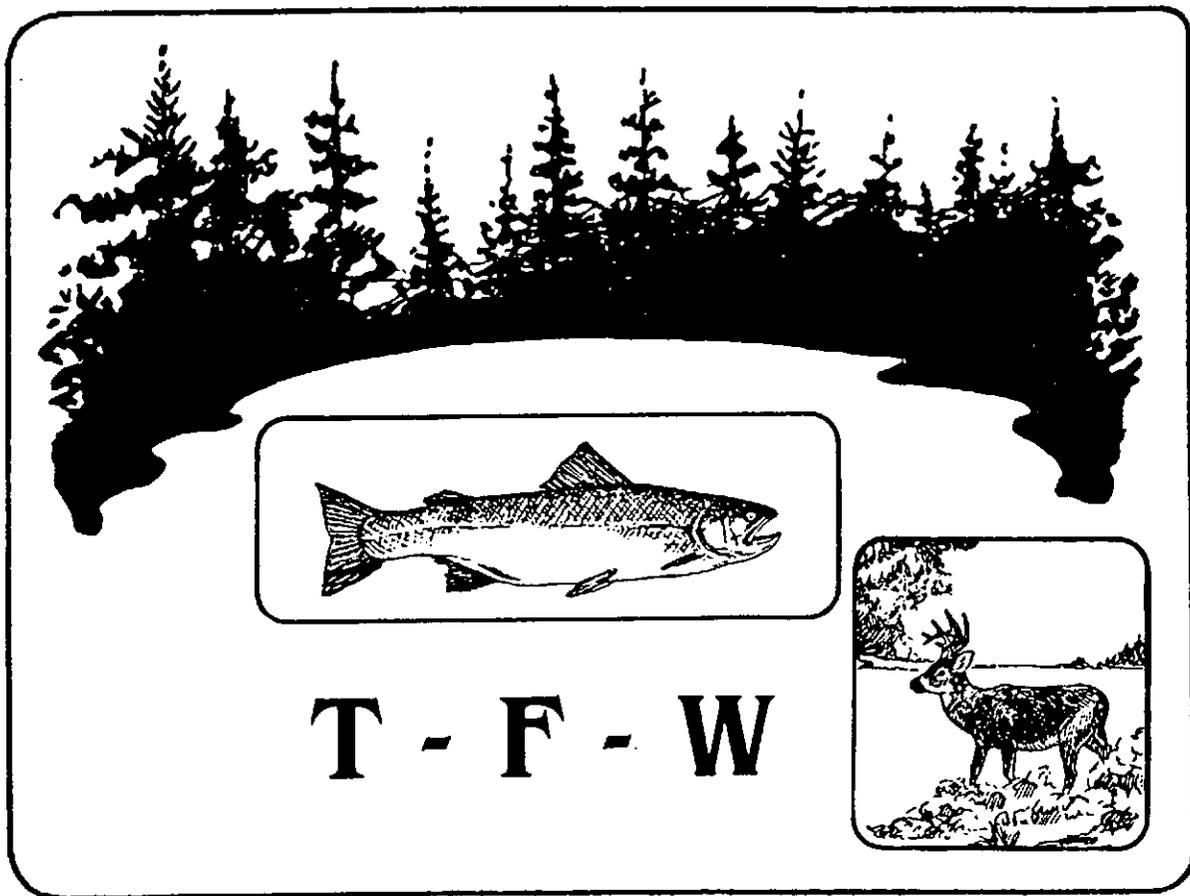# An Analysis of Program Integration and Development
For the
TIMBER-FISH-WILDLIFE REPORT
Cooperative Monitoring, Evaluation and Research Committee

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An Analysis of Program Integration and Development

for the

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I. Summary

Program integration can usefully be defined as the degree to which elements of a program come together to comprise a clear, coherent whole, oriented and aligned to achieve assumed program objectives. In order for a program to be well-integrated, it must be thematically consistent, procedurally well-defined, and efficiently coordinated.

Over the course of this study, these criteria were applied in assessing CMER functions and products. The analysis, though limited in scope and duration, attempted to define key issues and program needs. It began with two important recognitions: that program integration should be viewed as a necessary but insufficient condition for program success. (A program can be well-integrated but still ineffective.) Equally important, CMER is only one element of a larger program--the TFW program, and that coherence, coordination and consistency in monitoring, evaluation and research should not be viewed in isolation.

Much of the focus was on program objectives and strategy (themes of the program). In the early stages of the project, it became apparent that various members of the committee had divergent opinions of what was mandated by the Agreement, what CMER was expected to produce and implement, how it should function, and what strategies it should be following.

The Agreement encunciated important and potentially wide-ranging responsibilities that included both products and processes, but these were not (have not) been operationally defined. Important ambiguities left unresolved include the following:

1. To what degree is CMER licensed to rescope, and propose modification in the 19 projects? What license does it have to propose that projects are dropped?

2. What latitude is accorded CMER in identifying projects beyond the original 19? Should these be limited to issues identified in the Agreement? What constraints should be assumed (e.g., issues that are out-of-bounds)?

3. What aspects of monitoring, research and evaluation should be considered priorities? Testing existing regulations? Validating assumptions behind the Agreement? Supporting field implementation? Developing and testing options for flexible management?

4. What is required of CMER in assessment of cumulative effects? Is it expected to develop general or specific

methodologies? Should the 19 projects (and others as well)
be scoped to capture such relationships?

In large measure, answers to these questions depend upon
the interpretation of CMER's responsibilities under adaptive
and flexible management, which are probably the most ill-
defined concepts in the Agreement.

Adaptive management, as explained in this report, is a
relatively well-structured and disciplined approach to
resource management and environmental assessment. It means
more than simply refining resource management based upon
experiment and better information. The literature on
resource management characterizes it as consisting of a
number of key analytical, monitoring and management
components (see Table 1). Critical to adaptive management
is a probing for appropriate policy balances between
resource use and protection. The probing, however, is
guided by a careful consideration of feedback from the
natural environment so that each experiment can be
interpreted as to actual effect.

Key elements of such a system have not been developed or
planned by CMER or other TFW groups, suggesting either a
misapprehension of how such a system could be implemented,
or possibly the fact the TFW cooperators intended something
less ambitious when the Agreement was struck. Either way, a
disparity exists that too long has gone unresolved.

Equally ambiguous and needing just as much clarification
is TFW responsibility for implementing flexible management,
and relatedly, CMER's responsibility for supporting it.
Flexible management is never defined in the Agreement, but
based upon context of use, it appears to mean a management
system that attempts to fit resource use and protection to
resource sensitivity. This may be realized through the
development and application of a variety of interpretive and
prescriptive tools, including but not limited to state-wide
regulations.

Practically speaking, flexible management seems to be
partially embodied in the revised version of the Forest
Practices Act. Changes now in force includes provisions for
ID review of sites, options for resource management plans
(RMP's), as well as regionally-based regulations. All these
measures and tools may be viewed as substantially adding to
decision-making flexibility.

If TFW does, in fact, reflect at least a partial
commitment to flexible management, how well is CMER
supporting such a thrust with its current projects? Based
upon an analysis performed by committee members during the

course of this study, only a small number of tools and measures will be developed or evaluated by the 19 projects as currently configured. Moreover, the committees that are developing these projects, seem to be compassed in different directions. SHAM and Ambient, in particular, seem to be more oriented toward developing useful tools than the other committees. Likewise, their problem-solving appears to be be more consistent with the basic principles of adaptive management than Water Quality, Fisheries and Wildlife.

The existence of such variance suggests a need for program representatives to stop, take careful stock of objectives and strategy, and to collectively resolve program direction.

In order to facilitate this, an attempt was made to crystallize a program framework that would combine elements of both adaptive and flexible management and otherwise bring the program into alignment with the TFW Agreement (See Figure 4). The hypothesized approach, would reorient the program toward the evaluation and development of prescriptive and interpretive tools (including elements of the Forest Practices Act). Tools, as used here, include rapid-assessment techniques, GIS-compatible methods for landscape evaluation, and various criteria and guidelines for decision-making, including proposed best managment practices, and regulations fitted to resource sensitivity.

The tools to be studied, tested, refined and evaluated would be defined through a series of intensive workshops attended by forest practices field personnel (ID-teams and managers) and appointed CMER steering committee representatives (see Figure 5). Such an approach would bridge the current gap between monitoring, research and evaluation, and field implementation.

The existing CMER steering committees would participate in this process by helping in the evaluation of tools and identifying overall implementation and monitoring strategies. Consistent with the principles of adaptive management, the committees would establish methodologies to be employed in testing all proposed tools.

The workability of such an approach would in large measure depend upon implementation through a clear and well-defined planning process and administrative framework. As indicated in various sections of this report, the lack of such structure (including guidelines, criteria, firm commitments of resources, etc.) is a feature of the current program. It has also contributed to a divergence of perception within the committe about expected products, required coordination, and the general scope of analysis.

It is therefore critical that whatever is decided about program orientation and strategy, CMER (and TFW) establish a planning framework that defines expected functions, responsibilities and standards by which both internal and external products will be evaluated. It is equally critical that CMER carefully consider whether it can continue to administrate a program of the current and projected magnitude without incorporation and without at least some full-time professional staff.

II.   Background and Methodology

A. TFW and CMER

The TFW Agreement of January 1987 represented a new approach for resolving forest land management issues in the State of Washington. It included proposed changes in Forest Practices Rules and Regulations in a number of controversial resource areas, as well as recognition among adversaries of the mutual advantage to be gained from a more flexible and open forest management process. The new process allowed for the involvement of various resource groups, public and private, in the review of forest practice applications (through ID team participation), as well as in policy and program review as members of TFW advisory committees. A further provision established a resource management planning option, giving landowners the opportunity to work with other parties to develop management plans for entire watersheds.

The Agreement also recognized the need for more flexible management by which resource decisions would be linked to local conditions* (pp. 3,5,10,56).** References were made to "an "agreed upon evolutionary process"(p. 10) and the development of "different management approaches over time." (p.10). Management flexibility would also be enhanced through the development and implementation of a monitoring evaluation and research program that would both evaluate management practices and effects, and promote understanding of relevant natural system interactions (p.8).*

The monitoring system would serve to implement adaptive management (p.10), an approach to resource allocation premised on the need for evolving rules, procedures and

* paraphrased
** page numbers refer to pages in the Agreement unless otherwise indicated

management practices. The monitoring system would be designed to provide feedback as to what was working and what unrealized options might be available to improve resource allocation. ID teams were accorded a "major role" in the process, presumably (although this was not explicitly stated) in defining important questions and needs and possibly assisting in evaluation. Consistent with the principles of adaptive management, DNR, in conjunction with the cooperators, would conduct regular evaluations of management measures (p.10).

The Agreement specifically called for annual, three year and eight year evaluations of measures, rules and regulations as they were affecting resources (pp.10,11).

