

**ARTICLES**

**EIA—DO WE KNOW WHERE WE ARE GOING?**

*David P. Lawrence'*

**INTRODUCTION**

Many objectives have been advanced for EIA over the past 25 years. Many claims have also been made regarding what EIA does or should accomplish. What is less clearly evident is whether the identified objectives are appropriate, whether and to what extent they are being accomplished, which objectives should take priority, and why and whether some EIA objectives are better accomplished by or in conjunction with other environmental management instruments.

The recent review of EIA effectiveness (Sadler 1996) illustrates how the field has evolved. It also identifies important new directions and areas requiring enhancement. To the extent that EIA is broadened to address these new priorities, additional EIA objectives are likely to be identified. If all EIA objectives are equally necessary and equally important, it is likely that the reach of EIA will greatly its grasp. This is not necessarily a bad thing if the shortfall between aspirations and accomplishments is the product of deliberate choices. However, if the shortfall is more the unintended outcome of a myriad of uncoordinated, albeit well-intentioned, individual decisions, EIA will likely be much less efficient and effective than is desirable.

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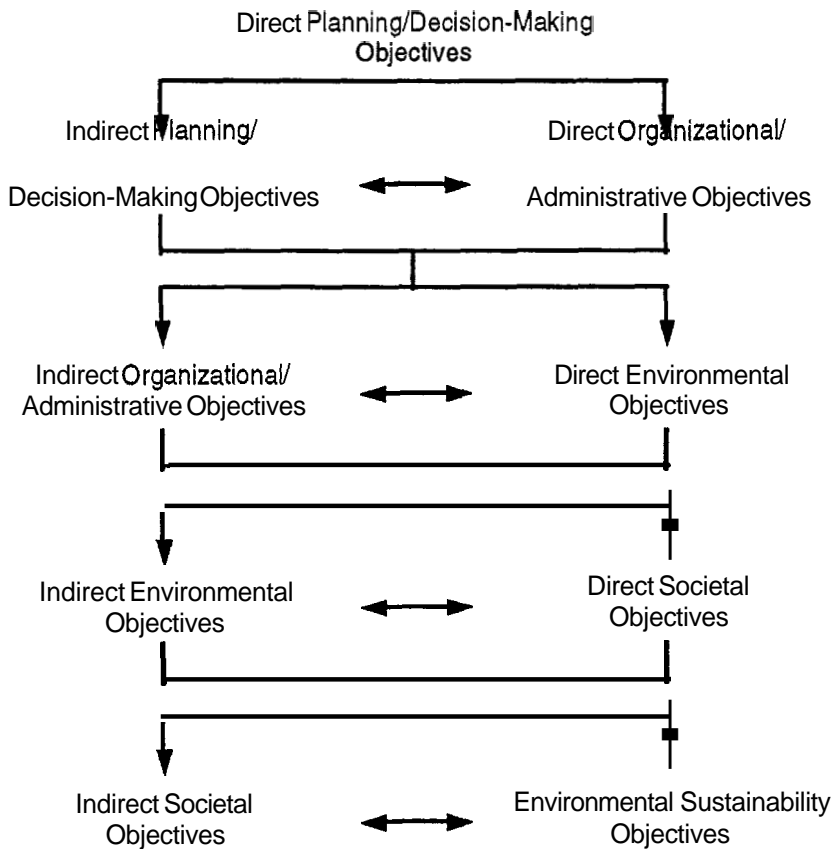
In an effort to address this conundrum of how to best apply the limited resources devoted to **EIA**, a range of objectives ascribed to **EIA** are first highlighted. The conventional, although often implicit, way of structuring **EIA** objectives is then described. A suggested reordering of **EIA** objectives, into five levels, is next suggested. This reordering of **EIA** objectives is a potentially useful mechanism for establishing priorities for **EIA** theory-building and practice. Reordering **EIA** objectives can also assist in goal setting for **EIA** regulatory requirements, in the formulation of objectives and criteria for individual **EIAs** and in the evaluation of alternatives and of proposed actions.

## THE CONVENTIONAL ORDERING OF EIA OBJECTIVES

A great many objectives have been advanced for **EIA** as highlighted in table 1. These objectives are both direct (can be realized by **EIA** alone) and indirect (are addressed by **EIA** in conjunction with other environmental management instruments). **EIA** objectives also pertain to how public agencies and private organizations undertake planning and reach decisions, how organizational environments function and are structured and the consequences of **EIA** for the human, built, and natural environments and for society.

