

AN ABSTRACT OF THE DISSERTATION OF

Edward B. Page for the degree of Doctor of Philosophy in Rangeland Resources presented on August 13, 2001. Title: Evaluation of an Early Stage of the Interior Columbia Basin Ecosystem Management Project: Leadership, Organization, and Communication/Interpersonal Relations.

Abstract approved: Redacted for Privacy

William C. Krueger

Redacted for Privacy

Sally Davenport

Redacted for Privacy

Richard P. Gale

Leadership, organizational structure, and communication/interpersonal relations are key functions studied. Evaluation of the Interior Columbia Basin Ecosystem Management Project (Project) considers how well those factors were managed by Forest Service and Bureau of Land Management in a bioregional assessment during a period from November, 1994 to November, 1995.

Exploration of leadership involved three areas: 1) creating a compelling vision, 2) guiding staff to address that vision, and 3) how leaders cooperated. Each area proved to be problematic, in some respects. Major problems were, respectively: 1) lack of a clear vision, 2) inability to focus integration around key issues, and 3) inability of leaders to put aside differences.

Organizational structure involved three areas: 1) adequacy and appropriateness of staffing, 2) geography proximity of offices and job assignments, and 3) support for staff and their work, in terms of materials, budgets, and time available to do the work. Several problems were found in these areas. Though the overall quality of people with the Project was excellent, some professional skills were missing or under represented. The physical structure of the organization created problems in communication and accessibility. Inadequate planning and lack of understanding of process led to insufficient time to do the work as scheduled.

Communication/interpersonal relations involved three areas: 1) internal communication, 2) the effect of decentralized work centers on communication with constituents, and 3) interpersonal relations among staff. These areas showed mixed favorable and unfavorable results. Though general communication was acceptable, staff tended to feel that expectations for work were not adequately communicated. Decentralized offices did not show positive effects on clientele access. Interpersonal relations suffered from some cultural differences based on professional standards, expectations for working environments, and lax management of interpersonal communication.

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Evaluation of an Early Stage of the Interior Columbia Basin Ecosystem
Management Project: Leadership, Organization, and Communication/Interpersonal
Relations

by
Edward B. Page

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APPROVED:

Redacted for Privacy

Co-Major Professor, representing Rangeland Resources

Redacted for Privacy

Co-Major Professor, representing Rangeland Resources

Redacted for Privacy

Co-Major Professor, representing Rangeland Resources

Redacted for Privacy

Head of Department of Rangeland Resources

Redacted for Privacy

Dean of Graduate School

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Edward B. Page, Author

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LIST OF ACRONYMS

Environmental Assessment (EA)

Eastside Ecosystem Management Strategy (EEMS)

Environmental Impact Statement (EIS)

Environmental Protection Agency (EPA)

Executive Steering Committee (ESC)

Interior Columbia Basin Ecosystem Management Project (ICBEMP)

Project Leadership Team (PLT)

Pacific Northwest Research Station (PNW)

National Forest System (NFS)

National Marine Fisheries Service (NMFS)

Record of Decision (ROD)

United States Fish & Wildlife Service (USF&WS)

Upper Columbia River Basin EIS Project (UCRB)

Evaluation of an Early Stage of the Interior Columbia Basin Ecosystem
Management Project: Leadership, Organization, and
Communication/Interpersonal Relations.

INTRODUCTION

PURPOSE OF THE STUDY

The purpose of this study was to evaluate management of the Forest Service and Bureau of Land Management in a large, multiagency, ad hoc process. The land management agencies had been directed by President Clinton to perform a scientifically sound environmental assessment as the basis for ecosystem management in the Columbia basin region. Ecosystem management refers to holistic management of social, biological, and physical phenomena and their interrelationship over a large geographic region and extended temporal scale. The Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) charter called for the collaboration of the two land management agencies and several regulatory agencies (Environmental Protection Agency, National Marine Fisheries Service, and U.S. Fish and Wildlife Service). The resulting temporary organization would take top-quality individuals from each agency to create a team-based process, which would fulfill President Clinton's directive.

The environment in which this organization would operate was highly complex politically and ecologically, requiring highly skilled specialists from numerous different disciplines to staff the Project. Situation such as this require the flexibility of an adhocratic, team-based system (Mintzberg, 1979). Leadership must understand new functional interactions found in these organizations: team boundaries become quite flexible, with prominent horizontal relationships, formal job descriptions are de-emphasized, and individual selection is based on skill and

knowledge (Gullet, 1975). According to Mohrman et al. (1995, p. 7), “organizations must become good learning systems: they have to introduce improvements . . . in the processes they use to deliver value to customers and in the way they organize to carry out these processes” A temporary organization of this nature was an excellent opportunity to study how the land management agencies would implement the practices and develop the culture necessary to most efficiently and effectively utilize this type of process.

The study’s general objectives were divided into three broad categories: leadership, organization, and communication/interpersonal relations. Leadership dealt with determining whether managers of the Project were able to direct staff members, from various disciplines, through a complex and unfamiliar process to arrive at prescribed goals. Three areas were of primary importance: how leaders created and instilled vision, how they unified disciplinary research efforts to create an integrated product, and how well the Project leaders work together.

Organizational objectives sought to clarify how well the agencies understood and adapted to new forms of organization that were used in the Project. It was important to see if these forms were practical for the agencies and, if not, what could be done to increase agency effectiveness in processes of this nature and scale.

The objectives for communication/interpersonal relations were simply to determine whether communication processes on the Project were clear and consistent in directing and informing staff regarding the roles they were to play and the products they were expected to produce. Objectives regarding communication with constituent groups were limited to assessing whether staff felt those efforts were adequate. Interpersonal relations objectives sought to establish whether relations

among staff and leaders were conducive to clear and congenial communication and an efficient, effective, and successful conclusion to the Project.

WORKING ASSUMPTIONS AND OBJECTIVES

A set of working assumptions was created as a simple model to depict how the literature suggested a properly functioning organization would operate. Specific objectives used to evaluate organizational performance were created within the parameters of the working assumptions. The assumptions and evaluation were divided into three categories: leadership, organization, and communication/interpersonal relations. Assumptions and associated objectives used in this study are presented below.

Assumption One: Guiding With A Vision

Leadership, within the ICBEMP and in the agencies that formed it, has clearly defined and communicated the vision and goals of the Project to all staff members.

1. Determine if the Project leadership has clearly defined a vision for the organization.
2. Determine if the Project leadership has communicated a vision and associated goals to staff.

Assumption Two: Flexibility and Integration

Leadership styles which encourage maximum flexibility and creativity in staff, also are most efficient and effective in motivating, focusing, and guiding a large group with very diverse disciplinary backgrounds, to integration and completion of a complex series of tasks.

1. Determine if the Project leadership has created a system in which flexibility and creative freedom are encouraged.
2. Determine if the Project leadership was able to focus staff on specific tasks to be accomplished.
3. Determine if the Project leadership was able to integrate staff work and create the integrated products required in their charter.

Assumption Three: Leaders Work Together

Leadership for the ICBEMP is focused on and accountable for attainment of Project goals; it guides the process in an efficient and effective manner.

1. Determine if the Project leadership worked together to attain organizational goals.

Assumption Four: Adequacy of Staffing

Staffing of the ICBEMP is at the most efficient and effective level based on adequate numbers of people, with the most appropriate education, experience and authority being found in scientific, administrative, and support positions.

1. Determine if the Project had adequate numbers of staff to complete its required tasks.
2. Determine if the Project had adequate diversity in the professional skill required to adequately develop and complete the assessment and EIS.
3. Determine if the Project staff had adequate educational and professional backgrounds to complete its required tasks.

Assumption Five: Geographic Separation of Offices

The working environment is designed to most efficiently utilize the time and energy of staff by focusing their efforts on the scientific, planning, or administrative work to be done; geographic groupings of offices and assignment of personnel reduce unneeded travel and improve communications to support group integration.

1. Determine if location or geographic separation of Project offices hurt organizational efficiency or effectiveness.

Assumption Six: Adequate Support for Staff

Material and financial support needs, as well as the need for adequate time to complete the chosen process, are fully met throughout the Project, to ensure a timely and successful conclusion to the overall goals of the Project.

1. Determine if equipment and materials were adequate to support Project staff.
2. Determine if budgets were adequate to support Project staff.
3. Determine if time allocation was adequate to allow Project staff to complete quality products.

Assumption Seven: Internal Communication of Expectations

Information, including scheduling of meetings and activities, expectations for content of reports from each discipline, and/or visions and revisions of goals and time-lines are clearly communicated, updated as necessary, and readily available to all members of the ICBEMP.

1. Determine if the level of communication within the organization was adequate to transmit general information.

2. Determine if the level of communication within the organization was adequate to transmit specific expectations for staff work and accomplishment.

Assumption Eight: Communication With External Clientele

Decentralized work centers for the ICBEMP create an improved communications environment between the Project and its many constituent groups.

1. Determine if constituent groups had better access or were better served by decentralized Project offices, as assessed by staff.
2. Determine if constituent groups were informed of Project intents and invited to participate in its process, as assessed by staff.
3. Determine if constituent groups should have had greater access to the Project and its process, as assessed by staff.

Assumption Nine: Interpersonal Relations Among Staff

Throughout the ICBEMP staff, the success of the project in meeting its goals is the top priority, being placed before any goals or desires for personal betterment through promotion or pursuit of personal agendas.

1. Determine if individual egos caused problems for the organization.
2. Determine if leadership adequately managed any interpersonal problems that developed.

BACKGROUND OF THE ICBEMP

The Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) was requested in July, 1993, in a directive from President Clinton to “the Forest Service to develop a scientifically sound and ecosystem-based strategy for management of the eastside [of the Cascade Mountains in Oregon and Washington]

forests” (Eastside Ecosystem Management Strategy Charter, 1994). President Clinton gave this directive at the conclusion of a forest conference, which he had convened in Portland, Oregon, fulfilling a promise in his presidential campaign, which was primarily based on the domestic economy. That promise was to create a plan to solve forest related environmental and social problems in the Pacific Northwest. This summit primarily dealt with issues related to the enforcement of the Endangered Species Act as it applied to the northern spotted owl, in areas west of the Cascade Mountains’ crest in Oregon, Washington, and northern California. This was the culmination of four years of public controversy over agency planning and implementation following the June, 1989 proposed listing of the northern spotted owl as a threatened species under the Endangered Species Act, in the forests of the Pacific Northwest.

The president’s forest plan, also known as the Forest Ecosystem Management Assessment Team (FEMAT), was headed by Jack Ward Thomas and in many ways set the stage for the ICBEMP. Thomas was a scientist with the Forest Service in the Pacific Northwest, who would soon become chief of the agency. As Forest Service Chief, Thomas, with the cooperation of Jim Baca, Director of the Bureau of Land Management (BLM) and their subordinates, was responsible for setting up the ICBEMP and choosing its leadership.

In October and November, 1993, the newly appointed Project leader and science team leader wrote a draft charter for the Project (with collaboration of many others). The original name for this project was the Eastside Ecosystem Management Strategy. Its charter was issued January 21, 1994. Among other things, the charter created an Executive Steering Committee (ESC) to guide the process to a successful conclusion. The ESC was composed of land management agency executives for all major jurisdictions that composed the upper Columbia

Basin (east of the Cascade Mountains). These included Regional Foresters from the Intermountain, Northern, and Pacific Northwest regions; research station directors from the Pacific Northwest and Intermountain/Rocky Mountain stations; and BLM State Directors from Oregon/Washington, Idaho, and Montana.

The area to be evaluated included 144 million acres managed by the forest service and BLM, primarily located in Oregon, Washington, Idaho, and Montana. The main project office was located in Walla Walla, Washington, in the district of then Speaker of the House of Representatives, Tom Foley.

The Project was divided into a Science Integration Team (SIT), whose services were contracted from the Forest Service's Pacific Northwest Research Station and an Environmental Impact Statement team (EIS), drawn from National Forest System (NFS) personnel, under the direction of the Project leader and EIS team leaders. At the outset of the Project, the SIT was to complete a scientific assessment of all the upper Columbia Basin east of the Cascade Mountains' crest (including Idaho, western Montana, and parts of Wyoming, Utah, and Nevada) and small portions of the Klamath and Great Basins, while the EIS was restricted to areas of the basin east of the Cascade Mountains' crest and west of Idaho.

In summer, 1994, a second Project office was opened in Boise, Idaho to perform an EIS for what was designated as the upper Columbia Basin (all FS and BLM lands east of Oregon and Washington). The leader chosen to head this office was given equal standing and authority with the original Project leader and the SIT leader in Walla Walla. This left the organization with three leaders of equal authority, in two primary offices, not directly connected by regularly scheduled commercial air service and 4 ½ hours apart by car.

The issues outlined in the Eastside Ecosystem Management Strategy charter, again related to or were driven by the Endangered Species Act. Principally, these were Columbia River system anadromous and some resident fish populations that were at risk in specific areas across the basin. Their survival and management of their habitat had become a priority in regional and national politics. Creation of the Project showed recognition that biological and social problems that cross many agency and other jurisdiction boundaries. The concept known as ecosystem management was to be employed to create a planning framework and broad environmental reference points for many smaller jurisdictions, in the basin, so that management decisions would uniformly support larger regional goals. In the charter, the initial goal related to the plan was described as an Anadromous Fish Habitat and Watershed Conservation Strategy.

Statements made by Assistant Secretary of Agriculture, Jim Lyons, in the direction letter accompanying the charter, outlined other key points relevant to the new management strategy for forests in eastern Oregon and Washington. These points refer to concepts of management, science, and forest health. They state that the strategy will:

- be based on ecosystem management concepts;
- focus on restoring the health of forest ecosystems;
- be scientifically sound and ecosystem based;
- be based on the forest health study recently completed by agencies scientists and other studies;
- be a multiagency effort involving the public in an open process; and
- link with the development of a draft environmental impact statement to be completed by spring or summer of 1994.

People with varying perspectives were interested in outcomes of the Eastside Ecosystem Management Strategy. Those associated with timber production, agriculture, and mineral extraction had a stake in the ultimate decision to come from

this process. For Example, severe fires had been a problem in eastern Oregon and Washington and utilizing salvage timber from fire (and other natural forest damage) had become a key focal point of industry lobbying. Those wishing access for other extractive and many recreational uses were also concerned about potential restrictions that might come from the process. While those associated with environmental and social causes cautiously supported or at least encouraged the Project's process, many in the resource dependent industries felt that this process had few benefits and many risks.

Organization of the ICBEMP

Under the organizational plan for the Project, the SIT was responsible for all scientific documents, which would be the basis for the EIS and the final Record of Decision in which agency executives would make public the EIS alternative to be implemented. The SIT produced three documents: 1) Scientific Framework for Ecosystem Management in the Interior Columbia River Basin, 2) Scientific Assessment for Ecosystem Management in the Interior Columbia River Basin, and 3) Scientific Evaluation of Planning Alternatives. These documents were, respectively, intended to create principles and processes by which scientifically based assessments could be conducted, show the findings of the SIT, and evaluate the alternatives developed by agency planning. Agency planning done by the Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) and Upper Columbia River Basin (UCRB) EIS teams, created a range of management alternatives based on the integrated work of the various science teams (Aquatic, Economic, Landscape Ecology, Social, and Terrestrial Ecology) composing the SIT.

The Project was scheduled to be completed in 9 to 12 months, beginning on January 21, 1994, the date its charter was signed. Because of the short time frame, the development of science products and the EIS were to run concurrently. Though

they understood that parts of the framework would be needed for the scientific assessment and the scientific assessment would be needed for the EIS, the leadership felt that it was impossible to work through these products sequentially and finish on time. Most staff on the Project were brought in as detailers (temporary assignees) because it was assumed that they would return to previous stations and jobs in a period of 6 to 12 months.

Scientific and Policy Process

President Clinton had dictated, and most constituent groups required, a planning process based solidly on science. To achieve this the National Forest System (NFS, the management arm of the agency) and the research stations were brought together in a management-research partnership. The science products: framework, assessment, and analysis of EIS alternatives would be produced under the direction of the Pacific Northwest research station located in Portland and Corvallis, Oregon. Three research scientists came from that part of the organization to work with numerous scientists, analysts, and managers from the NFS. The scientists were organized along disciplinary lines, into several teams (aquatic ecology, economics, landscape ecology, sociology, and terrestrial ecology) which composed the SIT. These teams were to individually collect, analyze, and synthesize information to characterize the conditions of the environment and communities across the Columbia Basin. This was not so much a process of scientific inquiry or controlled research, as one of understanding already existing data in new ways that would create a holistic representation of the Columbia River Basin. The key part of this process was bringing together disciplinary work into a final integrated assessment. Once completed the integrated assessment document would be used by the EIS team to create alternative courses of action for land management. Following the EIS, another science team would evaluate management alternatives to assure that they were scientific valid.

The Environmental Impact Statement development process is designed to evaluate multiple competing priorities based on information provided in the scientific assessment. An EIS is required, by the National Environmental Policy Act (NEPA), whenever federal agencies undertake major activities which will significantly affect the human environment. The EIS team was an interdisciplinary group composed primarily of Forest Service and BLM employees, with minor representation of the Fish and Wildlife Service, National Marine Fisheries Service, and the Environmental Protection Agency. Its specific task was to create alternative courses of action, representative of the range of choices available for policy creation. Following evaluation of alternatives by a science team, the Executive Steering Committee (ESC), which was composed of the regional executives of the land management agencies, would select the alternative it believed best served the area, to become public policy for the agencies and publish it as the Record of Decision.

LITERATURE REVIEW

BUREAUCRACY AND ORGANIZING WORK

The traditional model of bureaucratic organization, the Structuralism School of Classical Management, has long provided the framework upon which organizations have functioned. The bureaucratic form was believed to be the most efficient by Max Weber, who thought it achieved the highest degree of control over human efforts (Gerth and Mills, 1946, pp. 196-203). Characteristics of bureaucracy which have been effectively used by organizations include: 1) a strong hierarchical chain of command, 2) rules for dealing with all organizational activities and behavior, 3) a high degree of differentiation exists between functions, 4) an impersonal focus on the job with selection of the best suited people to fill it, and 5) a written record kept of all administrative acts.

Frederick Taylor (1911), developed a theory of scientific management in the early 1900s, which systematized work in private industry and eventually was applied to other settings. Like Weber, Taylor prescribed formal rules for dealing with aspects of work that gave new levels of control to the management hierarchy. The theory of scientific management was based in four principles: 1) gaining maximum efficiency in production through judicious use of resources, 2) a rational approach to work, arranging effort in relation to objectives, 3) maintaining the highest possible levels of productivity, and 4) increasing profit, which was the ultimate objective

Responding to the Classical School, Neoclassical Theory was introduced to emphasize the understanding of human interrelations in organizations (Scott, 1961 pp 14-17, and Ziegenfuss, 1982). Important points of this doctrine are: 1) people's social needs will dictate how organizational process actually accrues, 2) menial jobs

will cause feelings of isolation and anonymity in workers, 3) in practice, hierarchical and functional divisions may tend to breakdown due to insufficient delegation and overlapping authority, and 4) span of control is dependent on human traits and is not precisely reproducible. Two neoclassical schools approached theory in different ways: 1) humanists are interested in interactions within groups and 2) behaviorists study individual behavior.

Herbert Simon, a contemporary bureaucratic theorist, argued for separating fact from human value. This separation would aid in controlling the individual and create the most efficient working conditions (Denhardt, 1993). The system is as formal and rigid as Weber's but differs in its focus on communication and supporting workers with high quality information to make their decisions. This approach continues to rely on marginalizing human values for the sake of bureaucratic efficiency and prevents movement or understanding of new management styles required of organizations, if they are to serve their constituents or customers in a turbulent and rapidly changing world.

MANAGEMENT IN THE FOREST SERVICE

The Forest Service, since its inception, has been a very highly centralized, autocratic organization. Yaffee (1994, p. 341) describes the organizational management style in the Forest Service as evolving from "one of technically based, paternal benevolence before the second world war to a more quasi-industrial, military style after the war." The main reason for a high degree of structure, was to control personnel and application of policy conceived and directed from the center. This homogenization and adherence to a command hierarchy was created to prevent the far-flung operations from flying apart (Kaufman, 1967). Without this type of organization and hierarchical leadership it was feared that the Forest Service would become 792 individual Forest Services based on every district as an autonomous

unit. Kaufman attested to the success of these efforts in saying: “despite the centrifugal forces at work in national forest administration, the actual accomplishments of field units have been brought into agreement with the mission defined by the officials in central headquarters” (p. 204).

Traditional theories for management practices discuss two specific concepts which apply to the Forest Service in particular and also to the Bureau of Land Management (BLM). Rationalism, as discussed by Denhardt (1993), describes an approach to management which leads to great efficiency. Max Weber, is quoted by Denhardt (1993, pp. 6-7), explained why this type of bureaucracy was important:

experience tends to universally show that purely bureaucratic type of administration . . . [is] . . . capable of attaining the highest degree of efficiency and is in that sense formally the most rational known means of carrying out . . . control over human beings.

This type of structure/leadership appeared to be the best to manage organizations during the years prior to and during the formation of the Forest Service, early in the 20th century. It is easy to see the logic of this choice. According to Kaufman (1967), if measured by the success of the districts in accomplishing the goals of the mission identified by the central leadership of the Forest Service, the organization and its management were “amazingly successful” in nearly all cases.

SCIENCE BASED POLICY FORMATION

The Timber Supply Perspective: 1960s and 1970s

Timber harvest in public forests increased to the maximum allowable cut, between the end of World War II and 1960. In the same period, private forests appeared to be harvested at unsustainable levels. At this point sustainability of regional wood

supplies was being questioned. During the 1960s and 1970s, the Pacific Northwest region (Region 6) and the Pacific Northwest Research Station of the US Forest Service conducted several key studies related to timber supply (Johnson, 1997, pp. 398-399). The Duerr Report, in 1969, found that timber supplies would decrease in future years until second growth on private industrial timber lands matured. Immediately following Duerr, the Douglas-fir Supply Study reported two conclusions: 1) the harvest levels, which the Forest Service had historically allowed could not be maintained into a second rotation under current management practices and 2) intensified management could allow these harvest levels to continue indefinitely. In this study, a new definition of sustainability was created: “the non-declining yield of timber volume over several rotations” (p. 399). In 1976, the Beuter Report confirmed dwindling private timber supplies and suggested that unless harvest levels on federal forests were increased, regional timber supplies would decline until industrial second growth harvest increased after the year 2000.

National Forest Management Act of 1976

Growing public opposition to current forest practices along with increasing litigation by environmental groups and continued pressure to log from the timber industry, led to two policy reform acts in the mid 1970s. The Forest and Range Land Renewable Resources Planning Act (RPA), in 1974, required the Forest Service to develop long-range multiple use management plans, to better integrate resource planning with budgeting. The National Forest Management Act, in 1976, required individual forest plans to supplement the RPA, which was developed at headquarters in Washington, D.C. “Theoretically, two types of planning – top down and bottom up – would be eventually integrated, although this integration has not yet been achieved (Hirt, 1994, p. 244).” In a policy analysis paper the Forest Service (1990, v. 3, p. 9), evaluated problems that had reduced implementation efficiency for the NFMA (indirectly acknowledging a lack of integration):

The lack of clear policy and inadequate transmittal of policy to the field were found to be the most frustrating aspects of planning. From the beginning, there was confusion as the agency tried to implement planning found before the planning regulations (36 CFR 219) were in place.

Analysts concluded that the agency never completely overcame the resulting confusion. A significant part of the problem came from poor communication leading to a lack of distinction between mandatory and discretionary elements of the act.

Regional and Forest Planning in the 1980s

Planning efforts in the 1980s were largely devoted to satisfying the National Forest Management Act. "Appeals of regional plans triggered much of the spotted owl [a listed species under the Endangered Species Act] litigation that, in turn, led to [the] science based assessments of the 1990s" (Johnson, 1997, pp. 399). Throughout this period, Forest Service awareness of issues pertaining to fish and wildlife sustainability continued to increase. Agency focus remained on finding the minimal acceptable levels of management, while rarely expressing acceptable risk for the species considered, in explicit terms that would satisfy regulatory requirements for maintaining habitat.

Fish and Wildlife in the Planning Process in the 1990s

Two factors drastically altered U.S. forest practices: 1) a heightened level of environmental consciousness among politically active citizens and 2) environmental legislation enacted in the 1960s and 1970s (Thomas, 1997). The statement of purpose for the Endangered Species Act had great consequences for federal land management. Thomas quoted the act: "The purposes of this act are to provide a means whereby the ecosystems upon which endangered species and threatened species [depend] may be conserved" (p. ix). Three separate reports beginning with the Interagency Scientific Committee (ISC), also known as the Thomas Report,

which was requested of the land management agencies by Congress in 1989, began to address problems associated with the northern spotted owl in a scientific manner.

