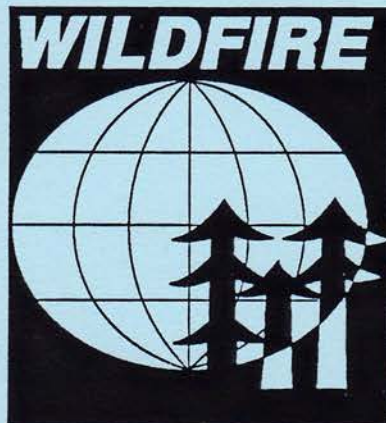


International Wildland Fire Conference:

EXPLORING GLOBAL COOPERATION



Sponsored by

- National Fire Protection Association
- United States Forest Service
- Forestry Canada
- United States Bureau of Land Management
- Agency for International Development, Office of U.S. Foreign Disaster Assistance
- Secretaria de Agricultura y Recursos Hidráulicos
- National Association of State Foresters

**Boston,
Massachusetts
July 23 - 26, 1989**

INTERNATIONAL WILDLAND FIRE CONFERENCE

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International Wildland Fire Conference



Keynote Speakers

Abstracts

Jean Claude Mercier

Deputy Minister
Forestry Canada

"We have a unique opportunity, indeed an obligation and responsibility, to forge new bonds of cooperation that will jointly enable us to more effectively combat the destructive forces of wildfire around the world."

It has been said that a history of nations is often a history of their forests. By extension, it may also be said that a history of our planet may well be a history of how we care for our forests and other wildland resources. During the past decade, wildfires have caused major loss of life, property and natural resources in Africa, North and South America, China, the Mediterranean, Australia and parts of Europe. Expanding populations, an accelerating demand for natural resources, and growing global environmental problems such as climate change and deforestation, add a critical and urgent emphasis to the wildfire problem.

It is increasingly obvious that the negative impacts of wildfire are not only directly linked to the economic and social well-being of a particular nation, but to the global village of nations as well. Over the next few days, we have a unique opportunity, indeed an obligation and responsibility, to forge new bonds of cooperation that will jointly enable us to more effectively combat the destructive forces of wildfire around the world. Only by sharing our knowledge, our problems and solutions can we more effectively manage an increasingly serious wildfire problem that threatens humankind.

Jean Paul Lanly

Director, Forest Resources Division, Forestry Department
Food and Agriculture Organization of the United Nations

"Any evaluation of losses caused by forest fires will require an estimate of existing forest resources."

Any evaluation of forest fire losses first requires an estimate of existing forest resources. FAO provided a global assessment for base year 1980 and is in the process of updating and enlarging this work to cover all forests in the world by 1990.

An overview will be given of forest lands and areas at the global level. Detail



are added on the woody vegetation types prone to fires. Forest types adapted to and maintained by fire are identified and briefly described. Some of the key issues are: 1) are forest fires an agent of deforestation, through shifting cultivation practices? An attempt will be made to give estimates on the size of the deforestation problem. Other issues to be dealt with are: 1) ecosystems threatened by fires; 2) loss incurred by fire in relation to wood requirements; and 3) FAO's role in dealing with the problems described.

Chuck Lankester

Principal Technical Advisor

United Nations Development Programme

"The urgency of attaining sustainable development... has resulted in renewed attention to the need to conserve forest resources."

Several of the most serious global environmental challenges facing development planners today have a direct linkage to the forestry sector. These include atmospheric pollution, both from the standpoint of global warming as well as depletion of the ozone layer; loss of biological diversity; sustainable water supply; and loss of croplands due to desertification. Other forestry priorities such as meeting the fuelwood needs of two and one-half billion people for cooking and heating by the year 2000, and the need to protect up to 200 million forest dwellers reflect the profound socio-economic impact of the diminution of forest resources, notably tropical forest resources.

There is now far wider recognition by both the North and the South that the development and environment crises are closely interrelated and neither can be resolved without dealing with the other. The World Commission on Environment and Development stated this conclusion as follows:

"It is impossible to separate economic development issues from environmental issues; many forms of development erode the environmental resources upon which they must be based, and environmental degradation can undermine economic development."

The urgency of attaining *sustainable development*, a strategy that enables present needs to be met without compromising the ability of future generations to meet their own needs, has resulted in renewed attention to the need to conserve forest resources. Given the dramatic losses of both temperate and tropical forests in recent years due to fire, it is imperative that fire detection, prevention and suppression policies and practices be re-examined so that losses be minimized.

Philippe L. Boullé

Director, New York Office

United Nations Disaster Relief Organization

"The increasing loss of life and property from natural disasters can be stemmed and reversed by a concerted worldwide effort..."

The increasing loss of life and property from natural disasters can be stemmed and reversed by a concerted worldwide effort during the United Nations' International Decade for Natural Disaster Reduction (IDNDR). Coordinated efforts by govern-

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ments, scientists, and engineers to employ existing and rapidly evolving technologies for disaster assessment, prediction, prevention, preparedness, early warning and mitigation can achieve definitive results without the need for major capital investments. Existing institutions can transfer disaster reduction techniques to vulnerable developing nations, train personnel, address gaps in knowledge and educate the public that natural hazards do not lead inevitably to human disaster.

An ad hoc International Group of Experts is currently preparing a report to be given to the Secretary-General of the United Nations. The Group will:

- recommend specific goals and targets for the Decade;
- identify priority areas for the most effective application of existing scientific and technical knowledge to the assessment, prediction, prevention, preparedness, early warning and mitigation of disasters;
- identify gaps in that existing knowledge;
- provide advice on the development of a framework to attain the objectives and goals of the Decade; and
- review proposals for international and regional activities, and provide recommendations concerning the implementation of those which are relevant to the objectives and goals of the Decade.

This final report is to be translated into an international program of action which will be submitted for action to the 44th General Assembly.

While the approved programme of action is still awaited, the nature of the ideas presented in the Group's report will give an indication of the action—in particular, international cooperation and regional action—to be taken by governments in the interest of mitigating the effects of natural disasters.

F. Dale Robertson

Chief, United States Forest Service

"We cannot afford to wait until the midst of crisis to make cooperation work."

The challenge of dealing with wildfire or other large-scale natural disaster sometimes outstrips the capacity of a single nation. Nations need a way to capitalize on the strengths of each other to help out in crisis situations. We cannot afford to wait until the midst of crisis to make cooperation work. We must plan ahead by identifying and resolving barriers to effective cooperation with other nations. Besides the physical and logistical obstacles which can be expected when emergency resources are to be committed across international boundaries, barriers to mutual cooperation often include significant policy and political barriers as well. These must be anticipated and resolved ahead of time, for there will be no time to work on processes and procedures when wildfires are rapidly spreading and becoming more difficult and expensive to control. There is a time to plan and work out details, and a time for action. We must be smart enough to know the difference, and bold enough to do something about it in advance.

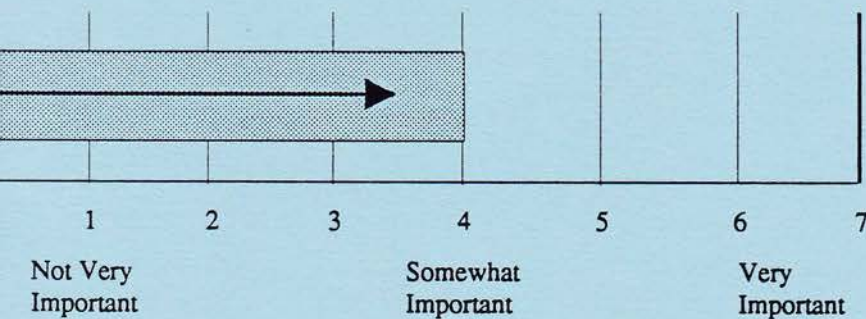
International Survey of Fire Managers

International Wildland Fire Conference

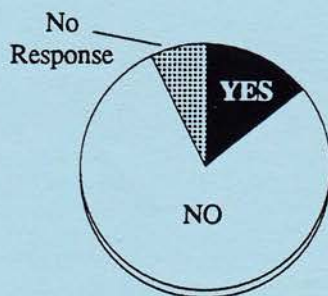


The following display of information is based on opinions received from 117 respondents to the pre-Wildland Fire Conference "International Survey of Fire Managers." The information presented here is simply an accumulation of those thoughts and ideas and is not a statistical analysis of the information provided.

