

An International Perspective of Wildland Fire 2000¹

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Abstract: A steadily shrinking forest land base and the social demands of an expanding population will require utmost skill from land managers, if forest products are to meet the demands of 6 billion people in the year 2000. Developed nations have recognized fire's role, both as a tool and a destructive force. By contrast, developing nations have not instituted adequate policy in coping with wildland fire. There is need for government support of programs that will maximize the beneficial use of fire in the forest, while recognizing its destructive force and taking adequate protection measures. The consequences of inadequate wildland fire management must be made known; options for cost/benefit management developed; and technology transfer subsidized by aid programs to developing nations. Wildland fire in the year 2000 must incorporate strategies that will be compatible with social forestry programs.

WHAT IS HAPPENING NOW?

There is a wide disparity of policy in the role of wildland fire among nations worldwide. Programs range from the most sophisticated use of electronic equipment to virtually no measures of fire regulation and use.

Developed Nations

For the most part developed nations that have wildland fire occurrence have established

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fire protection goals to cope with catastrophic fires that endanger lives and property. Beginning in the 1960's, a few countries such as Australia, Canada, and the United States, saw the need to adopt goals which fostered the use of prescribed fire, or fuel modification, to reduce fuel accumulations and thereby prevent large wildfires.

In North America, where lightning is prevalent. Canadian and U.S. policy has included provision for the natural role of fire in the ecosystem. Here fires started by lightning are allowed to burn unrestricted within carefully prescribed conditions. While these prescriptions are largely confined to wilderness and roadless mountain areas, public land managing agencies are, for economic reasons, developing prescriptions for free burning fires regardless of ignition source.

Prescribed fire has long been used as a silvicultural tool in developed countries. In recent years goals have been set to provide for fire use to enhance wildlife habitat, watershed, livestock forage, vegetative type conversion, and scenic values. But in the main, fire is still viewed as a destructive force to be suppressed quickly with minimum damage to the resource.

Now, a new threat has arisen in the more affluent countries where the encroachment of urban habitation into wildland areas has caused increased threat of fires spreading from wildlands to intermingled structures or vice versa. This has been termed the "urban/wildland interface fire problem," and it is adding a whole new dimension to wildland fire protection policy. (National Fire Protection Association 1986)

Developing Nations

By contrast, developing nations--with a few exceptions--have either ignored policy dealing with wildland fire or have ineffectual protection programs.

At the forefront is a conflict between the need for social improvement of the rural class standard of living versus achieving wildland fire management goals. On the one hand there can be a policy that promotes colonization of wildlands and attendant clash and burn agricultural practices. On the other hand, exists a serious lack of a policy to deal with man-caused fire.

Often there is complacency that a short "dry" season in tropical countries poses no threat to unwanted fire. This belief should have been dispelled by the severe fires in Indonesia and the Philippines during the 1983 dry season, when millions of hectares of forest and grassland were lost to fire.

For the most part in developing countries the primary concern of foresters is to regulate forest production through harvest and silvicultural practice. They have little training or concern for the role of fire in wildlands, except to suppress it if it is a problem. Prescribed fire as a tool in wildland management is virtually non-existent.

Forestry assistance programs sponsored by Food and Agricultural Organization (FAO), United Nations, and bilateral aid programs from developed countries, provide minimal funding or technical expertise in fire management. An exception to this can be found in a Canadian assistance project in China, and a FAO project in India. Both projects are substantive, but are aimed primarily at presuppression and suppression programs.

WHERE ARE WE HEADING?

Advanced technology is being shared between developed countries. Australia, Canada, and the United States are the free world leaders in these areas: computer application to fuel inventory, lightning prediction, presuppression planning and tactical/strategic suppression decision making; basic/applied research on fuels, fire meteorology, and behavior; and equipment development.

Other developed countries are adopting selected programs and research results to fit their needs mostly for suppression operations. Funding is of course a limiting factor, becoming available only following the classic response of governments to disastrous wildfire threat to life and property rather than by recognition of a calculated requirement.

The "high tech" explosion in electronics and its ripple effect throughout research and development have challenged the leading nations to incorporate new innovations in their fire management programs.

By contrast, when these same nations provide expertise to developing countries they often try to foist off this "Cadillac" technology when their clients have hardly advanced to the "VW Bug" stage. The result is often a fancy report relegated to the dead file, or worse yet, sophisticated equipment lying unused and rusting for lack of maintenance.

On the one hand we are heading towards sophisticated, computer driven fire management programs that will enable managers to use fire more effectively as a resource tool and yet curb its excesses when it escapes control. On the other hand developing countries are caught between social needs of burgeoning populations, a dwindling forest resource, and low recognition of wildland fire's role in the ecosystem.

WHAT DO WE WANT TO HAPPEN?

The three leading nations mentioned above, have recognized wildland fire potential, both good and bad. For the most part the politicians are educated in the need for funding presuppression programs, and they recognize the value of research and development in fuel management and prescriptive use of fire--even if they do not provide adequate funding.

Resource agencies should continue pursuit of a strong R&D program, incorporating research results into operational use. Planning must yield efficiencies that will gain political support for both fire use and protection funding. Prevention must assume priority recognition and support. The urban-wildland interface problem will become more acute and must be dealt with if loss of life and property is to be minimized.

Bilateral assistance to other developed countries should continue. Rather than force feed new technology into their programs, transfer of advanced systems should be geared to what can be assimilated by the current level of expertise in fire management in those countries. In other words, "one doesn't get to heaven in one jump."