Interagency Scientific Committee (ISC)

The ISC “turned the focus from sustainability of timber supplies to habitat for a wildlife species” (Johnson, 1997, p. 400). Though it called for large timber reserves to be set aside and protected as habitat for the northern spotted owl, it only considered that one species. Congress, wanting to settle the issue of biodiversity in the Northwest, soon commissioned a second study which came to be known as the Gang of Four Report.

Gang of Four

This report was to look at management practices that would protect old-growth forests, their associated species, and threatened fish stocks. The report showed “the strategy concentrating on one species (i.e., the northern spotted owl) would not adequately protect biodiversity in the region” (Johnson, 1997, p. 400). This report was ignored by the Forest Service, while the ISC report was used as a basis for the supplemental environmental impact statement (SEIS), which the court had required, to allow forest plans to move to completion and be adopted. The SEIS was successfully challenged in court, partly because it was based on only one biological indicator species and did not show that protection for that species, the northern spotted owl, would protect other major elements of biodiversity.

Scientific Analysis Team (SAT)

In 1993 a scientific analysis team (SAT) was brought together by the Forest Service. According to Johnson (1997, p. 401): “The SAT report added an extensive riparian protection plan, along with other standards for particular groups of species, to the

Thomas report's owl protection plan." This plan was released shortly before President Clinton convened the Northwest Forest Conference in Portland, Oregon. At the end of the conference, the President promised "a solution to the impasse over forest management in the Pacific Northwest in 60 days" (Thomas, 1997, p. x). This promise resulted in formation of the Forest Ecosystem Management Assessment Team (FEMAT), led by Jack Ward Thomas (who also led the ISC and the SAT, as well as being one of the Gang of Four, led by Norm Johnson). The FEMAT report was largely taken from the previous three reports but increased evaluation to over 500 measurements of biological diversity. Late in the FEMAT process, an additional alternative (known as option 9) was added to the previous alternatives. According to Johnson (1997, p. 402):

Option 9 integrated many of the elements of the other alternatives, as well as ideas of the three previous reports (Thomas, Gang of Four, SAT). After some modification, option 9 was chosen by the Clinton Administration as its plan for the federal forests of the Northwest within the range of the northern spotted owl. Under it, timber harvest levels from federal forests were expected to fall more than 75 percent from [levels of] the 1980s.

Ecosystem Management

According to Jack Ward Thomas (1997, p. xi), "ecosystem management is a concept whose time has come." Ecosystem management is a term that identifies growing concerns, both scientific and public with maintenance of healthy biophysical and social environments and the array of services they provide. A formal definition of ecosystem (Lincoln, Boxshall, and Clark, 1982, p. 75) is: "A community of organisms and their physical environment interacting as an ecological unit." Webster's Dictionary (1983, p.869) variously defines manage as "2) to take charge or care of . . . , 3) to dominate or influence (a person) by tact, address, or artifice . . . , and 4) to handle, direct, govern, or control in action or use . . ." Thomas translates this to a more appropriate understanding: "ecosystem management is only a concept

for dealing with larger spatial scales, longer time frames, and many more variables (ecological, economic, and social) than have commonly been considered in past management approaches” (Thomas, 1997, p. xi).

CURRENT ENVIRONMENTAL RESEARCH IDEAS

The NRC (1993, pp. 1-3) believed that we have the tools to address current environmental problems, but that we are not using them effectively.

Rather, federal environmental research and policy are trying to cope with today’s problems by using a system that was constructed when problems perceived to be important were different. . . . The research establishment is poorly structured to deal with complex, interdisciplinary research on large spatial scales and long-term temporal scales. These traits characterize the primary needs of an effective environmental research program. . . . Bridges between policy, management, and science are weak. There is no organized system whereby assessments of environmental problems can be communicated to decision-makers and policy-setters.

Two fundamental conclusions were reached by the NRC (1993, p. 87):

[C]ultural changes must be made in the nation’s environmental research programs regardless of how these programs are organized, and organizational changes would facilitate the implementation of cultural changes. The committee uses the term culture to refer to institutionalized beliefs, values, policies, and practices that characterize the administration of an agency’s environmental research program and the nation’s overall effort.

This refers to the agency focus on mission-oriented research rather than efforts designed to explore broader issues. It also refers to the tendency toward exclusive use of research from within the agency rather than research generated by academics and others outside of the agency. They also say that lack of knowledge and coordination with other agencies to integrate research efforts impedes overall progress and these practices need to be changed.

LEADERSHIP LITERATURE

Effective Leadership

Leaders of the Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) were creating the form and process for what was thought by many to be a revolution in the way we viewed and performed resource management. These individuals were expected to have the knowledge, imagination, skills, and institutional support to build this new paradigm. At the practical level, this would require a firm idea of where the assessment would go, what issues would be focused upon, and what the nature and interactions of its products (technical papers and decision documents) would be. To do this in an efficient and effective manner the staff would have also had to be chosen for their abilities to work as members of a team and their dedication to sustainability and a whole systems approach to management of public lands with all its associated physical and biological cycles. Leadership would be able to accomplish these things by establishing and communicating a strong organizational vision and enlisting all employees to work toward goals held in that vision.

Leadership positions in public administration and business have changed over the years. Personal traits, such as ambition, intelligence, or interpersonal skills, were first to be identified as the focal point of leadership research (Gordon and Milakovich, 1995, p. 237). Later, the “situational” approach explained leadership in terms of the context in which it was practiced and emphasized leader-follower interactions, organizational needs, the work to be done, and group values and ethics (Stogdill, 1974). These two approaches evolved to a perspective in which leadership is understood as personal traits within the situation, where the emphasis is placed on

situation; circumstances, group character, and needs do much to dictate the type of person that will be an effective leader (Fiedler, 1981).

When top public managers speak of leadership today, they associate it less with use of power and more with vision, articulation, and empathetic understanding. This is complemented by the devolution of power and responsibility to individuals throughout the organization and encouraging them to assume leadership in their own work areas (Denhardt, 1993).

While Herbert Kaufman (1967), found primary interests of the Forest Service of the 1950s to be the conformity and allegiance of personnel to central control. Today, Denhardt (1993), sees greater interest in innovation, creativity, and flexibility, with the essence and center of this effort being shared power. Throughout the federal bureaucracy the re-invention effort speaks of this new type of leadership empowering people, but change of this dimension will not be achieved without specific skills and behaviors possessed by leaders.

Behavior of Successful Leaders

Leadership is normally the center or focal point of an organization from which its direction and vision come. From a position of authority either guidance or control will hopefully shape the organization and move it to its collective goals. One way of assessing leaders is by evaluation of the behaviors they employ. Effective leaders will integrate task-oriented and relationship-oriented behaviors in ways that take advantage of the level of staff experience and existing situation (Yukl, 1981).

Several categories which are especially critical for successful performance of leaders in an ad hoc project setting will be discussed.

Planning and Problem Solving

Planning and Problem Solving include what to do and how to accomplish it. The balance between creating actions and reacting to conditions is important. Successful leaders will have flexible and pragmatic plans leading to their objectives. Kim and Yukl (1995) found certain behaviors relevant to effective leadership that had been generally ignored by other researchers. Among these behaviors were more planning, problem solving, clarifying, and team building. Planning or organizing is defined as (p. 366, from Yukl, 1994):

determining long-term objectives and strategies, allocating resources according to priorities, determining how to use personnel and resources efficiently to accomplish the task or project, in determining how to improve coordination, productivity, and effectiveness. Problem solving [is] identifying work-related problems, analyzing problems in a systematic but timely manner to determine causes and find solutions, and acting decisively to implement solutions can resolve crises.

Carroll and Gillen (1987, p. 45), say that “managers, especially top managers, work from a ‘goal agenda’ which is a set of desired future states that they are trying to move toward . . .” This agenda is often analogous but does not necessarily duplicate formal organizational plans or vision. In contrast to organizational plans and goals, the managers agenda must remain flexible so that it may be adapted for unforeseen events (Kotter, 1982). Organizational plans and goals, created cooperatively by many people, are of necessity more formal. Organizational process requires that “plans be stated specifically so all individuals who are involved can understand them . . . [they] are themselves a means of coordination; this function cannot be performed unless they are spelled out in detail” (Carroll and Gillen, 1987, p. 45). Clarity and standards are particularly important with regard to the organizational culture and how people understand what tasks they are to accomplish and how they are to accomplish them (Boyatzis, 1982).

Morse and Wagner (1978), felt that a successful manager will display different behaviors depending on circumstance and his or her personal style. In managerial situations that require working through or with people, the manager will be more likely to be involved with motivation or conflict resolution, however, with complex external environments or in times of crisis, the manager may find that a variety of problem solving activities are most important. Problem solving may be more critical in dynamic and complex environments, where effective managers are called on to identify and analyze problems then implement appropriate solutions. For example, in studies of the military by Yukl and Van Fleet (1982), planning and problem solving proved to be of greater importance in combat situations than other leadership behaviors. Peters and Austin (1985), in an example from Rockwell International, tell of its CEO's efforts to solve engineering problems that had been recurring for 18 months. His process was to focus all his managers' attentions on solving the problems rather than merely trying to avoid responsibility through blaming others. He solved these problems in ten weeks by creating a critical situation for his managers, which forced them to focus on their part of the problem. Each Friday afternoon, managers were required to address the problems directly in a managers meeting, make firm plans to resolve them in the coming three to four days, and report their success to the group the following Friday.

Clarifying Roles and Objectives

Clarifying Roles and Objectives is a critical part of communicating policies and performance expectations to a subordinate or team member. It was an integral part of leaders effectiveness in the work of Yukl and Van Fleet (1982). In most cases, people prefer working in situations where roles and objectives are clear. Pepinski, et. al. (1959), found that productivity of teams was higher when working conditions were predictable than when they were not. Leaders who are most successful have been found to effectively clarify objectives while allowing the subordinate to solve

the problems with substantial personal discretion (Bass, 1990). The level of role clarity or ambiguity is a way to tell the level of group structure. To a certain extent, according to Bass (1990, p. 617), "clear objectives may substitute for structured relationships or clearer role relationships in getting the job done, particularly if little coordination is required." Furthermore, Trieb and Marion (1969), found that the employee who was fully oriented to their job at the point of hiring was more likely to be satisfied with that job and loyal to the company. "Satisfaction is strongly associated with the clarity of the position held and agreement about its importance, power, and what is required for satisfactory performance" (Bass, 1990, p. 163). It follows then that role ambiguity and role conflict tend to decrease the leaders performance and satisfaction.

Situational constraints on leadership behavior strongly influence organizational outcomes. "Any group behavior, any leadership, is related to situations that are external to the group or organization. . . . so-called crisis situations, are more important for the growth, or sometimes even the *survival of the system*" (Mulder et al., 1970, p. 20). Their theory rejects the idea that purely persuasive processes can always create consensus of opinion. This may be particularly true in times of crisis, situations where time pressure or insufficient information restrict process. Mulder et al. defines a crisis situation as (p. 37) ". . .situations where there is a greater probability that, under time pressure, values that are important to the system will be lost . . ." Role clarification should also be important under conditions in which the tasks to be completed are unstructured (House and Mitchell, 1974). Role clarification is also important when tasks are structured but difficult and skill or experience of subordinates is inadequate without considerable instruction and direction (Yukl, 1981).

Monitoring Operations and Environment

Monitoring Operations and Environment is the key to finding problems before they become too serious and allows for proper recognition and reward for achievement within the organization. Higher levels of internal monitoring are probably required when team members are inexperienced, their work require close coordination, or there is little room for error or failure (NRC, 1997). Performance monitoring, defined as collecting information about another person's performance, was a key difference in managerial effectiveness in a study by Komaki (1986). Effective managers, when compared to marginal managers, spent 50 percent more time in monitoring activities and focused on sampling and evaluating the subordinate's work. In British companies that have recovered from serious organizational decline, management's focus on the quality of staff and their skills was found to be important (Grinyer, et. al. 1990). It was found that senior managers had communicated a clear set of value systems to subordinates, which positively effected their work. The frequency with which management monitors work can give the impression that the work is of high value and therefore deserving of greater effort on the part of the worker (Larson and Callahan, 1990).

External monitoring is probably more important when the environment is complex, rapidly changing or is in some way hostile to the organization or its purpose. "One means of competing for policy-makers [managers] is to acquire superior information about the environment" (Daft et al., 1988, p. 123). Daft et al. calls this environmental scanning and its importance relates to how an organization adapts to its environment. Chief executives and senior managers are responsible for keeping the organization in alignment with its environment through formal and informal methods, which tend to complement each other. Primary factors of consideration are uncertainty, described as the level of complexity multiplied by the rate of change and importance of factors in the external environment relative to the organization's

success. Grinyer, et. al. (1990), identified the primary reason for decline of moderate sized businesses studied in Great Britain to be changes in the external corporate environment. In these cases, specific and adverse changes in the total market demand or ones coming from new competition, which had not been foreseen by management were the causes of decline.

Vision and Goals

The change from a narrow disciplinary approach, to one that embraces multiple disciplines cooperating to build an ecologically integrated future requires a transformation in organizational culture. According to Ott (1989), the type of leader needed is one “. . . who can literally transform an imbedded organizational culture by creating a new vision of and for the organization, successfully selling that vision by rallying commitment and loyalty to transform that vision into a reality.”

Change and Visionary Leadership

Change is required continually in today’s organizations to meet demands of the environment, customers, or citizens. Active leadership responds quickly to identify the need and create a strategic approach to adapt the organization. According to Belasco (1990, pp. 6-11), there are three elements to this strategic approach:

- Reposition products/services to build a competitive advantage;
- Talented people to execute the new strategies; and
- Organizational resources that tightly focus on the new strategies.

Belasco continues, emphasizing that

an energizing, inspiring vision is the key to mobilizing support. . . . [and that a vision] . . . identifies clearly for all concerned – employees, customers, and suppliers – exactly what the organization stands for and precisely why they should support it.

Successful visions, in the majority of cases, were fashioned by a large number of people. Vision development efforts were cross-disciplinary, multifunctional, and multi-organizational, to get the broadest support possible (p. 119).

Widespread participation empowers people. Empowering visions do not come down from the mountaintop – engraved in stone. Rather they are shaped – crafted – developed in cooperation with those who will live it. . . . People can only be empowered by a vision they understand. Understanding is enhanced by participation. Participation produces empowerment. So before you begin, check to be certain that your vision can be understood.

Support the change that you have requested with organizational systems that reinforce the vision.

Visionary Change and Organizational Systems

Certain organizational changes are required to support changes that come with a new vision (Belasco, 1990, p. 13).

Organizational systems give people the tools to use the new vision. They give people permission to use those tools. Performance systems guide day-to-day activities. They must expect, measure, and reward using the new vision. Human resource personnel and policies give permission to use the new vision tools. Selection, orientation, training, promotion, and compensation policies encourage the use of the vision. Last, the cultural system – heroes and symbols – subconsciously reinforce the use of the new vision.

In order for a vision to create the power to transform an organization, it must poses certain critical elements (Belasco, 1990). “Begin by identifying your unique strategic advantage. Untold numbers of products and services compete in the marketplace. How can you distinguish yours from all the others” (p. 99)? Strategic advantages the organization enjoys are critical, but they are not enough. Fulfilling the vision must add value to the lives of others: employees, customers and the society. Lastly, the vision must be clear. “Clarity is power. Clarity empowers people to use the vision as a decisional criterion to evaluate their actions” (p. 104). If people have

been supported in all other ways, then all they have to do is ask, "Does my action support the vision" (p. 104)?

Re-engineering: a Way to Facilitate New Vision

Re-engineering is one of the latest in a series of attempts to increase productivity in business through streamlining process – the way functions and departments fit together to perform tasks. Approaches to organizational change such as re-engineering rely on a clear vision of the future, to improve coming conditions rather than to merely avoid undesirable ones. Re-engineering is an appropriate metaphor for ecosystem management, in that both seek to radically change process to effect what the organization does. Davenport and Short (1990, p. 12) define business processes as "a set of logically related tasks performed to achieve a defined business outcome." Further, processes have two common characteristics, they have customers (either internal or external) and they cross organizational boundaries. Dixon et. al. (1994), found that successful re-engineering was characterized by a number of factors directly influenced by management. Among the most important accomplishments of management are communicating a clear vision of the future and specific goals for change, establishing clear milestones and measurements, and training staff members in teamwork. Dixon et al. also noted that all of top management must be involved and committed to the process for its success.

In order to proceed with re-engineering, first, upper management must develop a business vision and process objectives, which will fulfill that vision. At Xerox, according to an example given by Davenport and Short (1990, pp. 14-15), their "vision involved taking the perspective of the customer and developing systems rather than stand-alone products; both required cross-functional integration." Objectives are naturally suggested by any vision and deal directly or indirectly with

productivity; prominent objectives include: 1) cost reduction, 2) time reduction – speeding process, 3) optimizing output quality, and 4) quality of work life/learning/empowerment. Information technology driven redesign of process, because it cuts across many functions or departments, will likely meet resistance from various levels of management in the affected units. This and the tendency to resist change requires strong high level as well as broad, organization-wide support for the process. In addition to the issue of managerial support, another key issue is organizational structure that will direct implementation and continue the redesign process into the future. This again may create resistance due to fear of the loss of functional integrity. One solution (Davenport and Short, 1990, p. 23) “is to create a new organization structure along process lines, in effect abandoning altogether other structural dimensions, such as function, product, or geography.”

ORGANIZATIONAL LITERATURE

Adapting Organizational Forms

Rapid and unexpected change; complexity, depth, and specialization of knowledge; difficulties of integrating information and highly specialized and competitive people; and impersonal nature of leadership and communications all challenge the bureaucratic style in public administration. Though bureaucracy has strengths in managing the routine and predictable, its chains of command, rules, and rigidity make it ill-adapted for our rapidly changing political environments (Bennis and Slater, 1968). Its lack of flexibility in dealing with highly specialized, non-interchangeable people and knowledge and its lack of ability to handle special personnel needs suggest that the traditional form of hierarchical bureaucracy should give way to use of the matrix style organization (or other team-based structures). In structural terms, the rigid traditional bureaucracy is considered to be mechanistic,

while the more flexible systems which deal with non-routine conditions and environments are termed organic (Burns and Stalker, 1996; Gullet, 1975). “The matrix literature suggests that a complex, dynamic environment and the multiple, rapidly-changing opportunities and problems it spawns are the natural conditions for the matrix form,” according to Chadwin (1983, p. 306).

As the environments in which we function continue to change, becoming increasingly complex, fast-paced, and politically charged, our organizations are forced to adapt in order to remain effective. Hinings and Greenwood (1988), discuss archetypal forms of organization, which may be viewed as templates or points of divergence for continued development of organizational types and how change takes place. They note that change is often under managed due to “the lack of systemic frameworks available to managers for understanding and analyzing situations of major organizational transformation” (p. 4). They further argue that “organizations tend to operate and remain within the parameters and assumptions of any given archetype and find it difficult to move between archetypes. Such movements where they do occur represent a reorientation or transformation for the organization, i.e. a strategic design change” (p. 5). When such movements occur they will bring a strategic change in design.

Team-Based Organizations

Adhocracy

Temporary teams are the defining characteristic of the adhocratic organizational structure which is normally associated with individuals utilizing high levels of knowledge and high levels of intraorganizational specialization (NRC, 1997). Teams are generally made up of specialists from different disciplines or areas of expertise

within the organization. For short projects these individuals may be brought together until their work is completed and then go back to previous or on to new jobs. If the nature of team-based positions makes them continuous, individuals can remain in positions indefinitely.

The flexibility of adhocracy to adapt to rapidly changing environments is characterized by (Mintzberg, 1979. and Gullet, 1975): 1) de-emphasizing formal job descriptions and specialties, with individual selection based on knowledge and skill, 2) people in higher positions are not assumed to have greater knowledge, 3) departmental boundaries are flexible with horizontile relationships being more important than hierarchical ones, 4) organizational relationships are more collegial, particularly through the hierarchy, and 5) organizational structure is fluid and changeable.

Organizations should use teams in situations where they best fit the work of the organization and its overall strategy (Mohrman, et. al., 1995, p. 7). Because of tremendous environmental pressures to increase performance:

organizations must become good learning systems: they have to introduce improvements in their products and services, in the processes they use to deliver value to the customer, and in the ways they organize to carry out these processes. . . . A similar logic has been employed by current proponents of re-engineering, who recommend that cross-functional design teams radically re-conceive the processes employed to deliver value to the customer and then redesign the organization around these processes.

Integration is an integral part of team-based organizations (Mohrman, et. al., 1995). Integration of knowledge-work teams allows the contribution of multiple levels of expertise and perspectives to the understanding of the group and organization. However, it is essential that, in empowering teams to integrate laterally, organizational managers must communicate clear goals for the team and develop its

capacity to carry out tasks. Further, the organization needs to understand where in its structure teams make sense and what their purpose will be. Another reason for choosing this form is their speed or short time-to-market potential. Activities traditionally performed sequentially now become concurrent; product design and development of manufacturing processes inform and influence each other, to the organization's benefit. Teams are the best choice for projects if (p. 10):

they require on-line integration of highly interdependent performers. Team should not be established simply because there is the need for speed, efficiency, quality, innovation, and customer responsiveness. They should be established because a team structure is the best way to achieve the integration required to accomplish these strategic goals.

By its defining characteristics, an ad hoc team is composed of diverse individuals, brought together from separate locations to perform a temporary function. In temporary situations, normal control, reward, and advancement systems tend to break down, leaving team members and leaders without some of their primary ways of defining authority and direction. According to the National Research Council (1997, p. 33):

Widely accepted solutions have not yet been developed to the problems of team rewards, including compensation, and maintenance of technical expertise for experts whose team assignments do not provide opportunity for technical learning.

Network Organizations

A phenomena known as network organizations, driven by the same increasing levels of speed and complexity in society, has developed in the rapidly evolving business world. These organizations form partnerships to take advantage of each others strengths – to better compete in a partnership than as individuals. Three factors lead to successful and sustainable networks: know-how, a demand for speed, and trust (Powell, 1990). Companies are told they should be “focusing strategically on core

intellectual and service competencies” to increase their competitiveness (Quinn, 1992, p. 31). This is a process whereby a company expands its reach by doing what it does best and partnering with others who are best at other areas of the sphere of competencies necessary to operate. If a company is not best in the world at what it does, “the company is sacrificing competitive advantage by performing that activity internally or with its existing technique” (p. 33). The continued reordering of business has great implication for managers in competitive environments and how they choose to optimize efficiency of their organizations. Eccles and Crane (1988), discuss how investment banking, through customer pressure to increase value and diversification of products now available world wide, has been forced to move from a one-bank-to-one-customer orientation to a system of networked relations with otherwise competing banks. The drive to compete for customers is, ironically, creating a drive to partner with organizations that would otherwise be seen as competitors.

Kanter (1994), suggests that the being a good partner in business alliances can be a key corporate asset; a collaborative advantage. There are three fundamental aspects of business alliances (pp. 96-97):

- They must yield benefits for the partners, but they are more than just a deal. They are living systems that evolve progressively in their possibilities. . . .
- Alliances that both partners ultimately deem successful involved *collaboration* (creating new value together) rather than mere *exchanges* (getting something back for what you put in). . . .
- They cannot be “controlled” by formal systems but require a dense web of interpersonal connections and internal infrastructures that enhance learning.

Successful collaboration requires integrating organizations at several levels to create the communication, coordination, and access that builds lasting and productive ties.

Five levels of integration are reviewed (Kanter, 1994, pp. 105-106):

- *Strategic integration*, which involves continuing contact among top leaders to discuss brought goals or changes in each company. . . .
- *Tactical integration*, which brings middle managers or professionals together to develop plans for specific projects or joined activities, to identify organizational or system changes that will link the companies better, or to transfer knowledge. . . .
- *Operational integration*, which provides ways for people to carry out the day-to-day work to have timely access to information, resources, or people they need to accomplish their tasks. . . .
- *Interpersonal integration*, which builds a necessary foundation for creating future value. . . .
- *Cultural differences*, which requires people involved in the relationship to have the communication skills and cultural awareness to bridge their differences. . . .

Design and operational errors are the chief causes of the decline of network organizations. According to Miles and Snow (1992, p. 53), the most likely forecast for network organizations, is their decline. “As environmental changes accumulate, existing organizational forms become less and less capable of meeting the demands placed on them.” Managers tend to wait until environmental conditions overwhelmed the present organization, rather than making incremental changes as environmental conditions evolve. Alternately, incremental changes, if not properly considered, may move the organization away from its core competencies and “creating an idiosyncratic form highly dependent on a few key individuals or units to function” (p. 53).

Matrix Organizations

“The matrix literature suggests that a complex, dynamic environment and the multiple, rapidly-changing opportunities and problems it spawns are the natural conditions for the matrix form” according to Chadwin (1983, p. 306). The matrix, is also called the project organization or adhocracy. This organization is informal in nature, ideally recruiting the best people from various areas in what may otherwise

be a traditional organization or from other groups outside the organization. Individuals with narrowly defined expertise are placed together on specially designed teams to complete a specific task and will return to their normal working environment following completion.

