

AN ABSTRACT OF THE THESIS OF

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Western society's ongoing cultural shift toward quality of life values and associated increased public participation expectations affects forest managers. The rapid urban growth experienced by the U.S. is increasing both the area of the urban-forest interface zone and the number of residents residing in that zone. The study site of McDonald-Dunn Research Forest (the Forest), administered by the Oregon State University College of Forestry, represents a microcosm of the conflicts facing urban-forest managers. The 14,000 acre Forest is located less than 1/4 mile from the city of Corvallis, Oregon, which has a population of 49,000. In response to increasing urbanization pressures and the associated uses and values, Forest managers are seeking methods for improving communication processes with Corvallis-area residents. However, determining the conditions under which public involvement is sought and the specific techniques that are employed remain problematic.

The thesis critiques the Vroom-Yetton contingency decision-making model developed for use in the private business setting. Use of the model to assist decision

makers determine which public participation process, if any, to use for a given issue within the urban-forest interface area is examined. The conclusion is that the majority of the criteria developed in the business setting for evaluating effectiveness of increased participation apply in the public forestry setting as well. However, criteria for the inclusion of value judgements and identification of the "public interest" are noticeably absent in the Vroom-Yetton model, thereby limiting its direct application.

Wording and model changes are suggested in the Vroom-Yetton decision tree in light of the increased complexity of the "publics" and the lack of a "corporate vision" held by the publics in the forest management setting. Conflict management, systems planning, and social learning literature is utilized in developing those wording and model changes. Recommendations are offered for implementation of the model on the Forest.

**Evaluation, Reformulation, and Application of the Vroom-Yetton Model
to Select Public Involvement Methods
for the McDonald-Dunn Research Forest Near Corvallis, Oregon**

by

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**EVALUATION, REFORMULATION, AND APPLICATION
OF THE VROOM-YETTON MODEL
TO SELECT PUBLIC INVOLVEMENT METHODS
FOR THE MCDONALD-DUNN RESEARCH FOREST
NEAR CORVALLIS, OREGON**

1. INTRODUCTION

Since 1960, public involvement has become an increasingly important aspect of forest management. Public involvement at the Federal level is mandated broadly for federal actions and general guidelines for its application have been specified. State and local governments are incorporating increasing public involvement requirements into their activities, yet wide variability remains in the structural requirements. Even if public involvement is not required at state and local levels, public expectations pressure managers to provide such opportunities. Often, rapidly changing values have left state and local forest managers unprepared and untrained to guide public involvement processes, and a tool is needed to provide guidance for forest managers as to when and how to structure public involvement processes.

This thesis will discuss: (1) factors driving increased expectations for public involvement at the national and local levels, (2) the challenges the study site presents as a near-urban forest in a quasi-public management setting, (3) the history of model development for increasing subordinate involvement in decision making in the business world, and (4) recommended adaptations of the private business model for guiding decisions as to when and how to structure public involvement in forest management decisions.

The focus of this thesis is on communication as a mechanism for citizen participation in decision-making processes; the focus is on communication as a means, not an end. The terms communication, public involvement, and decision making will, at times, appear to be used interchangeably, as communication is a necessary prerequisite to public involvement and subsequent decision making.

2. COMMUNICATION AND DECISION MAKING CONTEXT

2.1 Forest management in its larger socio-politico context: Post materialism values, growing environmental awareness

Any study site is influenced by the larger socio-political context within which it exists. One characteristic of this context in the U.S. and other Western countries is a cultural shift placing a greater emphasis on the *quality* of life. Inglehart analyzed an eighteen-year time series of cross-national survey data and concluded that: "Advanced industrial societies are undergoing a gradual shift from emphasis on economic and physical security above all, toward greater emphasis on belonging, self-expression, and the quality of life" (Inglehart, 1990:11). Inglehart refers to this phenomenon as the post-materialism shift. Results of this value shift which affect forest managers are: (1) an increasing public desire for a greater role in decision making, (2) the increasing ineffectiveness of past decision-making processes, (3) changing values for the environment including forests, and (4) a growing distrust for institutions.

The public desires a greater role in decision making. The post-materialism shift in values is producing a shift from "elite-directed" to "elite-challenging" political activities. The public is seeking "... an increasingly important role in making specific *decisions*, not just a choice between two more sets of decision-makers." The newer elite-challenging mode of participation is issue-oriented, and aims at "... effecting specific policy changes" (Inglehart, 1990:5). A number of authors (*e.g.*, Friedmann, 1987; Yankelovich, 1991) have criticized the paradigm of "expert elites" making major societal decisions. Yankelovich summarizes these criticisms by stating that our past actions have been characterized by "... a deep-rooted cultural trend that elevates the

specialized knowledge of the expert to a place of high honor while denigrating the value of the public's potentially most important contribution -- a high level of thoughtful and responsible public judgment" (1991:11). In the forestry setting at the national level, federal regulations adopted during the 1960s and 1970s (*e.g.*, Multiple-Use-Sustained Yield Act, National Environmental Policy Act, and National Forest Management Act) reflected this value shift by requiring increased public participation in forest management decisions. This trend is illustrated in the Oregon context where nearly 80% of respondents indicated that citizen participation is of great value, even if it adds to the cost of government (Steel *et al.*, 1992).

Traditional decision-making processes are increasingly inadequate to deal with changing societal values. Many of the values that influenced decision making and structured communication processes in the past, are no longer relevant to the conditions found in the post-materialism culture:

A decade ago, it could still be taken for granted that the fundamental test of a society's leadership was the extent to which it achieved economic growth regardless of long-term consequences. And it could still be assumed that leadership which passed this test had gone a long way toward establishing its legitimacy among the general public. These comfortable assumptions are no longer tenable. The public's goals seem to be shifting. Insofar as policymakers seek to promote the general welfare, they will need to take subjective aspects of well-being more and more into account. An increasingly articulate and politically sophisticated public may leave them little choice (Inglehart, 1977:16).

Stankey (1996) states that our past "... policymaking processes in forestry have been characterized by concern with technical issues, centralized control of knowledge and action, efficiency, and rationality" (p.106). An illustration of a response to these post-materialism values, was the USDA Forest Service's move in the 1990's to be

“responsive to and representative of the external environment as well as efficient and economical in its internal decisions” (Tipple and Wellman, 1991:424, emphasis added).

The growing environmental movement and change in forest-related values reflects the post-materialism values shift. Seventy three percent of a national sample responded “yes” when asked: “Do you consider yourself an environmentalist?” (Dunlap, 1991). In a 1992 survey, two thirds of Oregonians (and three fourths of U.S. respondents) disagreed or strongly disagreed with the statement: “Forests should be used primarily for timber and wood products” (Steel *et al.*, 1992). For decades, the public mainly desired fiber from their forests. Now, the public desires a multitude of products in addition to fiber: recreation, clean water, wildlife habitat, and wilderness (Stankey *et al.*, 1992; Koch and Kennedy, 1991). The growing environmental movement mirrors the post-materialism value shift from viewing the forest as a utilitarian producer (e.g., producing homes and paper) to its potential for production of amenities for identity and self-expression.

The increasing distrust for institutions affects forest managers. In the U.S., in 1958, a little less than one third of respondents indicated predominantly distrustful attitudes toward institutions. But, by the mid-1970's, nearly two thirds of respondents had distrustful responses toward institutions (Inglehart, 1977:17). This change is, in part, due to the emerging “elite-challenging” climate and because a growing portion of the public feels that forest managers are increasingly out of touch with public values.

. . . [The] rise in citizen participation can be attributed, at a very general level, to the fact that citizens are less trusting of government than they once were: the traditional ‘manager-client’ relationship between government departments and resource users is less tenable in an age where the ‘public good’ is no longer easily equatable with the unchecked

growth and expansion of the private sector. Citizens have, moreover, seized the legal tools available to them and are beginning to take their concerns to the courts (Webb, 1990:218-19).

Cortner and Moote (1994) note this growing distrust and change of forest-held values in the forestry setting: “. . . [P]ublic knowledge of and concern with the effects of resource management have developed to the point that people are no longer willing to leave decisions to resource managers. Rather than being production-oriented, and sharing the managers’ concern for optimizing levels of competing uses, more Americans are expressing concern about issues such as habitat fragmentation, biodiversity, and cumulative impacts” (p.169).

2.2 Urban-forest interface challenges

Since 1950, the nation’s population has grown by nearly 100 million. Population growth and the post-materialism value shift have produced an increase in the number of people living in, and near, forested lands and a growing demand for residential, second home, and resort development. The trend has been movement from urban to rural areas, including movement to remote forest areas, to escape fast-paced urban living and its attendant problems of crowds, traffic, pollution, and crime (Shands, 1991; Shannon, 1991). The overall population growth in the U.S., the expansion of many urban areas, the spread of people to the suburbs, and, most recently, to the “exurbs”, place increased pressure on forest lands (Rowntree and Zipperer, 1988).

The term “urban-forest interface” has been coined for the boundary between the forest and the urban environment (Bradley, 1984). Due to the outward expansion of U.S. cities, the area of the urban-forest interface boundary has increased as well. With

the increased interface area and population density has come increased conflict between the values of resource managers, urban, and rural dwellers (Shannon, 1991). If former urban residents came to the urban-forest interface seeking peace and quiet, solitude, and beauty, is it any wonder that they are upset with traditional timber harvest and management? City center residents have an increased desire to escape the day-to-day noise of the city for the quiet of the forest, or to look upon a forested viewshed. But the values of former of current urban dwellers often conflict with the values of long-term residents many of whom are dependent upon resource extraction for their livelihood.

The conflicts discussed in the preceding paragraph illustrate the problematic nature of defining the “public interest” for forest lands. The pluralistic nature of our society is illustrated by the many “publics” concerned about forest management with different values and goals, *e.g.*, for recreation or timber production, and whose interest groups at the local and national levels have differing values and goals. As a result, “[I]and managers often are caught in the middle in a battle between interest groups that have been polarized and entrenched in their positions” (Geisler *et al.*, USDA Forest Service, 1994). These conflicts over goals were the second and third highest ranking issues in a recent survey of national forest managers (Jakes *et al.*, 1990) and have contributed to stalemate, litigation, increased legislation, and decreased productivity from resource lands.

In summary, the national trends of the public’s growing desire to affect decisions, the ineffectiveness of former decision making processes, society’s changing forest-related values, the public’s growing distrust for institutions, and urban-forest interface value conflicts affect the study site. The study site will be introduced in the following

chapter (Chapter 3). The societal changes discussed in the current chapter place growing demands on the manager to be responsive to a host of “new” uses and values. Forest managers’ limited ability and lack of adequate processes and structures to deal with the increased desire and need for public involvement will be discussed further in Chapter 4.

3. STUDY SITE

3.1 OSU Research Forests and its mandate for communication

The 14,000 acre McDonald-Dunn Research Forest (the Forest) is the site for potential application of the model evaluated in this thesis. The lands have been acquired since the 1920's to serve as an outdoor laboratory for College of Forestry classes and research. Forest lands are utilized as an endowment to the College of Forestry, with timber revenues supporting teaching and research endeavors within the College. In the current administrative structure, major decisions are made by the Forest Director, Administrative Committee, or Dean, depending on the level of significance and impact of the decision. Day-to-day management activities are conducted by eight full time program managers in resource areas such as recreation/education, silviculture, and wildlife biology.

The management focus of the Forest prior to 1993 included teaching, demonstration, and research. Prior to 1988, and the initiation of the Urban Fringe research project, little formal communication occurred between the Forest administration and the Corvallis community. The McDonald-Dunn Forest Plan, adopted in 1993, identifies nine goals and, in response to the desires of Corvallis community leaders, expands the management focus to include communication with the Corvallis community.

Goal 7, as amended in 1995 by the Forest Advisory Committee, states:

Be a good neighbor consistent with the Forest mission statement.

- a. Maintain communications with faculty, neighbors, and the public to convey information, to identify issues of interest and concern, and to receive suggestions regarding management of the Forest.

- b. Be sensitive that the Forest provides a visual backdrop to the city of Corvallis.
- c. Provide managed public access to the Forest.

3.2 Characteristics of the Corvallis community

Corvallis, a community of 49,000 residents, is nestled on the east side of the Coast Range foothills, near the midpoint of the Willamette Valley in Oregon. The Corvallis citizenry possesses a number of characteristics that impact local forest managers. Two characteristics discussed below include the community's high education level and desire for participation in civic decisions.

The literature indicates that as "... people become more educated, they ask for more involvement in the decisions that will affect their lives. As Cleveland (1985, p.192) has explained, 'Knowledge is power, as Francis Bacon wrote ... So the wider the spread of knowledge, the more power gets diffused'" (Thomas, 1995:5). This is not something about which individuals, corporations or governments have a choice (Thomas, 1995).

