FOREST LAND USE AND MANAGEMENT CONFLICTS: A REVIEW AND EVALUATION OF APPROACHES FOR MANAGEMENT

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David W. Marcouiller and Paul V. Ellefson[1]

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ABSTRACT

More effective means of resolving issues in dispute have recently become popular for certain conflicts as an alternative to litigation and its associated competitive (or win-lose) outcomes. Emphasis is being placed on methods which are more cooperative in nature thereby deriving mutually beneficial (or win-win) outcomes. Conflict inherent to natural resource management and land use may be more effectively approached cooperatively. Upon understanding conflict fundamentals and necessary prerequisites to cooperative techniques, forest managers, administrators, and planners will be better informed of the issues appropriately addressed cooperatively and the procedures utilized in alternative dispute resolution. Case examples have shown that alternative dispute resolution techniques are an effective tool, if applied properly, to directly address substantive issues in forest resource conflict. An extensive literature review and in-depth interviews yielded information on conflict theory, prerequisites to cooperative/integrative conflict management applications, and the experience to date of implementing cooperative techniques in the effective management of forest resource disputes.

FOREST LAND USE AND MANAGEMENT CONFLICTS:

A REVIEW AND EVALUATION OF APPROACHES FOR MANAGEMENT

INTRODUCTION

The nation's economy, in large part, is fueled by it's natural resource endowments. Wood used for construction, paper, and fuel; forage for domestic livestock; the nation's vast fisheries; and the role of tourism and outdoor recreation are all vital elements to the nation's economic, social, and cultural well-being. Demands for all outputs of United States forests are expected to increase in the years ahead (Hewett, 1982). Recreational intensities, wilderness demands, and timber needs will increasingly be competing for the utilization of a finite land area. Conflict inherent to the management and utilization of this important resource will, inevitably, take on greater importance in the future.

OBJECTIVES AND SCOPE

The University of Minnesota's Conflict and Change Project (of which this study is a part) is one of nine such projects funded by the Hewlett Foundation. The objectives of the Conflict and Change Project include building knowledge about the origins of social conflict and disputes, the processes of disputing, and conflict management and resolution. The Project's programs are multidisciplinary in nature and seek to stimulate the development of theory regarding conflict while ensuring that theory is put into instruction and practice. This study of forest resource conflict complements these objectives by exploring avenues for applying theory to the practice of forest resource conflict management.

The study's overall objective was to gain a broad understanding of conflict management and dispute resolution methods as they relate to conflict over the use and management of forests. The development of issues and the mediation process were of special interest. The study's overall objective was satisfied by attainment of the following specific objectives:

- Gain insight into the fundamental approaches to conflict management:

    a. review literature on fundamentals of conflict management in nonforestry sectors such as the labor, intragovernmental, and environmental arenas.

    b. analyze and compare conflict management processes from issue identification through conflict resolution.

    c. assess dispute resolution techniques such as mediation, bargaining, negotiation, policy dialogue, regulatory negotiation, etc.

- Analyze case studies of conflict management in the forestry sector:

    a. review literature on the broad application of conflict management in forestry.

    b. analyze specific case studies of dispute resolution in forest resource management and forest land use.

    c. assess the process by which forest resource conflict is resolved.

    d. assess the techniques used in forestry conflict resolution.

- Identify shortcomings and areas of improvement in forest resource conflict management:

    a. analyze and compare forestry conflict resolution with conflict in nonforestry sectors.

    b. assess the applicability of new techniques of conflict resolution to forestry disputes.

    c. identify feasible alternative techniques and process refinements needing further research in the application of alternative dispute resolution.

- Report on the findings of this research.

The nature of forest resource conflict was of primary concern to the study. Such required a summary of conflict fundamentals (e.g., conflict types, conflict functions, and conflict approaches). Focus was on cooperative techniques resulting in positive-sum outcomes of interorganizational conflict. The study did not attempt to address conflict approached competitively through the adversarial processes of the judicial system. Unique features of environmental conflict were identified and contrasted with conflict existing in related nonenvironmental sectors such as labor and public sector conflict. Conflict and approaches to conflict in unrelated sectors such as family conflict, victim-offender conflict, and consumer conflict were not addressed. Due to the cultural nature of conflict, the study applies only to conflict within the United States and possibly Canada. Specific forest resource conflict issues between interested organizations approached cooperatively are presented. Whereas certain cooperative techniques may be applicable, intraorganizational conflicts are not addressed by the study. Case studies are presented to illustrate the processes involved in cooperative interorganizational forest resource conflict management.

METHODS AND PROCEDURES

A literature review was undertaken to identify appropriate publications related to the broad sections of the study. Seven databases were searched through DIALOG in five broad environmental categories using 14 key words. Appendix A lists the databases searched and identifies categories and key words. The database search generated 212 references of which approximately 50 were identified as being of value. Other literature sources included searches of card catalogs, microfiches, and reference bibliographies. These searches identified approximately 35 usable references. Information was also gathered through in-depth interviews of professionals involved in conflict management. The Bibliography presents a listing of literature and information specifically referred to by the study. Appendix B lists additional references identified as being of interest to the subject of conflict management in a forestry context.

FOREST RESOURCES AND FORESTRY ISSUES

How vast are the "Great American Forests?" Where are they located? Who owns them? What types of products and services can they produce? And how should the finite productive ability of the nation's forests be allocated amongst competing demands in the years ahead? Answers to questions of this nature provide the context within which to judge the relevance of conflict management strategies to the development of effective public and private forest policies. Forests occupy a third of the nation's land area; they are of interest to an enormously diverse set of clientele. As such, opportunity for conflicting opinions as to their use and management is substantial. Understanding the physical dimensions of the nation's forests can facilitate understanding of potential sources of conflict over their use and management and can focus discussion on important conflict management strategies.

FOREST AREA, OWNERSHIP AND COMPATIBILITY OF USES

The land area of the United States (2,254.8 million acres) can be assigned to three basic categories--rangeland, forest and other. "Rangeland" or land with vegetative cover consisting of predominantly grasses, forbs, or shrubs and suitable for grazing comprises 36.4 percent (820.0 million acres) of the nation's total area. "Forest land" (736.6 million acres) comprises 32.7 percent of the total (forest land is land that is at least ten percent covered with forest trees and not developed for other uses). "Other land" is land developed for pasture, crops, industrial, and urban uses and comprises 31.0 percent (698.2 million acres) of the national total (Table 1.1).

Forests are commonly categorized according to their ability to produce timber. More difficult is assessment of a forest's ability to produce recreation, water, wildlife and forage. Commercial timberland is defined as land capable of growing more than 20 cubic feet of industrial wood per acre per year in natural stands. These lands are not withdrawn from timber utilization (e.g., wilderness, parks, natural areas). Approximately two thirds of all forest land (482 million acres) is classified as commercial timberland. The remainder (254.1 million acres) is either productive reserve (i.e., land sufficiently productive to qualify as commercial timberland but withdrawn from timber utilization through statute or administrative designation) which comprise 20.7 million acres; productive deferred (commercial timberland under study for possible inclusion in the National Wilderness Preservation System) which comprise 4.6 million acres, or other forest land that does not meet standards for classification as commercial timberland (228.8 million acres) (Table 1.1).

States in the north contain 177.7 million acres of forest land of which approximately 93 percent (166.1 million acres) is commercial. Southern states contain 206.9 million acres of forest land, 90.9 percent (188.0 million acres) of which is commercial. Rocky Mountain states contain 137.7 million acres of forest land of which 41.9 percent (57.8 million acres) is commercial. Pacific Coast states contain 214.3 million acres of forest land, 32.9 percent (70.5 million acres) of which is commercial (Table 1.1).

Table 1.1. Land Area Types of the United States, by region. 1977.

Type of land	Total U.S. Area	Total U.S. Proportion	North	South	Rocky Mtn	Pacific Coast
	Million acres	%	Million acres			
Commercial timberland	482.5	21.4	166.1	188.0	57.8	70.5
Other forest land						
Productive reserved	20.7	.9	6.1	2.1	8.4	4.1
Productive deferred	4.6	.2	.2	.1	3.2	1.2
Other	228.8	10.1	5.3	16.7	68.4	138.4
Total	254.1	11.3	11.5	18.8	80.0	143.7
Total forest land	736.6	32.7	177.7	206.9	137.7	214.3
Other land*	1,518.2	67.3	445.9	300.3	416.1	356.0
Total land area	2,254.8	100.0	623.6	507.1	553.8	570.3

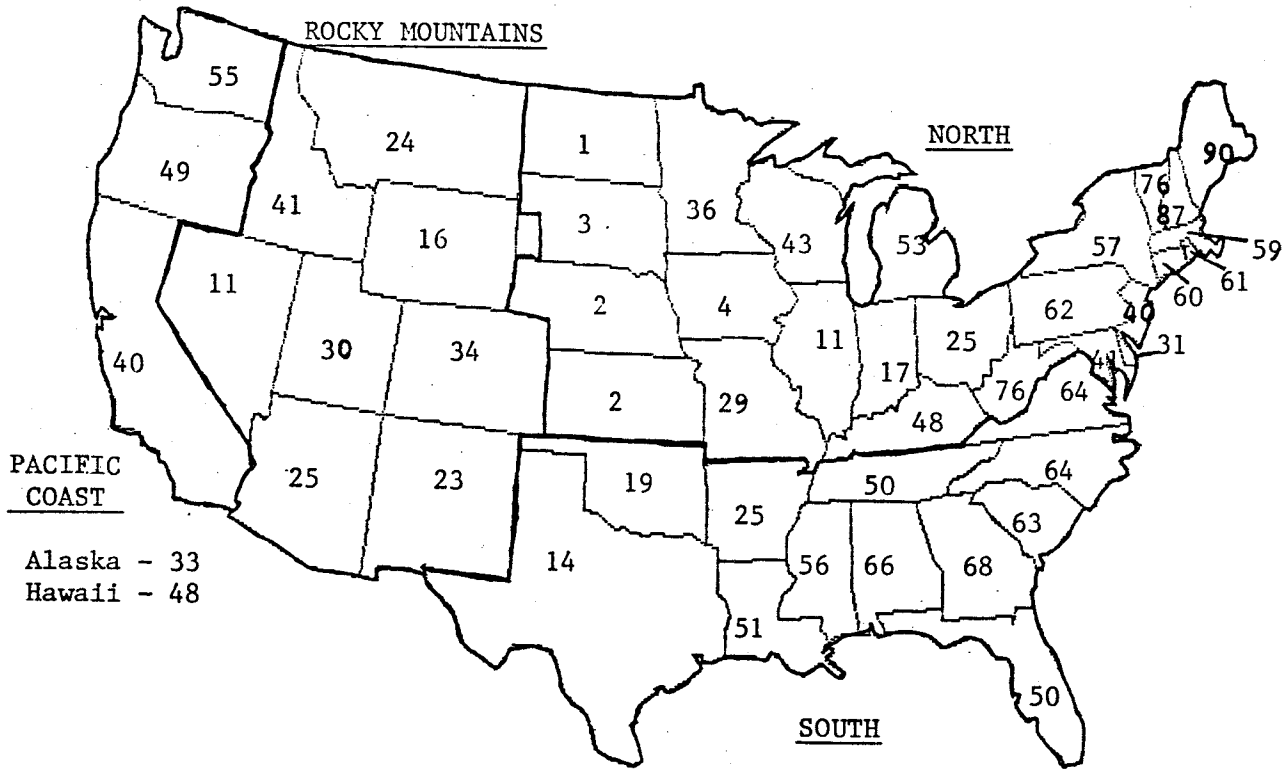
* Includes rangeland, cropland, pasture, swampland, industrial and urban areas, and other nonforest land.
From: USDA FS, 1982. Forest Resource Report No. 23, p. 118.

Rangeland in the United States is found primarily in the great plains, the intermountain west, and the interior of Alaska. Forests, in contrast, can be found throughout the nation (Table 1.1 and Figure 1.1). They can be divided into four types: northern or eastern forests, southern forests, Rocky Mountain forests, and the Pacific Coast forests.

Federal, state, and other public agencies own 27 percent of the nation's commercial timberland, while private individuals or firms account for 73 percent. Of the latter, 57.6 percent (278 million acres) is owned by farmers and other private individual landowners. Nearly one half is located in Southern States; most of the remainder occurs in the Northern States. Private industry owns 14.3 percent (69 million acres) of all commercial timberland. The Southern States contain 53 percent of these industrial forests and the Northern States 26 percent (Table 1.2).

In public ownership, the national forests (administered by the United States Forest Service) accounted for 18.4 percent (89 million acres) of the nation's total commercial timberland. The Rocky Mountain States and the Pacific Coast States contain the majority of federally owned commercial timberland. Federal agencies other than the Forest Service (e.g., Bureau of Land Management, Bureau of Indian Affairs, and Army Corps of Engineers) account for 2.2 percent of all commercial timberland. State, county, and municipal forests, resulting chiefly from tax delinquencies and subsequent forfeiture, are generally located in the Northern States. They account for 6 percent of the total commercial timberland (Table 1.2).

Figure 1.1. Proportion of land classified as forest by state. 1977.



From: USDA FS, 1981. Forest Resource Report No. 22, p. 15.

Table 1.2. Area of commercial timberland in the United States, by region and ownership. 1977.

Ownership	Total United States		North	South	Rocky Mountain	Pacific Coast
	Area	Proportion				
	Million acres	Percent		Million Acres		
Federal						
USFS	88.7	18.4	9.8	11.0	36.4	31.5
BLM	5.8	1.2	*	*	1.7	4.1
Other	4.9	1.0	1.1	3.3	.1	.4
State	23.4	.9	12.9	2.5	2.2	5.8
County/ municipal	6.8	1.4	5.6	.7	.1	.4
Indian	6.1	1.3	1.0	.2	2.7	2.2
Industry	68.8	14.2	17.9	36.2	2.1	12.5
Farmer	115.8	24.0	46.0	55.9	8.3	5.6
Other Private	162.2	33.6	71.7	78.2	4.2	8.1
All ownerships	482.5	100.0	166.1	188.0	57.8	70.5

* Less than 50,000 acres
From: USDA Forest Service, 1982. Forest Resource Report No. 23, p 121.

The northern and eastern forests include conifer tree species such as red and white pine, spruce, hemlock, and cedar. Common deciduous tree species in the region include oaks, beech, birch, maple, hickory, and walnut. Southern forests cover most states in the southeastern portion of the nation; they are comprised of pine, cypress, oaks, gums, yellow poplars, and walnuts. Rocky Mountain forests extend from Canada to Mexico. Ponderosa pine, western white pine, lodgepole pine, Douglas fir, hemlock, and aspen are common tree species within the region. Pacific Coast forests contain Douglas fir, western species of pine, cedar, and spruce. This region lies west of the Rocky Mountains and includes Alaska. In the U.S., overall, forest cover types of commercial forests are predominantly hardwoods (such as oak-hickory) in the east and softwoods (such as Douglas-fir) in the west (Table 1.3).

Most commercial timberland in the United States contains sawtimber (215.4 million acres nationwide or 44.7 percent). The Northern and Southern regions account for 60.5 percent of the total sawtimber stand acreage nationwide. The largest percentage of commercial timberland by region classified as sawlog stands, however, lies in the Rocky Mountain and Pacific Coast regions (Table 1.4). Poletimber stands exist throughout the United States with the majority (84 percent) contained in the Northern and Southern regions. As with poletimber stands, the majority of seedling and sapling stands (87 percent) lie in the Northern and Southern regions.

In sum, the Western forests of the United States consist predominantly of larger size timber as compared to Eastern forests. The extent of old growth timber is more common in the west. The Eastern forests are, in general, comprised of smaller stand class sizes. Over 28 percent of Eastern forests are composed of seedling and sapling stands; 11.8 percent are so classified in the Western forests (Table 1.4)

Table 1.4. Commercial Timberland Area, by Nature of Timber and Region. 1977.

Stand-size class	Total United States		North	South	Rocky Mountain	Pacific Coast
	Area	Proportion				
	Million acres	Percent		Million Acres		
Sawtimber stands	215.4	44.7	59.1	71.2	38.5	46.5
Poletimber	135.6	28.1	55.5	58.3	11.7	10.0
Seedling/sapling	115.0	23.8	46.7	53.3	5.0	10.1
Nonstocked	16.4	3.4	.8	5.2	.6	3.8
All classes	482.5	100.0	166.1	188.0	57.8	70.5

From: USDA FS, 1982. Forest Resource Report No. 23, p 125

Table 1.3. Area of Commercial Timberland in the U.S. by Forest Type, 1977

Forest type	Total area Million acres	Proportion Percent
Eastern types		
Softwood types		
Loblolly-shortleaf pine	50.0	10.4
Longleaf-slash pine	16.8	3.5
Fir-spruce	17.6	3.6
White-red-jack pine	11.8	2.4
Total	96.1	19.9
Hardwood types		
Oak-hickory	108.9	22.6
Oak-pine	34.6	7.2
Oak-gum-cypress	26.7	5.5
Maple-beech-birch	36.2	7.5
Elm-ash-cottonwood	22.3	4.6
Aspen-birch	19.2	4.0
Total	248.0	51.4
Nonstocked	10.0	2.1
Total East	354.2	73.4
Western types		
Softwood Types		
Douglas-fir	30.9	6.4
Ponderosa pine	26.6	5.5
Fir-spruce	19.9	4.1
Lodgepole pine	12,7	2.7
Hemlock-Sitka spruce	12.9	2.7
Larch	2.4	.5
White pine	.4	.1
Redwood	.7	.1
Other western softwoods	.5	.1
Total	107.0	22.2
Western hardwoods	14.9	3.1
Nonstocked	6.4	1.3
Total West	128.3	26.6
Total United States	482.5	100.0

Note: Data may not add to totals due to rounding.
From: USDA FS, 1982. Forest Resource Report No. 23, p. 121.

