UNITED NATIONS

WORKING GROUP 4
WILDLAND FIRES

Global Fire Monitoring Center (GFMC), Freiburg, Germany

WG-4 report presented to the
Inter-Agency Task Force on Disaster Reduction
Sixth Meeting
Geneva, 24-25 October 2002

Geneva-Freiburg, 12 October 2002

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1. Report of the Chair

A broad range of activities have been conducted between the 5th and the 6th Inter-Agency Task Force meeting that served to secure the inputs of international wildland fire community into the work of WG-4. Vice-versa the WG-4 supported a number of planning meetings, conferences and other international events that requested inputs. Those activities that are not specifically mention further below are listed in Annex I (WG-4 Calendar of Activities between May and October 2002).

Activities within the ISDR and between the Working Groups

In the frame of the work of the Inter-Agency Task Force the Working Group on Wildland Fire contributed to:

- Drought Discussion Group (the WG-4 statement on Drought and Disasters in included in the report of the WG-4 chair, included in Annex II)
- Secretary-General's Report on International Cooperation to Reduce the Impact of the El Niño
- Activity of WG-2 in the frame of the inventory of Early Warning Systems, the preparation of the WSSD and the preparation of the Early Warning Conference II (Germany 2003), jointly with the German Committee for Disaster Reduction within the ISDR (WG-4 chair is member of the Executive Board of the German Committee).
- Inputs to the preliminary version of "Living with Risk: A Global Review of Disaster Reduction Initiatives".

2. WG-4 Membership

The representative of the WG-4 Consultative Group for Central and South America, Mr. Oscar Cedeño, retired and is now replaced by Mr. Roberto Martinéz Domínguez, Subdirector de Incendio Forestales, Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), Coyoacán, Mexico, DF. Mr. Martinéz is warmly welcomed as a new member of WG-4.

The FAO has appointed Mr. Mike Jurvélius to take over the position of the Forestry Officer responsible for Forest Fire Management. He will represent the FAO in the Working Group.

The updated membership list is available on the WG-4 website:
http://www.unisdr.org/unisdr/WG4members.htm

3. WG-4 Publications

One member of the WG-4 Consultative Group will finalize the editing process of the WG-4 brochure in November 2002.

Another major WG-4 publication is the "Subsahara Fire Management Handbook". This handbook which is in the final stage of editing is targeted to assist decision makers in Africa South of the Sahara in wildland fire prevention, preparedness and suppression. The book aims to close a critical gap between the rich knowledge in wildland fire science and technology on the one side, and the lack of decision-support information for users on the other side. At the time of writing this WG-4 report the WG-4 chair is seeking to obtain major financial support

to make the handbook available in Africa for a low-cost retail price and to consider translation into French. The handbook will be published as an activity of the ISDR.

4. Status of the Global Wildland Fire Network

Main emphasis of the work of WG-4 was in establish and to support the establishment of Regional Wildland Fire Networks. Major activities have been conducted in Subsahara Africa, South East Asia (ASEAN region), Mesoamerica and Europe. Upcoming activities include Australasia, North America, South America, the Mediterranean, the Balkan and Central Asia.

The status of the formation of the global network is provided in Annex III.

The global network of Regional Wildland Fire Networks will serve, among other, to improve international cooperation in wildland fire disaster prevention and management, and the development of regional to international wildland fire policies. The networks will constitute an important contribution to the upcoming International Wildland Fire Summit (see para 4).

5. International Wildland Fire Summit

The 3rd International Wildland Fire Conference and Summit will be held in October 2003 in Sydney (Australia). Following the earlier recommendations of WG-4 (see reports of the second and third WG-4 meeting) the conference and exhibition will be supported by WG-4.

Most important is the International Wildland Fire Summit that will follow the conference. The summit will bring the world's leading fire management professionals and practitioners together with key representatives from the political spectrum, global non-government organizations and global fire project donor organizations to:

- Identify outcomes and develop strategies to support and enhance knowledge shared and networks developed at the Conference
- Determine the appropriate mechanisms to improve global communication and knowledge sharing on wildland fire management; and
- Report to the Wildland Fire Working Group of the United Nations Inter-Agency Task Force for Disaster Reduction on the success of the Conference and recommend action outcomes and effective global mechanisms for knowledge sharing and communication

(These goals of the Summit have been taken verbatim from the 2nd Announcement of the Conference and Summit that will be made available to IATF members at the 6th meeting in Geneva.)

Following the consultations of the International Liaison Committee (ILC) of the Conference and Summit, the WG-4 is supporting the preparatory process of the Conference and Summit, especially through the building of Regional Wildland Fire Networks.

It has been proposed by the ILC to discuss ISDR sponsorship of the Summit at the 6th IATF meeting. This may include an active role of the ISDR through its Secretariat or the Chair of the Inter-Agency Task Force for Disaster Reduction.

ANNEX I

WG-4 Calendar of Activities between March and August 2002

After the 5th meeting of the Inter-Agency Task Force the following activities / events took place that were carried out in the frame of or were associated with the work of the Working Group on Wildland Fire (WG-4):

20-25 May 2002
GFMC representing WG-4 at the international wildland fire exercise "Taming the Dragon - Dalmatia 2002" coordinated by NATO Euro-Atlantic Disaster Response Coordination Centre (EADRCC); Makarska, Croatia. Field survey of forest fire conditions in Croatia and Bosnia-Herzegovina. For details see:
http://www.fire-uni-freiburg.de/programmes/nato/nato.htm

6 June 2002
WG-4 Input Paper delivered to the Secretary-General's Report on International Cooperation to Reduce the Impact of the El Niño.

8-12 June 2002
World Conference on Land and Forest Fire Hazards, in conjunction with ASEAN Environment Ministers meeting (signing of ASEAN Transboundary Haze Agreement) and meeting of the ASOEN Haze Technical Task Force. Agreement with ASEAN countries to establish a Regional South East Asia Wildland Fire Network in conjunction with the Working Group on Wildland Fires; Release of a Statement directed to the World Summit for Sustainable Development (WSSD); Kuala Lumpur, Malaysia.