Formed in early 1987, the TFW committees were charged with separate and shared responsibilities for implementing the Agreement (see Figure 1). The Policy Group was formed to resolve important policy questions pertaining to the Agreement, including clarification of implementation issues. Admin, the Administrative Group, was formed to advise the Policy Group on technical and management issues and to raise questions for policy resolution. TIE, FIC, and CMER were formed to serve in support and advisory roles to Admin and Policy. TIE assumed responsibility for training, information and eduction, while FIC was charged with the support of ID-teams and advising Admin on field implementation of the Agreement.
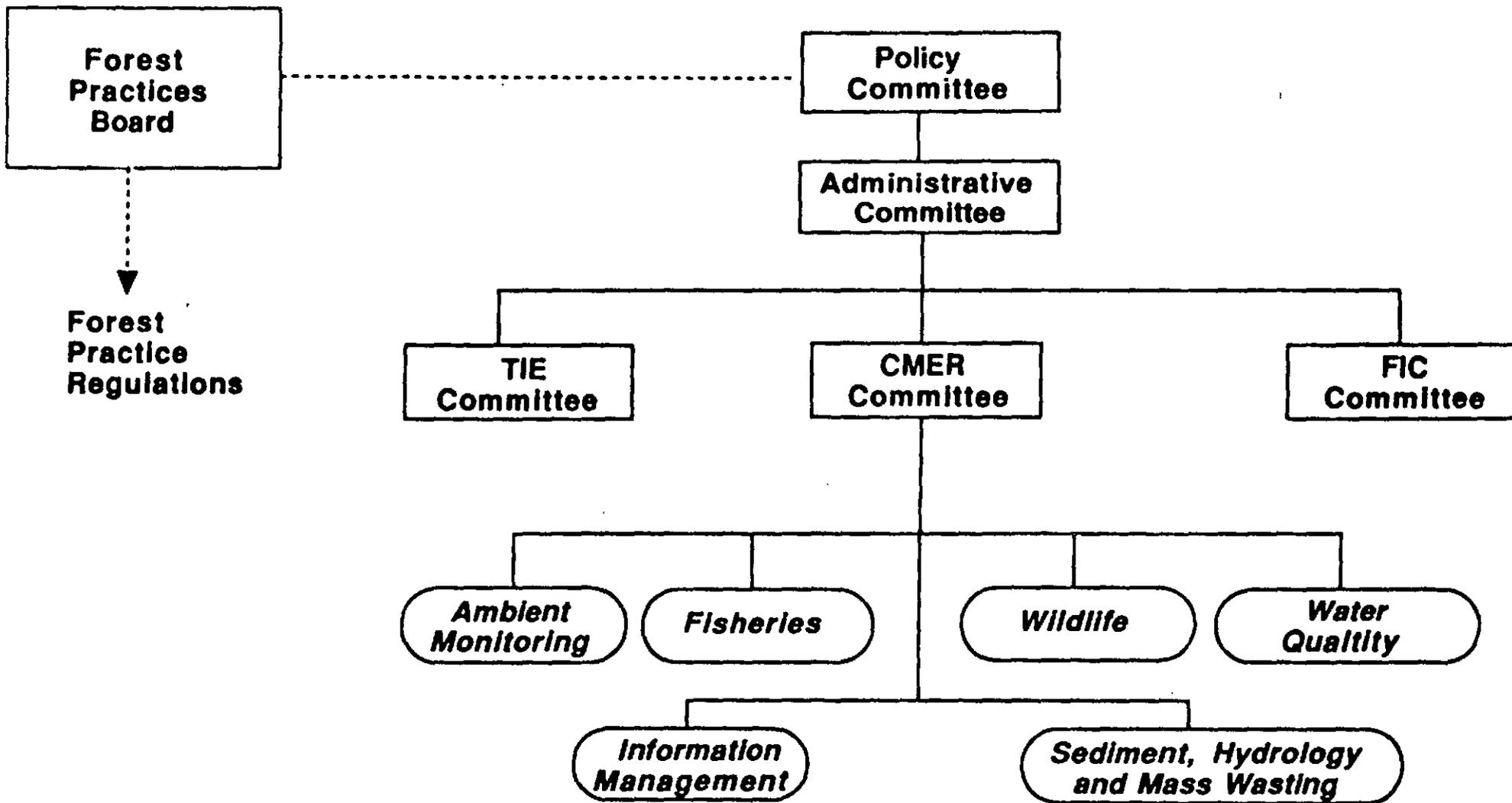
CMER was to assume most of the monitoring research and evaluation functions, although certain evaluation functions were to remain with DNR, and others were arguably to be assumed by more than one committee (eg. cumulative effects, hazard assessment).

Shortly after its formation, CMER established six steering committees to define issues and problems and scope research needs. Early-on it was assumed that scoping was to focus on problems and issues enunciated in the Agreement. It was also understood that issue definition need not begin at square-one because some intitial issue clarification had been accomplished by ad-hoc groups in the work that led to the Agreement (eg. riparian habitat protection, erosion and sediment effects of abandoned roads).

Steering committee scoping was barely underway when under legislative appropriations pressure, TFW found it necessary to develop a package of priority projects. An ad hoc group within TFW convened and developed such a list, then called upon CMER and its steering committees to give it prompt review.

Figure 1
Timber/Fish/Wildlife
Organization

Forest Practices Board

Forest Practice Regulations

Policy Committee

Administrative Committee

TIE Committee

CMER Committee

FIC Committee

Ambient Monitoring

Fisheries

Wildlife

Water Quality

Information Management

Sediment, Hydrology and Mass Wasting

The resulting package, amended and expanded by CMER, consisted of 19 projects with a price tag of $2.47 million for the 1988--1989 biennium. The appropriations bill was subsequently passed, with the result that CMER faced the practical problem of implementing projects that might need major revision as better information became available.

As the various steering committees continued to meet and scope problems, a number of new needs did in fact emerge. These found form in several new projects which it was decided should be represented as additional elements within the existing 19 project package. (For example, Project 16 was expanded to include work on a stream classification scheme). In no case, however, was any comprehensive evaluation made of the original projects vis a vis program needs.

As scoping and program development continued, opinion developed within CMER that the steering committees needed to further broaden the scope of problem assessment. Concern was expressed that the present project slate, even with its new additions, would not promote the fundamental intent of the Agreement and, specifically, provisions regarding flexible management. Only a few of the projects seemed directed toward the development of improved techniques for reading site sensitivity or development of tools to better balance resource use and resource protection (within the parameters of the Agreement).

After considerable internal debate both at the CMER and steering committee levels, CMER decided to sponsor a short term integration project, the project intended both to document program objectives and activities and collect and center these activities into a coherent program, unified by themes, strategies, and procedures. An outside consultant was hired in May to facilitate this process, and this paper is the principal product of that work.

As originally scoped, the consultant was to serve as technical writer who would gather documentation and other information that were assumed to be the ingredients of an integrated program. Relatively little analysis and synthesis was anticipated.

After an intial group discussion in early May, a consensus developed that something more fundamantal was necessary, ie., a number of important organizational issues might have to be resolved or at least clarified before an integration document could be produced. Reflecting this, the consultant was redirected to work with the committee to crystallize issues and provide constructive analysis.

A concurrent conclusion was reached that integration had a number of inter-organizational components. It involved not only the relationship between CMER and its steering committees, but those between CMER and other TFW committees (FIC, TIE, Admin., and Policy). The later, it was decided, would best be addressed through separate work and was beyond the scope of this contract. The consultant was asked to focus on the CMER's internal processes. Elaborating further, the committee made it clear that the consultant was not expected to work directly with steering committees or focus on their activities.

On June 15, the consultant was further directed to work with an ad hoc group in preparing the agreed to integration paper. The scope of the paper was also expanded to include steps required for the revision of the CMER workplan. A more complete description of the integration process is detailed in Appendix 1.

B.   Program Integration Criteria

Program integration or program integrity can be defined as the degree to which elements of a program come together to comprise a clear and unified whole, oriented to achieve stated program goals and objectives.

Relevant criteria for the evaluation of integration include the following:

1. Thematic Consistency.
   What is the thrust of the program? Management tools? Research? What kind of tools? What kind of research? What amount of precision will be required in judging the efficacy of a proposed managment option? What emphasis shall be placed on evaluation? What emphasis on interdisciplinary problem-solving?
2. Procedural Consistency.
   Are procedures and methodologies being utilized consistent and compatible? Are program precision standards relatively uniform?
3. Intelligibility and Clarity of Products & Processes.
   Are products and processes documented and formatted so as to satisfy accountability requirements and permit undistorted communication?

4. Efficiency in Product Development.
   Are projects spatially and temporally coordinated?

A program might satisfy several criteria but fail on one and still be considered poorly integrated. For example, component research projects might be clearly and efficiently designed, might yield the expressed and desired answers, yet fail to promote the objectives of the program (eg. flexible resource management).

It is unlikely that a program will achieve a high degree of integration under the above criteria without four essentials:

1. unambiguous statements of objectives and program strategy.

2. a planning process that provides for the efficient and orderly execution of tasks.

3. coherent, intelligible planning guidelines, including product standards, and appropriate methodologies for planning and analysis

4. associated administrative mechanisms that support the planning process and facilitate communication, contract execution, and other important program activities.

Importance of Clear Objectives

A common reason why programs founder is a persistent lack of clarity in direction. Goals and objectives that are clear and well-stated serve to prevent this. Too often, however, specificity is lacking or objectives lack practical value because they do not address constraints.

Equally problematic but somewhat less common are overly detailed objectives--objectives that equate products and outcomes. Outcomes are usually what matter, and objectives stated in terms of products ignore the reality that as programs evolve, so too does awareness of exactly what tasks need to be accomplished.

Planning Framework

It is also unlikely that a program will be well-integrated without clarification of the process by which program elements shall be developed and decisions made. Some planning processes require that staff and participants submit products and interim products for review and sign-off (eg. issue papers). Such requirements may be stated in a plan of study or implemented through planning memoranda. Consistency and rigor in planning and analysis may also be facilitated through the definition of procedures and methodologies or simply criteria to be exercised in performing specific tasks. The degree to which both process and guidelines need to be formalized depends upon a number of factors:

1. complexity and scope of the problem being addressed. If the problem has been narrowly defined in advance or if the resource issues are few and simple, detailed guidelines may be unnecessary. More complex problems (eg. cumulative effects) require more explicit criteria and guidelines.

2. stakes involved. (eg. implications of program failure or ineffectiveness may include breakdown in a political consensus and return to court). Higher stakes demand more formalized structure.

3. variety of disciplines involved. More heterogeneity demands greater procedural definition to mimimize distortion and misunderstanding.

4. degree of administrative control. More slack can be permitted in structured organizations in which it is clear who is responsible to whom.

5. skill and experience of staff. The absence of expertise in systems analysis may suggest a need for more planning guidance and facilitation.

6. commitment of program participants. Commitment can partially offset other factors.

7. other pressures. Short time frames, divergent values, budgetary and political pressures all argue for more structure.

These must be weighed against additional considerations:

1. cooperation of those performing the planning and analysis. In a cooperative planning process, those participating must be willing and able to follow the

specified procedures. How much effort will implementation of the process require? (eg. documentation and report writing). Frequently, report writing consumes far more staff time than is originally estimated.

2. morale of the group (eg. steering committees). Creativity and enthusiasm may be lost if a program is screwed-down too tightly.

3. whether resources will be committed to ensure that guidelines will be followed. Structure is meaningless without some mechanism for implementation.