Adhocracies are intentionally flexible in design to promote rapid response to a complex and fast changing environment (Mintzberg, 1993). Interactive roles and structures such as liaisons and cross-functional groupings characterize the adhocratic organization. The matrix is the best known type of adhocracy and may be identified by its overlay of normally separate functional and lateral groupings and that it may operate on a long term basis (Ford and Randolph, 1992). Project groups have members from different functional areas, meaning that each member will normally have two supervisors to report to.

Bowditch (1997), in discussing research on matrix organizations, states that dual reporting often leads to increased member stress through conflict and confusion and that loss of accountability results from overlapping jurisdiction and struggles for control. Therefore, the matrix form requires development of interpersonal and communication skills, as well as a transformational leadership style for the mutual adjustment process to function. Implementation of a matrix process is “a complex process that goes well beyond structural change per se, involving concomitant changes in organizational strategies, processes, behaviors, and culture” (p. 275). Under these circumstances, special care must be taken by leadership to assure that employees will adapt to this new system.

COMMUNICATION LITERATURE

“Organizations survive by making sense of and giving sense to their environments” (Sutcliffe, 2001, p. 197). They collect information in order to avoid or deal with

challenges or opportunities found in the environment. Information is processed internally and then returned to the environment to shape it and its perception of the organization. These processes are critical to organizations survival. Information collected and processed is believed by some to be more important to the organization than the decisions based on that information (Weick, 1974). Stohl (1995) defines organizational communication as

the collective and interactive process of generating and interpreting messages (p. 4) . . . [where] . . . messages are the primary means by which roles are clarified, social support is provided, power is realized, and coordination is made possible within an organization. Messages are, in short, fundamental to understanding our organizational experience (p. 48).

Information Processing

An organization's information processing system can be divided into several different functions: sensory systems to search out information, interpretation systems to transform data into information, storage systems, and routines to use information in the decision-making process. Daft and Weick (1984), note that organizations are concerned with an incalculable number of environmental events, but they act on only a limited number of these phenomena. What an organization does with information depends on its interpretation of that information. The definition of interpretation is: "the process of translating these events, of developing models for understanding, of bringing out meaning, and of assembling conceptual schemes" to organize and clarify meaning (p. 286). The overall process includes three elements: scanning, to collect data; interpretation, to give data meaning; and learning, where a new organizational response is manifest in some form of action. Learning, in turn, is defined as the process in which the organization comes to a more complete awareness of the effects of its relationship with the environment (Duncan and Weiss, 1979). These three functions form a feedback loop in which learning provides new information, which renews the process.

In the logistical view of information processing, organizational structures and functions as well as perception of its members can affect the way information is processed and use within that organization. Organizational structures and processes have the ability to enhance or impede the flow and understanding of information (Huber, 1982). Also, frequency of communication increase, according to Tushman (1979), with a greater amount of interdependence between organizational groups. The credibility of the source of information may determine whether it is accepted or rejected in the decision-making process (O'Reilly and Roberts, 1974). Credibility is of greater importance than perceived expertise associate with the source.

More recent work in information processing is based more on cognition and construction, which sees the process in terms of sense-making and learning (Daft and Weick, 1984; Thomas et al., 1993). This is seen in individual and collective activities to scan and interpret environmental information to increase the organizations understanding of its relation to and function in the environment (Daft and Weick, 1984). Transfer of information and inference of its meaning are primary parts of this communication process (Riley and Pondy, 1979).

In order to survive organizations must match the diversity found in their environments with an equal degree of organizational complexity, according to Weick (1979). This is the law of requisite variety. As a result, over the past decade we have seen that "organizational communication is taking on greater and greater degrees of flexibility, diffusion of function, and diversity of meaning" (Stohl, 1995, p. 6).

Organizational Communication as Network

Organizations are seen as an unending array of relationships that connect to and influence each other (Cooper and Fox, 1990). This is called “connectedness in action,” (Stohl, 1995),

[it] is much more than a ‘communication structure’ or an ‘information flowchart.’ It is a tapestry of communicating relationships, a complex, interwoven, symbolic fabric (p. 22). . . . Communication is collaborative and interdependent; there is no sharp dividing line between sender and receive. Each relationship and, hence each communicative act, is essentially connected with the rest of the network (through direct and indirect links) and it is in that context that it must be understood (P. 26).

The interpretation of messages is based on these complex social interactions and symbolic relationships. Organizations are conceptualize, by Sthol (p. 23), “as identifiable social systems of interacting individuals pursuing multiple objectives through coordinated acts and relationships.” Not all important relationships exist within a organization’s boundary, they may be indirect or “joined through multiple relationships in multiple contexts.” Some networks are formal and found in organizational charts, examples might be a project management team or a specific product development team. These are bureaucratically organized with prescribed roles and relations. Relationships are largely determined by organizational norms rather than individual preference. These networks, which are “relatively stable and enduring” (Monge and Eisenberg, 1987, p. 305) are only a small part of the total of organizational activity.

Unique new networks will spontaneously and continuously create themselves. “A prescribed organizational network provides pegs from which emergent networks hang” (Tichy, 1981, p. 227). There are several reasons for this, which may be seen particularly well in ad hoc or similar organic structures. First, formal design can never anticipate all communications needs in an organization. Second, formal design

does not account for the networks which staff bring to the organization across its boundaries. Finally, individuals will not necessarily conform to formal design in the ways they pursue their work and related communication.

Messages and Meaning

Messages are quite different things for receiver as opposed to sender. Anything that triggers meaning in a receiver's mind is a message. From the point of view of the sender, it must be remembered that messages are not discrete packages that can be directly transferred to the receiver. The sender distributes a stimulus, which is hoped will trigger the desired meaning in the receiver. According to Stohl and Redding (1987), messages can be divided into two types: ostensive messages, which represent the actual text the sender created and internally experienced messages, which include the meaning triggered by the ostensive message and other stimuli available to the receiver.

Meaning is further influenced by a variety of individual and cultural factors and understanding derived from within the organization and across its boundaries. Rogers and Kincaid (1981, p. 45) state: "the uniqueness of an individual's personal network is responsible for the uniqueness of his message." Differences in these areas, which mold the meanings in our messages, vary among cultures depending on the development of their communication networks, according to Hall (1980). Resulting communications may be divided into high context, in cultures with highly interconnected networks or low context, in cultures that are segmented or compartmentalized. Message quality then, is highly dependent on the level of development of the network and the experience of the receiver, particularly within the network and culture.

STUDY METHODOLOGY

This was a case study of the Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project), conducted between January and November of 1995. It depicted an analysis of the process of an ad hoc environmental assessment (EA) and preparation of two environmental impact statements (EIS). The purpose of the study was to evaluate the Project through information provided by the agency personnel involved. The Project was initially divided into two teams: the Science Integration Team (SIT) and the Eastside Environmental Impact Statement Team (EEIS). In the summer of 1994, a third team, the Upper Columbia River Basin Environmental Impact Statement Project (UCRB) was added.

A questionnaire was used to collect quantitative data and quantitative written comments in the summer of 1995, and face-to-face interviews (with some supplemental telephone interviews) were conducted in the summer and fall of 1995 to develop additional supporting information. Evaluation categories used to divide the study were: leadership, organizational dynamics, and communication/interpersonal dynamics. These categories were selected by the Project's Science Integration Team leader and a Social Science Team Co-leader, to evaluate specific areas of performance for management they desired to learn more about.

The study document was sent by the US Postal Service or, in bulk, by United Parcel Service, to selected members of the Project staff and leadership at their places of work, in the Columbia Basin area and elsewhere. Included in the packet that contained the questionnaire, were cover letters from the ICBEMP/UCRB Project leaders, a post-paid return envelope and a separate response post card to acknowledge return of the questionnaire.

The response post card was used to provide a record of who had returned the questionnaire, allowing follow-up reminders to complete the document, to those who had not. The response card also allowed those who desired a post-survey interview to indicate that wish by signing their name at the end of a statement requesting the interview.

SUBJECT SELECTION AND DATA ANALYSIS

The sample of approximately 200 people, drawn from the 600 plus people who had worked for the Project in some capacity, was assembled with the help of the Project's Administrative Officer. The criteria for selection were that a person should have made a significant contribution of either time, effort, or technical expertise to the Project, but did not have to be full time or in residence at one of the main work sites (Walla Walla, Boise, Coeur d' Alene, Portland, Missoula, or Wenatchee). People in the sample ranged from those that had worked for as little as one month to those who would be on the Project for over three years by its then anticipated completion and those who had expended as little as 10% of their professional efforts to those who were committed a full 100%.

The sample of staff and leaders who received the document was not randomly chosen, nor were statements intended to be relevant to any population other than the one being studied, so no inferences may be drawn directly on land management or other agencies based on these findings.

Accuracy of data used in analysis was verified by two researchers checking the computer output of raw data against the original questionnaires. This process required one person to read the output data, while another verified individual data points with the corresponding responses on each questionnaire.

QUANTITATIVE METHODS

The questionnaire was created to elicit information on each of the areas from the staff and leaders of the Project as well as agency leaders associated with the Executive Steering Committee (ESC), in the Forest Service (FS), and the Bureau of Land Management (BLM). The questionnaire was also sent to a small number of staff of other support or regulatory agencies that had individuals working on the Project (US Fish and Wildlife Service, Environmental Protection Agency, US Geologic Survey and the Bureau of Mines). All those who participated in the questionnaire were guaranteed that the information they provided would be used in such a way as to protect their identity.

The questionnaire was composed of fifty-one statements. Eleven statements were devoted to leadership, twenty-five to organization, and fourteen to communication/interpersonal relations. Individuals could react to these statements by choosing one option from a five-point Likert scale, represented by one of the following response categories: Strongly Agree, Moderately Agree, Neutral/Unsure, Moderately Disagree, and Strongly Disagree. The choice sequence, as it appeared in the questionnaire was: (SA MA N MD SD). To facilitate clarity in presentation, strong and moderate responses for both agreement (SA + MA) and disagreement (SD + MD) were aggregated. The three resulting values (Agree, Unsure, and Disagree) were coded and analyzed with SPSS version 6.1 to determine frequency and percentage of occurrence for each of the responses, by category. Statements were differentiated by demographic variables including: education attainment, government service (GS) grade, employing agency, Project team affiliation, professional background, and time involved with the Project. A Pearson's chi-square analysis was used to find significant levels of difference in perception within those demographic groups.

Most statements attempted to make one point and to address the Project in a neutral or positive manner rather than being critical. However, statements were mixed between positive and negative to prevent monotony and reduce the chance of respondents automatically giving the same answer throughout the questionnaire. In order to reduce the possibility that results of the survey as a whole were biased by the researcher's choice of statements, thereby framing the thinking of the respondents, the questionnaire began with an open-ended question, a request to the respondent to provide his or her ideas pertaining to how the Project had evolved and how well it was fulfilling the mandate under which it had been created. Additionally, an open-ended question allowing the respondent an opportunity to give his or her unstructured impression was placed at the end of each of the five evaluation categories. This question asked for suggestions to improve future projects of this nature (specifically relating to the topical area just completed). At the end of the document, a full page was designated for the use of the respondent, with instructions to use the space for any ideas or comments that had been missed in the questionnaire or any important points that had come to mind as a result of completing the process.

QUALITATIVE METHODS

In order to better understand the process of the ICBEMP/UCRB and allow staff to develop their own thoughts and ideas or expand on statements made in the questionnaire, written responses were encouraged. Space was provided with the suggestion to discuss at length, what they felt were the good points of the Project, points that could be improved, and anything that should be avoided in the future. Space for comments was provided before starting the questionnaire, after each set of statements, and at the end of the document. Open-ended questions were used to gather supportive material, as an aid in creating additional interview questions, and to help focus discussion during face-to-face and telephone interviews, which

followed the questionnaire. Criteria for selection to be interviewed included any of the following: 1) the request to be interviewed, 2) a position of leadership within or related to the Project, 3) a position of other importance, as indicated by interrelationships or job assignment on the staff, or 4) comments made by staff indicating that a particular person might have important information or contributions to make to the study.

The questionnaire response card (discussed above) allowed any respondent to request an interview by signing in the appropriate place when returning it. Because the post cards were sent separately from the questionnaire, this would maintain the anonymity promised. A maximum of 5 percent of the Project's staff were expected to be sufficiently motivated to request an additional outlet for their feelings about the Project. Staff showed a much stronger interest in the evaluation of the Project than was anticipated, 52.89 percent or 64 of 121 respondents requested a personal interview. Additional interviewees were selected at the researcher's discretion, but always with the individual's consent.

In framing the interview, the researcher would introduce himself, state that the interview was, in part, designed to fulfill requirements of a contract with the Forest Service's Pacific Northwest Research Station designed to evaluate the ICBEMP/UCRB, that the report would also serve as an institutional memory for the Project, and was a basis for a doctoral dissertation. To reduce the potential for the researcher guiding the context or content of the interview, the interview session would begin by asking the individual for their impressions of the Project's successes and failures. The specific question asked was: what were the things that were done well that should be carried forward, what were the problems that could be or were corrected, and what are the things that are unworkable and should be avoided in the future.

All those interviewed, with the exception of the Project Leadership Team (PLT) and the Executive Steering Committee (ESC) were assured the same confidentiality that they had been promised before answering the questionnaire.

In the presentation of qualitative results, both written comments provided on the questionnaire and material from the interviews was used. Written results were transcribed to a database where they could be segregated by questionnaire number and their category (leadership, organization, and communication/interpersonal relations), for easy retrieval. No attempt was made to correlate the quantitative and qualitative information from individual questionnaires. Interviews were tape recorded and also contributed to the quantitative results.

A potential bias exists in the quantitative information. It may be that staff members who were unhappy with the Project were more likely to vocalize their feelings than those who were content with the process. This may be true with the written comments as well as with the interviews. The written comments represent the majority of the qualitative results found in the results chapter (4). The opportunity to comment was fully accessible to all who responded to the questionnaire and therefore, may be more reflective of the feelings of the staff as a whole. Most interviews came from people who requested an opportunity to discuss the Project at greater length. These may be biased because they may disproportionately represent those who felt that the Project had some problems. However, a large portion of interview material used in the quantitative results section came from key staff members that the researcher planned to ask for interviews, regardless of their expressed interest in discussing the Project.

RESULTS

QUANTITATIVE RESULTS OF QUESTIONNAIRE

Quantitative results depict an analysis of the responses of staff members of the Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) to a questionnaire presented to them. Three broad categories divided the study: leadership, organization, and communications/interpersonal relations. Within these categories, working assumptions framed statements designed to elicit feelings of the staff about the project they work on. In numerous instances, staff indicate they are unsure about their position on a statement. This could be due to not being familiar with that area of the Project, not wanting to be critical or take any sort of position on a specific subject, or some other unknown reason.

Leadership

The primary task of leadership is to guide an organization toward goals which have been defined for it by political authority or that leadership has developed in cooperation with organization members and constituent groups. Leadership must respond to personal idiosyncracies and internal dynamics of the organization as well as the complexity and intensity of its external environment. The Interior Columbia Basin Ecosystem Management Project faced many external forces: a politically mandated overall goal, a restricted time horizon, a first lavish and then limited budget, and pressures from diverse constituent groups. Three working assumptions were designed to help model appropriate leadership activities and were based on traits and practices of high quality leadership found in current literature.

Assumption One: Guiding With Vision

Leadership, within the ICBEMP and in the agencies that formed it, has clearly defined and communicated the vision and goals of the Project to all staff members.

Two statements explore this assumption to determine the extent to which leaders within the Project understood the critical need to provide a compelling vision, goals, and solid objectives that would clarify a desired direction for staff and inspire them to commit to that vision, as well as guide the processes toward desired completion points (Katzenbach and Smith, 1993; Belasco, 1990; and Dixon et al.). The following survey results will help us to see whether the staff felt leaders communicated what the organization was about and what the staff's work should look like and do.

Statement 1: There are a clearly defined vision and set of goals that have been created for the ICBEMP.

Project Total: Agree = 61%, Unsure = 6%, Disagree = 33%

The majority of respondents to this generally worded statement indicated that they believed the leadership framed the Project with a clearly defined vision and goals, while one-third disagreed.

Statement 2: Goals for Science Integration and EIS teams have been translated clearly into operational terms to keep us moving in the right direction.

Project Total: Agree = 35%, Unsure = 18%, Disagree = 47%

Statement 2 was designed to elicit responses reflecting the individual's personal experience of how organizational goals guided them toward fulfilling the organizations objectives, rather than a general statement of belief. An interesting shift occurred, with a drop of 26 points for those who agreed that the vision or goals created kept them moving in the right direction.

The ability of leadership to set an overall vision and communicate goals that affect the organization in a desirable manner was also viewed in greater detail within a subset of the overall population studied. The following point represent a demographic break-down of responses for team membership on the Project: Science Integration Team (SIT) & Project Leadership Team (PLT)

SIT:	Agree = 44%, Unsure = 3%, Disagree = 53%
PLT:	Agree = 11%, Unsure = 33%, Disagree = 56%

The Science Integration Team (SIT, n=34), and the Project Leadership Team (PLT, n=9), differed on the question of goals (p-value = .01026). While a majority of both teams disagreed that goals had been clearly translated into operational terms, most of remaining SIT members supported the statement and PLT was unsure.

Assumption Two: Flexibility and Integration

Leadership styles which encourage maximum flexibility and creativity in staff, also are most efficient and effective in motivating, focusing, and guiding a large group with very diverse disciplinary backgrounds, to integration and completion of a complex series of tasks.

This assumption examines the degree to which leadership was able to focus the energies of staff on the specific tasks required to complete the Project in a timely

and effective manner. In situations where highly trained professionals are employed, their training and affiliation normally mean they have more freedom to direct their own work (Mintzberg, 1983). "Not surprisingly, if given a chance, scientists will turn the pragmatic question of policy-makers into a search for understanding . . ." (Johnson and Herring, 1999, p. 346). As a result, particularly when dealing with professionals, planning, communicating policy and performance expectation, and clarifying objectives are key behaviors for leaders in order to manage work (Yukl and Van Fleet, 1982; Bass, 1990). The following information was gained through staff responses to six statements on the questionnaire.

Statement 1: Project leadership encourages professional creative freedom and self-directed inquiry.

Project Total: Agree = 73%, Unsure = 16%, Disagree = 10%

Responses to this statement indicated a very strong agreement with the presence of academic freedom, with only 10% disagreeing.

Statement 2: Leadership encourages new ideas from staff that expand the vision and goals for the Project.

Project Total: Agree = 65%, Unsure = 19%, Disagree = 16%

Agreement was only slightly reduced when the statement focused on allowing new ideas that enlarge the Project's vision and goals, which could be considered a type of academic freedom.

Statement 3: Changes are readily made when a more effective or efficient path is found.

Project Total: Agree = 46%, Unsure = 27%, Disagree = 27%

Those agreeing were less than a majority of staff. Agreement was 27% lower than the original statement that, professional creative freedom was encouraged.

Statement 4: Staff and leadership normally spend as much time in Walla Walla (or other work centers) as is requested.

Project Total: Agree = 39%, Unsure = 33%, Disagree = 29%

Time that staff and leadership spent at headquarters or other primary work centers, may have been one measure of the extent to which staff was motivated and focused or available to work on Project activities. Those in agreement represented a small plurality over those who were unsure or in disagreement.

Statement 5: Leadership is able to manage the complex integration process well.

Project Total: Agree = 35%, Unsure = 30%, Disagree = 36%

Those who agreed and disagreed were essentially equal, with a slightly lower number unsure.

Statement 6: Scientific integration is working well.

Project Total: Agree = 29%, Unsure = 30%, Disagree = 40%

A plurality of Project staff felt that integration was not going well. Nearly a third were unsure, while a similar number felt integration was going

Assumption Three: Leaders Working Together

Leadership for the ICBEMP is focused on and accountable for attainment of Project goals; it guides the process in an efficient and effective manner.

This assumed that leadership would work as a team to reach Project goals. Top leadership must be involved in and committed to a process in order for it to succeed (Dixon et al., 1984). Katzenbach and Smith, (1993, p. 131) state simply that “successful team leaders instinctively know that the goal is team performance results instead of individual achievement, including their own.” Teamwork throughout the organization should mirror how well those in positions of power create a functional team to manage the Project. The following results were gained through staff responses to two statements on the questionnaire.

Statement 1: Leadership at different work centers (Walla Walla, Boise, Portland, etc.) work well together to reach Project goals.

Project Total: Agree = 21%, Unsure = 28%, Disagree = 51%

A slight majority of staff indicated they believed leaders did not work well together. Nearly a third of staff were unsure and one-fifth felt leaders did not work well together. The following represents subsets of the Project total in statement 1, that

compared individuals based on their stated professional background, comparing administrator with scientist and with specialist:

Administrators:	Agree = 35%, Unsure = 0%, Disagree = 65%
Scientists:	Agree = 15%, Unsure = 50%, Disagree = 35%

Functional roles prior to the Project, significant differences (p-value = .00054) appeared between those who identified themselves as administrators (n=23) and those who were scientists (n=20). A large majority of administrators disagreed that leaders worked well to reach Project goals. Half of the scientists were unsure, while a third felt leaders did not work well together.

Administrators:	Agree = 35%, Unsure = 0%, Disagree = 65%
Specialists:	Agree = 20%, Unsure = 25%, Disagree = 54%

In a different matching in the same subset, administrators (n=23), also differed significantly (p-value = .02225) from specialists (n=59). A majority of both groups disagreed that leaders worked well together to reach Project goals. Administrators were higher in agreeing and disagreeing, while a quarter of specialists were unsure and over half disagreed.

Organization

The way people are organized has a great deal to do with the way they should be managed, who is considered to be a leader, and how individuals of the group relate to each other. Misunderstanding the organizational system and its requirements may cause managers to be ineffective or become counterproductive in managerial activities. Three working assumptions were designed to help model appropriate

responses to the organizational structure used for this project and were based on successful practices found in current literature.

Assumption Four: Adequacy of Staffing

Staffing of the ICBEMP is at the most efficient and effective level based on adequate numbers of people, with the most appropriate education, experience and authority being found in scientific, administrative, and support positions.

Complex and fast changing environments have led to new organic organizational systems. An ad hoc project organization is designed to adapt to that environment through its great flexibility in staff selection, work relationships, and structural fluidity (Mintzberg, 1979; Gullet, 1975). The objective of this flexibility is to gather individuals whose talents and abilities can best address organizational goals and objectives for which the project was created (Mohrman, et al., 1995). The questionnaire used four statements to explore how staff was selected, placed, and empowered to act.

Statement 1: There are adequate numbers of people working within each of the Science Integration and/or EIS teams.

Project Total: Agree = 40%, Unsure = 25%, Disagree = 35%

Slightly more staff felt that there were enough people working within each of the teams, though a majority were either unsure or disagreed. The following is a subset of this statement relating to team job assignment, comparing the Project Leadership Team (PLT) & Science Integration Team (SIT):

PLT:	Agree = 56%, Unsure = 33%, Disagree = 11%
SIT:	Agree = 34%, Unsure = 6%, Disagree = 60%

Members of the Project Leadership Team (PLT, n = 9), who are directly responsible for managing daily Project activities, differed significantly with those on Science Integration Team, composed of all science team members (SIT, n = 35), with a p-value = .01075. A majority of the PLT felt there were adequate of numbers of staff, while a majority of the SIT indicated that numbers were not adequate. The PLT also had a high level of those who were unsure. A second subset explores professional background, comparing administrator and scientist:

Administrator:	Agree = 57%, Unsure = 22%, Disagree = 22%
Scientist:	Agree = 25%, Unsure = 15%, Disagree = 60%

In this similar subset, members of the Project who identified their previous career path as administrator (n = 23) or scientist (n = 20), differed significantly (p-value = .03402), in responses to adequacy of numbers of staff. A majority of the administrators felt that team staffing was adequate, while a majority of the scientists, who were doing the scientific work, felt that the staffing was not adequate.

Statement 2: Project staff provides an adequate array of skills to properly conduct this project.

Project Total:	Agree = 67%, Unsure = 13%, Disagree = 20%
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A strong majority of staff agreed with the statement that an adequate array of skills to complete the Project's work was found within the staff. The following subset of

this statement explores professional background, comparing scientist with administrator and scientists with specialist:

Scientist: Agree = 40%, Unsure = 10%, Disagree = 50%

Administrator: Agree = 83%, Unsure = 13%, Disagree = 4%

Scientist: Agree = 40%, Unsure = 10%, Disagree = 50%

Specialist: Agree = 73%, Unsure = 10%, Disagree = 17%

Three categories of professional, identified by previous career path, reveal significant differences in how the diversity of skills assembled for the Project were viewed. Differences between how the scientists (n = 20) and the administrators (n = 23) had a p-value = .00261 and scientists differ from specialists (n = 60) with a p-value = .00990. In both comparisons the scientists were more in disagreement, with a near majority, at 50 percent. The administrators' and specialists' responses indicate that they felt very strongly that the Project had been staffed with an adequate array of skills.