20-21 June 2002
International Symposium on Disaster Reduction and Global Environmental Change, Federal Foreign Office, in cooperation with the German Committee for Disaster Reduction (DKKV), the German National Committee on Global Change Research (NKGCF) and the Working Group on Early Warning (WG-2); Berlin, Germany.

1 July2002
WG-4 / GFMC contribution to the United Nations Regional Workshop on the Use of Space Technology for Disaster Management for Africa, organised jointly by the United Nations Office for Outer Space Affairs and the United Nations Economic Commission for Africa; Addis Ababa, Ethiopia.

1 July2002
Consultations with UNEP Executive Director, Mr. Klaus Toepfer, staff of the UNEP Early Warning and Assessment Division, and the Chair of WG-2, Mr. N. Fernandez, on UNEP-GFMC / WG-4 collaboration; Nairobi, Kenya.

2-3 July2002
GFMC kick-off meeting of the Regional Subsahara Wildland Fire Network in the frame of the Fire Conference, Wood for Africa Conference; WG-4 chair and assistant (Mr. A. Held) and ad-hoc member, Mr. C. de Ronde (Network Coordinator); Hilton College, Pietermaritzburg, South Africa. For details and Status of the Regional Wildland Fire Networks: see Annex III.

17-19 July 2002
Joint GOFC/GOLD and IGBP-IGAC/BIBEX Workshop on Improving Global Estimates of Atmospheric Emissions from Biomass Burning; University of Maryland, College Park, Maryland, U.S.A.; with a side meeting with WG-4 members C. Justice, B.J. Stocks and J.G. Goldammer. the workshop summary report not yet released.

31 July - 2 August 2002
Steering Committee and International Liaison Committee (ILC) meetings in preparation of the 3rd International Wildland Fire Conference and Summit (Sydney, Australia, 3-6 October 2003); WG-4 chair and members / ad-hoc members Eduard Davidenko, Roberto Martinéz Domínguez, Gary Morgan, Cornelis De Ronde, Rick Sneeuwjagt, Denny Truesdale participating; preliminary decision made that WG-4 will support preparation and follow-up of the Summit; Sydney, Australia.

11 August 2002
Informal proposal submitted to the European Commission's Humanitarian Aid Office (ECHO), through the German Foreign Office, for financing the preparatory process and sponsorship of the International Wildland Fire Summit.

12 August 2002
Eleventh Joint Meeting of the Working Groups on Sub-Regional Fire-Fighting Arrangements (SRFAs) for Sumatra and Borneo; ASEAN countries formally decide to set up the Regional South East Asian Wildland Fire Network in conjunction with the GFMC-coordinated global set of regional networks; WG-4 represented by its chair; Singapore Department of Environment, Singapore.

13 August 2002
Consultations with European Commission, General Directorate for Environment, Civil Protection and Environmental Accidents Unit, on collaborative efforts between WG-4 / GFMC and the Commission.

26-30 August 2002
Workshop to Develop a Regional Strategy for Forest Pests and Wildfire Management in Central America" (USDA Forest Service, German Agency for Technical Cooperation – GTZ); GFMC / WG-4 representation through Mr. Ludwig Schindler (GTZ). National School of Forest Sciences (ESNACIFOR), Siguatepeque, Honduras.

7-9 October 2002
WG-4 representation at the Third German Forum on Disaster Reduction and Hazard Day in conjunction with the UN International Day for Disaster Reduction, GeoForschungszentrum; Potsdam, Germany.

23-26 October 2002
WG-4 inputs to the International Geosphere-Biosphere Programme (IGBP) Task Force on Global Analysis, Integration and Modelling (GAIM) Workshop "Fire as an Earth System Process"; Isle-sur-la-Sorgue, France.

24-25 October 2002
Workshop in the frame of the initiation process for the establishment of the United Nations University (UNU) Research and Training Center "Environment and Human Security", sponsored by the German Federal Ministry for Education and Research; WG-4 representation

through GFMC staff (Mr. A. Held), to discuss WG-4 inputs / partnership with the UNU RTC programme; Bonn, Germany.

Schedule until end of 2002

29 October 2002
Third National Bulgarian Round Table on Fire Management, Bulgarian-Swiss Forestry Programme (BSFP) and Global Fire Monitoring Center (GFMC); Sofia, Bulgaria.

30-31 October 2002
International Conference on Disasters, Emergency and Fire Situations, National Fire and Emergency Safety Services; GFMC serves as Member of the Science Advisory Board; formation of the Regional Balkan Wildland Fire Network envisaged; Sofia, Bulgaria.

4 November 2002
Meeting with the FAO Fire Management Officer and representatives of the Steering Committee and International Liaison Committee (ILC) in preparation of the 3rd International Wildland Fire Conference (Sydney, Australia, September 2003); FAO, Rome, Italy.

6 November 2002
33rd Meeting of the International Tropical Timber Committee (ITTC), Committee for Reforestation and Forest Management (CRF), on cooperation between ITTO and GFMC and preparation of the 3rd International Wildland Fire Conference and Summit; ITTO, Yokohama, Japan.

8 November 2002
National Round Table on Fire Management, Guatemala, facilitated by the Project "Prevención y Control Local de Incendios Forestales" (PRECLIF), and supported by the German Agency for Technical Cooperation (GTZ), in cooperation of with the "Red Comunitaria de América Central para la Gestión de Riesgo", Guatemala.

15-17 November 2002
Meeting of the International Liaison Committee (ILC) in preparation of the 3rd International Wildland Fire Conference and International Wildland Fire Summit (Sydney, Australia, September 2003); Coimbra, Portugal.