On the following pages, the results of the survey are presented graphically wherever possible. Question types included lists, yes-no answers, and ratings. Rating questions were presented as a scale with 0 being the lowest rating and 7 being the highest rating. In the example below, a person would have rated the answer with a value of 4, in the range of Somewhat Important. Answers for each region were averaged and then plotted as below.



Yes-No responses for each region were charted as in the example at right. The white area of the circle represents the proportion of "No" answers. "Yes" is the black proportion, and gray presents the proportion with "No Response" (NR).



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International Survey of Fire Managers Survey Results

1.
What are the most important problems or issues associated with fire in the forests, brushlands or grasslands of your country or geographic region?

*Table 1. Distribution of Wildland Fire Issues by Region**

	Africa	Asia	Europe	Latin America	North America	Oceania	Global Summary
1. Wildland/Urban Interface	2%	4%	6%	2%	20%	3%	8%
2. Public Awareness	10	10	10	14	9	13	11
3. Local or Regional Climatic Conditions	2	0	10	3	2	9	4
4. Fire Policy and Planning	8	4	6	8	6	9	7
5. Inadequate Resources	6	10	5	9	6	8	7
6. Organization and Coordination	6	0	5	5	4	8	5
7. Training and Technology Transfer	2	4	6	6	4	6	5
8. Safety and Health	0	4	0	1	4	2	2
9. Funding	4	0	4	8	9	10	7
10. Fire Research	2	7	4	5	5	5	5
11. Communications (equipment)	2	7	1	0	3	0	2
12. Language and Culture	0	0	0	1	0	0	1
13. Natural Ignition (Lightning)	4	4	0	1	0	2	1
14. Agriculture/Forestry Related Fire	10	17	10	12	0	5	8
15. Arson or Negligent Fire	10	7	12	8	2	3	7
16. Increased Hazard and Risk	4	0	4	1	9	3	4
17. Economic Consequences	10	7	4	3	2	5	1
18. Environmental Consequences and Ecosystem Effects	12	7	4	5	8	5	7
19. Potential Global Consequences	4	0	0	0	1	0	1
20. Overall Environmental Policy and Planning	0	0	3	1	0	2	1
21. Terrain and Logistics	0	4	1	2	2	5	2
22. Vegetation and Fuel Types	0	0	5	1	2	0	2
23. Slash and Burn Forest Conversion	0	4	0	4	0	2	1
24. Other	0	0	0	0	2	0	1
Total Number of Responses	49	28	79	110	118	67	451

Total number of Respondents: 117

* See Definition of Issues on next page.

Definition of Issues

Wildland/Urban Interface—urban development and movement of populations into hitherto undeveloped wildland areas has created many problems for fire managers including increased fire hazards and risks, increased need for fire prevention programs, complicated and conflicting fire suppression tactics and strategies, increased demands on limited fire suppression resources, and increased losses of human lives, homes, and natural resources due to catastrophic fires.

Public Awareness—there is a general lack of awareness, approaching indifference, on the part of the general public and governmental officials, relating to fire risk, prevention, and suppression, as well as the natural role of fire in ecological systems.

Local or Regional Climatic Conditions—conditions which are conducive to the spread of wildfire, including high air temperatures, low humidity, winds, drought conditions, etc.

Fire Policy and Planning—lack of overall fire management policy relating to risk assessment, the use of prescribed fire, fire prevention, contingency planning, and legislation, regulation and enforcement, etc.

Inadequate Resources—inadequate, outmoded, or unavailable firefighting equipment, technology, trained personnel, and/or fire command structure.

Organization and Coordination—refers to a lack of a central national fire organization, with responsibility for organizing and coordinating, and/or the lack of coordination or cooperation between local, regional and national fire organizations.

Training and Technology Transfer—Training and knowledge of technological applications is often lacking. Training of personnel and fire managers often receives low priority compared to other duties.

Safety and Health—Safety considerations and long-term health risks for firefighting personnel. Also includes public health and safety issues related to wildfires, prescribed burning, atmospheric pollution.

Funding—inadequate domestic budgets to finance recognized training, prevention, suppression, and public education needs within country; lack of foreign currency to pay for assistance from the international community; lack of funding to finance assistance to other countries.

Fire Research—need for more regional and local fire research to provide relevant information on risk assessment, fire detection, fire behavior, suppression methods, ecological role, and environmental effects (both positive and negative).

Communications (equipment)—inadequate, outdated communications equipment; compatibility problems between equipment of different organizations, countries.

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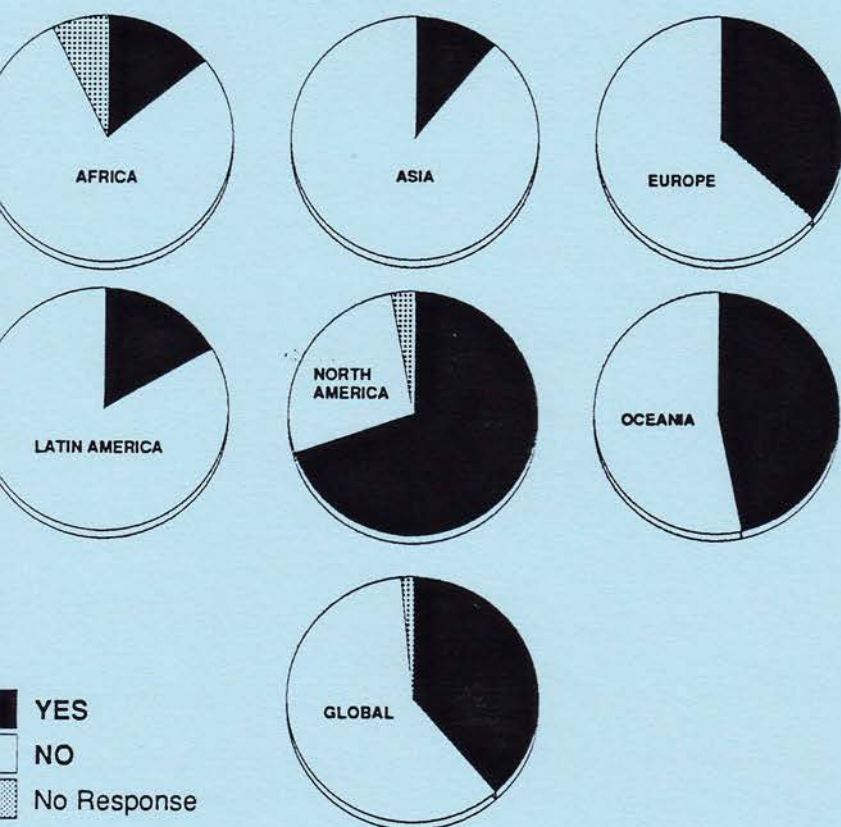


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- **Language and Culture**—experienced fire personnel and fire managers may lack multilingual skills and knowledge of the culture and customs of countries other than their own.
- **Natural Ignition (Lightning)**—a major cause of wildland fires.
- **Agriculture/Forestry Related Fire**—associated with agricultural and forestry practices, including indiscriminate forest and brushland clearing (slash and burn), burning to “enhance” forage production, etc.
- **Arson or Negligent Fire**—intentional setting of fires for various reasons including driving game animals into the open for hunting, to gain temporary employment in the subsequent fire control efforts, harassment, etc.
- **Increased Hazard and Risk**—due to lack of an active hazard reduction program (i.e. prescribed burning, grazing, etc.) to reduce fuel loading, fuel ladders, etc. in wildlands.
- **Economic Consequences**—including expenditures of limited financial resources to suppress wildfires; loss of economic products such as timber and forage; adverse effects on recreation or tourism based economies; conversion of areas to less valuable vegetative types.
- **Environmental Consequences and Ecosystem Effects**—including soil erosion, water quality degradation, increased risk of flooding, effects on soil fertility and productivity, and destruction or modification of wildlife habitat; localized and regional atmospheric pollution from smoke; and favorable environmental effects.
- **Potential Global Consequences**—concern for global warming, climate modification, etc.
- **Overall Environmental Policy and Planning**—lack of overall environmental policy to guide development of fire planning. Such a policy would provide context for further action and would recognize the benefits of fire as well as the negative effects.
- **Terrain and Logistics**—mountainous, isolated and inaccessible terrain inhibits the early detection and rapid response needed to effectively and efficiently combat wildfires.
- **Vegetation and Fuel Types**—particularly conducive to catastrophic wildfires: very flammable, rapid spread rate, continuity, etc.
- **Slash and Burn Forest Conversion**—specifically refers to the practice, prevalent in tropical forests, of intentional cutting and burning of the forest vegetation to clear land for agriculture. Severe erosion and nutrient depletion usually result.
- **Other**—permafrost; deep burning peat fires; high intensity, low frequency fires, etc.