Statement 3: Personnel hold positions for which their backgrounds (education, skills and experience) make them particularly well suited.

Project Total: Agree = 68%, Unsure = 17%, Disagree = 15%

Statement 4: The best people available are working on each Science or EIS team.

Project Total: Agree = 48%, Unsure = 25%, Disagree = 27%

Assumption Five: Geographic Separation

The working environment is designed to most efficiently utilize the time and energy of staff by focusing their efforts on the scientific, planning, or administrative work to be done; geographic groupings of offices and assignment of personnel reduce unneeded travel and improve communications to support group integration.

“Leadership depends on interaction. Interaction depends on physical proximity, social and organizational propinquity, and networks of open channels of communications,” according to Bass (1990, p. 658). Structural and cultural integration of existing organizations and their individual members may be enhanced by a physical setting and optimal structural design. Mohrman, et al. (1995) suggests that organizations have to improve the ways they organize to deliver value to customers. Referring to network organizations, Kantor (1994, p. 106), says that collaboration requires integrating organizations at several levels to create communication, coordination, and access. “Operational integration . . . provides ways for people to carry out the day-to-day work [and] to have timely access to information, resources, or people they need to accomplish their tasks . . .” Client accessibility to the organization and the access of team members to each other important functions to consider in developing an organizational structure. The following two statements explore how widely separated offices were perceived by staff.

Statement 1: Distance between work centers does not hurt communication
between or within ICBEMP teams.

Project Total: Agree = 9%, Unsure = 14%, Disagree = 78%

Staff were in extreme disagreement with the statement that communication was not hindered between or within ICBEMP teams by the distance between work centers. Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) staff felt that distances between Project work centers hurt communication and was not beneficial in general.

Statement 2: Geographic separation of the ICBEMP work centers (i.e. Walla Walla, Boise, Portland, etc.) is working well.

Project Total: Agree = 16%, Unsure = 14%, Disagree = 70%

Staff strongly disagreed with the statement that geographic separation of work centers was working well. The following subset examines differences from the perspective of the length of time staff had devoted to the Project and its activities. Subsets compared were those who spent up to 75% and those spent 76 through 100% of their time:

0 – 75%	Agree = 16%, Unsure = 28%, Disagree = 56%
76 – 100%	Agree = 14%, Unsure = 8%, Disagree = 79%

Those who had devoted through 75% (n = 32) as compared to those who spent 76% through 100% (n = 79), showed a significant difference in whether geographic separation was functional (p-value = .01284). The 76% through 100% group, most of which were full time, were more strongly in disagreement than the 75% group. Neither group felt that separation worked well.

Assumption Six: Adequate Support for Staff

Material and financial support needs, as well as the need for adequate time to complete the chosen process, are fully met throughout the Project, to ensure a timely and successful conclusion to the overall goals of the Project.

People's material needs must be met in order for them to adequately perform the tasks to which they are assigned. The proper equipment must be available to facilitate tasks, finances must be adequate to pay for raw inputs and salaries, and adequate time must be allowed for a professional product to be produced. When working groups are interdependent, material shortages for one group may affect the performance of other related groups or the organization as a whole, where the finished product of the first group is the raw product of the second. The following three statements examine staff feelings about the adequacy of materials, budgets, and time.

Statement 1: Materials and equipment, such as computers, are adequate to meet Project needs.

Project Total: Agree = 74%, Unsure = 13%, Disagree = 13%

Staff were strongly in agreement, that material and equipment was adequate for project needs.

Statement 2: We have enough money to do what we need to do.

Project Total: Agree = 64%, Unsure = 15%, Disagree = 21%

Responses were strongly in agreement that the project was adequately funded.

Statement 3: We have as much time, as is reasonably required, to complete a quality finished product.

Project Total: Agree = 30%, Unsure = 8%, Disagree = 62%

Communication/Interpersonal Relations

Communication and direction of staff within the Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) should effectively transmit expectations along lines of authority and throughout work related teams. Also, if proximity to clients is an indication of enhanced communication and greater access for clients, the organization of ICBEMP into a structure with offices and personnel across the Columbia Basin would be expected to lead to a greater level of contact and communication with Project's constituents, one of the primary stated goals of the Project. Two working assumptions were designed to help model appropriate internal and external communication activities and were based on successful practices expected to be used by the land management agencies.

Assumption Seven: Internal Communication

Information, including scheduling of meetings and activities, expectations for content of reports from each discipline, and/or visions and revisions of goals and time-lines are clearly communicated, updated as necessary, and readily available to all members of the ICBEMP.

Assumption seven explores the basic communication between Project leadership and staff and how well staff understood their work assignments. Mohrman et al., (1995, pp. 182-183), stated that increased amounts of information are required to integrate work in team based organizations.

This means that information regarding the bigger picture – information relevant to how the various parts fit together – must be widely held throughout the organization. The sharing of relevant information must be multidirectional. Big-picture information needs to be shared hierarchically (from higher systems to lower systems) but also laterally (from one performing unit to another).

“Leaders of top performing teams believe they cannot succeed without the combined contributions of all members of the team to a common end . . .” (Katzenbach and Smith, 1993, p. 131). The following uses responses to two statements to determine the success of informing people in the general work environment and more specific aspects of individual work that was to be completed.

Statement 1: Communication within the Project keeps us aware of important activities, meetings and other important information related to our work.

Project Total: Agree = 58%, Unsure = 13%, Disagree = 30%

A majority of staff indicated that they felt communication in the Project kept them aware of activities and other important work related matters. A third disagreed.

Statement 2: The nature and standards of the product I was expected to deliver were clearly communicated to me when I joined the Project.

Project Total: Agree = 38%, Unsure = 12%, Disagree = 50%

Half of the staff expressed disagreement with the statement that they had received clear communication regarding the nature and standards that were expected for their

work. This was a major shift in opinion from the first, more generally worded statement in which the staff agreed they had been kept aware of activities, meetings and other important information related to their work. Those agreeing were 38%, 20 points lower than statement 1.

Assumption Eight: External Communication

Decentralized work centers for the ICBEMP create an improved communications environment between the Project and its many constituent groups.

“Interaction depends on physical proximity, social and organizational propinquity, and networks of open channels of communication,” (Bass, 1990, p. 658). In 1982, Bass concluded that physical distance among organizational entities increased the need for management coordination. In similar situations, Hage (1974) found greater intensity when the face-to-face meeting did occur. Modern technology provides some ways to overcome communication problems related to distance (Bass, 1990). Four statements explored what effect the decentralized organizational structure of the Project work centers had on communication with interested constituent groups. The first statement examined whether decentralized offices enhanced the presentation of information to the public. The inverse, whether groups had greater access to Project offices due to decentralization was examined with statement 2. Statement 3 examined whether constituents were felt to have had adequate access to the Project, while statement 4 asked if they should have been given greater access.

Statement 1: Decentralized work centers (Walla Walla, Boise, Portland, etc.) provide a greater outflow of information to constituent groups of the Project.

Project Total: Agree = 43%, Unsure = 30%, Disagree = 28%

Though overall staff responses appeared ambivalent, there was a plurality of those in agreement over those who were unsure or in disagreement.

Statement 2: Constituent groups have greater access to the Project due to decentralized work centers (Walla Walla, Boise, Portland, etc.).

Project Total: Agree = 45%, Unsure = 26%, Disagree = 29%

Overall responses continued to show ambivalence, much as was found in statement 1. Those who agreed that constituent groups had greater access to the Project because of the decentralized nature of Project offices again have a plurality.

Statement 3: Constituent groups are informed of Project intents and invited to participate in its process.

Project Total: Agree = 77%, Unsure = 13%, Disagree = 10%

A large majority agreed that constituent groups were informed of Project intents and invited to participate in its process. Few were unsure or in disagreement.

Statement 4: Constituent groups should have greater access to contribute to the process.

Project Total: Agree = 40%, Unsure = 35%, Disagree = 25%

Responses returned to ambivalence regarding whether constituents should have greater access to contribute to the process. Agreement received a plurality over

those who were unsure, while those who disagreed constituted one quarter of respondents.

Assumption Nine: Interpersonal Relations

Throughout the ICBEMP staff, the success of the project in meeting its goals is the top priority, being placed before any goals or desires for personal betterment through promotion or pursuit of personal agendas.

Clear communication, the ability to listen, to express ideas and feelings, and to disagree, are required interpersonal skills for teams and their leaders (Mohrman, et al., 1995). Accomplished leaders understand that productive teams result when individuals communicate successfully to arrive at team goals (Katzenbach and Smith, 1993). In a process, which would rely on teamwork and a high degree of communication to integrate people and ideas coming from diverse disciplines, agencies, and cultures, a strong desire for the Project's success should have been a basic criteria for employment. Who the leadership chose to staff the Project and how they were selected, indoctrinated, and supported would have a great deal to do with the success of interpersonal relations and, in turn, the Project. The following two statements were used to determine the staff's feelings about interpersonal relations.

Statement 1: Personal egos have not caused any problems for the ICBEMP.

Project Total: Agree = 12%, Unsure = 19%, Disagree = 70%

A large majority of staff felt that personal egos had caused problems for the Project. Only 12% said that they thought that egos had not been a problem.

Statement 2: Obstructionist or difficult personalities have been appropriately managed by leadership.

Project Total: Agree = 25%, Unsure = 24%, Disagree = 51%

A slight majority indicated that they felt difficult egos on the Project had not been adequately managed by leadership. Only 25% felt leaders had done an adequate job of managing obstructionist and difficult personalities.

QUANTITATIVE RESULTS: WRITTEN AND ORAL

Qualitative results were primarily drawn from two sources: 1) written comments made in spaces provided on the questionnaire and 2) interviews done with staff after the questionnaire had been completed. Information provided by staff from both sources was strongly slanted towards problems and corrections they felt were needed in the Project. The researcher has attempted to balance the presentation here, to be representative of what was supplied by staff. Over half of the quantitative results were derived from written comments. It should be noted that people who were comfortable with the progress and content of the Project may have been less inclined to make comments, to that affect or at all, than those who felt there were problems and wished to see them addressed. The qualitative results section follows the established pattern of dividing material into three categories: leadership, organization, and communication/interpersonal relations.

Leadership

Vision

The magnetism that brings and holds an ad hoc project together is the vision for that project, commonly held by all staff members (Belasco, 1990). This vision portrays a final condition or products to be created, but in the case of the Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project), where diverse interests and world views are to be integrated, vision must also include process by which the final goal will be achieved (see Davenport and Short, 1990; Dixon et al., 1994). The Science Integration Team leader stated on several occasions that, “the vision which would guide and unify the Project is contained in the charter.”

However, a planner with regional experience said that, in January of 1994, the “. . . initial EIS [charter] was very narrow, [and gave] just enough [direction] to satisfy Pacfish [a plan to address anadromous fish habitat in part of the Columbia Basin].”

The charter indicated that this Project was to be integrated on many different levels in order to create ecosystem management. It discussed the fact that the final products (e.g. Scientific Framework, Scientific Assessment, Environmental Impact Statement, and Scientific Evaluation of Planning Alternatives) should link together and would be created from integrated output of all the disciplines utilized in the science assessment. A key deficiency noted by one of the leading scientists on the Project was that “no-one really understood what ecosystem management was and this made everyone very uneasy.” This was clear to an ESC member who said: “‘Ecosystem management’ is a term few understand and that makes it threatening” and it also creates additional political problems with “private property rights and local rule politics have played a major role in the controversy.”

Though ecosystem management depended on integration, as was stated repeatedly, efforts of Project leadership to bring scientists together were weak or ineffective. A manager in a protesting tone said: "There was never a vision for what the project was intended to accomplish, only an amorphous, administratively driven charge to carry out 'ecosystem management.'" A manager from the Boise office noted problems that contributed to the ineffectiveness:

. . . methodologies were never clear. This was in part due to the complexity of the tasks, but also in part due to leadership not understanding process. . . [and] . . . even with the hundreds of notes, meetings, etc., I still never felt that anyone ever had a clear grasp of the total project.

"Within the SIT there's much disagreement about our objectives and the role of science," according to a science team co-leader.

Many of the so-called scientists [National Forest System personnel] are really regional office staff employees who view their role as supporting the EIS rather than being scientists. This has caused them to ignore levels of analysis that could help set the broader context and instead to dive right into management-level detail the SIT was supposed to ignore.

A science team staffer outlined several specific problems, which supported the need for a broader Project vision:

This project lacks focus in some very important ways . . . the purpose of this regional scale plan (EIS) has not been adequately debated nor clearly articulated . . . what must this regional effort be relative to the next smaller scale for planning? What is uniquely regional? What is best left to other planning levels? This relates closely to the decision to be made. I think the SIT and EIS teams could have been much more focused in this work if this were better clarified. Additionally, alternative development would have benefitted.

The science co-leader added that, one problem for the science team was that a subgroup had just completed the Eastside Forest Health Assessment and came in with their minds made up about what they were going to do. They were unwilling to compromise to meet the needs of other staff areas – i.e. provide information and levels

of resolution or types of information other staff areas depended on for their analysis.

Creating Understanding to Guide People

One specialist created a metaphor for lack of direction the project was experiencing:

if you are building a truck and you need wheels for the front of it, you don't just ask for wheels. You might end up with wheels for Volkswagen, when what you really wanted, were wheels for a Mac. You have to specifically define what you want or be prepared to accept anything.

By the summer of 1995, eighteen months into the Project, a clear division was seen between those who identified themselves as administrators or scientists. The question of a clearly defined vision which focused the Project staff on achievable goals and objectives differed significantly between these two groups. Over half of each group felt that leadership had not provided clear, operational direction for completing the Project. It is noteworthy that only one member of the Project leadership felt that goals had been clearly translated into operational terms to move the Project in the right direction. Supporting the majority view, one leader said: "The weak part of the project has been lack of project leadership in guiding science team integration early on. This probably contributed to several months of lost time, while individual teams searched around for objectives and process." A scientist and subgroup leader added: "If I had been aware of how the team leaders conceived of the project, I would have organized differently to more fully address my topic."

A specialist with 20 years experience commented that there was, in typical forest service fashion "no attempt by leadership to familiarize or introduced me to the project. I was left to sink or swim on my own." Numerous people commented on this lack of direction and on the vast amount of information that, because of inadequate focus on which data to collect, would not be used by the Project. In

pointing this out, one upper level scientist said much information was either “inappropriate or not appropriate to the project context.” A regional planner was more concerned with the potential effects on quality:

the feeling I have is that we are going to have spiky information, some info[rmation] that is very good and well laid out and we're going to have other info[rmation] that is so general and done at such a fast pace that its almost going to be worthless.

The last shortcoming of the poor vision as applied to information gathering, according to several staff members, was the potential for gaps in the information. Information produced under a regime, which lacked adherence to a well focused vision, in the end, was said to be ineffective in three ways: producing unutilized detail, being inappropriate to the Project's context, and leaving gaps in knowledge.

Directing and Bringing People Together

One of the science co-leaders discussed the difficulty that the Project's leadership had with uniting staff under common goals:

They [science team members] didn't want to agree on common protocols and killed our goal for integration . . . instead they said, let us alone and let us collect our data, we'll get done and then we'll do this kind of stuff [process work to integrate science findings].

During the same time period, similar problems were occurring with similar results in the EIS team, according to the same science co-leader,

The EIS team refuse to deal with provinces [ecologically similar geographic areas] and now that haunts us because that's the level at which we have to model differences at. . . . They put things like that off to the end, there was too much emphasis on data collection. Project leadership was unable to force those issues. They didn't have a sense of where [the process] was going.

A member of the ESC showed he clearly understood the lack of direction toward integration and its probable outcome: “While I agree that [complete professional

freedom] is happening, this does not necessarily lead to an effective, adequate and timely project – giving complete freedom in this area would never bring this project to conclusion.”

Leaders must have the ability to set the direction and pace of work. “In projects like this,” according to one scientist, “you need to be really be careful how you select your leaders, in the attributes of those leaders.” Asked if the leaders failed to focus the process well enough, the scientist answered, “Yes.” In this Project the scientific staff set the direction, extent, and pace of work.

Most staff agreed that leadership had flexibility to make changes when a more effective or efficient path or strategy was found. One exception to this was a science team co-leader who was frustrated because the leaders had not handled the integration process well, had created staff dissension with the lax treatment of absentee leaders, and in some cases had not insured equality among the science teams. The manager said that much effort had been wasted, the manager felt “talent to make this [project] happen was actually in place, but people were miscast into the wrong roles [ICBEMP leader and SIT leader], and good ideas [process that would support integration] were suppressed.” Comments on the overall direction of the Project and handling of personnel were supported by other staff.

The same science team co-leader expressed specific concerns about the lack of progress with integration and felt leadership was reluctant to make helpful adjustments. The leader was quite vocal on these points, but generally ignored by most Project scientists who represented predominant disciplines such as aquatics, wildlife, and terrestrial ecology.

[L]eadership could not even promote a necessary cohesion to allow a real organization to form[,] to develop, from below, permitting a collective

approach to define the work. On the contrary, every time an effort emerged from the staff to map out a strategy to organize and allocate the tasks, the leadership sabotage, ignored, or flatly rejected the proposal.

Many individuals shared this leaders feelings, especially on the Social and Economics Teams. The Science Integration Team leader said that, at the beginning of the study, the policy had been to allow everyone to contribute to the planning and formation of the Project. It was not said, among staff, that too much latitude had been allowed the staff to organize in these ways.

Availability of Key Staff Members

An area of concern expressed by a number of staff was off Project work competing for members time. A number of the primary scientists maintained part of their previous work after being assigned to the Project. One of these individuals commented that after “almost two years . . . I'm still working on the project and trying to balance two jobs, even working 50 hour weeks, I have not been able to do both jobs to my satisfaction.” One research scientist said he would like leadership to “free us fully from other commitments – or allow us to honor previous commitments, while not demanding our presence and work at those times!” This scientist, like some Forest Service and BLM analysts said he was assigned full-time responsibility with the Project, but still I asked to keep up with previous duties. Research scientists said they faced the loss of ongoing research they were engaged in before the Project, if it was left unattended while they did Project work. Also, National Forest System analysts could suffer similarly from losses of field season opportunities, continuity, or funding for unattended work. Particularly for the research scientist, who said this became a professional advancement vs. Project completion conflict because work done on the Project would probably not be viewed as favorably to support continued promotion and stature in their scientific communities.

Problems of tension between those living in the Walla Walla and those living elsewhere was discussed in detail by a scientist. His perception was that there is

a perennial problem [in cultural perception], . . . you've got scientists and then you have got analysts [often PhD's with equal training who worked for the NFS]. Analysts are used to working in teams situations where if everybody was happy, they were good, but [if] anybody was unhappy they would need to talk about it. Scientists don't work that way.

A manager with the Project, living in Walla Walla, had a different perception of the same phenomena, which makes the point that research and National Forest System people did not understand each other's cultures. The managers perspective of the research scientists was:

With the exception of [the Science Integration Team leader], all of the resident in Walla Walla science team members are from NFS, not research. They are the ones who have to make things happen on a daily basis and who have a better sense of what 'integrated science' really is.

Some said the NFS analysts had a greater opportunity based on the type of work they did, to understand integration process and products better.

A manager, acknowledged great differences between research and NFS scientists:

It seems to me the scientists [research] are used to doing their small piece of data in depth, and not worrying too much about . . . interactions with the rest of the world . . . so very often they . . . won't say much, or if they do they will often be critical of the process and not feel like they are a part of the whole group that needs to be solving the problem. They will somehow emotionally or mentally stand back from the problem [group process and an integration of scientific thought], as not a part of it.

The belief that research scientists had cut deals that allowed them to work at their home base in familiar and comfortable surroundings may have been as frustrating as the cultural differences, from the perspective of those who had to stay at headquarters in Walla Walla. The research scientist's position was:

I've done this [work on ad hoc environmental assessments] for eight years and I'm not going to pack up and move somewhere for six months . . . that's dumb. It goes back to what's important, is it form or the output? Sometimes people get really caught up [in how you do things], but in the long sweep of things you're judged on your outputs.

It was mentioned that there was a high amount of energy devoted to three or four people, who all appear to have created similar deals for themselves. These were all people that held pivotal positions that most other staff had to deal with in one way or another.

Whether key researchers were assigned to Walla Walla or not, how they worked with other staff as part of a team was still a critical matter. The general feeling seemed to be that Project leadership was ineffective in creating an environment in which the scientists would be motivated to become team players. One administrator commented on this by saying:

. . . we didn't do anything that I saw on this project to make [teamwork] any better, because we have allowed the research folks . . . for the most part to remain at the home bases. Too, when they object to coming over here to play, we allow them to not come. Whenever there's a problem where we need their interaction, they object, we allow their objection to stand. . . . Their research or their writing on their part of the problem was what was important to them, not the whole. . . . I don't think they learned anything about the group process and what it really means to solve [integrative science problems] in a group sense of all.

Leadership Quality

Project level leaders were well thought of by many of their own subordinates. However, leadership traits were not viewed in the same complementary light as personal traits. Leadership at the Project level in Walla Walla were almost unanimously well thought of as individuals, one specialist said "I would follow [the ICBEMP leader] anywhere." Others made similar comments about the Project leader and the SIT leader who were both said to be good, dedicated people. The

same affirmation was not always given to all their leadership abilities and in particular, their ability to work with problem individuals. One member of the Project administration commented that

[the SIT leader] is a fantastic conceptualizer and is a person to provide the technical vision for this team, they [Forest Service/BLM administration] could not have gotten a better person for that, but he doesn't deal with the people problems and particularly the worst people problems.

This comment related to the inability to create an environment in which a team process could produce the integrated products desired for the Project.

Only about a third of staff felt that leadership was handling the integration process well. A similar, more vocal group insisted that integration was a failure. An ESC member commented:

The leadership of the Eastside EIS team has been lacking. Examples include people trying to do double duty with the science integration team, and [the ICBEMP leader and deputy leader] failing to know what is in the draft EIS's produced today.

Relations Within the Project Leadership Team

The ICBEMP, during the summer of 1994, was felt by many to be two projects, not one. Though the Project leader and the SIT leader in Walla Walla were said to work well together, relations between them and the UCRB leader in Boise were widely said to be problematic. Several staff mentioned that the relationship of these leaders, in addition to the frustrations of adding a second EIS six months after the first had gotten under way, caused stressful relations between staff members at each location.

During the early period of the ICBEMP, the leadership operated under the guidance of the Executive Steering Committee (ESC), but was said to have significant problems in communicating with each other and with the Committee. A manager for the Project in Walla Walla talked about what had been happening:

the whole thing would have been a lot more successful, had they [the agency heads and the ESC] paid attention to who they put in charge of the project, particularly in Boise, and whether the executives wanted to make that [ICBEMP plus UCRB Projects] all work as a team or not. It seems to me that there has been a failure to make that [Project Leadership Team] into a group with a common vision because there is continual undermining, different agendas that creates problems. It created lots of time line problems, personnel problems, all sorts of things.

Expanding on some of the leadership problems, a manager from the Upper Columbia River Basin project (Boise office), discussed the internal dynamics of the [ICBEMP plus UCRB Projects] EIS team(s).

[M]y first week long meeting was a series of changed directions and approaches to team management. The team felt like the direction was changed on a daily basis – and no follow-up occurred on previous day's activities. Specifically – [one UCRB co-leader] is bright and articulate, but likes to micro-manage rather than setting [the team's] course and get out of the way. [The second UCRB co-leader] has not provided any direction or had anything to say. [One Eastside co-leader] also does not appear to contribute to project management and/or coordination. [The other Eastside co-leader] is a leader – but, also provides continuous swings in direction.

This manager suggested a possible cure for this dysfunctional situation. "It would take someone with superior leadership skills and the goal of not being involved in technical issues and personal agendas. The team leads in aggregate [leaders collectively] currently lack the skills."

The three primary leaders of the Project(s) were said to be separated by their ideology and agendas as well as the Idaho border (with Oregon and Washington). Notwithstanding the leadership problems mentioned in previous sections, the relationships and contacts of the three leaders were said to created serious problems. A member of the ESC commented that:

[h]aving three friends [SIT leader, ICBEMP leader, and UCRB project leader] of the chief [of the US Forest Service], as equally in charge, when

they cannot work well together, has been a disaster. In hindsight, one hot autocratic [individual] must be placed in charge.

However, the Project and SIT leaders were chosen as soon as it was known that there would be a project. They acknowledged that they were chosen by the soon to be Chief of the Forest Service and then helped to write the charter.

