COUNCIL OF EUROPE CONSEIL DE L'EUROPE

Yerevan, 30 September 2011

EUROPEAN AND MEDITERRANEAN MAJOR HAZARDS AGREEMENT (EUR-OPA)

Recommendation 2011 - 2 of the Committee of Permanent Correspondents on preventing and fighting wildland fires in a context of climate change,

adopted at the 61st meeting of the Committee of Permanent Correspondents of the European and Mediterranean Major Hazards Agreement (EUR-OPA), Yerevan, Armenia, 29-30 September 2011

The Committee of Permanent Correspondents of the European and Mediterranean Major Hazards Agreement (EUR-OPA),

A. Taking into account the increase in the number of wildland fires in Europe and adjoining countries over the last decades;

B. Noting that wildland fires contribute to carbon emissions and human-induced climate change, a process that is likely to cause progressive aridness of parts of Europe with increased risk for wildland fire and subsequent secondary disasters such as erosion, floods and landslides;

C. Aware that a number of wildland fire episodes in the last decade have caused unprecedented human and ecological losses in Western Russia, the Iberian Peninsula, the Balkans and Greece;

D. Recalling Recommendation 2010-1 of the 12th Ministerial Session of the Agreement, held on 28 September 2010 in Saint Petersburg, Russian Federation, on "reducing vulnerability in the face of climate change";

E. Aware of the conclusions of the 5th International Wildland Fire Conference "Wildfire 2011", held in Sun City, Pilanesberg National Park, South Africa, May 2011;

F. Noting that the Ministerial Conference on the Protection of Forests in Europe, held in Oslo in June 2011, adopted a Ministerial mandate for negotiating a legally binding agreement on Forest in Europe;

G. Desirous to contribute to the prevention and efficient management of wildland fires in Europe and adjoining countries at national levels and supported by international cooperation;

Recommend that member States of the European and Mediterranean Major Hazards Agreement (EUR-OPA):

1. Take note of the "Conference Statement" of the 5th International Wildland Conference (Appendix 1) and the Conclusions and Recommendations of the Regional Sessions IV and V in Europe and the Mediterranean of the same conference (Appendices 2 and 3) and use them as a source of inspiration for policy and practice;

2. Develop specific policies addressing global change and fire devoting special attention to both the integration of fire management in the frame of land management policies and investment in early detection and efficient control of fires;

3. Promote the involvement of local populations in the design and implementation of wildland fire prevention policies, emphasizing awareness, the building of a culture of risk and public participation; support as appropriate local initiatives to reduce wildland fires hazards; focus efforts, in particular on wildland-urban interfaces while ensuring that planning does not increase the vulnerability of populations;

4. Promote European cooperation in wildland fires, the elaboration of sub-regional strategies and of common fire prevention and fighting in transboundary areas of special concern; consider using or joining existing networking structures such as the Regional Wildland Fire Networks under the aegis of the UN International Strategy for Disaster Reduction (UNISDR), the Global Fire Monitoring Centre (GFMC) in its role of Specialized Euro-Mediterranean Centre of the Agreement, and other European networking mechanisms;

5. Support as appropriate a European regional consultation on wildland fires under the aegis and support of UNECE and with support by the Agreement bringing together governments, operational fire experts, fire scientists and international organisations to further examine wildland fire issues and make operative proposals for governments;

6. Consider supporting the development for the whole of the territory of the Agreement of schemes aimed at building competency, capacity and interoperability for efficient international cooperation in fire management, including joint multinational response to fire emergency situations;

7. Support as appropriate that the negotiations on a legal binding agreement on forests in Europe take fully into account forest fires as an important threat to the conservation of European forests and make provision for their efficient management;

8. Promote wildland fire research, including prevention, effects of wildland fires on people, property and the environment, rehabilitation of fire-damaged sites and improvement of fire fighting techniques and technologies.

