="" type="checkbox"/> Regional <input checked="" type="checkbox"/> National <input checked="" type="checkbox"/> Cross-border <input checked="" type="checkbox"/> EU <input type="checkbox"/> Global
<b>DRM cycle phase</b>	<input checked="" type="checkbox"/> Prevention <input checked="" type="checkbox"/> Preparedness <input type="checkbox"/> Response <input type="checkbox"/> Recovery
<b>DRM domain</b>	<input type="checkbox"/> Policy making <input checked="" type="checkbox"/> Early warning system <input checked="" type="checkbox"/> Disaster response
<b>Sendai priorities</b>	<input checked="" type="checkbox"/> Priority 1: Understanding disaster risk <input checked="" type="checkbox"/> Priority 2: Strengthening disaster risk governance to manage disaster risk <input checked="" type="checkbox"/> Priority 3: Investing in disaster risk reduction for resilience <input checked="" type="checkbox"/> Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction
<b>Contribution to Sendai Targets</b>	<input type="checkbox"/> Reduce global disaster mortality <input type="checkbox"/> Reduce the number of affected people <input type="checkbox"/> Reduce the direct disaster economic loss <input type="checkbox"/> Reduce disaster damage to critical infrastructure <input checked="" type="checkbox"/> Increase the number of national and local disaster risk reduction strategies <input type="checkbox"/> Enhance international cooperation to developing countries <input checked="" type="checkbox"/> Increase availability of an access to multi-hazard early warning systems
<b>Contribution to EU Civil Protection Objectives</b>	<input checked="" type="checkbox"/> Enhance cooperation, exchange of good practices and support for capacity building in prevention actions outlined in Chapter 2 of Decision No 1313/2013/EU (including risk assessment, risk management planning, risk prevention measures).  <input checked="" type="checkbox"/> Improve knowledge based on disaster risks and disaster prevention policies, and raising awareness of disaster prevention, including at urban level, which would also contribute to better understanding of and adapting to the future impacts of climate change.  <input checked="" type="checkbox"/> Improve links between relevant actors and policies throughout the DRM cycle.  <input checked="" type="checkbox"/> Improve city-to-city, cross border and macro regional cooperation in DRM cycle.  <input type="checkbox"/> Additional response capacities made available to the European Emergency Response Capacity and the European Medical Corps.  <input type="checkbox"/> Increase the efficiency of disaster response through the development of plans.  <input type="checkbox"/> Improvement of the quality and interoperability of the EU response capacities.

## Description and analysis

**Summary: quick presentation of the Good Practice** [Objective: summarize in a few lines the key elements of the good practice]

Place in national/regional policy [Mentioned in the law/regulation/guidelines? Mandatory? Recommended?]

PREFER is a project funded in the EU FP7, with start on 1st December 2012 and three years duration. It is not placed in a regulation guidelines, but it is worth to be applied for warning index forecasting

The main objective of PREFER is to set up a space-based end-to-end information services, based on satellite remote sensing data, to support prevention/preparedness and recovery phases of the Forest Fires emergency cycle in the European Mediterranean Region.

The project delivered many products, based on the pre-assessment and post assessments of a forest fire evolution and forest damages. Interesting the social criterion included in the assessment of the

prevention analysis free text – 5 lines max]
Goals and achievements <i>[Objectives, goals and the achievements of the Good Practice]</i> The project achieved the following goals: 1) provides timely multi-scale and multi-payload information products based on exploitation of all available space borne sensors; 2) offers a portfolio of Earth Observation (EO) products focused both on Pre-crisis and Post-crisis forest fire emergency cycle in the EU Mediterranean area; 3) prepares the exploitation of new space borne sensors available by 2020 and 4) contributes to the definition of User requirements for the new EO missions
Actors involved Citizen, local/regional authorities, CFVA, Agenzia Forestas, Prefects, Sardinia Region Civil Protection members. <i>[free text – 5 lines max]</i>
Implementation stage <i>[Is it operational? Since how long? Is it a pilot experiment?]</i> Project Prefer is over and implementation is done
State of technical <i>[state of the art and technical background of the Best Practice]</i> Training courses have been organized at partner's locations to learn how to use the system. Several meetings followed the training course to better understand the applicability of the models.
Context <i>[regulatory, socio-economic, political]</i> Prefer was a research project and the good practice can be seen in the prevention of forest fires. Socio economic contest has been evaluated by the economic value map and vulnerability map. The state of art is updated and the latest technologies has been used, but considering the stagnant situation of the socio-economic structure of our region, is worth to say that the economic value index is a timid approach to our big problem, which is better described by the SDM (Stato di malessere demografico). It should be studied deeper in this scenario to determine a close value for our lagging behind region