In the summer of 1994, a Project Leadership Team (PLT) was formed to develop better relations among leaders and more effective leadership. How the PLT came into being was outlined by a Walla Walla manager. Before the team was created,

they [the three leaders] actually came down to recommending to the executive steering committee that they split the sheets [separate into two units] essentially, in terms of the project, unhinged the time lines, let Boise do their own thing on their own time lines, and have two groups [Science and EIS] in Walla Walla continue to function together. . . . [The SIT leader] believed that [the UCRB leader] was trying to be Dr. Science on the Boise side. So the upshot of that was . . . [the ESC] formed a project leadership team . . .

Another ESC member made remarks that applied to the UCRB leaders tendency to go outside the chain of command. This leader said: "The political/career interface has not been managed well. Different players are allowed to operate outside existing lines of communication to achieve personal agendas." A second Walla Walla manager expanded on the first saying: "I'm concerned that [the UCRB leader] has lately set his own, personal agenda for the Boise office which has diverted scarce resources to his needs which have been unspecified." While a scientist in the Boise office, acknowledging that their leader had his own aims, said that, "leadership of the Upper Basin effort in Boise had too much of his own political agenda."

In response to a question about how well the PLT was working, an upper level manager at Walla Walla said,

. . . it still hasn't resulted in a team and still what they end up dealing with, from the agendas I have seen, . . . are mostly the external stuff that [the UCRB leader] deals with . . . white paper to the Washington office and Congress about shutting down this project or they deal with some other public affairs types of things that are all the external stuff. What I don't think they have dealt with much are still a lot of the internal problems and inconsistencies within the group.

Examples of the UCRB leaders activities were provided by the same manager. "I find it unconscionable that someone who is at that level [UCRB leader], essentially does a lot of the political lobbying with the [US] Senators . . . for whom the Executives Steering Committee is supposed to be a contact." The manager continued, discussing some of the things that had happened:

. . . much of the wording that we see coming out of [congressional sub-]committee . . . will be things that [the UCRB leader] has had a hand in writing. [T]here was one thing that he wanted to do and he wanted [the ICBEMP and SIT leaders] to sign a letter agreeing to this. After a draft EIS came out of here he wanted to go through some congressional oversight, you know through a subcommittee or something. [The ICBEMP and SIT leaders] both told him he was nuts, and they weren't going to sign it, but son of a gun, if that didn't happen to, you know, start entering the discussions of the congressionals [sic]. So it seems to me that it is not a level playing field, and he's been able to influence things an awful lot even over the objections of others.

The manager was baffled as to why the ESC would allow a subordinate to continue to act in such a way.

Executive Steering Committee

It was felt that the Upper Basin leader was, to some degree, reflecting the popular sentiment found in the Idaho-Montana area. As a third ESC member acknowledged, "the politics of this issue has exceeded our expectations . . . [specifically, the p]olitics of Idaho/Montana are different than [those] of Oregon/Washington." In a later discussion, the same leader explained that the real difference was that the Upper

Basin states had not dealt with the environmental challenges that had taken place in Oregon and Washington. This meant that their thinking was years behind, "they still thought they could do things however they wanted, perhaps just waiting until the problem of environmentalism had blown over."

It was felt among staff that the reason for not initiating the Project on a basin wide scale, with the original charter, was to be found in differences between the politics of Oregon and Washington on the one hand and Idaho and Montana on the other hand. Affects of this split could be seen in the early actions of the Executive Steering Committee (ESC). "The executives steering Team has not effectively steered," was the analysis offered by one ESC member and supported by one other. The ESC had been felt to have had difficulty in working together in the beginning. After some significant staff changes in the members from Idaho and Montana, the UCRB was opened in Boise and the group was said to have begun to develop a much better working relationship. According to numerous people in the interviews, the ESC had lacked interest or was reluctant for other reasons to correct problems in management of either office. This tendency was said to have improved in the second year of the Project, but numerous people still felt that the ESC was not doing all it could to bring the Project to a successful conclusion.

While enthusiastic about the overall concept of the Project, a high level manager did express concerns about agency participation:

. . . I think this attempt at multi-agency teamwork is very exciting to be involved in. This is the way the federal government should work all the time. A problem is that many of the agencies other than FS/BLM have not focused their upper management on this project, such that what staff is assigned does not have authority to speak for their agency at a policy level. This has caused frustration and some delay along the way.

The agencies referred to were US Fish & Wildlife, National Marine Fisheries Service, and Natural Resources Conservation Service (NRCS). The NRCS chose not to be represented at all on the Project.

The charter stated that the ESC

will solicit the participation of other potential partners (e.g., National Marine Fisheries Service, Fish and Wildlife Service, Environmental Protection Agency, and Soil Conservation Service). They will be added to the Executive Committee as appropriate through amendment to this Charter.

One member of the ESC said that they had been slow to accomplish this. Conversations and comments by other members and in one ESC meeting indicated a reluctance to add other elements to the Committee, especially in the early stages when land management agencies had their own problems relating. "Another concern," expressed by an ESC member from the upper basin, "was the working relationship among the natural resource agencies and the regulatory agencies. We waited too long in the process to bring them [regulatory agencies] to the table to be part of the solution and not the problem."

Organization

Adequate Numbers of Staff

The problem of inadequate numbers of staff was said to be a mismatch between what was expected of the Project, how it was managed, and what resources were provided. The failures of leadership to create a guiding vision and to restrict investigations to matters relevant to that vision and its goals, some said created a context for the Project in which the drive to collect additional data would create an

environment in which staff was periodically insufficient to meet needs. A key scientist framed the issue by saying,

[p]eople, time, and money were not sufficient to do all the proposed work, as shown by the progressive jettisoning of analysis [as time ran out] to create final product. They were sufficient, however, to do the job [a more focused effort as this scientist envisioned it].

A manager, working in data-processing, presented the problem in terms of the logistics of data acquisition and management's understanding of and willingness to control that process. The manager said

that 90 percent of usable data is acquired in 10 percent of the allocated time and budget . . . [t]hen 90 percent of the remaining time and money is squandered trying to attain that last 10 percent of a needed expert level accuracy. A project manager who understands 'project management' and the intent of the project will not be adversely influenced by the disciplinary bias [of a scientist to continue collecting data].

Though a few people felt that under some circumstances part-time people with specialize skills could be effectively used, most who commented on this issue felt part-timers were inefficient. A scientist in the Boise office was direct in the opinion offered: "[t]rying to get the job done with 'part-time' people who have regular jobs is kind of silly." A manager in the same office agreed, "avoid part-time positions if at all possible." A number of staff felt having people work part-time on the Project, while trying to maintain previous commitments, short changed the Project. As one scientist put it, "[d]ual hats make it hard to get the job done. There's too much work on this project to truly be part-time." A field staff member, on the Implementation Team, had only one suggestion for improving similar projects in the future: ". . . ensuring that individuals are working full-time on the project (and are not tied up with other work [from previous work assignments])." This situation primarily applied to scientists and high level administrators, but also, at times was said to apply to specialists and support personnel such as graphic artists.

Staff felt that working on two teams created less than optimal utilization of staff time. A number of people worked on both science and EIS teams. At the beginning of the Project with no scientific information yet generated, having some individuals work on both teams appeared to make sense to utilize their time and talents and to create better communication among the teams. As the process continued, working part-time for two Project teams was felt to resemble other part-time situations, where neither job got the full attention required from each staff member.

Adequate Array of Skills

One science team manager said that “[s]taffing patterns were heavily skewed to the physical specialists, and key people – historians, anthropologist, political scientist, geographers, etc. were never hired.” A scientist from another team added, we “[n]eed more people with training in public administration and policy analysis.” The situation in itself, according to some, explained part of the difference between those agreeing and disagreeing with the adequate skills on the Project. If most staff were from the traditional biophysical disciplinary backgrounds and used to seeing those disciplines dominate work elsewhere, they might be expected to have been comfortable with that arrangement. In a typical response, regarding the breadth of staff disciplines, a manager from a traditional biophysical background said “[t]he variety of backgrounds and ideas has been very stimulating for addressing issues.”

Some staff felt that the Project was biased against planners. A manager in Walla Walla stated:

[i]t has become evident that the EIS team leadership has allowed an atmosphere to develop that is hostile to professional planners. The resource specialists have been favored at the expense of planning experts. This is arguably the biggest, most important, most controversial planning effort (single) in the FS/BLM . . . Where are the planners?

One planner, who did have contact with the Project, commented that

the research people had a little bit of arrogance [saying in essence] you guys [the National Forest System planners] screwed-up [the forest planning process] last time, we're going to come in and fix it for you. They didn't want to listen to the experience we had gained over the last ten years of what does and doesn't work. They were going to create a new process that works, what they basically did was try to reinvent the wheel. And, that's not bad – don't try to do it in 18 months.

The scientists wanted the process to be based in science “and they were right . . . the previous round of planning was politically motivated rather than science based,” according to the planner. This sort of bias against planners, according to some, in addition to the omission of several other disciplines affected the overall planning and execution of the Project and may affect the acceptance and effectiveness of the work.

A few scientists felt that some sort of a record should have been created of scientific and analytical processes as a guide for future projects. A ranking manager suggested that a history of the Project should have been maintained.

There should be a team or a person [who's sole purpose would be] documenting history of the organizational dynamics. When this is all over there will be no way to learn from the experience, except for individuals participating. A major experiment will be lost in the deluge of paper to come out of Walla Walla.

However, the SIT leader indicated specifically that this doctoral research paper was intended to be that record.

The work that support staff did was complemented by most of the professional staff, with the exception of meeting facilitation and some other aspects of communication. The problem with facilitation was identified by one of the science team managers, though supported by many other scientists and managers alike. A nonprofessional,

inexperienced, former Forester was used as a facilitator to direct and control planning and integration meetings. His efforts were said to be inadequate, not for lack of character, effort, or desire, but for lack of training and experience in facilitating in highly contentious settings. The system and training for note takers were less obvious, though still felt to be problems. People taking notes varied from day-to-day, used newsprint easels to jot down primary ideas, and were not specifically trained for the job. Though sarcastic, the managers point was clear: “get a real facilitator [and] a real note taker.” The idea of a professional facilitator was dismissed because it was felt that the Project could not afford the thousands of dollars a professional would command, according to the same manager and the SIT leader. One science team co-leader, however, noted that in one day of an integration meeting, “I added up over \$2000 per hour of salaries that were being wasted,” because nothing was being accomplished.

Another science team manager suggested a critical addition to the Project:

We should have had a synthesis and integration group, a science group that was equal to others, who would spent their time thinking of ways to do it [integrate the science thought and products] and constantly trying to figure out new ways. Maybe you can't expect the science team to do the synthesis and integration. People can't separate the data grubbing, it's too hard, it's not in your personality, or you just get consumed by the big data sets – you just get consumed.

Scientists from several of the science teams commented that most scientists on the Project were not real research scientists. There were only three Pacific Northwest Research Station scientists on the Project. These comments came from research scientists as well as those who were being classified as “only analysts” by research scientists. Notwithstanding the problems posed by research scientists, through lack of willingness to reside in Walla Walla and be functioning team members, one science team member concluded that the Project should “[r]ecruit senior scientists

who are scientists (not regional staffers) and able to think boldly, better, willing to take intellectual risks to answer policy questions. The Forest Service's worst enemy is its traditional way of doing business."

A manager involved with processing data made an observation of what was needed to be a project manager.

I believe that the management of the overall project should be done by experience leaders and project managers 'who are not scientists.' Scientists basically have too many connections to the data and to the analysis to be objective about the data collection and consolidation process.

The manager continued: "Avoid, like the plague, placing subject matter specialists into upper management level positions. . . . the result is often power struggles . . . or conflict in direction and reduced productivity."

Background and Qualifications

Typical comments came from a member of the Project leadership team: "[our staff are] a highly professional, capable, and dedicated team. All individuals are first-rate." An implementation team member added: "[this is a] highly trained group of individuals assembled in one project . . . scientists and managers [are] working together to solve common problems (good interaction)." Only a small amount of dissension diminished the supportive stance of most Project staff.

Most dissent concerning staff backgrounds was centered around credentials, experience, and perspectives of scientists. One scientist said that "[t]oo many SIT'ers are over educated technicians using their insider status to push their own political agendas." While another more senior scientist added:

[M]uch of the science staff is not top scientists, but rather poorly trained individuals with little or no experience in this kind of work, no Ph.D. level science, etc. – [the Project] should've been led by FS/BLM/NBS [Forest

Service, Bureau of Land Management, National Biological Service] research arms.

Singling out the Social Science team, the first scientist said,

[t]he project lacked sufficient talent in social sciences – needed people with better qualitative/analytical skills – as well as a better understanding of the policy-making process and the role of a federal land management agency in meeting societies demands.

The quality and motivation of individual team members was felt to be one of the best points of this Project. “Strength of this project is the commitment of all the people on the project. People came to this project because they were interested and believed in the project and objectives,” according to a science team co-leader. Also, “[t]here’s a high standard of professional ethics and concern.” However, numerous people felt that, in some areas, staff had been dumped by previous management units or escaped from poor situations. While commenting on its positive aspects, one manager suggested that the Project “. . . got many of us out of ‘bad’ jobs/working environments we were in [and] . . . all of us are learning a lot, growing and stretching like crazy!”

Despite whatever staff shortcomings there were, the feeling by most staff about most others was expressed by an Implementation Team member: “The quality of the staff on the project is excellent. They are all highly qualified and dedicated. It is an honor to be associated with them.” A Project manager, in a similarly supportive statement said, “The quality of staff personnel involved has been very impressive. I have learned much in interactions with others.”

Geographic Placement of Offices

The placement of the Project headquarters office in Walla Walla and the addition of a second project office in Boise seven months later was broadly felt to be a matter of

politics. According to the Region Six Forester (who's region encompassed the original EIS area), he had wanted to move the process from Oregon where so much past activity had taken place and put it in Washington, so the people there would feel included in the process. Locating the process in the district of Tom Foley, then Speaker of the U.S. House of Representatives, seemed to be an smart political move, however, reasons for the use of Walla Walla rather than Spokane are unclear. A manager in Walla Walla pointed out that, "Walla Walla was a poor choice of locations for the project office. Portland or Spokane or Boise would've been better. Too much time and money [are] being spent just getting to and from Walla Walla."

"While the need to include the UCRB [Upper Columbia River Basin] was identified before project initiation," said one PLT member, "FS/BLM leadership did not decide until 9 months later to include [the upper basin] and then took 3 – 4 additional months to staff [the office]." Waiting to start the second office was said to be a result of political resistance in the upper basin. After some of the Executive Steering Committee (ESC) had been replaced through retirements, the second office was added. One of the managers in the Boise office discussed the results of these actions: "While it may be necessary from the political perspective to have two teams and two sets of leaders for what is, in essence, one project, it's quite difficult to work in this system. Also, it's not very efficient!" A second manager in Boise stated that "the project appears to be unwieldy under the current structure – i.e. two main offices separated by a 4½ hour drive and many satellite offices and people." In the Walla Walla office, a manager added:

I'm concerned with the fact that a year was wasted setting up two EIS teams to do two EIS's and then trying to make one team to write two EIS's from two cities with four co-leaders all without knowing if there'll be 1, 2, or 8 ROD's [Record of Decision, the document selecting the EIS alternative to be implemented].

Numerous people talked about problems associated with travel between the two main work centers. A characteristic comment comes from a manager who had to make the trip often: "Choose centers of activity that provide convenient access to team members and not for political reasons. Traveling in and out of Walla Walla from Boise is a hassle." A Boise scientist added:

[T]he location of primary office in Walla Walla was a major problem, largely because of difficult access. You can drive from Boise to Walla Walla faster than you can fly by commercial airline. We were lucky no one was killed during winter travel to and from Walla Walla.

Materials and Equipment

Materials and equipment to make the Project function were generally felt to be plentiful and of high quality. Only two complaints were noted about computers or software. The difficulty of dealing with graphic arts work was noted by some individuals: all computers were IBM PC compatibles rather than the preferred Macintosh machines. A second complaint had to do with continued use of the DG rather than the Internet which some felt made it difficult for the Project to communicate with others, particularly constituents. In other respects, equipment, software, and support personnel were said to be excellent.

Financial Support

Funding for the Project was said to be plentiful in the beginning but later began to diminish, partly because of the new Congress which took office in January, 1995. This Congress was interested in reducing government expenditures and many felt it was suspicious of the motivation behind the Project. A number of those in leadership positions commented that another problem for the Project was lack of a central funding source. Funding initially came from regional offices or research stations of the Forest Service and state offices of the BLM. A PLT member indicated how he would correct the problem: "On interagency [or] interregional

projects, establish a budget processes at W.O. [Washington Office] level. We spent 3 months haggling over getting appropriate funding from 10 different sources.” A manager in the Boise office, with a perspective based on the current local and regional funding added that it must be understood that time and money are closely related. A “clear understanding of cost and time to do the project [is needed]. [We also n]eed to have internal agency support to see [the] project through to conclusion.”

The Executive Steering Committee (ESC) had to deal with the funding problems from two perspectives. First, as leaders of the Forest Service and Bureau of Land Management in the Northwest, they were sensitive to funds being taken from the ongoing work of their organizations to fund the ICBEMP/UCRB process, as some executives mentioned. Also, they were charged with seeing that the Project was properly funded to arrive at a successful conclusion. One of the ESC members said it was important for future efforts that they could “[f]ully assume that national organization [agency] supports and funds [this type of project].” A national level funding effort would not leave local offices strapped for money and would, according to the same person, “[a]ssure necessary field involvement.” Some staff from Ranger districts and Resource offices had commented, they or their colleagues felt this Project primarily was a drain on already scarce funds which they needed to run their own operations.

Relation of Time to Process Chosen

Adequacy of time is related to expectations for what the Project was to achieve. According to many staff members, the time lines were unrealistic for the expectations of Project by agency leadership, as well as the general public and interest groups. A manager with a planning background said the “project had a short time line but adopted a process that was very time consuming – and [the situation

was] somewhat the same with the data collection . . .” A researcher indicated that the “time line [for a] project of this magnitude is absurdly short – we will be forced to do it over, never do it right initially.” The manager again, said that planners

had tried early to get [the Project] to do an information needs assessment. . . . [W]hat were the specific decisions we were going to make [and] what was the specific data we needed to make those decisions. The project pretty well resisted doing that, they wanted it to be more of a broad scope ecological assessment, not just focused on getting the decisions made that we needed to make at that scale. So there is a hell of a lot of data collection and analysis in there that, when we get done with it, I’m not sure we’ll know how to use it. So there is a leap of faith there that everything that’s being done for the science assessment will be useful for the EIS and that the EIS will not identify any information that they [scientists] didn’t collect.

A senior scientist came to the same conclusion from a different perspective and evidence based on the evolving process.

I think that the project took on much more to do than was realistic in the time frame. This is shown by the many products and analyses that were dropped to reach a hard deadline, and the many extensions to that deadline. Constant revision deadlines put a stress on people who work hard to make a deadline, slack off when a deadline is extended, then rush hard again for another deadline. Dropping analyses from the final result is wasted effort for the assessment, although the data will be useful in the future.

Another scientist, from the Boise office, added an example of an entire analytical model that was dropped:

the scale of the job taken on by the science team was sometimes too large, because they didn’t have time to think it all through. Hence, no mid-scale CRBSUM [a predictive model of the Columbia River basin ecology at a mid-scale] runs. It’s not a criticism [of staff] – those folks have done a wonderful job with the deadlines and horrendous work loads they’ve assumed, or been given.

A manager commented on communication between the Project and ESC.

I’m not sure that the Executive Steering Committee ever really understood what they were requesting for the time frame that they wanted [the Project]

done in and I'm not sure the project ever did a good job of educating [the ESC] as to what it would really take [for the Project] to get there.

The Project leaders tried to live up to every expectation, with continued difficulty according to the same manager,

. . . every time there was an issue about time, they would say, give us more people, more money, more priority and we'll meet the time frame. But if you had gone through the work analysis of what needed to happen . . . particularly for the EIS efforts . . . [t]o meet the original time frame, you had to be working on the alternative almost before when the assessment data was available [sic].

At this point it appeared that the ESC was either completely disinterested, politically distracted, or, as the Project's leadership, did not possess skills and understanding unique to project management.

Science and EIS Concurrence

The EIS teams, which were expected to finish shortly after the science documents were completed found themselves very short of time to do their work. "[H]aving to prepare the EIS simultaneously with the scientific assessment that should serve as the basis of the EIS, rather than preparing the EIS after the assessment is available" according to a PLT member, put the EIS teams in a difficult position. "Having two teams working in parallel was a mistake," according to another PLT member, "the SIT should finish, then the EIS work begin." A manager, working on an EIS team put it as directly as possible:

EIS (management) should have determined what questions they needed answer and 'dictated' that to science, rather than science having free rein to study whatever they wanted to. Much of it seems to be a waste of taxpayer's (that's Me!) money.

The stress of this system on staff was not the only problem. A manager in the Boise office had a critical perspective on how time lines affected the quality of work. "The

time lines are driving the work – such that products are hurried, off the cuff, and not based on the wealth of information available to the [EIS] team. Simply seems to be deadline and information overload.” A second manager from Boise indicated why time was an even greater pressure on their, primarily EIS activities: “[the] UCRB is about a year behind Eastside . . . [the administrators should have] start[ed] earlier in identifying [that the] entire area [must be included in the Project].” Where everything was going and how the pieces were to fit together – an overall vision for the EIS – was lacking as guidance, according to a manager from Walla Walla. “It would also have been clearer if the assessment had been completed before the EIS was written,” according to the manager, “but that [was] a political decision.” Much of the Project’s perspective on how much time was available, was said to be shaped by fear that political forces might bring the Project to premature close.

Forest Service and Bureau of Land Management

The BLM had far fewer staff members to cover a geographic area essentially the same size as the Forest Service’s. A BLM manager’s thought explained needs of the BLM, especially in the early part of the Project. “I’d have stronger BLM representation, so the FS [Forest Service] wouldn’t forget us so frequently!” A Forest Service manager on the SIT supported that position, describing what had happened early in the Project.

In the initial division of work, range and recreation were two things that were left out. And they were added later but not in complete detail. And that’s unfortunate because it’s the [Columbia] basin where both of those are big issues. I think they now have got some folks working on range that are very good, they were added late but now they’re catching up.

Communication/Interpersonal Relations

Transmitting Clear Direction

A majority of staff felt that general communication within the Project was good. Positive comments were made, by some, about people in the communication shop and how dedicated they were to their work. There were some specific comments about a lack of direction that individuals had received regarding the nature of standards of the work they were expected to do.

A manager from the Boise office commented on the lack of attention given by superiors. "My supervisor has spent little, if any, time explaining to me the objectives and goals for my position. I [therefore] had no sense of accomplishing what [my supervisor] considers critical." Though others said they were left to "sink or swim" in typical Forest Service fashion, when entering the Project, it is difficult to determine whether this lack of supervisory attention was a widespread, systematic failure based in agency culture or the result of a few inept managers. There were, however, as reported in assumption seven, statement two, 62% of staff who responded that they either did not receive adequate initial instruction regarding what was expected of them or were unsure if they had.

The Project itself was "plowing new ground," according to one cliché, among many used to describe the uncertainty shared by Project staff. In this respect a certain level of confusion is to be expected. With less certainty about goals and procedures, supervisors were likely to be less willing and able to give specific directions to their subordinates. Speaking of the very heart of the Project, an ESC member said "Ecosystem management' is a term few understand . . .," which supports one possible basis for impaired communication and direction.

Accessibility of People and Information

In 1993, the President's Forest Plan (Forest Ecosystem Management Assessment Team or FEMAT), a predecessor to the ICBEMP, was a secretive process conducted behind guarded doors and closed to public participation. The resulting litigation by dissatisfied constituents, on all sides of the issue, made it important that substantial changes needed to occur in communication and outreach. A new format with public meetings, a newsletter, and eventually a web page was created. Based on these significant increases in accessibility, many people were pleased with the Project's efforts. However, a number of staff have expressed their discomfort in dealing with the public, which is most often typified as a process that interferes with work that needed to be done. Other comments by scientists indicate they also prefer to deal with their own specialized research rather than colleagues in other disciplines or integration of differing fields of research with their own. Though some staff disliked the meeting process, most felt strongly that the public needed to be involved. How deeply involved was a question few had a good feel for.

A scarcity of time and large geographic area to cover were cited by a manager who supported public involvement, as major frustrations. We "[n]eed to give less lip service to public involvement. . . [but extensive involvement] . . . [d]oesn't work well with tight time lines, as good public involvement is interactive and takes longer. Should talk less about it and do more of it. We are trying but it is tough with an area this large and [with] compressed time frames."

"Outreach to constituents has been fairly effective," according to one manager, "though a good format for public meetings has taken a long time to evolve." While others agreed, how the Project and its outreach were received by the public was subject to varied interpretation. A scientist working primarily at a satellite location said: "I think that the communications team has been very effective. Thankfully, that

seems to be an area that was emphasized at the outset of the project, as it should have been.” “This project was very innovative in effective project communication,” according to one ESC member. Though critics remained who felt that the process had not gone far enough to improve public participation, most people associated with the Project were pleased with its accomplishments. However, one member of the Project Leadership Team discussed public relations problems resulting from the addition of the UCRB: “time lines [were] extended for over a year. Our constituents are impatient and want to see what the consequences of alternatives are. The length of the project has been negative in that it has taken so long to get tangible results.”