Nontimber productivity of the nation's forests is more difficult to determine. One measure of the ability of forests to provide outdoor recreation opportunities is the location of outdoor recreation activities, e.g., campgrounds. The number of campgrounds nationwide in 1977 was 15,852 (USDA Forest Service, 1981. p. 86). Publicly administered campgrounds (7569 campgrounds) comprised 47.7 percent of the total. These included municipal, county, state, and federal agency campgrounds. Over 35 percent (5579 campgrounds) of the nation's campgrounds are located in the northern region where 53.2 percent of the U.S. population and 24.1 percent of U.S. forest land is located. The south, with 27.3 percent of the population and 28.1 percent of the forest area, had 22.6 percent (3589 campgrounds) of the nation's campgrounds. The Rocky Mountains, in contrast, have 22.2 percent (3526 campgrounds) of the nation's campgrounds yet account for only 6.4 percent of the total U.S. population, and 18.7 percent of forest area nationwide. The Pacific Coast region has 19.9 percent of the campgrounds (3158 campgrounds) and 13.1 percent of U.S. population. The Pacific Coast has 33.4 percent of the total U.S. forest area. Outdoor recreation use and the economic activities associated with recreation use of forest land generate over $100 billion annually (USDA Forest Service, 1981, p. 66). As a legitimate forest use, outdoor recreation cannot be overlooked.

Forests are capable of producing many outputs. Forests used for outdoor recreation and wilderness allow citizens the opportunity to relieve themselves of the weariness of urban living and the day to day routine. Forests used for wildlife and fish habitat are enjoyed by sportsmen and preservationists alike. Rangelands produce forage for livestock. Forest utilization in the form of timber production allows for a plentiful supply of building materials, paper products, and other useful material goods. Forests are of vital importance as the source of much of the nation's water resources used for direct consumption, industry, and recreation. Indeed, forests are capable of producing much more than trees alone.

Location with respect to population centers, productive potentials of land, and other characteristics of forest land dictate the use(s) to which forests will be put. Clawson (1974) has identified three basic types of forest uses. The first are uses put to forest land but not necessarily to the forest itself. These may include the mining of subsurface minerals, road building and other "rights of way", residential construction, or forest land grazing.

The second type of forest use is that which is totally or wholly intolerant of another use. The most common is timber harvesting, wilderness use, and intensive recreational use. The essence of one of these forest applications is generally antithetical to the others. The difficulty in applying "multiple use" land management strategies exist due to this use characteristic. Intensity of conflicts arising among these uses are related to proportional combinations and intensities of utilization and management (Table 1.5).

Table 1.5 Degree of compatibility among various forest uses

Primary use	Maintain attractive environment	Provide recreation opportunity	Wilderness	Wildlife	Natural watershed	General conservation	Wood Production and harvest
Maintain attractive environment	X	Moderately compatible, intensity dependant	Not inimical to wilderness, does not insure	Compatible to most, less so to others	Fully compatible	Fully compatible	Limited compatiblity. Often affects extent
Provide recreation opportunity	Moderately compatible, intensity dependant	X	Incompatible; would destroy wilderness character	Incompatible for some, others more tolerant	Moderately compatible, intensity dependant	Moderately compatible, intensity dependant	Limited compatiblity. Timing and intensity dependant
Wilderness	Fully compatible	Completely incompatible, intolerant of intensive use	X	Highly compatible to most, less so to others	Fully compatible	Fully compatible	Completely incompatible, precludes all harvest
Wildlife	Generally compatible	Limited compatiblity; intensity dependant	Mostly compatible, some require veg. manipulation	X	Generally fully compatible	Generally fully compatible	Generally limits volume and conditions of harvest
Natural watershed	Fully compatible	Moderate compatibility; may reqire intensity limits	Not inimical to wilderness, does not insure	Generally compatible	X	Fully compatible	Moderate compatibility; restricts but does not prohibit
General conservation	Fully compatible	Moderately compatible; intensity dependant	Not inimical to wilderness, does not insure	Generally compatible	Fully compatible	X	Compatible, requires modification in harvest method
Wood production/harvest	Compatible if harvest method strictly controlled	Moderately compatible	Completely incompatible; would destroy wilderness	Compatible if harvest method fully controlled	Compatible if harvest method fully controlled	Compatible if harvest method fully controlled	X

From: Marion Clawson, 1974.
Conflicts, Strategies, and Possibilities for Consensus in Forest Land Use and Management

A third category of forest use is that use which occurs, to some extent, irrespective of man's effort, but which is influenced by his actions. Examples of this may be forests used as a source of water or as a watershed, wildlife production and use, and aesthetic reserves.

Certain forest uses are often restricted or prohibited on some lands due to incompatibilities or competition which exists among uses. Timber management, for example, in the form of wood production and harvest is completely incompatible with wilderness use and vice versa. Conflicts over forest land use and forest land management exist due to these forest use incompatibilities. Restrictions regarding the extent of certain uses will affect the compatibility and subsequent conflict arising from the proportional use combinations.

FOREST LAND USE AND LAND MANAGEMENT ISSUES

Many issues currently confront the use and management of the nation's forest resource. The range of complex problems originating in the forestry sector--and the need for better means of handling such conflicts is quite vast. **Land use** may be defined as the deployment of land for any use (Allaby, 1977). The competition for limited areas of land requires the establishment of priorities among claims. This is the object of land use planning. Land use issues deal with primary use objectives of land such as whether a forest tract will be managed for timber or be withdrawn from timber harvest.

The Society of American Foresters defines forest land management as the practical application of scientific, economic, and social principles to the administration and working of a forest estate for specified objectives (Ford-Robertson, 1971). In forestry, this may include professional applications of techniques from the fields of silviculture, forest protection, or forest regulation in the stages of forest management (scheduling, distribution, renewal, and protection). Land management issues deal with the way professionals manage the land they are responsible for such as the use of herbicides to control competition or the methods and extent of harvesting operations. The following is not a comprehensive listing of all forest resource conflicts, rather is meant to give understanding regarding issues currently of importance to forest resource use and management.

Clawson (1975) outlines six broad forest resource issues. The first is the question of <u>how much land to devote to forests</u>. Are current acreages of forested land sufficiently large, and should more emphasis be placed on retaining or adding to areas presently forested? Historically, many forests were cleared for cropland. Such conversions in recent decades have been modest, but the solution presented by such federal initiatives as the Conservation Reserve Program are to reverse this trend and plant trees on current cropland acreages. Is this appropriate?

A recent major forest policy issue concerns decisions to <u>withdraw certain forest lands from timber harvest and timber management</u>. This is in response to a public call for preservation of scenic values,

wilderness, and state and national parks. How much land should be withdrawn for specific uses and for how long?

Recent controversy has revolved around methods of harvesting timber. To what extent and under what circumstances should timber harvesting be allowed? Timber management and harvesting require access roads. Should roads be open only for timber access or should they also be opened for public recreation? If so, to what extent will road networks and human presence have an effect on recreation experiences and on certain species of wildlife, etc.?

National forest management and administration are currently important forest policy issues. How should the federal government handle the question of old-growth timber? What specifications should exist regarding the use of herbicides in the management of federal forest land? How much of the publicly owned forests should be reserved for wilderness and aesthetic reasons and for how long?

The output from small nonindustrial private forests and the programs aimed at such forest landowners are important current issues. To what extent should bureaucracies become involved in educating landowners and managing this vast majority of the total commercial forest. What is the optimum level of public support for increasing the output of small private forests?

Increasing demand for wood coupled with increasing concern over environmental "damage", or the need for timber given environmental constraints, is another current forest policy issue of importance. How does timber harvest influence water quality? What are "acceptable" levels of soil erosion resulting from timber removal? How will environmental effects of timber harvest be minimized?

Finally, Clawson (1975) identifies controversy surrounding the export of forest products from the United States. Should the United States continue to import processed timber (e.g., lumber, paper, and veneer) while exporting logs and cants to other countries? Is the requirement that shipping of products between U.S. destinations on only U.S. vessels a factor in the efficiency with which we produce processed forest products? Does this affect our global competitiveness? If so, what should be done about this situation? These, according to Clawson, are major forest policy issues important today.

Regarding specific questions, the Resources Planning Act provides for the identification and consideration of Federal policy issues. The scoping process has identified significant national concerns (listed below) that are relevant issues of public forest resource policy (USDA FS-403, 1986, appendix C; USDA FS-346, 1980):

- How much can the Forest Service increase production of wood and wood products from National Forest System lands within environmental and multiple-use constraints? Might such increased supplies slow long-term upward price trends?

- What opportunities for increasing utilization of the Nation's wood resources should the Forest Service consider? In which ways and to what extent can existing and emerging technology increase softwood supplies and reduce softwood demands in the 1980's and 1990's? What are the benefits of improved utilization of current wood resources to extend the timber supply?

- What are the local and national implications of National Forests implementing departures from nondeclining yields? What are the values and costs of retaining significant volumes of old-growth timber on the National Forests?

- What are the implications of commercial forest land producing at less than biologic potential?

- Should Forest Service programs be established which emphasize management of the hardwood resource?

- How should Forest Service programs support development of wood production from nonindustrial private forest lands?

- What cost-effective opportunities exist in development of wood fiber as an energy source and what role in wood energy should the Forest Service pursue?

- To what extent should the import and export of raw logs be controlled?

- What should be Forest Service policy for pesticide use, research, and registration to achieve management goals?

- Should cost-effective capital improvements on the National Forest System continue to be financed through the traditional processes, or should the U.S. Department of Agriculture recommend some alternative approach that is fiscally feasible and that might improve the effectiveness and administration of National Forest programs?

- How much National Forest land should be recommended for inclusion in the National Wilderness Preservation System?

- Can the supply of outdoor recreation opportunities from public forest and range lands be expanded in response to projected demand? What should Forest Service policies be on the use and development of National Forest System lands for recreation purposes?

- To what extent should the Federal Government require users to pay fees for the use of federally financed recreational opportunities on National Forest System lands and on all Federal lands?

- Should multiresource outputs from eastern National Forests be increased to respond to public demands? Can increases in outputs be accomplished by a clear and explicit declaration of a strong

commitment to meet Eastern needs and opportunities through adjustments in programs, policies, and management? To what extent do increases in resource outputs to meet public demands and expand public benefits require speeding up land acquisition to round out the Eastern National Forest?

- How should the Forest Service develop and manage the forage resources on the National Forest System for use by domestic livestock? What are the trade offs of Federal rangeland producing at less than biological potential?

- How can the National Forests contribute to meeting the increased demand for mineral and energy development? What actions should the Forest Service take to facilitate exploration and development of energy nonenergy minerals on National Forest System lands? What should be the role of the Forest Service in research and development to protect, restore, and rehabilitate lands disturbed by surface mining activities?

- What emphasis should be placed on wildlife and fish resources in National Forest System, State and Private Forestry, and Research activities? What are the implications of changes in wildlife and fish habitat relative to other uses?

Forest management issues that have currently been receiving public attention outside of the U.S. Federal arena include the application of herbicides for controlling competition with forest seedlings. The state of Minnesota recently witnessed a conflict regarding the application of aerially applied herbicides for forest management practices (von Sternberg, 1987). Canada has experienced numerous debates over the use of pesticides in the management of forests (Dunster, 1987).

The above discussion of current forest use and management issues shows that individual citizens and groups are very concerned about the way their nation's forests are used and managed. The importance of the forest resource to the nation's citizens is vast and ever-increasing. The methods with which issues are resolved in forestry has a direct bearing on the amount of conflict and the intensity of disputes that will arise in the future over the use and management of our nation's forests.

POLICY AND PLANNING PROCESSES FOR PROCESSING ISSUES

Markedly different opinions and values regarding the judicious use and stewardship of forests result in inevitable conflict. Economic and social enhancement objectives are used by all forms of government in the policy directions taken towards forest management and use. The success of forest management programs, rules, and policies initiated by government results from the exacting care with which those programs and policies are derived. It is therefore important to understand the policy development processes within which decisions are made.

How are public issues regarding forest land use and management dealt with? What difficulties exist in addressing issues on a public policy scale? What are the legal mandates with which public policy in forestry revolves around and how did they develop? A basic problem of society and government is to resolve issues in a way that most nearly reconciles numerous and contending interests (Clawson, 1975). Many issues presented to the policy decision process are left unresolved or produce failures (nonresolutions). The three most important types of nonresolutions (Eyestone, 1978) are diverted issues, or issues that are redefined by advocates due to unsatisfactory government response; deferred issues, or issues that fail to be resolved and are brought back up at a later date; and displaced issues, or issues in which the focus of controversy shifts from the original issue to an entirely different issue. Why do nonresolutions occur? The following section will outline the general policy development process in order to infer reasons for public policy failure in resolving issues.

POLICY PROCESSES AND IMPORTANT ACTORS

The forum for addressing concerns regarding forest management is the public policy making process. Conflict and struggle by parties involved in issues is focused by the policy process through which decisions are made. The establishment of policies can be explained using various models with associated variation in the emphasis placed on aspects of logical importance. Quantitative values of costs and benefits, equity values of who wins and who loses, and more normative values in regards to change exist in the explanation of how policies are attained. Recently, interest has been growing in a systems perspective on public policy which emphasizes iterative steps toward progress and takes into account the political environment through which policy is made.

The analysis of policy development reveals basic similarities in the ways that issues become addressed at the policy decision-making level. One of the many policy development perspectives defines six basic phases of the policy process through which issues, policies, and programs pass over time (Brewer, 1983). These are outlined below.

Initiation - This stage begins with individuals and their perception of problems that need to be addressed. Individuals perceiving similar problems organize into groups with common interests. The specific processes of issue identification, definition, and context along with the

possible avenues of issue movement through the policy addressing forum are outlined. Group goals and objectives are formulated in regards to the political environment in which the issues are addressed. Action demands are made of governmental entities. Governments recognize issues put forth by groups and agendas are formulated to address them. Alternative tactical routes in the policy process are identified and analyzed.

Estimation - Options identified in the initiation phase are critiqued in the context of implied benefits and costs. Analysis of options take on an empirical framework which emphasizes the quantification of option consequences. Emphasis, albeit less scientific, is also given to more normative aspects of alternatives. The range of possible alternatives is narrowed through winnowing out infeasible options as identified through the estimation process. Hence, efforts are placed on putting the most plausible alternatives to work in order to attain the stated objectives.

Selection - Policy makers decide on issue outcomes in this stage through the formulation of policies, programs and rules. Politics play a large role in actual decision making using the analysis of the previous two stages, initiation and estimation, as a guide. The integration of analytical outcomes and political reality and experience are weighted to derive "workable" solutions. Bargaining and political deal making, to a large extent, affect the decision(s) made.

Implementation - Decisions arrived at in the selection phase are carried out. The implementation of the selected alternative(s), which may or may not be the optimum (as derived through the estimation phase), are attained and, in theory, should prove to be an efficient, equitable, and politically feasible execution of the chosen option.

Evaluation - Differentials existing between possibilities and reality are analyzed in regards to the decision(s) made. Policy effectiveness and efficiency are appraised. Has the decision proved to be efficient in the allocation of resources? Has it been equitable to parties involved? And has the implementation of the decision been shown to provide political progress to the decision-maker involved? Evaluation criteria, of various sorts, are used to varying degrees and with debatable emphasis in order to provide a measure of success or nonsuccess.

Termination - Determinations arrived at in the previous phase regarding the resolution of conflict are implemented. Decisions reached are adjusted by parties with the power to do so through the various methods of the evaluation process. Initiatives taken as a result of decisions are adjusted to account for differentials in evaluation criteria.

The general acceptance of the legitimacy of current policies by the decision makers hints at the notion of incrementalism. The bases for future policy directions are policies currently in place. The policy

development process and decision making in general consider change in small increments; new policies as variations of past policies. This practical approach to policy problem solving gives intelligible scope to realistic possibilities and directions for policy progress. Outlined below are policy maker motivations for the advocacy of an incrementalist approach (Ellefson, 1986).

- Incrementalism conserves resources (e.g. time, intelligence, money) used in the investigation of all alternatives to existing policies.

- Incrementalism reduces the uncertainty associated with the consequences of completely new or markedly different policies.

- Incrementalism reduces the fear of displacement (economic, organizational, and administrative) attributed to radical changes in existing programs.

- Incrementalism changes policies in small increments, hence, political agreement is less difficult as compared to large scale changes in policies.

- Incrementalism allows for less costly retreat from policies found to be in error.

Political realities play a large role in the formulation of policies and the notion of incrementalism provides for decisions that will tend to be more politically "workable." Incrementalism as a decision making process has the characteristic of policy being made toward changing objectives and goals in an incremental fashion. Radical shifts of policy open a "Pandora's box" that is beyond the scope of foreseeable consequences from the policy maker's perspective. Incrementalism adjusts for unforeseen consequences in a more orderly fashion as compared to radical policy shifts. Incrementalism takes into account bargaining and deal-making (compromise, logrolling, and sidepayments) as political realities and that a "workable" solution is a decision that is based upon consensus rather than outside criteria of effectiveness or efficiency.

Actors within the policy development process, basically, fall within four general categories: legislative actors, judicial actors, interest group actors, and bureaucratic actors. Responsibilities and activities of groups vary depending upon category. It is interest groups that perceive problems and force their attention on legislators. Legislators respond by enacting laws that are interpreted and implemented by the appropriate bureaucracies. If conflict arises over interpretation of law, the judicial system decides the outcome.

Legislative actors. Legislators have a commitment to their constituents. It is through this commitment that the legislature acts with the responsibilities of modifying existing laws or making new laws, authorizing or appropriating funds for specific purposes, and performing oversight functions of review and investigation of governmental affairs. The legislature is limited in its power function by executive willingness

to implement a program or law and judicial interpretation of a program or law.

A bill, or written proposal, is drafted after individuals, bureaucracies, or interest groups convince a legislator that a change is needed in a current law or that a new law is needed. Legislatures are organized into committees (supported by delegate and committee staff) that have numerous responsibilities, including referral of bills to subcommittees, conducting hearings or information exchange sessions, assessment of a bill's merits, and recommendation to the full house or senate of passage of a bill. Upon approval of the House and Senate, the bill goes to the executive for signature. Upon executive signature the bill becomes law.

Judicial actors. Legal interpretation of laws and programs are the responsibility of judicial systems. Courts address violations of law, failures to follow procedures set forth by law (procedural failing), and failures to act in a rationally planned manner (arbitrary and capricious actions). The judicial system is fueled by the adversarial process in which two disputing parties present evidence in court. Judges act on parties' presentations to decide on the outcome "objectively" based on evidence presented. Decisions are made with authority and result in one party winning and one party losing (zero sum). There is little room for compromise once the judicial process is underway.