Figure 1. Factors Inhibiting International Cooperation



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2-A.

In your country, are there factors that prevent or inhibit international cooperation?

2-B.

What are the most common factors inhibiting international cooperation?

Table 2. Distribution of Limiting Factors, by Region*

	Africa	Asia	Europe	Latin America	North America	Oceania	Global Summary
Communications	0%	50%	6%	17%	21%	10%	16%
Bureaucratic and/or Political	0	0	0	17	34	0	19
Organization and Coordination	0	0	17	8	5	20	9
Strained or Hostile Relations	33	0	6	8	2	0	4
Logistical Difficulties	0	0	0	8	2	30	6
Provincial Perspective	0	0	6	8	2	20	6
Misdirected Resource	0	0	6	0	2	10	3
Training and Technology	33	0	44	17	7	0	16
Funding	33	50	6	8	18	10	15
Equipment and Organizational Compatibility	0	0	0	0	5	0	2
Apathy	0	0	0	0	2	0	1
Insufficient Trained Personnel	0	0	5	9	0	0	2
Timing of Risk	0	0	5	0	0	0	1
Total Number of Responses	3	2	18	12	44	10	89

Total Number of Respondents: 45

* See Definition of Inhibiting Factors on next page.

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Definition of Inhibiting Factors

- **Communications**—lack of multilingual capability of firefighting personnel and experienced fire managers; lack of knowledge or experience relating to foreign travel, culture, and customs; and lack of knowledge of international agency capabilities.
- **Bureaucratic and/or Political**—procedural problems related to travel documentation requirements, foreign travel limitations, payment/reimbursement, customs restrictions and import duties on equipment, and subsequent lengthy delays.
- **Organization and Coordination**—Lack of national organization in either the “host” and/or “assisting” countries with responsibility and authority to coordinate the requests for and assignment of firefighting resources.
- **Strained or Hostile Relations**—Regional conflicts, border disputes, political differences, and/or other hostile relations between countries.
- **Logistical Difficulties**—Geographic isolation, remote locations within country, lack of roads or other transportation systems, etc., affecting the availability of transportation and management of resources.
- **Provincial Perspective**—a local or nationalistic perspective rather than regional or global. There is resistance on the part of individuals, organizations, or governments to accept “outside” assistance or try new techniques or methods. Conversely, there is a similar resistance to extend assistance to others outside of the local area.
- **Misdirected Resources**—misplaced government priorities in directing international assistance, resulting in ineffectual use of resources, i.e., less pressing problems receiving attention at the expense of more significant issues or areas of need; lack of criteria for intervention and/or assistance.
- **Training and Technology**—varying degrees of wildland fire training and technological capability between nations and a poor understanding of the differences and similarities.
- **Funding**—includes the source (local, national, or international); inadequate levels; lack of foreign currency to pay for outside assistance.
- **Equipment and Organizational Compatibility**—communications, fire apparatus, specialized equipment, etc.
- **Apathy**—apparent lack of concern or commitment on the part of government officials to bring about improved international cooperation in fire management.
- **Insufficient Trained Personnel**—shortage of trained, experienced personnel to send abroad to assist other countries; in some instances this is a seasonal shortage, where fire activity in home country limits availability of personnel to assist in other regions.
- **Timing of Risk**—periods of greatest fire risk are the same in neighboring countries, limiting availability of resources to assist those countries.

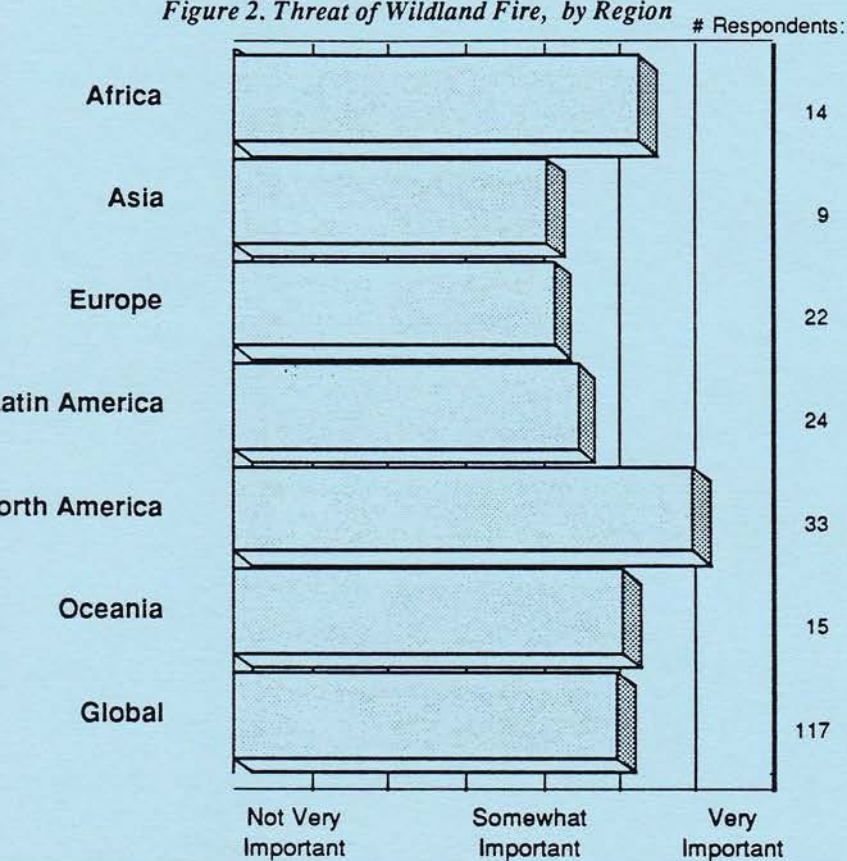
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Figure 2. Threat of Wildland Fire, by Region

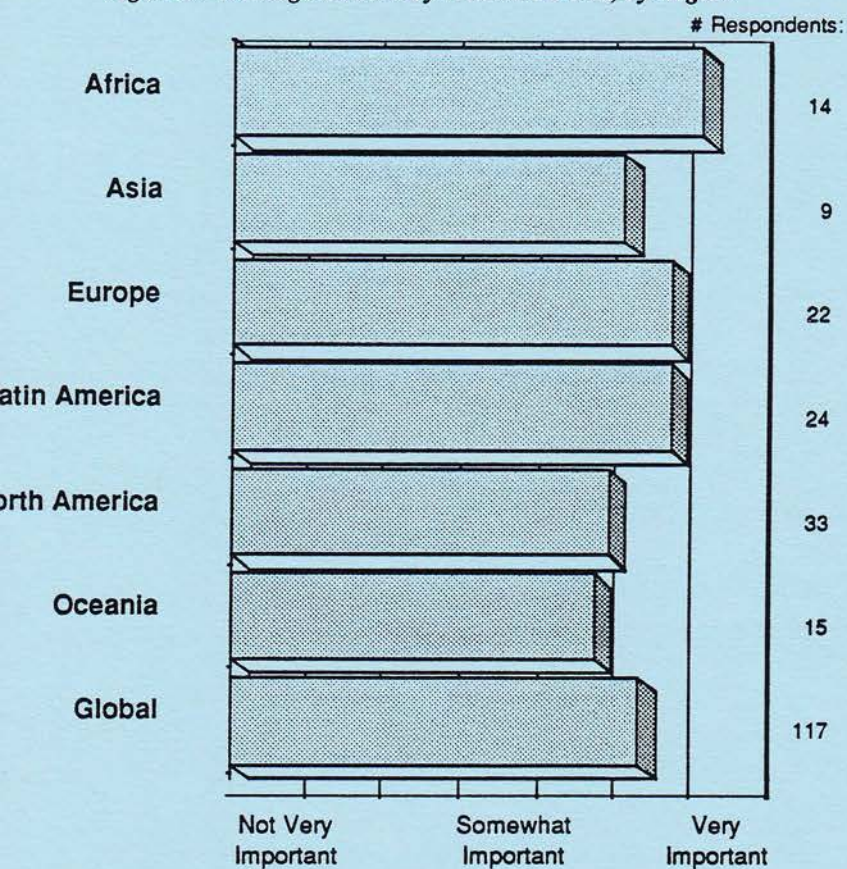


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3.
How would you rate the *threat* of forest, brushland and grassland fires to the homes, villages and towns of your country?

