Chapter 2

Conventional IA Processes

2.1 HIGHLIGHTS

In this chapter, we describe and assess generic project EIA choices for controlling and shaping the EIA process through EIA legislation, regulations, and guidelines, and conventional EIA choices for designing and managing the IA process. We also describe regulatory and applied choices encompass choices at the SEA level, and for various IA types: EcIA, SIA, HIA, and SA. We give particular consideration to the challenging task of providing good practice SEA guidance.

- The analysis begins in Section 2.2 with the problem, which is the need for better IA process management. The desire is to reduce the incidence and severity of recurrent process-related problems, through both regulatory guidance and applied practice. The approach taken to address the problem is described and substantiated.
- In Section 2.3 we provide an overview of generic EIA choices. In Section 2.3.1 we address regulatory level choices. The analysis encompasses screening guidance, guidance for individual activities, and integration and coordination guidance. In Section 2.3.2 we describe, integrate, and enhance the EIA process as conventionally portrayed in IA literature. This analysis encompasses general process management, IA process inputs, outputs, and links, and IA process adaptations.
- In Section 2.4 we present regulatory and IA process design choices and characteristics for other IA types (EcIA, SIA, HIA, SEA, SA).
- In Section 2.5 we address the contemporary challenge of SEA good practice guidance. An overview of suggested good practices is presented. Some of the issues and dilemmas associated with providing good practice SEA guidance for an IA subfield that encompasses such a diverse array of proposal types, context types, and conceptualizations of SEA, as it is and as it should be, are then discussed.
- In Section 2.6 we describe the major insights and lessons derived from the analysis, including the potential for conventional IA regulatory and applied processes to adequately address the recurrent problems and contemporary challenges.

2.2 DEFINING THE PROBLEM AND DECIDING ON A DIRECTION

The problem in this chapter is twofold. First, there is the question of whether conventional characterizations of the IA process, as typically portrayed in IA literature, adequately reflect the choices available. Second, there is the question of whether conventional IA process guidance and practice, even if substantially reformed, can adequately respond to the recurrent problems and contemporary challenges identified in Chapter 1. The direction is, first, to present a range of available choices at the regulatory level; second, to present a range of available choices at the applied level; and, third, to assess whether those choices can provide a comprehensive response to the recurrent problems and contemporary challenges.

2.2.1 Regulatory Level

The point of departure for the regulatory analysis is IA process control and guidance. The focus is on regulatory guidance of the IA process as it is (in terms of broad patterns), as it could be (in terms of good practices), and as it could be (if reconstructed and reformed). The focus is on helping IA regulators more effectively guide IA process management.

There is a tendency in IA literature to focus on the details of individual IA regulatory systems. IA regulators must do so if they are to effectively administer the system. IA practitioners must do so if they are to effectively and efficiently operate within the system. There are numerous texts, which seek to aid practitioners in understanding and operating within individual IA systems, all of which is well and good. However, sometimes a broader perspective is required.

IA regulatory systems are not static. Reforms, refinements, and modifications are commonplace. Sometimes change takes the form of a fundamental restructuring of or replacement of IA and related legislation. IA regulators, while administering the system as it is, must determine how the system can be improved either by modifications and refinements or by more fundamental changes. If the benchmark is simply the system as it is, the basic questions that lead to more fundamental changes may never or rarely be asked. Individual modifications and refinements may,

Impact Assessment: Practical Solutions to Recurrent Problems and Contemporary Challenges, Second Edition. David P. Lawrence.

moreover, when aggregated, result in an inefficient and ineffective patchwork of reforms and existing practices. Individual elements may operate at cross-purposes. Significant flaws, gaps, and inconsistencies may (and based on Chapter 1 do) remain. Even if the existing system is not replaced, the repairs should be based on basic principles and objectives, an appreciation of practical alternative approaches and experiences elsewhere, a systematic evaluation of the existing system, and a coherent strategy that builds on strengths and ameliorates weaknesses.

Insights can be acquired from reviewing the requirements and experiences of other jurisdictions, appreciating the need for contextual adjustments. However, whether the intent is to replace, reform, or just "fine-tune" IA requirements and procedures, the ultimate benchmark should be "good regulatory practice."

IA legislation and regulations should spell out both aspirations (e.g., goals, objectives, principles, policies, priorities) and minimum requirements (e.g., thresholds, standards, criteria, areas of application, roles and responsibilities). IA legislation and regulations should result in a consistent and acceptable level of IA practice. Ideally, the gap between IA aspirations and requirements should be narrow. IA guidelines can further diminish that gap by facilitating compliance and by contributing to the quality of IA documents and to the effectiveness of the IA process. IA guidelines have the additional benefit of flexibility. They can be adapted as the state of the art and practice of IA evolves. They also can be adjusted for different setting and proposal types, and for individual applications. A delicate balancing act is required. Too general IA legislation and regulations will contribute to a low, or at least highly inconsistent, level of IA practice. IA legislation and requirements, which "micromanage" every aspect of IA practice, are likely to stifle innovation and inhibit necessary adaptations.

2.2.2 Applied Level

Identifying IA regulatory choices is not enough. There is considerable discretion, within the framework established by IA requirements and guidelines, to effectively and efficiently (or not) manage the IA process. Moreover, IA requirements and guidelines do not and cannot adequately convey the many process management choices potentially available to IA practitioners.

It also is not enough, once IA requirements are satisfied, to simply apply "the IA process" as presented in any one of several IA texts. Although these process depictions can be very helpful, numerous versions of the IA process are presented. Most IA process descriptions are not identified as one among many contributions to an ongoing debate and discussion. Alternative processes and process variations are rarely described, compared, or critically evaluated. Instead, it is commonly assumed that there is only one IA process or that the process presented is superior to other available processes. Occasionally, allowance is made for individual process variations. Usually, little importance is attached to these variations. The IA practitioner is left in the difficult position of designing and managing the IA process, without the benefit of an array of readily accessible process guidance choices that can be integrated, combined, adapted, and applied to suit the circumstances.

The applied analysis describes the broad patterns in how the IA process is conventionally portrayed in IA literature. It then integrates and enhances the IA process characterizations, with a particular emphasis on identifying choices available to IA process managers at the SEA and project EIA levels and for various IA types. Finally, it identifies residual gaps and priorities (with special reference to the recurrent problems and contemporary challenges) to be pursued in subsequent chapters.

Many perspectives on how the IA process should be designed and managed are integrated into the analysis. Various ways of framing, identifying, and structuring IA process activities and activity components are considered. Particular consideration is given to blending and integrating procedural and substantive elements in IA process design and management for various IA types. Procedures for integrating key inputs into the IA process, such as IA requirements, public and agency concerns, substantive environmental priorities, methods and pertinent values, knowledge and experiences, are addressed. Key IA process outputs are identified. Consideration is given to how to establish links to proposal planning, to decision making, and to related actions and fields. Process management choices are consolidated in tabular form. Several tables and figures are presented that extend beyond conventional IA process portrayals. A separate analysis is presented of approaches for confronting the particularly difficult challenge of SEA good practice guidance.

The applied analysis is based on an overview of major IA texts and mainstream IA journals. It focuses on prescriptive portrayals of the IA process. A broader range of IA literature and literature in related fields is considered in the Chapters 3–12 analyses. The emphasis is less on comparing the IA process depictions than on identifying and illustrating the range of conventional process management choices available to IA practitioners at both the regulatory and applied levels. The integration and refinement of conventional IA process portrayals provide the baseline for assessing whether the recurrent problems and contemporary challenges cited in Chapter 1 require further consideration. The specific nature of the recurrent problems and contemporary challenges, and how they might best be addressed, is explored in greater detail in Chapters 3–12.

2.3 CONVENTIONAL EIA CHOICES

2.3.1 Regulatory Level Choices

The first step in designing or adapting any project-level EIA regulatory system is determining (1) what should trigger the application of EIA requirements and (2) which particular set

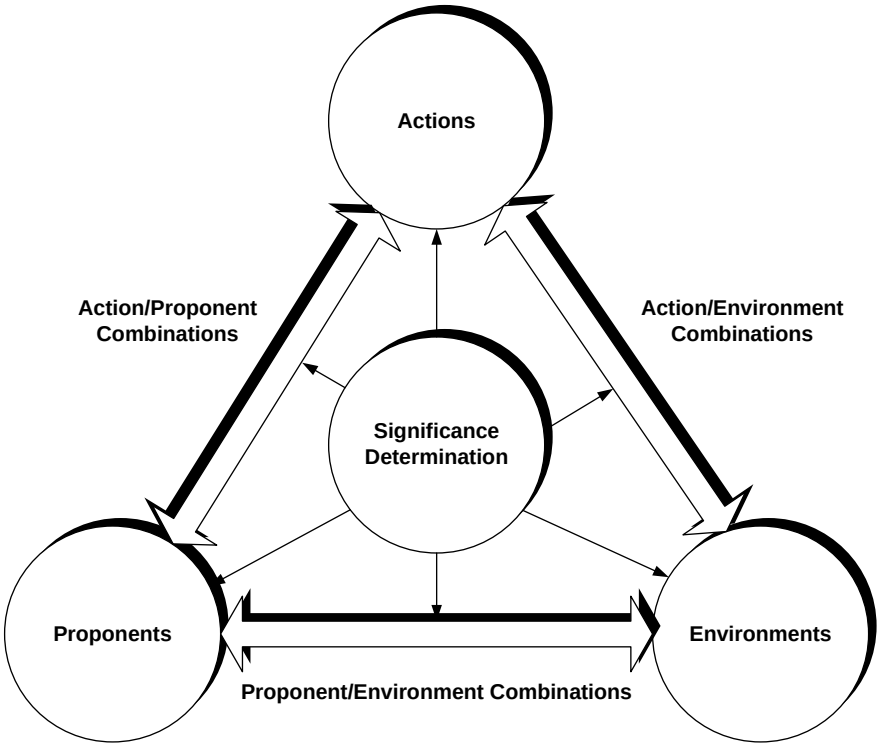

Figure 2.1 EIA screening combinations.

of EIA requirements should be applied. These two screening steps, as highlighted in Figure 2.1, focus on various actions (what), proponents (who), and environments (where). Often screening decisions are based on action, proponent, and environmental combinations. Each decision involves a significance determination (i.e., has a level of importance been reached where EIA requirements should be instituted?). Added to the mix is an effort to achieve two not always complementary purposes (1) building environmental considerations into proponent and action-related decision making and (2) protecting and enhancing the environment. Table 2.1 lists examples of good practice screening characteristics for each of the three elements (individually and collectively) and for significance determination.

Regulating and guiding the EIA process does not end with screening and significance determination. It also is necessary to control and guide individual IA activities. Table 2.2 lists examples of good regulatory practice, general and specific (for each EIA activity), characteristics. Overall guidance, across EIA process activities, necessitates a delicate balancing act. Ideally, EIA requirements (legislation and regulations) should identify objectives, spell out minimum requirements, and include general performance standards or criteria. Guidelines can then provide more specific guidance. Successively more specific guidance can be provided, first, through environment and proposal type guidelines and, second, through proposal and environment-specific requirements and guidelines. Guidance for individual activities can be offered through both general guides (that address all EIA activities but at a broad level of detail) and specific guides (that provide more detailed guidance for individual activities). Guidelines that are too superficial are likely to be of little value in facilitating good EIA practice. Overly specific requirements and guidelines can inhibit good practice innovations and adaptations, especially when there are multiple and changing perspectives regarding good practice standards and methods. General EIA process guides are helpful because they provide an overview of all EIA activities at a consistent level of detail. They also can give the reader a sense of how the individual activities fit together into an overall process.

