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CHALLENGES FACING DEVELOPMENT PLANNING AND IMPACT ASSESSMENT A CARIBBEAN PERSPECTIVE

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Only a few weeks ago, the United Nations World Commission on Environment and Development -- the Bruntland Commission -- completed its work. In a timely fashion it has provided us in the very title of its final report, Our Common Future, with an overriding theme for this workshop which will focus on both the theory and practice of synergistically linking development planning and environmental impact assessment processes. But we would do well in the course of our deliberations over the next four days to also recall the gentle warning of Rene Dubos -- "think globally, act locally." It has special implications for small island states, often victimized by grand development schemes and continentally-generated management models, strategies, and methodologies. These can sometimes overwhelm and often simply do not "fit" the local, insular condition. Remember the plea of Alexander Pope, "In everything, respect the genius of the place." Insular "places," especially of the oceanic variety, are not simply diminutive continents. They differ in more than scale and climate and history. Although often seen as mere microcosms of larger systems, there are profound functional differences (Towle, 1985). I shall return to this point later.

The selection of the Caribbean and Barbados as a place of venue for this impact assessment workshop is most opportune as the region in the short span of time since approximately 1985 has seen the emergence of a sequence of exploratory activity regarding resource assessment, environmental impact assessment and more rigorous development planning procedures. For example:

ECONOMIC COMMISSION FOR LATIN AMERICA/CARIBBEAN (ECLAC)

ECLAC recently commissioned a modest spectrum of site-specific case studies of the post-audit variety, documenting the effects of not employing an antecedent impact assessment process [see especially St. Kitts (Towle, et al., 1985); St. Lucia (Renard, 1985); and Antigua (Jackson, 1985)].

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT/REGIONAL DEVELOPMENT OFFICE FOR THE CARIBBEAN (USAID/RDO/C)

Since about 1984, for all major USAID funded technical assistance projects in the region, formal environmental assessment procedures (under 22 CFR, Par. 216, AID Environmental Procedures) have been carried out.

This process, supervised by an AID Regional Environmental Officer, examines foreseeable impacts of activities undertaken by a proposed project on the human and natural environment and defines alternative measures to mitigate or reduce negative effects (see Towle, et al., 1986 and Rainey, et al., 1987, for example). Some lessons have been learned and some instructive examples exist.

CARIBBEAN CONSERVATION ASSOCIATION (CCA)

CCA joined with the University of the West Indies (UWI) and Dalhousie University of Halifax (with CIDA and PAHO funding) to hold two important training seminars on Environmental Impact Assessment (1985 in Barbados and 1986 in Trinidad and Tobago). Subsequent to the meetings, proceedings and case studies were published.

PAN AMERICAN HEALTH ORGANIZATION (PAHO)

In June 1985 PAHO sponsored its first workshop on Environmental Impact Assessment in Kingston, Jamaica for the Caribbean sub-region (see Thompson, 1985).

BANFF CENTRE, SCHOOL OF MANAGEMENT

In cooperation with the Jamaican Government, in 1986 the Banff Centre sponsored a regional seminar/workshop initiative on "environmental management" with impact assessment components.

ORGANIZATION OF EASTERN CARIBBEAN STATES (OECS)/NATURAL RESOURCE MANAGEMENT PROJECT (NRMP)

With funding from the German Agency for Technical Cooperation (GTZ) and the Organization of American States (OAS), a major three year program was launched in May 1986 addressing improved strategies for land use and land planning in the OECS countries. Headquarters for NRMP are in St. Lucia. Among the issues being addressed are environmental standards, legislation, integrated watershed management, and the economic valuation of natural resources -- all essential inputs to future EIA initiatives in Eastern Caribbean countries.

COMMONWEALTH SCIENCE COUNCIL (CSC)

Two recent initiatives by CSC offer great promise for improving the institutional environment and planning framework for future EIA program implementation. One (a "science and development" evaluation project) is underway, and the other (a two year, community-based, regional program design effort regarding coastal zone management) is now completed. Implementation of the latter -- a six part, ten country, three year comprehensive project -- is likely to begin in late 1987. The program plan is available from CSC.