These objectives, both individually and collectively, are laudable. However, with no explicit ranking of objectives, an implicit ranking will inevitably emerge. The implicit ranking that appears to exist within **EIA** practice, as illustrated in figure 1, places selective direct planning/decision making and organizational objectives at the forefront, most notably the early incorporation of better environmental information into project planning processes and the more explicit treatment of environmental concerns in documents (**EIAs**) placed before decision makers. The remaining direct and indirect planning and organizational objectives and, in turn, the direct and indirect environmental and societal Objectives are all then expected to be advanced. If better information is provided, it is assumed it will be considered. As a result, organizational values, attitudes, and behavior will then change, environmentally appropriate decisions will be made, environmentally sound projects will result, and society and the environment will benefit. The regulatory trappings associated with **EIA** (e.g., regulations and guidelines that require document disclosure and agency and public consultation) are assumed to contribute to the indirect planning and organizational objectives, leading, in turn, to further environmental and societal benefits.

Figure 7. Conventional ordering of EIA objectives



**Table 1. EIA objectives**

DIRECT	INDIRECT
<b>PLANNING/DECISION MAKING</b>	
<ul style="list-style-type: none"> <li>● Better, anticipatory, environmental information about potential consequences of development actions (Therivel et al. 1992; Sadler 1996; Wood 1995; Caldwell 1989; Beanlands &amp; Duinker 1993; Meredith 1991; Burdge 1994)</li> <li>● Enhanced understanding of environment (Craig 1990; Beanlands &amp; Duinker 1983; Grima et al. 1986)</li> <li>● Greater consideration of environmental consequences—ecological rationality (Bartlett 1990; Sadar 1996; Sadler 1996)</li> <li>● Earlier consideration of environmental consequences (Estrin &amp; Swaigen 1993; Jain, Urban &amp; Stacey 1977; Westman 1985)</li> <li>● Reconcile environmental, social, and economic needs and demands (Wiesner 1995; Sadar 1996)</li> </ul>	<ul style="list-style-type: none"> <li>● Less partisan (objectivity) (Jain, Urban &amp; Stacey 1977)</li> <li>● More environmentally informed decision makers and decision making (Wood 1995; Bass &amp; Herson 1993; Caldwell 1989; Erickson 1994)</li> <li>● More open and accountable (public involvement) (Lang &amp; Armour 1981; Wood 1995; Wicsner 1995; Sadler 1996; Estrin &amp; Swaigen 1993)</li> <li>● More rational (Grima et al. 1986; Estrin &amp; Swaigen 1993)</li> <li>● Reduced project costs in long term (Sadar 1996)</li> <li>● Improved environmental data base and environmental analysis methods (Sadar 1996; Wood 1995)</li> <li>● Vehicle for involvement by scientific and professional communities (Twiss 1994)</li> </ul>
<b>ORGANIZATIONS - ADMINISTRATION</b>	
<ul style="list-style-type: none"> <li>● Better environmental information (knowledge basis) (Craig 1990; Wood 1995)</li> <li>● Change in organizational values, perceptions and attitudes toward environment (Beanlands &amp; Duinker 1983; Sadler 1996)</li> <li>● Change in organizational behavior toward environment</li> <li>● Bridge between science (analysis) and resource management (politics) (Smith 1993)</li> </ul>	<ul style="list-style-type: none"> <li>● Vehicle for intra- and inter-agency coordination (Twiss 1974; Wood 1995)</li> <li>● Vehicle for public/private cooperation (coordination)</li> <li>● Vehicle for greater scientific and professional involvement (Beanlands &amp; Duinker 1983)</li> <li>● More open organizations (Diamond &amp; Noonan 1996)</li> <li>● Less partisan-political organizations</li> <li>● Enhanced public confidence in public or private institutions (Sadar 1996)</li> <li>● More rational organizations</li> </ul>

**DIRECT****INDIRECT****ENVIRONMENT**

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| <ul style="list-style-type: none"> <li>● Prevent environmentally unsound undertakings (Wood 1995; Burchell &amp; Listokin 1975; Meredith 1991)</li> <li>● Choose environmentally sound undertakings (Marshall et al. 1985)</li> <li>● <b>Ensure</b> more environmentally and socially sound undertakings (through inclusion of means to eliminate or reduce adverse effects) (Brown 1990; Wood 1995; Sadar 1996; Sadler 1996)</li> </ul> | <ul style="list-style-type: none"> <li>● Protect and preserve environment (Caldwell 1989; Bass &amp; Herson 1993; Sadler 1996; Jain, Urban &amp; Stacey 1977)</li> <li>● Prevent environmental degradation (Therivel et al. 1992; Wood 1995)</li> <li>● Enhance environment (Meredith 1991; Westman 1985)</li> <li>● Harmonize human and built environments (Meredith 1991; Jain, Urban &amp; Stacey 1977; Westman.1985)</li> <li>● Harmonize human environment (Wiesner 1995)</li> <li>● Harmonize human and natural environments (Bass &amp; Herson 1993; Wiesner 1995)</li> <li>● Sustainable environment (natural, economic, social) (WCED 1987; UN 1992; Sadler 1996; Smith 1993; Wiesner 1995; Sadar 1996; Estrin &amp; Swaigen 1993)</li> </ul> |
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**SOCIETY**

