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A review of environmental impact assessment and sustainable development in small island states

Chapter 12

Introduction

Small islands states (SIDS) spread across the planet form a distinctive group which share many characteristics and whose vulnerability and special situation has been recognised by the international community (Payet, 2007). The sustainability of SIDS in particular drew the attention of the international community in 1989 when the United Nations General Assembly (UNGA) adopted a resolution (GA 44/206) on SIDS, which later became enshrined in Agenda 21, Chapter 17G (UN, 1992). This was further recognised by the 1994 Barbados Programme of Action for Small Island States (BPOA) and the 2005 Mauritius International Meeting of the Small Island States (Koonjul, 2004; UN, 2005)

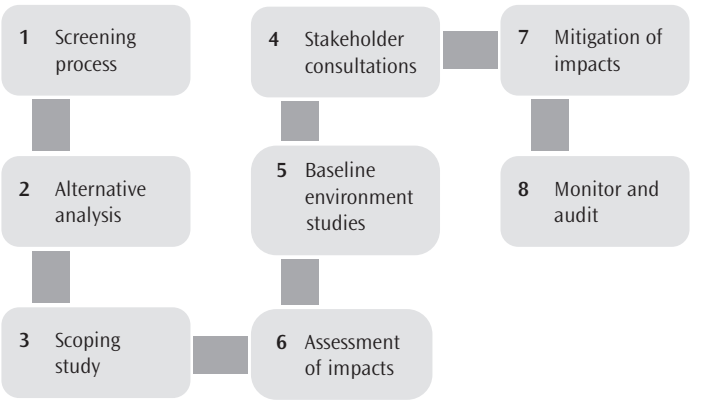
However, despite this global consensus on sustainable development its translation into practice has not been so straight forward. Efforts by the United Nations have been driven mainly by three global environmental conventions and a suite of tools, some of which are referred to in Agenda 21, to ensure that the environmental and social consequences of development are addressed (UN/DESA/DSD, 1999, Strachan et al., 2005). One tool that has become synonymous with the management of environment and development in many countries is the environmental impact assessment (EIA) process. Simply put, the EIA process ensures, through a legal and decision-making framework, that development projects such as roads, housing estates, factories, hotels and other types of development have the minimum impact on the environment during the entire lifetime of the project – that is design, construction, use, and eventual demolition (Lee & George, 2000). In fact, the EIA process is acknowledged as an important tool in the implementation of sustainable development especially for decision-making and planning at the national level (Jacobs & Sadler, 1989). Schrage (1999) further notes that EIA brings together the precautionary principle and the principle of preventing environmental damage, and ensures public participation.

Whilst it seeks to minimise the impacts of development on livelihoods and the environment, the EIA process also seeks to ensure the maintenance of key ecosystem functions and services, and achieve net benefits for society. A second consideration is the potential for trade-offs to ensure that the goals of sustainability – environment, economic and social – are met at some optimum level (Wood, 1995). The short-comings of the free market and of centrally planned economies in accounting for the real economic value of ecosystems have led to the degradation of the environment, the destruction of habitats, pollution and over-exploitation of resource. The use of ecosystem valuation has been shown to significantly contribute to improved decision-making; however, its use remains isolated in impact assess-

ments (Slootweg & van Beukering, 2008). The EIA process needs to be grounded in clear scientific environmental and ecological economic analyses so that it improves management and decision-making and addresses equity concerns. The EIA process is also relevant in the further engagement of the local community and affected parties which in turn can significantly influence project outcomes.

Kennedy (1998) argues that EIA is both a science and an art. The EIA process consists of a number of steps which vary from country to country, as shown in Figure 12.1. Detailed descriptions of these steps can be found in the UNEP Environment Impact Assessment Training Resource Manual (UNEP, 2002).