4-6 December 2002
WG-4 representation at the Conference "The Future of Disaster Risk: Building Safer Cities", organized by the Disaster Management Facility (The World Bank); WG-4 contribution on "Transboundary Smoke-Haze Pollution from Wildland and Land Clearing Fires: Impacts on Human Security"; Washington, D.C., U.S.A.

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WORKING GROUP 4
WILDLAND FIRES

Global Fire Monitoring Center (GFMC), Freiburg, Germany

**Summary of the WG-4 report presented to the
Inter-Agency Task Force on Disaster Reduction
Fifth Meeting
Geneva, 25-26 April 2002**

Report of Working Group on Wildland Fire (WG-4)

Between the 4th and the 5th meeting of the Inter-Agency Task Force on Disaster Reduction (IATF) two meetings of WG-4 were held. This report summarizes the main objectives and results of the 2nd and 3rd WG-4 meetings and the Statement on Drought presented at the 5th IATF meeting.

1. Second WG-4 Meeting (2-3 December 2001; UN, Geneva)

Main emphasis of the 2nd meeting was to prepare.
- A state-of-knowledge review on the disaster dimension of global fire
- Outline of a concept of Regional Wildland Fire Networks

2. Third WG-4 Meeting (8-9 March 2002; Global Fire Monitoring Center, Freiburg, Germany)

At the 3rd meeting the following papers and statements drafted for the World Summit for Sustainable Development (WSSD):
- Position Paper of the ISDR-IATF Working Group on Wildland Fire for the World Summit for Sustainable Development (WSSD)
- Input of WG-4 to the ISDR Background Document for the World Summit for Sustainable Development (WSSD)
- Wildland Fire, Early Warning and Sustainable Development Input Paper to the joint meeting of the German Committee for Disaster Reduction (DKKV) / WG-2 Expert Meeting "Early Warning and Sustainable Development"

Other focus topics included:
- Drafting a mission statement for WG-4
- Global fire monitoring / statistics standards
- Preparation of the "Conference on Forest Fires in the Eastern Mediterranean, Balkans and adjoining Regions of the Near East and Central Asia" (Turkey, 2003) A planning meeting for the regional conference was held in conjunction with the 5th IATF meeting at the Palais des Nations, 26 April 2002.
- WG-4 inputs to the 3rd Global Wildland Fire Conference (Australia, 2003)

It was suggested that ISDR become a co-sponsor of the 3rd Global Wildland Fire Conference. Several members of WG-4 have been invited to participate in the International Liaison Committee. The next meeting will take place on 1-2 August 2002, Sydney (Australia).

The reports of both meetings, including appendices, are available on the Website of WG-4 at: http://www.unisdr.org/unisdr/WGroup4.htm.

3. Statement on Drought and Disasters

Following the request of the UN Under-Secretary-General for Humanitarian Affairs, each Working Group presented a statement on drought and disasters. The chairman of WG-4 highlighted the following issues concerning the interconnectedness of drought and wildland fire disasters:

I. Short-term climate variability / climate extremes and wildland fires

It is a common phenomenon that application of fire in land-use systems and land-use change as well as wildfires occur during the dry season. Droughts that exceed duration and intensity of average dry seasons lead to a prolongation of the fire season and increase of fire occurrence and fire severity. During droughts forest and other vegetation become threatened by excessive fire application and wildfires due to several reasons:

i.   Planned (legally sanctioned) and unplanned (often illegal) conversion of natural vegetation to other land use are facilitated by drought.
ii.   Drought-related famine is driving additional land-seeking populations into closed or protected vegetation complexes where fire is applied to create new land-use systems.
iii. Desiccation of vegetation leads to an increase of flammability, fire intensity and fire severity.
iv.   Increase of lightning-ignited wildfires in some regions
v.   Insufficient fire management capabilities available to cope with multiple and extreme fire situations.

As a consequence of climate variability including, El Niño / La Niña, large inter-annual variability of fire extent has been observed. Drought and increasing grazing pressure lead to reduction of fuel loads available to be burned, and to a large variability in burning patterns (no fires or smaller burns). This phenomenon is common in the semi-arid areas of Southern Africa.

On the other side a wet year with reduced fire activity is often followed by an extreme fire year due to the higher availability of combustible materials. This has been observed throughout the semi-arid, temperate and Mediterranean vegetation zones.

II. Long-term climate variability / climate change

Global and regional circulation models predict an increase of climate extremes including droughts in some regions. For instance, the potential effects of climate change on wildland fire hazard in the northern (boreal) forest belt indicate:

i.   Prolongation of fire seasons (change of fire-weather patterns) will lead to an increase in number of fire occurrences and change of fire behaviour due to decreasing moisture content of vegetation and an increase of fuel consumption and fire intensity.
ii.   As a result there will be more fires of extreme intensity and impacts (fire severity).
iii. The effects of ecosystem changes due to climate change, coupled with changing fire regimes, will lead to an overall change of vegetation cover, possibly resulting in a loss of forest cover.
iv.   Peat and swamp biomes will become increasingly desiccate and become vulnerable to fire. Wildfires penetrating into organic layers will result in destruction of ecosystems and biodiversity and lead to the release of radiatively active carbon to the atmosphere.
v.   The couples effects of regional warming and fire will lead to an alteration of permafrost regimes involving a risk of permafrost melting and additional release of radiatively active greenhouse gases.

If climate-change / fire scenarios would become reality it would be possible that a large amount of terrestrial carbon would released by fire to the atmosphere and contribute additionally to human-induced global warming.

III. Short- to long-term prevention and preparedness measures

Measure to cope with drought and fire at different time scales include the successful application of local to global early warning and monitoring systems of fire that assist in improving preventive and preparedness measures.

Short-term measures and systems include:

i.   Locally applicable, simple fire warning (fire danger rating) systems, to be used by communities;
ii.   National, regional and global fire-danger rating systems based on sophisticated meteorological networks, and forecasting and modelling capabilities; and
iii.   Satellite-derived information of vegetation stress, dryness and weather.