It is not sufficient to implement EIA requirements and prepare IA guidelines in a manner consistent with the criteria listed in Table 2.2. While EIA continues to evolve rapidly, as a field of theory and practice, sufficient knowledge and experience have been acquired to be able to distinguish between good and inadequate practice. EIA guidelines that systematically draw upon applied research and case studies can identify reasonable minimum standards coupled with good practice performance standards. Most EIA jurisdictions, for example, have prepared public involvement guidelines. Such guidelines tend to summarize regulatory requirements, identify a few general principles, and provide an overview of the characteristics, strengths, and limitations of a standard set of consultation procedures. This often dated and largely descriptive approach fails to convey a state of practice that is much further along in providing for earlier and more extended public involvement, for sharing decision making, for consensus building and conflict resolution, and for facilitating the involvement of traditionally underrepresented groups and organizations. A more concerted effort could be made to formulate and refine EIA requirements and

Table 2.1 Examples of Good Practice Screening Characteristics

Proponents	Actions	Environments	Interactions	Significance Determination
Applies to public and private proponents	Automatic triggers for major actions that almost always have significant environmental effects	Automatic rejection if unacceptable environments	(A-E) action thresholds adjusted to significance/sensitivity of environment	Significance defined
Exclusion of proponents that do not perform environmentally significant actions	Triggers for proposal characteristics likely to induce significant effects (e.g., emissions, waste disposal)	Requirements adjusted depending on environmental and resource carrying and regenerative capability	(A-E) action thresholds adjusted where cumulative effects a concern	Provision for early exclusion of unacceptable effects
Funding and approval triggers early in process and consistent	Exclusion of actions with minimal adverse effects	Broad definition of environment and effects	(A-E) provisions to group proposals geographically (e.g., mineral exploration)	Well-defined significance thresholds
Scope of funding and approval triggers consistent with scope of likely effects	Adjustment of requirements for different action types and characteristics	Provisions for extraterritorial application	(A-E) focuses requirements on action characteristics likely to significantly affect sensitive/significant environmental components, processes, interactions, species, and habitats	Provisions for degrees of significance (scaling systems)
Triggers adapted to proponent characteristics (e.g., agency characteristics, indigenous EIA regimes)	SEA-project EIA links (e.g., tiering)	Provisions to apply to global commons (e.g., Antarctic, oceans)	(P-E) requirements and guidelines focus on proponent characteristics most likely to significantly affect environment	Explicit significance criteria
Provisions to group agencies (e.g., coproponents)	Action type guidelines (e.g., best practice)	Effect type requirements and guidelines (e.g., biodiversity, social, health, environmental justice)	(P-E) requirements and guidelines focus on locations and location types favored by proponents	Explicit and consistent significance determination process
Provisions to coordinate levels of government (e.g., federal, state/provincial/territorial, municipal, indigenous)	Individual proposal requirements/guidelines (e.g., terms of reference)	Transboundary effect requirements	(P-A) requirements and guidelines focus on actions undertaken by proponents that are most likely to result in significant effects	Significance determinations adjusted based on consideration of; magnitude/intensity, mitigation and enhancement potential, availability of reasonable alternatives, risks and uncertainty, public policies, requirements and priorities, degree of controversy, reversibility, carrying capacity, sensitivity, and significance of potentially affected environment and context
Provisions to prevent and minimize duplication and overlap (e.g., delegation, harmonization)	Provisions to group actions by type (e.g., site remediation, weapons decommissioning)	Provisions for areawide assessments	(P-E) requirements and guidelines seek to integrate environmental considerations into all proponents' actions	Recognition that significance can be positive or negative
Voluntary participation provisions	Provisions to combine related actions (e.g., precedent setting)	Setting type requirements/guidelines		Recognition that individually insignificant actions can be cumulatively significant
Consideration of proponent's environmental record	Selective application for expansions to existing projects where significant effects likely	Adjustments in requirements to match regional characteristics		Provision for stakeholder involvement in significance determination
Individual agency requirements/guidelines	Provisions to apply to existing action (with consent of proponent)	Regional guidelines		Significance determination integrated into each IA process step
Assessment of privatization implications	Small project guidance	Special requirements for specific sensitive/significant/hazardous environments		Provision for integration of significance determination methods
Guidance for business (e.g., links to environmental management systems)		Endangered/threatened/rare species and habitat triggers		
		Contaminated site guidance		
		Special provisions for culturally sensitive lands (e.g., archaeologically significance, indigenous peoples' reserves, land claims)		

Table 2.2 Examples of Good EIA Regulatory Practice: Individual Process Activities

General Characteristics
Objectives, minimum requirements, and performance standards/criteria included in legislation or regulations
Identifies activity objectives and principles
Defines key terms
Addresses methodological issues (e.g., level of detail)
Describes the process for undertaking the activity, including possibility of alternative approaches
Provides examples of the role of methods within the activity
Describes potential stakeholder roles and responsibilities within the activity
Identifies links to EIA regulatory requirements and to related activities
Requires consideration of uncertainties and associated implications
Provides good practice examples and case studies
Identifies potential pitfalls and obstacles
Identifies follow-up references and sources
Provides more specific guidance (e.g., environment types, proposal types, effects type, area specific, proposal specific)
Maintains a balance between good practice control/guidance and ensuring sufficient flexibility to apply alternative approaches, innovate, and make necessary adaptations to suit local and proposal specific conditions
Scoping
Provides for scoping as a formal decision-making step in the EIA process (e.g., approval of terms of reference, potential for proposal rejection)
Identifies the role of scoping (e.g., focusing) in each EIA process activity
Provides for the scoping of significant environmental components and processes, data sources, effects, issues, alternatives, proposal characteristics, stakeholders, uncertainties, and proponent characteristics
Ensures sufficient flexibility to adjust process after scoping
Proposal Characteristics
Focuses on proposal characteristics most likely to induce significant environmental effects
Identifies minimum information requirements for proposal characteristics (e.g., status, location, scale, stages, service, land and resource requirements, components, processes, design, emissions, effluents, residuals, and interactions among proposal characteristics)
Provides for links to alternatives, mitigation, land use planning, and other related proposals
Provides for early and ongoing links between proposal planning and EIA process
Recognizes that proposal characteristics will evolve and change
Baseline Analysis
Broad definition of environment
Requires justified boundaries for analysis (e.g., temporal, spatial, ecological, administrative)
Provides for the consideration of patterns over space and time (e.g., existing environmental degradation and hazards, environmental carrying capacity)
Facilitates focusing on sensitive and significant environmental components and processes most likely to be affected
Identifies potentially significant environmental components and processes
Facilitates consideration of links among environmental elements (e.g., physical, biological, ecological, social, economic)
Provides for links to impact prediction, monitoring, and state-of-the-environment reporting
Impact Analysis and Synthesis
Broad definition of effects
Provisions for characterizing impact dimensions (e.g., intensity, duration, frequency, reversibility, direct, indirect, and cumulative)
Impact identification and prediction guidance (including examples of methods)
Refined guidance for effect (e.g., biodiversity, social, cultural, noise, environmental quality, health) types
Explicit consideration of transboundary effects
Provisions for considering interactions among activities and effects
Linked to alternatives and mitigation analyses
Alternatives Analysis
Requires identification of purpose and need
Provides guidance for alternatives identification
Provides overview of alternatives generation and evaluation process (including possible stakeholder roles)
Identifies and defines alternatives that must be considered (e.g., no action, environmentally preferred, alternatives to proposal, alternative means, alternatives outside jurisdiction)
Indicates when alternatives must be considered (e.g., when potentially significant effects)
Identifies types of alternatives that could be considered depending on circumstances (e.g., siting)

Table 2.2 (*Continued*)

Identifies possible approaches to screening alternatives
Provides criteria examples
Points out need to consider differences in criteria importance
Identifies possible approaches and methods for comparing alternatives
Links alternatives analysis to scoping, significance interpretation, and mitigation
Mitigation and Enhancement
Broad definition (e.g., prevention, amelioration, rehabilitation, restoration, compensation, enhancement, local benefits)
Provides examples of typical methods
Requires consideration and documentation of mitigation measures when potentially significant effects
Requires consideration of feasibility, effectiveness, and consequences of methods
Linked to proposal characteristics, significance determination, monitoring (e.g., mitigation effectiveness), and legal requirements (e.g., compliance and enforcement)
Provisions to integrate individual measures into action plan
Methods
Guidance and examples for each process activity and for major environmental components and types of effects
Identifies characteristics, strengths, and limits of methods
Provisions for integration of traditional knowledge
Sponsoring of methods research, methods symposiums, and research institutions
Links to technical guides in related areas of jurisdiction and related fields
Documentation
Identifies documentation requirements for each IA decision-making step
Provides for interim documentation; encourages documentation that traces EIA process
Guidance: style, format, level of detail, length, cover sheet, contents, list of preparers, rationale for interpretations, conclusions and recommendations, treatment of uncertainties, summaries, use of graphics and mapping, cross-references to other documents, source and reference list, use of appendices, indexes and keywords, and electronic publishing standards
Guidance: document circulation procedures
Guidance: documentation of agency and public involvement (including treatment of comments and suggestions)
Guidance: appendices, draft, and final reports; supplemental studies
Contents guidance: notifications, project registry/referral forms, decision-making record, approval requirements, hearings record, and postapproval documents

guidelines that are conducive to EIA practice as it could and should be (and sometimes is) rather than as it too often is or was 10–20 years ago.

Occasionally, EIA requirements and guidelines are too precise. Such an approach is problematic. There are many procedures available, each with a different mix of advantages and disadvantages. Proponents need the flexibility to be able to select, integrate, and adapt methods, jointly with stakeholders, which are appropriate to local circumstances. Maintaining such flexibility does not preclude EIA requirements and guidelines, spelling out objectives, principles, and performance standards. Examples of methods, including their strengths and limitations, criteria and decision rules for method selection in varying settings, and good and bad practice examples also can be provided.

A similar danger exists with EIA document requirements. Document requirements can be extremely helpful in facilitating consistency and in ensuring that minimum content requirements are satisfied. At some point, however, very detailed document format and content requirements can reduce EIA to a "fill-in-the-blank cookbook" exercise. The focus should not be exclusively on preparing IA documents in accordance with requirements. The primary emphasis should remain on protecting and enhancing the environment and on facilitating more environmentally sound decision making and undertakings. There also is the question of whether the EIA process suffers when too much stress is placed on document preparation requirements. EIA documents should be outputs from and should reflect the EIA process structure. EIA document requirements are worthwhile, but only if they reinforce EIA objectives and do not inhibit innovative process design and management approaches that seek to better achieve EIA objectives.

Integration and coordination are central attributes of regulatory EIA process management (Lawrence, 1994). Figure 2.2 illustrates interconnections among various integration and coordination categories. Table 2.3 lists examples of good regulatory practices pertaining to integration and coordination with international EIA activities, vertical integration and coordination, horizontal integration and coordination, and knowledge base links.

2.3.2 Applied Level Choices

Figure 2.3 categorizes EIA process management choices. Decisions can be made regarding the appropriate activities and activity components (including choices regarding activity sequence, form, frequency, duration, and interactions),

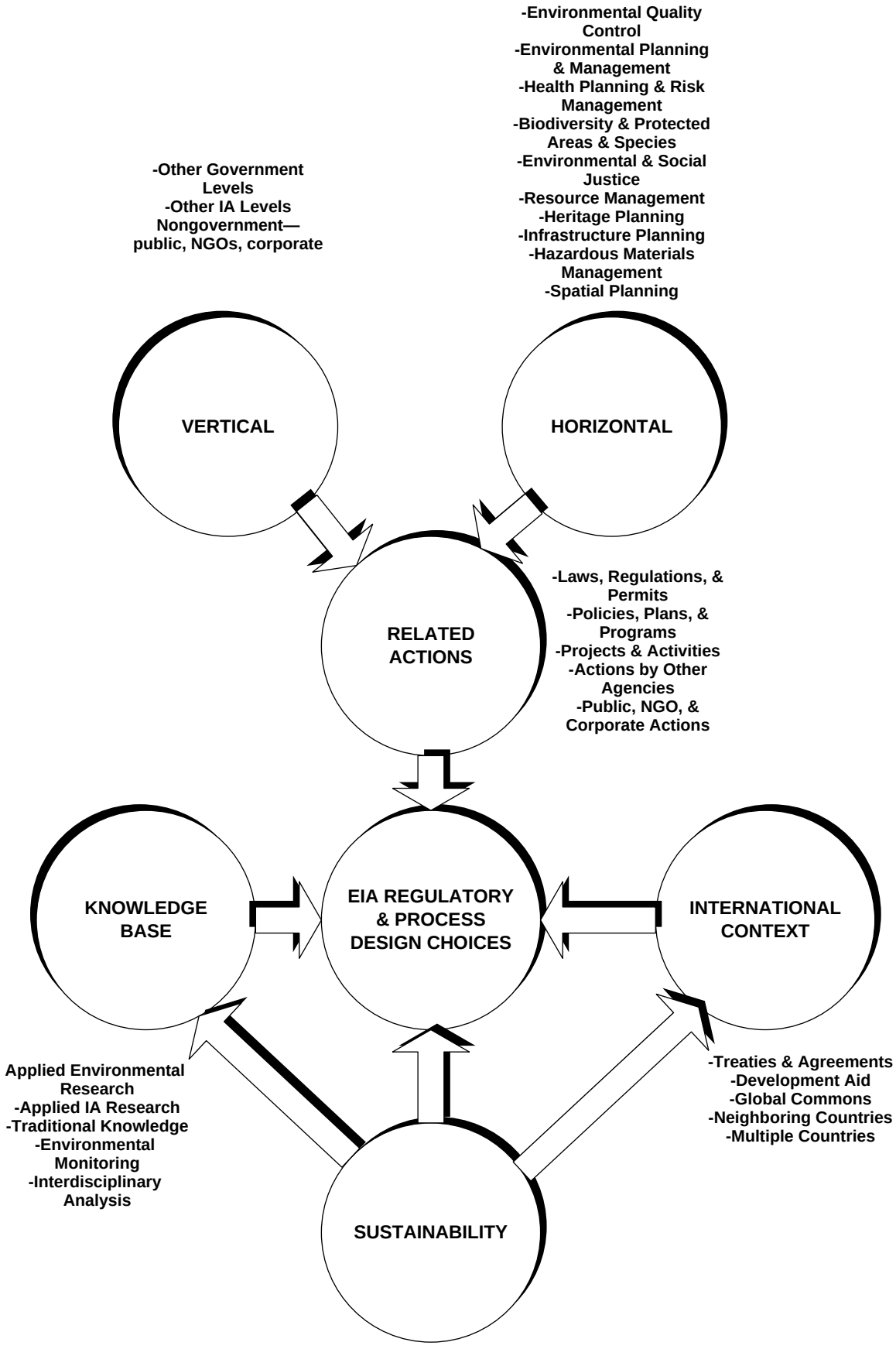

Figure 2.2 EIA integration and coordination.