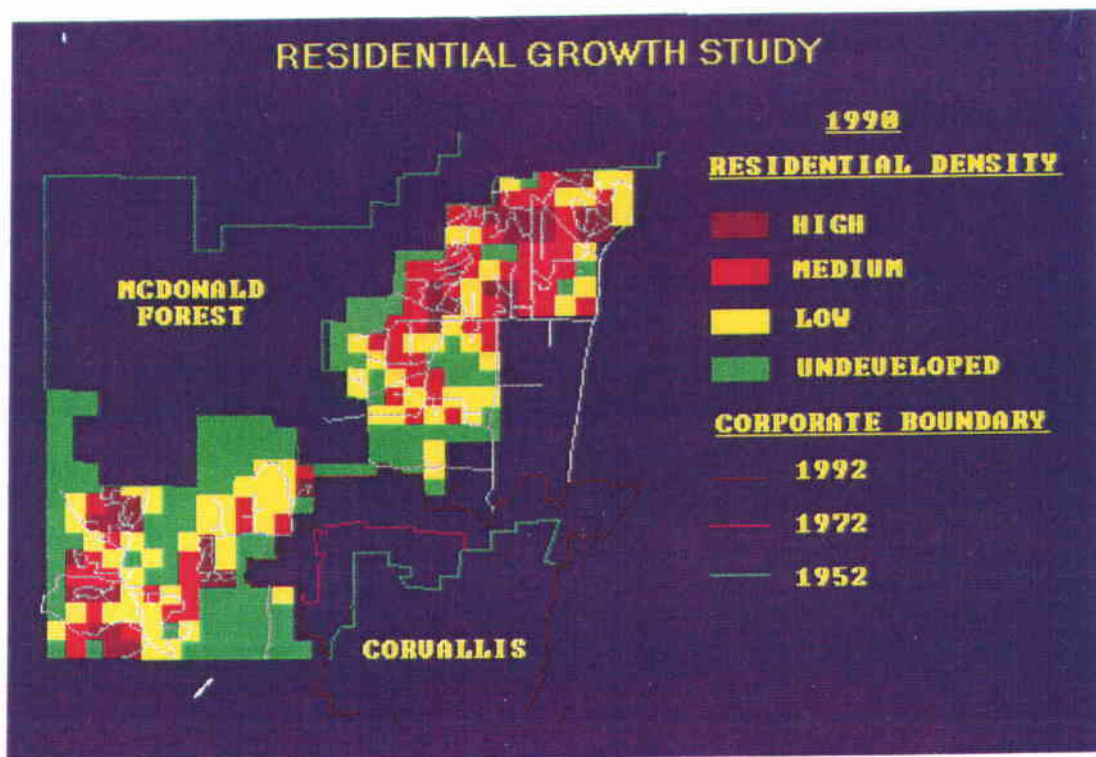
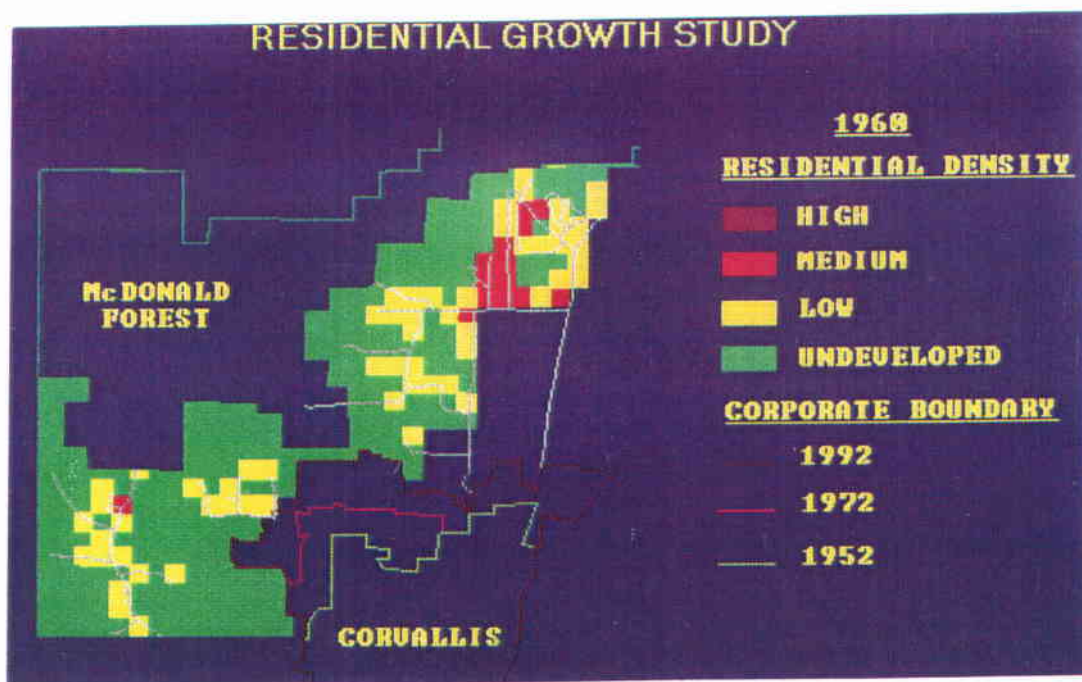
The Corvallis community, forest visitors, and forest neighbors generally are highly educated. A random mail survey of Corvallis residents (Finley, 1988) revealed that nearly 90% of respondents have more than 12 years of education, and nearly half of Corvallis residents had more than 17 years of education. Forest visitors are highly educated with over 50% having completed four years of college, and nearly 40% possessing Masters degrees or higher (Wing, 1996). Adjacent neighbors possess similarly high education levels (Wong, 1993).

Corvallis residents have a keen interest in participating in decisions that affect their community, and in the “process” of decision making (Berg, 1993, personal communication). Phil Hays, a long time community resident, in a tongue-in-cheek introduction to his trails guidebook, states that the first remarkable feature of Corvallis “. . . is the people, who are among the most highly educated human populations in the galaxy. One unfortunate side effect of being so highly educated is that the people must thoroughly examine every subject, no matter how simple, before arriving at a decision” (Hays, 1993).

3.3 Corvallis-McDonald-Dunn Forest interface

Urban-forest growth pressures have been placed on the Forest as well as on other forests in the nation. Corvallis is in close proximity to the study site; at one point, city limits are just 1/4 mile away from the Forest boundary. Mickaelson (1992) utilized aerial photos and a Geographic Information System to construct a striking series of mosaics of the southern McDonald Forest boundary. The mosaics show the transition of land uses, from low density (0-2 structures/20 acres) to high density (> 5 structures/20 acres) during the period from 1960 to 1990. (See Figure 3.1.) These mosaics convincingly reveal the increased urban pressure confronting the Forest.

Figure 3.1 Urban growth around McDonald Forest: 1960--1990



Recent surveys by graduate students and planning process proceedings have identified the Forest management concerns of Corvallis-area residents: improved communication, recreational access, safety, viewsheds, knowledge about management plans, and protection of property values (Balfour, 1996; Wing, 1996; Finley, 1989; Deagen, 1993; Kimura, 1992; and Wong and Brown, 1993). In 1992, thirty six Corvallis community group representatives were involved in a workshop to identify issues prior to development of the McDonald-Dunn Forest Plan. Participants were placed in four working groups and asked which issues should be addressed in the management plan. Issues of concern for three or four of the groups included recreational access and management, education about the role of the Research Forest, alternatives to timber harvest for revenue generation, management of scenic resources, and establishment of “two-way” communication between the College of Forestry and the community (Deagen, 1992). Workshop participants also raised concerns for issues such as habitat fragmentation, biodiversity, and cumulative impacts, which mirror national level concerns noted by Cortner and Moote (1994) in the previous chapter. In a survey of visitors to Peavy Arboretum in McDonald Forest (Balfour, 1997), the four highest ranked appropriate uses of the Forest were wildlife habitat protection, research, watershed protection, and old growth preservation. Public recreation was ranked seventh and timber management was eighth on a list of the nine uses included in Balfour’s survey.

Residents near the edge of the Forest boundary often have different forest management concerns than do residents near or in the city center. Forest-adjacent residents are more affected by day-to-day forest management activities, such as

recreational trespass, spraying, or traffic associated with logging and management. City center residents are concerned about their views of the forest from work or home and the ability to access the forest for recreational purposes during non-work hours.

A sense of place is an important factor in shaping adjacent neighbors' values for the Forest as well as the Corvallis community's feelings about the Forest's management. In survey research by Kimura in 1992, the average length of adjacent neighbors' residence was 8.4 years and respondents planned to live there an additional 5 years. Nearly ninety percent of respondents indicated that the adjacent Forest was important to very important in their decision to purchase their home. A similar percentage felt the adjacent forest was important to very important to have in their backyard now (Kimura, 1992). The Forest is viewed as a "recreational backyard" by many Corvallis residents. Eighty percent of Corvallis households have visited McDonald Forest (Finley, 1989). Recreational visitors report that they have been visiting the Forest for an average of 9.5 years with a range which extended to 55 years (Wing, 1996). As these visitors move through the Forest they observe forest management practices and develop a sense of ownership in the Forest.

The Corvallis McDonald Forest urban-forest interface is undergoing a continuing urban transition. The forest-held values of Corvallis-area residents are complex and deep reaching, covering the spectrum from a concern about forest diversity and integrity, to the sense of place the forest provides for their community. These characteristics of the Corvallis urban forest interface and the forest-held values of its residents add impetus to the growing desire for improved communication processes that will be discussed in the following chapter.

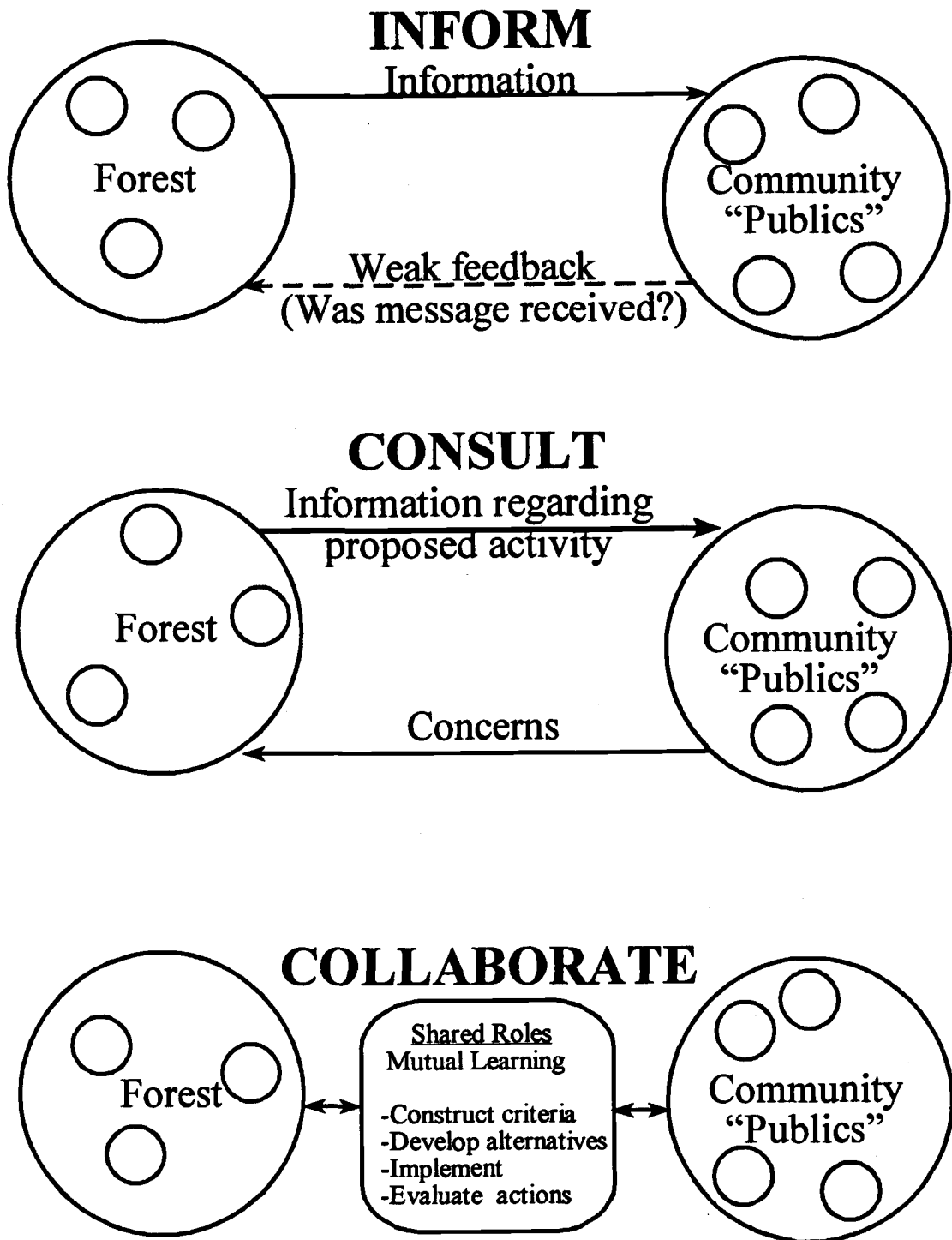
4. NEED FOR A NEW COMMUNICATION APPROACH ON THE FOREST

4.1 A closer look at communication processes

Human communication is a highly complex process. Mechanistic descriptions of communication include a source/receiver who encodes a message, sends it via a message/feedback channel to another source/receiver who receives the message and decodes it. Communication is described as a continuous-loop channel because the receiver in the first round will become the sender in the second round in order to send another message and/or feedback regarding the first message. The act of communicating is highly complex, because the act of coding/decoding is affected by linguistic codes, non-verbal cues, “. . . learned behaviors, physiological interconnections within the human central nervous system, intentions, cognitions, informational biases, memories, sociocultural norms, ad infinitum” (Fisher, 1978:109). The forest management setting is even more complex because communication occurs between individuals, within, and between groups. In the forest management setting, communication is typically undertaken for a purpose; *i.e.*, to affect the behavior, beliefs, attitudes, and ultimately, the decision, of another.

The evolution of three communication processes reflect evolving societal value shifts, the need for moving beyond “technical” internal decision making, and the need for social learning enabling the balancing of implications and trade offs in order to identify the “public interest”, that were discussed in Chapter 2. The three processes illustrated in Figure 4.1 were drawn from communication texts and compared with other typologies

Figure 4.1 Types of communication processes



(Potapchuk, 1991:163; Vroom and Yetton, 1973:17) for workability. The three processes are:

- 1) Inform and Educate -- generally a one way flow of information from forest managers to the public, sometimes a weak feedback loop is utilized for ascertaining whether the message was received as intended;
- 2) Consult -- a feedback loop is utilized for seeking the public's reactions to preplanned alternatives generated by forest managers; and
- 3) Collaborate -- which requires the creation of shared roles to enable mutual learning. Collaboration involves joint development (by forest managers and the public) of a shared definition of the situation, alternatives for improving the situation, and an agreed upon decision-making process.

4.2 Need for evolution of communication models from informing to consulting and collaborating in the national context

Governmental and societal institutions have lagged behind the broader process of social change discussed in Chapter 2. As Yankelovich notes: "Our Western culture is strong in skills and institutions associated with instrumental rationality. It is the basis for all of our technology and specialized expertise. What we are lacking is equal strength in skills and institutions devoted to effective communicative action and public judgment" (1991:218). Thomas' (1990) re-analysis of 42 public involvement case studies across the U.S. found a deficiency in the utilization of consultative or collaborative communication processes. Later, he noted: "Structures designed for an age of machines

and hierarchy have not adapted readily to the new age of information and shared authority” (1995:6).

At the beginning of the twentieth century, public administration was described as ideally occurring within a politics-administration dichotomy, with administrators applying neutral competence in the execution of policies (Reich, 1985:212; Thomas, 1995). However, the increasing complexity of the governmental system after the 1960's meant that many controversial policy questions could not be anticipated even by forward-thinking policy makers. Public administrators are increasingly finding themselves making value judgments, rather than simply following unambiguous technical rules, as the earlier idealized politics-administration dichotomy implied (Thomas, 1995:20-21). Thomas sums up the reality of public administration in the 1990's: “Contemporary public management requires too many important decisions for managers to continue to expect either a clear separation of politics and administration or a strictly top-down, hierarchical flow of influence” (Thomas, 1995:34).

A look at the Forest Service's past thirty years illustrates the blurring of this politics-administration dichotomy and the communication challenge this blurring raises for forest managers. In the 1930's, the Service was characterized by a hierarchical system:

... where the ranger efficiently and economically carried out public policy in an organizational context where the authority and power flows down in a clear, linear fashion ... Today, the domain has shifted away from one purely of policy implementation in a relatively structured environment to one of policy formulation and implementation in a far more complex environment. [Rangers not only] ... have to negotiate transactions with directly affected parties (e.g., ranchers and loggers) but also to forge consensus among a community of interested parties on a

host of forest management issues affecting their districts (Tipple and Wellman, 1991).