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| <ul style="list-style-type: none"> <li>● Mitigate negative impacts of an industrial society (Bartlett 1990)</li> </ul> | <ul style="list-style-type: none"> <li>● Enhance environmental understanding (Jain, Urban &amp; Stacey 1977)</li> <li>● Further environmental ethic (values) (Sadler 1996)</li> <li>● Facilitate environmentally conscious behavior</li> <li>● Consider future generational implications (Meredith 1991)</li> <li>● Vehicle for community empowerment and local capacity building (Sadler 1996)</li> </ul> |
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The cause-effect sequence described above can and does occur to some extent. However, the path from better environmental information and EIA regulatory requirements to a better environment and society is a long and tortuous one, strewn with many obstacles. Three questions can be asked: Are there more direct routes for EIA to take? Can EIA reach the intended destination more quickly if linked to other instruments? Can, in some cases, the destination be reached more directly by other instruments? The answers to these questions may well be yes in all three cases.

## **A SUGGESTED REORDERING OF EIA OBJECTIVES**

The identification of more direct routes to environmental and societal benefits begins by ordering the EIA objectives into five levels, ranked from most to least important, as described below and as illustrated in figure 2.

### **Level 1 — A sustainable environment**

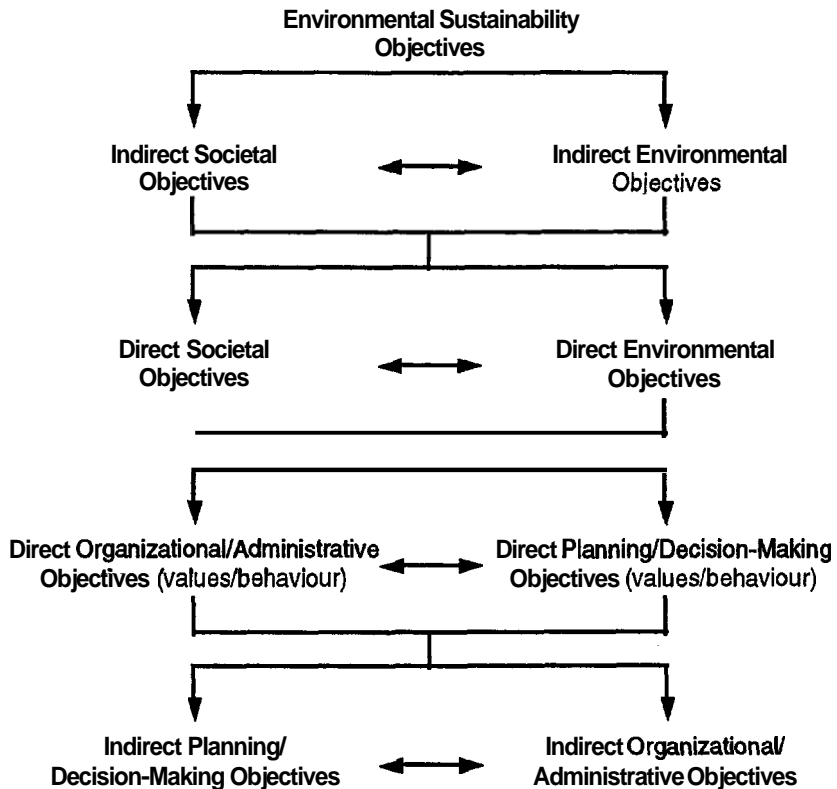
The realization of a sustainable environment is the most highly ranked objective. Interdependencies among environmental components (e.g., economic and social dependency on natural capital) is a crucial consideration. Integration of EIA with other environmental management instruments is necessary for the achievement of this objective. Sustainability is necessary and sufficient but it will require substantial attitudinal and behavioral changes and significant planning and organizational changes. It will also require systems of sustainability indicators to demonstrate if and to what degree we are moving toward or away from sustainability objectives. Moving further toward sustainability will likely contribute to the realization of many other EIA objectives.