Table 2.3 Examples of Good Regulatory Practice: EIA Integration and Coordination

International—Global Commons	Vertical—Other Government Levels	Horizontal—Related Policies, Programs, and Plans	Knowledge Base—Applied Research
Extends EIA requirements to actions by nations that might affect global commons Extends EIA requirements to boundary areas of commons Coordinates EIA requirements and strategies for global commons Integrates global commons concerns (e.g., climate change, rare and endangered species) Integrates international conventions for protection of commons into EIA requirements	Minimizes EIA duplication and overlap among government levels (e.g., accreditation) Integrates approval requirements of all government levels in EIAs Harmonizes EIA requirements and procedures (to ensure a consistently high level of EIA practice and to address potential conflicts) Provides for joint or cooperative EIAs Coordinates EIA procedures and activities Provides for Indigenous EIA regimes (establishment and coordination) EIA guidelines and assistance for lower government levels	Provides for and encourages areawide assessments Undertakes SEAs of regional and sectoral plans Establishes EIA systems based on natural boundaries (e.g., watersheds) Integration of EIAs within multilevel sectoral and spatial planning Integrates EIA requirements into regional and land use planning Systematically and formally integrates into EIA requirements sustainability and other substantive environmental concerns	Establishes and supports EIA research centers Sponsors EIA research by universities, research institutions, and consultants Coordinates EIA research among jurisdictions Provides for case studies of good EIA practice
International—Multiple Countries	**Vertical—Other IA Types**	**Horizontal—Related Projects and Activities**	**Knowledge Base—Traditional Knowledge**
Harmonizes EIA requirements among countries Harmonizes environmental legislation, strategies, and plans that provide context for and substantive content to EIAs Facilitates multijurisdictional EIA coordination, consultation, and planning Extends applications to actions by nationals in other countries Integrates international EIA and other environmental conventions and agreements Assesses environmental impacts of trade agreements	SEAs (policies, program) frame project-level EIA Tiering provisions (e.g., project-level EIAs summarize and incorporate by reference higher level SEA documents) Legislative requirements for both SEAs and project-level EIAs (recognizing differences) Provides for IAs of legislative proposals	Includes cumulative effects requirements Provides cumulative effects guidance Provides for regional environmental databases to support cumulative effects assessment	Formally recognizes in EIA legislation potential value of traditional knowledge to EIA practice Integrates traditional knowledge into EIA practice

(*continued*)

Table 2.3 (*Continued*)

International—Neighboring Countries	Government/Nongovernment	Horizontal—Actions by Other Government Departments and Agencies	Knowledge Base—Environmental Monitoring
Transboundary EIA agreements and coordination Adherence to transboundary EIA conventions Conducts EIAs for projects in neighboring jurisdictions Assesses environmental impacts of trade agreements	Links and integrates EIA and EMS (environmental management systems) EIA application to public and private projects (recognizing differences) Provides forums and mechanisms (e.g., round tables, committees) for multistakeholder EIA dialogue Provides for voluntary EIA preparation Assessment of EIA implications of privatization Provides for research, coordination, and auditing roles by independent nongovernment organizations Considers environmental record of proponent	Provides for interagency coordination agreements (to address timetables, disputes, etc.) Provides for forums (e.g., task forces, committees) to facilitate coordination Integrates (where appropriate) and coordinates IA and permitting Includes well-defined interagency EIA circulation, review and consultation requirements, procedures, and mechanisms (e.g., review teams)	Integrates EIA monitoring into areawide monitoring Integrates results from areawide monitoring into EIA practice Provides for cumulative effects monitoring Links EIA outputs to state-of-the-environment and environmental pressure indicators, where practical
International—Development Aid	**Horizontal—Related Laws, Regulations, and Permits**	**Knowledge Base—Applied Environmental Research**	**Knowledge Base—Interdisciplinary Analysis**
Applies, with adjustments, EIA requirements to development assistance undertakings Assists in establishing and reforming EIA systems including capacity building	Merges EIA and other environmental regulatory requirements (where appropriate); formally linked and coordinated; guidance provided Formally incorporates substantive environmental requirements into baseline and significance determination IA activities Analyzes related requirements to ensure complementary Brings EIA requirements under the umbrella of sustainability requirements	Provides mechanisms (e.g., networks, committees) to integrate relevant applied research into EIA requirements and guidelines Initiatives to sponsor applied environmental research of relevance to IA practice	Emphasizes EIA requirements and guidelines on importance of transcending disciplinary boundaries Sponsors interdisciplinary EIA research

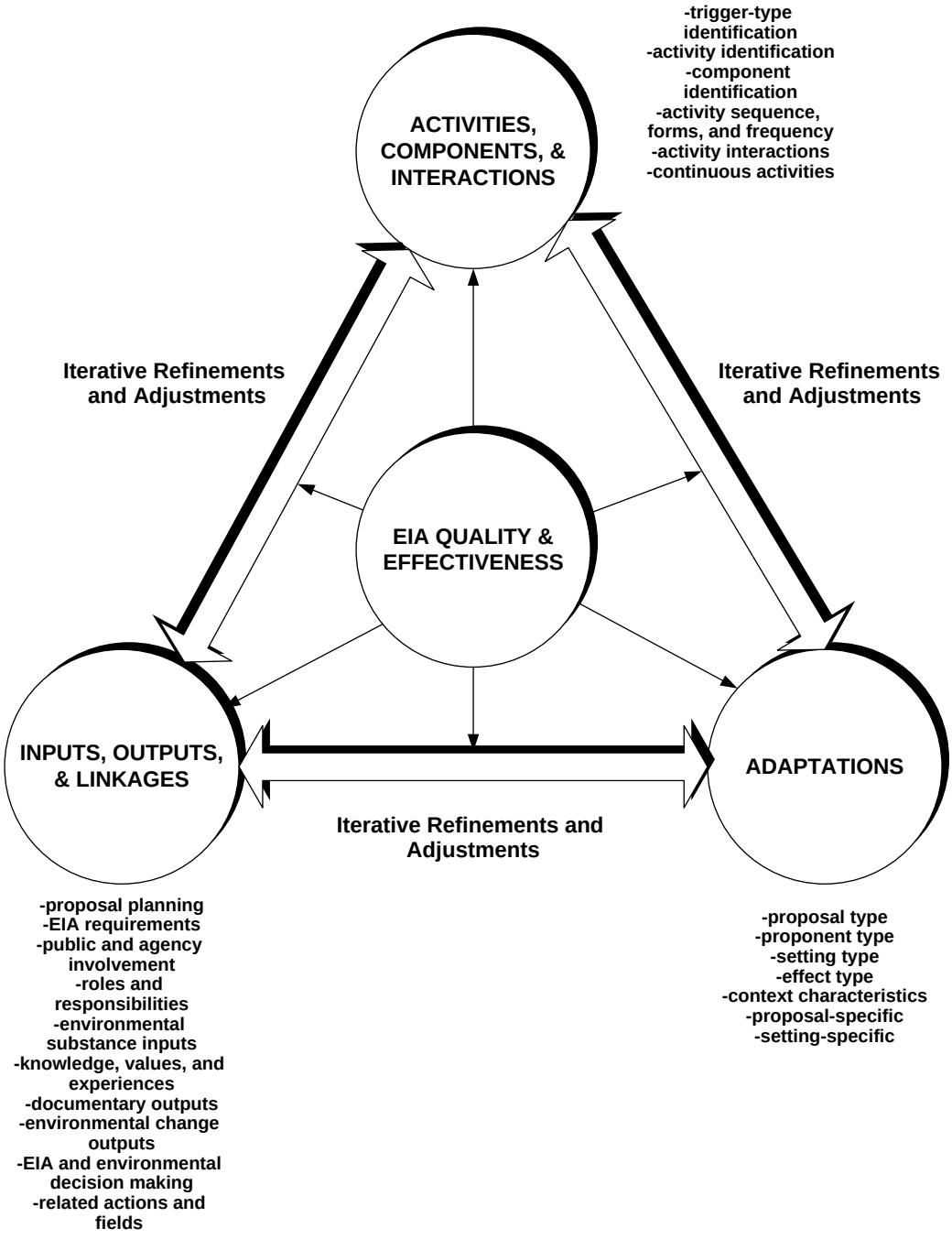

Figure 2.3 EIA process management elements. Adapted from Lawrence (2001).

inputs to the process, outputs from the process, and links between the EIA process and decision making and related activities and fields, adapting the process for different proposal, proponent, effect and setting types and to match proposal and effect specific characteristics, and how to build into process management insights and lessons from EIA quality and effectiveness analyses. The choices presented are far from definitive. However, they do offer a cross section of possibilities.

Table 2.4 identifies examples of EIA process design choices. Figure 2.4 illustrates a basic EIA process. Figure 2.5 delineates a more complex EIA process. Figure 2.6 displays a more iterative EIA process. There are many choices available regarding interconnection roles in the EIA process. Table 2.5 provides examples of activity frequency and sequence choices. EIA assumes many forms and includes numerous subfields. One size does not fit all for EIA process management. Adaptations are likely to be necessary.

Table 2.4 Examples of EIA Process Design Choices

General EIA Process Design Choices					
Choice Types	Examples of Choices				
Trigger type	Proposal (Figure 2.4)	Ends (Figure 2.5)	Setting (Figure 2.6)	Contingency model	Class or categorical assessment
Range of activities and components	Narrow (Figure 2.4)	Front-end elaborations (e.g., screening, scoping, ends) (Figure 2.5)	Mid-process elaborations (e.g., impact identification, impact prediction) (Figure 2.6)	Process extension (e.g., monitoring, management, auditing) (Figures 2.5 and 2.6)	Combinations (Figures 2.5 and 2.6)
Treatment of alternatives	No alternatives	Alternatives in general (Figures 2.4 and 2.5)	Alternatives by type (e.g., alternative means, alternatives to, alternative locations) (Figure 2.6)	Alternative combinations	–
Treatment of proposal characteristics	Determined from outset (Figure 2.4)	Concept and refinement (Figure 2.5)	Progressive refinement (Figure 2.6)	Integrated with proposal planning	–
Sequence and frequency	Linear (Figure 2.4)	Linear and activities in different forms (Figure 2.6)	Nonlinear and activities in single form (Figure 2.5)	Nonlinear and activities in different forms	Continuous activities (Figures 2.6)
Range of interactions	None	Limited interactions (Figure 2.4)	Extensive interactions (Figures 2.5 and 2.6)	Iterative (Figure 2.6)	Restructured (Figure 2.6)
Examples of Input, Output, and Linkage EIA Process Design Choices					
Choice Types	Examples of Choices				
Proposal planning links	No links to proposal planning (Figure 2.4)	Periodic inputs from proposal planning (Figures 2.5 and 2.6)	General recognition of ongoing two-way links (Figure 2.6)	Specific periodic two-way links	EIA and proposal planning fully integrated
EIA requirements inputs	No connections specified	Identified as a general input (Figure 2.6)	Linked at major decision points	All connections specified	Fully integrated
Public and agency involvement provisions	None	Limited and late (Figure 2.4)	Major decision points (Figure 2.5)	Continuous involvement provisions (Figure 2.6)	Continuous involvement with consensus building and conflict resolution provisions (Figure 2.6)
Roles and responsibility inputs	Roles and responsibilities unspecified	Study team roles specified (Figure 2.6)	Study team and reviewers roles specified	Roles for all participants specified (Figure 2.6)	Peer review provisions (Figure 2.6)
Environmental substance inputs	No connection acknowledged (Figures 2.4 and 2.5)	Identified as a general input	Specific categories of substantive environmental concerns identified (Figure 2.6)	Environmental concerns fully integrated (Figure 2.6)	–
Knowledge, values, and experience inputs	Not acknowledged (Figures 2.4 and 2.5)	Need to integrate values acknowledged (Figure 2.6)	Values integrated as ends	Need for applied research recognized (Figure 2.6)	Need to integrate knowledge, values, and experiences into each IA activity recognized
Methods	Not acknowledged (Figures 2.4 and 2.5)	Identified as a general input	General roles of methods in process specified	Selective role of methods identified (e.g., applied research, peer review) (Figure 2.6)	Role of methods in each process activity specified

Documentary inputs and outputs	Final report only (Figure 2.4)	Draft and final reports (Figure 2.5)	Draft, final, and multiple interim reports (Figure 2.6)	Documentation inputs and outputs as a continuous activity	–
Environmental outputs	Documents assumed to be only outputs (Figure 2.4)	Recognized through impact management (Figure 2.5)	Recognized through impact management and auditing (Figure 2.6)	Explicit links to environmental quality (Figure 2.5 and 2.6)	–
Decision-making links	No connections	Approvals at end (Figure 2.4)	Approvals at end with conditions and follow-up (Figure 2.5)	Staged approval	Multiple decision points specified
Related environmental decisions	No connections (Figures 2.4 and 2.5)	General recognition of need to link to other decision-making levels (Figure 2.6)	General recognition of need to link to related decisions (Figure 2.6)	Specific links to other decision-making levels	EIA integrated into related decisions
Related fields	No connections (Figures 2.4 and 2.5)	General recognition of need to link to related fields (Figure 2.6)	Specific links between process and related fields	IA and related fields integrated within broader systems framework	Sustainability assessment
Related activities	No connections (Figure 2.5)	Addressed through cumulative effects assessment (Figure 2.5)	Addressed through comparable activity review (Figure 2.6)	Addressed through comparable setting review	Combinations

Examples of Adaptation EIA Process Design Choices

Choice Types	Examples of Choices				
Effects type	No recognition of need to adapt process (Figure 2.4)	General recognition of need to adapt process (Figure 2.5)	Recognition that effects types could shape EIA process	Recognition of specific effects types	Specific EIA process modifications for effect types
Proposal type	No recognition of need to adapt EIA process for different proposal types (Figures 2.4–2.6)	General recognition of need to adapt EIA process for different proposal types	Recognition that proposal types could shape EIA process	Recognition of specific proposal types	Specific EIA process modifications for different proposal types
Setting and context type	No recognition of need to adapt EIA process for different setting types (Figures 2.4–2.6)	General recognition of need to adapt EIA process for different settings and contexts	Recognition that settings and contexts could shape EIA process	Recognition of specific settings and contexts	Specific EIA process modifications for different settings and contexts
Proponent type	No recognition of need to adapt EIA process for different proponent types (Figures 2.4–2.6)	General recognition of need to adapt EIA process for different proponent types	Recognition that proponent type differences could shape EIA process	Recognition of specific proponent types (e.g., private sector, indigenous communities)	Specific EIA process modifications for different proponent types
Quality and effectiveness provisions	No provisions	General auditing provisions (Figure 2.6)	Specific document quality provisions	Specific process effectiveness provisions	Specific quality and effectiveness provisions (Figure 2.6)
Overlaps and interconnections	No provisions	Need to consider overlaps and interconnections acknowledged (Figure 2.6)	Specific interconnections and areas of overlap identified	Integrative frameworks within EIA (including process implications)	Integrative frameworks include EIA and related forms of environmental management

Source: Adapted from Lawrence (2001).