Figure 3. Damage Caused by Wildland Fires, by Region



4.
How would you rate the *damage* caused by wildfire to the forest, brushland and grassland *resources* of your country?

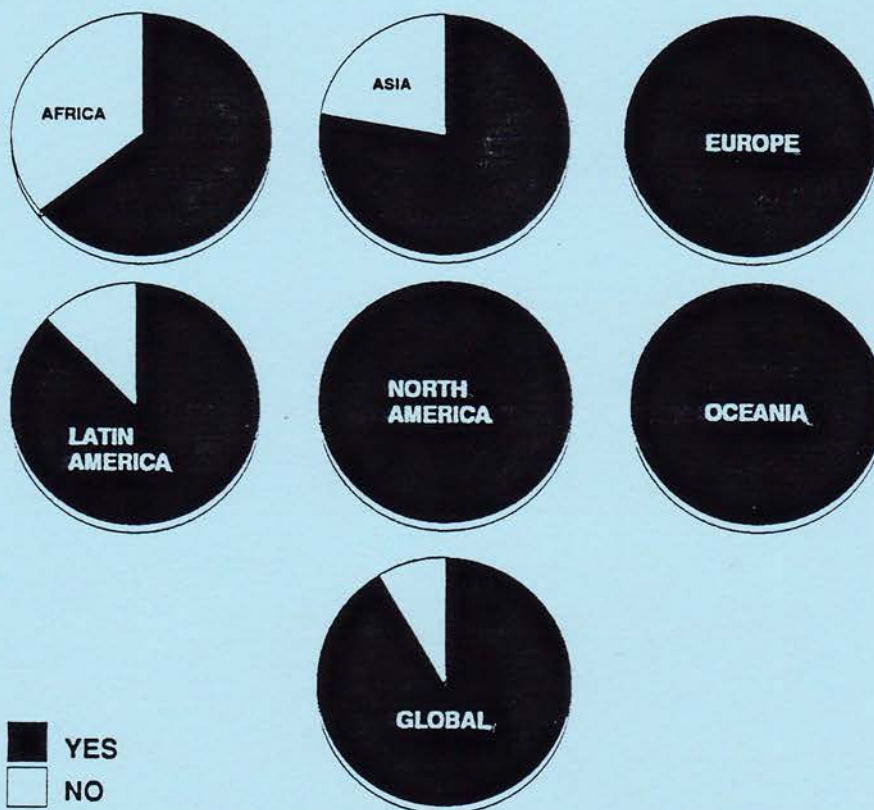
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5.
Does your country have
organized fire suppression
(control) capabilities?

6-A
Does your country have
organized fire suppression
(control) capabilities, and do
the organizations cooperate
with one another?

Figure 4. Organized Fire Suppression Capabilities, by Region



Africa:

- Approximately two-thirds of respondents indicated their country had organized suppression capabilities, but of those less than half (36%) cooperate with one another.

Asia:

- Over 75% of the respondents said their countries did have organized suppression capabilities and all of them cooperate with one another.

Europe:

- All of respondents said their countries have organized suppression capabilities and over 85% of them cooperate with one another.

Latin America:

- The majority of the respondents indicated their countries had organized suppression capabilities but only a little more than half of them cooperate with one another.

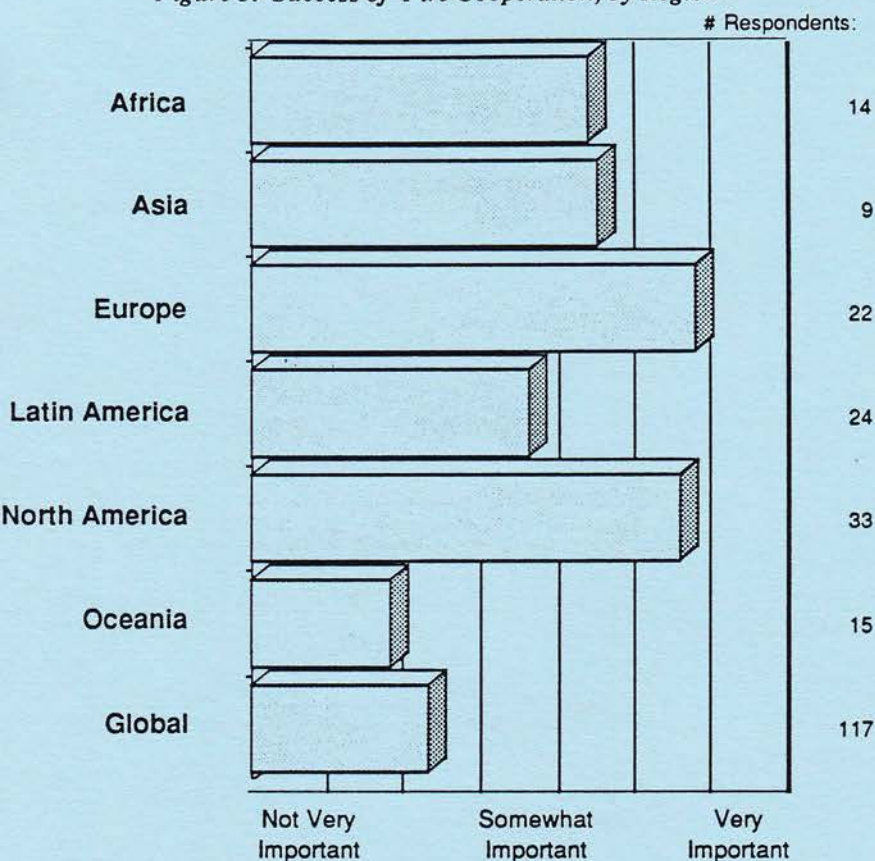
North America:

- All respondents said their countries have organized suppression capabilities and the vast majority of them cooperate with one another.

Oceania:

- All respondents said their countries have organized suppression capabilities and 3/4 of them cooperate with one another.

Figure 5. Success of Fire Cooperation, by Region



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6-B.

If your country has organized fire suppression capabilities, how would you rate the success of fire cooperation?

6-C.

What is the nature of the cooperation between suppression organizations?

Africa:

Sharing of suppression information and training materials or facilities is the major type of cooperation.

Asia:

Sharing of personnel and suppression information is the major type of cooperation between organizations. Sharing of equipment and training materials or facilities is also done to a lesser degree.

Europe:

Sharing of suppression information is the major type of cooperation but sharing of personnel, equipment (including aircraft), and training materials or facilities is also common.

Latin America:

Sharing of personnel and equipment is the most common but also sharing of suppression information and training material is done.

Other types of cooperation utilized are sharing aircraft for fire detection along with other types of detection systems, and joint fire preventions campaigns.

North America:

All of the major types of cooperation are practiced equally (sharing of personnel, equipment, suppression information, and training materials or facilities).

Other types of cooperation include shared or multi-agency dispatch centers,

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6-D.

What barriers do you see to improving cooperation between firefighting organizations?

detection and prevention efforts, shared radio frequencies, and multi-agency coordination of fire suppression resources.

Oceania:

- Sharing of equipment is the most common but sharing of personnel, suppression information, and training materials is also emphasized.
- Other efforts include cooperative planning and operations, regional coordinating committees, interdependence under Act of Parliament, and mobilizing residents for fire suppression.