Interest group actors. The responsibility of legislative and judicial systems can further be generalized as the management of conflict between various interest groups and the guidance of these groups to resolutions or agreements regarding matters of policy. The management of conflicts between interest groups by legislative and judicial systems is accomplished by establishing rules to follow, reaching consensus through compromise, enacting the compromise into law, and, finally, enforcement of laws. Interest groups involved in forming forest policies include citizen conservation groups (e.g., Sierra Club, American Forestry Association, National Wildlife Federation), professional societies and affiliations (e.g., Society of American Foresters, The Wildlife Society, Forest Products Research Society), and industry trade associations (e.g., National Forest Products Association, American Forest Institute, American Pulpwood Association). In general, democracy within such groups is limited. The respective board and staff enjoy a significant degree of freedom in actions taken. Voluntary membership within groups is, in essence, democratic in that board actions may cause membership to increase or decrease depending upon membership attitude of board action taken.

Interest groups are effective in changing policy through lobbying (direct communication), contributing funds to politically favorable campaigns, and public relations (or propagandizing). Policy effect is also attributable to group membership letter writing campaigns and information disbursement regarding legislators' opinions and voting records on issues of import to members and the general public. Also, legislators rely on information provided by interest groups as a basis of

knowledge on various issues in which policy is being formulated (Ellefson, 1987, p. 69).

Bureaucratic actors. The implementation of policies and programs are carried out by bureaucratic agencies. Important federal agencies involved with forest land use problems and forest management include the U.S. Department of Agriculture's Forest Service, the U.S. Department of the Interior's Bureau of Land Management and National Park Service, the Soil Conservation Service, and the Army Corps of Engineers. State agencies (e.g., Minnesota Department of Natural Resource, Colorado Forest Service) are involved in the management and utilization of forests as well. County, municipal, and local governmental agencies also have jurisdiction over large acreages of forest land. Nonland management agencies such as the U.S. Environmental Protection Agency and the Minnesota Environmental Quality Board also cause or attempt to resolve conflict in forestry settings. Actions of land management agencies in the implementation of policies are contested and result in conflict. The manner in which agencies approach current conflict has a direct effect on the extent of future conflict.

LEGAL MANDATES FOR MANAGEMENT OF FORESTS

Forest policies rest on a foundation of legislation at federal, state, and local levels. The manner in which public and private forests are used and managed has, in many instances, been mandated by law. Below are examples of legal mandates guiding federal forest land use and management programs (Arbuckle, 1983; Ellefson, 1987). This list is by no means exhaustive, but rather a perusal of some federal laws that are used to address forest resource use and management.

Clarke-McNary Act (1924) - This Act bridges the gap between federal and state authorities by authorizing the Secretary of Agriculture to cooperate with states on various aspects of forest management including: forest protection from fire, effects of timber tax laws, regeneration of forests after fire, distribution of seeds and seedlings, and providing forest management information to farmers.

Multiple Use-Sustained Yield Act (1960) - This Act directs the Secretary of Agriculture to administer the national forest system according to the ideology of multiple use. The Act sets out definitions of multiple use and sustained yield. The five tenets of multiple use are defined as 1) outdoor recreation, 2) range, 3) timber, 4) watershed, and 5) wildlife and fisheries.

Wilderness Act of 1964 - the National Wilderness Preservation System is a result of this Act. Areas included in the System are at least 5000 acres in size, are initially not influenced by man, are retained in their present state, and contain features of ecological, geological, educational, scenic, historic, or scientific importance. This Act establishes a process of review for areas considered potentially suitable for inclusion in the System.

National Environmental Policy Act (NEPA) of 1969 - Signed into law in early 1970, this short, general statute declares a national environmental policy and promotes consideration of environmental concerns by federal agencies. It establishes the Council on Environmental Quality and requires, with few exceptions, federal agencies to prepare an Environmental Impact Statement (EIS) detailing the impact of and alternatives to proposals of federal actions that significantly affect the quality of the human environment.

Forest and Rangeland Renewable Resources Planning Act (1974) - This Act, known as the RPA, mandates the Secretary of Agriculture to prepare for congressional approval an assessment of the nation's forest resources. The RPA forces federal executives to state their plans explicitly. To be updated every five years, the assessment is to address needed funding to carry out the proposed program, activities of the national forest system, research, and state and private forestry.

National Forest Management Act (NFMA) of 1976 - This Act authorizes various amendments to the 1974 RPA and the 1897 Organic Act. Changes include new procedures for National Forest land management plan preparation, National Forest abidement of sustained yield/even flow, public input into programs and guidelines, and new rules governing timber sales.

Renewable Resources Extension Act of 1978 - This Act provides for an expanded and comprehensive extension program for forest and rangeland renewable resources. The Act calls for authorization within the Department of Agriculture for forestry extension as a separate unit from Agricultural Extension in order to develop more effective educational programs aimed at management of the nation's forest and rangeland renewable resources.

Legal mandates for nonfederal forest land use and management are often addressed at the state level. State policies for the management of forests vary widely, from an absence of state requirements to highly restrictive laws aimed at regulating forest management practices. Seven states (Alaska, California, Idaho, Massachusetts, Nevada, Oregon, and Washington) currently have in place what can be thought of as a set of comprehensive, modern, state forest practice laws. These laws, in general, are not highly prescriptive in regards to forest activities, rather, they establish performance standards which specify a level of resource protection which the operator or landowner is required to meet (Henly, 1986). Through tax and financial incentives, educational programs, technical assistance, voluntary guidelines, and legal regulations, state forest practice laws attempt to protect water quality, specify reforestation and proper forest management activities, call for forest protection, and address wildlife and aesthetic management. Specifically, state forest practice laws may call for professional forester licensing as a requirement to practice forestry, they may specify buffer zones around harvested areas and indicate maximum clearcut acreages. The imposition of forest practice restrictions may be quite costly to those that need to comply with them. Henly (1986) indicates

that although state forest practice laws are regulatory in nature, they are usually administered in a cooperative manner between agencies and operators and are aimed at establishing environmental protection standards for forest management activities on private lands and nonfederal public lands within each respective state.

CONFLICT MANAGEMENT THEORY AND PROCEDURES

Regulations and restrictions placed on forest management are the result of groups and individuals considering it within their right to determine how forest resources will be managed now and in the future. Conflict inevitably occurs between and within groups as they struggle to influence policy and management directives. What is conflict and what are conflict management processes? What alternative dispute resolution processes are available. And what conflict, discord, and dispute management actions are directly applicable to the forestry community? Such is the subject for what follows.

DEFINITIONS AND THEORY

What is conflict, discord, and dispute and what theories exist in attempting to explain these phenomena? What differences exist between fundamental approaches to conflict? Why are certain disputes and the groups involved in certain conflicts more amenable to resolution than others? Why do other conflicts escalate into major conflagrations, the largest of which being physical warfare? Theories exist which explain differentiations between distinct, fundamental conflict approaches. These distinctions affect the manner in which issues in conflict are resolved.

Definitions of conflict most often include the term disagreement and the phenomena of emotional tension resulting from incompatible inner needs or drives. Conflict implies an irreconcilability of duties or desires and stresses the action of forces in opposition. Incompatibilities of activities is stressed, by some (Deutsch, 1973), in the identification of conflict existence. Discord, a synonym of conflict, implies an intrinsic or essential lack of harmony producing quarreling, factiousness, or antagonism.

Conflict can occur between individuals within groups (known as intragroup conflict) and between groups (known as intergroup conflict). The bases for these types of conflict and the inherent incompatible differences have been alluded to in much of the theoretical literature on conflict. Bomers (1982) research on industrial conflict management states that conflict is generated by <u>structural differentiation</u> and <u>personality differences</u> which cause inconsistent goals and incompatibilities of expectations. Structural coordination and interpersonal development are issues important in conflict management. Bomers further states that <u>scarcity</u> of resources and the battle over control of finite resources cause inherent conflict. Issues of conflict management aimed at this root include distribution and equity. <u>Ideological differences</u> and the <u>dominance</u> (asymmetrical distribution of power) of ideologies can cause conflict with management issues aimed at power.

Morton Deutsch (1973), has identified six basic types of conflict which focus on the way conflict is defined from the perspective of the parties involved. Emphasis of Deutsch's theory lies in the nature of

conflict and the extent of ill-defined conflict. It also alludes to the possibilities of consensus building, compromise, and cooperation effectiveness in the resolution of conflict depending on the conflict management method used. The six basic conflict types as described by Deutsch are outlined below.

Veridical conflict, or true conflict, arises when desires of an individual or group are objectively incompatible with another and not illusory. Parties to this type of conflict perceive incompatibilities accurately. There exists no easily alterable environmental condition that conflict is contingent upon. Veridical conflict is difficult to resolve amicably unless parties are cooperative in reestablishing priorities.

Contingent conflict is conflict which exists as dependant upon alterable environmental conditions. Parties to contingent conflict fail to recognize alterable conditions upon which resolution is contingent. This type of conflict would cease to exist upon adjustment of conditions. Contingent conflict may be difficult to resolve if the groups' (involved in conflict) latitude to alternatives are narrow and rigid. Fact finding and compromise are key features in the resolution of this type of conflict.

Displaced conflict is conflict which emphasizes a false issue and is comprised of two sub-types of conflict. The manifest conflict is the false issue that is in conflict which symbolizes the underlying issue of discord. The underlying conflict surrounds the true issue that conflict is resulting from. Often caused by tensions and irritabilities between disputing parties, displaced conflict management or the resolution of manifest conflict is only a temporary solution. As alluded to earlier, many land management issues (e.g., clearcutting) may, in fact, be manifest conflicts with underlying conflicts actually being land use issues.

Misattributed conflict is conflict between the wrong individuals or groups, and therefore, is usually conflict over the wrong issues. This is a tactic used in many political battles in which one group directs information to another in order to cause discord and subsequent divisions within the ranks of the targeted group (the "divide and conquer" strategy). The identification of misattributed conflict and subsequent cooperative strategies aimed at the true conflict can give added power to coalitions of "low power" groups.

Latent conflict, also known as false peace, is conflict that should exist but does not. It may be conflict that is displaced, misattributed, repressed, or as yet nonexistent psychologically due to denigration of identity. Latent conflict may become veridical or contingent conflict through consciousness-raising.

False conflict is conflict which is not logical or rational. It is conflict with no objective foundation. It is attributed to misperceptions and misunderstandings of the parties involved. Education

and idea exchange may resolve false conflict or cause false conflict to become true conflict through the elicitation of different attitudes and objectives.

Of the six types of conflict listed above, only the first, veridical conflict, is an accurate, objective statement of the conflict situation. In all types except veridical conflict, attempts made at conflict resolution are not addressing the true issue of discord and subsequent agreement or consensus will usually prove to be temporary and ineffective.

Mutually beneficial outcomes of conflict (nonzero sum) are dependant upon the orientation of the groups involved. If nonzero sum outcomes are desired, it is clear that cooperative motivational factors must be present within the groups involved in discord. Consensus-building, cooperation, and compromise must be utilized in order to derive solutions that are mutually beneficial. The behavior of the conflicting groups must be more integrative than distributive, or, in other words, they must engage in cooperative rather than competitive behaviors. The following section will discuss these orientations of disputing groups in order to identify clues in the process of deriving constructive rather than destructive resolutions to conflicts.

COOPERATIVE VERSUS COMPETITIVE APPROACHES

The nature of conflict tends to be fueled by the desires of disputing groups in attaining certain payoffs. Simplified, payoffs (or interests) are (Thomas, 1976; Bomers, 1982): feelings of self or group satisfaction (psychological), objective criteria (or substantive), and combinations of the two. ROMCOE (1981), an environmental problem solving institution, adds to this list procedural interests or the manner with which the resolution process is carried out. Too often, these payoffs or interests are hidden by previously stated positions and issue complexities. The multifaceted nature of a party's interest in conflict management is important in issue resolution because multiple interests open doors to feasible alternatives.

Successful conflict resolution requires that the interests of disputing parties be identified and assessed before parties become locked into positions. The important factors which should be considered in assessing a disputing party's position and interests have been identified by ROMCOE:

> **Disputing parties interests**, whether substantive, procedural or psychological, need to be identified as affecting conflict resolution.
>
> **Conflict of interest** identification between disputing parties is important in assessing whether mutually beneficial outcomes are possible.

Desired relationships between the parties to a dispute have impact on future conflict that may arise. Approaches taken to conflict affect future relationships of disputing groups.

Legal or constituent mandates which dictate latitude of parties in designing the resolution process are important in assessing constraints to achieving specified interests. These affect the manner in which the conflict is resolved.

The desired payoffs and objectives of disputing parties are a direct function of the strategies used in conflict management. An important criterion of disputing parties interest in reaching mutually beneficial outcomes of disputes is the desired future relationship between the parties involved. If a disputing party is interested in obtaining a "good working relationship" for long term conflict management with the party in conflict, there will be emphasis placed on satisfaction of the "other" party by the respective groups.

In illustration, the literature (Thomas, 1976; ROMCOE, 1981; Bomers, 1982) uses a graphical representation that identifies five possible outcomes that depend on integrative versus distributive orientations of the groups involved (Figure 2.1).

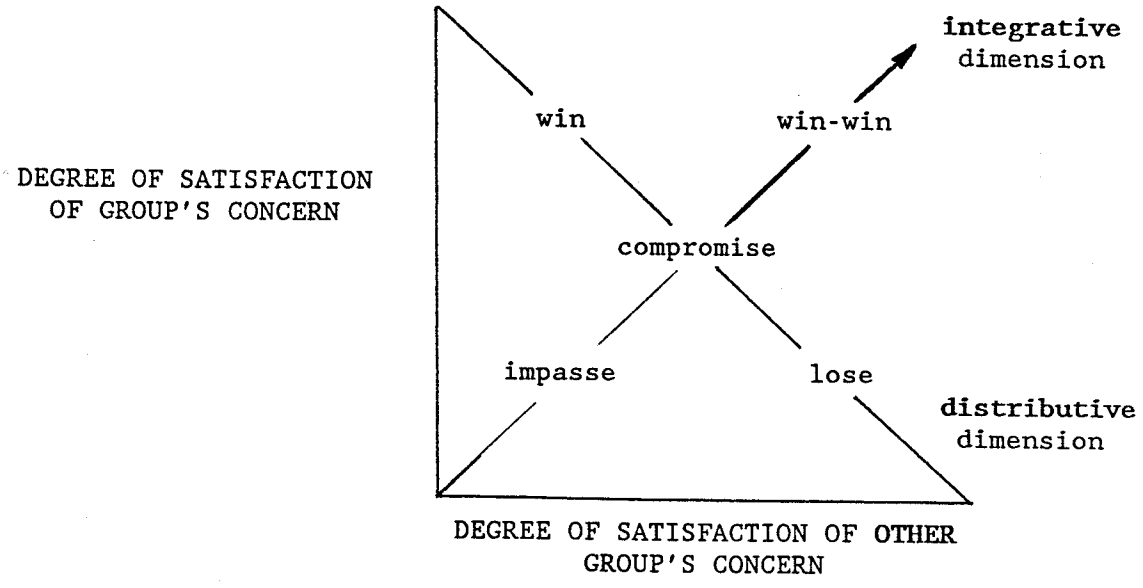


Figure 2.1 Integrative versus distributive outcomes of conflict

From: ROMCOE, 1981

Groups that have interests attainable through **distributive** objectives of conflict resolution can have outcomes of either win, lose, or compromise. Satisfaction of either group is limited to the absolute value of winning or losing outcomes. If outcomes are distributed such that one group's outcome is an absolute win, the other group's outcome is an absolute lose (outcomes in combination are zero-sum). Compromise, in this instance, can only add up to a fractional proportion of either absolute value (e.g. group A win = .5, group B win = .5; total win = 1.0). Note that both groups also gave up the respective opposite in the bargaining process (e.g. group A loss = .5, group B loss = .5; total loss = 1.0) so that the combination of wins and losses equal zero (wins = 1.0 minus losses = 1.0 is equal to zero).

Win/lose outcomes occur, in general, if one party has vastly greater power, is extremely assertive, or is uncooperative as compared to the other party in dispute. They occur: when long-term relationships are not of interest to disputing parties; when the parties in dispute have independent interests; or when the payoffs or stakes in winning are high. Compromise outcomes result from disputing parties adjusting and exchanging goals in order to obtain others valued as alternatives. **Compromise** results when both disputing parties lack necessary power to win total satisfaction yet both are assertive. If the long-term relationship of parties to dispute is important but trust is not sufficient in order to work together, outcomes will tend to be compromises.

Conversely, if groups enter conflict with **integrative** objectives, sums of outcomes will generally be greater than zero. **Impasse**, an outcome with negative sum, tends to occur when agreement from both perspectives is not reached. Poor communication, faulty resolution processes and lack of trust in conflict management result in impasse. Impasse may lead to a change in objectives from integrative to distributive. An integrative approach to conflict management such as mediation yields agreement that, by nature, is nonbinding (Minnesota Department of Natural Resources, 1987; Folberg, 1984). Competitive or distributive methods, such as litigation, may be implemented in negative sum situations of impasse. Impasse can also occur if the disputing groups lack power to force the issue or if the payoffs of the outcome are low and disputing groups don't care about the resolution of the issue.

Mutually beneficial (or win-win) outcomes occur when the goals of all parties to a dispute feel that interests have been achieved. In conflicts resolved through mutually beneficial problem solving, parties to a dispute are not engaged in a power struggle. Parties attaining win-win agreements feel that the long-term conflict management relationship is important and emphasize the solution to the problem to be of import. Characteristics of disputing groups engaged in win-win outcomes include being assertive problem-solvers with freedom to cooperate and exchange in consensus-building (identification of ideas in agreement rather than emphasis on ideas in disagreement) and joint problem solving. Furthermore, the interests of disputing parties tend to be mutually

interdependent in the attainment of mutually beneficial resolutions to conflict.

Therefore, groups can have sums of winning outcomes that can approach the finite addition of each respective win (e.g. group A win = 1.0, group B win = 1.0; total win = 2.0). In certain circumstances (if long term conflict relationships between groups is critical), the sum may be in excess of winning possibilities previously thought to be attainable. This is the justificative essence for win-win (or integrative) methods of conflict management.

Conflict Management Methods

As alluded to earlier, various types of conflict resolutions are a direct result of the conflict management method used. Competitive methods of conflict resolution result in distributive outcomes and cooperative methods of conflict resolution result in integrative outcomes. The strategy or tactic of resolving disputes is also modeled in the literature as methods of conflict resolution behavior that can be closely assimilated with the above approach of resolution outcomes (Figure 2.2 adapted from: Bomers, 1982; ROMCOE, 1981).