Figure 12.1. Typical EIA Process



A study of EIA effectiveness at the global level by Sadler (1996) concluded that for EIA to be effective it has to: (i) meet international requirements and practice; (ii) provide decision-makers and project proponents with the environmental and social consequences of their actions and activities; and (iii) identify and evaluate alternative actions or activities and propose mitigation actions for activities which should be implemented to avoid irreversible loss or damage to the environment and society. Although approaches vary from country to country, the end result of the EIA process is to make provisions for the mandatory monitoring and implementation of those decisions. In effect, the EIA process establishes a baseline environmental analysis, as well as a transparent framework from which project environmental performance may be measured over the lifetime of the project.

To meet the requirements of a variety of situations and concerns, other types of assessments have emerged as specialised elements of the EIA process which are summarised in Table 12.1. One is the Strategic Environmental Assessment process or SEA. SEA considers the environmental and social impacts of policies, plans and programmes. It is considered to be a more encompassing tool which overcomes the limitations of the EIA process in meeting sustainable development goals at the macro or national level (Dalal-Clayton and Sadler, 2005).

This chapter provides an overview of EIA in small island states, and examines how its implementation can contribute to mainstreaming sustainable development and bringing

Table 12.1. Specialised elements of the EIA method

Assessment types
Climate Impact Assessment
Demographic Impact Assessment
Development Impact Assessment
Ecological Impact Assessment
Economic and Fiscal Impact Assessment (EFIA)
Environmental Health Impact Analysis (EHIA)
Health Impact Assessment (HIA)
Disaster Risk Assessment
Risk Assessment
Social Impact Assessment
Technology Assessment
Sustainability Impact Assessment (of trade measures)

about better environmental policies and governance. Various elements of the EIA process are analysed within the context of several examples from small island states in the Pacific (Fiji, Papua New Guinea), Indian Ocean (Mauritius, Seychelles) and the Caribbean (Jamaica).

The international and regional context of Environmental Impact Assessment

Developed in the US in the early 1970s, and adopted internationally in a number of non-binding agreements, the EIA process is now a legally binding requirement in more than 100 countries (Donnelly et al., 1998). The EIA is the subject of a specific international convention – the Convention on Environment Impact Assessment in a Transboundary Context. In its preamble the Convention, also known as *Espoo 1991 EIA Convention*, states that it is:

> Aware of the relationship between economic activities and their environmental consequences;
>
> Affirms the need to ensure environmentally sound and sustainable development.

Schrage (1999) provides an in-depth discussion on the transboundary implications of the EIA process and the national requirements to minimise environmental impacts beyond national borders. This is the first multilateral treaty that specifies the procedural rights, the duties of parties and the procedures which are today standard components of national EIA legislation.

Early consideration of the EIA process and sustainable development can be found in Principles 17 and 19 of the 1992 Rio Declaration on Environment and Development.

> Principle 17: Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

> Principle 19: States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith.

Agenda 21, in particular Chapter 8, which calls for the integration of environment and development in decision-making, promotes the use of EIA and other tools for sustainable development.

The Barbados Programme of Action (BPOA) makes explicit reference to EIA in the following articles:

> 34. A. (vii) Increase attention to national physical planning in both urban and rural environments, focusing on training to strengthen physical planning offices, including the use of environmental impact assessments and other decision-making tools.
>
> 40. A. (ii) ... requiring environmental impact assessments for all tourism projects ...;
>
> 49. A. (vi) ... including specific legislation for appropriate environmental impact assessment for both public and private sector development.

Other texts in the BPOA refer to the training, legal and institutional needs of Small Island States to implement EIA at the national and regional levels. The Mauritius Statement (arising from the 2005 Mauritius International Meeting of the Small island States) emphasises certain specific aspects of EIA and introduces the concept of the social impact assessment;

> VI.38 ... These strategies should include environmental impact assessments and identify the necessary policy changes and capacity-building needs within the framework of the three pillars of sustainable development ...
>
> VI.45 (d) The evaluation of mineral sector projects, including using environmental and social impact assessment to identify opportunities and risks and ensuring compliance with mitigatory and ameliorative measures where impacts are negative, as well as dealing with mining tenement issues and raising land 'owner' awareness and participation.