Land management (including forestry) decisions are characterized, in part, by the involvement of multiple parties with markedly different world views and deeply held values (Daniels *et al.*, 1996:18). At the national level, the complex problems and multi-party forestry issues of the 1990's indicate the need for consultation and collaboration, the taking on of shared roles, and mutual or social learning. Social learning is the process through which individuals “. . . gain mutual knowledge of one another's positions, interests, motivations, and constraints. Simply, it is the collective understanding that there are many legitimate perspectives in a given situation” (Ozawa and Podziba, 1997:9). Because policies must be developed and refined, it is becoming evident that venues are needed to enable discussion of social values, and for social learning to occur. Yet, such forums are generally lacking (Yankelovich, 1991); moreover, our skills, processes, and structures are also poorly developed. This discussion on the ability for social learning to foster the development and refinement of forest management policies will be discussed in greater depth in Chapters 6 and 8.

4.3 Past communication processes on the Forest and the desire by Corvallis-area residents for more consultative or collaborative communication processes

Following the older paradigm, of pursuing “instrumental rationality” and decision making by the “expert elite”, established by other governmental and societal institutions, the majority of past decision processes initiated by the managers of McDonald-Dunn Research Forest have been predominantly autonomous (independent, without input from the public). Inform and educate, (an outgrowth of autonomous decision-making) has

been the most frequently used communication process by the Forest. Indeed, prior to 1988, the Forest had little formal communication with the community regarding its timber management program.

But, in 1988 and 1989, the Forest was thrust into the communication arena when a series of harvests planned for the urban-forest interface met with neighborhood resistance. The Urban Fringe research project was initiated in 1988 after opposition arose to a planned clearcut adjacent to a rural neighborhood called McDonald Forest Estates. In post-project survey work for the Urban Fringe research project, the majority of Forest-adjacent respondents were pleased with "the process" utilized in the planning of harvest units near their homes. That process utilized social learning, consultation, and collaboration. In post-project survey work, residents voiced their desire for additional and ongoing opportunities for increased public involvement and communication (Wong and Brown, 1993).

On the other hand, communication using the "Inform and Educate" process was again utilized in 1989 when neighbors were informed immediately prior to the installation of a research project, involving timber harvest, near their homes. That communication process appears to have engendered a low level of trust for Forest managers by its neighbors. One neighbor commented after the harvest was completed:

I don't think I've been taken in. Temporal seeing also means constantly being on the lookout for compromises and backsliding and discrepancies between what's said and what's done. . . . it's *not at all clear how committed the management really is to citizen involvement* and the 'sensitive forestry' showcased here. . . . Are we being told the truth, or all that we need to know? (Anderson, 1996:23, emphasis added).

In surveys of recreational visitors to the Forest in 1990-91, 85% of respondents preferred consultation or collaboration between the public and the managers on decisions concerning Forest management. Only 10% of respondents favored autonomous decisions by the managers with informing of the public afterwards, which is currently the dominant method; and only 5% favored voting by the public as a means for making decisions about Forest management (Balfour, 1997). As discussed in Section 3.3, the desire for improved communication was also identified by Corvallis-area residents in the 1992 Forest Plan workshops when all four of the working groups, independently and simultaneously, identified the need for establishing "two-way" communication with the College of Forestry (Deagen, 1992).

4.4 Need for model to determine when and how to structure communication

As stated in Section 3.1, Goal 7 of the McDonald Forest Plan is to: "Be a good neighbor consistent with the Forest mission statement." Subsection 7a reads: "Maintain communications with faculty, neighbors, and the public to convey information, to identify issues of interest and concern, and to receive suggestions regarding management of the Forest."

Managers of the College Forests are feeling increased urban forest interface pressures as a result of changing values and increased urbanization adjacent to Forest boundaries. Failure to address these pressures adequately could carry severe consequences. If citizens do not perceive a responsiveness on the part of Forest managers, they will seek other venues, *e.g.*, the courts or the legislature. A model is needed to assist the forest administration in determining when, how, and to what degree

the public should be involved in Research Forest decisions and therefore how to go about structuring communication processes to meet those ends. The dilemma is how to appropriately and efficiently involve the public without getting “bogged down” and accomplishing little, or contributing to “burnout” for either managers or citizens.

4.5 Model selection criteria

Lessons from forest planning efforts of the past ten years, the public administration and conflict management literature, and the conditions of the study site were used to develop the following criteria for model selection and modification.

1. The public engages in communication for a purpose: in an attempt to influence the decision in a manner consistent with their interests, uses and values. Therefore, defining the amount of decision-making power to be vested with the public is important for ensuring the public’s participation as well as for developing realistic expectations. Public administration and forest management literature spanning more than two decades (Cupps, 1977:484; Sample, 1990:293-4; U.S. Congress, Office of Technology Assessment, 1992) informs us that we must determine:

- a) Whether to seek public involvement;
- b) Who should be involved;
- c) What format the consultation with various stakeholders should take; and
- d) How much influence the stakeholders should have on the final decision.

2. Given the plethora of issues facing managers, and the complexity of the makeup of the groups comprising the “public”, a tool is needed to assist in determining when and how much public involvement is necessary. Research (Thomas, 1990), as well

as practicality, indicates that it might not be necessary, or desirable, to consult or collaborate with the public on every issue.

3. Utilize an interests based approach, grounded in the conflict management literature. The conflict management literature cites the importance of focusing on interests rather than positions (Fisher *et al.*, 1991). Forest management research indicates the need for guidelines “. . . to help planners identify and describe public issues, distinguish between major and minor public issues, and use the issues to design planning alternatives and public involvement activities” (Blahna and Yonts-Shepard, 1989:223).

4. Because of the multitude of decisions facing forest managers on a day-to-day basis, the process needs to be easily accessible and easy to use by the Forest staff, administrators, and decision makers.

5. The model should assist in structuring public involvement in order to attain the following objectives:

- (a) Determine public values and priorities,
- (b) Define critical issues and the relevant information to address them,
- (c) Identify emerging issues and possibly avoid crises,
- (d) Assess how well the “public interest” has been fulfilled,
- (e) Identify local knowledge,
- (f) Build trust among participants,
- (g) Promote understanding of the issues and conflicts and of the reasons for underlying decisions,
- (h) Incorporate conflicting values,

- (i) Provide opportunities for joint fact-finding,
- (j) Encourage cooperation and collaboration,
- (k) Increase the quality of decisions, and
- (l) Develop more acceptable decisions because the public has been involved in the decision (Henning and Mangun, 1989:65; Wondolleck, 1988a; U.S. Congress, Office of Technology Assessment, 1992:88; Forest Ecosystem Management Team, 1993:99-100; Thomas, 1996; and Yaffee, *et al.*, 1997).

5. INTRODUCTION TO VROOM-YETTON MODEL

This chapter introduces and discusses a model that appears to have the potential for meeting the criteria discussed at the end of the previous chapter. In 1973, Victor Vroom and Philip Yetton introduced a contingency decision-making model for the business world. Interestingly, the model was perceived as necessary because of the same kinds of value changes discussed in Chapter 2 relating to natural resource management that also appeared to affect employees' expectations in the work place. The model was introduced to aid in determining what level of participation by subordinates would improve the quality and acceptance of decision making in the corporate business setting. This chapter describes the need for such a model and the criteria developed for judging the effectiveness of increased participation in the business world. The following chapter examines whether these criteria are applicable or could be adapted to the forest management decision-making setting.

5.1 Need for model

Starting in the early 1900's, the business world moved into scientific management. The focus was on efficient division of labor, based on the results of scientific research, such as motion studies. In the transition from trade guilds, economic incentives were offered to offset the anticipated tendencies towards worker laziness. But slowing productivity growth and mounting trade deficits were seen by many American managers as reflections of the inadequacy of these scientific management methods (Vroom and Jago, 1988:11-13).

In the 1930's, the concept of power sharing and participation began to resurface in the academic world. Empirical evidence dating from 1948 points toward the efficacy of participative management. Participative management was proposed by behavioral scientists in the 1950s and 1960s. The benefits of increased worker participation included an improved ability to overcome resistance to change, increased motivation of workers, and the instillation of a community of purpose throughout the organization (Vroom and Yetton, 1973:10; Vroom and Jago, 1988:11-12). But incorporating participation in the business world proved problematic, because research reveals that "essentially, no single approach, whether autocratic, consultative, or totally participative, can be effectively employed with all subordinates for all types of activities" (Vroom and Jago, 1988:13 quoting Schweiger and Leana, 1986).

Thus, a model was needed to indicate which participative approach might prove most effective in a given situation. But first, criteria for evaluating the effectiveness of increased participation had to be developed. As Vroom and Jago stated: "If participation is to be more than fad or current fashion fluctuating in importance with the swing of a pendulum, it is critical that we understand the processes by which it works and the situations that affect those processes" (1988:14).

5.2 Criteria for judging effectiveness of increased participation

Vroom and Jago (1988), elaborating on Vroom and Yetton's 1973 work, detailed the criteria for evaluating the effectiveness of participation in contributing to organizational goal attainment. (Webster's dictionary defines a criterion as a standard on which a judgment or decision may be based. It may apply to anything used as a test of

quality whether formulated as a rule or principle or not.) The following criteria are paraphrased from an extensive review of the literature by Vroom and Jago (1988).

1. **Quality of Decisions.** A high-quality decision "... is a well reasoned decision, consistent with available information and with organizational objectives and goals" (Vroom and Jago, 1988:20). The focus of this criterion is on the analytical or impersonal aspects of decisions. The definition implies an objective function -- a criterion or set of criteria by which the results of decisions can be judged unequivocally. Conditions that influence whether enhanced participation will benefit or detract from decision quality include:

- a. *Goals.* Problems for participative systems are presented by the focus on personal goals to the detriment of organizational goals; non-productive competition between teams, between management levels, or between management and rank and file workers. By contrast, the development of superordinate goals and a synergistic climate contribute to problem solving.
- b. *Knowledge possessed by participants.* Participation can bring more extensive information resources and a larger variety of perspectives to bear on the decision-making process. It is also important to develop a mechanism for sorting out good ideas (and the individuals who developed them) from those destined to fail.
- c. *Size of group.* The tendency is for smaller groups to lack needed informational sources and for larger groups to suffer from problems of coordination.

- d. *Disagreement among participants.* Dialogue between participants develops different points of view, and the ability to choose between different judgments has the potential to strengthen the decision-making process. However, unmanaged conflict can be detrimental to decision quality.
- e. *Nature of the problem.* Certain tasks are improved by group processes, others are slowed or hindered. Groups may be useful for conceptualizing an approach to a problem but not in executing the solution. For example, a task force is adept at determining that an interagency Memorandum should be sent and to whom, but not in actually writing it (Vroom and Jago, 1988:20-25).

2. **Commitment to decisions.** By creating opportunities for subordinates to influence decisions, a manager frequently reduces resistance and secures a shared feeling of ownership over decisions that results in smoother, more expeditious implementation. (Vroom and Jago, 1988:26).

3. **Development.** The human capital of the organization is increased in the following ways:

- a. *Individual decision-making skills.* Enhanced decision-making skills increase the reservoir of internal talents upon which the organization can draw.
- b. *Team building.* Group processes provide opportunities for participants to relate with one another. Working through common problems can lead to the mutual sharing of information,

experience, and skills. Team members learn to trust and rely on one another as they recognize the unique resources each brings to the group.

- c. *Organizational loyalty.* Participation beneficially affects the integration of individual goals with those of the organization. Participative management exerts a positive influence on loyalty, both to the group and, indirectly, to the larger system of which the group is a part.
- d. *Self-management.* Participative structures promote self-reliant skills, which result in less need for extensive staff support within the organization.

4. **Time.** Participation requires an increase in: (a) the response time of decision-making systems, and (b) the individual employee's decision developing and decision-making time. Vroom and Jago point out the need for weighing the trade-offs between staff development and lost time.

5. **Worker satisfaction.** The effect of participation on job satisfaction influences people's decisions about whether to remain in jobs. For example, turnover rates and absenteeism rates are linked to job satisfaction. However, there is little evidence that job satisfaction has a direct effect on raising productivity or efficiency. Because there was such a weak connection between satisfaction and performance, Vroom and Jago did not utilize that criterion further. For that reason, this criterion will not be referred to in the remainder of the thesis.

6. APPLICABILITY OF VROOM-YETTON MODEL CRITERIA IN THE PUBLIC SECTOR

This chapter analyzes whether the criteria identified in Chapter 5 (for evaluating the effectiveness of increased participation in the business sector) are relevant and applicable, or capable of being adapted, to the public sector. This analysis is based on a review of the literature. First, however, to provide a basis for that analysis, the decision-making relationship in the two sectors is compared.

6.1 Decision-making relationship compared

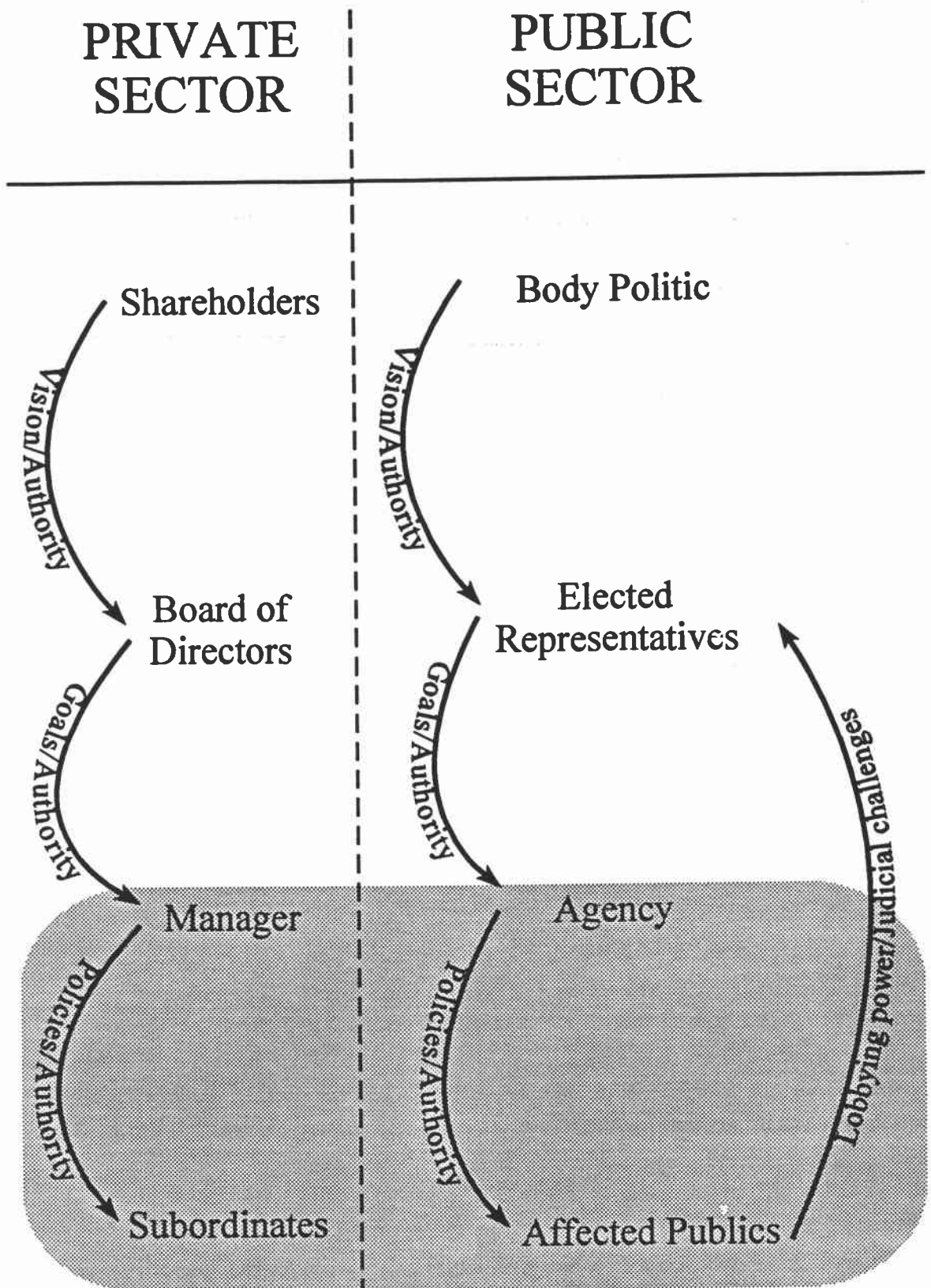
In the private sector, the shareholders pass their “vision” on to their elected board of directors. The board of directors passes vision and authority for action on to the managers. The Vroom-Yetton model (see shaded area in Figure 6.1) focuses on the manager-subordinate decision-making relationship. The term “manager” includes branch and division heads, middle management, and line managers. To implement the company’s goals, the manager passes an interpretation of policies and the authority for implementation down to the subordinates. Subordinates ultimately make the vision reality *e.g.*, through making and marketing the product. Subordinates or employee numbers are finite, and controlled by the managers. “Subordinates” are under the “control” of managers who have the ability to hire or fire, promote or demote.