Administrative Mechanisms

The general ability of a program to function as an organic whole depends as much upon the efficient execution of administrative functions as planning and analytical ones. The administrative demands on a large programs include contract and legal matters, budgeting and accounting, and a need to ensure open flow of information. Appendix Table 1 provides a more complete listing of functions applicable to CMER. An unattended-to problem in any of these areas can undermine efficiency in planning and implementation. Problems that might indicate a need for more attention to administration include:

* contract implementation problems (eg. reflected in project delays, frequency of contract disputes)
* payroll and accounting difficulties (eg. turn-around time between invoicing and payment)
* frequency of misunderstandings between staff or program participants in what is expected of them
* meeting delinquincy
* increasing workload burden on a few people

The need for a well-defined administrative framework, with appropriate forcing mechanism (eg. reporting requirements) also depends upon stakes involved and the other factors mentioned under planning framework. An additional factor of particularly great importance is the amount of money passing through the program. High funding levels dictate a need for more centralized control.

III. CMER Objectives and Constraints within TFW

Statements of goals and objectives in the TFW Agreement may be viewed as falling into two general categories-- statements of product and process. Process statements describe how management decision should be made and how the TFW advisory process should work, including relationships

between cooperators, regulators and managers and approaches to assessment and implementation.

CMER's origin essentially derives from a provision in the Agreement for a "specific cooperative monitoring, evaluation, and research program."(p. 8) The purpose of such a program, as described by the Agreement, is to provide a basis for understanding resource management interactions and the impacts of forest practices on public resources. The Agreement calls for ID teams to play a major role in monitoring and evaluation and states that the results of the research studies will be used to improve forest practices. Evaluation will also be used to indicate changes needed in rules and regulations.

Products.

A small number of specific products are described in the Agreement. These include the following, although responsibilites for execution are unclear:

* evaluation of the effectiveness of RMZ leave areas (p. 28)
* evaluation of the quality of voluntary understory leaves on critical Type 4 waters adjacent to wetlands including documentation of downstream benefits (p.29)
* evaluation of the effectiveness of UMA leave areas (p.29)
* evaluation of the effectiveness of "management priority issues" to address potential problems on smaller streams (p.29)
* evaluations of the effectiveness of reforestation within Riparian Management Zones (p.28)
* the development of a method for predicting temperature increases associated with any future management activity and a process to define temperature sensitive basins (p.27)

The Agreement indicates that additional studies "may be initiated by any party and may cooperatively include any other affected party at their option, in effect, broadening the cast of the program. A number of other statements in the Agreement also seem to provide fuel for the argument that CMER may exercise certain discretion in defining research, monitoring and evaluation needs. (eg. p.5)

Process.

Depending upon interpretation of the Agreement, it can be argued that CMER has shared responsibility in a number of other functional areas. At the Co-chairs meeting on June 9,

a list was developed of potential CMER functions considered consistent with or supportive to the Agreement.

CMER Functions Identified in Group Discussion

* Cumulative Effects--development of techniques for risk assessment (p.40)
* Technical Support to TFW Evaluations (p.11)
* Implementation of an adaptive management system utilizing research evaluation and monitoring (p.4)
* Resource Tracking
* Reporting on Resource Status
* Developing Management Tools and contributing to flexible management (p.5,56)
* Other Technical Support (p.5 ff.)
    -answering questions from TFW
    -verifying assumptions behind Agreement
    -evaluating effectiveness of BMP's

Two other requirements were subsequently defined based upon further interviews and review of TFW documents.

* Ensuring Efficiency and Effectiveness in program development (inferred from p.4,5).
* Working with ID Teams in Monitoring and Evaluation (p.8)

It should be noted that this list leaves much room for interpretation. None of the functions was carefully defined or given substance through the identification of specific activities. Depending upon point of view, a case can be made for more or less action in each. In an active role CMER might take initiative to develop approaches to adaptive management. In a responsive posture, it might act as facilitator, but only as specifically called upon by the TFW Policy Group.

Constraints.

Organizational objectives normally have little meaning without consideration of constraints. Constraints of several types limit the ability of an organzization to satisfy responsibilities and maximize accomplishments. A number of CMER constraints are defined by the TFW Agreement and the process from which it emerged.

Political-Legal Constraints

Regulatory Inertia. Once regulatory changes are made, they are difficult to reverse or modify. For this reason, public resource managers are reluctant to advocate rule changes and the use of discretionary tools or processes

which might later prove counter-productive. Likewise, industry is often averse to the implementation of untested rules and regulations which unjustiably raise the cost of operation.

Measurable Successes

Continuing legislative support probably demands that the program demonstrate concrete, short-term results. In this light, it can be argued that CMER needs to ensure that projects deliver useful products (including evaluations of regulations and management options).

Accountability

In order to meet obligations as a recipient of puplic and private monies, CMER must provide adequate documention of expenditures. TFW ground rules may also be read to require that CMER provides adequate accounting of its decision-making, including documentation of internal planning practices (p.56).

Decision-Making Constraints

TFW ground rules call for consensus decision-making (p.56). The consensus provision has been reflected in the fact that CMER (and TFW) have chosen to do business by committees without central staffing, and without incorporation and a defined place of business. As indicated in section III, this may be viewed as an important constraint on efficiency and effectiveness.

Scientific-Technical Constraints

Certain technical issues may not admit precise clarification. For example, it is unlikely that the synergistic effects of forest practices on fish wildlife and water quality can be quantitatively defined in the near term.

Risk Aversion

Adaptive management call for problem-solving that often begins with "best guess" and proceeds to more precision as better information becomes available. If participants are unwilling to risk being proved wrong, or to trust in later adjustments, adaptive managment cannot be effectively implemented.

B.   CMER Perceptions of Responsibilities

The ambiguity of the Agreement on products and process creates an important, disintegrating program influence. From both interviews and group meetings, it is apparent that committee members have divergent opinions on what the Agreement requires in several areas. CMER responsibilities in each of these areas are variously perceived as limited and broad. Under the broad interpretation of responsibility, greater initiative is called for. From the "limited" vantage point; CMER's job is largely constrained to being an advisor, testing regulations and providing technical support.

Important Ambiguities in the Agreement
Related to Monitoring, Research and Evaluation

1.   Adaptive Management
      What is meant by the term?
      What aspects need to be implemented?
      Who should be responsible for implementation

2.   Evaluation of Cumulative Effects
      Is CE assessment largely the responsibility of
          the RP group or also a responsibility of CMER?
      Who is expected to develop methodology? CMER? The
          steering committees?
      What cumulative effects questions are considered
          most important? Known problems? direct effects?
          additive impacts? Long term or short term
          impacts?
      How much effort should be allocated to CE
          evaluation?
      What is the appropriate level of detail in risk
          evaluation?

3.   Flexible Management
      Meaning of the term in the Agreement--the current
          forest practices system? Something else?
      Should CMER further develop the concept?
      Should CMER projects evaluate and develop
          additional management tools?
      To what degree should the 19 projects be reviewed
          and reconfigured so as to deliver useful
          tools for reading site sensitivity, identifying
          management options?

4. Monitoring Program Development
      What authority does CMER have to drop or make
          modifications in the original 19 projects?
      What issues should be considered closed based upon

the Agreement?
What freedom does CMER have to develop a more
    formal, efficient planning process?
Do the values of TFW participants preclude
    TFW/CMER incorporation and development of
    greater administrative capacity?

5. Coordination and Support
    How is the committee expected to involve ID-teams
        in monitoring research and Evaluation? Provide
        short-term evaluation and rapid assessment
        tools?

IV.   Program Issues

CMER integration issues were defined by weighing the
criteria described under methodology against activities and
program characteristics. The focus was on six functions:

1. Flexible Resource Management. To what degree is
    CMER supporting provisions in the Agreement for
    flexible management? In what ways is the
    committee supporting ID-teams and resource managers
    and integrating their concerns into the program?

2. Adaptive Management. To what degree is the
    committee utilizing and developing adaptive
    management to facilitate the above?

3. Planning Framework (includes processes and
    guidelines) What procedures and framework are in
    place to ensure disciplined analysis, the
    development of useful management options, and
    accountability?

4. Planning-Related Administration (efficiency and
    coordination in product development)

As indicated in Section II, the focus of this review was
more on CMER than the processes and work of the steering
committees. Because of the limited period for observation
and lack of written program documentation, observations and
conclusions are subject to some error.

A.   CMER Planning Process
Description and Characterization

CMER's approach to program development may be
characterized as consensual and decentralized with most
planning and analysis performed by its six steering
committees. Three of the committees are resource-based

(Fisheries, Wildlife, Water Quality); two follow function (Ambient and Information Management); and one is process-based (Sedimentation, Hydrology, and Mass Wasting).

The three resource committees are largely homogeneous, with the wildlife and fisheries committees wholely consisting of biologists. The other committees include representatives from a variety of backgrounds including law, resource management, forestry, hydrology, and programming.

Inter-committee communication mostly occurs in the form of a few individuals attending meetings of another committee or taking it upon themselves to realize opportunities for coordination. (This may be the most important integrating mechanism in the current program.) Analysis and planning within the committees is given little guidance by CMER. Other characteristics of the planning process include the following:

* Minimal documentation of procedures used in assessment
* Minimal use of system modeling
* Variable rigor in problem scoping
* No evidence of a developed framework for assessing, hazard, sensitivity and cumulative effects.
* Ad hoc rather than formalized review of planning or assessment processes (no required submittals or sign-off on non-project work)
* relatively infrequent meetings of committees--1-3 times a month.
* Informal development of sub-programs with limited strategy development
* Only one steering committee supported with staff (Ambient)
* Contract management handled at the CMER level by the representive from DNR; each steering committee required to identify a project implementation coordinator.
* Because CMER has no staff of its own, the bulk of CMER meeting time and a large percentage of steering committee meeting time is taken up by administration.
* CMER has no formal status of its own and no bank account. Cooperator accounts are individually tapped to pay program costs.

The structure of the process can be contrasted with most large, multiple-resource, planning efforts. Most planning and analysis in these programs is performed by a dedicate staff with committees convening for guideline-setting, review and decision-making. CMER, in essence, is its own staff. For the process to work, meeting time must be used

efficiently, and participants in the process must show great initiative.

Program Theme 1.
Adaptive Management and Adaptive
Environmental Assessment

Table 1 and Figures 2 and 3 identify important distinctions between conventional and adaptive environmental assessment. Conventional programs usually decompose analysis into subunits based upon discipline and affected resources (eg. fisheries, wildlife, etc.). Subprograms are usually then developed based upon detailed scoping of problems and evaluation of alternatives. Rules and regulations are usually the end-product of the analytical process. Conventional programs rarely devote much attention to feedback mechanisms for refining management.

An adaptive management approach to resource management and environmental assessment is quite different. Main characteristics include the following: (Based upon a review of works by C.S. Holling and Carl Walters)

1. Probing for resource management balances based upon best available information. It is assumed that the system, if carefully monitored, will provide feedback on the effectiveness of management policies and options, and offer opportunities for refinement and tuning.

As stated by Holling, "In developing a new product, not all the final details are planned and fixed before the first action is taken. Activities such as pilot projects, test modeling, and market surveys are all efforts to use information from the first stages to adapt the final outcome to greater advantage."[1] An adaptive management research program would, as a result, emphasize the development of management tools and options, that could be validated through well-defined trials and experiments.