Long-term measures and systems include:

i.   Support of local communities in participating or building self-reliance in active protection of vegetation resources,
ii.   Establishment of mechanisms for international cooperation and mutual assistance in increasing preparedness and mitigation of impacts of drought and fire.
iii.   Improvement and operational implementation of advanced observation and modelling systems for early warning of drought and fire.

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Date: 9 October 2002

**ANNEX III to
WG-4 Report to the 6th IATF Meeting**

Status of Building Regional Wildland Fire Networks

Date: 9 October 2002

1. Rationale for Setting up Regional Wildland Fire Networks

In many vegetation types of the world, the application of fire in agriculture and pastoralism and the occurrence of natural wildfires (natural fire regimes) are established (sustainable) elements in traditional land-use systems, natural ecosystem processes and biogeochemical cycles. However, excessive application of fire associated with rapid demographic and land-use changes in some regions, leads to destruction of productivity, reduction of carrying capacity and biodiversity of the vegetation cover. In some ecosystems, e.g. in the tropical montane forests, lowland rain forests and in forest plantations, wildfires burning under extreme weather conditions have detrimental impacts on economies, human health and safety, with consequences which are comparable to the severity of other natural hazards. Climate variability, such as periodic extreme droughts and extremely wet periods caused by the El Niño-Southern Oscillation (ENSO) phenomenon and the associated La Niña episode, contribute to the severity of fire impacts. Fires are also leading to secondary natural disasters such as landslides and floods, downstream of fire-denuded landscapes.

Fire management strategies which include preparedness and early warning cannot be generalized due to the multidirectional and -dimensional effects of fire in the different vegetation types and the large variety of cultural, social, and economic factors influencing them.

However, unlike the majority of the geological and hydro-meteorological hazards, wildfires represent a natural but predominantly human-influenced hazard which can be predicted, controlled and, in many cases, prevented.

The current state of wildland fire science and atmospheric sciences research of the last two decades potentially provide sufficient knowledge for fire management

decision support and development of policies affecting the occurrence and consequences of human-caused fires. However, in many countries or localities in Africa, the requisite knowledge is either lacking or is not readily accessible for developing adequate measures in fire policies and management.

In response to the strategic goals of the UN Convention on Combat of Desertification (CCD), Convention on Biological Diversity (CBD), and the UN Framework Convention on Climate Change (UNFCC), the UN Forum on Forests (UNFF), the Millennium Declaration of the UN General Assembly, and the objectives of the work of the Global Fire Monitoring Center (GFMC) and the World Conservation Union (IUCN), the UN-ISDR Inter-Agency Task Force for Disaster Reduction in 2001 established a Working Group on Wildland Fire. This Working Group is coordinated by the GFMC.

One of the priority fields addressed by the Working Group on Wildland Fire is the establishment of, and operational procedures for, a global network of regional- to national-level focal points for early warning of wildland fire, fire monitoring and impact assessment, aimed at enhancing existing global fire monitoring capabilities and facilitating the functioning of a global fire management working programme or network.

2. History, proposed *Modus Operandi*, Status and Visions for building the Regional Wildland Fire Networks

2.1 History

In keeping with the work of the Working Group on "Fire and Related Environmental Hazards" established under the IDNDR programme on Early Warning, the presentations and recommendations of the IDNDR Programme Forum 1999, and in accordance with the Framework for the Implementation of the International Strategy for Disaster Reduction (ISDR), the World Conservation Union (IUCN) and its associated partner, the Global Fire Monitoring Centre (GFMC) as well as the UN-FAO/ECE/ILO Team of Specialists on Forest Fire, suggested, in 2000, to create an interagency "Working Group on Wildland Fire".

This proposal was in line with several declarations made in international conferences during the last five years and is intended to bring together both the technical members of the fire community and the authorities concerned with policy and national practices in wildland fire management to realise their common interests of fire risk management and disaster reduction at global scale. The Inter-Agency Task Force for Disaster Reduction (IATF) at its second meeting on 11 October 2000 agreed to establish the Working Group on Wildland Fire (Working Group 4 [WG-4]).

Through the Working Group it is envisaged to establish an interagency and inter-sectoral forum of UN and other international agencies and programmes, and mechanisms of information and task sharing in the field of reducing the negative impacts of fire on the environment and humanity.

Two priority fields of activity will be addressed by WG-4:

- Establishment of, and operational procedures for, a global network of regional-to national-level focal points for early warning of wildland fire, fire monitoring and impact assessment, aimed at enhancing existing global fire monitoring capabilities and facilitating the functioning of a global fire management working programme or network.

- Development of a proposal for internationally agreeable criteria and common procedures / guidelines for fire data collection and fire damage assessment with the overall aim to generate knowledge required by the various user communities at global, regional, national and local levels.

At the 2nd meeting of WG-4 (3-4 December 2001) it was decided to give priority to the establishment of the "Global Network of Regional Wildland Fire Networks".

The regional networks will build on existing formal or informal networks structures and initiatives. The "Global Network of Regional Wildland Fire Networks" will consist of a set of sub-networks within regions that are in place or will be initiated during the process of formation. A regional network will consist of several subnets, e.g. fire science, fire monitoring, early warning, management or policy

The timeframe for setting up the network will be January 2002 - July 2003. The 3rd Global Wildland Fire Conference and Summit (Sydney, October 2003) will be used as a platform to convene the regional networks. At the 2nd Meeting of the International Liaison Committee (ILC) of the Conference and Summit (Sydney, 31 July – 2 August 2002) it was decided the discuss the detailed procedures for the participation and invitation for the Summit will be discussed at the 3rd ILC Meeting (16-17 November 2002).

2.2 Proposed *Modus Operandi*

The Global Fire Monitoring Center (GFMC), Freiburg (Germany), will coordinate the establishment of the global network on behalf of ISDR-WG-4.