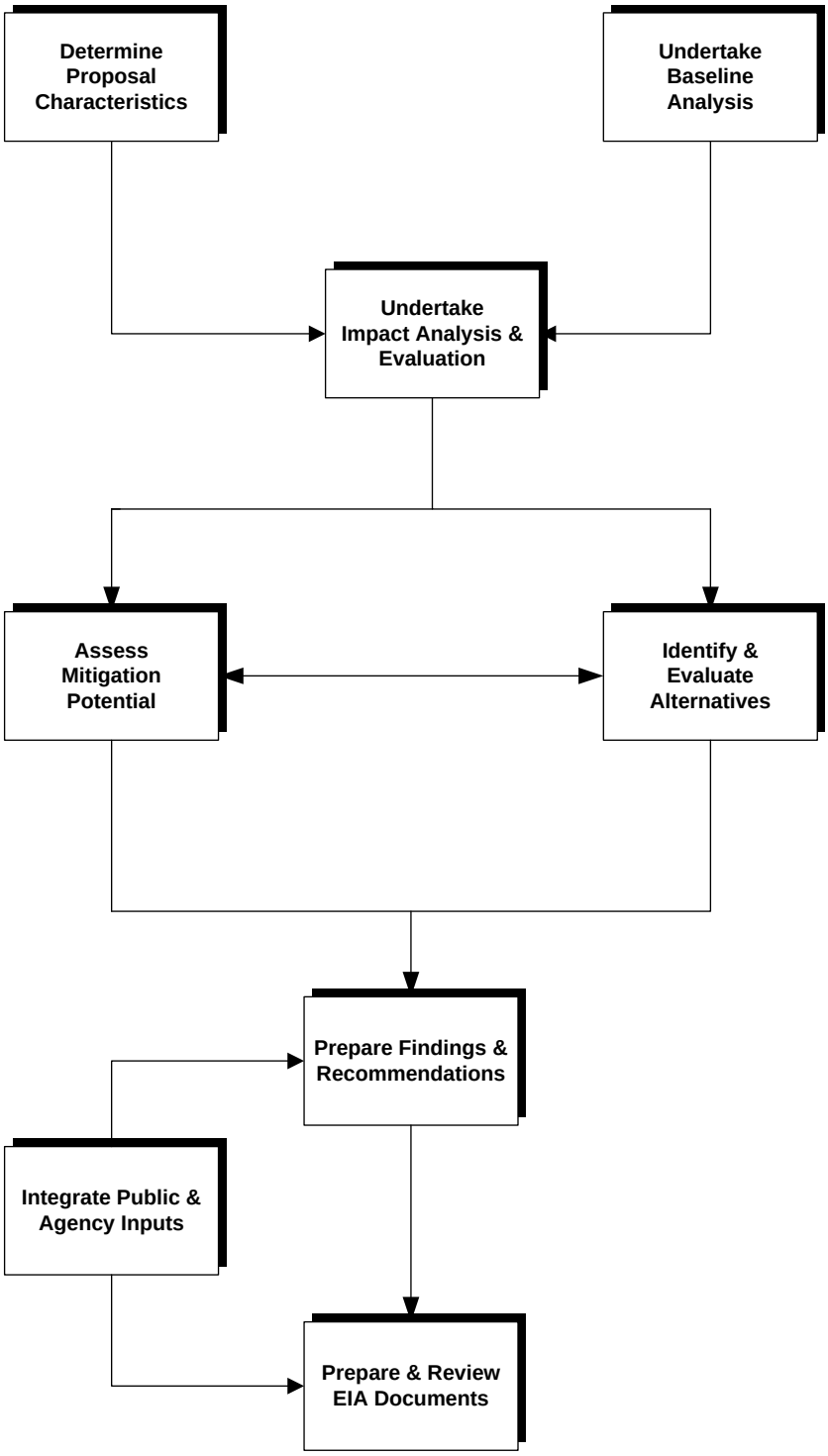

Figure 2.4 Basic EIA process. Adapted from Lawrence (2001).

Examples of EIA process design adaptation choices are listed in Table 2.4.

2.4 CHOICES FOR OTHER IA TYPES

The IA process varies by IA type. Many of the regulatory and applied level choices described in Section 2.3 can be adapted and applied for IA types. Much can be learned of value when designing and applying processes for other IA levels and types, from experiences at the project EIA level. There is, however, a danger in proceeding from the assumption that EIA requirements and processes represent the baseline for the formulation of requirements and processes for other IA types. Instead, there is likely to be value in considering separately requirements and guidelines for other IA types, both because of the differences among IA types

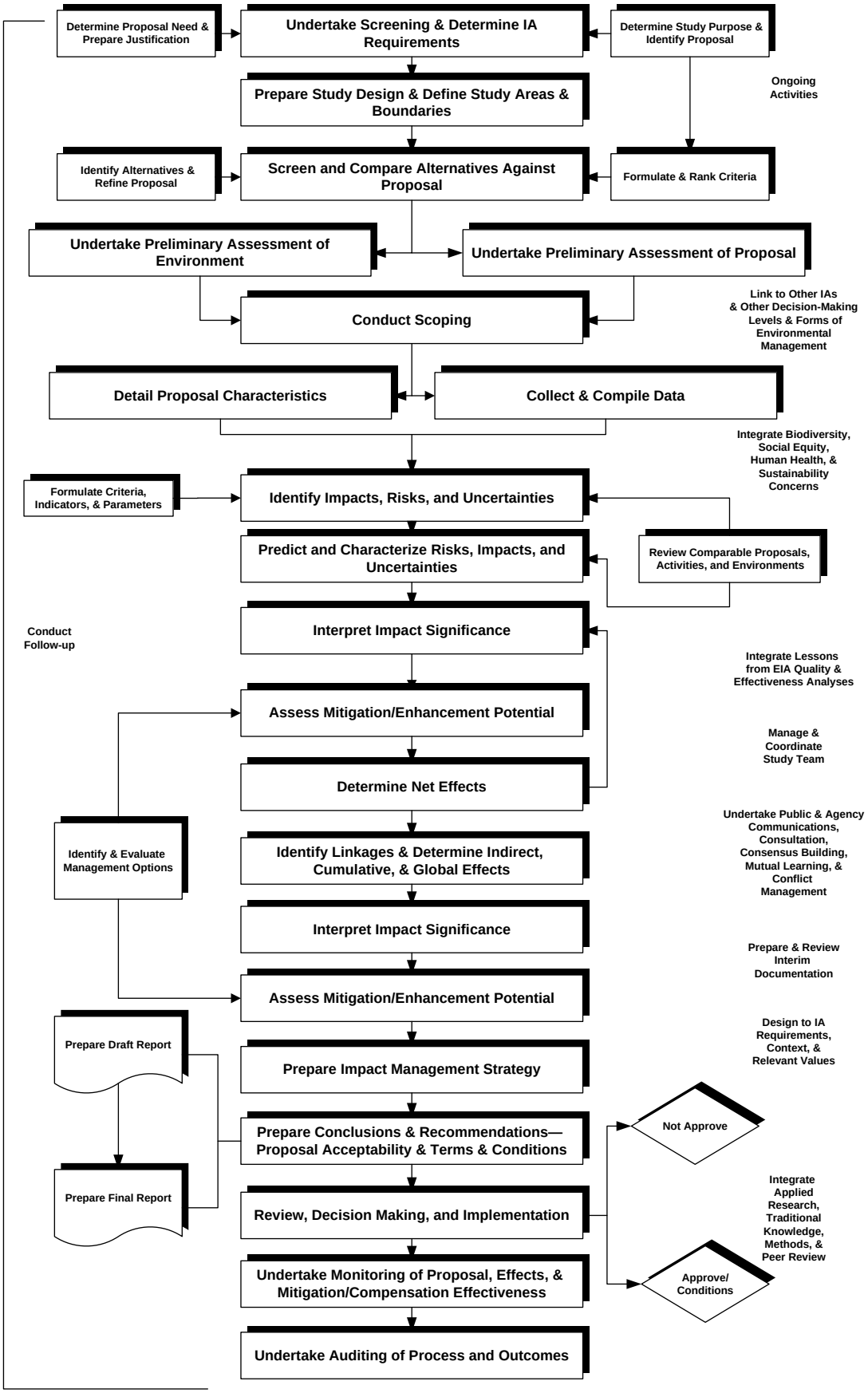

Figure 2.5 Example of a complex EIA process. Adapted from Lawrence (2001).

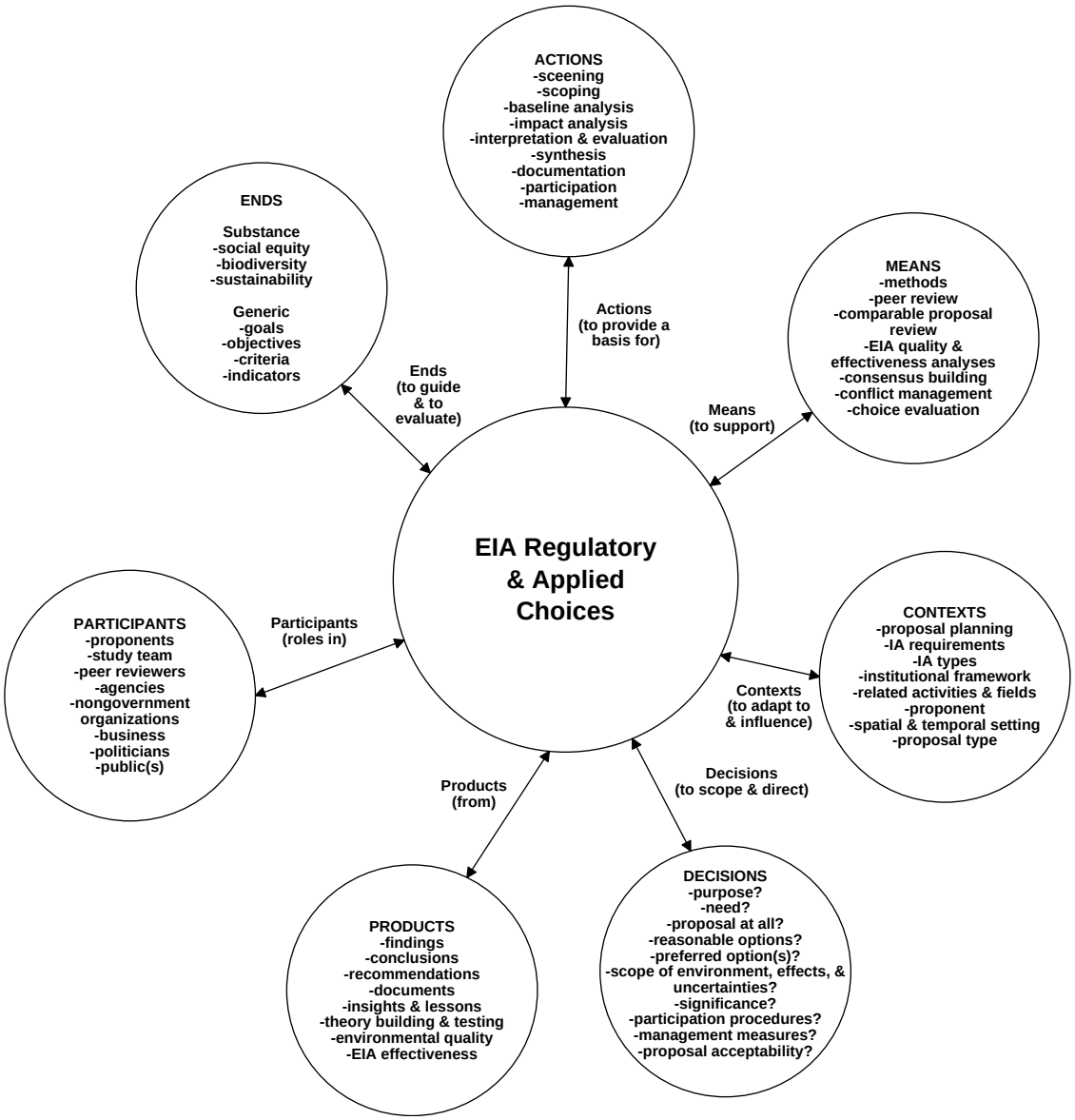

Figure 2.6 Reconstructed EIA process. Adapted from Lawrence (2001).

and because the historical evolution of EIA requirements and processes may have unduly narrowed and distorted the range of choices. At the same time, insights can be gained from EIA experiences (while appreciating the need for adaptation), and linking and integration possibilities among IA types at the regulatory and applied levels should be explored.

