



**Workshop:
Climate Change
Guidelines for
Forest Managers**

**21 - 23 April 2015
Poland**

Forestis

Federation of Forest Owners Organizations, founded in 1992 is a **non-profit organization**, recognized as **Entity of Public Utility** (1998) and **Non Governmental Environmental Organization** equivalent (2001).

Forest Owners Organization (Forestis members)	31
Provide technical assistance to forest owners	15.000
Forest management plans	
Forest certification	
Manage Sappers Forestry teams	67
<i>(prevention, surveillance and 1st intervention in fighting forest fires)</i>	



Territory

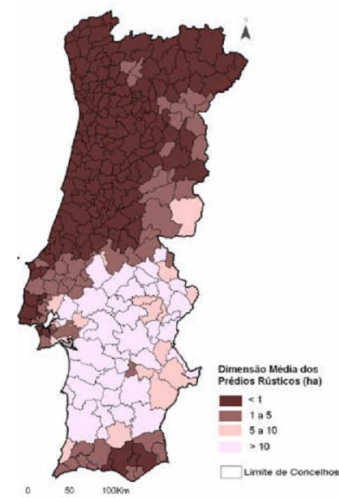
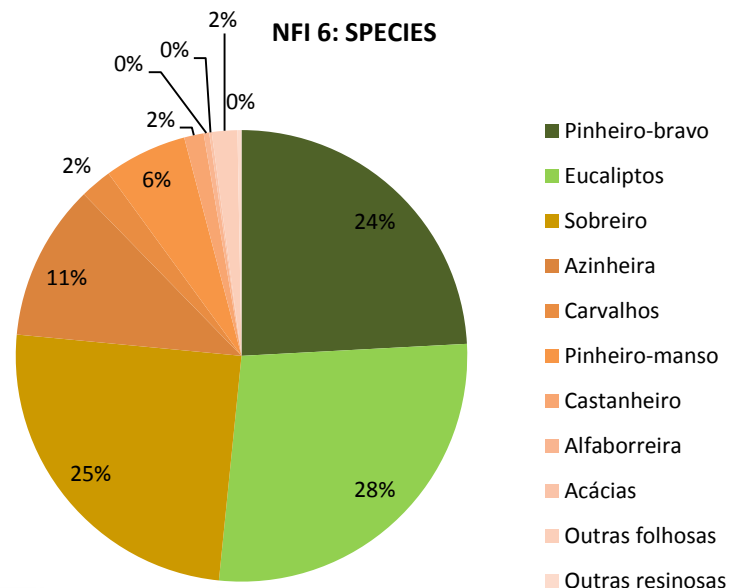
- 60% of the national territory is forestland
- 20% of territory is under Natura 2000

Ownership

- 85% Private
- 12% Community
- 3% State Forest

Economic indicators

- 10% National Exports
- 160.000 Jobs
- 11% Industrial GDP



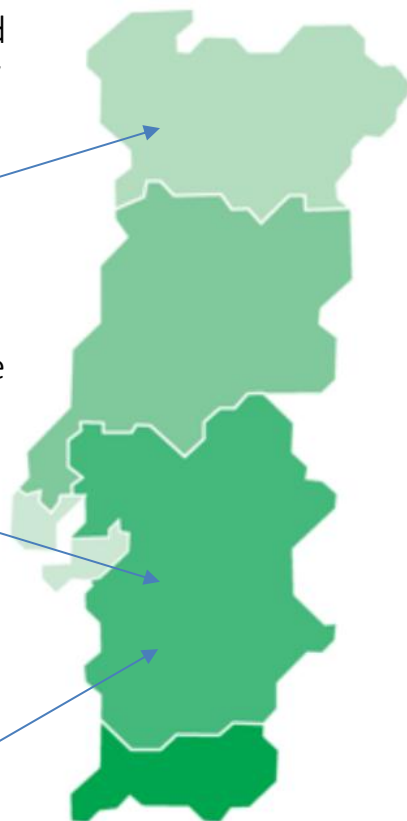
NATIONAL STRATEGIES AND POLICIES linked to climate change