Appendix 1

5th International Wildland Fire Conference - 'Wildfire 2011'
Sun City / Pilanesberg National Park, South Africa, 9-13 May 2011

Conference Statement

Background and Rationale

The 5th International Wildland Fire Conference 'Wildfire 2011' was held in Sun City / Pilanesberg National Park, South Africa, 9-13 May 2011. The conference was held under the auspices of the United Nations International Strategy for Disaster Reduction (UNISDR) and the Food and Agriculture Organization of the United Nations (FAO) in conjunction with the Third Session of the Global Platform for Disaster Risk Reduction in Geneva. The Secretary General of the United Nations, Mr. Ban Kimoon, conveyed an opening statement to the 500 delegates from 61 countries. He welcomed the efforts of fire specialists from around the world to develop a spirit of global cooperation in addressing the role of fire in the global environment and its impacts on society. The conference participants elaborated on both the need for the wise use of fire in sustainable management of natural and cultural ecosystems, and on the adverse effects of wildfires at local to global scales. They expressed strong concern at the escalation of wildfires across the globe, many unprecedented in the modern era for the severe impact on communities, the environment and the world economy. The conference participants acknowledged the benefits derived through collaboration in sharing information and researching new ways to tackle emerging issues. The conference participants, including the representatives of Regional Wildland Fire Networks and international thematic networks, concluded that efforts be strengthened in capacity building in wildland fire science and management, and that this can be fostered by international cooperation and sharing of expertise and resources.

Recommendations

The following recommendations are addressing common international concerns and reflect the consensus that priority has to be given to:

<u>Areas of concern</u>

Rural and industrialized societies have altered the natural environment and fire regimes. Vice-versa, humans are becoming increasingly vulnerable to the consequences of wildfires. This is calling for:

- Increase of fire management efforts on terrain contaminated by radioactivity, unexploded ordnance, land mines and chemical deposits, notably in the regions affected by the nuclear fallout of the nuclear power plant failures in Chernobyl (1986) and Fukushima (2011)
- Increase of efforts on securing peat bog / wetland ecosystems that are subjected to drainage and climate-driven desiccation to become affected by fire
- Increase of effort to reduce unnecessary burning on croplands, fallow and other lands to reduce the negative impact of greenhouse gas and black carbon emissions on the regional, arctic and global environment
- Address the increasing vulnerability of society at the wildland-urban interface by wildfires
- Provide necessary awareness and means to protect human health and security from wildland fire smoke pollution

<u>Peoples participation</u>

Experience in the involvement of civil society in fire management through participatory approaches (community-based fire management) to successfully reduce wildfire hazards, and enhance productivity and stability of land and the environment, is calling for:

- Creation of operational environments where community decision-making and implementation balance traditional and contemporary fire management requirements
- Management of fire on its benefits, through controlled burning, to improve livelihoods and health of local populations, and reduce greenhouse gases over vast areas of the globe
- Promotion of establishment of volunteer groups to assist state authorities in rural fire management
- Convention of an international conference on community-based fire management

Common international principles

Considerable success has been made in applying advanced principles in fire management and promoting fire management tools adapted to local conditions. The need for widespread application of these principles in practice is calling for:

- Application of the Voluntary Guidelines for Fire Management (FAO, ITTO, WHO/UNEP)
- Translation of the International Wildland Fire Management Terminology to other languages
- Global adoption of the Incident Command System (ICS) for the management of incidents
- Integration of forest fire management principles and tools in the REDD+ scheme
- Application of methods and approaches in risk management decisions that as far as possible are common across the organization, jurisdictions and countries and reflect recognized contemporary best practice
- Acknowledgement that fire management is a fundamental element for consideration in all policy, legislation and practices related to land management planning and objectives

Common international tools

Successful development of advanced technologies for wildland fire science and management, notably Satellite Earth Observation products, meteorological observations and forecasting, and climate modeling, is calling for systematic application in support to fire management:

- Development of fire weather and early warning systems at local to global levels
- Capacity Building in the use of fire satellite products
- Design and implementation of a global fire assessment (including fire regime assessment) and establishment of a constantly updated long term satellite fire record which is consistent, validated and endorsed by the Satellite Earth Observation community
- Support national reporting of area burned and emissions
- Support the establishment of regional fire monitoring centres

International cooperation

Experience of a number of successful bilateral and multilateral agreements on cooperation in fire management is calling for:

- Promotion of bilateral and multilateral / regional agreements on cooperation in wildland fire management and mutual assistance in wildland fire emergencies
- Development of a proposal for a Global Agreement on Transboundary Cooperation in Fire Management
- Further involvement of the six FAO Regional Forestry Commissions and the National Platforms for Disaster Risk Reduction in the implementation of principles as laid down in the fire management guidelines and the "Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters"

Efficiency of sharing ground and aerial fire management resources

Mutual assistance on suppression operations demands protocols to dispatch ground and aerial resources and to set operational procedures based on technical criteria, standardization and harmonization of terminology, and training and certification of human resources. This is calling for:

- Country support the International Fire Aviation Working Group's project to identify appropriate standards and best-management practices on which to base the development of voluntary guidelines.