Periodic science team meetings (held at six to eight week intervals), designed to update the public on progress of the Project, were felt by many constituents to be quite repetitive. Often the leadership apologized for the lack of new information or definitive conclusions. A Boise support manager saw similar problems for constituents and felt that part of the problem was emphasis being improperly placed. “Communications work has focused on ‘process’ and not expected products [of the Project]. What the project is [or is not] doing, is not fully understood by the general public and interest groups.” The public was not always happy with process information; their comments indicated they wanted to know more specifics about what would be happening to the rangelands and forests near their communities.

Communicating Highly Technical Information

The nature of the information and its manner of presentation was another area that some people felt needed to be changed to make it more accessible to the nontechnical citizen. A senior manager from Boise office expressed concerns about the ability of most in the public to understand what was coming out of the Project. “I fear we’re doing a poor job of communicating with the Public. Our project

manager insists on talking in scientific terms – not understood by laymen.” A very similar concern was also expressed by top-level manager in Walla Walla.

The documents being provided are way to jargon laden and non-user-friendly for the general public. Only those devoted few who have been following/participating all long will know what the documents are saying. The lay person, when they receive the DEIS [Draft Environmental Impact Statement], they won't have any idea what it says or how it will affect them on the ground. Too little management thought and decision-making has gone into the document format, language level, appendices, layout, etc. This is being delayed to the end which means it will not result in an easy flowing document, much like the FEMAT [a predecessor of this Project] report.

Levels of Access

The extent to which constituents should be allowed to take part in Project processes is a matter of some debate, though no one had expressed a wish to exclude the public entirely. “Generally constituent groups should be informed but not drivers of the process,” according to one Boise scientist. “Currently there [are] some . . . unrealistic deadlines in response to constituent groups.” Some other scientists simply did not want to be distracted from the research or analytical work which they felt was their priority. With a different perspective, a manager with planning background said “the public SHOULD have greater access to contribute to this process, but it is probably not reasonable to expect much more (unless some changes occur in how government and citizen-participation [interpretation of the Federal Advisory Committee Act, federal regulations controlling citizen involvement in federal decision-making] become apparent)” However, “we have made marked change[s] in how an interested citizen can become involved in the science/management process, and in general, I have heard very complementary remarks.”

Leaders Relating to Each Other

“There will always be interpersonal dynamics [difficulties] with projects of this scale/scope,” according to an Executive Steering Committee member. “The current organization of three equal project leaders makes it more difficult to deal with interpersonal dynamics.” A Boise manager agreed, saying “[t]he leadership structure is inefficient.” The system of multiple leaders, which increased the potential for conflicts based on differences in individual position or perception was duplicated throughout the organization, in science, EIS, and support teams. The most obvious ego problems were the clashes among the leaders at various levels of the Project. “In many cases the obstructionist, difficult, or egocentric personalities are the leadership! ,” according to an Implementation Team (field advisors whose job was to see that the work of the Project was put into use) member. A second Boise manager added, there were “[t]oo many cheeses! Each team [of the two EIS teams] should have had one leader. When two or three shared leadership, egos and biases dominated at times.” The Boise office was technically an EIS process, with one project leader plus two co-leaders of the EIS staff.

With strong personalities sharing control in upper leadership, progress toward Project’s completion was felt to have suffered. The first Boise manager, recognized this was a serious problem and suggested one thing that could be done to avoid this in the future. “Assure that project leaders are compatible and have a shared vision before beginning such a project.” Referring to the Project leader in Boise, the manager said, “From my perspective, his ego is deeply involved in this project and he’s not very open to suggestions.” A manager from Walla Walla expressed stronger feelings about the Boise leader. “Don’t have someone like [the UCRB leader] in a position like he has. [He is to] disruptive. Ego without compromise makes a day without sunshine like a walk in the park.” Regarding problems created in process directed by one of the Walla Walla based EIS leader, this manager said,

“[he], although good leader, could listen to process people more. . . . A more defined EIS process (such as ‘prototypes’ or mockups of the chapters) would’ve helped many team members [by reducing confusion].” This statement also relates back to assumption seven, statement two in saying that poor communication led to confusion.

Scientists Relating to Other Staff

“A lot of the scientists on this project have pretty big egos,” according to a manager in Walla Walla. Trying to conduct meetings or organize the scientists in other ways was “like herding cats. They weren’t able to get anyone to agree to things [in meetings] and move on.” In addition to world view differences based on discipline, there were cultural differences inside the Forest Service. The National Forest System (NFS) is the management arm of the Forest Service and the research stations are the research arm of the organization. Though the research arm was represented by only three individuals, they were, in each case, the senior partner of a pair of co-leaders for the Aquatic Ecology, Terrestrial Ecology, and Economics teams. Research station scientists were not the only ones that were felt to have large egos, but they stood out because of the stature they were conceded by their position as leaders and because they were not being required to reside in Walla Walla. They were seen by many NFS and Bureau of Land Management (BLM) staff as the major ego problems of the Project.

Involvement in day-to-day process was cited as a weakness for some top scientists, NFS as well as research station personnel. They were seen to work at their home stations and not come to Walla Walla frequently enough. Referring to the research scientists and a few individuals from the NFS side, the manager discussed how they would conduct themselves in planning or integration meetings. They “won’t say much, or if they do they will often be critical of the process and do not feel like they

are a part of the whole group that needs to be solving the problem.” Those who did not reside at the Project were said to miss important meetings in Walla Walla.

Whenever there's a problem where we need [these scientists'] interaction, they object [and] we allow their objections to stand. It's so I don't think they learned anything about the group process and what it really means to solve [these problems] in a group sense of all.

Explaining why the managers complaint that some of the top scientists did not regularly attend science meetings was important, a resource planner said,

one classic problem area has been people [based on ego or personality difficulties], not present at key discussions, who have later been obstructionists simply because they are not at the same level of understanding as the broader group. A common project location tends to fix this.

The effort was supposed to be a partnership between research and management, but fell short of that, according to some, at least partially because leadership was unable to control and channel personal and/or professional behavior into a productive, cooperative pattern on behalf of the Project and its goals. “Leadership has had a difficult time dealing with personality issues that affect project functioning,” according to one science team co-leader. The Science Integration Team leader was repeatedly said to be a good visionary and especially patient and good at working with the public, but as a manager in Walla Walla said, “[The SIT leader] simply doesn't deal with difficult personnel issues.”

Team Building

“No ‘effective’ team building was used on the project. Having everyone permanently stationed in Walla Walla would've helped [to build a team mentality too],” according to a senior manager in Walla Walla. Most leaders indicated they had wanted to get to work on the important matters of the assessment and EIS. A simple remedy, to “[m]ore clearly articulate what is expected at all levels,” as

expressed by an Executive Steering Committee member, appears to underscore the level of understanding of interpersonal process and cultural structures. In addition to this sort of perspective, it was stated by leaders, in the beginning of the Project, that a short time line needed to be met. A member of the Project Leadership Team said that he had not felt there was time to do team-building exercises, in view of the restrictions of time. For this reason, supported by the general feeling of uneasiness expressed by science and resource professionals, with what they identify as touchy-feely interactions, team building was not undertaken.

Though not asking for an exercise in team building, a wildlife ecologist recognized a need for a common base of understanding that would allow people with different perspectives to work together to solve common problems.

Public resource agencies need a common language and standardization. The fire fighting organization has made great progress to become more efficient. They call upon personnel from all over the U.S., from all the resource agencies and they all know the language, it has been taught to them. You cannot say that about wildlife biologist, range ecologist or Foresters. We have a hard time talking to each other.

Others made similar comments, though most did not equate these deficiencies to a need for team building.

There were people who understood the need for bringing everyone together to build a common language and to break through the cultural barriers created by professional disciplines, a different focus of work, or simple ideology. A science team manager showed the insight that the leadership failed to display.

Any project of this scope and magnitude should not be initiated without a clear, well-defined strategy for team building and interpersonal effectiveness. While it needs to be more intense and obvious at the beginning of the project, it [should] continue to occur at some level throughout the project.

Another scientist, while talking about communication problems experienced with others on the Project, wishfully said,

we should have had a camping trip or something like that to start this thing. It would've given us a lot better idea of what we needed to do [assuming the trip was designed to survey basic environmental conditions] – and we could have gotten to know each other a little bit.

Some other interesting suggestions for building a team or creating family spirit, in an ongoing way, came from an unanticipated source. One of the research station scientists showed that he may not have wanted to be as separate as others assumed.

He said,

project leadership should hold brief weekly family meetings with all personnel present and make small award type presentations just to recognize special efforts; [and] hold barbecues, parties, during the week when out-of-towners are here – there are still faces here I've never met! I feel isolated and ignored personally.

A different and more personal atmosphere may help. A resource planner suggested, “team building sessions, in a nonthreatening (retreat?) environment, may actually help expose [and allow us to] come to terms with personal biases.” Doing team building, without calling it that, as was suggested with the camping trip, may be more palatable, but would logically take as much or more planning and effort to be effective. At the very least, according to a Boise manager, agency executives should “[s]creen team leaders better. Need to be able to bring a team together. Need someone to deal with the problems and not avoid them. Bring majority of EIS team on at same time, not staggered over eight months.”

DISCUSSION

The Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) was an open, ad hoc process. Nine assumptions were created at the outset of this study to model what is said in the literature to be appropriate management under the conditions found on the Project. Results from both quantitative (responses to a five-point Likert scale questionnaire statement) and qualitative (written comments made on the questionnaire and interview statements) aspects of the study will be discussed. Sections of this chapter are divided into three categories: leadership, organization, and communication/interpersonal relations.

LEADERSHIP

Assumption One: Guiding With Vision

Leadership, within the ICBEMP and in the agencies that formed it, has clearly defined and communicated the vision and goals of the Project to all staff members.

The first assumption regarding the Project was that, particularly in the case of a new type of endeavor for the land management agencies, a strong vision would have to be created and accepted by all staff. Objectives under this assumption were to evaluate leadership's effectiveness by two measures: 1) whether leaders created a clearly defined vision and 2) how well that vision and specific associated goals were communicated to the staff. To statements associated with assumption one examine these questions.

A majority of staff (61%) felt that there was a clearly defined vision and set of goals for the Project, while only 33% disagreed. The second statement, was

designed to assess whether those goals had been translated and communicated in operational terms that staff understood. Only 35% agreed, while 47% disagreed, that they understood Project goals in a way that would move them in the right direction to complete the Project. When challenged to answer from their specific experience, 26% of respondents shifted from a position of agreement to being unsure or disagreeing. This would appear to indicate that even though a clear vision and goals were felt to have been created, for a substantial portion of respondents (47%), they were not felt to have been translated into usable terms for the staff.

Comments from staff, through written remarks on the questionnaire or personal interviews, painted a similar picture as the statement responses, with respect to the impact of the Project's vision and goals on staff. Ecosystem Management, according to many Project members was a new concept that was poorly understood by most staff. Other staff reported, that important thought and planning had not been done on how the Project's work would ultimately mesh with other planning efforts. This, they said, would affect how staff accepted information and what they would be willing to do with it. The supporting comments from staff, again, seemed to indicate that whatever the vision and goals were that leaders had constructed, they had not been clearly transmitted to many on the staff.

Two groups in a subset of respondents to the second statement, the Science Integration Team and the Project Leadership Team had a significant disagreement on this issue. Though both had slightly more than 50% in disagreement, the scientists had a much greater proportion of respondents who felt that they had understood the operational goals needed to complete their work. The "lack of project leadership in guiding science integration early on," according to a person in Project leadership, may help explain why so many scientists (44%) said they felt goals had been

translated clearly for them. This will be expanded with information associated with the next assumption.

Assumption Two: Flexibility and Integration

Leadership styles which encourage maximum flexibility and creativity in staff, also are most efficient and effective in motivating, focusing, and guiding a large group with very diverse disciplinary backgrounds, to integration and completion of a complex series of tasks.

This assumption helped to set a context in which the relationship between encouraging complete professional freedom and directing a diverse group of people to complete a specific project, to be studied. Objectives under this assumption were: 1) to determine if flexibility and creative freedom had been encouraged, 2) to determine if leadership had focused staff on specific tasks, and 3) to determine if integration of staff work and creation of integrated products had been successful. Information associated with objectives one and three may indicate whether unlimited freedom and successful final integration were compatible process goals.

Statements were designed to elicit staff perceptions, of the range of conditions between full freedom of inquiry and integration of work and products to meet Project goals. Creative freedom and self directed inquiry were seen by 73% of respondents as being encouraged by leadership, while only 29% felt that integration, the ultimate product of inquiry, was a success. Responses made a transition, indicating that agreement with the level of freedom declined, while responses that were unsure or expressed disagreement increased. Two intermediate steps addressed leadership's response to professional/academic freedom. That leadership encouraged new ideas, which expanded vision and goals found agreement in 65% of respondents, but only 46% said the changes were readily made when a more

effective or efficient path was found. Leader's support for professional freedom began with 73% agreement and then declined to 46% agreement regarding the implementation of change that might have flowed from suggestions of professionals.

Information collected by the science team was viewed as highly variable when the spectrum of staff comments was considered. Several people commented on their ability to dig in and explore the subjects they needed to. Nearly everyone on staff said that we (the Project) had gathered a tremendous amount of extremely valuable data. However, others said information was likely to be spiky, with some very good and some almost worthless because of its general nature and the speed at which it was collected. Other reports focused on the appropriateness of information for the Project, with respondents unsure whether all questions to which the EIS required answers, would have been sufficiently addressed. On the other hand, they said that much data had been collected on topics or at levels of detail that were not necessary for the Projects needs. These comments all tend to support the idea that there was a high degree of academic/professional freedom for staff members. A comment from an Executives Steering Committee member sums up to this process well. "While I agree that [complete professional freedom] is happening, this does not necessarily lead to an effective, adequate and timely project [completion] – giving complete freedom in this area would never bring this project to conclusion."

The ability to focus staff on specific tasks to be accomplished in order to arrive at the integrated products desired was examined in responses to three statements. The time staff and leadership spent in Walla Walla was viewed as a partial measure of the integration of people and processes. Only 39% of respondents agreed that staff and leadership normally spent as much time in Walla Walla (or other work centers) as was required. Agreement that leadership was able to manage the integration process

well, was 35% and agreement that integration in general was working well dropped to 29%.

Too much energy was felt to have been expended on the issue of scientists and others who were allowed to work at their home station rather than move to Walla Walla. This was seen partly as an issue of integrating research and management and partly one favoritism for a select group of people. Leaders were not felt to have adequately manage this situation and the people involved. Leaders were also said to have done little to encourage teamwork, which would support integration of staff, process, and ultimately the scientific and planning outputs. One science team leader said that the Science Integration Team leader (the overall science leader) stated that his intention was to wait to integrate products of the five individuals science teams until after they completed their work. Qualitative and quantitative results tend to indicate that leadership had a difficult time in managing the concept of integration, if not its actual process and results. Integration itself was generally not felt to be working well by 40% of Project staff.

Assumption Three: Leaders Working Together

Leadership for the ICBEMP is focused on and accountable for attainment of Project goals; it guides the process in an efficient and effective manner.

This assumption creates a basic model to understand how leaders of a group would work together to assure successful completion of the organization's stated goals. The objective is to see if leaders did, in fact, collaborate on the successful attainment of mutually accepted organizational goals. Responses to one questionnaire statement saying that leaders at different offices worked well together to reach Project goals, found 21% of respondents in agreement and 51% in disagreement. A

rather large proportion (28%) either did not know if there leaders work together or were uncomfortable in answering.

Many subordinates of each of the primary leaders praised them for the kind of people and the kind of work they did. However, it was widely said that the leaders in Walla Walla did not get along with the leader in Boise. Various members of the Executives Steering Committee commented about leaders in both offices, indicating that they were either not attentive to their work or had personal agendas that may not have been in the best interest of the organization and its goals. These results tend to indicate that, at least during the course of this investigation, Project leaders (or at least individuals within the leadership group) were not always focused on the attainment of organizational goals.

ORGANIZATION

Assumption Four: Adequacy of Staffing

Staffing of the ICBEMP is at the most efficient and effective level based on adequate numbers of people, with the most appropriate education, experience, and authority being found in scientific, administrative, and support positions.

It was assumed that adequate staffing would be supplied so that the Project could be successfully completed. A model for adequate staffing was created with this assumption. Elements considered include numbers of people, as well as their education, experience, and authority. Study objectives were to determine three things: 1) if there were adequate numbers of staff to complete the Project, 2) if there was adequate diversity of skills represented on staff, and 3) if staff were adequate in educational and professional backgrounds for the positions they held. Based on

questionnaire responses, staffing appeared to be generally acceptable to Project members. The least supporter results came in response to a statement saying there were adequate numbers of staff on the Project.

Numbers of Staff

Respondents were divided over the adequacy in numbers of staff working on the Project, with 40% agreeing there were adequate numbers and 35% disagreeing. Subsets of respondents on this question include the Project Leadership Team (PLT) and the Science Integration Team (SIT), which disagreed over adequacy of numbers. Fifty-six percent the PLT felt there were adequate numbers, while only 11% disagreed. The SIT had significantly different view, with 34% agreeing and 60% disagreeing. In a similar subset, administrators and scientists differed in a similar manner and degree. Scientist felt there were not enough people, while administrators felt there were.

Comments from staff indicate a problem in relationship of staffing levels to time available to do the work. Staff members pointed out problems, which related to a broad, rather than focused approach to the type and amount of data needed to complete the Project. It was widely felt that the number of people was adequate to do the job that needed to be done, but not to satisfy all desires for gathering information. Also, an uneven flow of data periodically created conditions in which staff was inadequate to handle the workload. Lastly, people working part-time were felt not to be as effective as those working full-time, which might also tend to create the appearance of insufficient numbers of staff. Available information indicates that adequacy of staffing levels can only be evaluated in light of the tasks they are required to accomplish. Responses and comments indicate that staffing levels were not balanced with production requirements over the time span of this study.

Skills of Staff

Respondents felt that adequate skills were represented on the Project, with 67% agreeing and only 20% disagreeing. In a subset of these responses, scientists were compared to administrators as well as specialists. Just 40% of scientists agreed that an adequate array of skills was present on the Project, while 50% disagreed.

Administrators' and specialists' views were strongly opposed to scientists', those agreeing there were adequate skills totaled 83% for administrators and 73% for specialists.

Three separate areas of contention seemed to exist: 1) that the community of Forest Service planners was not fully included in planning activities, 2) that biophysical disciplines dominated the process at the expense of social sciences, and 3) that some communication support functions were weak. Planners readily admitted errors and political biases of past forest planning, but felt that the current scientifically based Project administration had not done inadequate job of planning and organizing the process. Some, inside the Project, felt that an atmosphere hostile to planners had developed in the EIS team and said that resource specialists had been favored at the expense of planners.

There were numerous positive comments about the diversity of experience and background brought to the Project by various individuals. The vast majority of staff members working on the Project came from some sort of biophysical background, which was either scientific or production oriented. Nearly all of the comments expressing satisfaction with the level of intellectual diversity and personal interaction were from people who came from one of these biophysical backgrounds. Those who felt that other disciplines, other world views were missing or not adequately represented on the Project came from a variety of backgrounds, including biophysical and social. However, some of the most vocal were from social science

or economics backgrounds. Their feeling was that biophysical concerns all had a social component, if not a social cause. They felt the proportion of social science staff should be increased and that disciplines such as historians, geographers, political scientists, and public administrators, to name a few, would enhance the effectiveness and credibility of the Project. The fact that scientists, as a group, were the only ones who took this stand (50% saying skills were not adequate) is puzzling. It may be that their desire for greater understanding extends beyond the boundaries of their work. This supposition, however, is supported only by the above mentioned responses of scientists.

The organization and operation of meetings, which comprised an important part of the Project, was an area that no one made positive comments about. Meetings were the primary venue in which integration was attempted and their structure and conduct was seen as being critical to that effort by a number of staff. No one on staff who perform these duties had been professionally trained to do so.

Indications from responses to the questionnaire suggest that an adequate array of skills, particularly those in the biophysical fields, were present to conduct the Project. However, that appears to depend on the assumption that biophysical disciplines should constitute the majority of staff. If this traditional view is accepted, then the level of participation of the social sciences could be considered adequate. If the contention that biophysical problems have their roots in social phenomena is accepted, then the depth and array of job skills that existed on the Project might be judged inadequate. The same sort of perspective driven judgment must be made in the case of the level of planning expertise involved in the Project. If a process, designed to solve policy problems and modify forest plans that were created by planning departments, should have a significant presence of those planners, then planning skills represented on the Project might have been insufficient. Internal

meeting facilitate was widely recognized by staff to be deficient. This information suggests that professional level facilitation was a skill lacking on this project.

Background Qualifications of Staff

Most staff (68%) agreed that personnel held positions for which their backgrounds made them well-suited. To the statement that the best people available were working on each of the science and EIS teams, only 48% agreed. Many people praised quality, training, and background of staff members. Only two areas of dissent appeared in staff remarks: 1) that many people working as scientists were not truly scientists and 2) that some people found or were placed on the Project to get out of difficult circumstances.

A very limited number of individuals commented on the National Forest System (NFS) analysts, saying that they should be replaced by true scientists. These individuals, for the most part, have similar educational backgrounds to the research scientists, but have a different working experience and perspective. One comment about the social science team members was that greater quantitative and analytical skills were needed. On balance, these comments were very limited in scope and intent. They may simply indicate a desire by some staff to see a much more scientifically expansive and probing process.

A few comments surfaced about people who had come to the Project because they needed to get out of other jobs or had nowhere else to go. One person made the comment that the Project “. . . got many of us out of bad jobs/working environments . . . ,” seeming to indicate that they had gotten out of bad situation by coming to the Project. Similar stories or assertions were repeated several times, however, in the first 18 months of the Project, it employed over 600 people, substantially diluting the number of complaints. Though some people admitted using

the Project as an escape from other situations and others were said to be in similar circumstances, the indication from responses and comments did not indicate that staff not having adequate backgrounds was a problem.

Assumption Five: Geographic Separation of Offices

The working environment is designed to most efficiently utilize the time and energy of staff by focusing their efforts on the scientific, planning, or administrative work to be done; geographic groupings of offices and assignment of personnel reduce unneeded travel and improve communications to support group integration.

The structural model conceived for a basin-wide assessment was one that was most effective in gathering, processing, and then disseminating information back to its constituents, both internal and external. As discussed by the regional forester from Oregon/Washington, putting the Project in eastern Washington was a political choice, to increase the feeling of inclusion and acceptance for people who had often been on the periphery of previous processes. The objective of this section is to determine if the placement of Project offices was effective and efficient in moving the process to a successful completion.

Communication within or among Project teams was said to be hurt by the distance between offices, according to responses from 78% of those answering the questionnaire. Additionally, 70% said that geographic separation of offices was not working well. Both groups of a subset, dealing with the proportion of an individual's work time spent on the Project, felt that geographic separation was not working well. Those who spent more time (76-100%) were more likely to say separation did not work (79%), while only 8% were unsure. The group that devoted up to 75% of their professional time to the Project also felt (56%) that separation did not work. The key difference between these two groups was the much higher

proportion of those who were unsure (28%) with the second group. Less extensive contact with the Project might be expected to increase the proportion of those who were unsure, explaining much of the apparent difference in view.

People who had moved to Walla Walla with their families, said they liked the community. It was said to have good schools and a family friendly atmosphere. Most staff, however did not move to Walla Walla with their families or on a permanent basis. Comments ranged from there being too much time and money wasted on travel for staff to get to and from Walla Walla. A Boise staffer said they were lucky that no one was killed during the 4½ hour winter drives between Boise and Walla Walla. It was noted that, because there was no regular commercial air service between the cities, it actually took longer to fly than drive the distance. Leaders and observers of the process said that the distance, in combination with other problems, led to increased tension and poorer communication between people on either end of the drive. The responses and comments of the staff seem to indicate that the geographic placement and separation of Project offices was not efficient or effective in terms of helping staff to focus on the work of completing the Project.

Assumption Six: Adequate Support for Staff

Material and financial support needs, as well as the need for adequate time to complete the chosen process, are fully met throughout the Project, to ensure a timely and successful conclusion to the overall goals of the Project.

It was assumed that the Project leadership would provide the necessary materials and financial support for staff to complete the work required of them. It was further assumed that information needs would be properly identified and adequate time allowed to address and fulfill those needs. Objectives of this section were to determine: 1) if equipment material needs were met, 2) if finances were adequate for

the work required, and 3) if adequate time was allowed for staff to deliver quality products.