- 1998 – Created the *Climate Change Commission* – CAC (RCM nº 72/98)
- 1999 - *National Action Programme to Combat Desertification* – PANCD 1999-2014 (RCM nº 69/1999)
- 2001 – *National Strategy for Conservation of Nature and Biodiversity* – ENCNB (RCM nº 152/2001)
- 2004 – Created the *Permanent Forest Fund* – FFP (DL nº 63/2004)
- 2006 – Created the *Environmental Intervention Fund* – FIA (DL nº 50/2006)
- Created the *Portuguese Carbon Fund* – FPC (DL nº 71/2006)
- 2006 – *National Strategy for Forests* - ENF (RCM nº 114/2006)
- 2009 – Created the *Conservation of Nature and Biodiversity Fund* – FCNB (DL nº 171/2009)
- Created the *Water Resources Protection Fund* - FPRH (DL nº 172/2009)
- 2010 – *National Climate Change Adaptation Strategy* - ENAAC (RCM nº 24/2010)
- Created the sectorial ENAAC working groups
- 2010 – Determined the preparation of *National Roadmap of Low Carbon* - RNBC 2020 and the *National Programme for Climate Change* – PNAC 2020 (RCM nº 93/2010)
- 2013 – *National Climate Change Adaptation Strategy - Forests Sectorial Report*
- 2013 - *National Action Plan for Renewable Energy* – PNAER (RCM nº 20/2013)
- 2014 – Created the working group for *Climate Change National Plan* – PNAC (Despacho SEFDR nº 2441/2014)
- 2014 - *National Action Programme to Combat Desertification* – PANCD 2014-2020 (RCM nº 78/2014)
- 2015 – *National Strategy for Forests* - ENF (RCM nº 6-B/2015) (Revision)

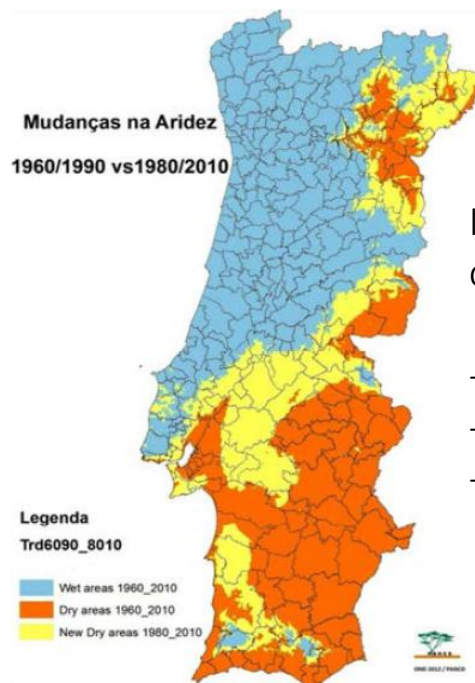
Trends Climate Change (temperature, precipitation, drought)

ENAA - Forests Adaptation to Climate Change Report (ICNF, 2013)

- **Average annual temperature:** increased between 0,29 and 0,57 °C / decade (1960-1990)
(North: + 0,57°C)
- **Average annual rainfall:** Below average (relative to Normal 1960-1990) in more than 15 of the last 30 years
(Alentejo - 21 years)
- **Drought:** Significant changes in the twentieth century
(Alentejo: more severe since 1980)



worsening of the aridity index - Areas susceptible to desertification (semi-arid and dry sub-humid) - They went from 36% (1960-1990) to 58% of the land surface (1980-2010).

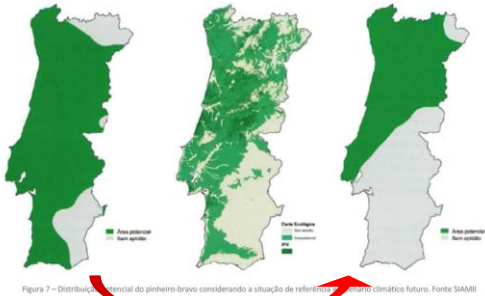


In areas susceptible to desertification, are located:

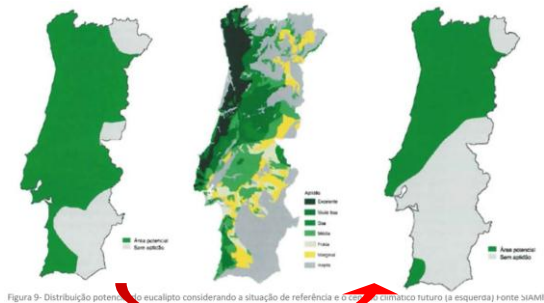
- 25% of the Pinus Pinaster
- 46% of the Eucalyptus
- 93% of the Cork Oak

Geographical distribution of forest species and Productivity (cenarios)