Developing countries are another matter, where fire managers move much more slowly. Improvement in fire management programs has to consider the socioeconomic status of each country in question. The goal would be to introduce technology suited to the culture, and which treats basic requirements first. The challenge will be not to move too fast even though great need is apparent.

In many cases education of land managers to the role or threat of fire would be the main thrust, rather than focusing on more tangible results in their programs. In fact education of the assisting experts in a developing country's culture, should be a prerequisite to working with their problems.

In total we need to develop and expand new technology, apply existing technology to operational use, and introduce these systems into world utilization at a pace that countries can accept.

HOW DO WE WANT IT TO HAPPEN?

Fire managers need to weigh the consequences of wildfire damage against the present and planned level of protection. Political leaders should be provided an array of options from which to fund a presuppression program. A preferred option should be recommended.

In each case the role of fire as a management tool needs to be identified. Prescribed use of fire to achieve protection goals, silvicultural treatment, watershed enhancement, wildlife habitat improvement, and food production should be quantified.

Applied research should be emphasized, particularly in less developed countries. The goal would be to obtain quicker results on the effects of fire and its use. Basic research must continue apace to exploit electronic advances. Equipment development and testing should be fostered to effect transfer of new hardware to field operations.

Wildland fire's role in social forestry programs must be delineated. The conflict between social programs that promote colonization of forested land with its slash/burn agriculture must be mitigated. Indiscriminate burning of forest and grassland must be stopped and replaced, where required, with fire by prescription.

The occurrence of large, damaging fires in tropical forests should be studied. Climatic conditions, such as El Nino need to be identified and fire danger systems developed to assist tropical countries to prepare for wildfires during their dry seasons.

The term "technology transfer" is almost a cliché. Nevertheless the sharing of knowledge is vital to achieving goals in any endeavor; fire management is no exception. If developing countries are to advance to even a basic protection status, much less a prescriptive fire use program, they will need assistance from developed nations.

The sticking point is funding these aid programs. Education appears to be the key. With some exceptions, most forestry programs give priority to managing fire only as it poses a threat to meeting harvest goals. Sometimes fire is not even perceived as a threat because of low occurrence. Yet poorly planned and protected plantations can be found in most countries, including developed ones.

Why education? Because it will create an awareness of fire's role in resource management and of the need for the inclusion of fire managers on planning and operational teams. It will expand forestry training to include more fire subjects in the core curricula.

Education will offset the tendency to "jump to the king row". Invariably, I find forestry officials have read or heard about high tech equipment, typically aerial delivery systems, and want to purchase a helicopter bucket; a sophisticated pumper; contract for an air tanker, without knowledge of how to effectively employ or maintain the equipment.

In one developing, temperate zone country for example, the forestry department was persuaded by its aviation group to purchase helicopter buckets for large fire operations. They had neither an effective initial attack organization, adequate ground/air communications, much less a trained, large fire cadre who knew aerial delivery tactics.

Developed Nations

The leading nations are moving rapidly into full acceptance of fire's existing and potential roles in the ecosystem. Their capability to reduce damage from large conflagrations will increase as computer assisted programs, improved fire behavior forecasting, advanced logistical support, new airborne electronic intelligence systems, and new suppressants come on line.

Use of prescribed fire to reduce natural fuel accumulations will expand. Mosaic patterns of fuel treatment areas will inhibit the spread of wildfire in fire prone fuels. Burn prescriptions will become more accurate as research in fire effects/behavior and better weather forecasting come on line.

The more affluent countries will experience greatly increased urban sprawl into wildland fuels. Gradually, standards for fire resistant structural materials and preventive measures around buildings will be enforced, but not without bitter fighting from special interest groups. Wildland fires involving structures will escalate until severe loss of life and property become intolerable, causing governments to set standards and enforce prevention measures.

There will be greater cooperation between all countries to cope with wildfire disasters. Special teams to provide logistical support and operational control assistance will become commonplace, as now occurs between Canada and the United States. Less developed countries will improve basic protection programs, although there will still be the "king row" syndrome to contend with.

More onsite training will take place using bilingual experts. Training syllabi will be translated into more languages than exist today.

Developing Nations

The world population is estimated to increase by 1 billion by 1999. Most of this increase will occur in developing countries which can ill afford to feed, heat, and clothe their people now, much less the forecasted increase.

The present demand of fuelwood for cooking and heating is exceeding timber growth rates in most countries. Fast-growing species are being introduced, but at best only modest success can be claimed. Typically the wood is harvested before optimum growth has been obtained.

Old growth forests will largely be cutover by 2000. Slash and burn agriculture will continue unabated as governments attempt to provide living space for rural people, or trespass occupancy is ignored. Agro (social) forestry will not grow significantly unless governments can underwrite startup costs and maintain the projects until they begin to pay off. Unfortunately these programs are too long term to compete with other social needs.

Although, today, forests may not be perceived by politicians as a renewable resource which is of vital need, this will change as the acute demand for fuelwood and structural forest products increases.

The cost of fossil fuel will become prohibitive and there will be an awakening to the diminishing supply of wood fiber.

Fire managers have a role in this complex cycle. They are an integral part of the planning and execution process of wildland management. The challenge is to educate and improve tools and skills, to be ready for the undeniable role we must fill.

REFERENCE

National Fire Protection Association. 1986. Wildfire Strikes Homes. The report of the National Wildland/Urban Fire Protection Conference. Laughlin, Jerry; Page, Cynthia. eds. NFPA SSP-86. Quincy, MA; 89 p.