### **Level 2— Other indirect EIA environmental and societal objectives**

In addressing EIA proposals, and more particularly alternatives to EIA proposals, it is essential to keep asking such questions as: To what extent does it preserve and enhance the natural environment? In what ways does it lead to greater harmonization among environmental components? Is it consistent with environmental ethical principles? What contribution does it make to the interests of future generations? Does it enhance our environmental understanding and does it lead to more environmentally conscious behavior? These should be direct rather than indirect EIA objectives. Thus, if the contribution of EIA is limited, uncertain, or very indirect (as determined through sustainability and environmental indicators), the question—

Are there better ways to achieve these objectives?—can also be asked. The realization of these objectives is necessary but not sufficient. It is only through the application of sustainability-based thresholds that the truly difficult decisions can be made regarding the acceptability of current and the instigation of new human activities and environmental interventions.

**Figure 2. Suggested reordering of EIA objectives**



**Level 3 – Direct environmental and societal EIA objectives**

There is tendency for the substance of EIA to be lost in the welter of paper and process. It is a sad commentary on EIA practice that it is often difficult to establish if and to what degree the projects that emerge from the EIA process are more environmentally sound than they would have been had EIA requirements not been in place. There should be tangible evidence, using hindsight evaluation, that EIA procedures are making a difference in the sense that environmentally unsound undertakings are not proceeding, that undertakings which do proceed are more environmentally sound than they otherwise would have been, and that significant environmentally enhancements are being integrated into existing environmental undertakings.

These types of advances can be realized to a far greater degree if need and non-structural alternatives receive more serious attention than the more common cursory treatment. Limiting EIA to the environmental “polishing” of pre-determined capital projects raises questions regarding the opportunity costs associated with the significant current and continuing investment in the EIA apparatus. The realization of these objectives is necessary because many projects will proceed in any event. However, it is far from sufficient.

**Level 4 – Direct planning and organizational objectives**

Notwithstanding the above, broadening planning processes, decision-making bases, and organizational attitudes and behavior to encompass environmental and social concerns remains a necessary and worthwhile endeavor primarily because planning and decision-making processes and institutional arrangements can be significant impediments to the realization of higher order environmental and societal objectives. Removing these impediments involves much more than the provision of better environmental information. Although better environmental data and documentation are desirable, the focus instead should be on whether and to what degree the information provided makes a tangible difference at the decision-making level and in organizational behavior. Brave pronouncements of environmental values may give the appearance of change but the true test (a test that requires hindsight evaluation of the environmental effectiveness of planning processes and institutional arrangements) is whether final decisions and organizational behavior demonstrate the instillation of environmental values and ethics. The planning and organizational objectives that bear directly on tangible behavioral changes are necessary. The remaining direct planning and organizational objectives, although often desirable, cannot be considered

necessary. None of these objectives are sufficient. They must be integrated within and directed by higher order objectives.

### **Level 5—Indirect planning and organizational objectives**

The EIA planning process can contribute to making planning, decision making, and organizations more open, informed, less partisan, and more rational. It can also facilitate communications and coordination and contribute to the greater involvement of the professional and scientific community. Such roles are certainly a common theme when EIA is being promoted as a planning and decision-making tool. Fair enough. Arguably, however, such “benefits” are sometimes more a byproduct of EIA than objectives that require significant resources and attention. Certainly EIA requirements and procedures should be designed to facilitate public and scientific involvement and to contribute to decision-making accountability. The objectives pertaining to more rational and objective planning and organizations are more questionable or, at best, are of mixed value. There are also many other instruments available that are directed toward the same objectives. The indirect planning and organizational objectives can be considered as sometimes desirable but never sufficient. They are, moreover, only desirable to the extent that they do not detract from the realization of higher order objectives.

## **CONCLUSIONS**

The ordering of EIA objectives, as described above, can lead to significant emphasis shifts in the EIA planning process. Sustainability and environmental harmonization could come to the fore. Greater attention could be devoted to discerning tangible evidence of environmental improvement and to changes in decision-making outcomes and organizational behavior. Less emphasis would be placed on rational planning, on consensus building, on environmental data collection, and on espoused environmental planning and decision making as ends in themselves.

Realistically, not all the objectives at each level can be achieved or, in some cases, even addressed. Clearly, the higher levels (Levels 1–3) should receive the primary emphasis. Level 4 and 5 objectives should only be addressed to the extent that they directly contribute to the realization of Level 1 to 3 objectives. The measurement and evaluation of EIA effectiveness is necessary at all levels. The integration of EIA within broader environmental

management frameworks and systems is essential. Difficult tradeoffs will need to be addressed. Is **EIA**, for example, likely to be more effective in contributing to higher order objectives by focusing on project-level evaluation and leaving strategic evaluation to other forms of environmental management? Or should **EIA** be broadened to encompass policies, programs, and plans because it is the most appropriate instrument for addressing higher order objectives? If the latter is the case, appropriate adaptations must be made; **EIA** must complement other instruments, and **EIA** must be integrated within a larger whole.

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