UNIVERSITY OF THE WEST INDIES (UWI)/CENTRE FOR RESOURCE MANAGEMENT AND ENVIRONMENTAL STUDIES (CERMES)

With the assistance of CIDA, World Wildlife Fund-US, CCA, the Eastern Caribbean Natural Area Management Program (ECNAMP), and others, UWI (Cave Hill, Barbados Campus) recently launched the first graduate level educational program (in the English-speaking Caribbean) which focuses on providing environmental generalists with inter-disciplinary skills and EIA project management training. The first class completes its field practicum in a few months, and a Master's Degree level program is on the drawing board. Many of the participants are on leave from government posts in, for example, planning or fisheries offices,

and will return to those or new assignments personally well briefed on EIA procedures.

CARIBBEAN CONSERVATION ASSOCIATION (CCA)

A major project to develop "Country Environmental Profiles" in the Eastern Caribbean was officially launched by CCA in April of this year. The four countries included in the current cycle are: St. Lucia, Dominica, Grenada, and St. Kitts-Nevis. Funding is being provided by USAID. Each profile exercise will address the EIA issue as both a local design question and a country application agenda item.

ISLAND RESOURCES FOUNDATION (IRF)

There are over 100 non-government organizations (NGOs) in the OECS region with specific or general interest in or some project focus on natural resources, management, planning, and environmental issues. As elsewhere, NGO participation in the EIA process is essential, and IRF's recently launched "institutional development project" for Eastern Caribbean NGOs (funded by the World Wildlife Fund-US and Rockefeller Brothers Fund) is designed to improve the level of public debate regarding environmental issues like the EIA process. The Bruntland Commission's recent report (pgs. 326-329) stresses the role of NGOs in this regard.

Within the Eastern Caribbean region, only the French West Indies, the U.S. Virgin Islands and Puerto Rico have legal mandates which trigger the customary EIA process for stipulated projects. None of the OECS countries presently has in place formal EIA requirements. On a more positive note, at a national level, Barbados (our host country) justifiably deserves mention, both for high level endorsement of the idea of impact assessment and for its well-designed and methodical Coastal Resource and Erosion Impacts Survey project run under the aegis of the Ministry of Housing and Lands.

This cursory review of some recent or current EIA related activities, which form the Eastern Caribbean experiential framework or setting for this international workshop, should not lead one to assume that all is well. The activities mentioned are recent, experimental, mostly short-term, rarely institutionalized, and there is only a small cadre of trained and experienced local experts. Most current environmental projects and programs are basically one-layer deep with proven talent which suggests the value of a measured, low key assault on the EIA strategic planning issue. Too much, too soon will marginalize other important, ongoing environmental programs and escalate the need for extraordinary levels of outside experts.

In the meanwhile, Caribbean insular areas are exhibiting a broad spectrum of qualitative and quantitative stress indicators. Living in an island environment -- previously damaged by the colonial experience, now undergoing rapid development and increasingly stressed by more people and pollution -- is like being a passenger in a leaky, over-loaded sailboat. The vessel is still afloat, but extraordinary effort is required to keep it that way; the risk of real catastrophe is much greater in the event of any untoward or unforeseen additional stress -- whether from internal or external causes. There is also a reduced margin for human error in judgments about what to do next, and it is increasingly uncomfortable for its occupants who have only two options -- staying or swimming. But leaving involves other risks and also reduces the number of persons available to bail and sail, stop leaks, and repair damages.

Fortunately, at this point in time, the Caribbean island area, like the boat in question, still has some residual buoyancy and a dedicated crew. But like the sailboat, there still are environmentally annoying leaks, which if not tended to properly could become less and less manageable over time because of the way the boat is being sailed, namely, close hauled to windward with everything hard down for a fast passage towards an allegedly safe harbor named "Development". According to some, an environmental damage control strategy is badly needed; and, in fact, if we may use out of context the warning words of an astute local political observer from a nearby island, "Captain, the ship is sinking!"

It may well be that for our metaphorical boat and for island environments, this EIA workshop is just in time! At the very least, it is timely because within the region, there is a rising level of both curiosity and interest in the EIA process and its potential. At the same time, however, there has been a notable reluctance to bite the EIA bullet in any official way -- perhaps because, like a real bullet, it is intimidating.