As illustrated in Figure 2.7, IA process design and management, for various IA types, is framed in both a conceptual and institutional sense. Process design for each IA type incorporates procedural and substantive elements. Each IA type may be fully integrated, partially integrated (at the SEA or EIA levels, by means of a tiered IA system, at one or more decision points), or not integrated with other IA types. Table 2.6 summarizes the conceptual framing sources, institutional framing choices, IA process types, procedural elements, and substantive elements for each of SEA, EcIA, SIA, HIA, and SA.

2.4.1 Strategic Environmental Assessment (SEA)

SEA, especially the early formulations, drew heavily upon project-level EIA. But it also shares the same conceptual roots as other related forms of public and private strategic policy analysis, planning, and management. More recent SEA characterizations have tended to favor more strategic, adaptive, and decision-centered procedural formulations. At the same time, in common with EIA, SEA is motivated by a desire to more effectively integrate substantive environmental concerns and priorities into decision making.

Table 2.5 Examples of EIA Activity: Frequency and Sequence

Activity	Sequence	Frequency
Screening	Commonly at the outset of process (requirements applied or not) At the end of process—proposal acceptability	Throughout process—application of exclusionary criteria to screen alternatives, environmental effects, effects and mitigation/management measures
Scoping	At the beginning after screening Sometimes after need and alternatives identification Selects issues, interests, major alternatives, environmental components, effects, and uncertainties to focus on	Throughout when treated as focusing or bounding At the outset of every activity Addresses what to be considered and to what level of detail
Proposal characteristics	Initially after screening but progressively refined Analysis can lead to reconsideration—sensitivity analyses	Successively greater levels for scoping, for various levels of alternatives analysis, for impact identification, prediction, and interpretation, for determining mitigation potential, for determining proposal acceptability, and for impact management
Baseline analysis	Initial environmental overview for screening and scoping Detailed environmental evaluation for impact prediction and interpretation	Occurs whenever supplementary environmental data incorporated into analysis—alternatives evaluation, mitigation measure determination, and in conjunction with monitoring and auditing
Impact analysis	Primarily, detailed impact identification and prediction	Also, part of screening, scoping, alternatives analyses, mitigation analysis, and in determining and applying monitoring measures
Interpretation and evaluation	Commonly refers to interpreting environmental components (e.g., valued environmental components) and impacts	Significance determinations also made during screening (need for EIA), scoping (major issues), proposal characteristics (most likely to induce impacts), alternatives analysis (to screen and compare alternatives), and impact management (preferred measures)
Synthesis	Rarely an explicit activity Implied in determining environmental system characteristics, in addressing impact interconnections and cumulative effects, in overall management strategy, and in consolidation of findings and recommendations	Synthesis, in common with analysis, a recursive activity that repeats through the EIA process
Alternatives	Characterization varies Sometimes excluded, at outset (near scoping—reasonable alternatives) or at end (as part of mitigation/management)	Recurrent activity—wherever there are choices prior to decision points (e.g., alternatives to, alternative means, baseline scoping, proposal characteristics, impacts, mitigation, management, synthesis, documentation)
Management	Mitigation in parallel with impact analysis Impact management strategy preapproval Monitoring and auditing after approval	Mitigation sometimes part of alternatives analysis Project management, an ongoing function Management aspects in conduct of all activities
Participation	Often limited to review of EIA documents and, sometimes, scoping	Sometimes integrated into alternatives assessment, significance interpretations, impact management, and proposal acceptability Arguably, should occur prior to all decisions
Documentation	Early characterizations limited to single EIA document More recently, also, pertains to scoping, to draft reports, and to postapproval documents	Sometimes additional documentation—technical support reports, documentation of public consultation activities, and summary reports Arguably, should parallel, in stages, EIA process
Decision making	Conventionally, screening (if and decision stream), scoping (what should IA encompass), and EIA review (acceptable, conditions)	

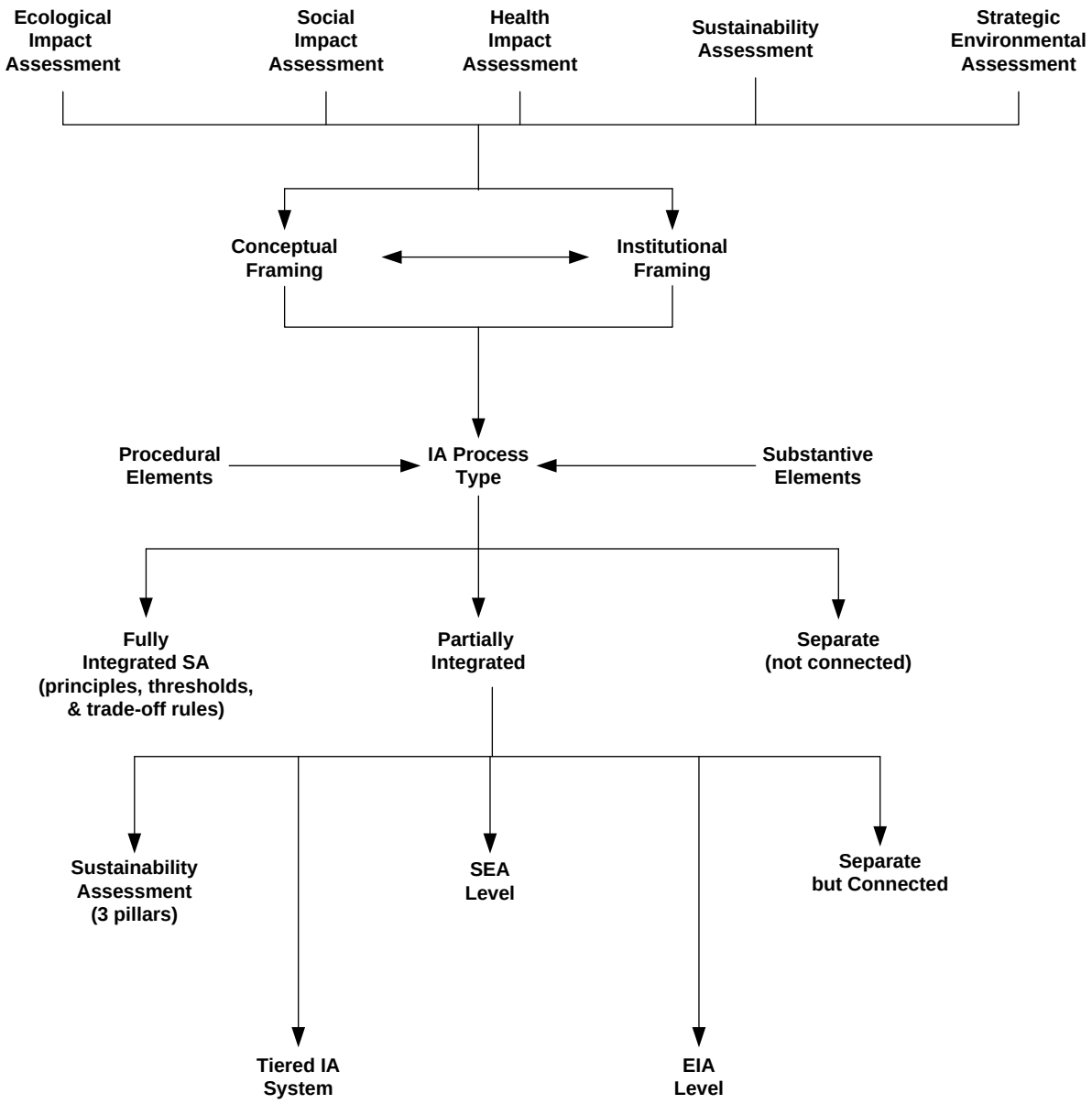

Figure 2.7 IA type: process choices and characteristics.

Characterizations of the relationship between SEA and decision making have ranged from fully integrated, through separate but with multiple connections, to separate and only connected prior to decision making. SEA institutional arrangements take a variety of forms. Examples include being largely subsumed under EIA requirements (as occurs in Australia and the United States), being separate but parallel to the EIA system with some similarities but also distinct differences (as occurs in Europe), and a fully separate and decidedly different system (as occurs in Canada). Varying SEA systems have been developed for public policy, legislation, regulations, trade agreements, plans, and programs, between the public and private sectors, and for varying scales of analysis (e.g., international, national, and regional). SEA institutional arrangements vary depending on the extent to which they are "action-forcing." They can involve, for example, mandatory, quasimandatory (administrative), or strictly advisory procedures. Interconnections within and among SEA and EIA institutional systems are often depicted, in theory, as a formal tiered structure with well-defined roles, and horizontal and vertical interconnections. In practice, the structure is usually more informal, incomplete, and with poorly or only partially defined roles and interconnections. SEA, because of its close connection to decision making, is inherently political.

A host of procedural choices have been advanced for SEA. Early formulations tended to favor effects-driven EIA models, with a strong emphasis on formality, rigor, rationality, and technical analysis. Lower levels of spatial and program planning often utilize elements of a rational–

Table 2.6 Other IA Types: Examples of Process Choices and Characteristics

Conceptual Framing		Institutional Framing	IA Process Types	Procedural Elements	Substantive Elements
SEA	Policy analysis Strategic planning Strategic decision making Political science Philosophy Environmental management Feedback of knowledge and good practice Feedback from effectiveness assessments Environmental impact assessment	Parallel (linked at each step or only at end) or fully integrated into policy, plan, or program-making process Under EIA legislation, under separate administrative process, duel track SEA/EIA, and integrated policy/planning Sustainability appraisal Legislative or mandatory provision, quasimandatory (administration or directive), and advisory or policy provision Tiered SEA/EIA system Overlap SEA and EIA especially for large projects SEA with all elements integrated or non-SEA elements separate Public, semipublic, and private agencies International, national, and regional Inherently political	EIA based, EIA modified (separate elements), and SEA supersedes (broader appraisal) EIA based and decision-centered Top-down and bottom-up Policy, plan (sector, spatial, regional), and program SEAs; different levels of each Regulatory impact assessment (RIA), cabinet level SEA, strategic EIA, strategic environmental appraisal Technical–rational, strategic integrative, collaborative–communicative, and political–social struggle Rational–positivistic, procedural and transformative Regional (CEA oriented) (SEA or EIA driven) Equity oriented, community based, participative, value driven, and equity–justice Formal or informal Objectives led or baseline led Private sector versus public sector, administration led, analytical, by proponent, or by independent entity Combinations; a family of approaches	EIA based versus strategic action based Highly iterative process Importance of links to other strategic actions Sometimes includes alternative scenarios Emphasis on ameliorating the current limitations of the policy, plan-making process; need to influence not just decision making but also institutions and environmental governance mechanisms Process varies by context, also modifies context Collaboration, negotiation, and persuasion central to process Importance of organizational learning and capacity; often requires strengthening Generally characterized by high uncertainty levels; often not recognized	Based on holistic understanding of natural and social environment Accommodates physical, ecological, social, health, economic, and cultural issues Emphasis on sustainability framework and progress toward sustainability Importance of encompassing a range of temporal and spatial scales Cumulative effects cutting across SEA types

(*continued*)

Table 2.6 (*Continued*)

Conceptual Framing		Institutional Framing	IA Process Types	Procedural Elements	Substantive Elements
EcIA	Natural sciences Ecological science Natural resource management Conservation planning Research methods, analytical techniques, ecological models, and concepts Sometimes linked to ecological sustainability Linked to good practices	Part of EIA or SEA or in support of Identification of laws and regulations related to issues Loop back from IA to legal, policy, and development control implications Informs decision making Link to capacity building and institutional arrangement reform	Biological IA Ecological IA Biodiversity IA Ecosystem approach Ecosystem services in IA Threatened and endangered species IA Ecological risk assessment Protected area IA Ecological evaluation for EIA Distinction among policy level, program/plan level, and project-level ecological IA Combinations	Largely EIA- and SEA-based steps Sometimes includes mitigation/enhancement options, goals, objectives, criteria, and indicators, alternative steps Analysis of implications of uncertainties and integration of adaptive management; occasional references to public and agency consultation and collaboration Collaboration of ecologists and other specialists Understanding and support by nonspecialists Iterative process	Impact on conservation status of habitat or species, valued ecological resources or features, priority ecosystem services, natural areas, and biological diversity Concern with ecological vulnerability, capacity, and adaptability Impacts on ecological processes, composition, functions and structure, and on unique, endemic, threatened, and declining species, habitats and ecosystems Biodiversity levels—habitat, species, and genetic; spatial levels—international, national, regional, and local Links from social and economic drivers of change (direct and indirect) and to human well-being
SIA	Social sciences Social services Values and ethical standards Political science (e.g., empowerment) Loop back—best practice and applied research Direct and strong links to public participation knowledge and methods Importance of local knowledge and experience	Part of EIA or SEA or in support of or separate from Role in guiding legislation, policies, plans, programs, and projects Recognizes political link (e.g., capacity building, empowerment, decentralization) Varying perspectives—society—consensus based or conflict based Acknowledgement that poorly integrated into decision making	Technical/scientific (product, action oriented—centralized management, research oriented), participatory (from perspective of those affected), process oriented, action oriented, social development and advocacy, and issue oriented Socioeconomic IA Poverty IA Gender IA Community-based SIA Social/psychological IA Cultural/heritage IA	EIA- and SEA based Modified steps—profiling, social context, and determining probable responses of affected parties Heavy emphasis on community involvement and participation Acknowledges uncertainties and need to manage Scientific/technical—stresses research methods, assumptions, models, and controls Participatory/political approaches—stresses facilitation, inclusiveness,	Guided by values and bounded by ethical limits Awareness of differential impacts among population groups Priority concern—assessing and redressing impacts on most vulnerable groups Changes to people's ways of life, their culture, their political system, their personal and property rights, and their fears and aspirations Social, cultural, heritage, and economic effects Social services and facility impacts-emphasis on positive