2. Problem-solving that includes a careful inventory of resource relationships, with connections defined between land practices, change agents and resources. Problems should be bounded by consideration of spatial scale and relevant time horizons.

In problem-bounding, analysis attempts to answer a number of central questions: What are the relevant pathways by which effects are registered? Which of these pathways appear to be critically important; which less important; which of uncertain impact?

Table 1

Multiple Resource Analysis
Conventional Versus Adaptive Environmental Assessment

	Conventional Approach	Adaptive Environmental Assessment
Alignment of Projects with Management Objectives	-Projects tend to be oriented toward tacit subprogram objectives (e.g. fish, wildlife goals). -Satisfaction of narrowly, interpreted political/policy constraints.	-Program rather than subprogram optimization. -Projects aligned or ganged to meet multiple resource objectives and constraints.
Interaction Between Disciplines	-Committees formed by discipline; interdisciplinary dialogue is adhoc, episodic, occurring at policy level.	-Interdisciplinary team building breakdown by disciplines only for specific technical purposes. -Structural workshops for model building. Gaming and simulation exercises.
Role of Managers and Field Implementation Personnel in Study Design and Analysis	-Minimal	- Critical - Use in defining needed tools, identifying critical uncertainties - Potential role in monitoring - Role in tool evaluation
Characteristics of Analysis	-Hypothesis testing -Quantitative slant -Non-graphic / non-visual	-Display ignorance -Define uncertainty --Visual, graphic
Analytical Skills Elicited	- Intellectual rigor - Focused imagination	- Professional judgment at early stages, also imagination. - Later stages, more rigor
Tools and Options	-Depends upon requirements -Most common product is regulation	-Analysis focus on developing policy options
Product Standards	- Precision - Quantifiability -Certainty, defensibility	- Less precision required at early stages
Product Delivery	- One time at end - One time at end, presumed need for certainty	- Interim, by stage -Possibly iterative - Interim
Implementation	-Management primarily based on regulations with limited flexibility, limited adjustment opportunties	-Management is adaptive. Adjustment in regulations, options, policies based upon probing and feedback.
Post Study Evaluation/ Validation and Feedback	- Minimal	- Critical - Used for refining tools

Adaptive environmental assessment is often misunderstood to require detailed quantitative understanding of system relationships and mathematical modeling. In actuality, specialists are often only required to provide best guesses with specification of the certainty of their estimates, and perhaps more importantly, the information they would need to monitor or validate their estimates.

Walters specifically emphasizes the need for specialists to "compress understanding" and "get down to essentials" in system representation: what relationships can essentially be determined at the landscape or watershed level, which at a site level? What indirect measures or indicators can reliably be used to link physical and biological processes?

Problem boundaries are often identified by working outward from a few key performance indicators. Broader and more detailed concerns are added at each step by thinking about factors that influence each variable already identified. Eventually a point is reached at which elaboration is only marginally valuable.

3. Workshops and inter-disciplinary approach to problem-solving. In contrast to individual discipline or large team approaches to environmental impact assessment and resource management, adaptive environmental assessment calls for a series of short-term, intensive workshops through which specialists in different disciplines are encouraged to communicate. Modeling the system of interest is usually the focus of these meetings. Details of workshop design are offered by both Walters and Holling. [2]

4. Careful development of monitoring and evaluation systems so management tools can be adjusted. This seems to require clarification of key indicators that will provide clear, interpretable signals from affected resources of the effects of various management practices, as well as indications of natural variability. Monitoring also focuses on data critical for the evaluation of policy options and management tools. [3]

5. Candor and explicit recognition of uncertainty. Under conventional assessment, assumptions are often buried and uncertainty is seldom defined. In adaptive environmental assessment, ignorance and uncertainty are explicitly acknowledged. [4]

Discussion: Based upon a review of Holling and Walters, it is apparent that adaptive management is best suited to problems less complicated than that being addressed by CMER

Figure 2

Multiple Resource Analysis
Conventional Model

Ⓡ = results of study   Ⓘ = implementation
    (tools, products)
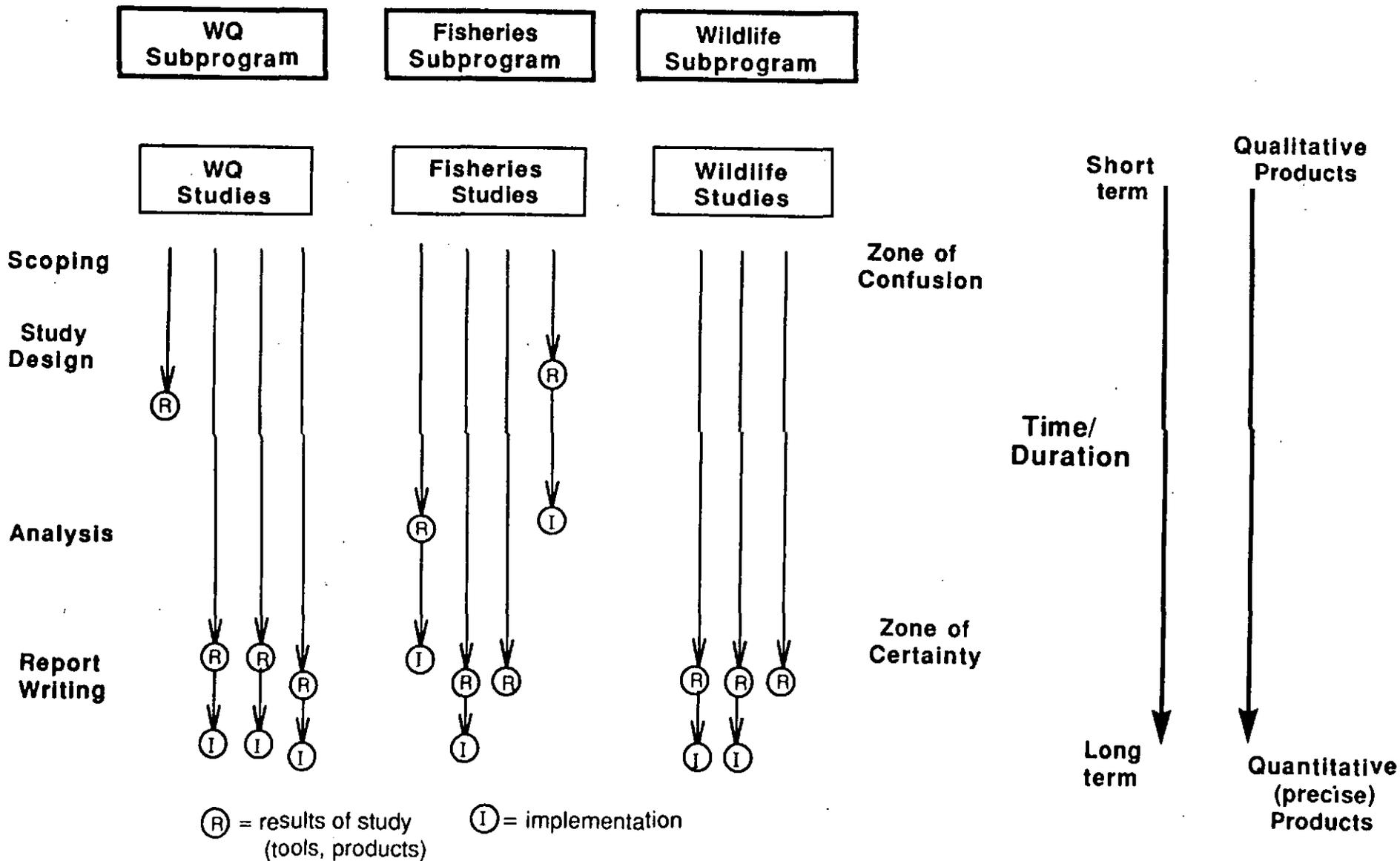
and TFW. Walters notes that the following raise difficulties for implementation:[5]

1. a large number of variables in the system
2. a large number of actors (with many actors it is difficult to reach consensus on both analysis and probing)

Large scale, complex problems with many pathways and interactions (including policy effects pathways), stress the monitoring system to sort out cause and contribution. This can be especially difficult if effects take a long time to be registered (lag).

Based upon information provided, it does not appear that CMER has accounted for these factors and in general developed a strategy and approach that would make adaptive management feasible. The ambient workplan identifies some of the principles of feedback design[6] and attempts to anticipate what would be useful, but so far lacks a policy focus called for by adaptive management. What management questions is the system designed to answer? Relatedly, what signal-response relationships can be defined?

Hoping to fit the system to policy questions down the road might be possible, but a more sensible and efficient approach would be to formulate in advance the key questions and hypotheses to be tested, then work toward the data and methodology needed to perform the tests). Perhaps with a prompt refocusing of the steering committees on options, tools and policies, this gap could be bridged.

Should CMER and TFW resolve to move ahead with disciplined adaptive management (and adaptive environmental assessment), several keys steps need to be undertaken:

1. Development criteria for feedback system design.
2. Identification of management options/tools to be tested in for various aspects of land management
3. Justification of options through well-disciplined problem-bounding.
4. Identification of indicators which could be used to establish signal-response relationships.

A lesser commitment to adaptive management might call for more limited probing and possibly less effort in the development of feedback design. Whatever, approach is taken, it does appear that CMER could benefit from the use of various adaptive environmental assessment techniques. Both Holling and Walters identify a number of these that might be useful in a workshop setting, eg., simulation

Figure 3

Multiple Resource Analysis
Adaptive Environmental Assessment

Team
Building

WQ
Studies

Fisheries
Studies

Wildlife
Studies

Qualitative

Analysis 1

Stage 1

Analysis 2

Time

Stage 2

Analysis 3

Stage 3

Quantitative

Ⓡ = results of study
(tools, products)