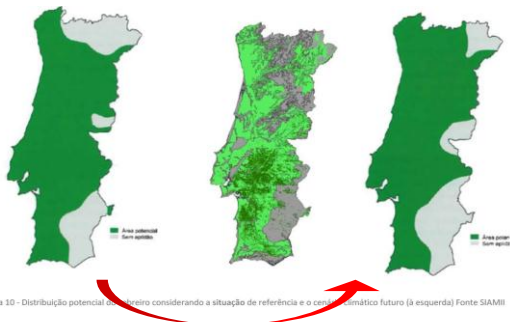
Pinus Pinaster:



Eucalyptus:



Cork oak:



Productivity of forest species in Portugal:

- Eucalyptus (- 10% to 15% nationally):
- Maritime pine (- 15% to 20% nationally):
- Cork oak (Decrease marked at national level):

Needs:

- Support the forest management
- Recovery and rehabilitation
- Research and development (genetic diversity and genetic improvement)
- Knowledge and technology Transfer - management and production

Forest Fires

The Forest fires and the biotic agents - Increased risks for the sustainability of forests and forest sector

Period 2000-2014, annual average:

- Burnt area – 26.310 ha / year (Max .: 425.716 ha in 2003)
- Number of occurrences – 4.594 events / year (Max .: 35.697 in 2005)

Increased risk of forest fires

Existing instruments:

- Plans for Defense Against Fires (national, municipal level)
- Forest Intervention Specific Plans (management unity)

Needs:

- Improve governance of the forest fire prevention and fighting system
- Reduce the occurrence of large fires
- Adaptation of structural prevention measures
- Awareness (change people's behaviors)

Biotic agents

Pests and Diseases:

- Behavioral changes in biotic agents (as in recent years)
- Increased vulnerability of forest species

Existing instruments:

- Forest Sanity Operational Plan; (territory level)
- Forest Intervention Specific Plans

Needs:

- monitoring of the evolution and information about the current occupation
- Definition and adoption of forest management models and Best Practices
- Prospection, Control and Eradication actions
- Information and awareness

Invasive alien species:

- Invasive species expansion (vulnerability of forest species to invasive species)

Existing instruments:

- Forest Intervention Specific Plans
- Forest Management Plans

Ecosystem Services

Soil and water protection:

- Increased soil erosion and desertification (decreased content and mineralization of organic matter)
- Decrease in water retention capacity
- Water quality degradation and faster flood peaks (burnt areas)

Actions required:

- Expansion of forest stands
- Minimum soil mobilization and Best Practices
- Emergency stabilization after fires

Biodiversity:

- Change in the composition and habitat structure (eg, riparian galleries)
- Biodiversity loss

Existing instruments:

National Strategy for Conservation of Nature and Biodiversity - ENCNB (REN, RAN, DPH); Natura 2000; Regional Plans Forestry Management (Ecological corridors); FMP (and corresponding biodiversity management program if classified areas)

Needs:

- Information about location and status habitats
- Promote the maintenance and recovery of riparian galleries

Research

Research fields:

- **Resources and breeding** (study of genetic variability and adaptability; breeding)
- **Protection against abiotic agents** (causes of the occurrences; fire behavior; forest resilience and fuel management)
- **Protection against biotic agents** (knowledge harmful biotic agents and their relationship with the host species, Monitoring, Prevention, Control and Eradication)
- **Forest management** (developing technology and management models - installation, fertilization and improvement at low cost; Diversification of production)
- **Development of new products and uses** (technological performance of forestry and related products)
- **Forest Ecosystem Services** (evaluation and valorization)

Transversal Needs

The adaptive capacity depends on :

1. Economic and financial capacity of forest owners/managers (market trends and economic context)
2. Public support for forest investments (Protection, Rehabilitation, ecosystem services)
3. Reduce the bureaucratic burden (integration and simplification of legal report obligations)
4. Knowledge transfer and training:
 - practice guidance
 - experimental and demonstration sites
 - training programs (owners, managers, workers)
5. Information systems and technologies for support decision making (eg. cost efficiency)
6. Research and development oriented to low cost solutions
7. Communication strategy
 - Information and Awareness:
 - Content and platforms for disseminating information
 - Awareness campaigns (risks, impacts, mitigation)
8. International cooperation
 - Exchanging information, knowledge and best practices
 - Anticipating and updating scenarios

Financial Instruments

National Funds:

- Permanent Forest Fund (MA)
- Portuguese Carbon Fund (MAOTE)
- Environmental Intervention Fund (MAOTE)
- Conservation of Nature and Biodiversity Fund (MAOTE)
- Water Resources Protection Fund (MAOTE)

European Union Funds

Portugal 2020:

- PDR 2020 - Rural Development Programme 2014-2020 (FEADER)
- POSEUR - Operational Programme Sustainability and efficiency in resource use (Cohesion Fund + FEDER)

FAO Guidelines for Forest Manager

Managment Actions (Examples short survey)

In use:



- Adapt primary management objectives to allow the use of the existing or affected crop for other purposes
- Plant or promote the use of climate-adapted species (and varieties!)
- Select water-eficiente and drought-resistente species (and varieties!)for afforestation and reforestation
- (...)