The scope and need for the EIA process in small island states is thus clearly reflected in international instruments and is well established as an international framework for addressing environmental issues. For example in the International Court of Justice (ICJ) case of *New Zealand vs France* (Elworthy & Holder, 1995) the ICJ ruled that 'it is unlawful for France to conduct such nuclear tests (on the Atolls of Mururoa and Fangataufa) before it has undertaken an Environment Impact Assessment according to acceptable international standards ...'. This ruling may have well set the precedent for strengthening the EIA process in international law.

A number of international agencies have also galvanised the development and implementation of EIAs as a project development tool. Since 1974, the Organisation for Economic Co-operation and Development (OECD) has been urging member states to adopt EIA legis-

lation and has tied such measures with the granting of aid (Wathern, 1988). The European Union (EIA Directive 85/3337/EEC and subsequent amendments) requires the European Community to subject certain development projects to an environmental impact assessment as part of the planning permission process. Consequently, all overseas territories of the European Union, which are mostly islands, are also subject to this directive. The EU, in some cases, has mandated the need for EIAs for projects under its agreement within the African-Caribbean-Pacific (ACP) group of countries

In 1989, the World Bank also introduced measures for EIA (World Bank, 1991), and EIA is now one of the ten Environmental and social Safeguard Policies of the Bank (World Bank, 1999). The Asian Development Bank, which also provides development loans and assistance to a number of SIDS (e.g. Maldives, Cook islands, Fiji, Kiribati, Micronesia, Palau, Samoa and Tuvalu) adopted its environmental policy in 2002, and published detailed guidelines for EIA in project development (ADB, 2003). For example in Samoa, ADB has funded a number of integrated water and sanitation projects which required EIAs (Samoa, 2003). The Caribbean Development Bank (CDB), which provide loans to and implements projects in a number of Caribbean SIDS (e.g., Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Haiti, Jamaica, St Kitts and Nevis, St Lucia, and Trinidad and Tobago), adopted an environment policy in 1993 which was followed by environment guidelines in 1995 (CDB, 1995). The CDB's environment guidelines provide for environmental assessment requirements throughout the project cycle, including environmental screening and classification categories and associated illustrative lists of projects and sample formats for environmental screening memorandum, initial environmental evaluation, environmental impact assessment summaries and environmental audit reports. The UNEP Regional Seas Programme, which includes island states from the Caribbean (Cartagena Convention), the Indian Ocean (Nairobi Convention) and the Pacific (Apia Convention) includes general language on environmental impact assessment.

At the global and regional levels, especially where project and investment funding is concerned, it seems that the EIA process is well defined in bilateral and development bank policies. However, it is not clear whether such EIAs play a definitive role in project decision-making and whether monitoring of EIA implementation is undertaken during and after project implementation.

Many SIDS are party to a number of global multilateral environment agreements which specify approaches to EIA. For example article 14 of the Convention on Biological Diversity entitled 'Impact Assessment and Minimizing Adverse Impacts' calls each party to introduce procedures for EIAs and implement SEA for programmes and policies (CBD, 1992).

Article 206 of the United Nations Convention on the Law of the Sea (UNCLOS, 1982) also states that 'when States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments in the manner provided in Article 205'.

Legal and institutional context of EIA in SIDS

Prior to the development of EIA legislation in SIDS, environmental considerations were limited to planning issues such as wastewater management, drainage, development density, noise control, landscaping and building codes. In some SIDS, such as Seychelles, these requirements were prescribed into Town and Country Planning legislation but lacked specific environmental considerations such as integrated coastal management and development within sensitive areas. In addition, many physical development plans, such as the first Barbados Physical Development Plan of 1970, focused on orderly development of land with little reference to environmental issues and was executed without proper public consultations (Barbados National Report, 2004). However, it was soon recognised that in order to develop in a sustainable way, environmental and social concerns had to be integrated. Consequently, the government of Barbados established, in the early 1980s, institutions responsible for the environment and conservation and developed appropriate legislation to address those issues.