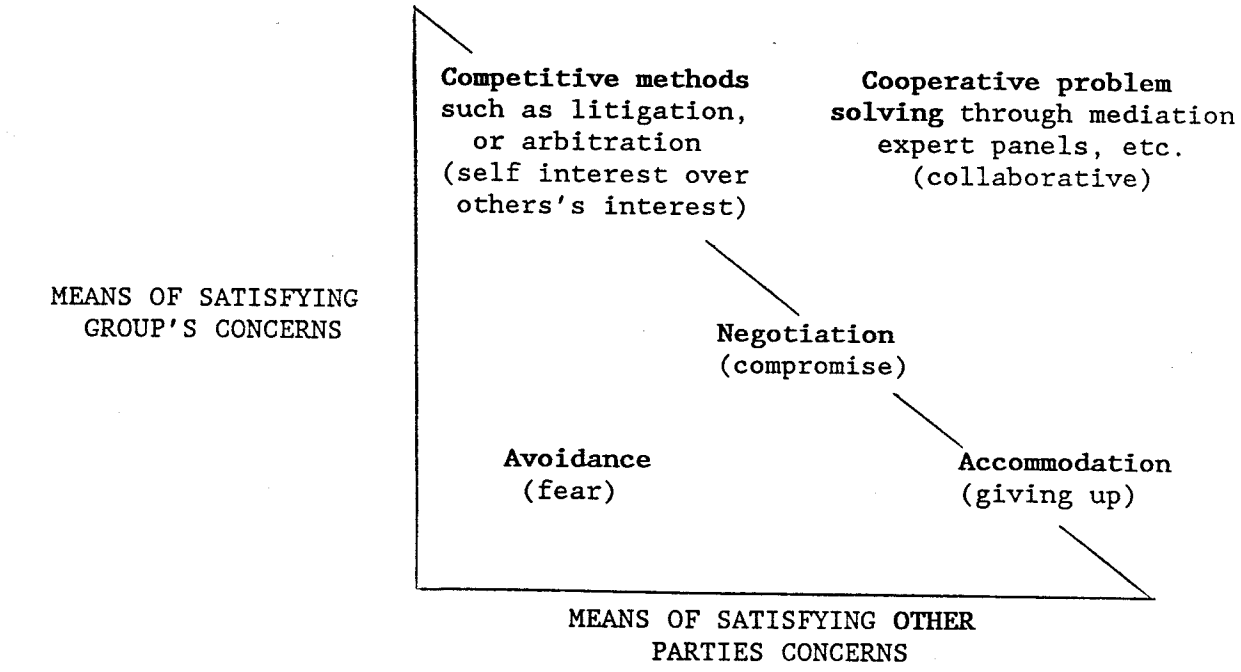


Figure 2.2 Conflict management behavior/strategy

Adapted from: Bomers, 1982 and ROMCOE, 1981

The **competitive method** of conflict resolution rests on the basic tenet of self or group desires in obtaining all of the benefits at the expense of (and against) the other individual or group. Choosing competitive strategies indicates that one group's desires work against the other group's desires. Strategies of competition in conflict management include litigation (or the judicial process), arbitration (impartial "judgement"), and executive or administrative decree. The focus of one group's interests are of such narrow scope that few alternatives exist. These alternatives or solutions are not acceptable to the other party in dispute. Risks of the use of this conflict management method hinge on the group's power in guaranteeing a win (or suffering the consequential effects of losing).

Accommodation exists when one group gives up interests at the expense of its own needs and desires. Accommodation, as a strategy, may have positive applications if: (a) used to maintain a positive relationship with a disputing party; or (b) used in the demonstration of cooperation; or (c) used in the hope of more collaborative future process implementation with the disputing group. Equity is not necessarily served, however, if accommodation is used because the group lacks assertiveness or is passive in strengthening its own needs. Groups may also lack the necessary power to influence or pursue alternative strategies, which may lead to an accommodation strategy.

Negotiation is a key in both competitive methods and cooperative methods of conflict management. It is used for educating and bargaining with the group in conflict. Implementation of assertive negotiation may be used before the perception of win-win possibilities surface. Trust, or the lack thereof, is a key to successful mutually beneficial problem solving; negotiation of issues brings this out. Negotiation and compromise, from a competitive perspective, are important if the disputing groups are of sufficiently equal power and initiate equally narrow objectives such that issues cannot be forced to be beneficial to either group. Seemingly finite sized pies (as seen through competitive eyes) are sliced through negotiation.

Strategies emphasizing mutually beneficial outcomes or **cooperative problem solving** aim at attaining the needs of all parties involved. Experience of professional dispute managers cite that cooperative techniques of conflict management are optimally applied to situations in which relatively high levels of trust exists between disputing parties. It is also important that disputing parties have an objective of mutually satisfactory outcomes and that group interests are mutually interdependent. Also, cooperative problem solving is enhanced when parties to a dispute have equal power to carry out adversarial dispute processes (such as litigation) or the group with superior power is cooperative.

Techniques of cooperative conflict management include conflict anticipation, problem solving/facilitation, and mediation (ROMCOE, 1981). The first, conflict anticipation, is a benefit of seeking cooperation using relationships of groups which have historically met in dispute in

order to anticipate future potential conflicts prior to conflict emergence. Policy dialogue/interest group involvement in the decision making process and regulatory negotiation (or negotiated rulemaking) are types of conflict anticipation methods. The identification of potential disputes arising from various policies or rules is an important tool for long term conflict management. The second cooperative problem solving technique, problem solving/facilitation is applicable to disputes in which conflicting issues have not escalated to extreme polarization and parties to a dispute enjoy a reasonably amicable relationship. The third cooperative problem solving technique, mediation, is appropriately applied to disputes which have escalated to extremely polarized positions. The existence of intense emotional feelings, crumbling communication channels, and an associated disintegrating trust relationship between groups signals mediation as an appropriate conflict resolution technique. Mediation requires that positions and organizational structures be well defined. Groups which desire the application of mediation in the management of conflict need leadership with well defined constituency support.

Cooperative Conflict Procedures

Fundamental steps in the conflict management process have been identified in order to make cooperative problem solving and management a success. The cooperative conflict management literature (Folberg, 1984; Moore, 1986; ROMCOE, 1981; Stulberg, 1987) agree on various aspects that are important for successful resolution of a dispute. Listed below are important steps leading to successful cooperative conflict management.

Introduction is the first step towards cooperative conflict resolution. ROMCOE identifies this as being the **fact finding** stage where groups gather information about the other party to a dispute. The future relationship between disputing parties and the substantive issues of conflict are determined.

Conflict analysis integrates what is found through the introduction stage into a method for approaching conflict management. This planning process specifies the implementation of a strategy and results in a plan for action. Working group presentations, expert panels, and co-investigation by representatives of disputing groups are formats used in conflict analysis.

Conflict assessment is given from a third party perspective (mediator) and allows for new dimensions of the conflict to surface and the identification of pathways toward more workable solutions. It does not give final solutions but is a way for the parties to become aware of each others resolution objectives and paves the way for more readily accessible agreement.

Information exchange can occur throughout the conflict management process and is a way for disputing parties to exchange factual information and perceptions that are pertinent to their positions. It may occur formally or informally. Information exchange is accomplished

by talking in pairs, group interviewing, working papers, presentations (with question and answer periods), and small group to large group presentations. Equal dialogue or the ability for disputing groups to enjoy equal time to present viewpoints is important.

Identifying concerns and interests lays out possible constraints to resolution of a dispute that come out of the information exchange stage. This further isolates and clarifies issues that are felt to be substantive by the groups involved.

Developing alternatives or the **creation of options** develop alternate routes of issue resolution. Issue objectives and the needs of the parties concerned that are important to the final resolution of conflict are used to develop options. Brainstorming, designing alternative perspectives, and the analysis of different scenarios are formats used in the development of alternatives stage.

Consensus building is used to attain agreement of disputing groups without voting. The gathering of viewpoints and information along with the discussion or persuasion that is carried out emphasizes positive attributes of respective group stances in synthesizing proposals and alternatives. Individual and group ranking of issues, informal voting, small group to large group consensus, and caucuses (private meetings) of each respective group are specific techniques used in consensus building.

Conciliation encourages reasonable discussion and rational bargaining by improving the attitudes that groups hold toward each other. Key to conciliation is the reduction of fear and hostility and the correction and clarification of perceptions and differences.

Negotiation is an agreement seeking process whereby disputing groups bargain on substantive conflicting issues. Generally, discussions are direct and, if successful, result in agreement meeting disputing parties needs.

Mediation is accomplished through an impartial third party acceptable to the groups involved in a dispute. The third party has no decision making authority but assists the disputing groups in deriving mutually acceptable solutions to substantive issues in conflict.

Conditions for Successful Management

Focusing on the use of cooperative methods and mediation for the management of environmental disputes, there are limitations and prerequisites within which alternative dispute resolution can best be applied (Hileman, 1983). To be readily managed by alternative dispute resolution techniques, Hileman notes that conflicts should revolve around issues with brokerable resources, not values alone. Values cannot be brokered. Rarely does there exist a dispute that does not involve values of some sort but if the dispute revolves solely around values, it will be very difficult to resolve using alternative dispute resolution techniques. Hileman also points out that it is important, when assessing

the applicability of alternative dispute resolution techniques to environmental disputes, that parties to a dispute have relatively equal power. For cooperative conflict resolution methods to be successful, unilateral action by one party should cause unacceptable burdens of lawsuits emanating from the other side. If a disputing party is able to act unilaterally without repercussions, there will be no reason for that party to enter into negotiations.

The independence of the mediator is essential to effective cooperative negotiation (Cormick, 1980). The mediator cannot be an advocate of any particular set of values, facts, or outcomes in an effective mediation process. The mediator is present, not as an issue expert, but as a facilitator of disputing groups interaction. An effective mediator does not lead the parties to resolutions, but opens the door to communication between the groups. Gerald Cormick, in a later work on environmental conflict management (Cormick, 1987), has identified several other important considerations implicit to the mediation process:

- Mediation is entered into voluntarily by the parties involved and the choice and acceptance of a mediator is also voluntary.

- Exploration and debate of issues is accomplished jointly in mediation.

- The mediator has no authority in settlement imposition during or after the mediation process but acts as a facilitator of the negotiation process.

- The mediator assists the disputing groups in the attainment of a settlement and facilitates the agreement process.

- The support of all parties, not a majority decision but a consensus of all groups, is required in any mediation agreement.

- Agreements reached should represent technically, financially, and politically feasible solutions that are workable. It is the disputing groups' responsibility along with the mediator to ensure that solutions derived in the mediation process are viable and implementable.

In an earlier work, Cormick spells out more substantive prerequisites to effective application of alternative dispute resolution techniques (Cormick, 1980). Cormick identifies four major prerequisites to effective negotiation and mediation. The first prerequisite is a recognition of the necessity that disputing parties participate as co-equals. This must be a recognition by all parties to a dispute. Essential to the negotiation is some level of achieving partnership. Necessarily, groups must work together in deriving and implementing mutually acceptable solutions to the substantive issues in conflict.

The second prerequisite, as cited by Cormick, is that parties to a dispute must have sufficient power or influence over the ability of other

disputing parties to take uncontested unilateral action. Alluded to earlier, this reiteration of Hileman's point occurs throughout the alternative dispute resolution literature and is emphasis that negotiations occur as a necessity and are not the result of an idealistic, "doing what's right" attitude. Threats of realistic litigation complexities, administrative challenges, direct economic action (e.g. boycott), or political action are evidence of power and will be applied if negotiation is not implemented or fails.

The third prerequisite in the appropriate application of alternative dispute resolution techniques is that disputing parties must be able to commit their constituency support in the implementation of agreements that are reached through negotiation. To be meaningful, commitments made by parties to a negotiation must be supported by an identifiable, cohesive constituency.

The final prerequisite to effective negotiation is the sense of urgency in addressing the problem. If a group can satisfy conflict objectives by "waiting out" the opposition, effective negotiation will not occur. Cormick states that "negotiations, therefore, are not a tool for avoiding conflict, but for settling it!" (Cormick, 1980, p. 28).

If applied to disputes that do not follow the above prerequisites, alternative dispute resolution techniques such as mediation will be ineffective and may cause an increase in mistrust and misinformation. Because of this, The Office of Environmental Mediation, an organization that provides mediators and advocates the use of mediation in dispute resolution, has developed several questions that every party to a dispute should address prior to entering into the mediation process (Cormick, 1980):

- Are all stakeholders or potentially influential groups to a dispute involved?

- Has there been general agreement by the parties involved on the scope of issues that need to be negotiated?

- Do negotiators enjoy constituency support? Will groups that are represented honor agreements reached?

- Has a good faith commitment by the disputing parties and decision-makers been made publicly?

- Is there a negotiation deadline?

- Have affected government agencies made reasonable commitments of agreement implementation if consensus is reached?

- Is the mediator independent of the ultimate decision makers involved?

- Is there sufficient trust in the mediator by all parties involved?

An attempt has been made to outline the types of issues and the group approaches that signify alternative dispute resolution techniques as being appropriate to apply to disputes as an alternative to litigation. Due to court congestion, lack of community dispute resolution control, and adverse fundamental effects of the adversarial process (e.g. win/lose outcomes, competitive relationships, etc.), alternative dispute resolution is becoming a more common method for managing certain types of conflicts. Litigation and adversarial processes will continue to be appropriately applied to certain types of disputes which are more legal in nature. Mary Davis Hall, however, argues (Hall, 1984) that the nature of most environmental disputes is <u>not</u> legal. The application of adversarial processes to environmental disputes usually does not serve the public's best interest and are usually not aimed at substantive environmental problems. Mediation and alternative dispute resolution are feasible solutions aimed at environmental dispute foundations; conflicts in interests and substantive problems. With proper application, alternative dispute resolution techniques such as mediation have been shown to be valuable additional tools in the attainment of a society within which issues in conflict are lucidly managed in a pragmatic, equitable and efficient manner.

CONFLICT MANAGEMENT IN NONFORESTRY SECTORS

To better understand alternative conflict management principles and their applications to the forestry sector, there is value in assessing methods by which conflicts and disputes are managed in other, traditionally conflict plagued, sectors. Focus is on "alternative dispute resolution" (or A.D.R.) techniques. Litigation and competitive methods of dispute resolution have, historically, played a large role in resolving disputes. A vocal movement for alternatives to the traditional adversarial process of dispute resolution coalesced during the late 1960's and early 1970's with advocates claiming various goals and objectives. Goldberg, Green, and Sander summarize these goals as fourfold (Goldberg, 1985). Alternative dispute resolution attempts to:

- reduce court congestion and the associated reduction in costs of delay.
- enhance community control and involvement in the conflict resolution process.
- facilitate access to justice
- allow dispute resolution to be more effective with emphasis on conflict management and long term relationships of disputing parties

Stephen Parmentier in a recent bibliography on A.D.R. literature (Parmentier, 1986) outlines conflict as falling into ten broad sectors. These include business disputes, community conflict, consumer disputes, environmental disputes, family discord, institutional conflict, international disputes, public sector conflict, victim-offender disputes, and others. Discussion below will focus upon three sectors of interest to this study: business (or labor) disputes, public sector conflict, and environmental conflicts. Necessarily, environmental conflict will be discussed in greatest detail.

BUSINESS DISPUTES

The most common type of business conflict is employee/employer discord and the resulting conflict cleavage between labor and management. Labor relations and the harmony (or disharmony) that exists in the workplace is of vital importance to business. Labor unions have had a dramatic impact on the effectiveness of American industry and the livelihood of the working-class American. Conflict management has had a long colorful history within labor disputes and is applied to a large sector of employer-employee relationships.

Approximately twenty percent of all employees have collective-bargaining contracts (Goldberg, 1985). These contracts contain specific grievance procedures which must be followed and are an integral part of the conflict management process. These multi-step procedures often end up in arbitration; final and binding. Arbitration is the hearing and

determination of a case in controversy by a person chosen by the parties or appointed under statutory authority.

Nonunion employers use a variety of techniques with the desire to increase employee satisfaction. Golberg notes that in-house "neutrals" exist in some situations in order to facilitate communication between labor and management. These "mediators" have no power to reverse management decisions in general, but act as ombudsman, or representatives appointed to receive and investigate complaints made by individuals against abuses or capricious acts of management. This type of dispute resolution technique; typically, holds dearly to the tenet of confidentiality and privacy of the complainant and the protection of the rights of all involved. These techniques, perform functions of counseling in problem solving, communication, fact-finding, conciliation, and mediation.

Negotiation, collective bargaining, grievance procedures, and, most recently, mediation are alternative dispute resolution techniques used in the management of labor disputes. All have, as a central theme, procedures aimed at the reduction in the frequency of litigation and the improvement of the quality of institutional life.

INTRAGOVERNMENTAL DISPUTES

The manner in which intragovernmental organizations interact and governmental effectiveness are necessarily a function of each other. The government administrator or executive who witnesses conflict between agencies and other governmental bodies (e.g. local government interaction with state or federal government) is often faced with an intertwined mess of grievances and dispute that hinder governmental effectiveness. Goldberg, in his work on dispute resolution (Goldberg, 1985) states that cooperation between governmental entities is easier said than done. Competition between political units is just as likely, if not more likely, to occur as cooperation due to political interests.

The Negotiated Investment Strategy (N.I.S.), developed by the Charles Kettering Foundation, recognizes this. It further signifies that competition, most probably, will continue to be a fixture of intergovernmental relations. Goldberg states that N.I.S. recognizes governmental units to be more appropriately related as groups to a negotiation (with incongruent interests and objectives) than as groups in a common enterprise. The elimination of continuing differences does not signify negotiation success as does the attainment of agreement.

Negotiated investment strategy generally follows similar procedures, application guidelines, and necessary ingredients as the mediation process outlined in the previous section. Future intergovernmental dispute resolution will give increasing credit to the idea that the coordinated utilization of public resources in a region is unlikely to be achieved as coordinated common enterprise type objectives but rather as a negotiated settlement within a competitive atmosphere.

ENVIRONMENTAL DISPUTES

The environmental movement of the late 1960's and early 1970's raised general awareness of the impact of man's actions on the environment. Resulting from this, conflict intensity and variety over issues of concern has increased dramatically. Again, litigation as a means of resolving environmental disputes has been widely applied because of public opinion and a sympathetic judiciary. Environmental groups have grown to become very powerful in persuasion. Recently, more emphasis has been placed on alternative dispute resolution as a logical, pragmatic approach in the management of environmental conflicts (Susskind, 1980; Bingham, 1986). Interested groups are becoming increasingly aware that long term relationships with organizations and agencies in conflict are important.