Usefull (not in use):

- Undertake watershed management to ensure the delivery of clean and reliable water
- Minimize the harmful environmental impacts of fire supression activities
- Conduct regular surveys to facilitate the early detection and assessment of outbreaks
- (...)



FAO Guidelines for Forest Manager

Those who know the publication find it “useful for consultation it helps to plan and organize work. recalls what it is lacking or missing.”

But, for now, many of the constraints to clima adaptation are not technical ...

Proposals:

Local workshops (topics from the guide)

Translation to portuguese

Thank you.

Instrumentos financeiros

Conservation of Nature and Biodiversity Fund

- Promote projects or studies that contribute to the enlargement of the areas included the NCFN;
- Encourage conservation projects of species of nature threatened at national level;
- Support the acquisition or lease, by public entities, in the areas of land that make up the National System of Classified Areas, or outside when these are of great importance for nature conservation;
- Participate in funds or biodiversity of credit systems;
- Promote and support environmental education and awareness of nature conservation and biodiversity;
- Support specific actions of applied research and demonstration in nature conservation and biodiversity;
- Promote communication initiatives, outreach and visitation in protected areas;
- Create or contribute to specific financial mechanisms to support entrepreneurship in the areas that make up the National System of Classified Areas of importance for nature conservation and biodiversity;
- Support renaturation of action in degraded areas of NCFN

Permanent Forest Fund

- Awareness and Information;
- Defense against forest fires;
- Promotion of investment, management and forest land;
- Ecological, social and cultural forest;
- Applied research, experimentation and knowledge.

National Funds

Portuguese Carbon Fund

- Getting gas emission credits greenhouse at competitive prices, through direct investment in flexibility mechanisms of the Kyoto Protocol (Emissions Trading, Joint Implementation projects and Clean Development Mechanism projects);
- Getting gas emission credits greenhouse at competitive prices by investing in funds managed by third parties or other carbon market instruments;
- Support projects in Portugal, leading to a reduction of emissions of greenhouse gas effect, particularly in the areas of energy efficiency, renewable energy, carbon sinks, capture and geological sequestration of CO₂, and adoption of new technologies;
- Promoting the participation of public and private entities in the flexibility mechanisms of the Kyoto Protocol;
- Support for international cooperation projects in the area of climate change;
- Support for structuring projects for the accounting of emissions of greenhouse gases and carbon sequestration in Portugal

Water Resources Protection Fund

- Projects to improve the efficiency in collection, use and distribution of water;
- Projects aimed at alleviating the rejection object pollution load on water resources;
- Projects aimed at mitigating the environmental impact of the occupation of the public water domain of the State;
- Projects to improve water ecosystems;
- Projects that contribute to flood control and other interventions river systematization;
- Other projects that contribute to the protection and enhancement of water resources within the remit of the National Water Authority and the Administrations of Hydrographic Regions

Environmental Intervention Fund

- Preventing serious and imminent threat to natural or human environmental components;
- Prevention and remedying of environmental damage to natural or human components resulting from natural disasters or accidents;
- Elimination of environmental liabilities;
- Remedying of environmental damage and its prevention or repair can not be achieved in terms of the environmental liability regime;
- Operating in any other situations of default, difficulty or inability to offset or recover damages to natural or human environmental components.

European Community Funds

Portugal 2020

PDR 2020

MEASURE 7 - AGRICULTURE AND NATURAL RESOURCES

ACTION 7:10 - Silvo-environment

7.10.2 Operation - Maintenance and restoration of riparian galleries

MEASURE 8 - PROTECTION AND REHABILITATION OF FOREST STANDS

ACTION 8.1 - SUSTAINABLE FORESTRY

Operation 8.1.1 - Afforestation of agricultural and non-agricultural land

Operation 8.1.2 - Agroforestry systems installation

Operation 8.1.3 - Forest prevention against biotic and abiotic agents

Operation 8.1.4 - Restoration of forest affected by biotic and abiotic agents or catastrophic events