Materials and Equipment

Seventy-four percent of respondents agreed that materials and equipment, such as computers, were adequate for the needs of the Project. Staff comments indicated that the majority of the equipment was of good quality and performed well. A limited number of people felt that some improvement could be made in equipment or software. People working with graphic arts would have preferred Macintosh computers to work with and, it was said that at times the flow of data was too great to be processed with existing equipment in the GIS section. Most indications, based on staff input, were that equipment was of good quality and in adequate supply to complete the Project successfully.

Financial Support

A majority of staff (64%) felt the Project had enough money to do what it needed to do. The total amount of money available, especially at the beginning of the Project, was said to be quite adequate. Problems noted included the lack of predictability of money flow at any given time. In the early part of the Project financing came from the Forest Service regions, Bureau of Land Management districts, and their subdivisions. Members of the Executive Steering Committee and Project Leadership Team felt that future processes of this nature should be centrally funded by the Washington offices of the respective agencies. It was also said that results of the Project would be much easier to accept in local offices if they did not have to put up with hardships thought to result from local money being transferred elsewhere to provide for Project needs. Though comments indicated that finances were adequate

to carry out the Project, the sources of funding appear to require additional thought and development in order to help unify staff behind future projects.

Time and Its Relation to Process

Staff was not as satisfied with the allocation of time as they were with materials and financial resources. Responses to the statement expressing that they had as much time as required to finish a quality product were 30% in agreement and 62% in disagreement. Respondents generally assumed one of two positions: that time was not adequate to do a job of this nature or time was adequate, but only to do a well focused process. The first position was typified by a scientist who said the "time line [for a] project of this magnitude is to absurdly short." This individual expressed the position that the nature of work being done was correct for the assignment made but time was not adequate. The second position was represented by manager who said the "project had a short time line, but adopted a process that was very time-consuming." A mismatch between the process chosen and its extensive time requirements was contrasted, by this manager, to a limited amount of time allowed by agency executives to conclude the Project. Other staff gave examples of anticipated work being dropped, such as a mid-scale assessment, which would help people at the forest and district (lower planning) level apply the large-scale work of the Project to their circumstances. An additional complication cited by numerous staff was the late addition of a second to EIS project with a separate office in Boise. This, according to a Project leader, extended time-lines by a full year. Questionnaire responses and interview comments indicate that time was not adequate to develop quality products to complete the Project with the process chosen by leadership.

Communication/Interpersonal Relations

Assumption Seven: Internal Communication

Information, including scheduling of meetings and activities, expectations for content of reports from each discipline, and/or visions and revisions of goals and time-lines are clearly communicated, updated as necessary, and readily available to all members of the ICBEMP.

The model created as a context to evaluate the Project's internal communications assumed that information concerning daily activities and processes would be clear and available to all staff. The model further assumed that individuals would be given the clear and concise direction, which they required to fulfill their duties. Specific objectives for this section include determining if general Project information was adequately communicated and if specific expectations for staff's individual work was transmitted adequately.

A majority of staff (58%) agreed with the general statement that the Project kept them aware of important activities, meetings, and information, while 30% disagreed. When asked if the nature and standards of work they were expected to produce had been clearly transmitted to them, 38% agreed that it had, while 50% disagreed. A large decrease in support for communication quality is seen when the focus moves from general communication to transmitting specific information to guide the individual's work.

A few general comments were made saying that communication was good within the Project, but several other comments suggested that specific communication about work responsibilities or expectations was not felt to be as good. A section manager

in Boise said that no attempt had been made to transmit job objectives and goals by that individual's supervisor. Similarly, a specialist in Walla Walla said that the individual was left to "sink or swim" in typical Forest Service fashion. Others pointed out that much about this process was so new and that ecosystem management was a concept that few understood and much about this process was so new that communication was bound to be difficult. Based on questionnaire responses and a lack of any strong negative comments it would appear that the Project did provide adequate levels of general internal information to inform staff members. When the questionnaire responses, relative to communication on the nature and standards of work expected for individuals are considered along with comments pertaining to that level of communication, a different conclusion might be drawn. A lack of understanding of the concept of ecosystem management may have left some managers unsure of what instructions or directions to transmit to subordinate. Based on questionnaire responses and limited information available from comments, this area of communication does not appear to have been fully adequate.

Assumption Eight: External Communication

Decentralized work centers for the ICBEMP create an improved communications environment between the Project and its many constituent groups.

This assumption states that having Project offices distributed around Columbia Basin would improve the quality of access for a communication with constituent groups in the region. Specific objectives of this section were to decide if this model was correct. Three basic points were examined through the perceptions of staff members: 1) what was the quality of constituent access, 2) were constituents informed of Project activities and invited to participate, and 3) should constituents have greater access to the Project.

Respondents to the questionnaire were only slightly more inclined to say that decentralized offices provided a greater outflow of information to constituents (43%) and gave constituents greater access (45%) to the Project than those who were not. Remaining responses were evenly distributed between those who were unsure and those who disagreed.

Comments generally were positive concerning communication with the public. These range from any ESC member who said the Project was innovative and effective in communication, to a manager who said "outreach to constituents has been fairly effective." These comments, however, dealt with communication or outreach from the main office in Walla Walla and were silent about the other offices where Project activities were carried out. Because the scope of this study was restricted and did not include surveys of constituents, it is difficult to draw meaningful conclusions about the affect of decentralized offices on constituent access. Based on questionnaire responses, this structure would probably not be said to improve constituent access.

Seventy-seven percent of respondents agreed that constituent groups had been informed of Project intents and invited to participate in its process. Responses to the proposition that constituent groups should have greater access to contribute to the process were ambiguous, with 40% agreeing, 35% unsure, and 25% disagreed.

No one indicated a desire to eliminate public involvement, though some staff felt that constituents had, in some cases, been driving the process and creating unrealistic deadlines for the Project. Another staff member felt that constituents should have additional opportunity to become involved in process, but felt this was unlikely to happen because of federal regulations restricting access to decision-making processes. Based again on questionnaire responses and very limited other

information it appears that staff feel comfortable that the public was adequately involved in this process, but do not show much support for increasing that involvement.

Assumption Nine: Interpersonal Relations

Throughout the ICBEMP staff, the success of the project in meeting its goals is the top priority, being placed before any goals or desires for personal betterment through promotion or pursuit of personal agendas.

This assumption creates a model of staff relations in which personal desires and agendas are set aside in order to devote full personal energy and organizational resources to satisfying the goals and objectives of the Project. The objectives of this section were to determine if individual egos caused problems within the organization and, if that were the case, did leadership adequately manage those interpersonal problems.

In responses to the questionnaire 70% of staff indicated they felt that egos had been a problem for the organization. In a follow-up statement, 51% indicated they felt that those difficult personalities had not been appropriately managed by leadership, while 24% were unsure.

Comments relating to interpersonal relationship can be divided into two categories: interrelations among Project leaders and interrelations among staff, other than leaders. Beginning with the establishment of the Upper Columbia River Basin office, 6 months after the Project was chartered, leaders in the Boise and Walla Walla offices had difficulty getting along. Numerous staff members from the Executive Steering Committee downward commented on the inability of these leaders to work together toward organizational goals. A field adviser, who was part of a team that

would be charged with implementing results of Project said "in many cases the obstructionist, difficult, or egocentric personalities are the leadership!" Others identified the problem as having three individuals of equal status, who did not all share a common vision or personal compatibility, being in charge of what was essentially one program.

Other interpersonal problems stem from professional or cultural differences, primarily among members on the science teams. Differences based in a narrow disciplinary world-view of the scientific process and a lack of willingness to consider other perspectives in order to create an integrated assessment, was a major problem. Several Project managers said that scientists would not agree on conventions or protocols that would allow any degree of integration to take place.

Cultural differences also played a role in interpersonal conflict among staff. National Forest System (NFS) personnel came to the Project with different working experience, work styles, and expectations than the research station personnel. Though many of the NFS people had similar educational background, their work had taken them on the divergent course from the search for understanding that research scientists normally dealt with. Staff comments indicate that neither group had an adequate understanding of or respect for the work done by the other. Three research station scientist as well as several other senior researchers from the NFS had made agreements that allowed them to work at their home station and come to Walla Walla when needed. Many staff felt this was undue favoritism, which resulted in a significant amount of frustration and stress. Leaders were said to have been ineffective at managing these interpersonal issues and, in particular, problems resulting from difficult personalities on the science team in Walla Walla. During at least the first 24 months of the Project, team building activities that might have alleviate some of these problems had not been instituted. In view of questionnaire

responses and comments from staff, it appears that interpersonal problems caused a number of problems for the organization. Also, it does not appear that leadership was able to adequately manage those problems.

CONCLUSIONS & RECOMMENDATIONS

The Interior Columbia Basin Ecosystem Management Project (ICBEMP or Project) was in some ways a ground-breaking event. It looked at the whole environment in a more inclusive manner than had been done before by any land management agency or group of agencies. It was more open to public participation than previous efforts, in the Northwest, at least. However, a lack of basic planning and understanding of the organizational structure they had chosen resulted in numerous problems and difficulties. This chapter is presented in three sections: Leadership, Organization, and Communication/Interpersonal Relations.

LEADERSHIP

This project took place in a highly litigious and politically unstable environment, especially following the Forest Ecosystem Management Assessment Team (FEMAT or the President's Forest Plan, which occurred in 1993), with its numerous challenges. The land management agencies, by their approach in creating the ICBEMP, appear to have chosen the safe course.

Based on assumptions one and two, it was expected that a clearly defined vision and goals would be communicated to staff and that this would act as a focal point for Project work. Early in the process, leaders did not create a vision or require an approach that would have focused on the primary issues concerning fish, aquatic and riparian habitat, and upland conditions that effect riparian areas. They also failed to create a structure that would ensure multi-agency cooperation across the Columbia Basin and bring the regulatory agencies into full partnership in the process. Many people felt that the ICBEMP would be a significant improvement over the previous effort and the Project's charter gave some support to those beliefs. It seemed to encourage more extensive public participation, but offered no

restraints and only minimal guidance for those conducting the scientific assessment and environmental impact statement (EIS). Time lines were longer than the FEMAT, but still too short for the type of process selected, with only 9 – 12 months for completion.

Process was not discussed in the charter, but left to be worked out by Project staff. It appears from the time-line required in the charter, that the ICBEMP was anticipated to be a narrowly focused single issue process in the mold of the FEMAT. The FEMAT had a strong, some have said dictatorial leader, Jack Ward Thomas, who was soon to become the Chief of the U.S. Forest Service. Also, essentially the same group of people had already completed four years of focused work on the key issue, the northern spotted owl, as a base to work from. The ICBEMP had three leaders, who were not felt to be well adapted to the ad hoc type process in which they had been placed and, two were unable to get along with the third. The ostensible foci of the Project were health of fish populations and watersheds, in themselves more complex and diverse than the FEMAT had faced. The manner in which the charter was written, opened the world to exploration for scientists on the staff, which created a tremendous inertia in the direction of gathering information, while many said critical questions were left to compete for attention with other interests. Even strong and unified leaders would find it difficult to chart a course without a working compass.

From the viewpoint of assumption two, the compatibility of allowing full professional freedom to search for an understanding of the Columbia Basin's ecosystems and the need to create an integrated scientific assessment was examined. In what was a science driven ad hoc organization, the omission of vision and solid goals, as well as not providing guidance on process, proved to be a serious failing. The inertia generated within individual disciplines took the process, intended to move toward integration or, at least, products designed to be

integrated, on a divergent and narrow path of data collection. The initial Project leader and the Science Integration Team leader were both well liked, but neither was what was needed – “a hard nosed SOB,” as one Executive Steering Committee member put it – for dealing with an ad hoc process, staffed with a highly diverse set of professionals, operating in a very highly charged political environment, but still needing to get a specific job done.

Recommendations for the future, include all staff sharing the responsibility of creating a vision featuring a working, team oriented environment, but this study shows that only one person, with strong leadership and interpersonal skills should be in charge. That person also must be held to account for the work done while they are the leader. Subordinate positions should include individual and accountable science, EIS, and integration group leaders, rather than numerous co-leaders.

There are many other partial contributions to solving the above mentioned problems. Agency and professional reward systems focus on the individual's own discipline and sub-discipline. The agency could devise rewards focused on financial incentives and career advancement that would entice qualified people to do work outside the normal disciplinary boundaries. It is unlikely that most research scientists will be interested in departing from an established career, especially to one that requires extreme changes. A new class of professional could be created; one that is broadly trained in numerous areas of ecology, communication, and administration. Degree programs exist that can better prepare individuals to work in a multi-disciplinary arena. Also, the agencies are now offering career advancement instruction, which deals with multifaceted work and environments. However, we still live in a world of specialization, which may mean that the best approach will be to create a job category that specializes in integrating the work of other specialties.

The political milieu of the FEMAT was favorable to finding solutions to environmental problems associated with endangered species. The population of western Oregon and Washington was overwhelmingly urban and environmentally progressive. Though they could not be characterized as wanting to save the owls at any cost, they did want to preserve the biological and ecological legacies that the owl represented. The ICBEMP, in eastern Oregon and Washington, Idaho, and western Montana faced a very different public. People were mainly rural and less experienced with the environmental struggles that had occurred west of the Cascades (western Oregon and Washington). They were suspicious of the Project and many thought that endangered species were violating their rights and freedoms. The regional executive leaders of the Forest Service and BLM appeared to be, in the beginning, as politically divided as their state's populations. Little effort had been made before the charter was signed, to smooth the way for the Project in Idaho and Montana, according to the Region 6 Forester. When an office was opened in Boise, the leader there was hired and reported to the Regional Forester from the Northern Rocky Mountain region in Montana. The leadership split appeared to follow the political divide of the border between Idaho and Oregon/Washington.

Leadership was expected, according to assumption three, to do everything possible to guide process so that project goals would be realized. This expectation was true for all levels of leadership on the Project. This study showed that executives waited too long to start the Upper Columbia River Basin project, did not do adequate political preparation before its initiation, and then created a volatile mix of Project of leaders that accentuated rather than mitigated political differences of the basin. For their part, the project level leaders were unable or perhaps, in some cases, unwilling to rise above personal bias or political agenda to be responsible for attaining organizational goals in an efficient and effective manner. Again it should be stressed that , in the future, similar types of chaotic situations can only be

prevented by focusing accountability on one leader who is attuned to the organizations goals. This is a responsibility of that leaders superiors, the agency executives.

Integration Team: Permanent and With High Stature

In ad hoc organizations such as the ICBEMP, a specialized team of integration professionals could have equal or superior status to the science and EIS teams. These individuals would combine attributes of the scientists, professionals who implement policy, and administrators who organize personnel and material logistics. Their purpose in a project could be to assure that the diverse array of disciplines understand what was expected of them, provide proper support for integration, and to see that the process would be carried through integration and implementation successfully. This team should include people to take an instructional as well as the overall leadership role in the integration process. The team's knowledge and skill bases should include ecologists and sociologists in various fields, excellent communicators, and professional administrators. They should understand the science and its application, but not be immersed in any specific discipline or ideology to the extent of relying on that profession for their career advancement or personal identity. Part of their work would be to see that language used would be understood outside the discipline of its creation and preferably by any interested layperson.

Each science or EIS team should have a person or group from the integration team to guide process and orient new members as they come on-board. This orientation should include a comprehensive treatment of the project's vision and goals, as well as the social, political, and economic context or environment in which the organization operates.

Overall Project Leadership

A project's leadership team should have much the same mix of skills that the integration professionals have. The primary difference should be in the balance of those skills to meet the needs of an overall administration role in the project. The primary skills and experience of the leaders should be managing people, organizational systems, and their processes, followed closely by strength in interpersonal communication. The primary objective of leaders should be to create a vision which includes the project's goals and processes and is understood and supported by all staff. Leadership's secondary objective should be to build a team of people and guide project activities to successfully manifest the vision and achieve the goals. This should be done with budgetary efficiency, adherence to objectives, and compliance with time-lines. A third role leaders should assume is to create an understanding in the minds of their superiors relating to process, the organizations environmental challenges and opportunities, and realistic expectations for the cost and benefits of success.

Vision and Goals

To be useful, the vision should produce a vivid and credible picture of the process undertaken, outcome to be created, and specific conditions or objectives that will be found or satisfied at some future point in time. For the ICBEMP, this would promote an understanding of how products would fit in the context of related planning work at other administrative levels and the path and tools used to arrive at that final point. Everyone should be involved in creating the vision. They should see themselves as part of the final picture, in order to create the products and accept the outcomes. Leadership should understand the vision, be completely dedicated to it, and highly skilled in communicating its value in order to guide such a process.

Preventing the process from being hijacked by narrow interests (inside or outside the organization), is probably best accomplished by strong leaders. Even with strong leaders, success requires a compelling shared vision and a staff with the understanding and administrative direction to function as members of a team. Teamwork is even more critical if they are doing very specific science on separate teams. With an ad hoc process, there should be an integration team – with the will and power to modify activities, which do not serve the ends of the project!

Team Building

The ICBEMP failed to carry out any type of general team building activities for the first 24 months of the Project. At that point, they did hire a well known company to conduct a team building process (the results of that effort were not available to this study). This was quite late in the Project, considering that the original Project's completion was to have been in 9 – 12 months. Any organization that has internal diversity as a prominent characteristic (e.g. numerous types of biologists, commodity production people, economists, sociologists, and managers), regardless of its purpose or proposed duration, should initiate its operations with exercises designed to bring people together with a common sense of purpose and direction, so that the benefits of intellectual and experiential diversity will support organizational goals. This is not a step in creating a vision for the organization, but a step in its realization. Any group composed of people with vastly different disciplinary backgrounds, from different agency cultures, and who have never worked in an ad hoc environment, requires time to adapt to the new format, functions, and personalities. In a project the size and complexity of the ICBEMP, this critical step should be handled by professionals who specialize in this area. Since neither the Forest Service or BLM specialize in such activities, this would entail hiring on contract from the outside.

On the ICBEMP, a small number of people in key positions were perceived as not being team players. Some of these simply had trouble getting along with other staff, but most were senior level researchers or technical people who did not want to be part of the Project on the same basis required of the majority of staff. These people, were seen for the most part, to be working at their home station and coming to the Project as they felt it was necessary. Often they were felt to be disruptive or aloof when they were present and often not at the same level of understanding as other team members.

If the Project had been tightly structured around a narrowly focused vision and completed in the 9 – 12 month time frame that was proposed, the frustration relating to some personnel getting special treatment would probably not have been such a significant problem. Different people should have been chosen to provide the technical guidance for science teams. If people chosen had been good people but not necessarily the best (those with the greatest recognition), they could have been required to move to Walla Walla to carry out their duties, then the image of special treatment might not have been an issue.

Perhaps, if time was taken to build respect and understanding between the research scientists, primarily from the Pacific Northwest Research Station (PNW), and the National Forest System (NFS) staff, problems based in cultural differences might have been lessened. Understanding the different work styles, professional needs, and expectations could have led to a much greater level of cooperation and productivity.

Managing people consisted of grouping similar teams in close working proximity, sometimes. Different disciplines were told to work together toward integration, but not compelled to do so. With all efforts failing to achieve the integration and

interrelations desired, some people, as a last resort, could have been asked to move aside and let other more cooperative people take over.

Residence At the Project

Key staff should reside on site at the project and be 100 % devoted to that effort. Six of the seven key science team people were not located in Walla Walla. The Science Integration Team leader was the only exception, who lived in that community. Four science teams were represented on site by National Forest System analysts who were designated as co-leaders, but were definitely junior in authority.

Most of those key nonresident staff had outside duties during the Project. One interviewee said that 100% of his time was assigned to the Project, but there were still requests to do other work, some of which took him out of the country. If the assignment to a project is temporary and 100%, then those individuals should be fully relieved of all other professional responsibilities so they may devote their full energy to the new work. It is a matter of prioritization that should be supported at all levels of the organization. Loss of continuity in ongoing work makes for a tremendous disincentive for any professional to devote energies to a new project. Ongoing work should be maintained by other qualified staff. If previous work is to be discontinued as a result of new priorities, then full credit should be given to that professional for completing the work when career evaluation is done for pay and promotion. This may require intervention from outside the peer review process for promotion.

With the completion of any project or individual's roles in that project, staff members should be rewarded for their work and dislocation (physical, emotional, and professional) while on the project. They should also be rewarded in future

positions for the experience gained from a project in which they successfully participated. People should not have to look for work while they are trying to finish a project. Previous jobs should either be guaranteed on return from the project, as the BLM did for their people on the ICBEMP or a new permanent post with equal or better work, responsibilities, and pay guaranteed at completion of the project. Any discontinuity in the individual's employment should be the full responsibility of the agency.

Ecosystem Understanding

Ecosystem management was not and is not generally understood. The best interpretation of it that came out of the Project is that it means managing resources on larger physical and temporal scales so current management plans and units can be better coordinated. Breaking it down, ecosystem is defined as: A community of organisms and their physical environment acting in relation to each other.

Management is: the act of taking charge or care of; to dominate or influence.

Managing the system upon which we all depend should suggest the need for a deep understanding. Perhaps ecosystem understanding would have been a better term.

Understanding might suggest that we approach the arena with an open mind to find a true point of balance among humans, other life, and the physical forces of nature.

The essence of that definition should be that human culture and populations must learn to live within the limits of their environment. They should create an ethic of sustainability that stresses creating future conditions, which are more stable, diverse, and ecologically balanced than we have today.

ESC and Politics of the Columbia Basin

Additional complications arose because the land management agencies were undecided, unwilling, or unable to create a uniform management decision process (environmental impact statement) across the whole interior Columbia Basin at the

same time. The piecemeal process added the Upper Columbia Basin Project, in essence created a second project but defined it as part of the first. The UCRB was forced into a system that was already underway, causing great turbulence in that system. From the perspective of the upper Columbia Basin, they were required to join a process that many were uncomfortable with. The resulting friction and frustration came from differences between leaders divided by the Idaho border and the chaos of starting a new and equal EIS team 6 months after the original. The tension that developed led to poor communications, lack of productivity, and poor relations among many participants.

The Executive Steering Committee waited about 18 months to assert its authority and begin to take control over the now combined process. Almost a year had passed with the leadership in Walla Walla and Boise not getting along, and pushing the whole project further off schedule. The ESC should be actively involved from the beginning of any project.

The ESC was to have brought federal regulatory agencies (Fish and Wildlife Service, National Marine Fisheries Service, and Environmental Protection Agency) into the process. This did not happen at the executive level, at least in the first 24 months, because the land management agencies feared losing control. On the Project level, the Environmental Protection Agency (EPA), which was well represented. Other regulatory agencies did not have as authoritative a presence.

It might be argued that the presence of the regulatory agencies at the highest levels would have forced the land management agencies to act differently. Perhaps the ESC would have been engaged from the first and a workable vision and goals would have been vigorously pursued. In view of the need to have the regulatory agencies concurrence with the plan in order for it to be effective, future projects

should include them in the process of writing the charter and planning the entire process.

ORGANIZATION

Organization, Staffing, and Time

Organizational problems, in part, stemmed from a lack of clear vision (discussed earlier) and the inability to manage processes chosen for this project. The Interior Columbia Basin Ecosystem Management Project chose an ad hoc, open exploration process that was used to assess biological and social conditions on 144 million acres of federally managed lands, in six states, with multiple agencies participating. This approach to the Project could not have reasonably been expected to reach completed in the 9 to 12 months initially anticipated in the charter.

A well planned, specifically focused effort might have been successfully completed in the period allotted. However, rather than a narrowly focused process, a wide ranging process was used to collect data among topics that, while interesting, did not always directly support the needs of the Project. If an exploratory scientific approach is use, then an extensive amount of time should be allowed to fully developed that process. If a short time-line is required for political or economic reasons, then all efforts should be focused on specific questions that need to be answered immediately. The process chosen was a recipe for failure and obscurity; perhaps a desirable end in some minds.

Goals and resources should be realistically matched to each other. One reason staff felt the Project was miscast was due to a fear that politics would not allow the process to be completed. The President's Forest Plan, known as the Forest Ecosystem Management Assessment Team (FEMAT) was the culmination of an

four-year long series of smaller assessments to deal with one endangered species: the northern spotted owl. It was incorrect to assume that the ICBEMP, a larger, more complex, and potentially more politically contentious set of questions could be resolved in significantly less time, let alone the 9 to 12 months projected.

The use of concurrent processes for the Science Integration Team (SIT) and Environmental Impact Statement team (EIS) was intended to expedite the Project, but in the end failed to do so. Future projects of this nature should be designed so that science efforts are well focused in order to deliver, in a timely manner, the information needed to support EIS activities. An EIS should not begin until scientists have finished the fully integrated package of documents that are required for the EIS. A special integration team designed and empowered to integrate scientific thought, processes, and products should begin with the project planning stage and remain to act as a bridge between the science and planning processes. This same integration group could also work to facilitate implementation; integrating new knowledge and perceptions into current forest plans, operations, and culture.