■ For all regional responses except North America, funding was listed as the number one barrier to improved cooperation between fire suppression organizations.

Africa:

- Other barriers that exist include customs or cultural differences, equipment compatibility, firefighting policies, and jurisdictional boundary differences.

Asia:

- Firefighting equipment compatibility is somewhat of a problem and to a lesser degree, firefighting policies are a barrier.

Europe:

- Jurisdictional boundaries and firefighting policy differences are the main barriers to improving cooperation.
- Other barriers of concern are disputes between ministries over finance and competence, agreement on a single and integrated commandship, inadequate coordination and economic barriers.

Latin America:

- Firefighting policy differences and jurisdictional boundaries are important barriers to improving cooperation.
- Other barriers are lack of operational mechanisms to coordinate organizations, lack of mutual aid agreements, lack of awareness, political rather than technical decisions being made, and lack of formal organization to bind together all others.

North America:

- Differences in firefighting policies and jurisdictional boundaries are the main barriers to cooperation. Compatibility of firefighting equipment is a concern and to some degree cultural differences and language barriers are a problem.
- Other barriers identified were differences in training and job performance standards, no longer an organized program to promote the Incident Command System (ICS), and governmental reluctance to approve travel.

Oceania:

- Differences in firefighting policies, along with equipment compatibility and jurisdictional boundary differences were the main barriers identified.
- Other barriers mentioned were lack of proper coordination between agencies, possibly too many fire authorities, jealousy and distrust between organizations and volunteer groups are lacking in training and education.

Figure 6. Beneficial Importance of Wildland Fire, by Region

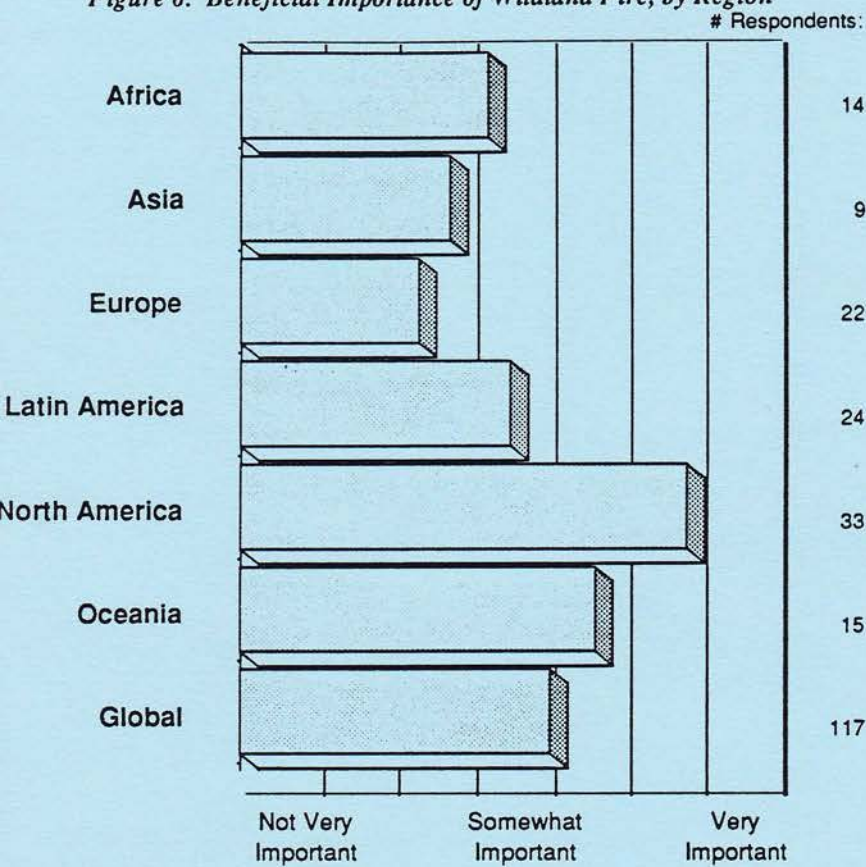
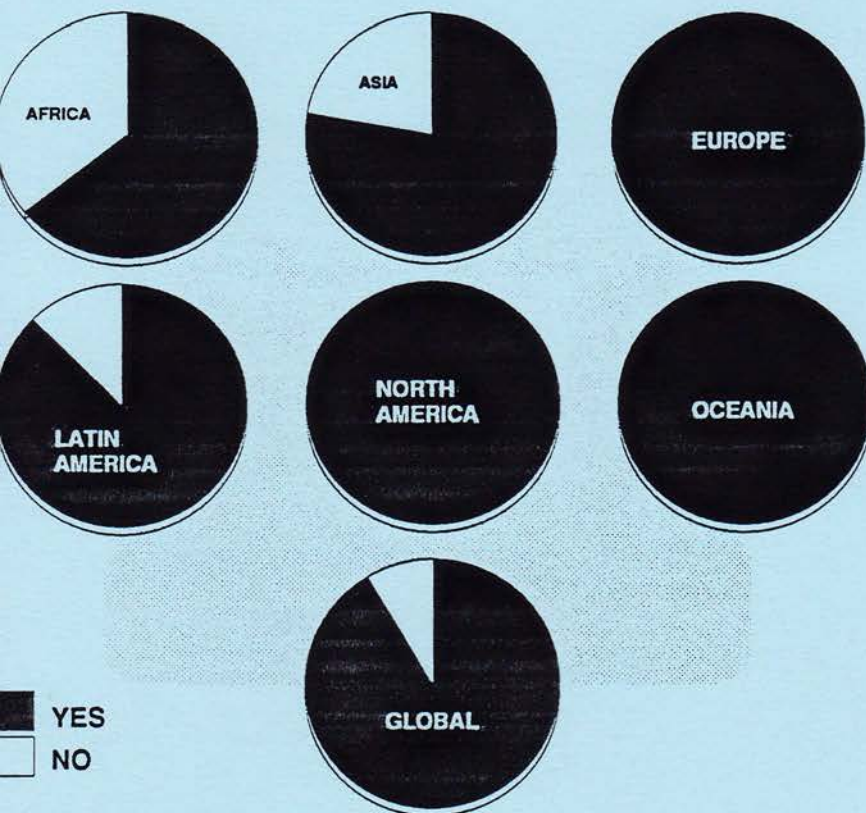
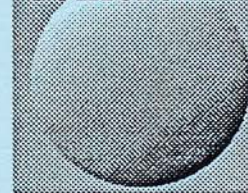


Figure 7. Wildland Fire as a Beneficial Tool, by Region



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7.
How would you rate the importance of fire as a beneficial process in the forests, brushlands or grasslands of your country?

8-A.
Is fire used in your country to produce benefits?

Table 3. Beneficial Uses of Wildland Fire, by Region

8-B.

If yes, how is it used?

	Africa	Asia	Europe	Latin America	North America	Oceania	Global Summary
A. Hazard Reduction	7%	20%	26%	18%	15%	23%	19%
B. Production of Fuel Products	12	10	4	3	4	4	6
C. Forage Production	19	20	30	17	12	12	17
D. Park/Wilderness Management	10	0	0	0	12	6	9
E. Agriculture Production	19	15	13	24	9	18	16
F. Wildlife Management	5	10	0	0	14	6	10
G. Silvicultural Treatment	10	0	13	12	14	10	13
H. Ecological Balance	0	10	0	2	10	2	6
I. Other	19	15	13	24	9	18	4
Total Number of Responses	42	20	23	66	188	49	345

Total Number of Respondents: 97

9.

How would you rate the success of cooperation using fire as a tool in your country?