Operation 8.1.5 - Improving resilience and environmental value of forests

Operation 8.1.6 - Improving the economic value of forests

MEASURE 2 - KNOWLEDGE

ACTION 2.1 – TRAINING AND DISSEMINATION

Operation 2.1.1 - Training

Operation 2.1.2 – Demonstration activities

Operation 2.1.3 - Short term exchanges and Visits to agriculture and forestry holds

Operation 2.1.4 - Information

ACTION 2.2 – FOREST ADVICE


European Community Funds

POSEUR (Fundo Coesão, FEDER):

- **Use of renewable energies in companies, public infrastructure of Local Government and housing sector.**
- **Nature Conservation:**
 - Recovery and protection of species and habitats
 - Prevention, control and eradication of invasive alien species;
 - Recovery actions of degraded ecosystems by severe impacts;
 - Adaptation actions to climate changes planned in the areas of biodiversity in the National Strategy for Adaptation to Climate Change, such as dune ecosystems and riparian corridors.
 - Development of mapping natural habitats in operational scales that allow decision support;
 - Installation national prevention and intervention systems on the risks and pressures on biodiversity and ecosystems and public goods for the services it supported, in particular geared to reducing the pressure of invasive alien species or ecological risk on sensitive areas or protected species ;
 - Content development and awareness-raising actions for the conservation of nature with the young and the school community.
 - (...)
- **Adaptation and Prevention and Risk Management:**
 - Municipal plans, intercity and regional climate change adaptation;
 - Sectoral adaptation plans to climate change and or integration of this component into other policies and plans / sectoral (perspective mainstreaming);
 - Promotion activities of green infrastructure, in addition to the implementation of actions such infrastructure in the Regional OPs;
 - Production of information and knowledge, including studies, analysis and mapping;
 - Development of decision support tools, including information systems, modeling;
 - Forecasting systems, alert and response, including climate prediction models of extreme events and warning mechanisms to populations;
 - Communication activities, dissemination and awareness of risks associated with climate change;
 - Demonstration projects on adaptation and dissemination of good practice.

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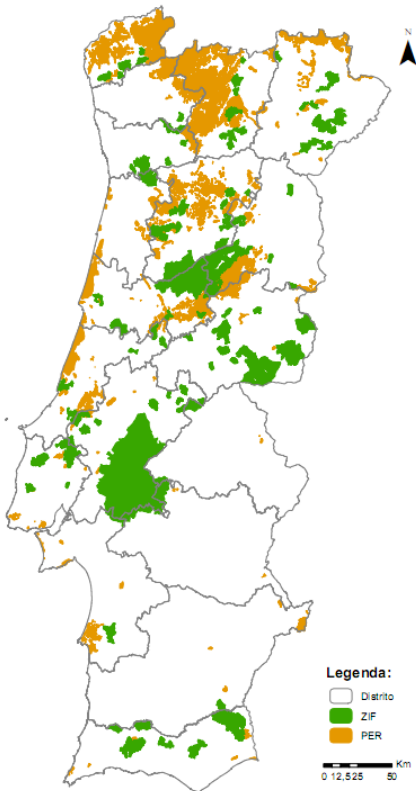
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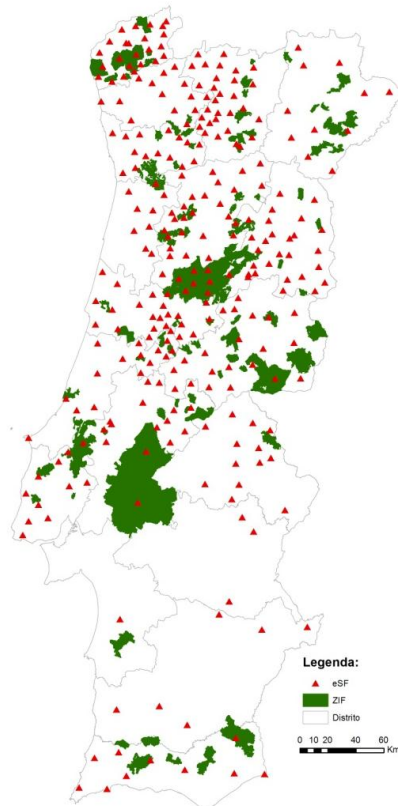


Floresta Portuguesa (IFN, Propriedade, Gestão)

ZIF + Baldios + Matas Nacionais



ZIF + eSF



Forest Management:

- Forest Intervention Zones (ZIF) area: 850.000 ha
- Community lands + National Forests - 554.164 ha
- 278 Forest Sappers Teams