Through the good offices of the more developed societies of North America and Europe, we in the Caribbean now have access to the combined wisdom of nearly two decades of theory and practice, of experimentation, and hands-on learning about EIAs in large, sophisticated, mostly temperate, continental systems -- rural and urban, coastal and estuarine, montane and lacustrine. The literature base and talent pool of "continental" expertise is almost mind-boggling (see, for example, Duinker and Beanland, 1986; Dixon and Hufschmidtt, 1986; Marshall, et al., 1985; Martin, 1986; and Wolfe, 1987).

But for most developing countries and especially tropical insular systems, such as those in the Caribbean archipelago, there are precious few guidelines, little experience, less real expertise, and no real wisdom regarding the utility and adaptation of the customary, continental EIA process to tropical islands and small developing countries. There is, however, a lot of theory and talk about the efficacy and the urgency of such a technology transfer.

But moving from theoretical, academic discussions to management applications in a substantially different environment requires an operational set of procedures and a "best fit" test, neither of which is currently in place. This problem is one of the challenges of our workshop -- namely, the design of a road map for those of us just starting out. Perhaps the distilled wisdom of those experienced with the EIA route (for example, see Becker and Porter, 1986) will result in well-marked short cuts to speed things up in the Caribbean region . However, to paraphrase another's words: [the experience of] getting there is half the fun ... and, I might add, most of the learning.

If we are slow on the uptake and parsimonious in our enthusiasm about the EIA "quick fix" for local, national, and regional environmental ailments and resource allocation problems, it is because we are uneasy. The region's colonial experiences taught us a bit about the imported quick fix, and the years since independence have been similarly instructive about inappropriate technologies and itinerant scholars with the "you just" syndrome (i.e., "you just do this and everything will be fine").

During the next four days, we need to search for answers to the following questions.

1. How do we go about re-thinking and even re-designing the highly sophisticated, continentally shaped EIA process as an appropriate technology for small developing countries?

2. How can the EIA technology transfer from large to small, from continental to insular, from temperate to tropical, and from data rich to data poor countries be engineered, accelerated, reduced in cost and evaluated?

3. Remembering that developing countries are starting from scratch, more or less, what should an "initial implementation strategy" (IIS) for an EIA program look like -- as a working agenda?

4. Given the elaborate nature of current standard practices and procedures for EIA strategies in more advanced countries, what orderly selection process can be employed to separate the "need to know" from the "nice to know"?

Surely there will be other questions, and these are only suggested to highlight local concerns expressed to the author in the past year or so as discussions about environmental impact assessment have become more serious and more focussed on design and application issues.

There is, quite frankly, throughout the region a reluctance to start -- perhaps because the task looks so formidable, so complex, requiring even a new language if the thirty or so papers and monographs used in preparing this paper are any indication! It is an intimidating experience. In a recent UNEP publication on this subject, Ahmad and Sammy (1985), for good reason, quite properly saw a need to "... demistify the concept of environmental impact assessment." My only complaint about this otherwise useful set of simplified guidelines was the absence of a chapter on "getting started" -- a subject that this workshop is hereby invited to address.

Let us turn now for a quick review of other key problems or unusual circumstances we all face, especially in any attempt to build conceptual and functional linkages between the EIA process and the development planning/resource management process in the Caribbean.

KEY PROBLEMS

- Incremental Effects:

While the EIA process is generally more effective with larger, more easily bounded, capital intensive, site specific projects (such as a major hotel, sewage outfall, agri-business processing plant or marina), it is less easily employed efficiently (and sometimes not at all) for smaller development activities, which often are presumed to be controlled by existing zoning, permitting, and monitoring procedures. The additive or aggregate effect of such non-formal, incremental "development" is a serious, generally unmonitored problem. In fact, recent case studies and resource assessment "post-audits" suggest that control procedures are often not in place or are ineffective, and the problem of incremental degradation and mini-point source

and non-point source pollution looms large in the region while not lending itself well to a standard EIA strategy. Some serious "adaptive" strategy will be required.