Figure 8. Success of Wildland Fire as a Beneficial Tool, by Region

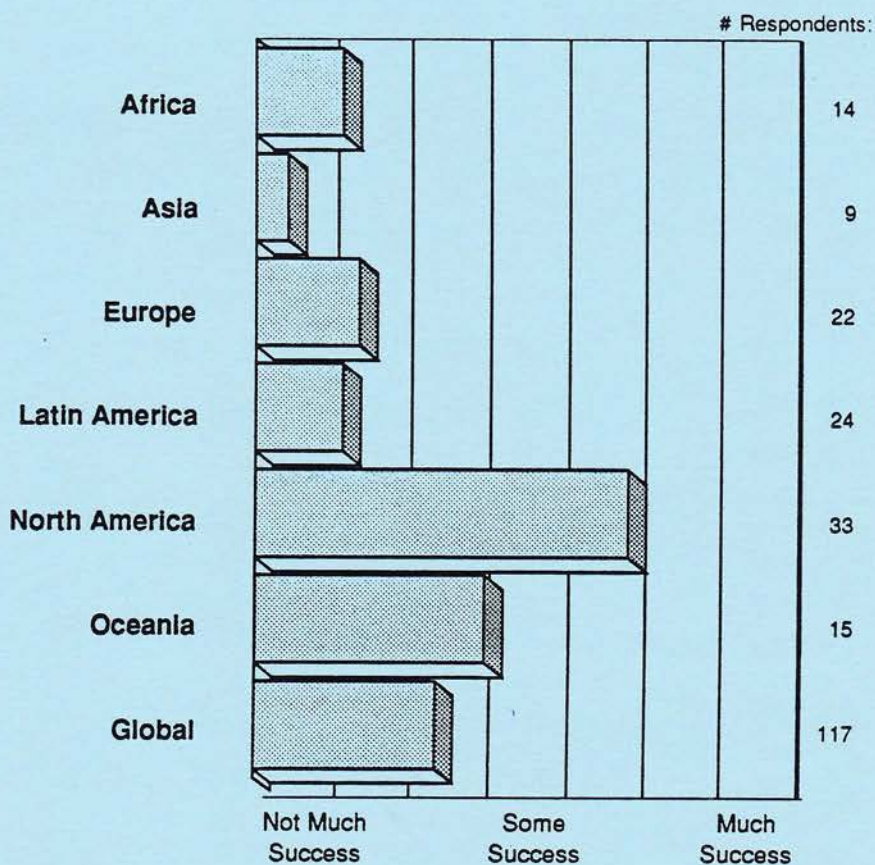
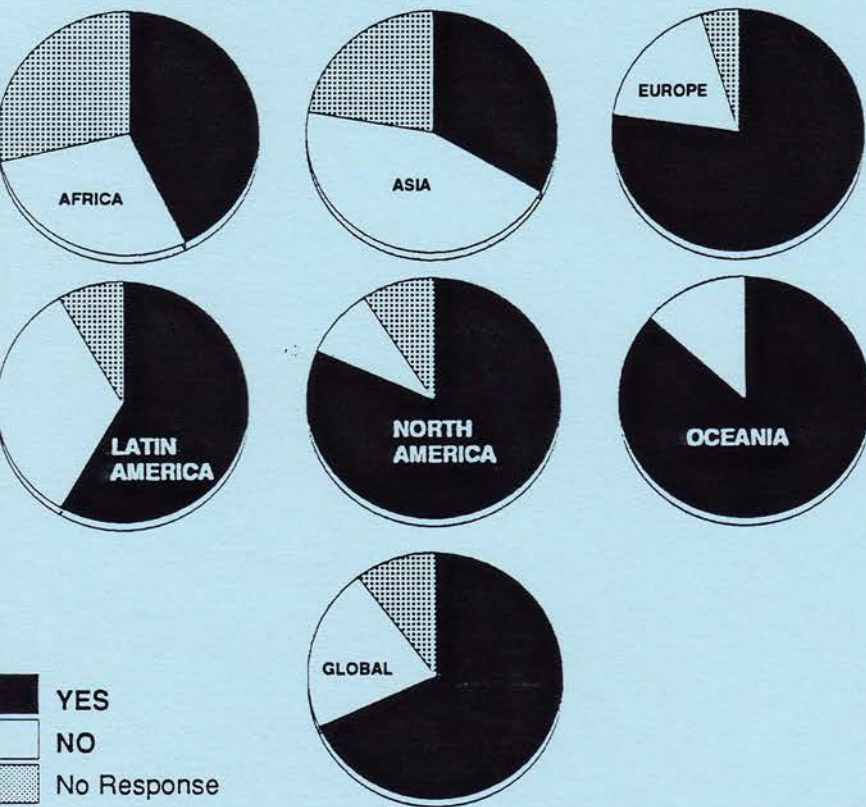


Figure 9. Wildland Fire Cooperation with Other Nations, by Region



Africa:

- The major type of cooperation is in sharing of training, but sharing of research and information is also important.
- Another area of cooperation is jointly increasing awareness along borders or frontiers.

Asia:

- There is a small amount of sharing of information and training with other nations.

Europe:

- Sharing of information is the main type of cooperation but sharing of personnel, equipment, research and training is also done.

Latin America:

- Shared training is the main type of cooperation with other nations. There is also some sharing of information, personnel, and equipment.

North America:

- This region showed a fairly even distribution of the types of international cooperation with which it is involved. Shared research and information seemed to show slightly more involvement.
- Another area of cooperation is joint membership in a Forest Fire Compact.

Oceania:

- In this region, the most international cooperation was in the areas of shared information, training, and research.

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10.

Do any of the organizations responsible for managing fire cooperate with their counterparts in other nations, or with the government of another nation?

11.

For organizations responsible for managing fire that cooperate with their counterparts in other nations, (those that answered yes to Question 10) what is the nature of the cooperation?

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12.
How would you rate the
success of such international
cooperation?

13-A.
Is there a need for more
international cooperation?

Figure 10. Success of International Fire Cooperation, by Region

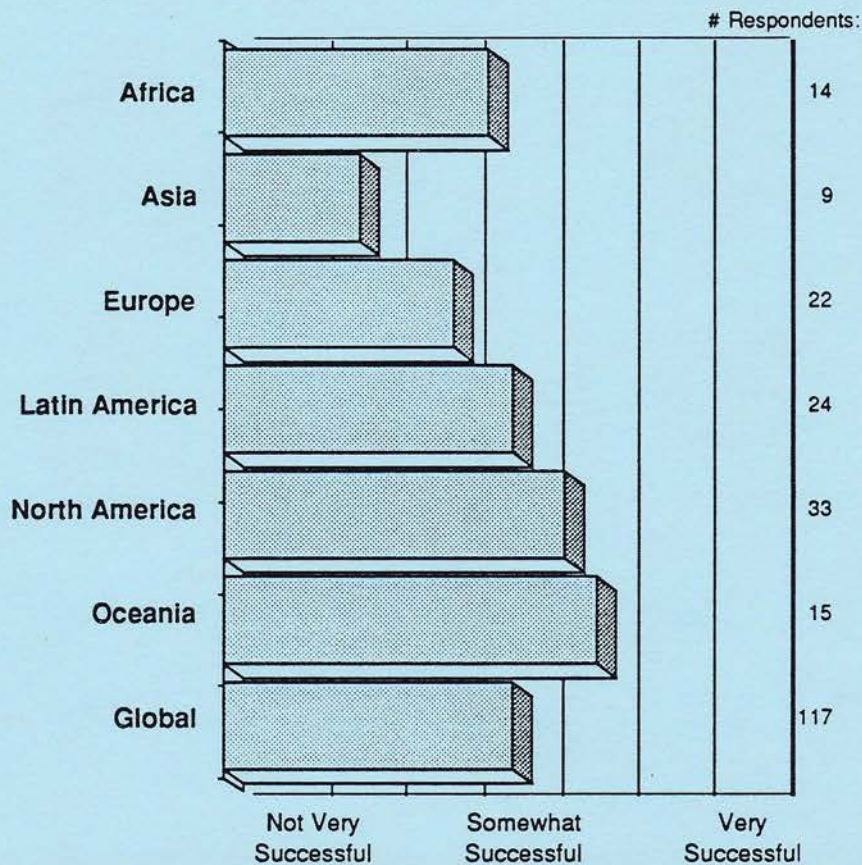
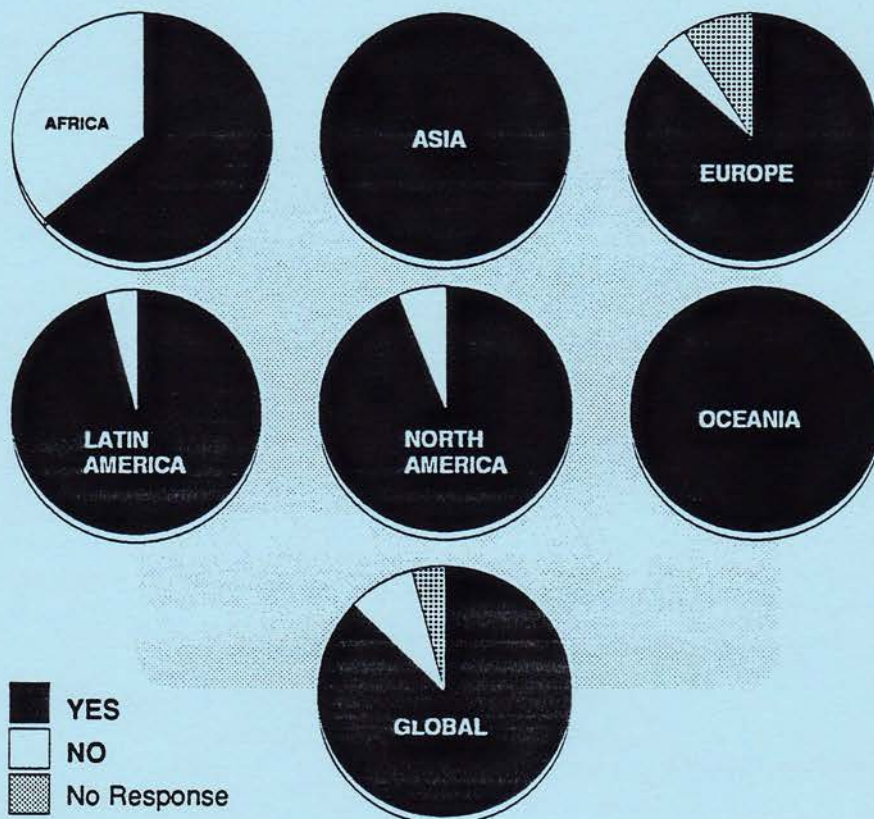