The comparison of environmental disputes with other sector's disputes is difficult due to fundamental differences (Carpenter, 1980). Carpenter states that environmental disputes tend to be conflict over ideologies which can be starkly contrasted with negotiations over wages or benefits (primary issue of labor disputes). Environmental conflicts tend to surround "irrevocable", or at least long term, effects of environmental decisions. Pollution and environmental alteration (building dams, etc.) result from decisions that have long term effects. Carpenter further notes that environmental conflicts involve many interested parties that have the power (potentially) to affect outcomes as initially identified. New interested parties with entirely different objectives and goals may enter environmental conflicts after the resolution process has begun. Environmental conflicts tend to surround issues in which technical and substantive knowledge regarding the effect of a decision is lacking. Effects of environmental decisions may not be uncovered until decades later. As illustrated, environmental disputes are not easily compared to the bulk of other sector's conflict.

Applications of alternative dispute resolution to environmental disputes have increased dramatically since the early 1970's. Environmental conflict encompasses a widely diverse set of issues. Environmental conflicts can be either site-specific over a particular program, project, or plan or they can be more policy oriented aimed at the broad formulation of program rules and policies on the local, state, or national level. Environmental issues in conflict have been found to fall into six broad categories (Bingham, 1986):

- **Land use.** Neighborhood or housing issues, urban development issues, parks and recreation issues, regional planning issues, and transportation or facility siting issues.

- **Natural resource management and use of public lands.** Issues involving fisheries, forestry, mining, etc.

- **Water resources.** Water supply and quality issues, flood protection issues, and thermal effects of power plants.

- **Energy.** Issues involving hydroelectric power plants, geothermal development, etc.

- **Air quality.** Odor issues, air quality legislation, acid rain, etc.

- **Toxics.** Pesticides, hazardous materials cleanup, regulation of chemicals, etc.

Groups involved in environmental disputes vary from public agencies exclusively to citizen action groups challenging proposals made by public agencies or private industry. Bingham's (1986) study of alternative dispute resolution applications to environmental disputes, found that of all site-specific cases examined using alternative dispute resolution techniques, only 33 percent involved environmental groups present at the negotiating table. Bingham also found that only 33 percent of the site specific cases involved private corporations. This displaces the common misperception that environmental disputes typically involve environmental groups challenging private industry. Only 18 percent of the site-specific cases involved negotiations between environmental groups and private industry. Most disputes were found to involve local citizens groups and units of government (federal, state, or local).

Mediation

Mediation, as an environmental conflict management technique aimed at site specific conflicts, has its roots in a long standing dispute (resolved in 1974) (Bingham, 1986; Cormick, 1987, Dembark, 1985) which involved a flood control/land-use planning conflict in Washington state. This dispute, known as the Snoqualmie/Snohomish River dispute, became a prototype case example of alternative dispute resolution success. Since the Snoqualmie/Snohomish River dispute and through mid 1984, approximately 100 site specific environmental disputes in the United States employed a mediator or facilitator (Bingham, 1986). There exist at least 15 organizations that provide mediators and facilitators for environmental disputes across the country (Huser, 1987).

Policy Dialogue

Environmental conflict can be approached from a different stage; that of conflict anticipation. Policy dialogue and regulatory negotiation are conflict management ideas that are aimed at such anticipation. Environmental policy dialogue targets the formulation of policy with the inclusion of interested party input. The theory behind policy dialogue is that if interested parties are involved in the substance of a policy, they will be less apt to find fault with its implementation. Sam Gusman, Senior Associate, Conservation Foundation, summed up the need for more effective environmental policy decision making processes in a recent presentation to the National Association of Environmental Professionals (Gusman, 1982, p. 291):

> "Pragmatically, a decision is not a good one if any affected party is sufficiently distressed by the decision to oppose it in a way

that effectively blocks its implementation. A process for arriving at decisions should not unnecessarily foster dissatisfaction with the outcome. Thus, by these standards, the quality of a decision must be judged, at least in part, by its acceptability to affected parties."

Decisions, regardless of the partisan outcome, that take into account interested group and individual ideas tend to result in greater acceptance upon implementation than those that ignore interested parties ideas. Gusman speculates that if direct negotiation of a specific policy occurred with all interested parties, there would be less of a tendency for the parties to oppose the outcome because they participated directly with the formulation of the proposed policy.

Regulatory Negotiation

As a type of policy dialogue, regulatory negotiation (or negotiated rulemaking) has an objective of reducing the amount of conflicts that arise out of governmental agency rules. The concept of regulatory negotiation has been discussed theoretically in the past but only recently has it been given a chance in implementation (Harter, 1984). A body of direct experience knowledge in applying regulatory negotiation is being developed as a result of more widespread usage of this conflict management method. Henry H. Perritt's (1986) work on negotiated rulemaking states that more accurate agency perception of costs and benefits of policy alternatives is permitted through negotiation. Also, groups interested in an agency's rule are allowed greater control over content while ensuring equity, balance, and minimal conflict through negotiation.

Regulatory negotiation had its genesis in theoretical concepts leading to a proposal by the Administrative Conference of the United States in 1982. Traditionally, interested (affected) groups to a rule were forced to utilize the adversarial process of litigation in order to voice their concerns due to inadequacies of notice-and-comment rulemaking or other, hybrid rulemaking processes. Regulatory negotiation is proving to be a credible alternative to other, more adversarial, methods of rule promulgation.

There are, however, administrative law issues which inhibit the application of regulatory negotiation (Perritt, 1986; Bacow, 1984, pp. 310-316). The Administrative Procedure Act and the Federal Advisory Committee Act (administrative guidelines set into law specifying procedures in formulating rules) are existing administrative doctrines within which the regulatory negotiation process can be carried out. Perritt states that the Federal Advisory Committee Act in particular, if strictly interpreted, requires that regulatory negotiation be open to the public. This would make it difficult for group representatives to enjoy continued group constituency support faced with media publicity of fragmented and inaccurate reports of preliminary positions or compromises arrived at through the negotiation process. Perritt states, though, that existing judicial and agency interpretation of F.A.C.A. does not disallow caucuses and private working group meetings which are "necessary to promote an effective exchange of views".

On the environmental conflict front, regulatory negotiation has been spirited by the Environmental Protection Agency (E.P.A.) and their newly formed Regulatory Negotiation Project. Faced with approximately 80 percent of its new regulations being challenged in court (Schneider, 1986), the E.P.A. came to realize that a better way to develop regulations was needed. The Regulatory Negotiation Project was announced in 1983. According to Peter Schneider, a Principal with a firm that advised the Agency regarding the situation, the Project is a demonstration effort aimed at negotiating appropriate rules and identifying important procedures for minimizing rule conflict upon implementation. Two successful rules (the Pesticide Exemption Rule and the Nonconformance Penalty Rule) promulgated through the Regulatory Negotiation Project have taught the Agency some valuable lessons regarding the process.

Schneider states that rules appropriate for regulatory negotiation surround issues in which parties (or potential parties) have the ability and the willingness to negotiate. Conflict assessment regarding the feasibility of negotiation and the networking involved in identifying feasibility within and between groups are essential elements. Related to this is the essential element of including all appropriate affected groups to the negotiation process through representation. Schneider further states that it is important for affected groups to recognize that regulatory negotiation is a resource intensive process; it does require financial resources (E.P.A. allows a $50,000 per negotiation resource pool). In the cases examined, all used the expertise and guidance of a professional mediator to facilitate negotiations.

Agencies that have used regulatory negotiation (E.P.A., Federal Aviation Administration, Occupational Safety and Health Administration) do not consider the process to be a substitute for the traditional rulemaking structure (basically adversarial). Regulatory negotiation is applicable only to certain rules. As a result of regulatory negotiation, intense collaborative feelings between groups involved are developed and a cooperative spirit is initiated in traditionally adversarial relationships. Long term mutual respect among groups has been shown to be a result of this rulemaking method of environmental conflict management.

Alternative dispute resolution techniques are being applied to all sectors experiencing conflict with the degree of application depending upon the type of issue in dispute and the approaches taken by disputing parties. Mediation is a more common tool being used in divorce cases and family disputes. Cooperative conflict management techniques such as mediation are being applied to community civil disputes more commonly now than in the recent past. Consumer disputes are being cooperatively negotiated as an alternative to the adversarial litigation process. To reiterate, a primary aim of alternative dispute resolution is the improvement of long term relationships between the disputing parties; the long term management of conflict, not just the resolution of specific issues are key benefits of alternative dispute resolution techniques.

Emphasis has been given to the term "conflict management" instead of "conflict resolution". The management of conflict alludes to conflict as

being a beneficial entity with specific functions; not just an aberration which requires a solution. Deutsch (1973) states that conflict is the root of personal and social change. It provides a medium through which specific problems can be addressed and it provides for their proper solution. Conflict enables groups and individuals to find and utilize their true capabilities. Group and personal identities are established through conflict which, often, fosters internal cohesiveness. Kenneth Boulding, a peace issues economist, further states that conflict through management is a learning process; one in which groups and individuals identify thresholds of positive action. Through conflict management, groups and individuals develop a sense of "long-sightedness." Boulding states that (Boulding, 1966, p. 189):

> "... mature conflict behaviour consists in the development of long-sightedness, or the realization that the taking of the short-run advantage often results in a long-term loss because of the reactions of other parties.... (long-sightedness) gives us the highest probability of benign moves, or of moves which lead to an actual increase in our own values."

Alternative dispute resolution techniques are conflict management tools which allow groups and individuals the freedom to pursue necessary and solid working relationships. Working together, mutually beneficial increases in values, capabilities, and thresholds can be attained; this type of conflict can truly be termed <u>constructive</u>.

CONFLICT MANAGEMENT IN FOREST RESOURCES MANAGEMENT

The people of the United States appreciate the products derived from forests--wood, water, wilderness, recreation, wildlife, and others. Evidence shows that their demand for these outputs is increasing (Hewitt, 1982). With increasing demand for forest outputs comes an inevitable associated increase in the frequency and intensity of conflicting ideas regarding forest management and use. Frequently called upon to manage such conflict, forestry professionals are often surprised by the intent and fervor of persons and organizations finding fault with their professional judgement. This has led to the idea of the stereotypical "environmentalist" image. The stereotype is one of outsiders with intransigent objectives that apply urban values to rural areas. Is this stereotype misconceived?

Louise Fortmann (1987), argues that most protesters are **not** die-hard "environmentalists" and outsiders or newcomers to an area. Rather, in California, the majority of letters protesting timber harvesting operations on private lands were received from people living near the logging site. Fortmann states that protesters are "not nuts, but neighbors" who are concerned enough to write letters of complaint regarding proposed logging operations. Fortmann further clarifies the misconception regarding the intransigence of forest protesters. Research has shown that the logging opposition in California **does** differentiate between "good" and "bad" forest operations and does not necessarily blanket forest harvesting with a negative bedspread; concern is with substantive issues of soil erosion and water quality. Fortmann further argues that protesters are not necessarily "alienated" or lacking in trust of governmental bodies. Rather, disputing that occurs through legitimate channels is an indication of the existing trust in the system.

To be sure, there are protesters with more radical intransigent objectives in opposition to forest management practices. There does exist the element of forest protest that is fed up with the legitimate channels of addressing conflict. Brian Heath, a member of "the most notorious of the groups" - Earth First!, states (Franklin, 1987) there is "less and less hope for changing a land ethic based on greed while working entirely within the system that produced it." Recently, illegal acts of "timber terrorism" such as arson of harvesting sites, the "spiking" of trees, and the "monkeywrenching" of logging equipment have been committed as a conflict resolution method of reducing the amount of old growth harvested or the harvest of so-called wilderness areas. It is important to note, however, that addressing conflict using these approaches is quite illegal. Acts of timber terrorism are not included in the rational analysis of legitimate channels of addressing forestry conflict. These methods approach conflict neither competitively nor cooperatively but utilize an approach of criminal anarchy ... far beyond the scope of this paper. By necessity, focus of the following section will lie in legitimate channels for addressing forestry conflict.

CONFLICT ANTICIPATION

In focusing on the anticipation of conflict to public forest policy, federal agencies use various methods aimed at including the public and interested parties in planning processes. The underlying theory, to reiterate, is that if included in the formulation of policies, interested parties will be less apt to find fault in the implementation of policies. The National Environmental Policy Act of 1970 requires citizen participation in the development of agency plans affecting the environment. The U.S. Forest Service uses new, yet well traveled trails in approaching public involvement. Current Forest Service public involvement focuses heavily on the development of National Forest Plans. The Forest Service embarked on a current public involvement program in mid-1971. The program known as "Inform and Involve" (or I & I), evolved from an earlier program known as "Information and Education" (or I & E) which was criticized for neglecting public opinion. Thomas F. Daubert (1978), identified "Inform & Involve" as a fresh approach which places greater emphasis on direct public involvement. The Forest Service takes a softer "trust in the judgement of foresters" elitism initiative with the "Inform & Involve" program. "Inform & Involve" is aimed at reducing the amount of "one-way" information dissemination (which occurred in the "Information & Education" program) and paved the way for a two-way street through public involvement ... allowing public opinion in, while permitting agency discretion and professional judgement out.

Forest Service procedures involve checks and balances to routine forest management decisions made by Forest Officers. Virtually any decision of a Forest Officer may be appealed following a set of steps outlined under the Forest Service appeal regulation (36 CFR 211.18), Appeal of Decisions of Forest Officers (USDA, Forest Service, 1984). The procedure can be applied to reduce the amount of conflict arising out of a routine management decision prior to its implementation and, as such, is a viable conflict management tool. Basically, the process is a method of addressing issues of disagreement up the chain of command within the Forest Service. It may be accomplished with or without the aid of an attorney and is the agency's formal attempt at bringing public involvement in to routine management decisions. The objective of the procedure is to have decisions reviewed fairly and objectively by those involved in the dispute.

Numerous difficulties exist in the application of public involvement to derive forest policies and/or management decisions. Sally Fairfax (1975), states that the Forest Service is not interested in holding "plebiscites" regarding its policies. Past experience has shown that solicited public comment has resulted in the stuffing of "ballot boxes" by those with the most aggressive objectives. How does the Forest Service deal with the response that is solicited? The effectiveness of a public involvement program, for rationality, necessarily needs to insure representative involvement. Ben Twight (1977) has noted that the Forest Service efforts to include the public in alternative planning scenarios on a specific unit plan has definite difficulties in application. The involvement procedure studied was required by the National Environmental Policy Act of 1970 which included citizen participation and the development of a plan and an environmental statement. Twight's research shows that for a specific planning unit (Big

Levels Unit; George Washington National Forest, Virginia), the solicitation of public involvement created "an undue opportunity for alienated persons with a localistic perspective to express resentment and distrust of professional autonomy and federal management". Attempts made at the inclusion of representative involvement tended to attract alienated persons expressing resentment and distrust of public officials.

Regulatory negotiation over specific forest practice rules is becoming recognized as a possibility. Verne Huser (1986), states that issues surrounding forestry were "peripherally" involved in the regulatory negotiation experience of the Environmental Protection Agency but that no federal forestry issues have been directly addressed through regulatory negotiation--but possibilities do exist. Regulatory negotiation applied to forest practice rule promulgation has yet to be used; it is still "in its infancy."

Table 4.1. Frequency of forest resource policy dialogue conflict addressed through alternative dispute resolution techniques by primary issue. 1974 - 1984

Issue	Number of policy dialogue cases
Land use	
Parks, recreation, trails, open space	1
Agricultural land preservation, growth control, and other long-range regional planning	4
Wetlands protection (excluding coastal wetlands)	1
Natural resource management	
Timber management	1
White-water recreation	1
Wilderness	2

From: Bingham, 1986. p. 32.

Comprehensive information about the use of conflict anticipation experiences in a forestry setting does not exist. However, Gail Bingham (Environmental Mediator, Conservation Foundation) has compiled information on the experience of environmental mediation professionals between late 1974 and late 1984. According to Bingham, the first documented use of a mediator or facilitator in a policy related environmental dispute occurred in 1976 with the National Coal Policy Project. Ten specific cases relate to forest management (Table 4.1). Excluded are forestry conflict anticipation techniques that did not involve the assistance of a mediator or facilitator.

CONFLICT OVER SPECIFIC ISSUES

More commonly, forestry conflicts surround specific issues and specific sites. Site specific conflict tends to attract media attention, surround specific actors and require more immediate attention by forest managers. Site specific disputes can and have been approached cooperatively through mediated negotiations surrounding specific issues. Mediation prerequisites and procedures applied to site specific forestry disputes are basically the same as those applied within other sectors (e.g., conflict analysis and assessment, consensus building, negotiation). Information exchanges and joint problem solving are other forms of site specific conflict management aimed at cooperation.

Perhaps the most commonly known involvement of forestry professionals in a site specific dispute utilizing mediated negotiations occurred in the early 1980's between the Society of American Foresters and the Renewable Natural Resources Foundation. Whereas the dispute did not revolve around a specific forest management or forest land use issue, it did involve many leaders of the forestry community, making them aware of alternatives to litigation. The dispute surrounded the Grosvenor Estate in Bethesda, Maryland; within which, the national headquarters for both groups are located. Utilizing mediated negotiations, agreement was developed in 1983.

A "blue ribbon" panel of natural resource professionals assisted in the settlement of a controversy between a Weyerhaeuser Company operation in southeastern Oklahoma and a group of conservationists opposed to company timber management practices. Thomas Lustig, counsel for the National Wildlife Federation, stated (Lustig, 1983) that a committee (composed of competent professionals using five criteria: the ability to make an unbiased assessment, technical expertise, professional recognition, availability, and familiarity with the local environment) was chosen jointly in late 1980. Site visits were carried out by the "blue ribbon" panel. Eight months were required to develop a report which received "unanimous panel agreement on ... its recommendations." This site specific forestry dispute was managed cooperatively.

The experience of site specific forestry conflict management has included such issues as proposed changes in land use, a particular timber sale, recreational trail segment locations, or wild and scenic river protection. Gail Bingham has summarized ten years of site specific environmental mediation experience, including experiences specifically related to forest management (Table 4.2).

Table 4.2. Frequency of site specific forest resource conflict cases addressed through alternative dispute resolution techniques by primary issues. 1974-1984

Issue	Number of Site Specific cases
Land use	
Parks, recreation, trails, open space issues	11
Agricultural land preservation, growth control, and other long-range regional planning	2
Wetlands protection (excluding coastal wetlands)	2
Natural resource management	
Fishing rights and fisheries resource management	7
Coastal marine resources, coastal wetlands	6
Timber management	3
Wilderness	1
Wildlife habitat (excluding coastal wetlands)	1
Watershed management	1

From: Bingham, 1986. p. 32-33.