Table 2.6 (*Continued*)

Conceptual Framing		Institutional Framing	IA Process Types	Procedural Elements	Substantive Elements
			Political (focus on capacity building and empowerment) Equity oriented Vulnerability oriented Combinations	conflict resolution, coping strategies, skills development, accountability, mutual learning, advocacy, vulnerability and inequities, community buy-in, influence and control, community values and priorities, and capacity building	outcomes (realization of human and social potential and capital) and community acceptance (people as beneficiaries) Distinction—micro- and macrosocial and societal change, with and without intervention; distinction between social change processes and social impacts Distinctions—individuals/sites, families, population, community, and social structure; political, social, and community resources Sometimes includes health and biophysical links and sustainability
HIA	Public health Medical services Medical, social, and environmental sciences Environmental health Risk assessment Social sciences Stakeholder knowledge Links to health research system	Integrated into or separate from EIA and SEA (connected to or not connected to) Mandated, decision support (voluntary), advocacy, and community lead Links to health regulations, policies, services, and promotion Government commitment to public health promotion critical Importance of organizational partnerships and capacity building	Biomedical model (epidemiological/toxicology, emphasis on diseases and ill-health and quantification) Socioeconomic model (qualitative, social sciences, stakeholder knowledge, broader determinants) Technical versus procedural orientation Health equity IA Policy, plan/program, and project-level HIA Risk assessment Mini, standard, and maxi—levels of intensity (e.g., desktop, rapid-participatory and nonparticipatory, comprehensive) Combinations	EIA and SEA steps Emphasis on population based, systems approach Sometimes includes alternatives analysis, especially more participatory approaches Sometimes risk assessment is a separate step Participatory approach—strong links to SIA and to public participation and democratization Recognizes policy context Generally assesses limitations and uncertainties Systems based, structured but flexible	Physical, mental, and social well-being; not just absence of disease or infirmity Behavioral, physical, community, economic, cultural, and social health determinants Individual factors, social and community networks, living and working conditions, socioeconomic conditions, cultural and environmental conditions Distribution of health effects critical, especially with reference to vulnerable groups Health service implications Importance of intersectoral action and linkages Occurrence and importance of health determinants and outcomes

(*continued*)

Table 2.6 (*Continued*)

Conceptual Framing		Institutional Framing	IA Process Types	Procedural Elements	Substantive Elements
SA	Interdisciplinary perspectives, concepts, frameworks, and models Values and ethics Frameworks and scales (e.g., technocentric to ecocentric) Environmental management instruments Necessitates additional scientific research Linked to state-of-the-environment reporting	Integration into EIA and SEA legislation and guidelines Separate SA system Can be applied to all decision-making levels (integrated into or applied to final proposal) Tiering necessary Transboundary Formal and informal External (for approval) and internal (for improved internal decision making) Need for SA training and capacity building	Sustainability appraisals or assessments of spatial plans, trade agreements, and development strategies Private sector integrated assessment Goal or effects oriented Pillars, principles based, thresholds, and trade-off rules (e.g., impact minimization for each pillar, "win-win-win," net gains, threshold tests for each criterion, full integration) Broad to narrow (e.g., biophysical only to all sustainability themes) As type of SEA or SEA driven As type of EIA or EIA driven Many approaches, levels, sectors, and combinations	Feeds into each SEA stage; same for EIA Systems perspective Includes rules (e.g., net conservation benefits) Includes some additional steps (e.g., refining to maximize benefits and minimize negativity, within context of range of future scenarios, global effects analysis, intergenerational effects analysis, application of sustainability thresholds, targets and trade-off rules) Iterative, flexible, and integrative Integrates precautionary principle; favors diversity, reversibility, and adaptability Adapted to context Ample stakeholder involvement	Guided by holistic concept of sustainability Encompasses and transcends physical, ecological, social, economic, and political Varying frameworks for displaying and linking Sustainability reference points and perspectives Includes cumulative local, regional, and global effects Future oriented Seeks substantive integration Use of environmental offsets Directs decision making toward sustainability Explicit key sustainability requirements Includes intra- and intergenerational equity Challenges status quo and prevailing perspectives

Sources: Ahmed and Sánchez-Triana (2008b), Azcarate and Balfors (2009), Becker et al. (2004), Bina et al. (2011), Bond et al. (2011a), Buchan (2003), Burdge (2003b, 2004), Canter and Ross (2010), Chaker et al. (2006), Clark et al. (2011), Cole and Fielding (2007), Connelly (2011), Cooper and Sheate (2004), Dalal-Clayton and Sadler (2004), Dalkmann et al. (2004), Dora (2004), Eccleston (2008), Elkin and Voiturez (2009), Elling (2011), Esteves and Vanclay (2009), Fischer (2003, 2007b, 2010), Fischer et al. (2010), Geneletti (2002), Genter et al., (2008), Gibson et al. (2005), Gibson and Hanna (2009), Gunn and Noble (2009a, b), IEEM (2006), ICPGSIA (2003), Gontier et al. (2006), Gunn and Noble (2009a), Hacking and Guthrie (2008), Harriman and Noble (2008), Harris et al. (2003), Harris-Roxas and Harris (2011), IAIA (2006a), Ison (2004), Jackson and Illsley (2007), Jay (2005), Jones and Slinn (2008), Kemm and Parry (2004b), Khera and Kumar (2010), Kvaener et al. (2006), Kwiatkowski (2011), Landsberg et al. (2011), Lobos and Partidário (2010), Mackenbach et al. (2004), McCarthy and Utley (2004), McCluskey and João (2011), Morrison-Saunders and Thérivel (2006), Noble and Gunn (2009), OECD (2006), Palmer (2004), Partidário (2007, undated), Pope (2006), Pope and Dalal-Clayton (2011), Pope et al. (2004, 2005), Posas (2011), Puschchak and Farrugia-Uhalde (2009), Putters (2005), Rauschmayer and Risse (2005), Retief (2007a), Sadler (2005b, 2011b), Schirmer (2011), Sheate (2011), Shepherd (2008), Sinclair et al. (2009), Slootweg et al. (2010), Slootweg and Kolhoff (2003), Söderman and Saarela (2010), Taylor et al. (2004), Thérivel et al. (2010), Thérivel and Ross (2007), Treweek et al. (2011), US NRC (2011a,b), Vanclay (2003, 2010), Wale and Yalew (2010), Walker (2003), Wegner et al. (2005), Wiek and Binder (2005).

technical approach, but also tend to be more goal driven, employ longer time horizons and broader spatial boundaries, be more strategic and adaptive, and stress the importance of interconnections (cumulative effects, for example). Policy and higher program/plan levels tend to be even broader in scope, less rooted in analysis and effects (e.g., environmental issues and concerns), even more adaptive, and more closely integrated with policy making, planning, and decision making. Even these broad patterns are far from uniform among jurisdictions and among SEAs. SEA process types vary between sectors/programs and regional/spatial planning, and within individual sectors, programs, and regional/spatial planning levels and settings. Also, SEA encompasses numerous procedural (e.g., analytic, administrative, technical, participative, communicative, political, community based), substantive (e.g., sustainability oriented, ecologically oriented, equity–justice oriented), proponent (e.g., preparation by proponent, preparation by independent entity), and decision type and direction (e.g., formal, informal, top-down, bottom-up, cabinet level, regulatory, policy based) choices. These choices are far from clearly defined. Often they overlap or combine elements or approaches. Moreover, any approach or approach combination necessitates contextual adaptations. Given the range of SEA permutations and combinations available, and the diversity of context types, it is not surprising that it is difficult to reach a consensus regarding good SEA practices (see Section 2.5).

Procedural SEA elements vary with the selection, adaptation, and integration of SEA process types. Still there are some shared characteristics. Given the nature of strategic planning and decision making, for example, it is broadly acknowledged that SEA is necessarily iterative, integrative, adaptive, uncertain, and context dependent. The close connection between SEA and decision making, moreover, necessarily means that SEA must adopt a proactive approach to ameliorating the prevailing limitations of policy and plan making. This means, for example, seeking to make decision making more transparent, open, inclusive, collaborative, informed, and substantiated. In some cases, this effort can entail contributing to organizational learning and capacity through effective follow-up, capacity building, institutional reform, and altering the institutional culture and value system.

SEA, in common with EIA, has a substantive purpose. The substantive purpose of SEA can be defined narrowly (e.g., focus on ecological issues), more broadly (e.g., social, economic, ecological issues and effects including cumulative effects, long time horizons, large spatial scales), or more broadly still (e.g., holistic environmental perspective, emphasis on sustainability, and progress toward sustainability). As detailed in Chapter 6, there is far from a consensus within the SEA community regarding how broadly or narrowly SEA should be defined. Although SEA was originally intended to remedy some of EIA's substantive limitations (e.g., preoccupation with procedure over substance, weak treatment of cumulative effects), in practice, SEA also has struggled with a tendency to become a "proforma" procedural requirement that adds little in terms of substantive, demonstrable environmental enhancements.

2.4.2 Ecological Impact Assessment (EcIA)

EcIA provides a mechanism for more effectively drawing upon the natural sciences, environmental planning and management, and ecological science and sustainability. EcIA can be subsumed within EIA or SEA, where EIA/SEA is either broadened to include EcIA or where the scope of SEA/EIA is limited to ecological concerns. EcIA can perform a support role to or be fully independent from EIA/-SEA. Outputs from EcIA can result in legal, policy, and development control reforms. To ensure effective implementation, they also can necessitate capacity building and changes in institutional arrangements.

Although broadly concerned with maintaining and enhancing ecological systems, EcIA can be focused, to a lesser or greater degree, upon such concerns as specific physical or biological effects or risks, threatened and endangered species, protected areas, biological diversity, and ecological services. The ecosystem approach may, to varying degrees, assume a central role in the process. Process characteristics vary, as with SEA, depending on whether the assessment is undertaken at the policy, plan, program, or project level. Characterizations of the EcIA process closely parallel more technical and scientifically oriented depictions of SEA and EIA processes. Particular emphasis tends to be placed on systematic scoping, adaptability, ecological vulnerability and significance, uncertainty management, cumulative effects assessment, effective mitigation, enhancement and compensation, and rigorous monitoring and follow-up procedures. The assessment of alternatives and participation, beyond the involvement of those with specialist ecological knowledge, tends to be stressed to a lesser extent.

Consistent with its substantive orientation, EcIA focuses on the integration and adaptation of frameworks and models for systematically assessing and managing impacts on ecosystem composition, processes, functions, and structure. Particular attention tends to be devoted to systematically characterizing ecological value and services, and vulnerability, capacity, and adaptability, at various biodiversity levels (e.g., habitat, species, genetic) and spatial scales (e.g., international, national, regional, local).

2.4.3 Social Impact Assessment (SIA)

SIA provides a means of more effectively introducing and integrating social science and social service knowledge into IA practice. SIA also draws heavily upon (and has the potential to contribute to) philosophy, political science, and public participation. This is because of the central role in SIA of values and ethics, the close connection between human impacts and the exercise of political power, and the vital role of public participation in informing IA, in interpreting impact significance and context, in avoiding and

reducing potential adverse impacts, and in facilitating the realization of social and community objectives. As with EcIA, SIA can be integrated with, in support of, or separate from EIA or SEA. Perspectives regarding the institutional and societal context for SIA range from consensus to conflict based. SIA can potentially advance political objectives such as capacity building, community empowerment, and decentralization. It also can contribute to institutional reform. In practice, when SIA is integrated within, supportive of, or even separate from EIA or SEA, it tends to have limited decision-making influence, except in terms of the driving role of economic and financial benefits.

Several SIA process models have been advanced (e.g., technical–scientific, issue oriented, participatory, community based, and social action). SIA also can be oriented to favor particular social and ethical concerns and priorities (e.g., poverty IA, sociopsychological IA, cultural heritage IA, equity-oriented IA, socioeconomic IA, social development IA). Characterizations of the SIA process largely model good practice SEA and EIA models, with some variations in emphasis. Particular stress, for example, is placed on understanding the community (through community profiling and scoping), on anticipating the probable responses of affected parties, on assessing the distribution of human impacts (individuals, families, groups, communities, society, for example), on avoiding and minimizing impacts on the most vulnerable, on effective and inclusive community involvement and participation (including mutual learning and aided by capacity building, skills development, and conflict resolution and coping strategies), on avoiding and redressing inequities, on facilitating community support and influence, and on consistency with and the furthering of community values and aspirations.

SIA provides a mechanism for incorporating a diversity of substantive issues and concerns into IA theory and practice. It addresses the magnitude and distribution of effects on people's way of life, their culture, their political system, their personal and property rights, and their fears and aspirations. It includes social, economic, heritage, cultural, and social service and facility impacts. It differentiates impacts at, for example, the individual, family, group, population, community, and societal levels. It distinguishes between social change processes and impacts. It devotes particular attention to impacts on the most vulnerable, emphasizes the need to identify impacts on and reinforce the supportive role of political, social, and community resources, and stresses the need for long-term positive social outcomes (i.e., social sustainability) and community support. SIA systematically explores interrelationships among social impacts and connections to health effects, ecological effects, and sustainability.