Figure 11. Need for More International Cooperation, by Region



■ In all regions, the number one item needed to improve international fire management cooperation was sharing of resources and information.

Africa:

The other areas mentioned were better communications between governments, better diplomatic relations, and overcoming language barriers.

Also mentioned were better firefighting equipment and education, and more trips to advanced countries to study technology and exchange experiences.

Asia:

Improved communications between governments and a minor concern regarding language barriers was identified.

Europe:

Improved communications between governments and overcoming language barriers were also highlighted in this region.

Latin America:

A need for better communications between governments, along with better diplomatic relations were areas needing improvement.

A number of other items were identified including international cooperation to resolve internal organization problems, direct assistance with equipment and tool supply, reduction of bureaucratic obstacles, open cooperative opportunities to private institutions, and a need for a Latin American organization to promote regional cooperation.

North America:

Improved communications between governments and overcoming language barriers were given high priority in this region.

Other needs identified were standardization of equipment and methods, reducing regulatory and bureaucratic barriers, more international agreements, and eliminating the problems with exchange of funds.

Oceania:

In addition to needing better communications between governments, other items were

need for better international fire hazard rating methods, more exchange visits or study tours to increase international understanding, and cultural/social/economic/ecological assessments.

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13-B.

What forms of cooperation are needed most to improve international fire management cooperation?



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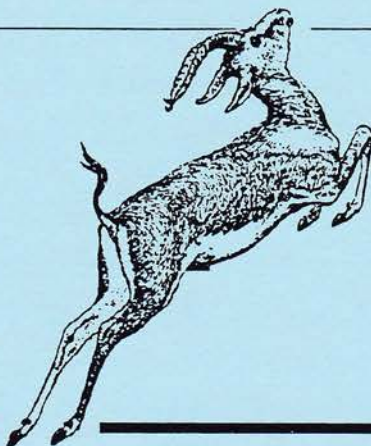


14-A.

How would you rate the effect of global change on the wildland resources of your country?

14-B.

How would you rate the effect of global change on the wildland fire regimes of your country?



The average response to this question was 4.6, indicating that it was somewhat important. There was very little regional deviation.

As with the previous question, the average response for this question was 4.6, with very little regional deviation.

■ Most of the comments about these two questions focused on the fact that we as resource managers do not have enough information to make a definitive assessment of the effects of global change on wildland resources and fire regimes.

Exploring International Cooperation: Tuesday Luncheon Results

International Wildland Fire Conference



The "International Survey of Fire Managers" identified many problems through out the world which limit or impede international cooperation in wildland fire management. At the same time the survey identified several opportunities to improve international cooperation.

A forum was provided during the Tuesday Luncheon enabling all conference participants to:

- discuss four major issues identified by the international survey;
- study the opportunities to increase international cooperation identified by the survey; and
- identify additional opportunities to increase international cooperation in wildland fire management.

All of the ideas were recorded and are presented on the following pages.

Ideas common to all issue areas identified at Tuesday's luncheon are:

- in many instances wildland fire is the symptom of more serious social and economic problems of a nation. The answer may not lie in the acquisition of mere technology or manpower; but rather in the treatment of the social or economic situations.
- develop regional emergency fire cooperative agreements.
- exchange fire management personnel at all levels from basic suppression crews to fire management leaders.
- improve the dissemination of information between nations.
- standardize international training in wildland fire suppression, equipment and communication.

As we leave the conference and return to our homes and continue our wildland fire management responsibilities let us be sensitive to the needs of our neighbors and seek to find ways to implement the opportunities we have identified at this conference.

International Wildland Fire Conference



Exploring International Cooperation

Major Issue Identified by the Survey

▲ Communication and geographic barriers limit international cooperation

Opportunities Identified by the International Survey

- cultural awareness and language training
- develop and implement regional mutual aid agreements
- use compatible communication systems

Opportunities Identified at the Tuesday Luncheon

- Create national governments "Political will" to address the International wildland wildfire problems.
- Get the established technical organizations to promote assistance thru technical assistance cooperative programs.
- Annual Global Conference for certain level managers.
- International BIFC/CIFC.
- Each country to have its own ability to communicate with international BIFC.
- More mutual AID agreements.
- FAO and other international organizations to strengthen the Forestry Commission Roles.
- World Bank to provide funding to assist the underdeveloped countries.
- Provide proceedings of conference.
- Develop International definitions; terminology, standards
- Establish International "Fire Base" for publications in various foreign languages.
- Standardization of equipment commonly used internationally.
- Distribute FAX machines to everyone.
- Everyone adopt ICS.
- Standardize communications and terminology.
- Establish mutual AID agreements before disasters strike.
- Capitalize on existing bilateral agreements/exchanges of staff (both ways).
- Make documents available in necessary languages.
- Have a FAX network.
- Establish a Peace Corp type approach of fire personnel exchange.
- Computerized translation from one language to another.
- Compatible software for computers.
- Encourage everyone learning a second language.
- Better education of the younger generation of global problems.
- Create World Forestry Commission.

Exploring International Cooperation

International Wildland Fire Conference



Major Issue Identified by the Survey	Opportunities Identified by the International Survey	Opportunities Identified at the Tuesday Luncheon (continued from previous page)
▲ Communication and geographic barriers limit international cooperation	<ul style="list-style-type: none">• cultural awareness and language training• develop and implement regional mutual aid agreements• use compatible communication systems	<ul style="list-style-type: none">• Allow forests and Regions to initiate exchanges.• Common terminology.• Make it easier to cross borders.• Create opportunities for spouses to work.• International Directory of Fire Management people around the world.• Better coordination at International Boundaries/Border for local fires.• Regional and international information systems.• FAO conference to share information.• Establish common terminology and training standards.• Political activist groups to lobby governments.• Use military in assistance of emergencies.• International fire reporting system=information system which can be fed to the media.• Computer link-up between Nations.• Universal wildfire symbols.• Expand and update international glossary.• Distribute information about conferences.• International Newsletter.• Establish incentives to learn another language and culture.• Increase cooperation between countries with common boundaries.• Disaster response teams for varied emergency situations.• Include international component and social science training in Forestry.• Emulate in other parts of the world the project developed in Northern China, and between China and Canada.• Scholarships to send students from underdeveloped countries to developed countries for education in fire. Two levels: Academic and Technical.• Develop Regional centers for wildland fire research and training along with coordination centers-including: research, communication, training, and logistical support.