Development of policies addressing global change and fire

In response to global change (interaction of climate change, socio-economic changes, and land- use change) and taking into account that global warming is a reality and will lead to an increasing occurrence and severity of wildland fires globally, and increasing impacts of society. Thus the following is recommended:

- Development of adaptive fire policies and strategies for mitigation, adaptation and protection at national to international levels

- Integration of fire management in the frame of natural resources / land management at landscape level, including use of plant biomass as a renewable and sustainable source for energy production for wildfire hazard reduction
- Support of countries to conduct fire management assessments, formulate legal frameworks and strategies, build sustainable fire management capabilities and institutions, develop fire management plans and human resources

Follow-up International Wildland Fire Conferences

In following up the 5th International Wildland Fire Conference, considering also the outcomes of the International Wildland Fire Summit (2003), it is recommended:

- That the regions organize Consultations, bringing together the operational fire experts and fire scientists be held globally, within the next 1-2 years, to further examine the fire issues resulting from population change and global warming
- That the 2nd International Wildland Fire "Summit" of operational fire experts and scientist, be held within the next 2 to 4 years under the auspices of the United Nations, with a view to developing recommendations for the United Nations, to address the global issues raised during this Conference's Regional Sessions
- That future wildland fire conferences consider expanding their audience beyond the fire management community

The conference participants thanked the organizers and hosts of the conference for bringing together the international community responsible for wildland fire science and management. The participants welcomed the offer of South Korea to host the 6th International Wildland Fire Conference in 2015.

Appendix 2

Regional Session V: Eurasia, Southeast Europe / Caucasus and Central Asia
"Enhancing International Cooperation in Wildland Fire Management"
11 May 2011, 15:50 – 18:10

Conclusions and Recommendations

Rationale

Within the last decade temperate-boreal Eurasia has experienced several wildfire episodes that have resulted in severe environmental damages, high economic losses and considerable humanitarian problems. This has prompted the United Nations Economic Commission for Europe (UNECE), under which the UNISDR Regional Wildland Fire Networks of Eurasia, Southeast Europe / Caucasus and Central Asia are working, to address recent socio-economic, political and land-use changes, as well as climate change, that are affecting fire regimes of temperate-boreal Eurasia. The UNECE region, which is extending from Western Europe to Asia's Far East and spanning over more than 180 degrees longitude, is bearing a large variety of ecosystems and land-use systems. While specific causes and underlying reasons of extreme wildfires may be quite different throughout the region – there are many fire-related issues in common. For instance, in the Western Eurasian part of the region many neighboring countries are sharing similar natural, cultural and social conditions that are determining the occurrence and impacts of wildfires.

Besides changes that are evidently understood by the public there are hazards and risks that have been perceived only recently due to a better scientific understanding of the multiple impacts of fires, notably in the context of climate change and human health, but also with regards to an increasing vulnerability of society to direct and secondary effects of fire, e.g. fires burning at the interface of residential and industrial areas, or in terrain contaminated by industrial deposits or armed conflicts. Land-use change and heritages of former land use constitute a major driver of changing fire regimes in cultural landscapes of Eurasia.

In summary, policy makers of UNECE member states are confronted with the following facts and trends affecting occurrence and impacts of wildland fires in the region:

- Consequences of rural abandonment and urbanization on agriculture, pastoralism, forestry and thus on wildfire hazard;
- Rural exodus affecting availability of the rural work force, including availability of rural fire-fighters;
- Re-privatization of formerly nationalized forests resulting in vacuums of forest management and forest fire management in smallholder forest estates;
- Weakened governance over forestry and decreased fire management capabilities in many Eastern European and Central Asian countries as a consequence of the transition of national economies, resulting in uncontrolled or illegal forest use and increase of related wildfires;
- Increasing problems of wildfires affecting the perimeters of metropolitan areas, settlements and developments dispersedly located in wildlands;
- Concerns about the impacts of radiatively active trace gases and particle emissions from vegetation fires affecting the functioning of the atmosphere and of ecosystem, e.g. the consequences of the transport of fire-emitted black carbon to the arctic environment;
- Vulnerability of society to fire-generated air pollution, including new scientific insights in the impact of fire emissions on human health;
- Resulting needs for the development of standards for reducing gas and particle emissions from fossil fuel, biofuel and other open burning that are affecting human health;
- Resulting controversial views on the acceptance of prescribed burning as a source of pyrogenic pollutants;
- Secondary problems associated with wildfires, notable on territories contaminated by radioactivity and remnants from armed conflicts (e.g., unexploded ordnance, land mines, ranium-depleted ammunition);
- Consequences of climate change on cultural fire regimes and ecosystem vulnerability, e.g. transformation of former fire-excluded or -protected ecosystems or land-use systems such as