2.4.4 Health Impact Assessment (HIA)

HIA represents a means of integrating knowledge and practice from such fields and disciplines as the medical, social and environmental sciences, medical services, environmental health, risk assessment, and health-related social sciences. HIA, much like EcIA and SIA, can be undertaken as part of, as separate but connected to, or as fully distinct from SEA or EIA. It can be mandatory (as a regulatory or statutory requirement), voluntary (in a decision support sense), an advocacy initiative, or community led. HIA only tends to be effective if there is clear government commitment to public health promotion and adequate institutional and organizational support. Such support could, for example, include partnerships with medical service providers, capacity building, applied research, and regulatory reform.

HIA procedures can be structured around a biomedical model (quantification, disease and ill health, and epidemiological–toxicological knowledge) or a socioeconomic model (qualitative analysis, social science and stakeholder knowledge, broader health determinants). The HIA process tends to vary depending on whether it is integrated with or in support of policies, plans, programs, or projects. The HIA process can be procedural or technical (e.g., structured around formal risk assessment) in orientation, applied at varying levels of intensity (e.g., desktop, rapid-participatory or nonparticipatory, comprehensive), and with or without an emphasis on health equity. Process combinations also are possible. Characterizations of the HIA process largely conform to one or more of the SEA or EIA process models. The more technical–scientific HIA process types tend to be similar to rational–technical IA processes. More participatory socioeconomic HIA approaches tend to be similar to comparable SIA processes. Most HIA process characterizations recognize the need for a systems and integrative perspective, for the effective management of risks and uncertainty, for adaptability, and for effective management and follow-up.

HIA represents a vehicle for integrating substantive, health-related knowledge into IA practice. Health tends to be broadly defined (i.e., physical, mental, and social well-being not just the absence of disease and infirmity). Pathways and effects linking health determinants (e.g., behavioral, physical, community, economic, cultural, and social) and health outcomes (occurrence, importance) are systematically considered. Health service implications are fully addressed. The distribution of health effects, especially for vulnerable groups, is considered critical.

2.4.5 Sustainability Assessment (SA)

SA is an inherently interdisciplinary, arguably transdisciplinary, form of applied knowledge. It relies heavily on concepts, frameworks, and models derived from a range of disciplines, applied fields, and research initiatives that transcend conventional academic disciplines and environmental planning and management instruments. Also, because of its strong normative–ethical core, it is highly reliant on value-based and applied ethical research and application initiatives. The sustainability knowledge base

is expanding rapidly. Thus, "feedback" from state-of-the-environment reporting and from sustainability initiatives at both the regulatory and applied levels is critical to the advancement and application of the field. The institutional framing of SA is still in flux. It has been grafted, to a limited extent, onto existing SEA and EIA institutional arrangements, but largely in terms of broad intentions. The means for achieving those intentions tend to be much more narrowly defined. There also are a few scattered examples of SA as a separate set of institutional arrangements. SA, in common with other substantive IA types, can be applied at any or preferably all decision-making levels, and can be separate, aligned with, or connected to policy making, planning, and decision making. SA, given its substantive nature, frames and encompasses EcIA, HIA, and SIA. SA reforms and redefines other IA types when fully and systematically applied and integrated. The transformative nature of SA inevitably necessitates training and capacity building.

SA process types, in broad terms, parallel those of other IA types, especially SEA. SA can be effects or objectives driven. It can be derived from first principles, modeled after or grafted onto SEA or EIA process types, or SEA or EIA process types can be progressively reformed to eventually conform to ideal SA process types. SA can be applied to different proposed actions (e.g., trade agreements, spatial plans), undertaken by the public or private (e.g., integrated IA) sectors, and defined narrowly (e.g., ecological sustainability only) or broadly (e.g., full integration of ecological, social, and economic concerns). SA is generally structured by and around conceptual frameworks (e.g., three or five pillars, principles based, objectives driven, thresholds, and trade-off rules). SA processes are adapted to context types and to individual contexts. SA frequently integrates and applies explicit principles and trade-off rules (e.g., impact minimization for each pillar, "win-win-win" net gains, thresholds tests for each criterion, fully integrated trade-off rules). The choice, adaptation, and manner of application of such frameworks and tools is critical in terms of whether the SA is little more than "tokenism" or genuinely facilitates sustainability.

SA incorporates many of the same procedural elements found with other IA process types, albeit with important modifications and additions. The SA process is applied against a framework of objectives, criteria, thresholds, principles, targets, and rules for achieving sustainability. This contrasts with EIA, which tends to focus, from the outset on means of avoiding and minimizing potential adverse effects. It contrasts with SEA, which may apply objectives and principles, but which tends not to apply clearly defined thresholds, targets, and trade-off rules with a tangible "bottom line" (i.e., sustainability).

SA processes are inherently holistic, integrative, iterative, and innovative. Both SEA and EIA processes tend to be more analytic, discipline-bound, inflexible, and prone to incremental adjustments to the status quo and prevailing perspectives. SA processes broaden temporal (e.g., future generations) and spatial (e.g., global perspective) boundaries, comprehensively define effects (e.g., positive and negative, direct, indirect and cumulative, local, regional, and global, ecological, social, and economic), systematically identify and evaluate a wide array of choices (e.g., multiple future scenarios, evaluation against sustainability requirements, choices that challenge the status quo and prevailing perspectives), make ample provision for stakeholder involvement and collaboration, and adopt a cautious approach to risk and uncertainty management (e.g., precautionary principle, adaptive management). SA fully integrates the procedural and the substantive. The procedural elements of sustainability are framed within a holistic sustainability concept. Individual disciplines are linked and transcended. Choices are derived from and tested against sustainability reference points and principles. Sustainability provides both a direction for change and boundaries within which potential changes are considered acceptable.

2.4.6 Patterns and Connections

The IA types (SEA, EcIA, SIA, HIA, and SA), described above, all have much to contribute to IA theory and practice. Each draws upon a substantial knowledge base—a knowledge base not likely to be as familiar to other IA type practitioners. Knowledge sharing across IA types is, therefore, essential.

Each IA type is connected to, informs, and (should) enhances institutional arrangements and decision making. Institutional arrangements for different IA types overlap to a considerable degree. The resources available for impact assessment are invariably constrained. It is, therefore, crucial that institutional arrangements for various IA types are linked and blended in a manner that is mutually beneficial, efficient, and effective.

Processes, for the various IA types, share many common elements but also exhibit distinct differences. There is considerable potential for mutual learning. Efforts to link and integrate procedural choices within IA types and the processes of different IA types need to carefully consider which procedural and substantive elements are complementary and which could operate cross-purposes. In some cases it may be wise to limit or bound integration when conflicts are evident and cannot be reconciled in an acceptable manner. The "force-fitting" of procedural or substantive elements from one IA type into the frameworks and procedures of another, in the name of consistency, may distort or undermine the effectiveness of both, while providing minimal efficiency or effectiveness benefits. At the same time, there is enough overlap among IA types (especially if each is broadly defined), and a sufficient range of shared procedural and substantive elements, that further efforts to link and partially integrate the institutional arrangements and practices of different IA types, are worth pursuing, albeit cautiously.

2.5 CONTEMPORARY CHALLENGE—SEA GOOD PRACTICE GUIDANCE

SEA could be characterized as a loose collection of approaches for integrating environmental concerns into higher level decision making (e.g., policies, plans, programs). The range of approaches, the variety of perspectives, and the diversity of contexts within which SEA is applied suggest that it may be difficult to agree upon a common set of good practices. Table 2.7 lists examples of suggested SEA good practices structured by recurrent IA problems.

2.5.1 Crosscutting Criteria

Several major themes addressed by the criteria appear sufficiently broad to include all SEA types and settings (e.g., appropriate to context, adequate for and well in advance of decision making, sufficient, reliable, and useable information, efficient, cost and time effective, accountable, impartial, tiered as appropriate, independent review, public and government informed and involved, clarity and availability of documentation, feedback on actual impacts). They also offer guidance regarding such transcending matters as throughout initiative life cycle, specific roles and responsibilities, effective follow-up, methods justified, legal compliance, focuses on environmental sensitivity and significance, transparent process, acknowledges uncertainties and complexities, justifies preferred options, identifies environmental opportunities and constraints, identifies mitigation and enhancement actions, interprets significance, concentrates on key issues, assets, sensitive areas and threats, addresses inequities including future generations, analyzes risks, seeks to enhance communications and collaboration among stakeholders, seeks just and equitable outcomes, enhances context awareness without undermining global aims, customizes to tier, objectives, constraints, nature, proposal type, mandate, legal, and policy framework, and customizes to spatial, temporal, biophysical, social, cultural, economic, institutional, and political context.

The criteria leave considerable latitude for interpretation to encompass a wide array of SEA types and contexts. Within these discretionary areas (e.g., varying interpretations of efficiency, effectiveness, and accountability), it is possible that different parties could reach different conclusions concerning "good practice."

2.5.2 Particular Values

Those who argue that SEA should be more narrowly focused (e.g., ecological effects only) might dispute the requirement that SEA should address interrelationships among biophysical, social, and economic effects, assess alternatives and strategic decisions against a sustainability standard, focus on key sustainability issues, and assess how sustainability issues were addressed in documentation and decision making. The same argument could be made regarding such criteria as ensure relevancy for achieving sustainability, assess effects, options, and risks within a sustainability framework, promote conservation and the sustainable use of biodiversity, ensure biophysical effects at least on an equal basis with social and economic concerns, foster democratization, ensure a democratic decision-making process, apply specific ethical principles, and explicitly address climate change. The counter to this argument would be that SEA (in common with all forms of IA) is inherently value driven—specifically environmental values and, more broadly, sustainability values. That being the case, SEA practitioners should explicitly identify and apply, as a matter of good practice, specific environmental/sustainability values.

2.5.3 Particular SEA Tier, Type, Approach, or Setting

Some criteria might be appropriate for a particular SEA tier or type (e.g., policy level, program level, regional or spatial plan, sector plan), a particular approach to undertaking SEA (e.g., technical–rational, participatory, community driven, effects or EIA based, objectives led, integrated with or parallel to policies, plans, or programs), or a particular setting type (e.g., developed nation, developing nation). Examples of such criteria include integrate with plans, policies, or programs, employ strong enforcement measures, establish clear environmental and sustainability goals and objectives, propose and apply environmental and sustainability, criteria, targets, thresholds, indicators, and trade-off rules, facilitate the search for the best alternative or scenario, consider the no-change alternative, justify the selection of preferred options, explicitly address indirect and cumulative effects, promote discourse reflection by stakeholders, use explicit criteria and procedures to assess significance, apply the precautionary principle, incorporate adaptive management, emphasize visions and visioning, stress mutual learning, establish independent oversight of implementation, compliance, and performance, include effective, preferably independent, quality assurance systems, and apply experimental design, where practical. Arguably, rather than excluding such criteria, on the grounds that they are not "universal," it would be more appropriate to identify and group SEA "good practices" by SEA tier, SEA type, SEA approach, and setting type. It also may be argued that some criteria (e.g., consider no-change alternative, search for the best alternative, justify selection of preferred options, address indirect and cumulative effects, apply precautionary principle, incorporate adaptive management) should be universal, and should not be confined to particular classes of situations.

2.5.4 Enhancing the Political Influence and Effectiveness of SEA

Several suggested criteria pertain to actions that extend beyond simply informing decision making and decision makers to include measures to proactively analyze, bound,

Table 2.7 Examples of Suggested SEA Good Practices

Influential
Integrate within plans, policies, and programs, wherever practical, and initiate early in process
Undertake throughout initiative life cycle
Apply to all strategic decisions (tier in manner appropriate to level)
Is the responsibility of the leading agencies for the strategic decision to be taken
Provide sufficient information on the actual impacts of implementing a strategic decision, to judge whether this decision should be amended, and to provide a basis for future decisions
Link to project EIA and to decision making
Ensure availability of the assessment results early enough to influence the decision-making process and inspire future planning
Seek to enhance understanding of "real" decision-making processes
Assign specific roles, responsibilities, and accountability, keyed to decision points
Promote use of SEA
Explore strategies for overcoming institutional resistance to instilling environmental values
Employ strong enforcement mechanisms
Rigorous
Carry out systematically and rigorously
Emphasize effective follow-up; include monitoring and adaptation strategies
Establish independent oversight of implementation, compliance, and performance
Include effective, preferably independent, quality assurance systems
Learn from comparative studies
Apply experimental design, where practical
Apply appropriate spatial and temporal scales
Share SEA knowledge and experiences
Ensure appropriate level of detail
Delineate methods by which findings are obtained, including uncertainties and associated implications
Subject to independent checks and verification
Seek to strengthen the science–policy link
Rational
Establish clear environmental and sustainability goals and objectives
Propose and apply environmental and sustainability criteria, targets, thresholds, indicators, and trade-off rules for evaluating effects of PPP and alternatives
Facilitate the search for the best alternative or scenario (more sustainable)
Consider no-change alternative
Systematically assess effects and options
Justify selection of preferred options
Substantive
Ensure relevant to achieving sustainability
Explicitly and systematically address indirect, cumulative, and transboundary effects, and life cycle issues
Seek to integrate SEA and CEA (cumulative effects assessment)
Promote conservation of and sustainable use of biodiversity
Explicitly address climate change
Focus on environmental sensitivity, significance, and sustainability
Address interrelationships of biophysical, social, and economic aspects
Ensure biophysical effects at least on an equal basis with social and economic
Identify environmental opportunities and constraints
Apply environmental objectives, targets, and indicators
Assess effects, options, and risks against a sustainability framework
Document and justify how sustainability issues were taken into account in decision making
Identify mitigation and enhancement actions
Practical
Concentrate on key issues, assets, sensitive areas, and threats
Provide sufficient, reliable, and usable information for planning and decision making
Ensure sufficient resources to implement
Apply as proactive environmental management tool
Concentrate on performance effectiveness
Foster ownership of outcomes