A similar, parallel structure exists in the public sector, although the names of the players and the end product at each level are different. In the public sector, the body politic articulates a vision to its elected representatives. The elected representatives develop goals for meeting the “public interest” and pass statutory authority and

regulations down to the agency or administrative unit. The proposed unit of comparison with the business sector's manager-subordinate relationship in this thesis is the agency-"publics" relationship (see shaded area in Figure 6.1). The agency passes on -- to the affected publics -- an interpretation of policies, a request for compliance with regulations, and, in some situations, a request for assistance with fine-tuning in order to implement the policies. As discussed in Chapter 2, the "publics" concerned with forest management are many and varied. Unlike the business setting, the number of "publics" involved in a given issue is outside the control of the manager, and the "publics" can hold multiple roles. Additionally, the situation in the public sector is much more complex, because if the affected publics believe that the administration of regulations and policies is unfair or unjust, they can turn to the power of lobbying and the judicial system in order to influence elected representatives to change the policies or laws.

Another useful construct for determining if, and how, the business model is applicable in the public setting, is to focus on management levels within the public sector. Management levels include the normative (definition of desired ends and ideals, or what *ought* to be done), the strategic (selection and design of means to attain desired goals, or what *can* be done), and the operational (actions to implement change, or what *will* be done) (Mitchell, 1990:14). In Figure 6.1, the normative management decision level is governed by the political processes occurring above the shaded box, and the strategic and operational decision levels generally occur within the shaded box. The Vroom-Yetton model is of most utility when employed within the strategic and operational levels in the public sector because decisions at the normative level are generally made through the political process, *i.e.*, through the process of defining the "public interest". The

Figure 6.1 Comparison of decision-making relationships in the public and private sectors



strategic or operational levels are where decisions of how to implement the public interest on the ground in cooperation with directly affected publics occurs; in essence, this is where the “fine-tuning” of the public interest occurs. If this “fine tuning” can be accomplished, and leads to implementable and acceptable actions, then fewer issues will be “kicked back” up to the normative decision-making level through the political or judicial process.

On the College Forest, the intent of Oregon voters is voiced through the state legislature, which in turn empowers University administrators, and ultimately, the Forest managers. The “publics” in this study are composed of the many “publics” identified in Chapter 3. These Interface and City “publics” include recreation publics, timber and forest product dependent publics, adjacent neighbors, and city residents. This thesis does not focus directly on the internal University “publics” (such as researchers, students, and teachers) who already have mechanisms in place within the University’s management structure for affecting decisions.

6.2 Analysis of appropriateness of Vroom and Jago’s criteria for participation evaluation in the public sector

Table 6.1 juxtaposes the four evaluation criteria developed by Vroom and Jago for use in the business sector (for evaluating the effectiveness of participation) with proposed criteria for the public sector. The applicability of the four proposed criteria in the public sector will now be discussed in light of four dimensions: substantive, procedural, relational, and temporal. The substantive dimension focuses on the end product of the decision, the procedural dimension focuses on the process of the decision, the relational dimension focuses on the relations between the parties during the decision-

making process, and the temporal dimension focuses on the time expended during the decision-making process. As this section discusses, the first criterion, decision quality, is lacking a perspective important in the public sector: the subjective component of decision quality. The second and third criteria, commitment to decisions and development, transcend well to the public sector. The fourth criterion, time, has different significance in the public setting.

6.2.1 The substantive dimension: Objective “decision quality”

The same benefits of increased participation for decision quality in the private sector appear applicable in the public sector: the potential for increased synergy as more stakeholders are involved, the ability to bring greater resources to bear on the problem, and the generation of more alternatives. Additionally, the local knowledge of stakeholders can inform the decision-making process (Federal Ecosystem Management Assessment Team, 1993:VII-99).

Table 6.1 Comparison of four criteria for judging effectiveness of increased participation in the business and public sectors

	<i>BUSINESS SECTOR (From Vroom and Jago, 1988)</i>	<i>PUBLIC SECTOR (Proposed)</i>
<i>DECISION- MAKING RELATIONSHIP</i>	<i>Manager - subordinate</i>	<i>Agency - "publics"</i>
	CRITERIA	
<i>SUBSTANTIVE DIMENSION</i>	1. "Decision quality" <ul style="list-style-type: none"> ▸ Increased synergy ▸ Greater resources ▸ More alternatives 	1. "Decision quality" <ul style="list-style-type: none"> ▸ Increased synergy ▸ Incorporate local knowledge ▸ Meet "public interest"
<i>PROCEDURAL DIMENSION</i>	2. Commitment to decisions <ul style="list-style-type: none"> ▸ Resistance reduced ▸ Expeditious implementation 	2. Commitment to decisions/ greater acceptability <ul style="list-style-type: none"> ▸ Fewer legal challenges ▸ Assistance with implementation ▸ Use human systems approach ▸ Consider values and emotions
<i>RELATIONAL DIMENSION</i>	3. Staff development <ul style="list-style-type: none"> ▸ Organizational loyalty ▸ Individual decision-making skills ▸ Team building ▸ Self-management 	3. Community and agency development <ul style="list-style-type: none"> ▸ Civic loyalty ▸ Social learning between publics and the manager ▸ Residual communication skills ▸ Conflict management
<i>TEMPORAL DIMENSION</i>	4. Time <ul style="list-style-type: none"> ▸ Slows decision process ▸ High staff time costs ▸ Competitor gains advantage 	4. Time <ul style="list-style-type: none"> ▸ Social/environmental costs ▸ Economic costs ▸ Consider time lost if process is rushed and decision is challenged

Lawrence and Daniels' extensive review of the public involvement literature states that one of the two main goals of public involvement is to achieve "objectively better" decisions by meeting resource management goals. For example, participation enables getting information from the public, and ensures "... that management goals are set within the appropriate scientific and political context and therefore are better defined" (1996:5).

Shortcomings of the business' "decision quality" criterion in the public setting. In the 1973 Vroom-Yetton model, decision quality refers to the analytical, objective, or impersonal aspects of the decision. A high quality decision is a well reasoned decision, consistent with available information and with organizational objectives and goals. The definition implies the existence of a set of criteria by which results can be judged unequivocally.

The challenge of defining "public" goals and objectives in a highly pluralistic society is more complex than defining business organizational goals and objectives. Vroom and Jago acknowledge the difference between the private and public sectors when they state: "In some social systems and in some kinds of decisions these criteria are obtainable, in others they are not . . . Decision quality becomes somewhat more slippery as a term when used in conjunction with many public sector decisions." That is because such decisions have, as a core component, conflicts among the interests of various groups of stakeholders. "What is considered a high-quality decision from the standpoint of one group of stakeholders may be considered low in quality to another" (Vroom and Jago, 1988:20).

Paralleling organizational goals in the business sector, is the “public interest” in the public sector. However, the “public interest” is difficult to define. In actual practice, “[t]he public interest . . . becomes an evolving mix of real issues and priorities worked out, for specific issues, in the political arena and other power-wielding settings” (Lang, 1990:41). The importance of process for defining the public interest will be discussed in the following section.

6.2.2 The procedural dimension of participation: The public’s commitment to decisions

There are many instances where forest managers have made what appears to be a sound “technical” decision, but which have proven unacceptable because the process was not acceptable. The USDA Forest Service’s experience during forest planning efforts in the late 1980s illustrates the importance of reconciling science and politics. The Forest Service’s traditional procedure of information gathering and “. . . subsequent *internal* analysis proved to be a failure. . . . Virtually every forest plan in the country was appealed” (Manring, 1993, emphasis added).

In the forestry setting, in the absence of participative decision making, publics have turned to social systems (*e.g.*, organized user groups) and political systems (*e.g.*, new laws, expanded role of the courts) to make their needs known (Koch and Kennedy, 1991). The highest ranking issue facing forest supervisors and district rangers in a Delphi survey in 1990 was legal and political challenges to decisions. “This response emerges because resource professionals lack credibility with the public, and natural-resource managers often question the public’s ability to make informed, sound, and balanced decisions. Increasingly, the public refuses to accept agency decisions and

instead uses appeals, litigation, and political means to change agency policies and procedures” (Jakes *et al.*, 1990:25).

Research in the procedural justice area underscores the importance of participation in relation to implementation. “Allowing citizens to express their opinions and disagreements leads to feelings that fair process has occurred in decision making, promoting diffuse support for the political system” (Lind & Tyler, 1988:170). An alternate goal of public involvement in natural resource decision making identified by Lawrence and Daniels is to reach decisions that have increased public support, or are “subjectively better” decisions. Public involvement has a legitimizing effect in that decisions “. . . are more politically valid than are the same decisions that are made authoritatively” (Lawrence and Daniels, 1996:7). Public participation has the potential to produce a higher level of commitment to the resulting decisions. Increased satisfaction, support, and acceptance might occur because the public believes managers better understand the public’s wishes, and that managers have used information gathered from the public to make better decisions, or that the procedures are fair (pp.7-8).

However, significant differences between the private and public sectors affect application of this criterion. These differences include the complexity of human systems in the public sector, and the need to include values and emotions in decision making.

Need to broaden the criteria to incorporate a human systems perspective.

Vroom and Yetton’s criteria (1973) are dependent on the existence of a defined problem, “. . . a gap between where we are or what we have (that is, the present state) and where we would like to be or what we would like to have (the desired state). Whether the gap is large or small, the purpose is to eliminate it. The task of the group is to find one or

more courses of action that will change the existing state into the desired one” (Vroom and Jago, 1988:37-8). They continue: “A high-quality solution ‘solves the problem’ or has a high likelihood of doing so” (1988:55).

The limitations of past “technical” approaches to problems is due, in part, to the pluralistic and dynamic nature of both government and the body politic. As Kirlin states, “The challenge emerges directly from the necessity to improve the capacity to achieve desired results in complex systems, where governments are creators and shapers but have severe limits on their direct actions, and the central values are those of democracy in which citizen values and choices are ultimately controlling” (1996:419).

The literature suggests that the approach to improving human systems is more complex than “solving” a single “problem” or a set of problems, as the definition above implies. For natural resource controversies, Daniels and Walker (1996) stress the importance of moving from a “problem-solution” approach to a “situation improvement” approach. They state: “Constructing improvements rather than solutions requires parties to understand situations in terms of their complexity . . . rather than linear, single-issue perspectives” (p. 83).

The process needs to allow for the input of values and emotions. In the public sector, the evaluation of existing and desired situations, and methods for change must all be done in light of personal and societal values. The methods and theories of science, which are used to guide many natural resource decisions, do not produce a single “unambiguously correct answer”, because many of the decisions facing society are mixed decisions, involving values: “The nature of mixed decisions requires a close interaction between technical analysis and value articulation . . . Value articulation, for

citizens involved in mixed decision making, requires the identification of social objectives, as dictated by social risks, costs and capabilities” (Desario and Langton, 1987). Value incorporation is challenging in the decision-making process because, often, “objective” measures cannot be set for values. A discussion of the public interest incorporates values in the decision-making process. Public interest has “. . . no general, unchanging, descriptive meaning applicable to all policy decisions, but a nonarbitrary descriptive meaning can be determined for it in particular cases. This descriptive meaning is properly found through *reasoned discourse* which attempts to relate the anticipated effects of a policy to community values and to test that relation by formal principles” (Flathman, 1966:82, emphasis added). Sources exist for information on societal values. For example, “[a]lthough public input is not a systematic and representative measure of public values, it is one major way to gain an appreciation for a range of values and their distribution and importance across society” (Forest Ecosystem Management Assessment Team, 1993:V11-101).

While mediating a conflict regarding placement of a controversial low-income housing unit conflict, Mario Cuomo noted the importance of approaching issues not only from a rational level but from an emotional one. If people are afraid or angry, their responses may not always be rationally supportable with articulated reasons. Even irrational people try to disguise their oppositions with reasonable explanations, making it more difficult to assess the irrational undercurrent than the “facts” (Gillers, 1980). This observation is pertinent during discussions of controversial forest management actions such as aerial herbicide spraying (Buse *et al.*, 1995), or clear cutting.

The literature discussed above indicates the need for structuring a process that utilizes a human systems approach, enables discourse on the effects of a potential action on the public interest, and considers values and emotions. Proposed changes to the model to incorporate these differences in the public sector will be introduced in Chapter 8.

6.2.3 The relational dimension: Community and agency development

Reich (1985) sums up the importance of deliberation in allowing individuals to transcend their own narrow self-interests and to develop civic loyalty:

[P]ublic deliberation is a foundation of democracy. Such deliberation can lead individuals to revise opinions (about both facts and values), alter premises, and discover common interests. Disagreements and inconsistencies encourage individuals to balance and rank their wants . . . Thus, public deliberation helps transform individual valuations into social values; it helps forge collective purposes, and, even more important, helps define and refine public morality. Through such deliberations, individuals become *citizens* (pp. 224-5).