Ⓘ = implementation
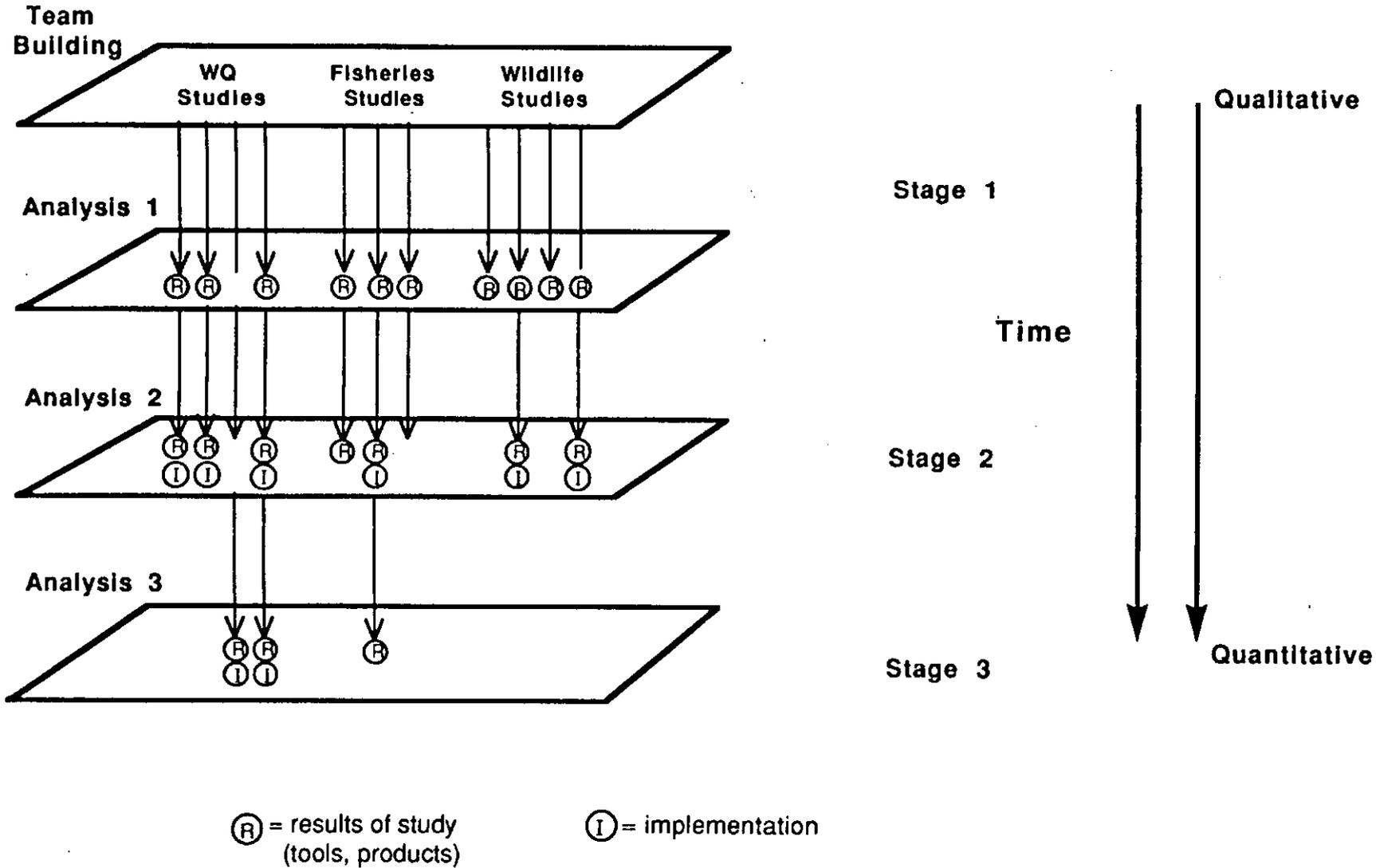
exercises, worksheets and exercises in diagramming system
relationships.

Pete Haug, in work with the Bureau of Land Management,
also developed a system accounting technique that might be
useful. It involves the identification of "impact
sentences" which capture the connections between change
agents (eg. land practices) and response indicators (habitat
loss). The sentences include specification of key modifiers
(eg. environmental factors). Application of this technique
would add discipline to the assessment process and provide a
useful accounting trail that would permit a larger group to
review what considerations were made.

<div align="center">

Program Theme 2
Flexible Management

</div>

As indicated above, the Agreement makes several
references to flexible management without providing clear
definition. From most perspectives, flexible management
could be defined as a resource management process that
attempts to balance resource protection and resource use
through application of a variety of management tools options
and prescriptions fitted to site sensitivity.

It is the variable geographical sensitivity of resources
that essentially justifies such an approach. Broad
regulations invariably fail to capture this variability and
ultimately over-protect or under-protect many sites.

One way of addressing this difficulty is to write
regulations that better capture sensitivity. The revised
Forest Practices Act reflects this in rules for east and
west side riparian zones and standards based upon stream
type. Taken to extreme, however, more regulations for more
conditions become technically difficult to justify and
enforce. Reflecting this, the act and the Agreement also
recognize the need for nonregulatory options. These include
provisions for resource managment plans (RMP's) as well ID-
team review and priority issues screening. The act also
recognizes a need for more than the exercise of judgment in
determining what is most appropriate for a site (eg.
objective criteria). This is reflected in the BMP section
of the new handbook.

Six general classes of prescriptive and interpretive
tools could be usefully employed in a flexible resource
management system:

1. Cumulative effects assessment techniques
2. Interpretive techniques for establishing hazard
   potential

3. Techniques for establishing resource sensitivity
4. Management options (eg. possible prescriptions for resource enhancement, impact mitigation, or resource protection based upon conditions encountered)
5. Regulations: state-wide, regional, and regulations by type of condition encountered (eg.stream type)
6. Decision criteria for establishing goals and standards (eg. thresholds)

An example of an interpretive tool for establishing hazard would be hazard zonation mapping. A related prescription might be criteria for road construction on unstable slopes. A decision criterion might be a fine sediment threshold for adjacent spawning beds.

Discussion:

Although most of the CMER projects are in relatively early stages of planning (most not funded until late 1989 or 1990), they do not as currently configured offer much promise of delivering or testing management tools (including state-wide regulations). An identification of products by projects is provided by Table 2. The entries in the table reflect reports by the co-chairs at the Cheney conference on project deliverables. Most of the projects only possess potential for tool development. Exceptions include the temperature models (project 8) and the classification system (project 16).

Should the decision be made to refocus the program on flexible resource management, it is probably indispensable to imagine how tools could be integrated into the current management system. Figure 4 depicts a possible framework. It reflects most of the features of the current system, including the reading of hazard and sensitivity in screening.

The one major difference between this and the current system is that the reading of hazard and sensitivity would continue beyond initial screening of priority issues. The screens would be used to define appropriate actions for recurrent or common situations.

Such a formulation is premised on the notion that ID teams and land managers do in fact encounter recurring risk scenarios. Is this in fact the case? Based upon opinions of several ID team members, the answer appears to be a qualified yes. Each site is obviously unique, but various combinations of hazard (the physical mechanism) and sensitivity (biological susceptibility) seem common (eg.

Table 2

CMER Developed Managment Tools

key:
- 1   final tool clearly identified
- 2   interim tool
- (3)   tool possible

Subpro	Project	CE	Hazard	Risk	MO	Regs	Standards	No clear Application
Wild								
	1		(3)	(3)				
	2			(3)	(3)	1	(3)	
	3		1	1		(3)		
	6			(3)		(3)	(3)	
	17						(3)	
Amb								
	16	(3)	1,2	(3)	1,2		(3)	
Fish								
	9			(3)			(3)	
	4				2			
	19							x
WQ								
	7					1		
	8	1	1					
SHAM								
	10		1,2					
	11				1			
	12		1,2		1			
	14	1	(3)	(3)	1			
	18	2	2					

habitat fragmentation, threat to a fishery from an action on unstable slopes, etc). Jeff Cederholm, for example, has indicated that a number of recurring situations are encountered in Olympics watersheds. These tend to reflect geomorphology, landscape features, resource variables (eg. suitable spawning habitat). Ron Hirschi, an ID team member working for the Point No Point Tribes, has reported frequently encountered habitat risk situations.

The assertion of recurring pattern, of course, is a testable proposition. The testing of the assertion would be a prerequisite to program reorientation. But if the test proved positive, a focus could be given to both management and monitoring (including methodology for evaluation of cumulative effects).

One of the best ways to test the proposition would be to put the question to ID team members. This might be done formally or informally, through a series of workshops, or perhaps through circulated questionaires with follow-up. As indicated in section II (under objectives), the Agreement specifically called for coordination between ID teams and CMER in the development of the monitoring program. So far, little of this has occurred. The one exception was CMER involvement in last year's team-building meetings, but that involvement was limited, and CMER did nothing to respond to team members requests for technical support.

ID team help would also be beneficial in the definition of useful prescriptive and interpretive tools. Over the course of this study, a small number of team members were actually queried as to what tools they thought might be useful. There appears to be some interest in the following: 1. a method for evaluating stream flushing potential, 2. criteria for the evaluation of habitat fragmentation, 3. fish passage criteria for culverts 4. a rapid assessment model for estimating watershed sediment delivery to adjacent streams (eg. PC compatible with data provided by DNR), 5. bank stability evalution techniques. A fuller list could be developed through workshops.

B.   Planning Framework Issues

Based upon the Cheney presentations, the steering committes appear to be approaching their respective resource problems with variable comprehensiveness and discipline. One approach to correcting this would be the development of a clear, intelligible, set of criteria and guidelines to define what is expected. This could be implemented through a planning process that required review of in-house products. Elements of such a framework could include the following:

Figure 4

Key Elements of Flexible Management Process

System Conditions

(Sensitivity of System to Change with Change Agent)

Management Action

Hazard
(Physical Site Response to Change Agent)

Risk
(Presence of valued resource and sensitivity to change)

Use Hazard and Risk Assessment Tools at several stages of management to identify "situation".

Risk

Hazard

Combination of Hazard and Risk identifies "Situation"

Situation

(Some situations are more common, or more important.)

Management Options

1. Safety Net
2. Other
3. Other
4. Other
5. Best for site

1. Common Terminology. Neither the CMER nor the Ambient Workplan contains a glossary of important terms. These are also absent from the Agreement (a critical oversight). Within TFW a great deal of confusion seems to surround the use of the following: adaptive management, performance based management, flexible management, risk, hazard, safety nets, modeling, management tools, monitoring, evaluation, etc. The Puget Sound Water Quality Authority, at one time decided to include the same glossary in each of its publications.

2. Definition of Goals and Objectives and Thematic Orientation. As stated above, CMER objectives are both general and specific. The current workplan includes general objectives, while the individual project plans are very specific, so specific, in fact, that it is difficult to understand relationships to program objectives. In neither of the sets is there any sense of strategy or direction.

If CMER hopes to realize any success in program development and implementation it must resolve what it intends to do in the following critical areas:

Adaptive Management. Radically different opinons are held within CMER as to the meaning and requirements of an adaptive management system and whether CMER should implement such a system and the related planning practices.

Technical Support for Flexible Resource Management. Specifically, how much should CMER emphasize tool development? What kinds of tools does the program intend to develop and test, and consistent with adaptive management, how does it expect to test them?

Involvement of ID-teams in Monitoring and Evaluation. How will planning process develop and incorporate input from ID-teams and what role are they to be ascribed in monitoring?

Cumulative Effects. Several of the interviewed steering committee chairmen expressed uncertainty over whether it was their job to develop approaches to cumulative effects. The ad hoc integration group was also split on this issue. One opinion held that CMER needed to develop guidelines and disseminate them to the steering committees; another, that the steering committees should be left to proceed as they think best.

3. Methodologies. Programs as diverse as CMER and TFW commonly develop guidelines for problem-scoping and assessment. To this point this has been left to the individual steering committees. SHAM has so far developed

the most thoughtful approach, and with some adaptation it could be turned into a methodology applicable to other issue areas. The assessment techniques cited under adaptive management might also be recommended or possibly required as a check in sub-program development.

Network diagrams can be particularly illuminating on thought process. PERT (Program Evaluation Review Technique) and CPM (Critical Path Method) probably also have some usefulness, particularly in coordinating complex projects. In both techniques, key decision points are defined along with potential pathways for program function. Application requires development of a visual/graphic representation of function and actor involvement known as a Gantt diagram. The technique might be particularly useful for integrating activities between projects 16 and 19.