The planning process to create future projects should begin with a complete, all encompassing information needs assessment. Planning staff from all forest service regions and BLM state offices should be fully involved members of the project to assure that operating plans for the project are properly implemented and that local, regional, and project planning processes are structurally and operationally compatible and relevant when applied at lower planning levels as well as national priorities. Planning staff should also be involved in deciding what questions of substance need to be asked, as well as, how and by whom they will be answered.

Adequacy of Skills, Backgrounds, and Numbers

Assumption four states that staff would be selected for the Project to assure the highest level of efficiency and effectiveness. Creating a diverse array of skills, finding the best individual backgrounds, and achieving adequacy of numbers were assumed to be proper objectives for staffing. Of the three objectives, creating a balance of skills that offer all relevant perspectives, to assure the assessment is complete and deals with all important issues may be the most important and was the weakest area for the Project, in this assumption.

The Project was heavily balanced toward biophysical disciplines, which has been and continues to be the approach for the land management agencies. While the problems to be addressed primarily related to anadromous fish, their habitat, and watershed quality, the dynamic conditions underlying those biophysical problems were social and economic. Social and economic teams felt they were not represented adequately, relative to their importance in solving the central problems. Historians, political scientists, and public administrators were not hired at all, in what was arguably the most highly charged and important political, public administration event occurring for either the Bureau of Land Management or Forest Service. These sort of disciplines are generally not well represented in the land management agencies. Academics could be contracted or hired if regulations require, to provide needed intellectual and experiential diversity.

Staffing objectives relating to appropriate background experience or education, appear to have been met satisfactorily. The most notable exceptions on staff appear to have been in the area of coordination and facilitation. Proper facilitation of meetings was lacking on the Project. Through the first 24 months (at least), nonprofessional people were used to facilitate meetings; observation and staff comments revealed little success. Reasons for not hiring professional facilitation

normally included the phrase "it cost too much." However, the lack of progress over that 24 months period cost far more than any imaginable expense for the best of facilitators. If professional facilitation were incorporated at the Project level, the overall design and direction of the science efforts could not have remained exploratory and expansive, while in the context of constricted time-lines. It would appear that, with adequate facilitation, the PLT and ESC would have been forced to make accommodations that they were unwilling to make otherwise. Outside facilitation could be used in the future to organize activities and provide a continuous reality check for administrators.

Under the conditions of the Project, filling all the NFS analyst positions with research scientists may have intensified the drive for data collection and therefore reduced progress toward integration and a successful completion. If the science effort was truly intended to be an exploratory vehicle to learn more about the regions ecology, then perhaps the addition of more research scientists would be beneficial. This would be likely to decrease willingness in different disciplines, to work toward integration because of an increase in the predominance of a focused research paradigm.

A final staffing objective, adequate numbers of people to carry out organizational functions, appears, in some ways, to have been satisfactorily met. The possible exception to this conclusion might come from the mismatch in work and people to do that work resulting from concurrent operating schedules for science and EIS efforts. This, along with an extensive and, as many said, unfocused search to understand the ecosystem, periodically left staff either swamped with work or waiting for something to do. This phenomenon will be discussed more fully in a section devoted to time allocation, below.

Geographic Separation of Offices

As stated in assumption five, Project offices would have been placed to most effectively and efficiently utilize the energy and staff and other resources necessary to develop an assessment which clearly characterized the Columbia Basin. The ICBEMP was composed of two main offices, in Walla Walla in Boise, with several satellite offices, some of which were not even located in the Project's study area. Widely separated work sites made management of the science and EIS processes more difficult and may have promoted the ability of investigators to focus on data collection rather than integrative thinking. The fact that scientists were working in several different locations: Walla Walla, Boise, Missoula, Wenatchee, Portland, and Corvallis, in no way supported the concept of an integrated final product from the Science Integration Team. It, in fact, begged for a team of integrators, beginning work with the outset of the planning process. In the case of the EIS teams, geographic separation and the fact that the Boise team started months later than the team in Walla Walla, helped to initiate and perpetuate the tension between members of the two teams that hurt the performance of both. This tension was further compounded by the regional politics and perceptions that roughly divided the Project along the Idaho border with Oregon and Washington.

Future projects of this nature should be designed to reduce rather than accentuate intra-regional political differences. A single project office should be created to bring disparate groups together. Boise or Spokane would probably have been the best choices for the ICBEMP headquarters office.

Walla Walla, Washington, was chosen as headquarters for the ICBEMP for political reasons, rather than on its merits for accessibility or availability of facilities to house the Project and its staff. Poor accessibility was a drain on the staff physically and emotionally. The amount of effort for people to get in out of

Walla Walla translated into a drain on the Project's budget with many hours devoted to driving: to and from home, to meetings at other work locations, or on charter flights, when they were available. These long travel hours represented a loss of work time and therefore helped to extend the Project's time-line. Living away from home and family was also difficult for many staff members. Some 6-month details became much longer.

Accessibility was also a problem for constituents of the process. Public meetings were held at six or eight-week intervals, with many people driving well over 100 miles to get to Walla Walla. Once in Walla Walla, accommodations could be difficult to find. A larger city should be chosen in the future if only based on a good regional airport and an abundance of accommodations for visitors and staff alike.

Staff Support

Assumptions six stated that material and financial needs, as well as adequate time to complete the chosen process would be supplied by Project leadership. Material needs, such as computers, telephones, and other facilities were generally felt to be abundant and high-quality. Money to fund the Project was also adequate, though its sourcing created problems, particularly in the early part of operations. The Project leader said that it was difficult and time consuming to negotiate with multiple funding sources represented by all the individuals on the Executive Steering Committee. In the future, all funding for projects of this nature should come from the Washington office level to avoid conflicts of interest and promote unity behind the project.

The last objective, to see that adequate time was allowed to complete required products, was broadly said to be mishandled by leadership. Enough time was

allowed for a well focused, intensive assessment process. Rather than creating a vision and process based on specific issues and needs, which could have been done, according to numerous staff, in the allotted time, the leadership chose a poorly focused and extensive search for understanding of the basin's ecosystems. Numerous scientists commented on this error, which resulted in the science assessment running approximately twice as long as the entire Project was originally scheduled for. Future projects should match the work to be done with appropriate temporal scale for its accomplishment. One of the best way to do this is through an encompassing issues and needs assessment, which would then be the basis for a vision and goals that the organization could work toward. The leaders of the organization should also find ways (discussed earlier), to focus people and process in order to specifically address relevant issues.

COMMUNICATION/INTERPERSONAL RELATIONS

Internal Communication

Assumptions seven states the expectation that leadership would be able to communicate information pertaining to scheduling meetings and activities related to Project operations. Staff indicated that they were comfortable with the general communication effort on the Project, by a fairly large majority. The assumption further states that leaders would be able to communicate their expectations regarding the nature and standards expected in an individual's work. This required staff to look specifically at how well their needs for direction had been met. Less than a majority now said that communication was adequate, while greater numbers were either unsure or said expectations were not adequately communicated.

With little in the way of a vision or specific goals and objectives, leadership at all levels would find it difficult to lead. Communication of any sort, without a clear

intent or idea in the mind of the communicator, will be problematic. This problem was expressed by staff at all levels of the Project. A science team co-leader told of an instance in which the Science Integration Team (SIT) leader had required a report of all the science teams, but was vague and imprecise in what it was that was to be created. The result was that people did not know what was expected and their work was inconsistent or not completed. At another point in time the SIT leader was reported to have responded to a query about what the science product to be produced should look like, with: "I don't know, you tell me."

It is likely that there are several roots to the communication problems. The first is the concept of ecosystem management, which may not have been clear enough so that the leaders had an understanding to pass along to staff. Second, the process had begun with an insufficient amount of planning to develop a focus on pertinent issues, which should have taken priority. Third, there were no high-quality professional communicators or facilitators hired for this project through at least the first 24 months. Several months into the process a new staff member was hired to work in the area of coordination, but did not appear to be used to any significant degree in that capacity. Fourth, it was reported by numerous people that suggestions to change or improved process were ignored. A key complaint about the way in which teams failed to communicate with each other, related to difficulties with integration. One science team co-leader said that they felt integration was being treated like a product to be created at the end of the process, rather than the process itself. Another co-leader said that this was the expressed intent of the SIT leader to wait until the end to integrate the reports of the five science teams. This approach meant that the individual teams were always working within their own paradigm and, for the most part, unable or disinterested in communicating with other teams. The result was a significant loss of time and productivity. Last, to varying degrees, different people were unable to give or recognize constructive criticism. This was particularly true when cultural

differences such as those between the National forest System and the research station scientists or disciplinary differences (e.g., sociology, economics, aquatics, terrestrial ecology, etc.) were brought into play.

The most basic and earliest step toward solving these problems (and saving a great deal of budgetary resources) would be to hire professional team builders to help in bridging the cultural and ideological differences among staff members. The next step would be to employ a high-quality facilitator to handle meetings and all internal communication. Good facilitation and communication management should be able to bridge many of the cultural differences and to some extent require individuals on disciplinary teams to think in integrative terms. This would not prevent problems related to lack of planning or understanding.

Political imperatives that pushed the Project ahead too quickly, without proper deliberation and planning to establish the most important issues and the best procedures to address them, must be addressed at agency, rather than project levels. As long as political fear drives process, it will be difficult to manage.

External Communication

Assumption eight deals with constituent communications. The expectation expressed is that leadership would consider communication as part of the rationale for setting up a decentralized system of offices throughout the basin. The Project would be expected to have excellent constituent communication as one of its primary objectives. This study sought to determine: 1) if staff felt that decentralized offices had helped with outflow of information and clientele access, 2) if constituent groups had been informed of Project activities and invited to participate, and 3) if staff felt that constituent groups should have greater access to the Project.

The concept that communication with constituent groups might be better throughout the region due to decentralized Project work centers does not appear to be valid, with one exception. That one exception, was the Boise office which had a full-time public relations specialist on the staff and was quite active in addressing the public. Generally though, all public relations work and most public meetings (other than initial scoping meetings) took place in Walla Walla, Washington. Several public meetings were held in locations other Walla Walla, but these were either in cities like Spokane, Washington, which did not have a Project work center or on occasions in cities that did have work centers, but with staff from Walla Walla or Boise, managing the process. The accessibility of satellite work centers to the general public was questionable, in view of the restrictions placed on constituents during public meetings held in Walla Walla. Though access had been open to the Project offices and staff during initial public meetings, in the spring of 1995, leadership began restricting clientele access to all areas and staff other than those directly involved in the public meeting. The reported feeling was that the public had no need to see and might draw erroneous conclusions if they had access to work in progress. This was a big step backward in the direction of FEMAT's highly restricted public access. It was greeted with confusion and resentment from those people who were screened out of the process in which they had begun to feel involved.

The single largest complaint about the public meetings, other than the difficulty of getting to Walla Walla, was the lack of solid information on what the scientific assessment had found and interpretations of how it would affect people and their communities. This problem initially relates to the broad exploratory process chosen for the assessment and the fact that scientists were not focused, by a defined set of issues, in the collection of their data. Considering that they were at the 18-month point, in an assessment process that was slated to be finished in nine months, public participants continued to be very understanding.

Most staff felt that constituents had been adequately informed about what the Project was doing and had been invited to participate in the process. A plurality of staff (40%) felt that constituent groups should have greater access to the process, while 35% were unsure and only 25% did not want constituents to have greater access to the process. These numbers may be seen as a hopeful sign that processes such as the ICBEMP will find growing public involvement in the future. The whole process of public relations, informing, and involving the citizens of a region and the nation, in the political and scientific process of managing their lands, requires extensive additional development and study. No more information was developed on external communication in this study because, it was the expressed intent of the SIT leader that the topic of external communication was not appropriate for this study.

Interpersonal Relations

Assumption nine stated that the success of the Project in meeting its goals would be placed above any desire for personal betterment or pursuit of personal agendas. This section of the study was evaluated through determining if staff felt that personal egos had caused problems for the organization and, if so, how well leadership manage those problems. It was not fully understood in the beginning that problems of narrowness of vision based in disciplinary paradigms and lack of leadership's understanding of interpersonal relations would turn out to cause such serious problems in organizational processes.

In looking at the process as a whole, egotism and arrogance have played a major role in producing some of the Project's biggest blunders. The concept of the Project was based on the premise that it could be done in a similar manner to FEMAT and other studies related to the northern spotted owl, in western Oregon; utilizing strong top-down leadership which required and got compliance with

leadership direction. However, the leaders provided for the ICBEMP were not all strong and additionally, were divided among themselves. The Executive Steering Committee was either disconnected or disinterested in the process of leading for most of the first year. In part, this condition stemmed from a lack of will or understanding at the highest agency levels to deal with political intransigence found in regional offices of both agencies in the upper basin. Agency and regional leaders feared the political consequences of a long, drawn out process and the potential of including the regulatory agencies as equals in planning and implementation.

The Project was created with minimal input from agency planning staffs in the region. Most planners that this researcher was able to contact felt the Project executives were arrogant and misguided in rejecting their advice. The design of the assessment process contradicted its ostensible goals. An extensive exploratory process was initiated that would take a significant amount of time and transfer people and money, both scarce agency resources, from offices in the regions, to the Project. An abbreviated time-line was created to sooth fears of political instability, which only allowed adequate time for a process focused on specific issues.

A second benefit hoped for with a short time-line would be a reduction in the distress felt by the Forest Service regions, BLM districts, and their subdivisions. They were the entities that gave up ongoing programs to supply the Project with people and funds. If these inconsistencies in the planned versus realized were noted at all, it was apparently assumed by the agency executives that strong leadership would solve problems as they arose, just as had occurred in FEMAT.

To some degree, individual decisions were made based on narrow perceptions founded on personal or professional beliefs that the paradigm familiar to the individual was superior to others or on the faith that strength of staff and leadership

would carry the day, as was felt it traditionally had. This belief was maintained in the face of extensive contradictory evidence, which was often dismissed out of hand. It seems to be true that, as one scientist put it, “[t]he Forest Service’s worst enemy is its traditional ways of doing business.”

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APPENDICES

APPENDIX 1: RESULTS OF QUESTIONNAIRE

Appendix 1 contains the questionnaire results used in this study, listed by study division (leadership, organization, or communication/interpersonal relations) and the general assumption, which framed each set of statements to which staff were asked to reply. Results were aggregated from a five point to a three point Likert scale (combining strongly agree with moderately agree and strongly disagree with moderately disagree) to increase their clarity and comprehension. The twenty-six statements displayed below were selected, from a total of fifty-one administered in the questionnaire, to depict results clearly, while eliminating statements that tended to be redundant.

Staff were asked to provide information about themselves to allow a statistical comparison to find differences withing various demographic categories. Those categories were: government service grade, employing agency, team assignment within the Project, professional background, and percent of full-time-equivalent spent on the Project. Because each category had between four and eight subdivisions, the total number of interactions per question was forty-six, which totaled 1196 possible interactions for the twenty-six statements. Only those interactions with p-value less than or equal to .05% are considered significant and presented in the study. This was limited to a total of eight interactions of the 1196 possible. Interactions are displayed below, following the statements from which they are derived.

Demographic variables used in this study and their individual components are displayed in appendix 2.

LEADERSHIP

Assumption One

Leadership, within the ICBEMP and in the agencies that formed it, has clearly defined and communicated the vision and goals of the Project to all staff members.

Statement 1: There are a clearly defined vision and set of goals that have been created for the ICBEMP.

Project Total: (n=117) Agree = 61%, Unsure = 6%, Disagree = 33%

Statement 2: Goals for Science Integration and EIS teams have been translated clearly into operational terms to keep us moving in the right direction.

Project Total: (n=116) Agree = 35%, Unsure = 18%, Disagree = 47%

The following is a comparison of a subset of responses to statement 2, based on: Team Membership on Project: Science Integration Team (SIT) & Project Leadership Team (PLT, p-value = .01026):

SIT: (n=34) Agree = 44%, Unsure = 3%, Disagree = 53%

PLT: (n=9) Agree = 11%, Unsure = 33%, Disagree = 56%

Assumption Two

Leadership styles which encourage maximum flexibility and creativity in staff, also are most efficient and effective in motivating, focusing, and guiding a large group with very diverse disciplinary backgrounds, to integration and completion of a complex series of tasks.

Statement 1: Project leadership encourages professional creative freedom and self-directed inquiry.

Project Total: (n=116) Agree = 73%, Unsure = 16%, Disagree = 10%

Statement 2: Leadership encourages new ideas from staff that expand the vision and goals for the Project.

Project Total: (n=117) Agree = 65%, Unsure = 19%, Disagree = 16%

Statement 3: Changes are readily made when a more effective or efficient path is found.

Project Total: (n=117) Agree = 46%, Unsure = 27%, Disagree = 27%

Statement 4: Staff and leadership normally spend as much time in Walla Walla (or other work centers) as is requested.

Project Total: (n=119) Agree = 39%, Unsure = 33%, Disagree = 29%

Statement 5: Leadership is able to manage the complex integration process well.

Project Total: (n=116) Agree = 35%, Unsure = 30%, Disagree = 36%

Statement 6: Scientific integration is working well.

Project Total: (n=119) Agree = 29%, Unsure = 30%, Disagree = 40%

Assumption Three

Leadership for the ICBEMP is focused on and accountable for attainment of Project goals; it guides the process in an efficient and effective manner.

Statement 1: Leadership at different work centers (Walla Walla, Boise, Portland, etc.) work well together to reach Project goals.

Project Total: (n=116) Agree = 21%, Unsure = 28%, Disagree = 51%

The following is a comparison of two subsets of responses to statement 1, that compared individuals based on their stated professional background: administrators compared to scientists (p-value = .00054) and administrators compared to specialists (p-value = .02225):

Administrators: (n=23) Agree = 35%, Unsure = 0%, Disagree = 65%

Scientists: (n=20) Agree = 15%, Unsure = 50%, Disagree = 35%

Administrators: (n=23) Agree = 35%, Unsure = 0%, Disagree = 65%

Specialists: (n=59) Agree = 20%, Unsure = 25%, Disagree = 54%

ORGANIZATION

Assumption One

Staffing of the ICBEMP is at the most efficient and effective level based on adequate numbers of people, with the most appropriate education, experience and authority being found in scientific, administrative, and support positions.

Statement 1: There are adequate numbers of people working within each of the Science Integration and/or EIS teams.

Project Total: (n=119) Agree = 40%, Unsure = 25%, Disagree = 35%

The following is a comparison of two subsets of responses to statement 1, based on 1) Project job assignment: Project Leadership Team (PLT) compared to Science Integration Team (SIT, p-value = .01075):

PLT: (n=9)	Agree = 56%, Unsure = 33%, Disagree = 11%
SIT: (n=35)	Agree = 34%, Unsure = 6%, Disagree = 60%

2) career path prior to Project affiliation: Comparing Administrator & Scientist: (p-value $\geq .01075$)

Administrator: (n=23)	Agree = 57%, Unsure = 22%, Disagree = 22%
Scientist: (n=20)	Agree = 25%, Unsure = 15%, Disagree = 60%

Statement 2: Project staff provides an adequate array of skills to properly conduct this project.

Project Total: (n=118)	Agree = 67%, Unsure = 13%, Disagree = 20%
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The following is a comparison of two subsets of responses to statement 2, based on career path prior to Project affiliation: scientist and administrator (p-value = .00261) & scientists and specialist (p-value = .00990):

Scientist: (n=20)	Agree = 40%, Unsure = 10%, Disagree = 50%
Administrator: (n=23)	Agree = 83%, Unsure = 13%, Disagree = 4%
Scientist: (n=20)	Agree = 40%, Unsure = 10%, Disagree = 50%
Specialist: (n=60)	Agree = 73%, Unsure = 10%, Disagree = 17%

Statement 3: Personnel hold positions for which their backgrounds (education, skills and experience) make them particularly well suited.

Project Total: (n=117)	Agree = 68%, Unsure = 17%, Disagree = 15%
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Statement 4: The best people available are working on each Science or EIS team.

Project Total: (n=118)	Agree = 48%, Unsure = 25%, Disagree = 27%
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Assumption Two

The working environment is designed to most efficiently utilize the time and energy of staff by focusing their efforts on the scientific, planning, or administrative work to be done; geographic groupings and assignment of personnel reduce unneeded travel and improve communications to support group integration.

Statement 1: Distance between work centers does not hurt communication between or within ICBEMP teams.

Project Total: (n=118) Agree = 9%, Unsure = 14%, Disagree = 78%

Statement 2: Geographic separation of the ICBEMP work centers (i.e. Walla Walla, Boise, Portland, etc.) is working well.

Project Total: (n=119) Agree = 16%, Unsure = 14%, Disagree = 70%

The following compares a subset of responses based on time devoted to the Project: up to 75% and 76 – 100% (p-value = .01284):

0 – 75% (n=32)	Agree = 16%, Unsure = 28%, Disagree = 56%
76 – 100% (n=79)	Agree = 14%, Unsure = 8%, Disagree = 79%

Assumption Three

Material, personnel, and financial support needs, as well as the need for adequate time to complete the chosen process, are fully met throughout the Project, to ensure a timely and successful conclusion to the overall goals of the Project.

Statement 1: Materials and equipment, such as computers, are adequate to meet Project needs.

Project Total: (n=119) Agree = 74%, Unsure = 13%, Disagree = 13%

Statement 2: We have enough money to do what we need to do.

Project Total: (n=119) Agree = 64%, Unsure = 15%, Disagree = 21%

Statement 3: We have as much time, as is reasonably required, to complete a quality finished product.

Project Total: (n=117) Agree = 30%, Unsure = 8%, Disagree = 62%

COMMUNICATION/INTERPERSONAL RELATIONS

Assumption One

Information, including scheduling of meetings and activities, expectations for content of reports from each discipline, and/or visions and revisions of goals and

time-lines are clearly communicated, updated as necessary, and readily available to all members of the ICBEMP.

Statement 1: Communication within the Project keeps us aware of important activities, meetings and other important information related to our work.

Project Total: (n=119) Agree = 58%, Unsure = 13%, Disagree = 30%

Statement 2: The nature and standards of the product I was expected to deliver were clearly communicated to me when I joined the Project.

Project Total: (n=118) Agree = 38%, Unsure = 12%, Disagree = 50%

Assumption Two

Decentralized work centers for the ICBEMP create an improved communications environment between the Project and its many constituent groups.

Statement 1: Decentralized work centers (Walla Walla, Boise, Portland, etc.) provide a greater outflow of information to constituent groups of the Project.

Project Total: (n=118) Agree = 43%, Unsure = 30%, Disagree = 28%

Statement 2: Constituent groups have greater access to the Project due to decentralized work centers (Walla Walla, Boise, Portland, etc.).

Project Total: (n=117) Agree = 45%, Unsure = 26%, Disagree = 29%

Statement 3: Constituent groups are informed of Project intents and invited to participate in its process.

Project Total: (n=119) Agree = 77%, Unsure = 13%, Disagree = 10%

Statement 4: Constituent groups should have greater access to contribute to the process.

Project Total: (n=116) Agree = 40%, Unsure = 35%, Disagree = 25%

Assumption Three

Throughout the ICBEMP staff, the success of the project in meeting its goals is the top priority, being placed before any goals or desires for personal betterment through promotion or pursuit of personal agendas.

Statement 1: Personal egos have not caused any problems for the ICBEMP.

Project Total: (n=120) Agree = 12%, Unsure = 19%, Disagree = 70%

Statement 2: Obstructionist or difficult personalities have been appropriately managed by leadership.

Project Total: (n=118) Agree = 25%, Unsure = 25%, Disagree = 51%

APPENDIX 2: DEMOGRAPHIC VARIABLES

Five demographic variables were used to sort data for potential differences among staff of the ICBEMP. Eight significant (p -value $\leq .05$) interactions were found among components of the 1196 possible interactions. Significant interactions may be found, associated with statements they were derived from, in appendix 1.

Government Service Grade:

- G.S. 3-7
- G.S. 8-10
- G.S. 11
- G.S. 12
- G.S. 13
- G.S. 14 through S.E.S. (Senior Executive Service)

Employing Agency:

- F.S. (USDA Forest Service)
- B.L.M. (USDI Bureau of Land Management)
- Other (USF&WS, EPA, NMFS, USGS, and Bureau of Mines)

Team Assignment (functional work assignment):

- SIT (Science Integration Team)
- EIS (Combined Eastside & Upper Columbia Basin EIS teams)
- Com/Tribe (Communication + Tribal Liaison teams)
- Admin/sup. (Administrative and Support Personnel)
- Facilitators (Field Facilitation Group)
- PLT (Project Leadership Team)
- ESC (Executive Steering Committee)
- Spatial (GIS and Data Processing team)

Professional Background (before assignment to ICBEMP):

- Administrator/Line Officer
- Scientist
- Specialist/Field Manager
- Support

Time (allocated to ICBEMP of total work assignment):

- 0-75%
- 76-100%