Social learning, communication, and conflict management skills -- within and between agencies and stakeholders -- are of special importance in communities where stakeholders and decision-makers will remain in face-to-face contact with each other after the decision is made. A number of the main goals discussed in the community organization literature are "process" goals. Process goals are:

. . . oriented to system maintenance and capacity, with aims such as establishing cooperative working relationships among groups in the community, creating self-maintaining community problem-solving structures, improving the power base of the community, stimulating wide interest and participation in community affairs, fostering collaborative attitudes and practices and increasing indigenous leadership (Rothman, 29:1979).

In a study comparing 12 small communities engaged in a strategic planning (collaborative) process, with 12 matched-pair “control” communities, it was found that the “planning” communities developed several increased capacities: to accept change, controversy, and conflict; to acknowledge and accept community strengths and weaknesses; to overcome communication rifts between governments or neighbors, or the development community; to continue to hold discussions on goals or resolve development issues; to develop dispersed leadership roles; and to develop a shared vision or direction (McGuire *et al.*, 1994). Ozawa and Podziba (1997) propose that another measure of a successful mediation is the development of “social capital” between participants.

The development of communication skills that remain in the community after short-term crises are important. Part of the mediation process is to teach “people how to communicate and how to solve their own problems in an atmosphere other than a hostile atmosphere”, and to give them skills that can be used in the future to prevent small irritants from combining to become an insurmountable obstacle (Kwartler, 1980:16). Even though issues raised in a public deliberation can cause short-term roadblocks, the working through process must be started, or the issues will come back later to “poison community life” (Reich, 1985:230).

6.2.4 Time

Time is a more complex criterion in the public sector. The adage “Time is Money” has a different meaning in the public sector because there is no clear competitor having the market advantage due to lost time. In the public sector, it is understood that

a collective decision regarding public goods will take time. However, the passage of time creates negative impacts such as increased social and economic costs for displaced workers, further compromise of endangered species habitat, and increased costs for staffing participative processes. An example of those forest-related societal and biological costs is illustrated by the ongoing Pacific Northwest spotted owl debate. However, the trade-off is not in relation to the competitor's advantage as in the business world, but between social costs and irreversible natural resource loss in the public realm.

Vroom and Jago (1988) focus on the negative aspects of time lost to "process" in the short term. In the public sector, it is important to attempt to determine which issues require an investment of time at the outset in order to save time lost to court battles and other challenges at a later date. Thomas, who adapted the Vroom-Yetton model to structure public involvement processes, advises:

The manager who . . . reduces public involvement to save time risks increased public opposition, endangering rather than facilitating an effective decision . . . [P]ublic managers face time constraints on implementation as well as on decision making, and the two constraints are inversely related. Time spent to involve more actors in decision making can expedite implementation by winning the support of those who are involved. Conversely, time saved by excluding actors from decision making can slow implementation because those who were excluded may resist and delay that process . . . In the end, whenever possible, the manager is best advised to ignore time constraints in deciding how to involve the public (1995:90).

Daniel Yankelovich's tenth rule for coming to public judgement talks about the importance of using time as a key part of the communication strategy. He advises that it takes time for the public to grasp all of the choice ramifications of an issue and to accept them:

Leaders should allow a generous time for the public to accomplish working through -- and then double or quadruple it! . . . Even when the resolution of an issue is bogged down by obstacles, a surprising number of these will begin to erode as time elapses . . . [W]hen events that would hasten working through refuse to cooperate, then the passage of time is the *only* force moving the public forward on its arduous journey from mass opinion to public judgment (1991:174-5).

6.3 Additional similarities and differences between business and public sectors

Similarities. Vroom and Yetton use the terms manager and “subordinate”. The term “subordinate” reflects a world view based on a hierarchical power structure. This hierarchical mind set still exists in the public arena as well, because forest managers are often unwilling to give up “power” by collaborating with the public.

A parallel exists between the increasing interest in participative management in business and the rising interest in public participation in forest management issues. The similar changes facing both areas opens opportunities for forestry researchers to learn from the research and experience in the business world relating to the post-materialism cultural shift.

Differences. In the business world, the market acts as an immediate feedback mechanism indicating when “products” are no longer desired, or need to be changed. Forestry managers have less immediate feedback. Years ago, the public wanted fiber from forests. Now, the public desires a multitude of products in addition to fiber: recreation, clean water, wildlife habitat, and wilderness. However, these four examples of public desires are largely non-market goods, which tend to be undervalued in a market driven economy (Stankey *et al.*, 1992; Koch and Kennedy, 1991). Public participation

serves as a communication device, acting as an approximation for the market feedback mechanism -- informing elected officials and forest managers of changing values.

One major difference in addition to the complexity of the "publics", in the public sector, is that the numbers of "publics" change with the issues, independently of the direction of the "management". The power of special interest groups is felt much more heavily in the public sector because of the pluralistic nature of our government, based on the special power delegated to the public by the constitution. The power between special interest groups varies, and some might even have more power than agency administrators or governmental leaders (Potapchuk, 1991).

7. VROOM-YETTON MODEL EVOLUTION AND SELECTION OF MODEL FOR USE ON THE FOREST

Over the past 25 years, the Vroom-Yetton model has evolved considerably. First introduced in 1973, it was modified by Vroom and Jago in 1988. Subsequent authors modified the Vroom-Yetton model for assistance in determining the level of public participation necessary in certain situations (Thomas, 1990, 1993, 1995) and for assistance in natural resource decision-making (Sample, 1990, 1993). The first part of this chapter presents the original Vroom-Yetton model, its evolutions, and their effectiveness; and the second party analyzes which model has the highest potential for meeting the needs of the Forest.

7.1 1973 Vroom-Yetton model

Based upon an extensive literature review, Vroom and Yetton (1973) developed seven decision rules to be utilized to determine a recommended decision method. Three decision rules were intended to protect the quality of the decision, four rules were intended to protect the likelihood that the decisions would be accepted. Using these decision rules, and set theory, a feasible set of decision methods was developed. Seven questions reflecting the decision rules (see Table 7.1) and the feasible set were then utilized to frame a decision tree, which, when a terminus is reached, gives a recommendation as to which decision method should be used. The decision methods are defined in Table 7.2.

The order of the questions was judged by the authors to be irrelevant to the final specification of the decision-making process. The order was selected because it

minimized the number of branches and terminal nodes necessary to determine the process in accordance with the rules given (Vroom and Yetton, 1973:38). Often more than one decision method was within the feasible set at the terminus of each branch. Vroom and Yetton suggested selecting decision methods based upon whether time efficiency or staff development was a priority. The decision method indicated at the terminus of the branches in the model in Figure 7.1 reflects time efficiency as the priority.

7.2 1988 Vroom and Jago model

After 15 years of analysis and field testing, additions to the 1973 Vroom and Yetton model were proposed by Vroom and Jago in 1988. These additions were based on shortcomings identified in the 1973 Vroom-Yetton model, based on research on the function of the model. The 1973 model: (1) was not sufficiently discriminating, as it only eliminated about half of the feasible decision-processes; and (2) used a dichotomous versus a continuous measure and therefore indicated that the process was either feasible or non-feasible when, in actuality, some feasible processes might be more or less effective than others as measured by how many decision rules were observed. By only allowing a “yes-no” response in the tree, it disallowed responses of “maybe”, “probably yes”, or “probably no”. Yet, evidence suggests that fewer than half of the situations typically facing managers have a clear “yes” or “no” response for each of the seven decision-tree questions (Vroom and Jago, 1988:83-86). To make a more comprehensive list of characteristics that govern the success or failure of different leader behaviors, Vroom and Jago added five questions:

1. Do subordinates have sufficient information to make a high-quality decision?
2. Does a critically severe time constraint limit your ability to involve subordinates?
3. Are the costs involved in bringing together geographically dispersed subordinates prohibitive?
4. How important is it to you to minimize the time it takes to make the decision?
5. How important is it to you to maximize the opportunities for subordinate development? (Vroom & Jago, 1988:184, 224-227)

In addition to the five questions above, three responses: “probably no”, “maybe”, and “probably yes” were added to the decision tree. The added complexity, with the five additional questions and the three additional responses per question, necessitated use of a computer to enable working through the tree.

7.3 1990 Thomas model

Thomas (1990) proposed modifications to the 1973 Vroom-Yetton model for use with public involvement. Thomas adapted the language in the seven questions by replacing the term subordinate with that of “public”. He also made modifications in the decision methods, including a major change in the Consultation definition because he felt that the public would feel disenfranchised if their efforts did not affect the decision. (See Tables 7.1 and 7.2. for the Thomas decision-tree questions and decision methods.) After reviewing 42 public involvement case studies, Thomas pruned off one branch of the

Vroom-Yetton decision tree relating to quality, as he felt all issues requiring public involvement possessed a quality dimension. In 1995, Thomas proposed additional changes to the model, which will be discussed at the end of this chapter.

Table 7.1 Decision tree questions

Vroom-Yetton (1973)	Thomas (1990)	Sample (1993)
<p>1. Does the problem possess a quality requirement?</p> <p>2. Do you have sufficient information to make a high-quality decision?</p> <p>3. Is the problem structured?</p> <p>4. Is acceptance of decision by subordinates important for effective implementation?</p> <p>5. If you were to make the decision by yourself, is it reasonably certain that it would be accepted by your subordinates?</p> <p>6. Do subordinates share the organizational goals to be attained in solving this problem?</p> <p>7. Is conflict among subordinates over preferred solutions likely?</p>	<p>1. What are the quality requirements?</p> <p>2. Does the manager have sufficient information to make a high quality decision by her/himself?</p> <p>3. Is the problem structured such that alternative solutions are not open to redefinition?</p> <p>4. Is public acceptance of the decision critical to effective implementation?</p> <p>5. If public acceptance is necessary, is it reasonably certain if the manager decides alone?</p> <p>6. Does the relevant public share the agency goals to be obtained in solving the problem?</p> <p>7. Is conflict likely within the relevant public on the preferred solution?</p>	<p>1. Does the means by which the problem is solved make a difference to me?</p> <p>2. Do I have sufficient information to solve the problem?</p> <p>3. Are the goals and steps to their achievement well understood?</p> <p>4. Is the commitment of others important to getting the decision implemented?</p> <p>5. Is it likely that my decision will be accepted simply on the basis of authority or technical expertise?</p> <p>6. Am I and those affected by the decision motivated by the same general goals and objectives?</p> <p>7. Is there substantial disagreement over what goals should be pursued?</p>

Table 7.2 Decision methods

	Vroom & Yetton (1973)	Thomas (1990)
Autonomous		
AI	You solve the problem or make the decision yourself using the information available to you at the present time.	The manager solves the problem or makes the decision alone without public involvement.
AII	You obtain any necessary information from subordinates, then decide on a solution to the problem yourself. You may or may not tell subordinates the purpose of your questions or give information about the problem or decision on which you are working. They do not play a role in the definition of the problem or in generating or evaluating alternative solutions.	The manager seeks information from segments of the public, but decides alone in a manner which may or may not reflect group influence.
Consultative		
CI	You share the problem with the relevant subordinates individually, getting their ideas and suggestions without bringing them together as a group. Then <i>you</i> make the decision. The decision may or may not reflect your subordinates' influence.	The manager shares the problem separately with segments of the public, getting ideas and suggestions, then makes a decision which reflects group influence.
CII	You share the problem with your subordinates in a group meeting. In this meeting you obtain their ideas and suggestions. Then <i>you</i> make the decision, which may or may not reflect your subordinates' influence.	The manager shares the problem with the public as a single assembled group, getting ideas and suggestions, then makes a decision which reflects group influence.
Group or Collaborative		
GII	You share the problem with your subordinates as a group. Together you generate and evaluate alternatives and attempt to reach agreement (consensus) on a solution. Your role is much like that of chairperson, you are willing to accept and implement any solution that has the support of the entire group.	The manager shares the problem with the assembled public, and together the manager and the public attempt to reach agreement on a solution.

A1=autonomous managerial decision; A11=modified autonomous managerial decision; C1=segmented public consultation; C11=unitary public consultation; G11=group decision

7.4 1993 Sample model

Al Sample (1990, 1993) examined the Vroom-Yetton decision-tree with regard to its specific application to forestry issues. He stated "Adapting this approach [the contingent decision model] to involve outside interests in organizational decisionmaking may hold significant promise for natural resource managers addressing the challenge and opportunities of public participation" (1993:27). Sample proposed modifications to the seven questions in the 1973 Vroom-Yetton model for use in the forestry setting, which are identified in Table 7.1. In a critique of Sample's model, Margaret Shannon stated: "I would expect this analysis to be a useful diagnostic for managers choosing among the variety of possible approaches to specific problems within particular situations" (1990a:298).

7.5 Effectiveness and application of the Vroom-Yetton model and its evolutions

Testing of the Vroom-Yetton model in the business setting has been reported in the literature from 1978 through 1994. Results of that testing are reported here in two groups: (1) the strength of the model for predicting effective decision making styles; and (2) the effectiveness of the model in minimizing the problem attributes identified by Vroom and Yetton in 1973. This section concludes with a discussion of the usefulness of the model in the public administration arena.

First, with respect to the model's predictive power, Field (1982) found that when the leader's behavior agreed with the feasible set, 49% of decisions were effective; whereas only 36% of decisions outside the feasible set were effective. (Decision effectiveness was measured as a function of decision quality and decision acceptance.)

Tjosvold *et al.* (1986) found that 64% of successful decisions were in the feasible set, whereas 41% of the unsuccessful decisions were in the feasible set. Tjosvold *et al.* (1986) and Field (1982) find statistical significance for the model but raise questions regarding the practical significance of the model. Tjosvold *et al.* (1986) reported that social interaction, specifically the extent to which the decision makers used constructive controversy, was a more powerful predictor of successful decision-making than following the Vroom-Yetton model. Constructive controversy is a situation where managers are able to discuss their opposing views openly, in a cooperative context, feel that their personal competence is confirmed, that they influence each other, and are able to differentiate their opposing views before they integrate them (Tjosvold *et al.*, 1986:134). Tjosvold does recommend use of the model in deciding what decision style is to be used, and constructive controversy in providing guidance for how the social interactions should take place during the actual decision-making process. Vroom and Jago combined results from six studies conducted from 1978 to 1987 to examine a total of 1,545 decisions (including Field and Tjosvold's work reported above). "Across all six studies, if a managers' behavior conformed to the normative model the rate of success was 62 percent. On the other hand, if the manager's behavior failed to conform to the model, the rate of success was only 37 percent" (Vroom and Jago, 1988).

Second, turning to the effectiveness of the model in minimizing problem attributes, Margerison and Glube (1979) found that leaders who were in high agreement with the Vroom-Yetton model had workers with higher productivity and higher satisfaction with supervision than those leaders who were in low agreement with the model. Pasewark and Strawser (1994) found that decisions consistent with the Vroom-

Jago model resulted in significantly lower variance in actual expenditures vs. predicted (and therefore budgeted) audit hours, and higher levels of subordinate development.

Vroom and Jago (1978) found a greater ability of the model to account for differences in decision acceptance than in decision quality.