CASE EXAMPLES OF CONFLICT MANAGEMENT

Examples are excellent means of illustrating the experience of conflict management technique implementation as applied to forest resource disputes; both land use issues and forest management issues. The three cases chosen for elaboration here represent recent applications of alternative dispute resolution techniques. The oldest case examined, and still considered the hallmark application of mediation to an environmental dispute, occurred less than fifteen years ago--in 1974. The case is known as the Snoqualmie/Snohomish River dispute. A more recent application of mediation, and the second case study, involves herbicide applications for timber management purposes. The Aerial application of herbicides for forest management practices dispute in Minnesota was addressed in early 1987. The third case study is a wilderness issue resulting from a National Forest Management Plan appeal. The mediation of the San Juan Forest wilderness dispute was concluded in 1983. Sources of information for the case studies included exhaustive published accounts in texts, magazines, journals, and newspaper articles as well as focused personal interviews of persons with direct involvement in the disputes.

Snoqualmie/Snohomish Dispute

Conflict Background

The Snoqualmie/Snohomish dispute involved land use issues and flood control of the Snoqualmie River Valley which is located in Northwest Washington State, some thirty miles from Seattle, Washington. Information about the dispute is available from a number of sources (Bacow, 1984; Bingham, 1986; Mernitz, 1980; Lake, 1980; McCarthy, 1976; Cormick, 1980). This dispute stemmed from a 1959 flood of the Snoqualmie River basin which swept away crops and topsoil from valley farms and destroyed homes and businesses in the town of North Bend, Washington. The flood generated sufficient public outcry by valley residents and county officials to prompt an extensive study (9 years) by the U.S. Army Corps of Engineers to determine a solution.

In 1968, the Corps concluded that two storage dams were required on the upper portions of the river's middle and north fork. Prompted by the Corps' proposal, representatives of local and national environmental groups, including the Sierra Club, led a second public outcry, this time against flood control as proposed by the Corps. The environmentalists were concerned about the destruction of high quality white-water rafting areas and the inevitable sudden and inappropriate downstream development as a result of flood control. Citing the project as being "environmentally disruptive," the governor of Washington at that time, Daniel Evans, was persuaded to cancel the dam projects twice (1970 and 1973). The governor, however, expressed continuing concern over the lack of flood control and indicated that some effort had to be taken if a worsening flood problem was to be avoided.

The opponents of flood control, chiefly environmentalists, enjoyed the power of waging delaying actions against any new flood control proposals. By doing so, however, they suffered from lack of progress on addressing the land use issues which they felt to be of primary importance. The proponents of flood control had the power to wage delaying actions on issues and proposals of land use; halting any coordinated planning effort--leading to unplanned urban sprawl. Both sides were beginning to realize that each party held a "veto power" that could halt any progress on any issue of importance. An impasse existed, fifteen years following a major flooding event and still no action had been taken.

Resolution Efforts

During the fall of 1973, the University of Washington's Environmental Mediation Project made initial inquiries to determine the appropriateness of applying mediation to the Snoqualmie/Snohomish dispute. Gerald Cormick and Jane McCarthy of the Environmental Mediation Project initiated discussions with the State and the Corps to determine decision-maker's support of mediation as a means of resolving the dispute. Discussions were also initiated with the other parties; environmentalists, farmers, residents, and public officials. Through

this dialogue process, it was determined that mediation would be a feasible tool to resolve the impasse. Consensus through the mediation process was a reasonable expectation which could directly result in a "workable agreement" for all involved parties.

Upon determining the dispute to be appropriate for mediation, and that a "good faith" effort was possible, Cormick and McCarthy approached Governor Evans and offered their services for the task. The Governor's notice accepting the mediators was postponed until the mediators became sufficiently familiar with the disputants so that an atmosphere of trust existed. During the five months between December, 1973 and May, 1974, an informal dialogue was carried out between the groups and the mediators.

On May 7, 1974, the Governor announced that a formal mediation effort of the dispute was about to begin. Governor Evans stressed that funding for the mediation effort was being provided by an outside foundation and that the mediators were financially independent of the disputing parties. Between May, 1974 and August, 1974, meetings were held by the mediators with ten identified "core group" representatives. The ten were viewed as being of sufficient stature and influence such that the disputing groups could be reasonably expected to support them. It is of interest to note that the key decision-makers (the Governor, Corps of Engineers and State officials) were not "at the table" during the mediation process. The mediators acted as an essential link ensuring that recommendations which emerged from the mediation process would be implemented at the local, state, and federal levels of government.

Education proved to be an important attribute of the mediation process. Towards late August, 1974, the environmentalists were having difficulty formulating a common position against the proponents of flood control. Through discussions, the stalemate was beginning to erode into a tentative agreement. Both sides learned specifics related to the other parties' position. Objectives of both sides were legitimized and the realization emerged that flood control was needed to ensure the continued economic viability of the farmers and downstream towns, while appropriate land use plans were developed to ensure the maintenance of a recreational "greenbelt" within the river valley.

The specific provisions of the agreement and final language were a result of "...two months of painstaking efforts..." (Lake, 1980, p. 89). In December of 1974, the participants to the mediation effort signed agreements to joint recommendations which were endorsed by the Governor. The mutually agreed upon consensus emphasized that the final recommendations were acceptable as a "total package" only, and were the result of "effort and support of all those involved." Anything less than acceptance of the total package by the decision-makers would void the entire agreement.

The agreement had the final result of acceptance of a flood control structure by the environmentalists, acceptance by farmers and urban dwellers of substantial limitations on land use, and the formation of an implementation group to ensure the simultaneous application of land use

plans and flood control. The agreement reached was "legally nonbinding" on the groups involved. Because of the Governor's support, the broad coalition groups' support, and the nature of the consensual agreement, however, the agreement was successfully considered "self binding". The Governor's support of the mediation resulted in the formation of an interim committee to ensure the implementation of the agreement reached. Broad support was given to the agreement by the local media, several environmental groups, and several landowner/farmer organizations strengthening the mediation effort and the decision-makers' commitment.

In retrospect, the coordination commission was created and functioned for ten years. The implementation of the agreement reached was marred, however, by a declaration that the flood control site for the north fork dam was geologically unsound. The flood control measures, as agreed upon through the mediation process, were never built (Bingham, 1986, p. 240).

Factors Leading to Successful ADR Application

Key to the resolution effort, was the fact that the conflict had been a long standing dispute between organizations with well developed positions that were in a state of impasse following years of frustration. "Realization of a common focus and diligent work by all involved finally produced a settlement" (Mernitz, 1980, p. 93). The perseverance, personalities, and skills of the mediators involved (Cormick and McCarthy) was also a key to success. The time and effort committed by the negotiators also played a key role in the success of this pioneering, landmark application of mediation to the management of an environmental dispute.

The inclusion of public involvement in a long standing dispute has proven to be an efficient way of deriving workable agency products. As a member of the mediation team, Jane McCarthy states expertly (McCarthy, 1976, p. 213) that:

> "An essential component of (mediation) is the active and constructive participation of citizens in the planning process. Perhaps without precedent, citizens are directing a planning effort and assisting public agencies to interpret broad policies..."

The use of mediation in resolving the long-standing Snoqualmie/Snohomish conflict was an effective way to reach consensus between disputing parties while deriving a workable land use/flood control plan.

Aerial Application of Herbicides Dispute

Conflict Background

The herbicide dispute is a forest management conflict over the extent of forested acres in Minnesota treated with aerially applied herbicides for conifer regeneration. Various sources of information regarding the conflict

are available (Balcom, 1987; Minnesota Department of Natural Resources, 1987; von Sternberg, 1987; Phillips, 1987; Buckhout, 1987; Rapson, 1987; Memorandum of Agreement, 1987). The Minnesota Department of Natural Resources uses aerially applied herbicides as a management tool for conifer regeneration. Because of poor access, topography, regeneration methods, size of competing vegetation, and site acreages, as many as 7000 forested acres per year were, necessarily, treated with herbicides applied aerially. The Department, by federal and state law, department policy, and Division of Forestry guidelines, follows strict procedures in the application of herbicides.

The dispute under immediate examination generated the third major review of the Division's aerial herbicide application program. Disputants involved in the reviews were becoming frustrated at a problem that was not just "going away." The long-standing dispute came to a head in September of 1985 when a coalition of environmentalists filed a petition with the Minnesota Environmental Quality Board (EQB). This petition contended that the aerial application of herbicides to Minnesota forests threatened human health, was disruptive of forest ecosystems, and adversely affected the health of fish and wildlife. The petition further contested the Department's cost-benefit analyses and the effectiveness of the vegetation management program in general. The practice of aerial herbicide application was defended by the Minnesota Department of Natural Resources, Division of Forestry, Minnesota private forest industry groups, and interested individuals as being essential for prudent forest management. A costly, drawn out adversarial battle was imminent over whether or not the DNR must submit an Environmental Impact Statement (with substantial associated costs, time, and agency risk) to the Environmental Quality Board regarding the Department's aerial methods of herbicide application for conifer regeneration. Attorney Rip Rapson, an environmental coalition representative, stated (von Sternberg, 1987, p. 3B) that environmentalists "were fully prepared to go to court and use a heavy-handed process that could have taken months and months or years and years."

An Environmental Assessment Worksheet (EAW) with appendices was submitted in December, 1985. A one month public comment period regarding the Environmental Assessment Worksheet generated significant response. Following review of the comments and after internal discussion with Division representatives of the Department of Natural Resources, the Division of Forestry staff favored a recommendation to the DNR commissioner that the Department submit to the Environmental Quality Board a negative declaration on the need to produce an Environmental Impact Statement regarding the aerial application of herbicides to state forest land for conifer regeneration. Before submitting the recommendation, the Department and the representatives of the environmental coalition decided to attempt resolution of the conflict through a mediation process. The specific issues of interest:

- **Reduction of conflict**

  Will the pressure of litigation require the Division of Forestry MN DNR to prepare an Environmental Impact Statement regarding

the aerial application of herbicides for forest management practices?

How can destructive conflict be minimized in the long-run?

- **Address substantive issues of conflict**

What are the agency's herbicide application plans?

How many acres will be treated aerially?

Resolution Efforts

Upon identification of mediation applicability, the joint process of finding a mutually acceptable mediator was initiated in February, 1986. In the beginning, only two disputing groups were involved--the Division of Forestry and the environmentalist coalition. As a result of pressure from the state's broad-based forest industry, industry was included as a party in May of 1986. The process of deciding upon a mediator took approximately eight months. In October of 1986, Leah Patton, of the Seattle based nonprofit organization--The Mediation Institute, was chosen as mediator.

With Leah Patton, the disputants jointly decided upon ground rules to follow. The specific negotiable issues were identified and the scope of the mediation was laid out. It was decided that the media would be excluded from the meetings and that no comments or potential proposals would be allowed to pass outside of the meeting rooms. Further, if mediation broke down, nothing said or written in these private meetings of a preliminary nature would be allowed in future litigation. Participants could speak freely without the fear of retribution from saying something and having it come back to haunt them in court at a later date.

The first actual mediation meeting took place in January of 1987 between the Department of Natural Resources Division of Forestry, the environmentalist coalition, the industry coalition, and the mediator. The Division of Forestry assumed the role of an active negotiator and a stakeholder with specific issue objectives and interests to maintain. The purposeful agency decision that it not take on the role of "judge" but act as a party to the dispute was essential to the successful mediation effort. The logistics of the mediation meetings were carried out by Roger Williams, Director of the Office of Dispute Resolution; Minnesota State Planning Agency, and the meeting locations were neutral in nature. They did not occur within the offices of the disputants.

Basic information sharing was the focus of approximately 60 to 75 percent of the total meeting times (Buckhout, 1987). The Department of Natural Resources felt a need to "educate" the disputing groups about fundamentals behind the agency position of aerial herbicide applications for conifer regeneration. Other forestry agencies were brought in as expert witnesses to discuss their particular agency's perspective and set forth specific points regarding their use of herbicides for forest management. Information exchange between the disputants played a significant role in the

final agreement. In many ways, the education process was one way; the Division of Forestry educating other disputants regarding the bases for their herbicide program. To be sure, ideological debate occurred, but procedural foundations and professional judgement lent evidence that the Department's program did include very stringent checks and balances. These were directly addressed.

Actual negotiation regarding specifics such as the number of acres which should be treated aerially, and other conflicting issues did not occur until late in the mediation process. A deadline in June of 1987 was approaching without substantive agreement on specific issues of interest. The final two days (June 4-5, 1987) of mediation saw these issues and the consensus surrounding them take shape. Long days and even longer nights produced the specific substance and wording of a twelve page consensus entitled: Memorandum of Agreement Regarding the Aerial Herbicide Spraying Program of the Division of Forestry Minnesota Department of Natural Resources (Appendix C).

The agreement set forth specific recommendations to be implemented by the Division of Forestry. Acres treated aerially are to be reduced from approximately 7,000 per year to 3,500 per year by the year 1993. Specific procedures to ensure the safety of humans, wildlife, and the environment are to be established. Changes are to be undertaken to increase public awareness of specific herbicide applications. A Forest Herbicide Committee charged with review and evaluation of the agreement implementation is to be established. The agreement identified programmatic changes which would need to be supported to ensure full implementation of agreement provisions (e.g., road building construction funding, agency contract flexibility). The agreement also spelled out specific commitments of the parties involved. Representatives of the three broad disputing groups signed the agreement.

The agreement reduced conflict over the DNR's herbicide spraying program to the extent that a costly, time-consuming Environmental Impact Statement regarding the program would not be necessary. The agreement is legally nonbinding, parties to the agreement have no legal mandate to follow it. The disputants may still meet each other in future litigative battles regarding identical issues. The parties, however, did enter into the agreement with a commitment of carrying out "good faith" negotiations. The question of the agreement's impact on future courtroom litigation is unclear and depends on the court's specific interpretation of the law. Furthermore, the use of mediation was said to have left the affected groups with a greatly improved working relationship of cooperation and mutually beneficial problem solving capabilities. The groups involved indicated that the agreement reached "would stick." The deputy commissioner of the Department of Natural Resources (von Sternberg, 1987, p. 3B) stated that "... everyone has won in this process ... this is an agreement of national importance." Representatives of the environmentalist coalition indicated likewise.

Indeed, time will be the true determinant of mediation success but the agreement stating acreage reductions, the long-term effect on disputant relationships, and the legitimate delay of producing an Environmental Impact Statement for this program are tangible benefits that would have been

impossible or very costly if their determination was derived through litigation.

Factors Leading to Successful ADR Application

Through interviews of participants to the mediation effort (Rapson, 1987; Phillips, 1987; Buckhout, 1987), several points consistent with mediation prerequisites were identified. First, the parties involved in the dispute were quite frustrated with attempts at resolving herbicide issues in the past. Involved was the third major review of the Department's aerial herbicide application program for conifer regeneration. The parties felt that addressing and resolving substantive issues in conflict was of utmost importance ... the nature of their goals was not self-interest but problem solving. This was identified as being essential to the acceptance of mediation and the subsequent success of the resolution effort.

The second factor of success, as alluded to earlier, had to do with the participants involved. The mediation process included all parties to the dispute; all that may have had an influence on the implementation of any agreement reached.

Thirdly, the representatives involved in the negotiations were "truly" representatives of broad coalitions. Mediation participants included true representatives of the more radical opponents and proponents of the herbicide program of the DNR. Mediation participants represented their constituents' broad objectives, needs, and issue goals. Any agreement reached between these representatives should have the support of their respective constituents.

The fourth factor leading to the successful mediation effort was that influential government officials gave broad support to attaining agreement through the mediation process. The Department's Assistant Commissioner for Operations was involved and supported the mediation process from the beginning. This gave evidence of the agency's serious attitude toward prudent management and "good faith" negotiation of their program points. Any agreement reached mutually would enjoy the commitment of the agency in its implementation. The state of Minnesota, through the Office of Dispute Resolution, was also involved and gave logistical support to the mediation effort.

The fifth factor leading to successful mediation was the candor with which the negotiators discussed issues of substance. This candor was possible because media representation was excluded from the negotiation sessions. The confidentiality of what the negotiators said behind closed doors was noted as being essential to this particular mediation success.

The last factor of successful management of the herbicide conflict was the presence of a very good, unbiased facilitator/mediator. Leah Patton won high praises for her efforts of discussion facilitation. The mediator's role was described as "low key" (Phillips, 1987); a person with no implementation authority but rather a facilitator of orderly, rational dialogue.

The mediation effort carried out in the spring of 1987 between the Division of Forestry Minnesota Department of Natural Resources, an environmentalist coalition, and a forest industry coalition generated a cooperative spirit which will, no doubt, affect the groups' relationship in future issues of conflict. The performance experienced in the resolution of this specific conflict initiates the management of future conflicts between the historically disputing groups. Gary Payne, an environmentalist long active in the herbicide issue, indicated (Minnesota Department of Natural Resources, 1987) that the groups were "investing a great deal of trust in this process." Payne was "encouraged that the DNR (sat) down with us to address in detail our concerns...." Successful mediation outcomes and cooperative statements such as this give evidence of the mutually beneficial nature of mediation and alternative dispute resolution techniques which have an effect on the long-term conflict management environment within which issues are resolved.

San Juan Forest Wilderness Dispute

Conflict Background

The San Juan Forest wilderness dispute is a 1983 resource management conflict which revolved around a proposed management plan for 40 square miles of the San Juan National Forest located in southern Colorado (Huser, 1987; Bingham, 1986; Sweetland, 1987). Located between an existing wilderness area (Weminuche Wilderness Area) and a wilderness study area (Piedra Wilderness Study Area), sensitive forest management was essential. The plan in conflict included eight timber sales which were surrounded in controversy.

Associated with the timber sales were the impacts of road building used to access the sale areas. Environmentalists listed the disruption of bighorn sheep and elk migration routes in their opposition to the plan. Private citizens, landowners, and local business leaders objected to the effect of logging on tourism and the effect of heavy machinery on public roads in the nearby town of Vallecitos. Lending bitterness to the opposition was a previous rejection of the area for inclusion in the wilderness system. The Colorado Wilderness Act of 1980 removed the area from further consideration, although environmentalists still felt strongly about its inclusion. Virtually every element of the local population objected to the alternative plan for the area (which included timber harvests). The U.S. Forest Service and a small number of forest operators were left in the plan's defense. The Forest Service claimed that the area contained over-mature spruce, fir, and aspen which required management through harvest and that "multiple-use" dictated the proper management of the forest.