For example, 25 routinely permitted residential septic tanks on a semi-enclosed bay shoreline may discharge a higher leachate-borne nutrient load than a nearby 100 room hotel with a package sewage plant. Multiply this example by hundreds of small-scale situations like this along an island's coastline or on an erosion prone watershed and the occasional larger project, warranting application of EIA procedures, pales by comparison. Further, if the large project is donor-funded, an externally required environmental review procedure will probably be undertaken, although not necessarily to standard and generally not vetted publicly as is the North American practice.

Another quite different aspect of this "incremental effect" is illustrated in the CCA-published case study on the Mangrove Lagoon in St. Thomas, U.S. Virgin Islands, a site of about ten sequential EIA exercises, mostly for marinas (Towle, 1986b). In the early stages, the V.I. Government's attitude was -- in permit case after permit case -- this <u>one</u> won't hurt ... there's a big margin. No one added things up, however, and when the formerly pristine Lagoon was about 51 percent developed, including a public solid waste site and nearby horse race track in the mangroves, the Government position shifted to one of "well it's already developed, so let's concentrate pollution at that site." In effect, a kind of threshold shift occurred in the absence of an additive monitoring process regarding the incremental effects of a series of small-scale, ostensibly innocuous permitted projects over a ten year period. The Lagoon is now overloaded, its carrying capacity (for self-flushing) exceeded, and what nature would have done for free, forever, now costs a lot of money annually, forever.

- <u>Natural Disaster Damage Problems</u>:

There has been a tendency among Caribbean environmentalists to exaggerate the effects of anthropogenic perturbations and under-estimate the gross, short and longer term negative effects of various natural phenomena such as hurricanes, flooding, droughts, winter storms and swells, and massive regional species die-offs (for example, sea urchins) or secular population cycles or pathogenic morbidity and mortality (such as white band coral disease). This is a very real problem in monitoring coastal water quality, indices of coral reef and sea grass health, and turbidity effects. Base line information on background levels is marginal at best, making it difficult for resource managers to establish "upstream" causal links with point-source pollution generators.

The scale of many catastrophic but ephemeral natural events can easily mask perturbation induced by human action, making prediction of impact especially difficult in tropical oceanic insular systems. Eberhart (1976) was on target when he criticized various attempts to use the Shannon species diversity indices by concluding, "It seems unwise to try and measure a poorly defined quantity with a ruler that is difficult to read." Caution is needed by would-be predictors of significant impact in developing countries with weak institutional memories, limited environmental archives, marginal base line data, and few monitoring programs yet in place.

- Locally Defining "Significant" Impact:

A careful reading of Duinker and Beanland's 1986 article on the painful evolution and refinement of the EIA "significance" criteria used in Canada and the U.S. alerts the would-be tropical, developing country EIA protagonist to a very real problem. Criteria generated elsewhere will certainly be culturally, statistically, ecologically, and institutionally inappropriate, if not irrelevant. Given this problem, it would appear that there may be a lower risk in arbitrarily establishing such criteria locally on a trial basis than in borrowing or attempting an adaptation.

Under these circumstances,in data poor areas, e.g., the developing country context, would it not be useful and defensible to focus more -- at least initially -- on the longer term question of an environmental monitoring protocol and program and establish a general framework of site and area specific "trends" or "context of change" within which less easily measured impacts are likely to occur? A pollution susceptibility index for each bay and each watershed would be most helpful.

And in the case of a recurring or incremental impact situation, where the "event" being assessed as to its impacts may be the twenty-third in a long string of similar, but unassessed prior events, would the criteria for establishing "significance" not have to reflect fully the "place" or locus of this event on a vector or continuum of change? This will be a common problem in all developing countries just starting off with an EIA procedure.

- The Special Problem of Islands

Island systems present the "planner" with an atypical conceptual problem -- since they have only a coastal zone and no buffering "hinterland". Margins of ecological error are narrow because of generally lower species diversity and high endemicity. With short watersheds and shorter system response times, thresholds shift downward, and discounting and investment planning time frames shorten. Economic and social vulnerability indices are usually very high.