4. Format Development. Although IMSC has made progress in addressing questions of technical information transfer of CMER developed data, no CMER group has developed a good approach to facilitate better information transfer from ID teams (eg. over frequently encountered impact problems). With or without the workshop approach described above, a need exists to keep CMER apprised of recurring technical issues encountered in the field. Apparently FIC is in the process of developing something of this type, however CMER input is probably desireable.

5. Planning Process. Although the CMER planning process presently relies upon the steering committees for planning and program development, an alternative more consistent with various program themes (one interpretation), would be team-based planning. Such an approach could be implemented within the current steering committee structure, utilizing the expertise of the committees as well as ID teams. A process reflecting this is given by Figure 5.

Under such a framework, the steering committees would generally be charged with technical counsel and project implementation. Most of the conceptual work would be performed by a CMER-TFW team that included representatives from each of the committees, ID-teams, possibly managers.

The assignment of this group would be to conceptualize an array of interpretive and prescriptive tools that would support flexible management. The group would convene in several structured workshops (as called for by adaptive management). The workshops, unlike most adaptive management workshops, would focus on known situations. After a series of situation-defining sessions, the group would convene to identify needed tools. Presumably, sufficient expertise

would be on hand to provide thoughtful discussion of which tools were potentially useful and practical.

The product of all workshops would be a report documenting discussions, ideas and conclusions, which would be taken back to the steering committees for review and feedback.

Besides presenting this report to the steering committees, the representatives would take the lead in assessment. Ideally this would be carried out in steps. A first level assessment might answer how the tool could be used, and attempt to locate its use in an appropriate environmental system network diagram. (The purpose of this would ensure that overall context had been considered, eg. that the tool could be justified as important relative to other important concerns) as well as a check on whether its purpose might not better be met through some other strategy.)

A check would also be made as to whether the tool: 1. had already been developed and might simply be taken off the shelf, 2. whether it had been developed but needed calibration and minor modification, 3. whether it was undeveloped or only developed in theory. (This portion of the process is reflected in Figure 6.)

Upon review and feedback from the steering committees, the representatives would report back to the larger team. At this point, the group would determine if the various tools were appropriate, whether they might be usefully combined (eg. into a general screening) and what key questions remained unresolved (eg., theoretical grounding, cost, methodology for monitoring.)

The team would then attempt to develop sets of mutually consistent strategies that involved various combinations of tools. A resulting report would be circulated to the steering committees, giving guidance for their subsequent preparation of strategy papers (or possible subprograms). The strategies would be used as a basis for scoping projects.

If a tool were ready for trial, sign-off would be solicited by CMER, and an assignment would be made for implementation (eg. work through TIE, FIC, etc). CMER would then take responsibility for ensuring that appropriate monitoring occurred to validate the tool. Presumably, TIE and FIC would also have important responsibilities in this regard.

Figure 5

PLANNING PROCESS

CMER Team

Conceptual
understanding
of systems

**TFW Manager
Team**

Practical
understanding of
WA systems

General Agreement
on
Useful Tools

**CMER
Team**

Tool or
Product
Scoping

Interim product
developed for use
or strategy agreed
on.

TFW and CMER

Buy-off with
respect to
trial

CMER Team

-Design field
evaluation and
reseach program.

(Series of projects
in subprograms
oriented to tools)

Feedback between
field implementation
and evaluation
program to improve
tool.

TFW Managers

Implement tool,
monitor, and
feedback.

(Jointly identify
methods with
CMER)

Final TFW
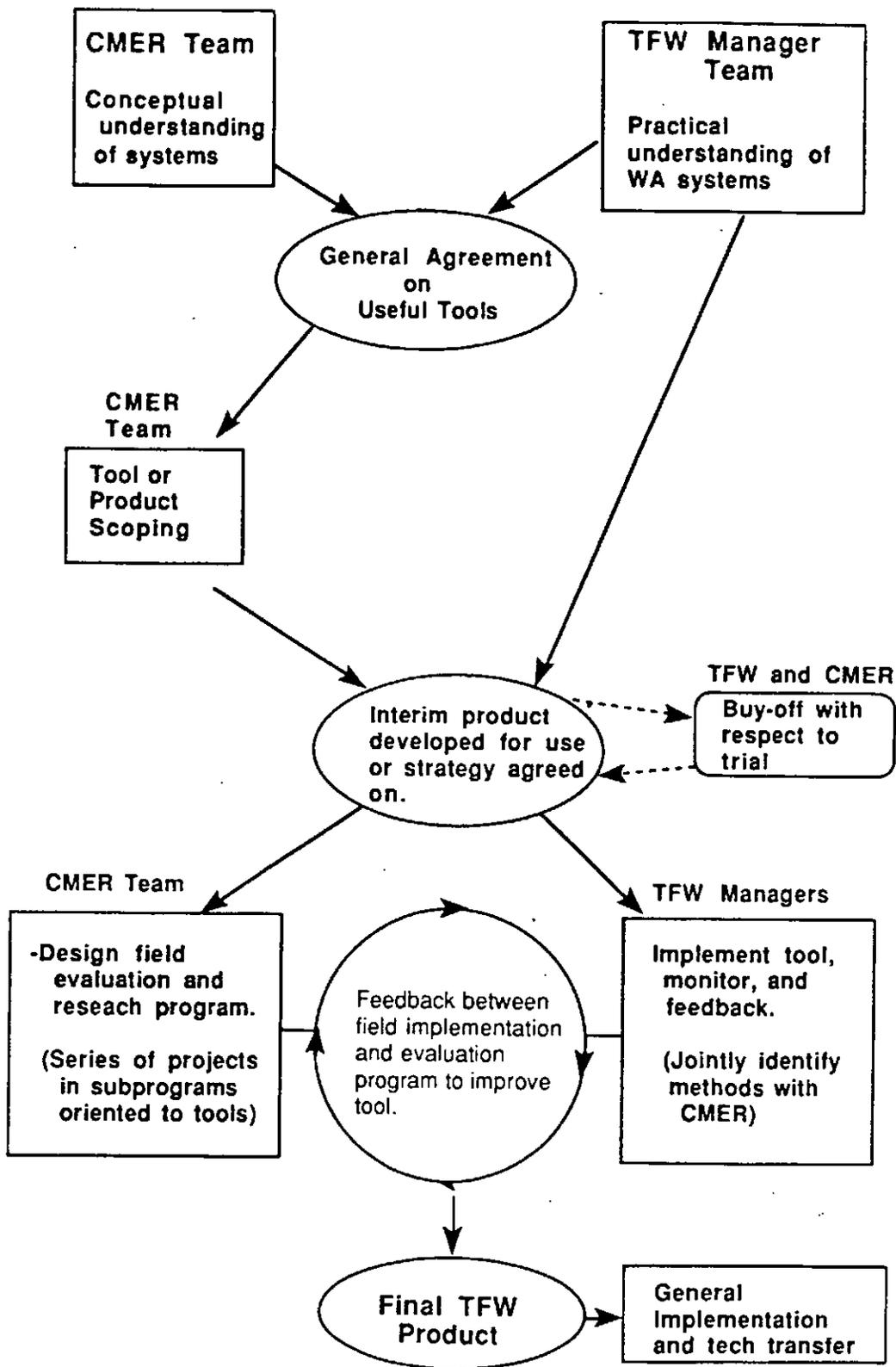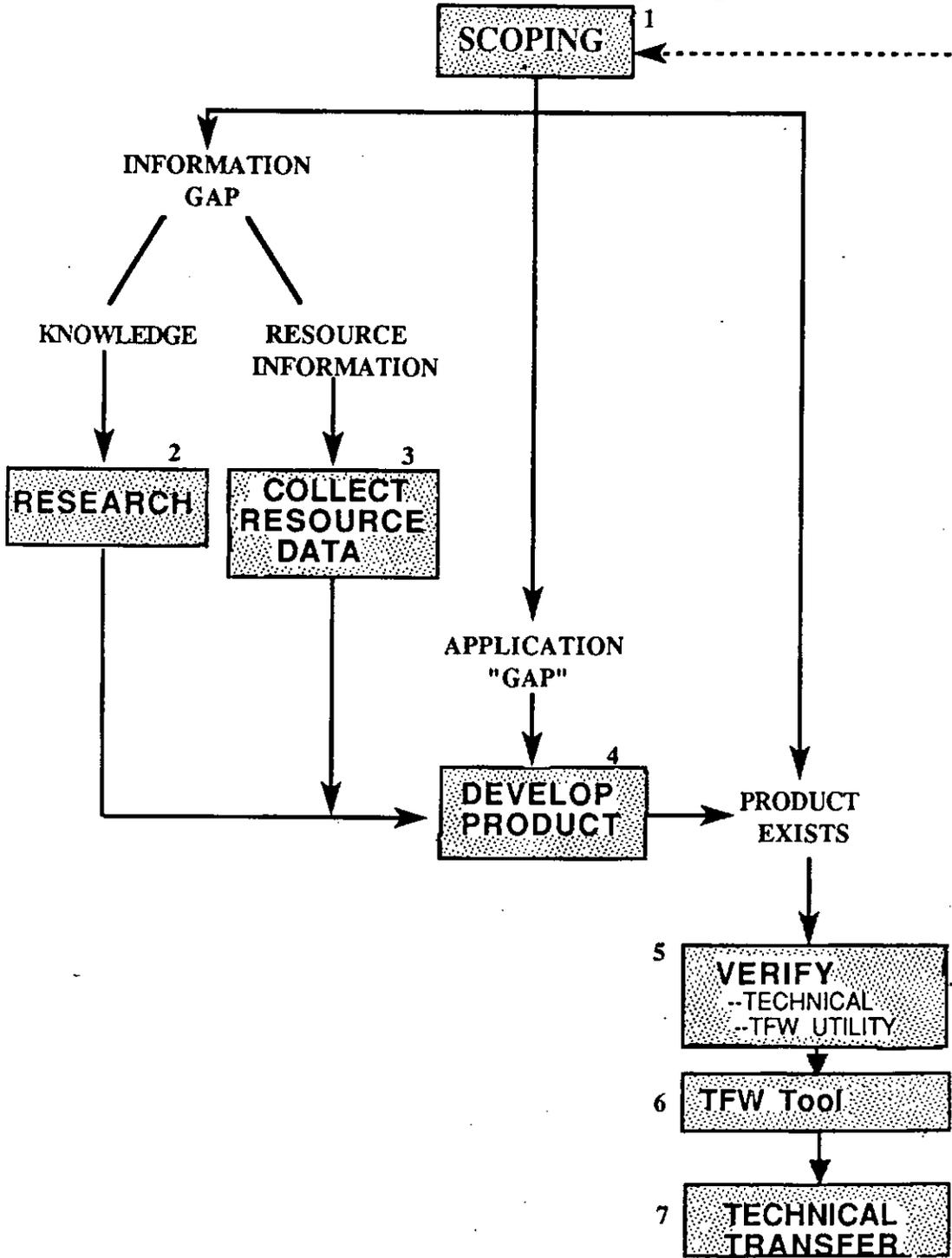Product

General
Implementation
and tech transfer

Figure 6

CMER Role in Scoping Management Tools

C. Administrative Issues.

Multiple resource planning programs at the CMER funding level are typically institutionalized with staff, administrators and other full-time personnel. A range of responsibilities are assumed which include but go beyond planning and analysis. A representative set of these functions is provided in Appendix 2. These include contract administration, budgeting, accounting, information management, hiring, and coordination with other organizations.