Resolution Efforts

Faced with an unpopular plan and an expanding envelope of conflict, the Forest Supervisor of the San Juan National Forest and an attorney representing a number of opposing groups assessed the conflict as being appropriate for mediation. The Forest Supervisor contacted the Mediation

Institute for assistance. The mediators met informally with each of the representatives of the 26 private parties and public interest groups. These informal meetings prepared the representatives and the mediators for realistic expectations of the joint meetings. The 26 group representatives reduced their numbers to 12 true, "natural" representatives that would be party to the negotiations.

Two sets of joint meetings occurred in September and October 1983. The first meetings were successful in addressing and resolving approximately 80 percent (Huser, 1986) of the issues according to the Forest Service. The Forest Service recognized that it had not actually been an "equal partner in the process" and that several issues remained to be resolved. Of the twenty issues identified as substantive, four were issues that the Forest Service viewed as infringing upon agency directives if compromised. The second set of meetings, in October, included a trail ride through the area in controversy. Subsequent meetings, with the Forest Service participating as an equal, resulted in consensus on more detailed recommendations. The four remaining issues of substance were resolved through consensual understanding of the parties to agency directives.

On October 11, 1983, a decision notice on the management plan was issued. The final management plan, as agreed upon, identified scaled down road construction plans. Also, four of the eight controversial timber sales were to be excluded. As indicated through the consensus reached, participants were selected by the representatives to the mediation effort to serve on an advisory committee to oversee the implementation of the agreement. Responsibilities of the advisory committee also included the assessment of environmental effects regarding road construction and the remaining timber sales. According to Huser (1986) and Sweetland (1987), the advisory group is still functioning.

Factors Leading to Successful ADR Application

Essential to this successful mediation process was the past experience of the actors with lawsuits, appeal processes, and administrative procedures. The Forest Supervisor indicated (Sweetland, 1987) that addressing issues of this sort through litigative forums tends not to address the substantive issues that the parties enter the process with. All parties involved entered the cooperative mediation process with a "problem solving" objective; they wished to address directly the issues of substance with which they were concerned. Cooperative techniques allow for this.

The identification by the Forest Supervisor that the Forest Service was not negotiating as an equal partner and correction of this condition in subsequent meetings played a large role in the successful application of cooperative techniques. Agencies, in particular, should keep this in mind in any future attempts at cooperative conflict management. Agencies have their own, specific goals, directives, and objectives that can only be aired if agencies act as equal partners to the negotiation process.

Conflict Management Experiences from Case Examples

The case studies examined and the literature reviewed have shed light on specific difficulties which exist in the application of alternative dispute resolution processes. Some observations regarding common misconceptions regarding alternative dispute resolution and specific difficulties identified can now be elaborated upon.

Discussion regarding certain misconceptions of alternative dispute resolution will assist in clarifying the objectives of cooperative processes. Gerald Cormick (1981) argues against the idea that "mediation can resolve (disputing groups') differences." A mediated agreement is an indication that parties to a dispute have been able to agree on a solution to the immediate situation in conflict despite basic differences in priorities and perceptions. Alternative dispute resolution does not necessarily lead to the resolution of basic differences between the parties to a dispute. Alternative dispute resolution does, however, lead to accommodation of disputing parties ideas, needs, and desires.

Cormick further states that mediation (and other alternative dispute resolution techniques) does not "avoid" conflict. The existence of conflict and its emergence indicates that mediation may be an appropriate method to be used in settling conflict. Parties must remain mindful of the existence of their self-interests in conflict in order to reach accommodating agreements. Alternative dispute resolution does require the existence of a recognized conflict.

The misconception exists that mediation and alternative dispute resolution techniques are an alternative to litigation. The experience of environmental dispute professionals shows that actual or threatened litigation is, oftentimes, a necessity to motivate parties to consider mediation. Litigation and "interminable court delays" are often the source of power and influence that hang in the wings and are motivating factors in bringing groups to mediation. Therefore, mediation should not be looked upon as an alternative to litigation, rather mediation requires threatened courtroom situations for its viability. Mediation is appropriately implemented when the cost of litigation (in time and money) and the risk of losing are perceived to be too great.

Cormick identifies another misconception; successful mediation results in negotiators "liking", trusting, and agreeing with their opponents. It is important to note that whereas the representatives to a negotiation may develop cooperative trust or amicable relationships with their opponents, they represent constituents who are not necessarily involved in cooperative problem solving processes that occur through alternative dispute resolution. A fine line exists in developing viable solutions to recognized conflict without "selling out" to the opposition in the eyes of constituency support. Negotiators, sometimes, are required to "sell" their agreements to constituents. The confirmation of basic disagreements may indicate successful mediation agreement conclusions.

Another misconception regarding mediation is that it occurs when "everyone sits around a big table and negotiates." In reality, the most essential aspects of the alternative dispute resolution process occur away from the "table." Individual caucuses of the parties are an essential aspect of the mediation process and the mediator's role in these caucuses is critical. The mediated agreement between the Society of American Foresters and the Renewable Natural Resources Foundation over the Grosvenor estate occurred despite the fact that the two parties never met face to face "across the table." The mediator acted as the "go-between" in all negotiations carrying position statements and proposals back and forth. The role of mediators in joint meetings is oftentimes quite minimal with emphasis placed on the facilitation of discussions (both direct and indirect) between the disputants.

The following are observations of the case studies examined and the literature reviewed in regards to difficulties in the application of mediation and alternative dispute resolutions processes. In the cases examined, it was essential that appropriate actors involved in a dispute be identified. Parties which may have an affect on the implementability of any agreement reached need to be included in the mediation process. Difficulties exist in the identification process itself. The aerial application of herbicides for conifer regeneration dispute shows that if a group has an ability to affect the outcome or agreement of the mediation process, the process requires the inclusion of that group. The identification of the industry coalition and its inclusion was essential to the feasibility of the agreement.

Also essential to mediation success, identified groups need to be considered a party to the negotiated settlement, not judges. This was important in the herbicide dispute and the San Juan Wilderness dispute. Primarily pertinent to bureaucratic agencies, recognition of an organization's bargainable interests and goals is essential to the negotiation process. The appropriate role of agencies is that of equal partners to the negotiation process. The Minnesota Department of Natural Resources identified this prerequisite at an early stage and negotiated with this in mind. The U.S. Forest Service identified failure in this regard at a later stage in the San Juan dispute with corrections occurring in subsequent meetings. Acting as a neutral mediator between opposing viewpoints is, often, a hindrance for agencies interested in managing a resource or conducting efforts to implement agency goals and interests.

The process leading up to the consent to mediate followed by disputants is critical to the approach taken to conflict. Difficulties in the application of alternative dispute resolution in this regard stem from the lack of appropriate information regarding alternative approaches to conflict; mediation and alternative dispute resolution. Individual disputant difficulties exist in the identification of alternative methods of dispute resolution and the need exists for better information dissemination regarding conflict management. The case study on the aerial application of herbicides for conifer regeneration shows that the actors involved were "novices" at alternative dispute resolution. This was the Minnesota Department of Natural Resource's first experience with mediation and they

found information on the subject to be lacking. The legal profession seems all too eager to spearhead the adversarial process through litigation because litigation is their "viande" ... their meat and potatoes. With the building of concrete experience in alternative dispute resolution by disputants and mediation professionals, information regarding specific processes will continue to grow.

Funding for mediation efforts needs to become a more legitimate channel for conflict money. A representative disputant to the herbicide dispute in Minnesota stated that millions of dollars can be found for the litigation process but when it comes down to alternative conflict management techniques, the purse-strings are tied quite tightly. As is becoming more common, institutional mechanisms for the funding of alternative methods seems to hold promise for the future. Funding for the mediation process has been identified as being critical for "neutrality" issues. Oftentimes, disputants to a conflict will not trust a mediator paid for by their opponents. Case studies have given evidence to this. Mediators must be perceived as being neutral.

The identification of an appropriate mediator through consensus of disputing groups has proved to be a difficult, time-consuming task. The choice of Leah Patton from the Environmental Mediation Institute in the herbicide dispute took eight months with numerous mediators being discarded by groups for various reasons along the way. Environmental conflict professionals need to be more assertive in spearheading their profession and their commitment to neutral problem solving objectives. Again, information dissemination seems to be important in minimizing the difficulties associated with alternative dispute resolution applications.

Difficulties exist in appropriating decision-maker commitments on the implementation of agreements reached through alternative dispute resolution techniques. Institutional mechanisms that allow for and legitimize mediated agreements would help in this regard. Certain revisions in the Administrative Procedures Act would allow easier implementation of mediated regulatory negotiation in rule promulgation. Other procedural changes allowing for cooperative methods could streamline the alternative dispute resolution process. Commitments expected from external parties to a dispute resolved using alternative dispute resolution pose problems in the implementation of agreements. For instance, mediated agreements dependant upon funding from a legislature for partial implementation are currently not realistic with regards to the political feasibility of agreements. The agreement that was a result of the herbicide dispute mediation called for a legislative commitment for increased funding of access roads. Skepticism currently exists in regards to the actual appropriation of that funding which has a direct bearing on the effectiveness of agreement implementation. Possibly, commitments of this sort should not be included as totally realistic in mediated agreements. The legitimacy of the mediation process may have a bearing on realistic external commitments.

Agreements, by necessity, need to be technically, financially, and politically feasible. Difficulties exist in the application of A.D.R. techniques with respect to feasibility. The example regarding funding for

access roads mentioned above touches on this. The Snoqualmie/Snohomish dispute agreement lends evidence to the requirement of technical feasibility. The flood control measures called for in the agreement were never built due, in part, to subsequent technical studies indicating that the chosen site was not geologically sound.

POTENTIAL RESEARCH DIRECTIONS

CONFLICT MANAGEMENT AND THEORY BUILDING

What can be done to bridge the gap between conflict theory and practice? Informational disbursement is needed in educating decision-makers within governmental agencies, policy-makers, and special interest groups in the specific benefits associated with alternative dispute resolution techniques. Institutional research needs to be focused on effective methods of relating objectives, prerequisites, and procedures regarding cooperative techniques of conflict management to those involved in conflict. Research is needed on sector specific cooperative methods such as conflict management as applied to profession specific disputes (such as this paper in its attempt to address conflict in the forestry community). Planners, administrators, policy-makers, and managers need to become more aware of alternative approaches to conflict management. Unique features of disputes as they apply to various sectors need to be identified and involved persons need to become better attuned to these features in comparison to other sectors in conflict. Emphasis should focus on issues appropriately addressed through cooperative methods and the prerequisites involved in their implementation.

The relationship between conflict theorists and conflict practitioners needs improvement. Theorists need to focus on research more closely identified as needed by those responsible for conflict management. Theorists often work on tangents to problems without keeping a mindful eye on the realities involved in conflict resolution. The bridge between theory and practice is most easily crossed through research and theory that sheds focused light and is directly applicable to current disputes as witnessed through the conflict practitioner's eyes and through the eyes of those being practiced upon. Language used by theorists and practitioners alike needs better fusing in the efforts being made to build stronger bridges between theory and reality.

BENEFITS AND COSTS OF COOPERATIVE-COMPETITIVE DISPUTE RESOLUTION

Research needs to be focused on the comparisons between cooperative and competitive approaches in regards to actual costs involved with the two approaches. Much research could be done in the identification of similar disputes revolving around similar participants over similar circumstances and issues that have been approached differently. The subsequent identification and comparison of costs involved with various conflict approaches would give added ammunition for proponents of either approach. Both subjective and normative (objective) benefit differences need to be quantified and compared. The subjective benefit of improved long-term working relationships between disputants is an important result of cooperative approaches. Difficult-to-quantify, subjective benefits need identification and emphasis in any comparison of approaches.

EFFECTIVENESS OF CONFLICT MANAGEMENT PROCESSES

Related to the above topic, research emphasis needs to be focused around criteria for judging the effectiveness of a conflict resolution process. Is effectiveness to be judged by who wins and who loses alone? Often, the foundation of the judicial processes currently applicable to conflict use little else in their justification of effectiveness. Again, emphasis in support of cooperative methods should also focus on the subjective benefits of a method ... such as the relationships between disputants following the resolution of a specific dispute. This would be a direct result of the process used in the resolution of the conflict.

ORGANIZATIONAL GOALS FACILITATING CONFLICT MANAGEMENT

How can cooperative conflict management be better facilitated as an organizational objective rather than competitive approaches to conflict? Research should focus on the results of various organizational objectives as they relate to conflict management. Are certain criteria used in the formulation of objectives or certain objectives themselves more apt to facilitate conflict approaches differently? Organizational philosophy may play a key role in allowing conflicts to be more efficiently addressed through cooperative means. Are there sufficient allowances for alternatives to issues in conflict that facilitate the use of cooperative methods or are objectives defined so rigidly or narrowly that little compromise may occur? How do different organizations in different sectors approach the range and scope of objective setting? What differences in objectives exist within a certain sector and how do those differences affect conflict outcomes? These questions may be appropriately assessed through focused organizational research.

ORGANIZATIONAL STRUCTURES FACILITATING CONFLICT MANAGEMENT

How do different organizational forms develop conflicts differently and resolve conflicts differently? Are there differences between regionalized organizational forms and more centralized organizational forms in the way that conflict is managed. Do regional differences in culture and customs preclude the standardization of conflict management methods? The way that organizations are nested within larger organizations may have an effect on approaches taken and effectiveness of conflict resolution methods. Would there be differences, for instance, if locally based offices of large organizations were given more latitude in aggressively managing conflict or is the management of conflict more efficiently addressed from the larger organizational perspective? Can conflict be reduced by shifting resource management toward the local government level? What issues should be left to the discretion of which level within an organization? This, also, may be an appropriate topic for organizational research or management/policy research.

ORGANIZATIONAL RISK IN CONFLICT MANAGEMENT APPROACHES

Research should focus on both quantifiable organizational risk and subjective organizational risk using different approaches to conflict. What specific dangers exist with different conflict management methods? Are the

risks involved in managing conflict cooperatively the same as if that conflict were to be resolved through litigation or other methods? This is another topic for organizational research.

EFFECTIVENESS OF CURRENT CONFLICT MANAGEMENT ORGANIZATIONS

How can conflict management be institutionalized to allow for more effective implementation of techniques? Five states currently have in place offices of mediation or dispute resolution (Hawaii, Massachusetts, Minnesota, New Jersey, and Wisconsin). They have a short history thus far; offices were opened in 1984 and 1985. What has been their track record and how can they be expanded to include possible funding sources and logistical support? What should be the governmental role in the application of alternative dispute resolution methods? What can be done at the policy level to allow for the legitimation of alternative dispute resolution techniques? How should states without institutional mechanisms for addressing conflict cooperatively develop more efficient governmental aides? These questions may be appropriate for policy research.

ANTICIPATION OF POTENTIAL CONFLICT MANAGEMENT SITUATIONS

How much conflict is reduced through conflict anticipation initiatives? What criteria are appropriate in attempting to quantify agency policies regarding policy dialogue and regulatory negotiation? Research is needed in benefit quantification, using case examples of conflicts that were prevented due to efforts aimed at the inclusion of interested parties in setting policy or promulgating rules. This may give added ammunition to future requests for funding of programs aimed at conflict anticipation. These topics may be appropriate for policy research and political science research.

CONFLICT MANAGEMENT STATISTICS AND REPORTING SERVICES

The need exists for better, more comprehensive, continuous reporting of conflict management attempts both utilizing a facilitator and through organizational mechanisms such as policy dialogue. The work of people like Gail Bingham and the Conservation Foundation (Bingham, 1986) needs to continue in documenting the experience of dispute professionals. A body of precedence is beginning to be developed regarding the efforts of managing conflict cooperatively which needs to be carried on through institutional directives aimed at documenting efforts.

SUMMARY AND OBSERVATIONS

The experience of the 1960's and 1970's has shown that the American people place a premium value on forests and their outputs. The demands for all outputs of the forest have been shown to be increasing. Coupled with this are conflicting interrelationships and limitations of resource demands. Given increasing demands for finite forest resources, the inherent conflict over forest management and forest land use inevitably increases.

Through the review of related literature and personal discussions with those involved in conflict management, this study has outlined major issues related to forestry conflict. To understand forestry conflict, it is necessary to understand basic fundamentals regarding conflict; conflict functions, conflict types, and conflict approaches. In line with the scope of this project, cooperative methods of addressing conflict have been emphasized. Discussion has shed light on which issues are appropriately addressed in a cooperative manner. Procedures for applying cooperation have been outlined. In the attempt to focus on forestry conflict, it is necessary to understand how other, nonforestry, sectors address conflict cooperatively. Unique features of labor disputes, public sector disputes, and environmental sector disputes have been discussed. Forestry issues in conflict have been shown to include issues of forest management and forest land use. Case studies of forest land use and forest management conflict have identified difficulties in the application of cooperative methods. Research directions in forestry conflict management have been identified.

CONFLICT FUNDAMENTALS

Conflict has been shown to exist as one of six basic types. Veridical, or true conflict, is conflict which is perceived accurately by those involved. If addressed directly, resolving issues surrounding veridical conflict will result in an effective lasting solution of the true problem. The reform of alterable environmental conditions to contingent conflict will result in a disappearance of issues in conflict or a reversion to veridical conflict. The other types of conflict (displaced, misattributed, latent, and false) if addressed in a resolution process will yield a resolution which does not address the true issue in conflict.

Conflict has been shown to have distinct functions. The reference to conflict **management**, not conflict **resolution**, indicates that conflict is not an aberration in and of itself. Conflict has specific positive functions which dictate its management. Conflict has been shown to be the root of all personal and social change which prevents stagnation and stimulates interest and curiosity. Conflict is the medium of addressing specific problems and deriving solutions to those problems. Conflict allows groups and individuals to identify and utilize their true capabilities through testing and assessment. External conflict has been shown to foster internal group cohesiveness. Conflict identifies thresholds of positive action. Conflict has definite constructive functions which depend upon the objective state of affairs and the perceived state of affairs as identified by the disputants. The productive or destructive aspects of conflict can be distinguished in terms of these relationships.