Finally, shifting to applications in public administration, Thomas (1990) completed a reanalysis of 42 public decisions. Thomas hypothesized that any disparity between recommended and actual involvement should reduce decision effectiveness. He found a correlation of deviations¹ from the Vroom-Yetton recommendation for process effectiveness of $r = -0.605$, for outcome effectiveness of $r = -0.475$; with a combined effectiveness measure of $r = -0.571$. After dropping off three branches of the Vroom-Yetton model (as proposed by Thomas), the combined measure moved to $r = -0.611$, which is a moderate negative correlation.

As for actual application of the model in the public sector, the Vroom-Yetton/Thomas model does not appear to have been utilized for structuring public involvement programs (John Clayton Thomas, 1993, personal communication) or for structuring public involvement in forest resource issues (V. Alaric Sample, 1993, personal communication). Daniels *et al.* (1996) concluded that the 1990 Vroom-Yetton/Thomas model had utility for determining whether and how to involve the public in ecosystem based management decisions.

¹ r is the correlation coefficient, an index of the linear relationship between two variables. Effectiveness was the dependent variable.

7.6 Critique and selection of model for use on the Forest

Vroom and Yetton (1973). In summary of the previous section, if the Vroom-Yetton model is followed, successful decisions are reached about 62 percent of the time; when the model is disregarded, the success rate is about 37 percent. The majority of published reviewers in the previous section recommend use of the model despite its drawbacks and apparent room for improvement. Additional critiques by Thomas (1990, 1993) and Sample (1990, 1993) also support the usefulness of the model.

Vroom and Jago (1988). The first, of five additional questions, in Vroom and Jago's model is: "Do subordinates have sufficient information to make a high-quality decision?" This wording begs the question: Can subordinates develop sufficient information, even if they do not have it at the start of the process? The wording of question one is static, ignoring the learning process, and the ability of the group to gather and evaluate information. Questions two, four, and five (see section 7.2) focus on the time dimension. The passage of time, as discussed previously, is a more complex factor in the public sector. The importance of community and agency development and of an acceptable process to avoid legal and legislative challenges is of more importance in the public sector and counteracts the importance of additional questions two, four, and five. The distance factor addressed in question three is not a significant factor on the Forest because the staff and affected publics are local or regional.

What advantages and disadvantages are offered by Vroom and Jago's (1988) computer analysis approach? The approach provides a ranking of the most effective methods, but the choice must still be made among a number of adequate methods. This advantage is far outweighed by the disadvantage of the new computer approach's focus

on a numerical selection of “the best” method rather than on the *process* used in making the decision. The strength of the Vroom-Yetton model is the opportunity it affords to begin a thoughtful analysis of the attributes of the situation. Managers would be better served if the questions were used to inform the process and to tailor the communication methods to be used in a given situation. As Daniels *et al.* (1996) state, it is useful for agency managers “ . . . to reason through the Vroom-Yetton logic for themselves, so that they might think carefully about the public involvement challenges and choices before them” (p.27). The questions should serve to identify decision quality and process issues that must be dealt with through the public involvement process. For example, trust issues might be at the heart of the matter in some decision-making processes. The problem with trust, mentioned in the example, could be dealt with through a variety of methods, *e.g.*, consultation or collaboration, but what is necessary is the presence of sincerity, honesty, and accountability throughout and after the process.

Another related disadvantage of the computer analysis approach is its departure from the intuitive simplicity of the seven question decision tree. The fourth model selection criterion, listed in Section 4.5, specified that the tool selected should be simple to use. The question of whether and how to involve the public in management decisions can be a daunting, yet frequent, reality for forestry practitioners. The simplicity of the original Vroom-Yetton decision tree affords the management team with an easily accessible tool for decisions regarding public involvement. If an interdisciplinary team had to break frequently to allow a public involvement specialist to run a computer program determining whether or not the public should be involved, the task might appear even more daunting.

In conclusion, Vroom and Jago's five additional questions do not significantly improve the model for use in the study site. The benefit of the additional questions do not outweigh the requirement for computer analysis, and the impediments that analysis creates to a focus on the *process* of arriving at a recommended decision method.

Sample (1990, 1993). Sample's model incorporates questions which are definitions of the Vroom-Yetton model terms, that are useful for the practitioner, but do not really differ in substance. For example, Sample's question three (Table 7.1) helps to define "structured", and question five offers two instances of when autonomous decision-making would be acceptable. Sample's work is valuable and appropriate for inclusion in a training or implementation handbook for forestry practitioners, but does not offer significant new theoretical insights.

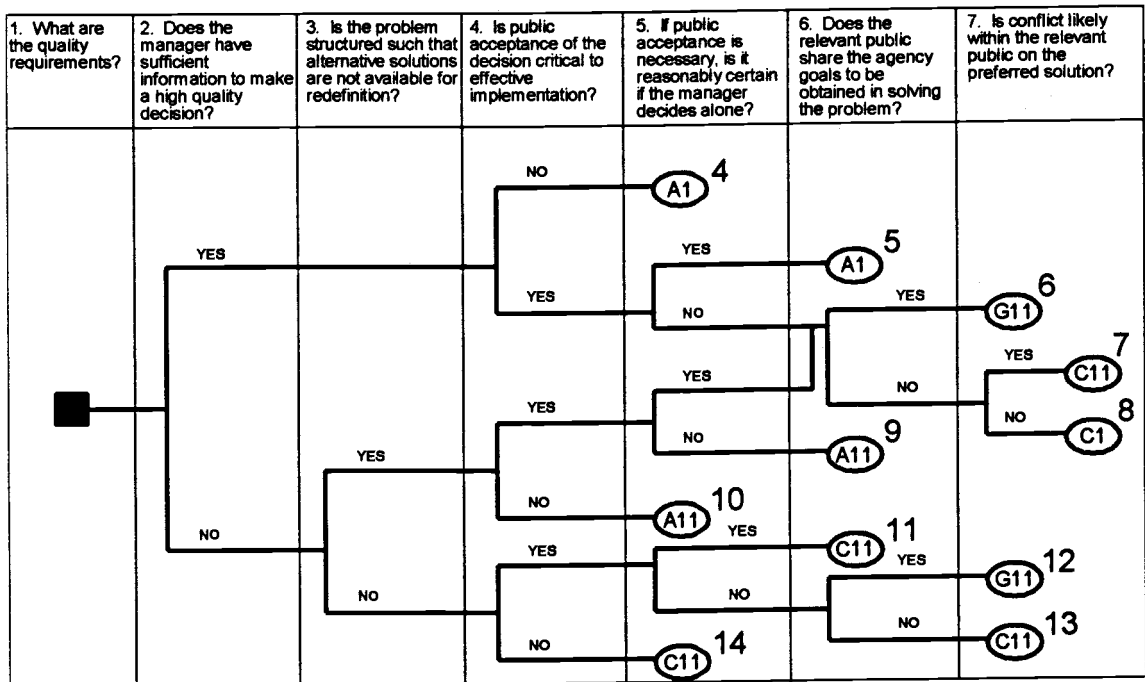
Thomas (1990). Thomas' findings (1990) indicate that deviations from the model resulted in about 60% of the decisions being ineffective. These findings are roughly equivalent to Vroom and Jago's findings in 1988. These findings indicate no apparent significant loss of model effectiveness in Thomas' adaption of the model for the public sector, indeed his modification appeared to strengthen the usefulness of the model in the public sector.

Thomas (1995). Thomas proposed additional changes to the Vroom-Yetton model in 1995, but there is no clear link between his proposed changes and his or other's research. It would not be advisable to utilize his proposed changes until that link is established.

Model selection. In light of the discussion above, the model which is the most applicable for use by the Forest is the 1973 Vroom-Yetton model, as adapted for

structuring public involvement by Thomas in 1990. The 1990 Vroom-Yetton/Thomas decision-tree is illustrated in Figure 7.1.

Figure 7.1 Vroom-Yetton/Thomas decision tree



A1=autonomous managerial decision; A11=modified autonomous managerial decision; C1=segmented public consultation; C11=unitary public consultation; G11=group or public. (See Table 7.2 for descriptions of decision methods.)

8. MODIFICATION OF MODEL AND APPLICATION IN OSU SETTING

This chapter returns to the challenges identified in Section 6.2 (that the many stakeholders involved in public decisions often have no common “goal” for the agency or, more appropriately, for the resource) while refining decision tree questions 6 and 7 (restated below) for use in complex, multiparty forestry issues. The social or collaborative learning and conflict management literature is utilized to assist in that refining process. Also addressed are questions of when and why to bring disparate “publics” together. Additionally, a recommended change in the model is proposed based on continuation of a discussion initiated by Thomas in 1996. The chapter concludes with a presentation of the proposed model, examples of how the model would be used on the Forest, and adaptations needed in OSU structures or processes to implement the model.

8.1 Proposed change in decision-tree question 6

Thomas (1990) states question 6 of the Vroom-Yetton model as: “Does the relevant public share the agency goals to be obtained in solving the problem?” The wording of this question poses a problem because many forestry issues are surrounded by a complex assemblage of “publics”, often holding differing and seemingly conflicting goals for forest resources. The Thomas models (1990, 1993) specify group or collaborative processes only if the public shares the agency’s goals (see Figure 7.1, paths 6 and 12); otherwise a consultative decision is recommended. (Table 7.2 summarizes the decision methods.) Utilization of Thomas’ wording for question 6 poses a number of problems. Thomas’ wording implies that the “publics” are to engage in a dialogue in response to the agency’s perception and definition of the “problem”. Chapters 2 and 4

elaborated on the inadequacies of this older, authoritative approach to forest management. Additionally, Thomas' wording does not allow the agency to develop joint goals with the publics; or, (in recognition that goals can be hard to agree on) to develop agreed-upon actions that still improve the situation to the benefit of the resource, even if goals cannot be agreed upon. The following overview of the literature discusses the importance of: (1) dialogue to enable social learning, (2) structuring dialogue to enable decision making without compromising basic values, and (3) integrative approaches in order to define the "public interest".

Importance of dialogue. The value of dialogue in the public setting, the importance of dialogue for learning, and the need to bring the public together face to face, are addressed by a number of authors. Shannon (1987:238), and Friedmann (1987:187) discuss the importance of dialogue to enable social learning. Friedmann states, "All empirical knowledge -- scientific and technical as well as personal -- is validated, before an action is taken on it, by *talking about* the evidence. The construction of knowledge must therefore be regarded as an intensely social process . . ." (1987:43, emphasis added). Dryzek states: ". . . the principles of communicative rationality also give us the conditions for effectiveness in the resolution of complex social problems (including environmental ones) . . ." (1990:102). Other authors have discussed the importance of dialogue prior to decision-making, and the importance of listening (Tjosvold and Field, 1986:127; Forester, 1989:113; Torgerson, 1990:132; Roberts, 1997:128).

Incorporating values in goal setting. For this discussion, values are defined as “... the general characteristic of an object or state of affairs that a person views with favor, believes is beneficial, and is disposed to act to promote” (Barbour, 1980:60). Fischer argues for the importance of dialogue as a process for identifying and ordering values:

Value judgments are worked out and tested by the informal procedural rules that constitute and define practical discourse . . . There are value judgments that are not merely determined by cultural conditions or personal idiosyncracies. If decision makers agree to employ the procedural rules of practical deliberation, they can validate such value judgments on the basis of the relevant facts and norms. Even though normative assertions include emotionally conditioned attitudes, practical discourse constitutes a rule-governed process with a purpose (1980:99).

A number of authors have discussed the importance of incorporating value-focused discussion in goal development. Reich (1985) proposes that public deliberation “... is most appropriate to administrative decisions that are especially bound up with social values, or that are likely to have important effects on future choices Such values . . . are not fixed quantities, but ideals in flux. They are reshaped in the course of discovering shared concerns, arguing over goals, and ultimately creating shared values” (p.233). A recent literature review stresses the central role of public involvement in setting resource management goals which are ultimately based on relative value judgments (Lawrence and Daniels, 1996:14 citing Hendee *et al.*, 1973; Fairfax, 1975; Shaffer, 1975; Henning, 1987).

The discussion of values can be problematic because of the uncompromisable nature of core values. The problem arises because “[v]alues are not held in isolation but as components of a *value system*, a hierarchy, or ordered set. Basic values are those that

are seldom subordinated to derivative values in cases of value conflict and that serve as the criteria for justifying derivative values” (Barbour, 1980:60-61). Recent work done in integrating systems learning and conflict management literature allows the structuring of dialogue to enable integration and decision-making without compromising basic values that are often not compromisable. For example, “[t]he soft systems methodology is particularly useful when value differences exist and the goals of an improved state are hard or impossible to agree upon” (Wilson and Morren, 1990:108). Daniels and Walker (1993) utilize the soft systems literature to construct a collaborative learning process that enables the development of mutual social goals while tradeoffs are made as players learn about the values of the others involved (Daniels and Walker, 1992). In their later work, they integrate conflict management methods to promote collaborative integrative negotiation to: “. . . allow the parties to more fully understand the legitimacy of the perspectives of others, while not requiring that they compromise on their own core values” (Daniels and Walker, 1996:82).

Integrative approaches for defining the “public interest”. The work by Wilson and Morren, and Daniels and Walker, cited above, indicates that it is not sufficient to begin an unstructured discussion about values. The need has been identified in the conflict literature for the development of superordinate goals and integrative approaches in conflict management. Pruitt and Rubin (1986) stress the importance of developing *superordinate goals* that involve “development of an objective that is common to both parties and beyond the capability of either party alone” (p. 136). An *integrative approach* is one that incorporates the two parties’ interests. Integrative solutions produce the highest joint outcomes (Pruitt and Rubin, 1986:142). Therefore:

“...[D]ecision makers should develop the skills to discuss opposing views openly, explore each other's perspectives, and *learn to integrate* the best ideas to create high quality, accepted solutions” (Pruitt and Rubin, 1986:135, emphasis added). Friedmann (1987) indicates that “... dialogue requires interpersonal skills, such as the art of listening, the ability to trust others and make oneself vulnerable to them, a willingness to suspend rank and material power, and a responsiveness to other's needs” (p.187).

The importance of focusing on community and the responsibilities of being a citizen can overcome many of the challenges involved with defining the “public interest”. Kemmis identifies the need to structure processes where citizens can once again talk with each other face to face to create shared values. “A healthy, calmly self-confident government can only be developed by turning adversary factions and interests into problem-solving citizens” (Kemmis, 1990:135). Kemmis notes how some of our present institutions replace direct dealings between parties in conflict:

The parties in conflict at a [public] hearing are not encumbered by any responsibility for hearing each other, for responding to each other, for coming to an agreement about what should be done. They have given over that responsibility to ‘the process’ . . . But in the process, we have also brought about the successive, mutual blocking of one another's initiatives . . . while at the same time frustrating the public interest (1990:56-7).

The public administration literature stresses the importance of the concept of “community” in a public dialogue (Stivers, 1994:366). A number of authors discuss the importance of the role of public dialogue in strengthening and producing *citizens* in a democracy (Friedmann, 1987: 13-14; Potapchuk, 1991:160; Shannon, 1990:299). Reich (1985) summarizes:

... public deliberation allows people to discover latent *public* values that they have in common with others, and in the process to create new public values. Together, citizens begin to define targets of voluntary action, to identify what they value most about the community and to uncover goals and commitments that transcend their narrower self-interests (p. 229).