A different kind of special case prevails with an archipelagic configuration, as in the Eastern Caribbean, especially with regard to migratory species, trans-boundary pollution vectors, and jurisdictional issues. EEZ problems are usually very complex. Binary systems, like Trinidad and Tobago, St. Kitts and Nevis, Antigua and Barbuda, raise other kinds of impact assessment and development planning problems, especially in the matter of resource allocation and cultural diversity. Perhaps the Canadian Arctic islands EIA experience is more relevant here than one would normally assume, but it tends to lack transnational issue resolution experiences that might be instructive.

After centuries of colonial exploitation, mono-crop agriculture, and military use, most islands have severely damaged terrestrial and marine environments which are currently stressed by expanding populations, tourism, waste disposal, over-fishing and erosion. As a reactive process, the EIA offers little guidance in dealing with habitat restoration and enhancement.

CONCLUSION

There is an emerging consensus, based on the lessons learned in North America and elsewhere, that "... impact assessment is an integral part of the broader process of environmental management, rather than a separate activity" (Marshall, et al., 1985). Hopefully, one product of this workshop will be a clarification of how clear functional linkages, which offer synergistic efficiencies and lend themselves to the support of integrated development planning, can be established and fostered in the small country context from the very beginning. Somehow in this process we shall have to address the question of an EIA taxonomy -- what kinds for what purpose under what circumstances. The EIA is not a tool but more like a tool box with various tools inside. The question is which to use when. Surely, there is a big difference between an EIA for an airport runway extension into the sea and a newer type of EIA needed in a small developing island state to assess the impact of investing, for example, a million dollars in annual tourism promotion and marketing schemes (which traditionally seek only more tourists per annum rather than net revenue gains, plant efficiency, reduced impacts and optimum resource use by the "sector").

If EIAs are to be integrated into and properly assist the development planning and resource management process, they will have to be adapted to deal better with incremental, non-traditional facets of development and change (for example, longitudinal visitor impact assessments for tourist economies and tax policy impact assessments). Also, tropical area natural disaster impact assessments are needed for better definition of longer term system change and improved predictive accuracy regarding project-induced changes. Perhaps a new genre of EIAs is needed to establish the impacts of not doing something -- of not developing environmental standards and legislation, of not recycling wastes, of not implementing zoning and land use planning, of not developing a coastal zone management program. Conversely, a "no action" EIA approach might be an effective way to deal with damaged insular environments, exploring alternatives for more positive habitat enhancement, rehabilitation and renewal strategies (for example, fisheries and tourism enhancement through artificial reefs created from solid waste or by electrodeposition). I suspect data on the cost of "not doing anything" would be instructive to policy makers. In sum, with its methodical review of alternatives, impact trade-offs, and costs, the EIA may be a superior, more flexible planning tool than we have realized to date if we explore the full range of its potential application.

As for the linkage question between EIA "prediction" of "significant" impacts (good and bad) and the policy-based decision making process regarding development, I suggest there is some underexploited common ground here. Policy is also a predictive process. A policy is nothing but an hypothesis which contains initial conditions and predicted results or consequences. If "X" is done at time "T", then "Y" will be done (happen) at "T+". There is a presumption of cause and effect. Take, for example, the tourism policy of allocating a million dollars to promote more tourism. If "X" is spent now ("T"), more tourists ("Y") will arrive next month or year ("T+"). Surely the "predictive" skills implicit in all EIA activity (and concomitant familiarity with public choice theory, evaluation theory, statistical methods, risk analysis, etc.) have adaptive potential vis a vis the predictive facets of all aspects of resource allocation, development and management policy.

Lastly, I am concerned that this prestigious international assembly of EIA experts, accustomed to dealing with large countries, large projects and global issues, will perceive the insular problem -- our problem in this region -- as just interesting but, in the wider scheme of things, inconsequential. I assure you we truly need your counsel and your intellect as well as your commitment to help. But we do not need grand designs. You know as well as I that in EIA practice "smallness" is not a criteria in determining "significance". Schumacher may have been right when he said "small is beautiful." He neglected to say it also is difficult.

I leave you at last with a few words of Tennyson that apply in a practical way to this workshop, the words of Ulysses to his tired crew: "... that some work of noble note may yet be done" (Ulysses, 1, 6).

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