The GFMC will liaise with existing operational and proposed international networks, notably:

- ECE/FAO/ILO Team of Specialists on Forest Fire
- FAO Fire Management Network
- Global Observation of Forest Cover - Global Observations of Landcover Dynamics (GOFC-GOLD) Fire Implementation Team (a subset of the Global Terrestrial Observing System - GTOS)
- Committee of Earth Observation Satellites (CEOS), Disaster Management Support Group (DMSG), Fire Working Group
- Global Disaster Information Network (GDIN international) and its sub-nets (e.g., Mediterranean Disaster Information System – MEDIN)
- International Search and Rescue Advisory Group (INSARAG)

- Biomass Burning Experiment (BIBEX) of the International Geosphere-Biosphere Programme (IGBP), International Global Atmospheric Chemistry (IGAC)
- International Union of Forestry Research Associations (IUFRO) 8.05 Forest Fire Research

The Regional Wildland Fire Networks will consist of focussed Subnets. The following set of Subnets has been adapted from the Regional Subsahara Wildland Fire Network (see Annex I):

- Network Coordinator
- Country Focal Points
- Wildland Fire Early Warning Subnet
  - *Fire Danger Rating*
  - *Remote Sensing*
- Wildland Fire Monitoring Subnet
  - *National and regional remote sensing of wildland fire occurrence and impacts*
  - *Link to Global Fire Monitoring Center (GFMC)*
  - *Publication through GFMC and FAO/ECE International Forest Fire News (IFFN)*
- Wildland Fire Management Subnet
  - *Plantation Forestry*
  - *Nature Reserves and Parks*
  - *Grazing/Agriculture*
  - *Social Aspects/Rural Issues/Urban Interface Problems*
- Wildland Fire Science Subnet
  - *Ecology*
  - *Atmospheric Chemistry, Biochemistry and Climate*
  - *Prescribed Burning*
- Wildland Fire Capacity Building Subnet
- Wildland Fire Policy and Legislation Subnet
  - *Policies and Legislation*
  - *Wildfire Damage Insurance*

The Subnets will be coordinated / implemented by dedicated initiatives or networks. For instance, the regional implementation teams of the Global Observation of Forest Cover - Global Observations of Landcover Dynamics (GOFC-GOLD) will play a key role in the formation and operational functioning of the Wildland Fire Monitoring Subnets

2.3 Regional Coordination

Provisional regional network managers will be determined who will coordinate the various existing networks (sub-nets) within the regions and support the establishments of new Subnets. Some institutions and names mentioned are provisional. Additional partners will be added as the regional networks develop.

It is envisaged to promote regional network building in the period 2002-2003 and to convene an inter-regional network meeting at the occasion of the 3rd International Wildland Fire Conference (Sydney, Australia, October 2003).

The Regional Networks will be formed in two ways. First, independent regional initiatives that have been started before 2001-2002 and after are contacted and synergies are being developed. Second, a number of activities are being initiated in those regions where no such regional efforts are in place.

The website for the global coordination of the Regional Wildland Fire Networks is at:

http://www.fire.uni-freiburg.de/GlobalNetworks/globalNet.html

The status of the formation and progress of the Regional Wildland Fire Networks is provided following.

Regional Subsahara Africa Wildland Fire Network

The Regional Subsahara Wildland Fire Network ("Afrifirenet") was the first regional network that has been launched formally. On 3 July 2002 the network was kicked-off at its first official meeting held in the frame of the Wood for Africa Conference (Pietermaritzburg, South Africa). At this stage representatives from 12 African countries indicated their interest to cooperate with the network. The Subsahara Africa network coordinator is Mr. C. De Ronde, South Africa. A website for the regional network has been established on the GFMC information system at:
http://www.fire.uni-freiburg.de/GlobalNetworks/Africa/Afrifirenet.html

Regional South East Asia Wildland Fire Network

At the World Conference on Land and Forest Fire Hazards (Kuala Lumpur, Malaysia, June 2002) two significant events paved the road for improving cooperation in fire management within the ASEAN (Association of South East Asian Nations) region and at international level. Building on almost a decade of cooperation in reducing the impacts of smoke-haze from land-use fires on the region the signing of the legally binding ASEAN Agreement on Transboundary Haze Pollution (10 June 2002; subject to national ratification) constitutes the first regional / multinational agreement for cooperation in fire management. At the ASEAN Senior Officials for Environment (ASOEN) Haze Technical Task Force meeting (10 June 2002) and the subsequent ASEAN Ministerial Meeting on Haze (11 June 2002) it was recommended that the ASEAN nations work together with the GFMC to establish a South East Asian Wildland Fire Network. Most likely the Regional Network will be coordinated by the ASEAN Coordination Centre for Transboundary Haze Control, a facility that will be created after the ratification of the ASEAN Agreement on Transboundary Haze Pollution.

Furthermore, the conference released a "Statement to the World Summit on Sustainable Development" (Johannesburg, South Africa, September 2002) in which it was stated: "Information sharing and exchange for fire early detection and warning methodologies to address fire management and the associated hazards as well as international cooperative initiatives could be facilitated by the formation of a regional

network. Hence a Southeast Asia Network or ASEAN Network should be set up and linked to other regional networks to provide the flow of information and sharing of resources between the local, regional and global users."