Like the other TFW committees, CMER has resisted bureaucratization and its own establishment as a conventionally staffed organization. In fact, it has no dedicate staff (only AMSC has a staff member), no formal place of business or incorporated status as an organization (like TFW), and no bank account.

Administrative tasks and overhead have not been eliminated, but rather passed on to cooperators and committee members (eg. biologists, hydrologists, etc.). Administrative decisions which might be resolved by a director and staff (or program coordinator), are instead matters of discussion at CMER and steering committee meetings. In fact, indications are that these issues dominate CMER meetings and take up large chunks of time at the steering committee meetings.

Although considerable effort has been expended to establish guidelines and enforce consistency, the cumbersome limitations of the present structure have translated into a number of vexing complications in both funding and contract implementation.

Contracts must be executed through third parties with their own contract criteria and procedures which are not necessarily consistent with CMER needs. Ironing out process adds an additional administrative burden.

Potentially the most difficult problem implicit in the current structure is CMER's lack of control over pledged resources. Without corporate status, it is dependent upon cooperators to draw down their own accounts to cover CMER expenditures. Likewise, CMER seems to have little control over in-kind contributions, eg. the availability of TFW personnel to perform CMER work.

Such complexities present a major impediment to planning--there is always a pressure present to take advantage of the available resources whether or not a clear justification is

present for using them (eg. sending people out into the field to collect data).

CMER needs to confront the fact that without control of its own promised monies, and without staff capabilities to better solidify the cooperative network, such problems will only continue. Some lessening of difficulties might be achieved through development of MOU's, however, without corporate status, MOU's are probably not enforceable.

Likewise, better guidelines, together with more diligence on the part of steering committee members, may mitigate the current structure-related difficulties, but substantially eliminating them will be difficult without greater administrative capacity (eg. staff facilitation). With the program funded at an even greater level in the current biennium, even more serious problems may result.

Two main alternatives for correcting administrative problems were discussed by the ad-hoc integration group.

A. Centralized Administrative Capacity

Under this alternative CMER (and or TFW) would incorporate, establish a place of business, and develop some centralized administrative capabilities. This would include hiring of a small full-time staff with augmentation by contract for those services needed only occasionally (eg. legal). The consensus of the group seemed to be that this alternative was precluded by values of the cooperators.

B. Revisions in project implementation guidelines and other procedures and reliance on cooperation to ensure they will be followed. These revisions are now being developed by an ad-hoc group and will soon be presented to CMER for review.

In this review the committee might want to consider the definition of administrative performance standards for key functions. These standards, in contrast to guidelines alone, would define exactly what was expected of various personnel in problematic situations. An example might be invoicing and payment. A standard might be set on the number of days for turning around a filed invoice and making payment.

V. Program Alternatives

As indicated above, a consensus has not yet developed within CMER on program objectives and strategy. Considerable divergence of opinion seems to exist in the following areas:

1. The 19 Projects. Are they modifiable or essential to the Agreement? If they are modifiable, how much latitude should be allowed in rescoping? Should certain projects be dropped because they lack program grounding?

2. Flexible Management. Is CMER charged to develop tools that would make the current system work better, or constrained to test and validate current regulations? Should development and testing of management tools (including regulatations) be the assumed focus of the program?

3. Adaptive Management. Does the Agreement actually require practice of this process and its related assessment techniques, or something less ambitious and disciplined? What elements of both is CMER obligated to apply? What elements should be applied because they would be useful?

4. Planning Framework. How much should CMER rely on the unguided expertise of the steering committees to develop useful methodologies and products? How much reporting should be required of in-house work? To what degree should CMER structure product development so as to ensure useful deliverables?

5. Administration. How much control should be exercised over contracts, budgeting and other administrative matters? To what degree should CMER attempt to solidify commitments from cooperators? To what degree would hiring of staff reduce workload on technical personnel, allowing them to concentrate on technical matters? Is incorporation and staff hiring (CMER staff, including a director), inconsistent with cooperator values?

Based upon discussion with individual committee members, it appears that preferences seem to correspond with more-general attitudes about CMER role in TFW and how its business should be conducted. Four main variables seem to capture this variance (also depicted in Figure 7):

Perception Variables:

1. variable 1--breadth of perceived CMER responsibility under TFW--narrow versus broad (with respect to flexible management, adaptive management, etc.)

2. variable 2--appropriate initiative of the committee within TFW--assertive versus responsive (eg. in developing frameworks, proposing methodologies, etc.)

Figure 7

Variables for Program Integration

CMER IN TFW		WITHIN CMER	
CMER MISSION	INITIATIVE	PLANNING PRODUCT	PLANNING STRUCTURE

HIGH — Broad, Assertive, Program, Centralized (Tight)

MEDIUM

LOW — Narrow, Responsive, Project, Decentralized (Loose)
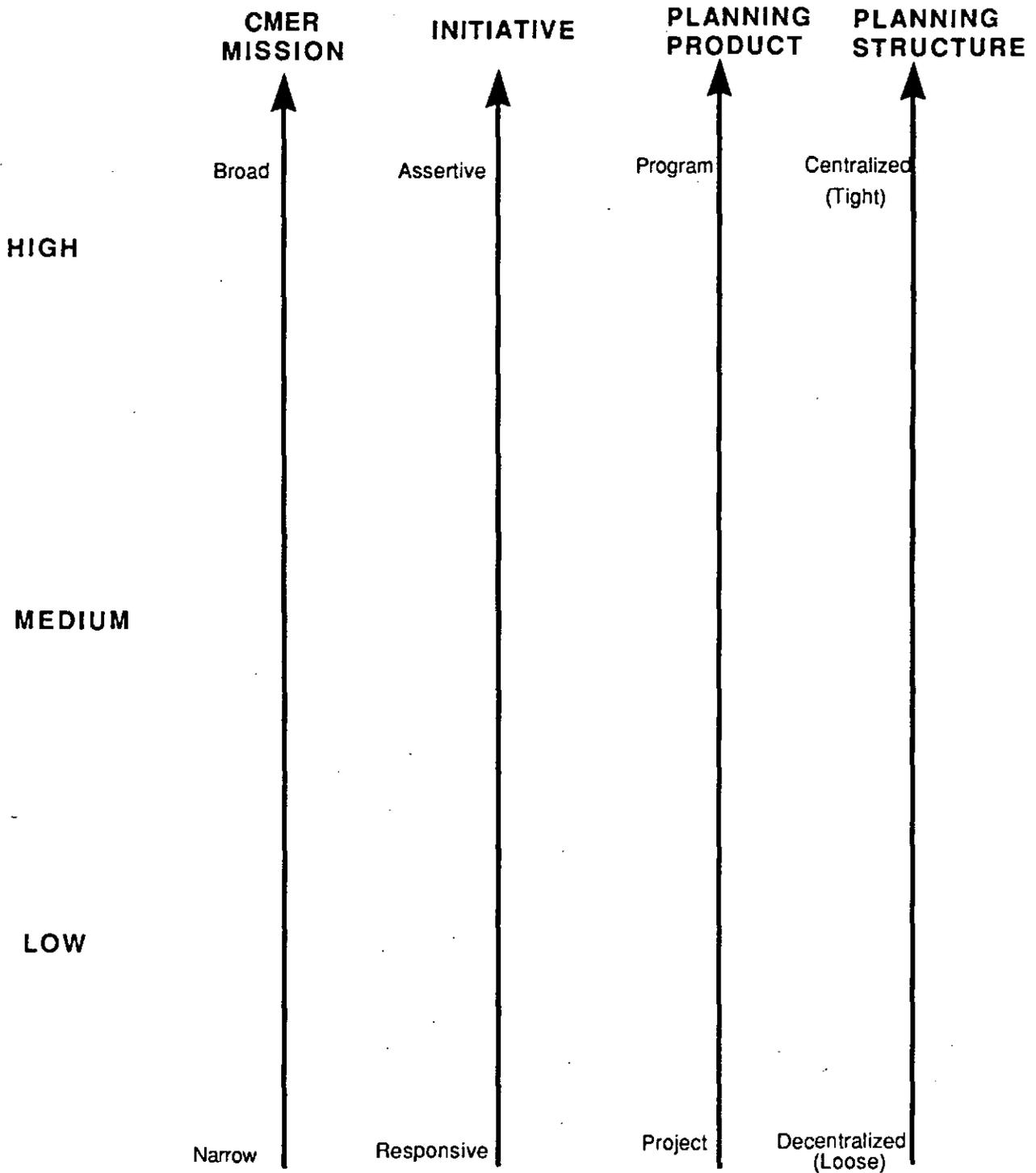
3.   variable 3--product versus program focus (eg. the need to ensure that individual projects serve a more general program objective and are coordinated)

4.   variable 4--appropriate amount of CMER guidance and direction of steering committee actions-- tight and centralized versus loose and decentralized decision-making

For the purposes of helping the committee crystallize preferred direction, each of the five elements was given three alternatives. The alternatives were defined by the perception variables. The results of this exercise are depicted in Figure 8.

As reflected in the graphic, options under each element were collected into three discrete program packages. The three identified program options are as follows:

1. Program Option 1--to forge a synthesis of adaptive and flexible management (such as that hypothesized above) and to implement it through a well-defined planning framework and with a staff and director.

2. Program Option 2--to forge a synthesis of adaptive and flexible management (such as that hypothesized above, but with less management probing and less adaptive environmental assessment), and implement it within the current CMER structure (minor modification, but without a staff or director).

3. Program Option 3--to live with the program as is, with CMER essentially assuming a responsive role in the TFW process.

In terms of compatibilities, it appears that flexible resource management fits well with the principles of adaptive management, the latter providing the conceptual framework for feedback and revision of tools. On the other hand, it is possible to proceed with flexible management without the team-building, modeling and the management probing that usually goes along with adaptive management--it just might not work as well. Checks such as these need to be made on whatever decisions are made about program direction.

Programs	PROGRAMS ELEMENTS	POINT OF VIEW
Option 1	19 Projects	The 19 projects should be viewed as modifiable. With the benefit of better information it appears that significant changes need to be made. SC's should review all projects.
	Flexible Management	The Agreement calls for an evolving management process and reflects a need for alternatives to statewide regs, including approaches to reading site sensitivity. CMER's job is to further refine the system by developing management tools.
	Adaptive Management	Implementation requires disciplined assessment of problems, probing for appropriate policies and mngmnt. prescriptions. Adaptive environmental assessment techniques should be utilized by the s.c.'s in evaluating issues. Guidelines should be developed by CMER to ensure consistency.
	Planning Framework	CMER should develop/implement a more formal planning process and be staffed to facilitate development of products.
	Administration	Efficiency suggests need for incorporation, and possible hiring of administrator and staff.
Option 2	19 Projects	The 19 projects may not be integral to the Agreement but dropping elements would stress consensus. CMER should focus efforts on refinements.
	Flexible Management	F.M. is probably mandated by the Agreement but not a retreat from regs which provide both safety nets and ensure consistency. CMER should attempt to develop new tools but emphasize reg evaluation.
	Adaptive Management	Principles of a.m. and some of its tools should be utilized but a.m. as conventionally practiced would be impractical. We can't afford the risk of probing and discovering a tool inappropriate.
	Planning Framework	CMER should develop more accountability by implementing standards and guidelines. Program constraints preculde hiring of staff.Consultant services OK.
	Administration	More accountability and smoother administration is desireable,but incorporation precluded by constraints, as is hiring of administrator.
Option 3	19 Projects	The package represents a consensual decision covering agreed-to priorities. Only minor revisions should be considered.Too many changes and additions jeopardize consensus.
	Flexible Management	The Agreement represents f.m. CMER should focus on rules and regs. There is little support for changes that would supplant current rrgs with discretion.
	Adaptive Mangement	Usage in the Agreement only reflects view that regs and rules need to be revised based upon better info, and that program evaluations are necessary. Probing aspect of a.m. is unrealistic and might result in bad rules and regs,difficult to rescind.
	Planning Framework	The current framework is based upon consensus.Central planning would violate consensus and cooperative spirit of the Agreement. Guidelines could prove useful if they don't require considerable paperwork.
	Administration	Contract administration and funding difficulties are unavoidable cost of consensus decision-making. More diligence will attenuate difficulties.