COMPETITIVE-COOPERATIVE APPROACHES

Two basic approaches to conflict have been discussed. Conflict can be approached either competitively, using distributive objectives, or cooperatively, using integrative objectives. The competitive approach contains benefits which are perceived by the disputants as being finite. The emphasis of competitive approaches is resource distribution with primary interests of self-goal attainment. Outcomes of competitive approaches are win-lose (or zero-sum) in nature and are achieved through adversarial processes such as litigation. Cooperative approaches to conflict, on the other hand, contain benefits which are perceived by the disputants as having no absolute constraint. Cooperative approaches emphasize resource distribution with primary interests being problem solving. Outcomes of cooperative approaches can be win-win (or positive-sum) in nature and depend upon the extent of integration. Cooperative approaches utilize alternative dispute resolution techniques such as mediation.

The increased use of cooperative methods have been called for in the recent past. Cooperative methods have been cited as a possible solution to relieve the congestion of the judiciary system and reduce the associated costs of delay. Cooperative methods enhance community involvement and community control in the dispute resolution process. Cooperative methods facilitate access to justice and allow for the inclusion of previously unvoiced opinion regarding certain issues. Cooperative methods emphasize conflict **management** thereby allowing for more effective dispute resolution placing importance on long-term effectiveness by emphasizing disputants' long-term working relationships. These reasons have been cited in the call for more cooperative methods of addressing conflict.

For cooperative methods to be successful, the process requires that disputants recognize cooperative tenets including the idea that disputants participate as co-equals in a dispute and that cooperation is much less competitive than adversarial processes. For successful cooperation, groups involved in a dispute should have sufficient power or influence to prohibit other groups from taking uncontested unilateral action. Furthermore, groups should have the ability to make a commitment; group representatives need to enjoy broad constituency support. Cooperation works best if there exists a sense of urgency. If a group can accomplish conflict goals by postponement, motivation to negotiate does not exist and cooperation will fail.

Procedures in the cooperative process begin with fact finding or the gathering of information regarding opponents, relationships, and substantive issues. The analysis of conflict integrating the information gathered with the conflict management process results in a plan for action. Conflict, oftentimes, is better assessed from a third party perspective which defines new dimensions of the conflict thereby identifying more workable possibilities. Information exchange can occur at any step in the process and is an exchange of factual information, group perceptions, and positions. Concerns and interests need to be identified shedding light on possible constraints to resolution and clarifying substantive issues. Alternatives need to be identified using party needs and issue objectives, allowing groups to formulate feasible options. Consensus building is a method used

in the attainment of agreement without voting which emphasizes positive position aspects. Conciliation encourages reasonable discussion and rational bargaining through the reduction of fear and hostility. This is attained through position clarification and perception correction thereby improving the disputants' relationship. Negotiation is a process used in bargaining on substantive issues and is usually facilitated through direct discussions. Mediation employs a third party facilitator to derive mutually acceptable solutions to issues in conflict. The facilitator used in mediation has no decision-making power but acts as a facilitator to direct dialogue between the disputants.

Prerequisites to the application of cooperation include the identification and inclusion of all potentially influential stakeholders to the process. Prior to cooperative problem solving, issue scope needs to be defined and agendas needs to be set. Cooperation requires that representatives to the process be true "natural" representatives who have broad constituency support. Good faith commitments need to be acquired from the parties to a dispute. Deadlines need to be set. Decision-makers need to commit to the implementation of an agreement. Mediator independence needs to be ensured both in funding and in thought thereby fostering disputant trust. It is important to realize that mediation (and cooperative techniques in general) is voluntary in nature where issue exploration and debate occur jointly. Consensus is reached when agreement of all parties to a dispute agree on a resolution (consensus is not a majority vote). Finally, agreements reached through cooperative methods are required to be technically, financially, and politically feasible.

COMPARISONS WITH OTHER SECTOR'S CONFLICT

Difficulties exist in making comparisons between cooperative environmental conflict management and cooperative conflict management in other sectors such as labor disputes or public sector disputes. Environmental conflict tends to surround issues which are ideological in nature; between humanistic ideologies and technocratic ideologies. Environmental conflict often surrounds decision effects which tend to be irrevocable or long-term in nature. Environmental conflict tends to involve many influential groups which affect initially identified goals; new actors emerge as environmental conflict unfolds. Environmental conflict tends to revolve around decisions whose effects lack technical and substantive knowledge background and experience. Because of these characteristics, environmental conflicts are difficult to compare to other sector's conflict.

Cooperative environmental conflict management can be applied at two basic stages of environmental conflict; conflict anticipation and site specific conflict. Conflict anticipation experience has occurred through policy dialogue and regulatory negotiation. Policy dialogue is the inclusion of interested groups in the formulation of policy prior to a plan acceptance or policy implementation. Regulatory negotiation is the inclusion of interested groups in the formulation of rules prior to rule promulgation. The theory behind conflict anticipation methods is the reduction of future conflict through the inclusion of interested parties prior to implementation.

More commonly, environmental conflict has been addressed after the existence of site specific conflict over a specific environmental management application or utilization proposal. Site specific problem solving experience employing cooperative techniques has increased dramatically in the recent past. The first U.S. experience in site specific environmental problem solving occurred in 1973. From 1973 to 1984, approximately 100 environmentally related site specific disputes utilized or employed a facilitator to assist in cooperative problem solving. The most easily identifiable cooperative technique is mediation. Mediation has been applied mainly to conflicts associated with land use and natural resource management.

As an alternative to litigation and adversarial processes, cooperative conflict management has proved to be an effective tool to be applied to certain types of disputes. In retrospect, the underlying variable which requires assessment is the quantification of conflict resolution process effectiveness. Is effectiveness to be judged merely by who wins the game? If so, what about the losers? The literature has spoken of the "spiral of unmanaged conflict" and makes reference to the nagging spot fires over unique yet somehow similar conflicts that arise from the initial conflagration and are the result of adversarial or competitive attitudes.

Conflict resolution effectiveness should be measured in terms of how the game is played; **not** who wins or who loses. Essential to this argument is whether conflict participants will play the same game again **constructively**, or **destructively**. The long term minimization of destructive conflict through the building of better, cooperative relationships between groups in dispute would seem to be the real benefit of conflict. Working together to solve problems, not working for self interests, seems to be a more appropriate method for certain conflicts in the larger societal battle for peace.

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APPENDIX A

Database Search Information

Databases searched included the following (number of citings by database indicated in parentheses):

Agricola, 10 and 110 (117)
Books in Print (35)
CAB Abstracts (0)
Conference Papers Index (5)
Environmental Bibliography (47)
Pollution Abstracts (8)

Appropriate databases were searched according to the following listing of key-words and phrases (with any suffix) using various combinations:

General conflict management:

- conflict		- management
- dispute resolution		- organization
- mediation		- processes
- negotiated rulemaking	-and-	- techniques
- policy dialogue		- principles
- consensus		- analysis
- compromise		- practices

Forestry conflict management:

In focusing on conflict management applied specifically to forestry, the following key words and phrases (with any suffix) used in various combinations were searched merging the additional broad environmental categories.

- conflict				
- dispute resolution		- techniques		- environment
- mediation		- principles		- natural resources
- negotiated rulemaking	-and-	- analysis	-and-	- forestry
- policy dialogue		- practices		- land management
- consensus		- processes		- recreation
- compromise				

APPENDIX B

Other Literature of Interest

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APPENDIX C

MEMORANDUM OF AGREEMENT
REGARDING THE
AERIAL HERBICIDE SPRAYING PROGRAM
OF THE
DIVISION OF FORESTRY
MINNESOTA DEPARTMENT OF NATURAL RESOURCES

I. PREAMBLE

The undersigned (the "Parties") enter into this Memorandum of Agreement (the "Agreement") as a result of the mediation process which began in January, 1987.

The Parties to this Agreement recognize that:

A. The Forest Resource Management Act of 1982 directs the Department of Natural Resources (the "Department") to manage state forest resources according to multiple use and sustained yield principles to ensure a healthy, dynamic forest for the benefit of all citizens; and

B. The Department uses herbicides as a management tool for conifer regeneration; and

C. There is a public concern over potential risks associated with herbicide use; and

D. The Department's forest management program necessarily reflects a continual weighing of public and private interests that is designed to strike a practical and responsible balance among such competing considerations as economic costs, public concerns, scientific evidence, professional field expertise, and internal organizational realities; and

E. The provisions of this Agreement have been tailored, to the fullest extent possible, to respond to public concerns raised by the constituencies to which the Department is responsible. The Agreement embodies an approach to the aerial application of herbicides for conifer regeneration that is at once practical, prudent, and consistent with the Department's standards of professional forest management.

II. GUIDELINES FOR HERBICIDE APPLICATIONS FOR VEGETATION MANAGEMENT

A. The Department, in order to redirect aerial application activities, will make the following changes in its conifer regeneration program:

1. Emphasize more effective vegetation management activities during site preparation in order to reduce the need for aerial application of herbicides for conifer release.

2. Revise regeneration standards to facilitate ground treatment, but without adversely affecting long-term growth and yield.

3. In cooperation with other groups and agencies, conduct vendor workshops and develop materials designed to increase contractors' capability and competence to engage in aerial and ground treatment by both chemical and non-chemical means.

4. Seek review by the Minnesota Department of Agriculture of label interpretations to provide the Department with greater flexibility in the safe application of herbicides.

5. Obtain through purchase, lease or other means additional equipment to increase the Department's capability to engage in ground or aerial treatment. Work with private vendors to design and have manufactured more efficient and effective equipment.

6. Conduct, with the cooperation of the other Parties, practical research concerning the effects of non-release of plantations.

B. In order to protect wildlife resources from the broadcast application of herbicides for conifer regeneration and to enhance wildlife habitat during vegetation management activities, the Department will:

1. Increase the use of non-chemical methods to reduce chemical application on wildlife forage.

2. Emphasize effective site preparation to avoid the need for release.

3. Submit the proposed treatment sites for timely review and comment by the Department's Fish and Wildlife Division.

4. On sites of 20 acres or more, not re-plant plantation spot failures or chemically re-treat missed areas of up to five acres.

5. In consultation with the Department of Agriculture Apiary Office, the Department shall notify registered apiary operators of broadcast applications which may be of concern.

C. In order to protect human health in its broadcast application of herbicides for conifer regeneration, the Department will:

1. Notify, at least 3 days in advance of application, all resident landowners within one-quarter mile of a broadcast treatment site of the proposed application.

2. Unless a lesser distance is requested by the property owner, refrain from undertaking a) aerial applications within 500 feet of an occupied permanent dwelling, and b) broadcast application within 300 feet of an occupied permanent dwelling or within 100 feet of a private property line .

3. Post roads and designated recreational trails, where they enter application sites, with notices stating the name of the herbicide, a brief site description, the purpose of application, the date of application, the appropriate re-entry date according to the product label, a phone number for obtaining further information and a statement not to eat berries or other forest vegetation on the site. In addition, a copy of the container label shall be posted at the main entrance to the application site.

D. In order to protect water and fisheries resources from the broadcast application of herbicides for conifer regeneration, the Department will:

1. Maintain a minimum 100 foot buffer strip between surface water, including type 3, 4, and 5 wetlands, and broadcast herbicide treatment sites, unless the herbicide is labeled for ditchbank or aquatic use.

2. Cooperate with current and future efforts by the Pollution Control Agency, the Environmental Quality Board, the Department of Health, the Department of Agriculture, and others to monitor and evaluate the effect of herbicide use on ground and surface water.

E. In order to protect endangered and threatened species and species of special concern from the application of herbicides for conifer regeneration, the Department will:

1. Train forestry field personnel who conduct surveys to identify those species.

2. Combine the Heritage Program and the forest inventory data bases.

F. The Department will not aerially apply herbicides in State Parks for conifer regeneration.

G. By 1990, the Department shall utilize only herbicides that have been either i) registered since November, 1978, or ii) conditionally re-registered but which are not under special review by the United States Environmental Protection Agency.

III. PUBLIC AWARENESS

A. The Department shall publish in the EQB Monitor, or other publication of state-wide circulation, no later than March 1 of each year, a listing, by county, of the proposed acreages to be treated by aerial application of herbicides, the chemicals to be used and the total number of treatment sites.

B. The Department shall place in its library the text of Operational Order 59, "Use of Pesticides on DNR Administered Lands", or any subsequent order, directive, or other policy guidelines that will govern the Department's herbicide application program.

C. At each regional office, the Department shall maintain a herbicide information file that will be made available for inspection and copying upon request by members of the general public. In building such a file, the Department shall subscribe to and circulate to Department staff at each of its regional offices newsletters from the following organizations: the National Coalition for Alternatives to Pesticides, the National Coalition Against the Misuse of Pesticides, Oregonians for Food and Shelter ("Thirty Day Briefing"), and Minnesota Pesticide Information and Education (PIE). When the Department distributes information to the public, it shall attempt to do so in an impartial and balanced manner.

D. A Forest Herbicide Committee is hereby created to review and evaluate the actions which the Parties have taken to carry out the provisions of this Memorandum of Agreement. The Committee shall have nine members, constituted as follows:

3 members selected by the Conservation Coalition;
3 members selected by the Industry Coalition; and
3 members selected by the Commissioner of Natural Resources, including one employee of the Fish and Wildlife Division.

1. The initial members of the Committee shall be the following individuals:

a. For the Conservation Coalition:

Nelson French
Gary Payne
Richard Rapson

b. For the Industry Coalition:

Terry Ambroz
Bruce Barker
Archie Chelseth

c. For the Department: (to be determined)
Dr. Michael J. Phillips
S. Olin Phillips
Jack Sprypek

2. The Minnesota Environmental Quality Board, the Minnesota Pollution Control Agency, the Minnesota Department of Agriculture and the Minnesota Department of Health shall each be invited to appoint a representative to participate as ex-officio members of the Committee.

3. The Committee shall be chaired and coordinated by the Director of the Office of Dispute Resolution of the Minnesota State Planning Agency.

4. The Committee shall be convened in August of each year to review and evaluate the progress and map out their administrative and legislative strategy for carrying out the programmatic changes described in Section IV below and meeting the targets described in Section V, B, 2 below.

5. The Committee shall be convened in November of each year to review and evaluate the actions which the Department has taken to carry out the provisions of the guidelines in Section II above and the Department's progress in meeting the targets described in Section V, B, 1 below.

6. Additional meetings may be convened by the Chair at any time at the request of the Department or of any four members of the Committee.

IV. SUPPORT FOR PROGRAMMATIC CHANGES

The Parties agree to commit their best efforts to secure the enactment of the following measures, which are necessary for the full implementation of the provisions of this Agreement:

A. Funding for DNR forest road and bridge betterment to improve access for forest management purposes.

B. Legislation and administrative rule changes that will permit DNR greater flexibility in contracting for vegetation management.

C. Recommendations to the Governor and Legislature that funding be provided to conduct literature reviews and appropriate cooperative research projects with the University of Minnesota Vegetation Management Cooperative and the College of Forestry, Fisheries, and Wildlife, including, but not limited to, research concerning: 1) herbicide residues in deer and other game and non-game animals in sprayed areas; 2) herbicide residues on forest vegetation eaten by humans; 3) herbicide residues in surface water and groundwater in forested areas; 4) improving the efficiency of herbicide applications; and 5) developing non-chemical alternatives for vegetation management.

V. COMMITMENTS BY THE PARTIES

A. Representatives of the Parties shall, to the extent appropriate, participate in, and/or observe the research efforts described in Section II, A, 6; Section II, D, 2 and Section IV, C above.

B. The Parties agree to commit their best efforts, both jointly and severally, to reach the following targets by November 1st of the years 1989, 1991 and 1993, respectively:

1. The total annual acreage treated by aerial application should not exceed 6,000 acres by 1989, 5,000 acres by 1991, and from 3,500 to 3,750 acres by 1993.

2. In order to carry out the terms and spirit of this agreement, the resources and flexibility available to the Department should be the following:

   a. By 1989, policy and administrative changes stipulated in Section IV, B should be accomplished.

   b. By 1991, the following additional appropriations should be available to the Department:

      i. $1,000,000 annually for forest road and bridge betterment, in accordance with the approved forest road plan.

      ii. $100,000 annually for equipment and operations associated with vegetative management.

      iii. $250,000 annually for the research described in Section IV, C (including $60,000 annually for the Forest Management Cooperative).

      iv. A one-time $30,000 appropriation for combining the forest inventory and Natural Heritage data files.

   c. By 1993, the following additional appropriations should be available to the Department:

      i. $2,000,000 annually for forest road and bridge betterment in accordance with the approved Forest Road Plan.

ii. $150,000 annually for equipment and operations associated with vegetative management.

iii. $500,000 annually for the research described in Section IV, C above.

C. For the purpose of determining the need for an environmental impact statement in response to the petition for an EAW that has been submitted by the Conservation Coalition and the environmental assessment worksheet prepared by the Department, the Parties agree to the following:

1. The Conservation Coalition hereby redefines its petition to indicate that the "Project" is the Department's aerial application of herbicides for conifer regeneration during the period 1986-1993.

2. The Department will issue a record of decision which indicates that the aerial application of herbicides for conifer regeneration during the period 1986-1993 does not have the potential for significant environmental effects as long as the targets set out in Section V, B, 1 are met, and the other provisions of this Agreement are materially accomplished.

3. The Department's aerial application of herbicides for conifer regeneration, beginning in 1994, shall be considered a new project for the purposes of environmental review.

4. If the targets set out in Section V, B, 1 are not met or if the other provisions of this Agreement are not materially accomplished, the following shall apply:

a. The Project shall be deemed a new project, permitting the Parties to file a new petition under the Environmental Policy Act;

b. No such petition or any other legal or administrative challenge by any party shall be filed, however, until the following steps are taken:

i. the party shall give the Department and the Chair of the Forest Herbicide Committee written notice of its intention to lodge such a challenge, stating with specificity the basis for the challenge and the desired corrective action.

ii. The Department shall have 60 calendar days in which to respond, to use the good offices of the Chair of the Forest Herbicide Committee, or to employ any other method to seek to resolve the dispute.

iii. If there has not been a resolution of the issues raised in the notification of intent within the 60 day period, the party may proceed with its challenge.

D. The Parties understand that the spirit of this Agreement is best served by taking a positive approach, both in the media and within the communities of which the Parties are a part, to the implementation of the Agreement. The Parties agree that they will make every good-faith effort to resolve any differences that may arise during the course of the agreement.

The Parties, having set their hands hereto, hereby sign and acknowledge this Agreement this 5th day of June, 1987.

RAYMOND B. HITCHCOCK
Dept. of Natural Resources

TERRY AMBROZ
MN PIE

NELSON FRENCH
Project Environment Foundation

DON BUCKHOUT
Dept. of Natural Resources

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