(*continued*)

Table 2.7 (*Continued*)

Focus on key issues
Provide specific SEA methodological guidance (e.g. decision rules, guidance for methods selection)
Ensure cost and time effective
Undertake with professionalism
Democratic
Ensure a democratic decision-making process
Integrate institutional and political factors
Comply with legal requirements and address legal gaps
Recognize SEA as sociopolitical struggle among diverging interests
Promote discourse reflection by stakeholders
Facilitate open and accountable political and organizational system
Provide opportunity for appeal of process or decision output
Consider direct and indirect democratic effectiveness
Foster democratization
Collaborative
Facilitate coordination within government and between governmental and nongovernmental organizations
Ensure transparent process
Inform and involve interested and affected public and government bodies throughout the decision-making process
Explicitly address public and agency inputs and concerns in documentation and decision making
Seek to enhance communications and collaboration among stakeholders
Have clear, easily understood information requirements
Ensure sufficient access to all relevant information
Stress mutual learning
Foster organizational/institutional learning
Build capacity for undertaking and using SEA
Ethical
Interpret significance of effects and trade-offs
Use explicit criteria and procedures to assess significance
Emphasize visions and visioning
Address inequities including future generations
Identify and apply ethical principles (e.g., no net loss, priority—most vulnerable)
Seek just and equitable outcomes
Undertake with fairness, impartiality, and balance
Adaptive
Use an iterative, creative, and flexible process
Analyze risks of policy, plan, or program
Apply precautionary approach
Incorporate adaptive management
Acknowledge and address uncertainties and complexities, and associated implications
Integrative/Contextual
Enhance context awareness and sensitivity without undermining global aims
Customize to tier, objectives, constraints, nature, proposal type and characteristics, legal and policy framework, and mandate
Customize to values and policies of a country
Customize to spatial, temporal, biophysical, social, cultural, economic, institutional, decision-making, and political context
Link to state-of-the-environment reporting
Link to national and institutional environmental and sustainability policies and strategies
Link to other assessments, and to other planning and environmental management tools
Strive to institutionalize SEA values
Undertake institutional analysis
Provide an appropriate and necessary regulatory framework
Ensure organizations and infrastructure can support SEA implementation

Sources: Bonifazi et al. (2011), Buuren and Nooteboom (2010), Clark et al. (2011), Connelly (2011), Cooper (2011), Croal et al. (2010), Donnelly et al. (2007), Dusik and Sadler (2004), Eccleston (2008), Elling (2000), Fischer (2005, 2007a,b), Fischer and Gazzola (2006), Franz and Kirkpatrick (2007), Gunn and Noble (2009b), Hildén et al. (2004), Hindling-Rydevik and Bjarnadóttar (2007), IAIA (2002a), Jackson and Illsley (2007), Jha-Thakur et al. (2009), Jiliberto (2011), Jiricka and Pröbstl (2008), Kørnøv and Thissen (2000), Landry et al. (2009), McCluskey and João (2011), Nilsson et al. (2009), Noble (2000a, 2003, 2008, 2009a), Noble and Gunn (2009), Noble et al. (2012), OECD (2006), Partidário (2007, undated), Partidário and Arts (2005), Partidário and Coutinho (2011), Retief (2007b), Retief et al. (2008), Runhaar (2009), Sadler (2005b), Sadler and Jurkeviciute (2011), Sheate and Partidário (2010), Slootweg et al. (2010), Stoeglehner et al. (2009), Treweek et al. (2005), Vicente and Partidário (2006), Weiland (2010), Wirutskulshai et al. (2011), Zhou and Sheate (2009), Zhu et al. (2010).

shape, influence, and direct decision making. Examples include the following: enhance understanding of real decision making, recognize SEA as a sociopolitical struggle among diverging interests, seek to overcome institutional resistance to change, provide sufficient resources to implement, integrate institutional and political factors, facilitate an open and accountable political and organizational system, foster organizational learning, link to state-of-the-environment reporting, require an institutional analysis, ensure an appropriate and necessary regulatory framework, ensure organizations and infrastructure can support SEA implementation, link to national and institutional environmental and sustainability policies and strategies, concentrate on performance effectiveness, provide opportunities for appeal of process or decision outputs, consider direct and indirect democratic effectiveness, enhance democratization, facilitate coordination between government and nongovernment, and foster ownership of outcomes. It could be suggested that such proactive measures are beyond the mandate of SEA practitioners. Alternatively, it might be argued that if SEA practitioners are to avoid being relegated to the "sidelines" of decision making, they must be more active in seeking to better understand and to bring about the legal, institutional, and decision-making conditions conducive to effective SEA practice.

2.5.5 Advancing SEA as an Effective Field of Practice

Several possible criteria pertain to actions by SEA practitioners that extend beyond managing and participating in the SEA process. Such actions relate more to the professional responsibilities of SEA practitioners to elevate the quality and effectiveness of SEA as an applied form of environmental management. Examples of such criteria include the following: promote SEA use, learn from comparative studies, share SEA knowledge and experiences, build capacity for undertaking and using SEA, strive to institutionalize SEA values, apply as a proactive environmental management tool, strengthen the science–policy link, seek to integrate SEA and CEA, and link to related tools. It could be argued that such actions, while laudable, are not "good practices." Or, it could be maintained that only through such actions will the level of SEA "good practice" be raised, or indeed, remain relevant.

2.5.6 Arguably Too Vague

Certain criteria might be disputed on the grounds that they are too open-ended in terms of alternative interpretations (e.g., professionalism, fairness, rigor, balance, appropriate level of detail, carry out systematically, appropriate temporal and spatial scales, systematically assess effects and options, apply an iterative, creative, and flexible process). Rather than rejecting such criteria, it may be a case of elaborating on the criteria such that minimal standards of acceptable and of good practice criteria can be determined. Alternatively, if this is not possible, either the criteria could be eliminated or only defined for particular SEA or context types.

The problem of vague SEA criteria is symptomatic of the broader issue of vague SEA guidance—guidance, which tends to remain at the level of broad principles. Good practice SEA knowledge needs to be integrated into more specific methodological guidance regarding the selection, refinement, adaptation, and application of SEA methods (Noble et al., 2012). The preparation, circulation, and adaptation of such guidance material could contribute to the refinement of context-specific SEA effectiveness criteria and, over time, help enhance the quality and effectiveness of SEA practice.

2.5.7 Structuring the Criteria

If it is accepted that SEA good practice criteria, to a considerable extent, run the risk of "falling between two stools" (i.e., either too broad to be of much practical value or too narrow to apply across SEA and context types), one way around this conundrum is to classify SEA dimensions. Table 2.8 represents an initial effort along those lines. Such a classification system might engender a dialogue among SEA theorists and practitioners regarding both "crosscutting" criteria and criteria that might suit particular categories. Such a dialogue might contribute to healthy debates regarding the purpose, scope, underlying values, aspirations, roles, boundaries, perspectives, focus, limits, appropriate approaches, and external connections of SEA as it is and as it could or should be.

2.6 SUMMING UP

This chapter addresses the question of whether conventional IA regulatory and process characterizations adequately convey the available choices. It also considers whether conventional IA process guidance and practice, even if substantially reformed, can adequately respond to the recurrent problems and contemporary challenges. These questions are addressed by characterizing a range of IA regulatory and IA process design and management choices both for EIAs and for other IA types (SEAs, SA, EcIA, HIA, SIA).

The EIA regulatory analysis identifies generic regulatory choices and good practices for screening, individual IA process and integration, and coordination activities. The applied EIA analysis presents a variety of process characterizations portrayed in IA literature. Tables and summary text identify examples of possible choices pertaining to general process design and management, IA process inputs, outputs, and linkages, IA process adaptations, IA frequency and sequence, and IA types. Support tables and figures indicate relevant distinctions and illustrate process management approaches.

Alternative SEA, EcIA, SIA, HIA, and SA approaches to conceptual framing, institutional framing, IA process design,

Table 2.8 SEA Dimensions

SEA Level	Policy (Upper Tier)	Policy (Lower Tier)	Plan/Program (Upper Tier)	Plan/Program (Lower Tier)
Decision-making integration	Fully integrated	Parallel (connected at each decision point)	Parallel (connected at end)	Not connected
Decision-making influence	Controls—shapes decision making	Influences decision making	Informs decision making	Minimal decision-making influence
Formality	Mandatory (legislation and regulations)	Quasimandatory (policy advice with auditing)	Advisory only (no auditing)	Informal
Direction of control	Top-down	Top-down and bottom-up	Bottom-up	Control–diffuse
Tiering	Fully tiered (policy, plan, program, project)	SEA tiered (policy, plan, program)	SEA and EIA coordinated or integrated	Minimal connections
Policy/planning connections	Fully integrated	Parallel—multiple connections	Parallel—one connection	Not connected
Institutional connections	Controls	Influences	Informs	Ignored or resisted
SEA/EIA dominates	SEA supersedes	SEA modified	EIA modified	EIA based
Scope of environment	Sustainability (fully integrated)	Ecological/social/economic connected	Ecological/social/economic separate (three pillars)	Only one or two of economic, social, and ecologic
Participation form	Community based	Collaborative	Two-way communications	One-way communications or closed
Generality	Broad issues	Specific	General region or sector analysis	Detailed region or sector analysis
Role of values	Value driven (normative)	Values explicit and diverse	Values explicit but narrowly defined	Values implicit or ignored (value-free–objective)
Dominant values	Technocratic—growth oriented	Environmental management	Conservation	Deep ecology
Sociopolitical perspective	SEA as political struggle or social advocacy	SEA as negotiations and collaborations	SEA as communicative planning or social advice	SEA as technical advice
Relationship to context	Transcends—universal good practice	Policy-, plan-, or program-type specific	Policy, plan, or program specific	Unique to context
Role of context	Shapes context	Influences context	Adapts to context	Ignores context
Development status	Developed nation	Transitional nation	Developing nation	
Role of rationality	Technical rationality	Strategic rationality	Communicative rationality	Political or ecological or social rationality
Degree of change	Transformative	Major reform	Incremental adjustment	Negligible change—status quo
Role of ethics	Ethics driven	Explicit ethical principles	Implied ethical principles	Ethics implicit or ignored
Responsibility	Proponent entirely	Proponent with external advice	Proponent jointly with external assistance	Prepared by external, independent entity
Qualitative–quantitative	Analytic quantitative	Largely quantitative	Largely qualitative	Completely qualitative
Nonmandated elements	SEA integrates	Separate but connected	Separate not connected	
Public–private	Public	Semipublic	Semiprivate	Private
Spatial perspective	International	National	Subnational or regional	Local
Temporal perspective	Future generations	Long term	Medium term	Short term
Cumulative effects	CEA focused—detailed	CEA focused—general	Direct and indirect effects	Direct effects only

procedural elements, and substantive elements are summarized. Patterns and interconnections among these IA types are explored at both the conceptual and applied levels.

Particular consideration is devoted to the contemporary challenge—SEA good practice. Suggested SEA good practices for each recurrent problem are presented. The analysis of issues surrounding SEA good practice addresses such matters as crosscutting criteria, inherent values, adaptations to SEA tier, type, approach, and setting, measures to enhance SEA political influence and effectiveness, advancing SEA as an effective field of practice, level of detail, and criteria structuring approaches.

The IA choices described in this chapter could be supplemented by interjurisdictional comparisons of IA requirements, guidelines, and practices. Information, knowledge, and experience sharing would be highly beneficial. Workshops, joint studies, and collaborative efforts (such as the joint preparation of IA proposal and setting type guidelines) are likely to lead to regulatory and applied enhancements well beyond what is practical within individual jurisdictions.

More frequent and comprehensive effectiveness analyses (from multiple stakeholder perspectives) of IA requirements, guidelines, and practices also are conducive to enhanced IA process management. Such reviews need to ask basic questions regarding what is and is not working and why and to assess the options available for enhancing the levels of regulatory and applied practice. Oftentimes, it is far from clear whether and to what extent the control and guidance provided and the level of practice is adequate, appropriate, or has unintended secondary consequences. Frequently, only a narrow range of choices for elevating regulatory and applied practice is systematically considered. The search for potential approaches can be advanced by case study analyses and by applied research. The scope of potential improvements should not be limited to refinements. Basic regulatory restructuring and a redefinition of what is considered adequate and good IA practice should always be a possibility.

The generic regulatory and applied IA choices presented only partially address the recurrent problems and contemporary challenges identified in Chapter 1. Although broadening the range of available choices, it is unlikely that the recurrent problems and contemporary challenges can be fully addressed by further adaptations and refinements to conventional IA requirements and guidelines and to conventional IA processes. Equally important, having a wide array of choices, while helpful, provides little guidance regarding which choices or combination of choices would be most appropriate, and would be most likely to effectively grapple with the recurrent problems and contemporary challenges. A more in-depth analysis, potentially including fundamental reorientations, will likely be needed. This is the role of Chapters 3–12.