At the Eleventh Joint Meeting of The Working Groups on Sub-Regional Fire-Fighting Arrangements (SRFAs) for Sumatra and Borneo (Singapore, 12-13 August 2002) it was decided to set up the "Regional South East Asian / ASEAN Wildland Fire Network" in conjunction with the global network coordinated by the Global Fire Monitoring Center. The ASEAN Secretariat will serve as a regional network coordinator. The regional website at the GFMC is:
http://www.fire.uni-freiburg.de/GlobalNetworks/SouthEastAsia/ASEAN-FireNet.html

Regional Baltic Wildland Fire Network

At the Baltic Exercise for Fire Information and Resources Exchange - BALTEX FIRE 2000 (Finland, June 2000) the UN ECE/ECE/ILO Team of Specialists on Forest Fires, through the Global Fire Monitoring Center (GFMC), initiated a communication and coordination process among the countries bordering the Baltic Basin. BALTEX FIRE 2000 was an initiative devoted to strengthen cooperation in forest fire management and transboundary cooperation in large fire disasters between all countries bordering the Baltic Sea. Participants were the nations bordering the Baltic Sea (Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia, Sweden) and neighbouring observer countries (Belarus, United Kingdom). The initiative is the starting point for the Regional Baltic Wildland Fire Network structures are have been established on the GFMC website at:
http://www.fire.uni-freiburg.de/GlobalNetworks/BalticRegion/BalticRegion.html

Regional Mesoamerica Wildland Fire Network

Several recent developments indicate the political willingness of nations in Central America and Mexico to share information and resources in fire management

An important regional initiative has been launched by the First Central Mesoamerican Meeting on Forest Fire Protection (Primera Reunión Mesoamericana de Cooperación en Materia de Protección contra Incendios Forestales) held in Guatemala City, 8-9 July 2002. This regional meeting was organized in the frame of the project ""Prevención y Combate de Incendios Forestales en Mesoamerica" of the "Programa Mesoamericano de Cooperación 2001-2002", launched at the occasion of the 4th Tuxtla regional dialogue. Delegates of Belice, Costa Rica, El Salvador, Guatemala, Honduras, México, Nicaragua and Panamá. The countries agreed formally to launch a programme of cooperation which includes sharing of information and resources in fire management as well as in capacity building. It has been envisaged to ratify the agreement within 60 days after the signing ceremony.

Following this initial process a "Workshop to Develop a Regional Strategy for Forest Pests and Wildfire Management in Central America", was held at the National School of Forest Sciences (ESNACIFOR), Siguatepeque, Honduras, 26-30 August 2002. Main focus of the conference was on bark beetle and fire problems. The strategy, released on 7 October 2002, is in line with and strengthens the Mesoamerica policy

initiated in Tuxtla Gutiérrez and Guatemala. A Regional Working Group will be established under the auspices of the Central American Commission for Environment and Development (Comisión Centroamericana de Ambiente y Desarrollo - CCAD). The strategy includes the recommendation to create international alliances with the Global Wildland Fire Network and the GFMC.

An important practical step in regional cooperation has already been initiated by the México National Comission for the Knowledge and Use of Biodiversity (Comisión Nacional para el Conocimiento y Uso de la Biodiversidad - CONABIO). Besides covering Mexico CONABIO is now offering its services for other countries in the region by providing daily updated fire occurrence maps derived from satellite imageries. Guatemala is currently the first country taking advantage of this offer.

An important activity in the region is the Guatemalan project "Prevención y Control Local de Incendios Forestales" (PRECLIF), supported by the German Agency for Technical Cooperation (Deutsche Gesellschaft für Technische Zusammenarbeit – GTZ), in cooperation with the Central American Communal Network for Risk Management (Red Comunitaria de América Central para la Gestión del Riesgo). A National Round Table on Fire Management will be held in Guatemala, 7 November 2002, supported by the GTZ and the GFMC.

All materials on the processes in the Mesoamerica Region are available on the website of the Regional Mesoamerica Wildland Fire Network at:
http://www.fire.uni-freiburg.de/GlobalNetworks/MesoAmerica/MesoAmerica.html

Regional South America Wildland Fire Network

The United Nations Environment Programme (UNEP) in 2001-2002 proposed the creation of a Latin American initiative in fire management. This proposal is not yet implemented. Since the Mesoamerican cooperative agreement has been launched in July-August 2002 (see above) it is likely that the UNEP initiative will focus on South America.

Several regional activities will be important for building a Regional South America Wildland Fire Network:

The Brazilian National Space Research Institute (Instituto Nacional de Pesquisas Espaciais - INPE) and the Center for Weather Prediction and Climate Studies (Centro de Previsão de Tempo e Estudos Climáticos – CPTEC) have recently expanded the domestic scope of work and product delivery. Since 2002 INPE is providing daily data on fire monitoring and fire-weather prediction specifically (detailed) for Brazil and Peru and in an overview format for all South American Countries. Discussions have been held with the Brazilian institutions to have a close look at Brazil's capabilities to play a key role in the upcoming South American or Latin American Regional Wildland Fire Network.

Regional Australasia Wildland Fire Network

In 1993 the Australian Fire Authorities Council (AFAC) was established to improve the collaboration and co-ordination of effort between those Australian agencies with a

responsibility for the protection of life and property from fire and other emergencies. The membership of agencies from the greater region saw AFAC's name change to the Australasian Fire Authorities Council in 1996. The current membership of AFAC stands at twenty-four full members and eleven associate members. All Australian fire and emergency agencies are full members of AFAC, as is the New Zealand Fire Service. Among the associate members are the Hong Kong Fire Service, Singapore Civil Defence Force and the Papua New Guinea Fire Service, while East Timor, Fiji, Samoa and Tonga are in the process of lodging applications under this membership category. AFAC aims to promote and coordinate activities in fire prevention, management and research through five Strategy Groups.

This regional arrangement offers the most suitable conditions for taking the lead in building the Regional Australasia Wildland Fire Network. This suggested arrangement has been submitted by the GFMC for initial discussion at the AFAC 2002 Conference (September 2002).