VI.   Workplan Revisions

A number of steps would be required for CMER to confront and resolve current thematic inconsistencies. On the assumption that a reorientation upward along the gradients in Figure 8 is desired, the following tasks should be undertaken:

1.   Resolution of Goals and Objectives. A full airing would be required of the questions and issues raised herein, with clarification of CMER and TFW resolve to proceed with a situation-based application framework. (Input and decision by Policy would be required).

The results of this might be incorporated into Section A of the workplan. Presumably, objectives, if not strategy could be developed by October 1.

2. Identification of Planning Framework. Moving toward team-based planning or an alternative planning structure would required some essential guidelines and criteria as described in section IV. Most probably, CMER would desire clarification of design of workshops, guidelines for steering committee involvement, and criteria for steering committee workplans (or strategy statements). Perhaps a month of effort is implied by a dedicated group. Some initial concepts could probably be included in the October workplan.

3.   Initial Team-Building Workshops. With the groundwork for these laid in early September, workshops begin by late October. It is probably unrealistic to expect that information derived from the workshops could be evaluated in time to make revisions in the workplan.

4.   CMER and Steering Committee Strategy Statements (or workplans). Individual strategy statements and steering committee plans could be developed after the first set of workshops. Presumably these would benefit from guidance by the joint team. It is unrealistic to expect that these reports could be prepared in time for an October workplan revision.

Appendix 1

Integration Methodology

Appendix Figure 1 represents the process followed in the development of this paper and its findings. Initially the analysis proceeded on two parallel tracks--1. clarification of objectives and constraints (left side of Figure 2), 2. definition of practices, processes and program elements (right side).

Both tracks involved individual and group meetings as well as independent information gathering. Clarification of objectives was considered critical to program development because early-on various committee members expressed differing interpretations of organizational purpose, constraints and priorities. Work on the left track also attempted to define these perceptions and their bases in the Agreement.

In order to facilitate objective evaluation, the consultant also began to define various criteria that might be used to define and evaluate integration. These, it was presumed, would be used to filter information subsequently developed from interviews, meeting and review of CMER documents.

Work on the right track attempted to define the actual activities of CMER (and secondarily the steering committees) so that a comparison could later be made between intent and action. Work proceeded in the collection of program program documents, including problem statements, issue papers and project reports. Additional interviews and conversations were held attempting to elicit a better understanding of the intended planning process, and implementation of that process. Without working with the committees directly, an attempt was made to find indications of consistencies in action, strategy and orientation vis a vis state goals.

1. How had the committee operationalized the TFW objective of adaptive management?
2. What kind of framework had been developed for evaluation and monitoring of cumulative effects?
4. What framework had been developed to support flexible resource management? In what ways was the committee promoting the development of management options and tools?
5. To what degree was planning designed to include opportunities for mid-course adjustment?
6. In what ways were the disciplines represented in the the committee communicating? In what ways was problem-solving being coordinated across discipline boundaries?

7. What administrative functions were being performed and by whom and to what degree were planning functions and administrative functions being harmonized?

By mid-study it became apparent that limited documentation was available and that most of the analysis and planning was going on inside the steering committees rather than at the CMER level. As a result, answers to the above were bound to be general and largely based upon the observations of those interviewed.
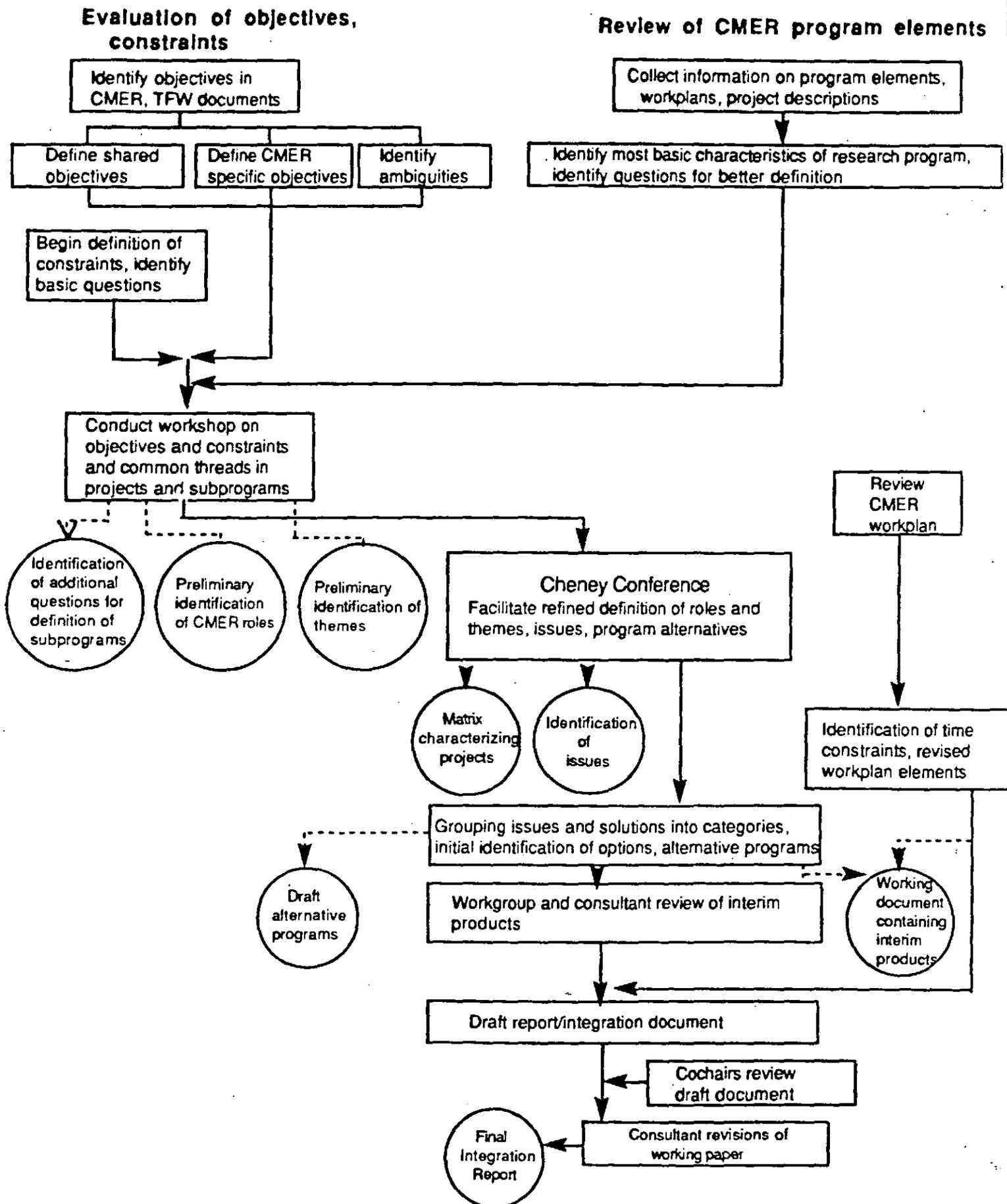
This, however, was not viewed as a critical deficiency, because the evaluation was intended to focus more on process, framework, and relationships than the substance of planning and analysis.

The study design called for a mid-study convergence of the two tracks and an intensification of committeee dialog. This began in earnest at the Cheney meeting on June 14 and 15, and included consultant facilitation. During the conference, the committee revisited the question of goals, objectives and CMER roles, and related these to formatted reports by each of the steering committees on implementation of projects and sub-programs.

Though no consensus emerged as to needs in program reorientation, the meeting did result in further discussion of issues and problems in various resource areas, some related to process, some product. These included a number of issues of policy and questions as to CMER's role within TFW that would have to be resolved at a higher level.

In the analysis that followed, issues and remedies were related back to the earlier definition of CMER roles and possible functions. From this emerged sets of discrete option, considered mutually consistent, which provide choices for the committee and TFW.

CMER Program Integration Methodology

Evaluation of objectives, constraints

Identify objectives in CMER, TFW documents

Define shared objectives

Define CMER specific objectives

Identify ambiguities

Begin definition of constraints, identify basic questions

Review of CMER program elements

Collect information on program elements, workplans, project descriptions

Identify most basic characteristics of research program, identify questions for better definition

Conduct workshop on objectives and constraints and common threads in projects and subprograms

Identification of additional questions for definition of subprograms

Preliminary identification of CMER roles

Preliminary identification of themes

Review CMER workplan

Cheney Conference
Facilitate refined definition of roles and themes, issues, program alternatives

Matrix characterizing projects

Identification of issues

Identification of time constraints, revised workplan elements

Grouping issues and solutions into categories, initial identification of options, alternative programs

Draft alternative programs

Workgroup and consultant review of interim products

Working document containing interim products

Draft report/integration document

Cochairs review draft document

Consultant revisions of working paper

Final Integration Report

Appendix 2

Administrative Functions of Large Planning Programs

A. Contract Administration
   * criteria and process development
   * RFQ, RFP development
   * advertisement
   * contractor selection
   * contract development
   * contract review (legal and technical)
   * contract monitoring
   * contract support (including payment)
   * review of deliverables
   * sign-off
B. Personnel Administration
   * hiring, firing
   * reassignment, reallocation
   * staff support
C. Internal Information
   Management
   * filing
   * procedure development
   * information routing (internally)
   * report production
D. Inter-Organizational Relations
   * technical information transfer (eg. to TFW)
   * information routing (in and out)
   * advisory participation in other processes
   * technical support (eg. to TFW)
   * developing agreements and MOU's
E. Financial
   * budget planning
   * accounting/auditing
   * fund raising
F. Internal Evaluation
   * development of benchmarks
     and performance indicators
   * periodic review/evaluation of
     organizational efficiency, deficiencies
     and accomplishments

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[1] Holling, C.S., Adaptive Environmental Assessment and Management, p. 237

[2] Walters, Carl, Adaptive Management of Renewable Resources, p. 52, Holling, Op. Cit., p. 47ff, p. 120 ff.

[3] Walters, Op. Cit., pp. 262, 321

[4] Holling, Op. Cit., p. 135 ff.

[5] Walters, Op. Cit., p. 338

[6] TFW, Ambient Workplan, pp. 6,8,24

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