



JRC
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Methodological Approaches for Wildfire Damages Costs Valuation

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Outline

1. Background
2. Task 1: methodological approaches
3. Task 2: Possible future development
4. Conclusions

1. Background

Risks and damages deriving from wildfires

Direct costs:

"Financial" losses:

- Wood "old" markets: clear price system
- NWFPs (wood products: reduced financial importance)

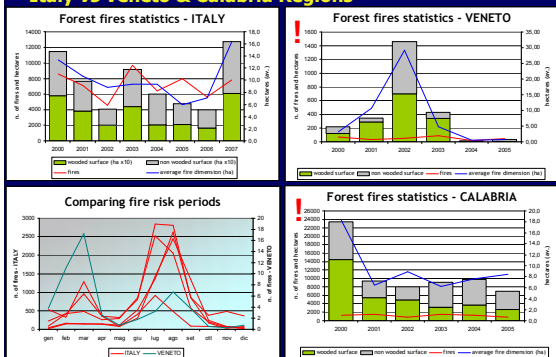
Economic costs:

- Soil erosion and water quality **Some process of price internalization**
- Biodiversity conservation → "new" markets;
- Recreation **Still many problems in economic valuation;**
- Carbon sinks reduction **social importance**

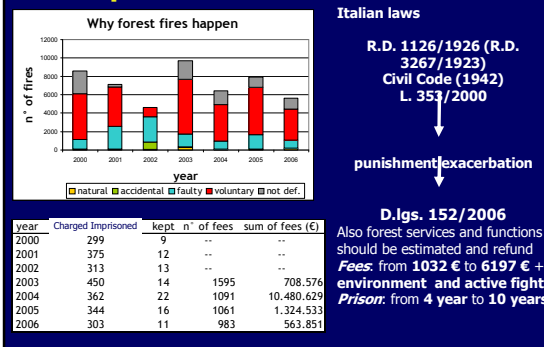
Indirect costs

- Fire fighting
- Damages to infrastructures and mobility
- Damages to landscaper → tourism
- Legality → real estate speculation and burn-to-work practices (unemployment)
- risk for people lives (8 dead in summer 2007; 177 dead and 1505 injured in 1978-2006 period)

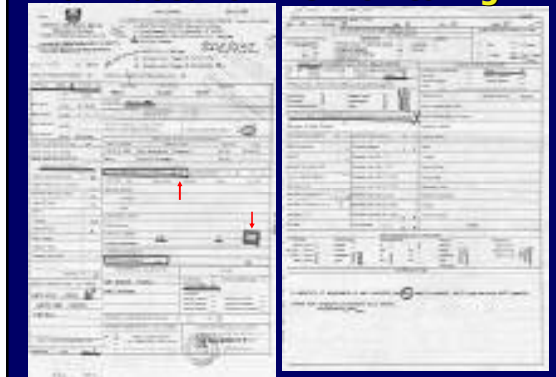
Seasonal, irregular events Italy vs Veneto & Calabria Regions



Human induced fires: social problems → sanctions



Form used for fire monitoring



2. Task one: review of methodological approaches



AISF - CFS Method
Accademia Italiana di Scienze Forestali
 Corpo Forestale dello Stato
 (Orazio Ciancio – Piermaria Corona – Marina Marinelli – Davide Pettenella, 2006)

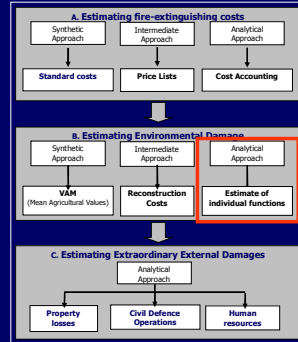
National version
 Modular approach
 Excel sheet Tool



Veneto Region Method
Università di Padova
Regione Veneto
 (Eva Valesè - Daniele Lubello Tommaso Anodillo – Raffaele Cavalli Davide Pettenella - Tiziano Tempesta Vinicio Carraro - Marta Garadossi Emanuela Ramon - Alice Lemessi, 2007)