Regional Mediterranean Wildland Fire Network

Within the frame of the European Open Partial Agreement on the Prevention of, Protection Against and Organization of Relief in Major Natural and Technological Disasters (EUR-OPA Major Hazards Agreement) the 8th Ministerial Meeting (Athens, February 2000) supported the proposal of Greece to establish a European Centre at the General Secretariat for Civil Protection in Athens for coordination in the area of preventing and combating forest fires, to be a focal point of a network bringing together the main participants in the area, at both national and European level. On the occasion of a meeting held at the Greek General Secretariat for Civil Protection on 8 March 2002, the participants presented the proposal to create a European structure on Forest Fire Management that will have the coordination function of a network of national structures officially in charge of management of forest fires. The Euro-Mediterranean Fire Network will be created under the umbrella of the General Secretariat for Civil Protection. An Euro-Mediterranean board will be set up representing all national structures participating in the network as well as competent international and European organizations, and an executive secretariat in charge of the implementation of the program will be appointed by the General Secretariat for Civil Protection. Activities are initiated in 2002. Following a proposal of the Council of Europe the Global Fire Monitoring Center (GFMC) through its global network of "Regional Wildland Fire Networks" will cooperate with this initiative.

Besides the EUR-OPA initiative the Mediterranean Disaster Information Network (EU-MEDIN), conceptually representing the European contribution to the Global Disaster Information Network (GDIN-International), provides an alternative or complementary opportunity for regional networking. In June 2002 an Expression of Interest (EoI) for "Integration and Networking of Natural Disasters Studies in Europe" within the 6th EU Framework Programme has been submitted by a number of European institutions. The proposed project seeks to make major advances in the development of integrated approaches to disaster mitigation and management. The purpose of EU-MEDIN is to develop and maintain and sustain a European infrastructure and network for integrated disaster research and for the dissemination of disaster-related information to research and user communities, in order to improve disaster preparedness, early warning, communication, rapid exchange of data and

knowledge. Forest fires are a key issue in the proposed structure. The Global Fire Monitoring Center (GFMC) is participating in the EoI and will provide the information and communication tools for fire early warning, monitoring, data archiving and distribution, and technology and science transfer.

Following a discussion with FAO *Silva Mediterranea* it is likely that the formation of a Regional Mediterranean Wildland Fire Network will be discussed at a meeting hosted by the government of Spain in early 2003.

Regional Balkan Wildland Fire Network

Within the Priority Area 4 "Environment Protection, Resource Management and Risk Prevention" of the EU INTERREG IIIB programme, Central Adriatic Danubian South-Eastern European Space (CADSES), an expression of interest for a project proposal has been submitted by the Global Fire Monitoring Center (GFMC) in June 2002 to promote cooperative transboundary wildland fire risk management and prevention of disasters under the proposed "South East European Fire Management Network" (SEEFIRE). Envisaged participating countries include Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, the Former Yugoslav Republic of Macedonia, Romania, Serbia and Montenegro, and Slovenia.

The SEEFIRE Network will be developed to address the problem of wildland fires (forest fires and fires in other vegetation types) that are increasingly observed in the SE European transition countries. SEEFIRE will establish an interactive network of institutions of all countries listed below that are involved in the prevention and control of wildland fire. The network will support the transnational cooperation by facilitating the exchange of information and data in the field of early warning, monitoring and management of wildland fires, including transnational cooperation in fire management and improve the integration of fire protection plans in spatial planning. It will provide the basis for the implementation of spatial development plans. If financed under the EU INTERREG III / CADSES scheme SEEFIRE will constitute the Regional Balkan Wildland Fire Network. The Balkan network will include nations that are overlapping with the Regional Mediterranean Wildland Fire Network.

At the occasion of the International Scientific Conference "Fire And Emergency Safety During XXI Century - The Course Of Europe" (31 October - 1 November 2002, Sofia, Bulgaria) the GFMC will discuss the network formation with representatives of the Balkan Region.

Regional Central Asia Wildland Fire Network

The Eastern Mediterranean Region, including the Balkan countries and the countries of the Near East and Central Asia, and other neighbouring countries of Central Asia, e.g. Mongolia and China, have recently suffered major forest and other wildland fire problems. The causes of an increasing occurrence of wildfires in forests and other wildlands, including the underlying reasons for increasing human-caused fires, vary within the region and are due to (1) the transition from centrally planned to market economies, (2) national to regional conflicts, creation of new nations, involving political tensions and war; (3) increasing population growth and land-use pressure,

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and (4) regional climate change involving an increasing occurrence of extreme droughts. It has been recognized that no regional activity is underway to establish cooperation in wildland fire management, including wildland fire science. In April 2003 the "Conference on Management of Forest Fire Emergencies and International Cooperation in the Eastern Mediterranean, Balkans and adjoining Regions of the Near East and Central Asia" will be held in Turkey. The conference will serve as springboard for establishing cooperation between the regions mentioned. In particular, the conference will address the situation in Central Asia (Afghanistan, Iran, Kazakhstan, Mongolia, Uzbekistan, Turkmenistan, including the Central Asian parts of the People's Republic of China. The conference will be co-organized by the ECE/FAO/ILO Team Specialists on Forest Fire and the Global Fire Monitoring Center (GFMC).

The objectives of the conference are to provide (a) a forum in the Eastern Mediterranean, Balkan and adjoining Regions of the Near East and Central Asia, (b) prepare mechanisms for information and resources exchange in forest and other wildland fire management within the region, including the establishment of partnerships for joint activities in fire research, training and policy development, and (c) prepare proposals to governments and international organizations of the region to establish mechanisms for sharing resources in large fire emergencies in accordance with existing international procedures.

Regional North America Wildland Fire Network

Discussions about the formation and possible *modus operandi* of a Regional North America Wildland Fire Network is currently underway. The Fire Management Study Group of the North American Forestry Commission represents a candidate arrangement for the formation of the regional network or to liaise North America's interests to the global network of Regional Wildland Fire Networks.

A proposal will be submitted to the U.S. Bureau of Land Management (BLM), the U.S. Forest Service, SEMARNAT (México) and the Canadian Forest Service to discuss this issue at the upcoming meeting of the Fire Management Study Group (Canada, 15 October 2002).