The ability for stakeholders to develop superordinate goals and to utilize integrative approaches is crucial in the dialogue surrounding forest management because of the many values held for forests. In forestry, authors are increasingly calling for the establishment of processes with incentives for “groups to attempt to address the interests and concerns of their adversaries” (Wondolleck, 1988b:10). “We need to design decision processes which bring *citizens* to the table in civic friendship and mutual understanding of the differences in circumstances affecting their lives, and thus ‘their interests’. We need to call together this ‘community of purpose’ and use it to *learn* our way toward participatory management as a practice of democratic governance” (Shannon, 1990:299, emphases added).

The literature above indicates the need for expanding the Vroom-Yetton/Thomas model to enable social learning to occur between the agency and the public, and among the “publics”. The literature also indicates the importance of dialogue, of structuring dialogue to enable decision making without compromising basic values, and of utilizing integrative approaches in order to define the “public interest”.

Alternate wording proposed for Question 6, in light of the literature above:

Is the relevant public willing to engage in an integrative dialogue in order to improve the situation?

8.2 Proposed changes related to decision-tree question 7

Thomas (1990) states question 7 as: "Is conflict likely within the relevant public on the preferred solution?" Vroom and Jago (1988) viewed conflict as a sign that people should interact more (rather than less) frequently in an attempt to resolve their differences (p.59). Vroom and Jago identified a necessary prerequisite to this interaction: "... the subordinates must share a common goal that is organizationally relevant" (p.127). The frequent absence of a common "organizational goal" in the public setting, and the problems this poses, were discussed in Section 6.2. The previous section discussed when it is useful to bring the publics together for a collaborative or group process. This section turns to when it is useful in a consultative process to bring the public *together* versus consulting *separately* with segments of the public. Building on the discussion started in the previous section, the focus of question 7 should be: in situations where the publics are unwilling to seek an integrative solution, what reasons exist to bring disparate "publics" together? The literature identifies a number of reasons to assemble the public and reasons for non-assembly.

Reasons to assemble the public. If the necessary integration discussed in the previous section cannot occur, the benefits of learning, listening, and discussing presented in that section are still valuable for the next step of public deliberation. Those benefits are useful to begin the process of developing an understanding of others' interests, and of breaking down barriers due to mistrust. Stakeholders and decision makers will probably need to work together again in the future, and learning about each other's interests is a useful first step toward improving the situation. As Kirlin (1996) states: "It is possible to 'improve' the learning that can occur in society, that is, make it

more likely to improve effective understanding of what is going on, appreciation of choices, and of strategies for action that improve odds of achieving desired goals.”

Reich (1985) asserts that the public administrator should view debate and controversy “. . . as natural and desirable aspects of the formation of public values, contributing to society’s self-understanding” (p. 230). Bingham (1986) states that in some circumstances, “. . . it may be most appropriate to bring the parties in an environmental dispute together to *facilitate improved communication* rather than to reach a decision or agree on recommendations” (p. 84). The objectives for improvement of communication in those instances included conciliation, sharing information, clarifying issues, or generating alternatives.

Benefits appear to exist in structuring dialogue within the consultative framework even in paths 7 and 8 (Figure 7.1), where alternatives are not open for redefinition. Procedures that allow participants to express their views achieve greater acceptance of, and higher levels of compliance with, decisions, as well as increased confidence in decision makers, “. . . *even where the decision maker has little or no decision space*” (Lawrence *et al.*, in press). Unfortunately, the literature does not address whether it is necessary to assemble the “publics” for voice to be effective.

Reasons for non-assembly. Assembling the publics together too rapidly, even for consultative purposes, when high distrust levels exist can be counter-productive. Often, conflicts are entrenched and progress is exceedingly slow, and damage can be done without the proper process. Before putting heavily entrenched publics together, it is important to determine if relational progress can be made. It might be necessary to do some remedial relational work before the public is brought together. Three case studies

documented by Bingham (1986) indicate the utility of unitary consultation when the situation was too rancorous to bring the publics together, or as a precursor to bringing the publics together (pp. 185, 222, 251). In a mediation effort on the Snoqualmie River (Dembart and Kwartler, 1980) in which tensions had been mounting for over four years, the mediators examined the case for six months before deciding to mediate, to determine whether the involved parties were ready to compromise and would give mediation a fair chance. For every hour spent in joint session, the mediators spent 24 hours in separate meetings with individuals.

In situations where the alternative solutions have been defined and are strongly opposed by the majority of stakeholders, it probably would not be useful to bring the parties together during consultation. Such a situation can exacerbate the “frustration effect” where the impact of negative outcomes is strengthened by “social support for the perception that the outcome is unfair” (Lind and Tyler, 1988:183).

Alternate wording proposed for question 7 in light of the literature above:
Would the quality of public input or future relations be improved if learning occurs among the “publics” about the situation’s issues?

Structural changes proposed to the decision tree in light of the literature above: Extend paths 11 and 14 (Figure 7.1) to incorporate proposed question 7. A “yes” answer would indicate consulting with the publics in unison, a “no” response would indicate consulting individually with segments of the public.

8.3 Changes related to problem “structure” and group process

Thomas (1990) states question 3 as: “Is the problem structured such that alternative solutions are not available for redefinition?” Vroom and Jago define a structured problem as one in which the alternative solutions or methods for generating them and the parameters for their evaluation are known. Vroom and Yetton’s (1973) original definition of group process included the generation and evaluation of alternatives by subordinates (Table 7.2). If path 6 (Figure 7.1) is followed, the recommended process is a group process, even though the alternatives are not available for redefinition. This recommended method goes against Thomas’ own recommendation for not initiating a group process if problem definition is not an option. Thomas cited a case in which the EPA chose an elaborate participation process with citizen advisory committees, even when there was no latitude to redefine the problem. The end result was a process where: “For the citizens who became involved, the lack of a significant role created frustration and disenchantment . . . ” (Thomas, 1995:52). Thomas stresses that public involvement should be initiated before the problem is heavily structured (1995:45). Other authors discuss the importance of involving the public early in the process (Hendee *et al.*, 1973:34; Wondolleck, 1988:243; U.S.D.A. Forest Service, 1990, volume 2:23-24).

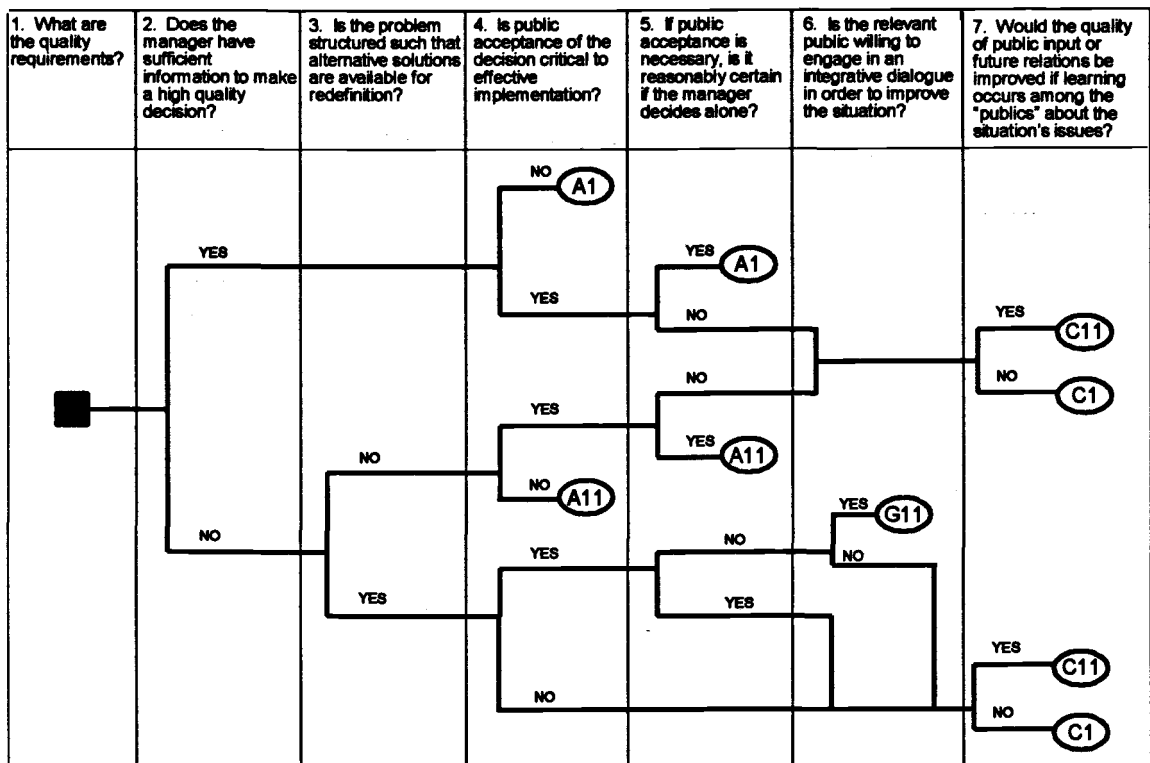
Structural changes proposed to the decision tree in light of the literature above: the involvement of the public in a group process when the “problem” and the alternatives have already been defined does not seem to be appropriate. Therefore, the proposed model drops Path 6 (terminating in G11) from the model.

Wording change proposed in the model for ease of use. Answering Thomas' question 3 with a "no" produces a double negative. Dropping the word "not" from Thomas' question 3 alleviates that problem.

8.4 Final model and examples of how model would work on Forest

Figure 8.1 illustrates the final model proposed for use on the Forest, incorporating the proposed changes discussed in this chapter. It is important to note that more than one decision method may be acceptable at a given terminus if staff and/or community development are the priority. The recommended method (as with the Vroom and Yetton model) has an emphasis on time efficiency.

Figure 8.1 Proposed decision tree



A1=autonomous managerial decision; A11=modified autonomous managerial decision; C1=segmented public consultation; C11=unitary public consultation; G11=group collaboration. (See Table 7.2 for descriptions of decision methods.)

Examples of working through the decision tree are now presented, arriving at Autonomous, Consultative, and Group decision methods.

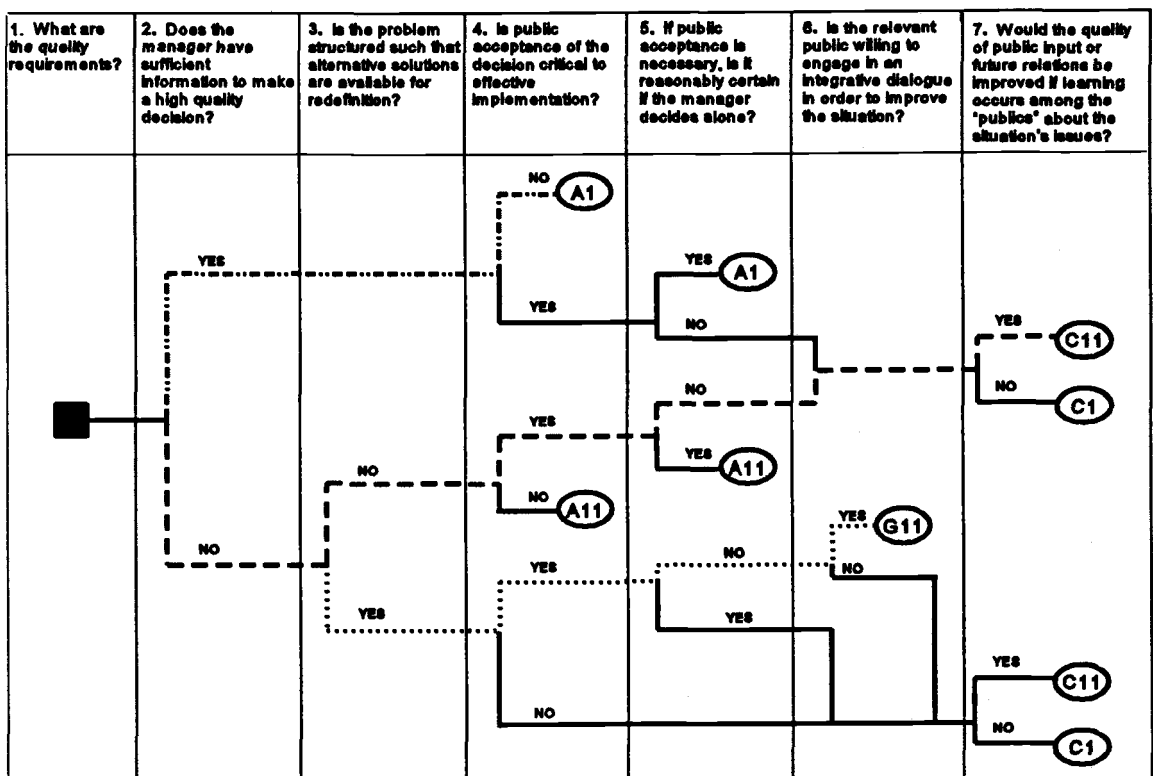
1. AUTOCRATIC (follow the dashed and dotted lines in Figure 8.2)

Situation: A Forest Science professor studying downed woody debris has requested permission to establish a research project in the North Zone. The installation would involve limiting harvesting in a three acre square area for the next ten years.

Question 1: What are the quality requirements? *Meeting the research goals of the Forest Plan.*

Question 2: Does the manager have sufficient information? *"Yes", the manager has the request from the researcher and guidelines within the forest plan which identify research goals.*

Figure 8.2 Example of decision-tree usage



Question 4: Is public acceptance of the decision critical to effective implementation?

“No”, this type of research installation has not historically been one of concern for the public and will not impact public access because of it's location.

⇒ Arrive at method A1 which is an autonomous managerial decision. Where the manager makes the decision without public involvement.

2. CONSULTATIVE (follow the dashed lines in Figure 8.2)

Situation: The decadal harvest plan has identified a unit for development of a two-storied stand. The stand is adjacent to a county road used by residents to access a valley north of the Forest and a heavily used recreation route. The stand is identified as visually significant in the Forest Plan. A clearcut on an adjacent stand occurred eight years ago and residents still remain upset about the communication surrounding the decision making process involving, and the visual impacts resulting from that clearcut.