eat bogs and other organic terrain, or high-altitude mountain ecosystems, such as in the European Alps.

There is an increasing perception by the public and by policy makers to review and adopt innovative integrated fire management solutions and to exploit of the results of successfully completed international fire research projects in Eurasia for developing adequate public policies affecting fire management and operational fire management.

These issues will be addressed in the planned / upcoming "UNECE/FAO Regional Forum on Crossboundary Fire Management", which will be organized by the UNECE/FAO Team of Specialists on Forest Fire through its Coordinator – the Global Fire Monitoring Centre (GFMC), Germany, and supported by the Council of Europe as a contribution to the "UN International Year of Forests".[1] The participants of the Regional Session are acknowledging and referring to ongoing and proposed initiatives that are addressing specific thematic issues. These initiatives should be supported by members of the Regional Wildland Fire Networks (Eurasia, SE Europe/Caucasus, Central Asia, Euro-Alpine), e.g.:

- Promotion of the application of prescribed fire in nature conservation, forestry and landscape management, with encouraging progress of countries cooperating under *the "Eurasian Fire in Nature Conservation Network"*, the *International Peatland Fire Network and similar initiatives*;
- Exploitation of the results of successfully completed international fire research projects for developing adequate public policies affecting fire management and operational fire management, e.g. the latest accomplished multi-national *"Fire Paradox"* project, or the ongoing development of the multinational Alpine Forest Fire Warning System (ALPF FIRS);
- Introduction and further development of competency-based fire management training standards for achieving qualifications for fire fighters, foresters and land managers, e.g. the *"EuroFire Competency Standards"* (an initiative of the International Association of Fire and Rescue Services (CTIF) and GFMC to enhance fire management capabilities of the fire services);
- Application and further development of existing and development of new bilateral agreements on reciprocal transboundary assistance in wildfire emergencies all over the ECE region;
- Endeavour to enhance governance of UNECE member states to provide and receive assistance in wildfire (and other environmental) emergency situations by setting up standards, protocols and agreements, in cooperation with procedures evolving under the lead of the UNEP/OCHA Joint Environment Unit and the UN Advisory Group on Environmental Emergencies, e.g., the proposed creation of an Environmental Emergencies Centre (EEC);
- Follow up of the recommendations of regional groups, projects and programmes, or earlier regional conferences to enhance international cooperation in fire management in the UNECE region and adjoining regions, e.g. recommendations from projects supported by the Council of Europe through the Euro-Mediterranean Major Hazards Agreement (EUR-OPA), and the Environment and Security Initiative (ENVSEC) addressing wildland fire, human security and peace in the EECCA region; and the outcomes of the International Conference on Cross-Boundary Fire Management (Irkutsk, Russia, 2010) and the APEC Conference on Forest Fire Management and International Cooperation in Fire Emergencies of the Asia Pacific (Khabarovsk, Russia, 2010).

Recommendations

Considering the active dialogue taking place in the UNECE Region the recommendations of the Regional Session do not intend to duplicate statements and thus concentrate on the following general and concrete recommendations:

<u>General</u>

[1] "Regional Forum on Cross-boundary Fire Management" (United Nations Economic Commission for Europe – UNECE region), planned for the week 16-20 January 2012 (at the United Nations, Palais des Nations, Geneva) by the Global Fire Monitoring Center (GFMC) and the UNECE/FAO Team of Specialists on Forest Fire, and supported by the Council of Europe.