Regional version
 Georeferenced approach
 GIS/Access Tool

AISF - CFS Method A modular approach



3 components of fire damage (A, B and C)
 3 approaches depending on economic importance of the damage

Criteria for selecting the valuation approach

Burned area (ha)	Recommended method			Administrative level responsible for the appraisal
	Very limited functions of public interest, little productive value	Limited functions of public interest; significant productive value	Considerable functions of public interest	
>5	A.2+B.2 (AIB/FN form integr. 1)	A.3+B.3 (AIB/FN form integr. 2)		Region
1-5	A.1+B.1 (AIB/FN form)	A.2+B.2 (AIB/FN form integr. 1)		Province
<1		A.1+B.1 (AIB/FN form)		Municipality

Rapid approach

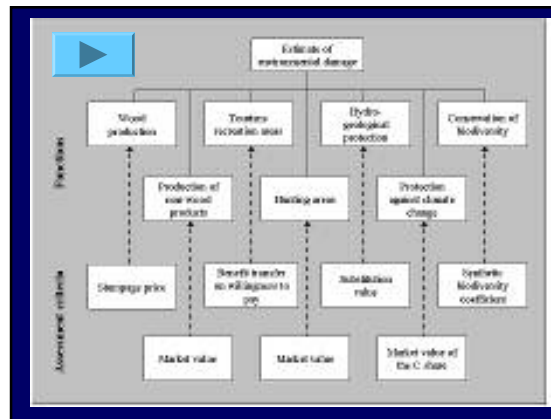
Ordinarily, we proceed with one of two synthetic approaches
FC - Standard costs
ED - Mean Agricultural Values

Intermediate Approach

Operations of a certain magnitude and complexity. Actual time equipment and personnel are engaged and the specific unit costs.
FC - Pre-defined price lists
ED - Reconstruction cost

Analytical Approach

Particularly serious cases, extraordinary use of vehicles, equipment and personnel.
FC - Collection of mainly accounting data
ED - Separate estimates of the forest's different functions



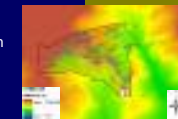
The Veneto Region method A geo-referenced approach



- Pruned areas map
- Wildfire risk map
- Forest value map
- Forest map
- EPA map

Most of the information is already available from a georeferenced database

Objective:
 1. To minimize field surveys
 2. Only 6 inputs to make the system running...



... first of all the GPS measure of burnt area
EXTRACTION OF LAND UNITS BURNT

ADVANTAGE:
 This approach complies with Veneto Region forest situation
 • Local prices
 • 2003 Forest Inventory

Modular approach

- **Synthetic: M.I.L.V.A.** - *Mean Indicative Land Values*
- **Intermediate: S.A.F.E.** - *Semi-Automatic Fire costs Evaluation*
- **Analytical: Contingent Valuation**

From standardized (regional) mean values to site-specific value

A protocol to carry on a CV based on best practices (with the long term objective of building a DB for benefit transfer)

MILVA

= an additive model to evaluate 4+1 functions

1. Wood production:
 - Road density,
 - Rough wood prices,
 - average standing stock
2. Recreation:
 - population density
 - % of forest cover
 - Pro capita GDP
3. Soil protection:
 - GTM
 - USLE
 - Opportunity costs (grassland)
4. C storage:
 - CO₂ ton price
 - NAI x BF
5. Other values (in relation to regional characteristics and data availability)

Independent variables to be used for regional data calibration

4. Conclusions

- Guidelines with different options will be proposed with the aim to define a consolidated methodological approach (European cooperation!)
 - components of the costs
 - methods for single damage evaluation
 - valuation protocols
 - costs standardisation and benefit transfer
- Building MILVA: a process of gradual improvement of data related to growing stock, NAI, NWFPs values, ...
- MILVA availability: large field of application for environmental accounting