<b>Detailed Characteristics</b> <i>[Objective: detail the implementation conditions of the Good Practice]</i>
Implementation is expected where new criteria will be considered appropriate for our regional context. As previously stated, SMD index describes our regional situation and it should be implemented in the models, applied to evaluate the critical scenario for predicting the fire. The establishment took place on 2012. Several changes have been made in the remote sensing detection, especially new data are now available at ESA website, European Spatial Agency, through Sentinel satellite, to assess some of the criteria, such as vegetation index and soil water content. Considerable priority is focused on moving from a warning map to a risk map. In order to develop and improve a new evaluation tool is necessary to assess the time of reaching places, under threats, by rescue teams. The teams should be strategically located where a high risk is geographically identified. The location-allocation model should detect areas where they make the travels easy for the rescue teams.
Governance <i>[responsible authority and roles of the different actors involved]</i> Responsible authority is the DG Civil Protection – Service of Risk forecasts and information systems, infrastructures and networks Service The responsibility of testing the integrated tool is in the hands of our chief and his team. The team gathers professional expertise in several fields, which is an advantage to test results and comment its outcomes.
Necessary means to implement the Good Practice in efficient conditions <i>[human resources, materials, financial...]</i> Human resources, such as entry level of officers, should be an asset to structure and evolve the tool. About material, a cloud space should be developed. Financial tools should sustain the cost of the officers and the implementation of its structure, not based on a renewal of computer or single license software, but the development of a cloud space, a strong internet/intranet connection with servers.

Challenges encountered during implementation and solutions incurred  
 As final users, small problems have been detected, such as scale resolution, geographical identification and so on. Solutions have been made possible by the partners and approved in the meetings.

Priorities identified for successful implementation of the Good Practice  
 To move from a warning map to a risk map. This is the best challenge for the future.

**Impact of the Good Practice** [Objective: evaluate the impact of the Good Practice].

The method is based on evidence of good approximation of observed and simulated. The decision process takes advantage of this additional tool to express the final outcome of the warning fire map. An evaluation process has been carried out through comparisons between data calculated and observed. A map comparison has been displayed to find a percentage of agreement. The result assessment calculated an agreement index close to 85% of the incurrent fires. Such differences analysis has been carried out, considering the nature of geographical dataset, through 1) the overall extent of the differences, 2) the spatial distribution of the differences, and 3) the nature of the differences. Unfortunately, at the end of the project, the web site, hosting the results of model calculations, has been shut down.


**Future developments** [Objective: understand the follow-up perspectives]

To be continued, the project needs funds, which is not an easy job to gather. Therefore, the scenario of future development would be under the constraints of human resources, funds and political unpredictable factors. If safety is the goal (safety first), this accomplished tool is certainly something to be used in the future to better predict the wildfire behaviour. Among improvements, the use of Sentinel images is the first approach.

[Continuation, future improvements,]

[free text – 5 lines max]

**External resources** [Objective: provide further information]

Attached materials	[include format (document, photo, video...) and name of the file] Pdf format documents:  Manual Prefer_withe(leve)-1.pdf
Web links	<a href="http://www.prefer-copernicus.eu/">http://www.prefer-copernicus.eu/</a>
Contacts	Germana Manca <a href="mailto:gemanca@regione.sardegna.it">gemanca@regione.sardegna.it</a>

**[Additional information - optional]**

**Lessons learnt** [Objective: compare the results obtained to the objectives set at the start of the Good Practice]

Evaluation process, if exists (internal or external)  
 An evaluation process has been carried out through comparisons between data calculated and observed. A map comparison has been displayed to find a percentage of agreement.

Assessment of results (quantitative and qualitative) and comparison with main goals  
 As a matter of fact, the agreement between observed and simulated is close to the 85% of the incurrent fires.

Negative aspects identified

I would talk about disadvantages not negative points: the guarantee of the dataset, such as the satellite images and their processing. At the end of the project the web site, hosting the results of the model calculation, has been shut down.

Unexpected consequences (short / mid / long term) and corrective measures implemented

N/A

**Durability and transferability** [Objective: evaluate the integration of the Good Practice and its sustainability, give recommendations for transferability]

Is this information:      **Replicable**       **Measurable**

Regulatory Framework

***It should be included in the daily schedule to assess the final warning fire map***

Stability of the human environment [Stability of partnership, structures, population enabling successful implementation and positive impact in the long term]

Essentially the models structure requires a knowledge of the model phases. It is necessary to enrol officers, and provide them on a regular basis, available update, if any

Financial requirements [business model]

The project is over

Success factors [political, technical, human, financial...]

If the application of the entire model structure allows to save public money, considering that resources would be sent where necessary. The teams in the field should be located where the real risk is revealed, every day, through the Risk fire index.

Risk factors [legal, financial, safety...]

N/A

Additional and non-formal experiences contributing to the implementation of Good Practice

N/A



net risk work



Funded by  
European Union  
Humanitarian Aid  
and Civil Protection