Representatives of the regional networks and participants of the regional session underscore the need to:

- Enhance applied research on integrated fire management, notably on
    - Use of prescribed fire in forestry, conservation and landscape management
    - Development of adaptive fire policies and management in response to global change (climate change, socio-economic changes, and land-use change)
    - Integrate fire management in the frame of natural resources / land management, including use of plant biomass as a renewable and sustainable source for energy production
- Increase fire management efforts on terrain contaminated by radioactivity, unexploded ordnance, land mines and chemical deposits, notably in the regions affected by the nuclear fallout of the Chernobyl power plant failure in 1986.
- Increase efforts on securing peat bog / wetland ecosystems to become affected by fire
- Increase effort to reduce unnecessary burning on croplands, fallow and other lands to reduce the negative impact of greenhouse gas and black carbon emissions on the regional, arctic and global environment
- Development of capacities in rural fire management to address possible vacuums concerning the responsibility and capabilities for fire management in the agricultural / rural domain
- Promote the establishment of volunteer groups to assist state authorities in fire management and to take over responsibilities at community level
- Support nations and the established Regional SE Europe / Caucasus Fire Monitoring Centre and upcoming regional or sub-regional centres with Earth Observation data

<u>Specific</u>

Encouraged by ongoing processes and commitments by national bodies and international organizations:

- By welcoming the initiative of the government of Turkey to open its Fire Management Training Centre in Antalya for regional training its is recommended to the UNECE member states and international organizations to support this effort by financial means and active participation in integrated fire management training courses (including fire prevention, community involvement, ground and aerial firefighting) at regional level

- By acknowledging und building on the recommendations of the Irkutsk and Khabarovsk conferences on transboundary cooperation in fire management (2010) and the recommendations of the 5th International Wildland Fire it is recommended that UNECE member states and representatives actively participate in the preparation of the “UNECE/FAO Regional Forum on Cross-boundary Fire Management” (2012) aimed at developing a proposal for a regional agreement on cooperation in wildland fire management

Regional Session IV: European EFFIS Network, Mediterranean Network (Silva Mediterranea Forest Fire Working Group), Near East (NENFIRE), Sub-Regional Euro-Alpine Network
11 May 2011, 15:50 – 18:00

Conclusions and Recommendations

Introduction

Wildfires are a social, economic, and environmental issue more and more frequently tackled by technical and scientific world, taking into account the new climatic scenarios that point out the increase of burnt areas and the rise in the frequency, intensity and severity of wildfires. Wildfires destroy the protective functions of the forests and can lead to increased soil erosion, reduced water retention, rock-fall, and biodiversity loss.

In the last years several events regarding wildfires have taken place where it has been highlighted the raising concern, especially in the Mediterranean Basin. Several conclusions and recommendations have been pointed out as result of these events. The main ones have been the following:

- IV International Wildland Fire Conference, Sevilla, Spain, May 2007
- Workshop on Forest Fires in the Mediterranean Region: prevention and regional cooperation, Sabaudia, Italy, 2008
- Regional Workshop on Forest Fires in the Near-East, Latakia, Syria, 2009
- Workshop on the Assessment of Forest Fire Risks and Innovative Strategies for Fire Prevention, Rhodes, Greece, May 2010
- Council Conclusions on prevention of forest fires in the European Union
- II Mediterranean Forest Week, Avignon, France, April 2011
- ALPFFIRS INTERREG project general meeting, May 2011

The objectives of the Regional session are to discuss preventive measures for the regions, to discuss opportunities to improve the international cooperation and identify opportunities for further collaboration.

2. Determining factors

The main key factors related to wildfires its causes and consequences have been highlighted in the documents resulting from the previously mention events:

SOCIO-DEMOGRAPHIC FACTORS

- Abandonment of rural lands and rural activities, aging of rural population
- Intense urbanization of societies and population concentrated in coastal areas and some built-in urban areas inland
- Increased population from tourism
- Rapidly expanding of wildland urban interface

ECONOMIC FACTORS

- Low economic value and profitability of Forests. Social and economic expenditures of dealing with the sprouted fires and post-fire restoration are not in accordance with a sustainable development.

ECOLOGICAL AND ENVIRONMENTAL FACTORS

- Changing conditions in many European rural areas, changes in land uses and production models, increasing fire risk
- Climate change influence wildfires
- Different meteorological gradients cause regional fire weather situations periods of higher temperature and longer drought

- Fire-dependent character of Mediterranean ecosystems which demand for its management technical use of fire as prescribed burnings.

SCIENTIFIC FACTORS

- Scientific research sometimes disconnected from management.