International Wildland Fire Conference



Exploring International Cooperation

Major Issue Identified by the Survey

▲ Need for authority to share personnel and equipment across international boundaries in emergency wildland fire situations

Opportunities Identified by the International Survey

- enabling legislation to authorize payments and facilitate entry through customs
- develop, adopt and implement bilateral and/or multilateral operating agreements

Opportunities Identified at the Tuesday Luncheon

- Establish diplomatic agreements and legislation *before* the emergency. This may include a mutual aid treaty and country could use.
- Exchange technical equipment.
- Establish a global center for case studies on the effectiveness of technology and equipment - a planning group.
- Work on common standards. (i.e. equipment and personnel, command structure, terminology, and training.) The ICS system on a global scale.
- Establish a standard exchange network for sharing information- an International Clearinghouse.
- Remove political and/or legal barriers that may exist.
- Develop coordination type centers.
- Pre-identify an International Cadre of Liaison Officers/Coordinators/Facilitators/Trainers.
- Prepare a list of common resources between neighboring countries that could be shared. (A world directory)
- Develop "briefing packages" that may be distributed throughout organizations.
- Develop an economic cost plus benefit analysis.
- Establish an International Fund to pay for cooperation possibly through the World Bank.
- Utilize International Emergency Organizations like the Red Cross.
- There is no need to prepare for the entire world, just preselected Regions that are impacted by wildfire.

Exploring International Cooperation

International Wildland Fire Conference



Major Issue Identified by the Survey

▲ Need for authority to share personnel and equipment across international boundaries in emergency wildland fire situations

Opportunities Identified by the International Survey

- enabling legislation to authorize payments and facilitate entry through customs
- develop, adopt and implement bilateral and/or multilateral operating agreements

Opportunities Identified at the Tuesday Luncheon (continued from the previous page)

- Keep passports up to date. Possibly have an international passport for members of fire fighting forces.
- Establish inter-continental fire caches in predesignated areas.
- Establish an International "Suppression Force" to be sent to a nation in need. (International Hotshot Crews)
- Reduce competition between nations.
- Educate Fire Service personnel to governmental operational difficulties, and educate politicians as well.
- Implement global monitoring for the Fire Danger Rating.
- Develop an International Wildfire Coordinating Group.
- Evaluate the magnitude and conditions of the wildfires to determine the level of assistance needed.
- In addition to agreements, meetings between the people/countries involved are needed.
- Underdevelop Nations may not be able to afford assistance—the developed nations need to be prepared to assist.
- Establish a worldwide chart showing fires by season.
- Establish a world fleet of available aerial firefighting resources.



Exploring International Cooperation

Major Issue Identified by the Survey

▲ Need to generate and share applicable research, training and appropriate technology

Opportunities Identified by the International Survey

- develop and implement additional international training programs
- interchange of research personnel and training specialists

Opportunities Identified at the Tuesday Luncheon

- Center for receiving and distributing information, technical development center and professional center and liaison.
- Newsletter for information dissemination geographically. Strengthen existing Forest Fire Newsletter; include a directory of local fire management organizations.
- List of contacts specific to discipline.
- Fire management committee on world basis (International Wildfire Coordinating Group-IWCG).
- Expand international training courses (Marana, Chile, Canada, Mexico).
- Make better use of research taking place at Universities.
- Make requests to Universities to do specific, needed projects.
- Use international computer generated information.
- Change in immigration laws to allow easier exchange of people.
- Standardize training format between Nations to ease exchange.
- Establish funds to help institutions teach more about fire problems around the world. (World Bank, FAO, and AID).
- Americans should speak more languages and expand world wide cultural knowledge.
- Video training package housed in a universal library.
- IUFRO should be more active in fire.
- Use international decade of hazard reduction to place fire issues of low-level political disputes.
- Make international fire courses available to fire managers early in their careers.
- Enhance international Forestry programs.
- Develop international wildfire working teams, i.e. equipment, communications, etc.

Exploring International Cooperation

International Wildland Fire Conference



Major Issue Identified by the Survey

Opportunities Identified by the International Survey

Opportunities Identified at the Tuesday Luncheon (continued from the previous page)

▲ Need to generate and share applicable research, training and appropriate technology

- develop and implement additional international training programs
- interchange of research personnel and training specialists

- NARTC act as clearing house for source of international materials.
- Utilize international fire management directory to locate specialists when need arises.
- Utilize private management for international cooperation rather than government agreements i.e. Partners for America.
- Establish world fire research experimental stations.
- Organize existing information groups into an international clearing house.
- Create an international professional organization to promote fire management.
- Develop an international fire assessment such as Fire Danger Rating System to assess emergency situations.
- Prepare relevant fire management literature in multiple languages.
- Develop scholarships for foreign students to study fire.
- Identify fire management as a "profession".
- Utilize expert systems technology.
- Establish training priorities for each individual country.
- Promote international exchange of technical personnel and fire management instructors.
- Capsulize for the news media the international wildfire issue to inform the public and provide a support base for government action.
- Develop a global wildfire monitoring process.
- Conferences such as this are part of the solution.
- Prior to going international, research programs need to be developed on a local level.
- Universal research and training opportunities need to be identified.



Exploring International Cooperation

Major Issue Identified by the Survey

▲ Need to recognize the global economic and ecological relationships associated with wildland fires.

Opportunities Identified by the International Survey

- develop capabilities to organize and coordinate cooperation
- build national and international commitment to cooperate

Opportunities Identified at the Tuesday Luncheon

- Maintain continual dialog with international delegates for constructive changes.
- Develop media material on role of fire - economically and ecologically.
- Get to public and politicians more accurate estimates of costs of wildfire.
- Fire cannot be studied in isolation. Need to continue research on all ecological relationships.
- Develop an international fire effects monitoring program.
- International agency to oversee fire projects - coordinate logistical movements.
- More research on the social, economic, and ecological relationships with fire.
- Develop world perspectives on economics and ecology.
- Emphasize social/cultural factors as major contributors to the problem. Solutions - i.e. birth control, awareness of surrounding, environmental education.
- Increase awareness of relationships between high population densities and wildfire impact.
- In developing countries increase economic and ecological education and display the impact it has on social problems and issues.
- Utilize international "problem solving teams" to reduce issues between fire, and ecological and economic factors.
- Developed countries need to take leadership roles in looking at global social/economic problems.
- Maintain emphasis on global nature of wildfire problem and issues.
- Increase amount of long term scientific exchange programs.
- Clarify relationship between wildfire and global warming.

Exploring International Cooperation

International Wildland Fire Conference



Major Issue Identified by the Survey

Opportunities Identified by the International Survey

Opportunities Identified at the Tuesday Luncheon (continued from the previous page)

▲ Need to recognize the global economic and ecological relationships associated with wildland fires.

- develop capabilities to organize and coordinate cooperation
- build national and international commitment to cooperate

- Arrange a U.N. debate to pass a resolution.
- Invite media (T.V., papers, radio) to attend sessions like this.
- Recognize that solutions to wildfire problems in one country may not work in other countries.
- Share solutions, problems, and lessons learned, regarding the economic and ecological interrelationship of wildland fire both regionally and internationally.
- Need better utilization of vegetation modification to increase benefits to resources.
- Need (better) quantification of global relationships/ecology.
- Share more information on fire losses to increase public awareness of the problem.
- Form a commission through UN and FAO to analyze social/economic/political relations with fire.
- Organize visits to "exceptional" or dramatic sites to help increase awareness of public and politicians. (i.e. Yellowstone, well managed areas)
- There is need for more understanding by developed countries of the values and needs underdeveloped countries put on their forests.
- Need to show viable solutions to destructive land management practices.
- Need more research on effects of soil deterioration, wildlife loss, etc. (amenity values) due to fire.
- Look for ways to improve world economics for survival.
- Increase awareness of "Decade for Disaster Reduction" and similar efforts.
- Further develop internal fire infrastructures.

International Wildland Fire Conference



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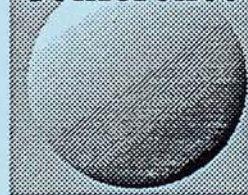
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