Question 1: What are the quality requirements? *Following the Middle Zone prescriptions for two-storied stand creation; meeting research objectives; meeting the visual preferences of the community; and providing income to support the teaching and research activities of the College of Forestry.*

Question 2: Does the manager have sufficient information to make a high quality decision? *“No”, the manager does not know the visual preferences of the community in relation to this stand.*

Question 3: Is the problem structured such that alternative solutions are not available for redefinition? *“Yes”, the forest plan specifies where the harvest will take place, and that it will be a two-storied harvest.*

Question 4: Is public acceptance of the decision critical to effective implementation? *“Yes”, the visual concerns along this roadway in particular, and of the Forest in general, are of documented concern to the Corvallis community. Opposition to the project would probably be translated into political opposition by the affected public, or possibly, the Forest Plan could be challenged. Political opposition would result in delays to implementation of the harvest plan.*

Question 5: If public acceptance is necessary, is it reasonably certain if the manager decides alone? *“No”, because this is in such a visually prominent location, and because the trust levels are not high between the community and the Forest, the community would probably not defer judgement to forest managers.*

Question 7: Would the quality of the input from the publics be improved or future relations be improved if learning occurs among the “publics” about the situation’s issues? *The quality of the input could be improved if adjacent neighbors and commuters on the County road realize they have common concerns and begin developing consensus about priority visual areas. These points of consensus, however, could probably be identified by the staff after speaking with the publics separately. There are no significant relational distances between the publics that would benefit from the publics’ learning about each other.*

➡ Begin with C1 which is consultation with segments of the public separately. If the publics accept OSU constraints, and consensus would develop from assembling the “publics”, then move to C11 which is consultation with the public as a single assembled group.

3. GROUP (follow the dotted lines in Figure 8.2)

Situation: Measure 47 has translated into significant fiscal reductions for the College of Forestry. The Dean has asked each department to cut their expenditures by 8% for the upcoming fiscal year. The Recreation Manager must decide how to cut 8% from her budget.

Question 1: What are the quality requirements? *Optimal meshing of community recreation priorities with budget realities of the Forest.*

Question 2: Does the manager have sufficient information to make a high quality decision? *“No”, the recreation manager does not know the current ranking of recreational preferences within the community.*

Question 3: Is the problem structured such that alternative solutions are available for redefinition? *“Yes”, the Dean has just indicated the dollar amount to be cut from the budget, the recreation manager has the major responsibility for deciding how to allocate the remaining funds, and the manager has not initiated the decision making process.*

Question 4: Is public acceptance of the decision critical to effective implementation? *“Yes”, because of the large land base and small recreation staff, it is critical for the public to assist with implementation of the decision.*

Question 5: If public acceptance is necessary, is it reasonably certain if the manager decides alone? *"No", the opportunity for recreation access is of high concern to the community.*

Question 6: Is the relevant public willing to seek an integrative solution? *"Yes", in the past, the public has recognized the constraints on the Forest regarding the balance between research and teaching objectives and the provision of recreation facilities. The different recreation groups have been able to discuss their differences and arrive at integrative solutions in the past.*

⇒ Arrive at G11 which is a group or collaborative decision development process.

8.5 Changes needed in OSU structures or processes to allow implementation of the model

Two main changes are needed in OSU structures or processes before the model could be implemented on the Forest. The first change would be a decision by the OSU administration to broaden the sphere of influence in decision making to include Corvallis-area residents, and the concurrent changes in perceptions by OSU and residents that would enable that broadening. The literature indicates that support by the administration is crucial. In the USDA Forest Service setting, "The degree to which the public is heard and responded to on any particular forest is critically dependent upon the style of management employed by the forest supervisor. Not only does the staff take its cue from the supervisor on how to respond to the public, but most importantly, the way the supervisor treats and listens to the staff is highly correlated to the way the staff treats and listens to the public" (Shannon, 1990b:235). In the private business setting, a larger

number of decisions are consistent with the styles most available within the firm and with styles most preferred by the manager's superior (Pasewark and Strawser, 1994). This model will be useful only if the Forest administration or staff attempts to utilize it in an objective fashion, and without intent to arrive at a pre-determined outcome.

A difference in perceptions exists between the University Administration, City, and Interface residents. The Administration views the Forest as a private endowment, not needing public input for decision making. Yet, a number of Forest managers sense that many stakeholders within the Corvallis community view the Forest as a "public good" because the Oregon State Board of Higher Education holds title to the majority of the Forest, and the forest is managed by a public institution. Of adjacent neighbors surveyed by Kimura in 1992, 80 percent thought that McDonald-Dunn Research Forest was a public forest.

What reasons suggest that the OSU Administration should move toward structuring more public involvement opportunities? First, Oregon State University, in its role as a premiere forestry institution, could capitalize on this opportunity for research in the area of urban-forest interface communication challenges. Second, as Potapchuk summarizes, power sharing is reality in the 1990s:

Power is at the heart of all conflicts. Local government leaders think that if they share power, they are limiting their ability to act. Indeed, if all power were centralized within local government, that would be an accurate observation. In most communities, however, power is shared among a number of key actors. Business, citizen, public interest, single issue groups, and citizens all vie for power and influence on decisions that concern them. And NIMBY groups can emerge on a moment's notice to delay almost any project . . . *Working with groups to develop a joint agreement therefore, is not sharing power but rather sharing authority in recognition of the power these groups already hold* (Potapchuk, 1991:161, emphasis added).

A paradigm shift will be necessary to enable the Forest administration to structure more public involvement opportunities. This shift would encompass a move beyond viewing the administrator as the "expert" who should be making all the decisions, to a view of the administrator's role as a facilitator of dialogue prior to decision making. Reich (1985) identifies one of the barriers to working with the public: ". . . [P]ublic administrators and the public at large often tend to equate administrative 'effectiveness' with active decision making and successful implementation. After all, these are concrete achievements that can be measured and upon which reputations can be built. The nurturing of social learning about public values, on the other hand, is an elusive undertaking. How does one measure success in this regard?" (p. 232).

It is important for the community to acknowledge and accept the constraints of the Forest during communication and decision-making processes. This integration might require only a subtle change in perceptions, or merely continued reinforcement because recent survey research indicates that the Corvallis community acknowledges the current constraints on the Forest. In a mail survey of Corvallis residents conducted in 1988-89, Finley reported that 79% of respondents felt that the Forest should be used by students and researchers as an outdoor laboratory that included the harvesting of trees. This view by the public is close to the goals of the 1993 McDonald-Dunn Forest Plan. This is an important point of commonality between the Forest and the Interface residents, and one that should give the Forest Administration heart that the Administration's goals for the Forest could still be achieved even with increased public participation.

The second change required would be a decision regarding who works through the tree to determine which Forest management issues having an impact on the Corvallis

community would be open to consultative or collaborative communication processes.

The issue of who works through the decision tree is not discussed in the Vroom-Yetton model associated literature. It is implied throughout the Vroom-Yetton-Jago discussions that the manager works through the tree alone. Literature associated with evaluation of the model's effectiveness indicates that it might be problematic for subordinates to choose the method. In two unrelated studies, "subordinates" never rated autocratic leader behavior as more effective than participative leader behavior, even when the situation was one in which autocratic behavior would be prescribed by the Vroom-Yetton model (Heilman *et al.*, 1984; Field and House, 1990). Yet, with application of this model in a quasi-public setting, if a collaborative process is contemplated, it could be argued that those directly or significantly affected by the decision (*e.g.*, those "publics" adjacent to the site, within the viewshed, impacted for a significant time into the future, or being trespassed by recreationists) should be involved in making the determination of who should be involved in the decision-making process.

The proposed process, in recognition of the unique characteristics of this quasi-public setting, includes initial identification of issues and working through the decision tree by Forest staff after review of the annual operations plan. During the process, the staff would record notes outlining the responses to each question. These notes will be useful for structuring the final communication/decision making process, and effectiveness evaluation at the end of the process. Differences in responses by staff members (*e.g.*, half the staff respond "yes" to a question, and half respond "no") would point out the possible contentiousness of a decision, and might lead to inclusion of public involvement because of the uncertainty of the response. As discussed earlier, the *process* of working

through the model is of more importance than arriving at the one "correct" answer.

There are generally a number of ways to structure effective public involvement processes; the *strength of this model* is in its assistance with focusing on the key parameters that should be considered while structuring such processes.

To ensure that the public's concerns are integrated into the process, the staff would consult, when helpful, with a re-established OSU Research Forests Communication Sub-committee which would represent the affected, relevant segments of the community. Examples of representation would include local governments (e.g., City of Corvallis and Benton County), geographic areas (e.g., the Interface "neighborhoods" of Oak Creek, Timberhill, Jackson Place, Crescent Valley; and the incorporated City), and user groups (e.g. Trails Committee members, Oregon Hunters Association representatives). This Communication sub-committee would act in an advisory capacity to the Forest Advisory Committee, comprised of citizen, faculty, administration, and management representatives. In order to ensure that the process is working effectively, and that public concerns are addressed, a yearly evaluation would be performed by the Forest Advisory Committee.

Training is necessary for all individuals utilizing the decision-tree. The training would be particularly important for staff, because they initiate many forest management actions and have an intimate knowledge of both the forest resources and the "publics" concerned with those forest resources.

9. CLOSING OBSERVATIONS

Natural resource managers, including OSU forest managers, are under considerable pressure, for various reasons, to more actively and creatively involve citizens in resource decisions. My thesis examined one particular framework, developed originally in the business sector, to deal with pressures for increased involvement. While the basic framework looks applicable to forest management in the public sector, I recommended a number of adaptations. The majority of adaptations were proposed because of the challenges inherent in identifying the "public interest". These adaptations were incorporated into a proposed model to offer guidance on when it would be beneficial to assemble the public for consultative or collaborative processes.

The proposed model offers assistance in helping managers decide when public involvement should be sought, as well as some insight as to the nature of the forums from which resulting input might be obtained. Still, there remain many difficult, complex questions. Further experimentation needs to be undertaken, coupled with adequate monitoring of both process and outcome, so that we can improve our understanding of how to solicit and structure public involvement more effectively.

For example, the model, as originally formulated, was predicated upon the manager working through the decision tree, independent of any consultation with either staff or constituents. We can only speculate as to the effects of continuing to operate in such a fashion in the public sector, but it seems likely that more collaborative approaches will be needed. We need to further our understanding of how this can best be done.

Authors to whom we can turn include Yaffee *et al.* (1997), who provide examples of

factors that promote and constrain collaborative efforts between the USDA Forest Service and citizen groups.

Another issue concerns whether consistent application of the proposed model or similar models could eventually lead to enhanced trust between managers and citizens, leading to a greater willingness on the part of citizens to accord increased decision-making discretion to managers. This might only be wishful thinking, but again, a review of similar efforts in the literature might provide insight as to the likelihood of this. To the extent that systems like the proposed model do build/enhance trust, this might be a major contribution, above and beyond contributions to decision quality, reduced litigation, etc.

A key part of building trust to which the proposed model does seem to contribute is providing more adequate documentation of the assumptions and rationale underlying decisions regarding the structuring of public involvement. The proverbial “blackbox” model of decision making derives its infamy from the way in which it hides the reasoning, assumptions, data, and other decision-making factors; this contributes to public skepticism and distrust, irrespective of the scientific rigor and foundation of the resulting decisions. Appropriately and legitimately applied, the proposed model helps counter these drawbacks by making the decision of when and how to involve the public in decision making an open, visible, and traceable process.

A number of other models, processes, and approaches are helpful for structuring public involvement, each developed in response to a particular set of problems and contexts. Examples of just a few of these approaches are: collaborative learning (Daniels and Walker, 1996), Emery’s participative democratic model of group decision making

(see Diemer and Alvarez, 1995), communities of interests and open decisionmaking (Sirmon, 1993), soft systems (Wilson and Morren, 1990), citizens panels (Crosby *et al.*, 1986), constructive controversy (Tjosvold, *et al.*, 1986), and transactive planning (Friedmann, 1973). The usefulness of the proposed model in this thesis is at the beginning of the public participation process, to assist in determining whether an autonomous, consultative or collaborative decision is indicated. Once that decision is made, the issues identified while working through the tree are beneficial for identifying which processes or approaches (such as those identified above) would be useful for actually structuring the public participation process.

There is an unfortunate tendency to “lock” onto particular models or frameworks, often leading to inappropriate and uncritical applications. Users of the proposed model could fall into this trap. Clearly there is a need to improve our understanding of the particular context and situation to which these various tools are most appropriately applied. Factors to be considered include questions of costs, time, and skills required in addition to the particular decision-making context. An analysis of how these various tools and frameworks could be combined would also be valuable.

Potential for application of model in the federal public sector. Although this thesis focused on the state and local public sectors, the model may have potential for application in the federal public sector as well. Constraints present in the federal setting that might negate or require modifications to the proposed model include statutory guidelines contained in the National Environmental Policy Act of 1969 (NEPA), the National Forest Management Act of 1976 (NFMA) and the Federal Advisory Committee Act of 1972 (FACA).

NEPA “does not provide standards and guidelines for public involvement. . . . It treats the public principally as a recipient of information rather than a participant in decisionmaking” (U.S. Congress, 1992:78). However, regulations issued under President Carter in 1978 for implementing NEPA stated that agencies shall “involve the public in preparing and implementing their NEPA procedures” and that agencies shall “solicit appropriate information from the public” (U.S. Congress, 1992:78). In case law (*California v. Block*) the court noted that information from the public was not only to be collected, but was also to be considered in decisionmaking (U.S. Congress, 1992:79).

NFMA specifically requires public participation “in the development, review, and revision of forest plans”. NFMA also “authorizes and encourages the use of advisory boards in planning and managing the national forests” (U.S. Congress, 1992:80). FACA requires that all advisory committees publish the date and location of meetings in the *Federal Register*, open meetings to public scrutiny and participation, and make detailed minutes, transcripts, and other documents from these meetings available for public inspection. In addition, FACA requires that each advisory committee consist of a balanced membership (Aurelia, 1995:99-100).

The USDA Forest Service has stated that FACA inhibits their use of advisory boards (U.S. Congress, 1992:80). However, in interpretation, the courts have “. . . held that FACA should only apply to an advisory committee only when the advisory committee system is in danger of being abused, as contemplated by Congress” (Aurelia, 1995:102). This finding indicates that advisory boards could be established if balanced representation is accomplished. Does the requirement that advisory meetings be open to public participation rule out the use of consultative or group processes with a select core

of stakeholders? In a meeting of the California Spotted Owl Federal Advisory Committee in July of 1997, participation was limited to scheduled presentors and committee members. Comments from other members of the public were accepted only in writing (Federal Register, 62(107):30565).

The findings of the case law and the example of advisory committee function above indicate that advisory committees (acting in a consultative role) can be utilized if the guidelines for notification and balanced representation are met. However, one of the crucial questions remaining is if group or collaborative decision-making processes including members of the public can be employed at the federal level.

The proposed model is more than just a mechanical process. Several words of caution are offered at the conclusion of this thesis. If the proposed model is used as a mechanical, unthinking template, the potential for failure is high. It is important to regard this model as the *beginning of a process* that informs and guides. Decisions made early in the process may need to be re-evaluated during the process. For example, a consultative process may be indicated in the model's first application, but as conditions change and the model is re-applied, a group process may be indicated as more effective; or conversely, a process initiated as a group process may be re-evaluated and a consultative process may be indicated as more effective. In application, the decision makers should view this model as a fluid and adaptable tool. It is important that the proposed model not be viewed as a linear, uni-directional "machine". The goal of model application is not to arrive at the "sole" answer, but to engage in a thoughtful, evaluative process which improves the effectiveness of the public involvement program.

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