POLITICAL FACTORS

- Political decisions not made based in long term integral programs.
- Not enough transparency on wildfire management by public administrations, no data on investments made to protect forest fires and forest policies
- Defence against wildfires policy not enough coordinated with urban and rural policy
- Not enough fire land management, wildfire education and awareness to society.

3. International cooperation

Due to the transboundary nature of wildfires, the planning for their prevention should be addressed from a regional perspective. The “Green Paper on Forest Protection and Forest Information in the European Union” notes, significant prevention efforts made by the European Union and its member states have been focused on training, investigation, awareness and structural prevention. However, these efforts need to be intensified to deal with the consequences of climate change, as the Avignon Prevention Position Paper has pointed out.

Due to the existence of several international networks working at international level they should combine and coordinate efforts to prevent and fight wildfires using synergies between networks.

Inter-sectoral cooperation and coordination between fire fighting agencies and environmental services is needed.

Mutual assistance on suppression operations demands protocols to dispatch resources and to set operational procedures based on technical criteria, standardization and harmonisation of terminology and training.

4. Conclusions and recommendations

FIRE PREVENTION

1. Of special priority is the prevention of wildfires caused by socio-economic changes in the land use, traditional practices of burning for agricultural and farming purposes and wildland-urban interface fires.
2. Local population must be involved in the design and establishment of forest fire prevention policies, as they are primary players in making effective prevention.
3. Wildfire prevention strategies should be integrated in national and regional sustainable environmental policies. Forest policies should pursue optimizing social welfare including
1. payment for ecosystems services.
4. Forest fire related policies should consider landscape approach taking into account different land uses. These must be coordinated with urban, rural and agricultural policies and take into account adverse effects due to climate change.
5. Prevention needs a continuous management that integrates among many other activities fuel treatment, silvicultural measures and prescribed burning planning.
6. Wildland -urban interface fires require specific preventive measures as specific legislation at local level.
7. Appropriate knowledge of fire risk and strategic planning of fuel treatment are key factors to decrease impacts of wildfires.
8. Adaptation strategies for forest management should be worked out to reduce the vulnerability of forest ecosystems against extreme wildfires.

INTERNATIONAL COOPERATION

9. Disseminate and share experiences, build up and replicate the best practices in wildfire management, namely by promoting international exchanges between fire professionals of all levels.
10. Promote exchange programs on good practices and develop risk assessment voluntary guidelines and risk cartography with an adequate spatial and temporal resolution, as well as prevention voluntary guidelines.
11. Mutual assistance on suppression operations demands protocols to dispatch resources and to set operational procedures based on technical criteria, standardization and harmonization of terminology and training. Enhancement of joint activities supporting cross border cooperation between countries.
12. Inter-sectoral cooperation and coordination between fire fighting agencies and environmental services is needed.
13. Regarding international cooperation, networks working at international level should combine and coordinate efforts to prevent and fight wildfires using synergies between networks. The joint activities should be supported by bilateral and multilateral cooperation agreements between countries resulting in collaborative third party funded projects.
14. Fire Management Voluntary Guidelines should be supported by agencies. In particular, Incident Command System and standardized training is recommended to be implemented by countries, considering different languages, in order to share resources safely and effectively.

INFORMATION SYSTEMS

15. Build on the information in EFFIS to establish guidelines for forest fire risk mapping at European level.
16. Continue the work on harmonization of data and information through the exchange of data in EFFIS.
17. Planned actions in the Silva Mediterranea and NENFIRE networks for the extension of EFFIS should be implemented.
18. Enhance Information on prevention and suppression investments to be incorporated in EFFIS; data are needed for the assessment of their efficiency.
19. Operational warning systems for wildfires should be further developed at regional level and linked to the EFFIS Forest Fire Warning System.
20. Promotion and funding of activities to study the effects of wildfires on ecosystem services paying particular attention on climate change

FIRE MANAGEMENT

21. Wildfire management need to be considered as a long term policy by the decision makers.
22. 22. The principle of total fire extinguishment should be questioned in specific cases, balancing economic efficiency, ecosystem value and other land management objectives.
23. To achieve the goals of wildfire prevention forests must be profitable. It is important to promote the payment for forest goods and environmental services. Education and awareness on this issue has to be integrated in educational programs.
24. Countries are encouraged to adopt the *FAO Voluntary Guidelines for Fire Management*.