Annex I: The Regional Subsahara Wildland Fire Network: First approach in structuring a regional network

1. Rationale for the Regional Subsahara Wildland Fire Network

In many vegetation types of Africa South of the Sahara, the application of fire in agriculture and pastoralism and the occurrence of natural wildfires (natural fire regimes) are established (sustainable) elements in traditional land-use systems, natural ecosystem processes and biogeochemical cycles. However, excessive application of fire associated with rapid demographic and land-use changes in some regions, leads to destruction of productivity, reduction of carrying capacity and biodiversity of the vegetation cover. In some ecosystems of Africa, e.g. in the afro-montane forests, the rain forests and in forest plantations, wildfires burning under extreme weather conditions have detrimental impacts on economies, human health and safety, with consequences which are comparable to the severity of other natural hazards. Climate variability, such as periodic extreme droughts and extremely wet periods caused by the El Niño-Southern Oscillation (ENSO) phenomenon and the associated La Niña episode, contribute to the severity of fire impacts. Fires are also leading to secondary natural disasters such as landslides and floods, downstream of fire-denuded landscapes.

Fire management strategies which include preparedness and early warning cannot be generalized due to the multidirectional and -dimensional effects of fire in the different vegetation types and the large variety of cultural, social, and economic factors influencing them.

However, unlike the majority of the geological and hydro-meteorological hazards, wildfires represent a natural but predominantly human-influenced hazard which can be predicted, controlled and, in many cases, prevented.

The current state of wildland fire science and atmospheric sciences research of the last two decades potentially provide sufficient knowledge for fire management decision support and development of policies affecting the occurrence and consequences of human-caused fires. However, in many countries or localities in Africa, the requisite knowledge is either lacking or is not readily accessible for developing adequate measures in fire policies and management.

In response to the strategic goals of the UN Convention on Combat of Desertification (CCD), Convention on Biological Diversity (CBD), and the UN Framework Convention on Climate Change (UNFCC), the UN Forum on Forests (UNFF), the Millennium Declaration of the UN General Assembly, and the objectives of the work of the Global Fire Monitoring Center (GFMC) and the World Conservation Union (IUCN), the UN-ISDR Inter-Agency Task Force for Disaster Reduction in 2001 established a Working Group on Wildland Fire. This Working Group is coordinated by the GFMC.

One of the priority fields addressed by the Working Group on Wildland Fire is the establishment of, and operational procedures for, a global network of regional- to national-level focal points for early warning of wildland fire, fire monitoring and impact assessment, aimed at enhancing existing global fire monitoring capabilities and facilitating the functioning of a global fire management working programme or network.

These goals will also comply with the main strategies of the New Plan for African Development (NEPAD) and the Southern African Development Corporation (SADC), both of which fall under the umbrella of the African Union (AU).

The Regional Subsahara Wildland Fire Network is one of the regional activities initiated to build the global network of regional networks.

2. Mission Statement for the Regional Subsahara Wildland Fire Network

In accordance with the mandate and scope of the Inter-Agency Task Force for Disaster Reduction of the UN International Strategy for Disaster Reduction (ISDR), Working Group on Wildland Fire, and in collaboration with managers, policy makers, technical experts, and scientists throughout the region and worldwide, the Regional Subsahara Wildland Fire Network will facilitate the enhancement of local, national and regional fire management capabilities by creating synergies of participating scientists, managers and policy makers. Particular emphasis will be given to reduce the devastating effects of wildland fires on property, resources, health, and the environment. In this work, the Regional Network will initiate processes and systems of information management and dissemination and facilitate technology transfer with the aim to help prevent and mitigate these effects. The working group will contribute to strengthen institutional fire management capabilities and to bring the world's knowledge and technical expertise to communities suffering the devastating unnatural and unwanted impacts of wildland fires.

3. Terms of Reference of the Regional Subsahara Wildland Fire Network

To establish and maintain a regional- and national-level wildland fire network for the African continent south of the Sahara, functioning within the Global Fire Management Working Programme / Network coordinated by the Global Fire Monitoring Center (GFMC) in line with the work of the UN International Strategy for Disaster Reduction (ISDR) Inter-Agency Task Force for Disaster Reduction, Working Group on Wildland Fire.

Objectives

- Establishment and maintenance of the network information system on the internet
- Regular communication with the network members and circulation of International Forest Fire News
- Creation of an early wildland fire warning system at regional level; support of establishment of early warning systems at national to local levels
- Implementation of a global fuel status monitoring and impact assessment programme which will enhance existing global fire monitoring capabilities for the continent
- Support of establishment or improvement of Integrated Fire Management Systems with emphasis on community participation
- Facilitate transnational synergies in wildland fire research and technology development with regard to fire science, and to streamline technology transfer

- Increase/improve access – and the use of – remote sensing and related technology for use in fire monitoring, fuel and fire management planning and wildfire impact assessment
- Assist in wildland disaster management and mitigation
- Facilitate capacity building at all levels of fire management
- Promote communication between wildland fire disciplines of Africa and from other continents, under the umbrella of the GFMC

4. Structure of the Regional Subsahara Wildland Fire Network

- Network Coordinator
- Country Focal Points
- Wildland Fire Early Warning Subnet
  - *Fire Danger Rating*
  - *Remote Sensing*
- Wildland Fire Monitoring Subnet
  - *National and regional remote sensing of wildland fire occurrence and impacts*
  - *Link to Global Fire Monitoring Center (GFMC)*
  - *Publication through GFMC and FAO/ECE International Forest Fire News (IFFN)*
- Wildland Fire Management Subnet
  - *Plantation Forestry*
  - *Nature Reserves and Parks*
  - *Grazing/Agriculture*
  - *Social Aspects/Rural Issues/Urban Interface Problems*
- Wildland Fire Science Subnet
  - *Ecology*
  - *Atmospheric Chemistry, Biochemistry and Climate*
  - *Prescribed Burning*
- Wildland Fire Capacity Building Subnet
- Wildland Fire Policy and Legislation Subnet
  - *Veld and Forest Fire Acts*
  - *Wildfire Damage Insurance*