A survey of the regulatory framework for EIA in SIDS revealed that the majority have a national framework for EIA (see Table 12.2). For example in the Cook Islands the EIA legal framework is embedded in the Environment Act of 2003, whereas in Seychelles, the EIA framework is established under the 1996 Environment Protection Act (Payet, 2003). Tonga enacted a specific Environment Impact Assessment Act of 2003 and in Comoros the provisions for EIA are enshrined in a Presidential decree (Comoros National Report, 2004). Singapore has no legislation for EIA and EIA are prescribed at the discretion of the Ministry of the Environment (Tan, 1998).

The survey also revealed that the EIA legislative frameworks indicated in Table 12.2 had the basic requirements for EIA best-practice, as recommended by Sadler (1996). However, there were significant challenges in their implementation and limitations in meeting sustainable development goals. In general, these laws prescribe the requirements for the EIA, the criteria for projects requiring EIA (for the screening process), the EIA process including the stakeholder consultation components, as well as provisions for administering the EIA process.

In principle, EIAs should be applied to those projects that are likely to have significant effects on the environment (Wathern, 1998). However, in the context of small islands, entire islands are deemed sensitive to the environment. Consequently various approaches to screening projects have emerged, which differ from those used in larger countries. In Seychelles, the EIA screening process is first subjected to two classes of EIA, an EIA Class I which is a complete typical EIA and an EIA Class II which is rapid assessment-based EIA for very small projects such as individual houses (Payet, 2003). An EIA Class II is prescribed in situations where a small development project is located on the coastal plateau, hilly slopes and close to sensitive habitats.

Typically, the next level of screening is the listing of a number of activities that would be subject to an EIA. In Mauritius, for example, the list consists of over 50 activities ranging from manufacturing to hotel developments. Further, screening criteria entails specification of the magnitude of the activity and its resulting impact. Jamaica specifies that EIAs

are required for housing projects of 10 houses or more, office complexes above 5,000 m^2 and hotel complexes of more than 12 rooms (Reeson, 2000). Other screening criteria, as is the case in Seychelles, include developments within or close to sensitive areas such as beach dunes, wetlands and forests, historical sites, water catchments and natural risk areas (Payet, 2003).

An interesting approach used in Fiji requires that developers subscribe to a 'user pays' system involving the payment of an environment bond for mitigation purposes for mining projects (McLeod, 2000). This is a widely accepted approach in many developed countries which implement the 'polluter pays principle' which allows the Government to rehabilitate an area if a project is abandoned. It is also seen as an incentive for industry to take appropriate mitigation measures during the lifetime of their operations. Since 1998, all exploration tenements in Fiji have been subject to a bond level of 20 per cent of the exploration budget.

In many SIDS the regulatory authority for implementation of the EIA legislation is the government agency responsible for environment, although there are notable exceptions. In Barbados, the EIA legislation is administered by the Town and Country Planning Office, which is responsible for co-ordinating the EIA process as well as the planning and development aspects of the project (Anon._ 2000). In the case of Seychelles, government strives to enable trade-offs by separating the development and environment decision-making. In the case of non-agreement between the two authorities, the matter is referred to the Cabinet of Ministers for a final decision (Payet, 2003). Jamaica went as far as modifying its Town and Country Planning Act so that no approval can be granted for any development without being approved by the environment agency (Reeson, 2000). One advantage is that developers have to satisfy the environmental authorities before submitting their planning applications to the development authority. This enables the consideration of the project from an environmental perspective before determining its planning implications. The disadvantage is that the process can sometimes exceed six months. A similar situation arose in Trinidad and Tobago, where foreign investors complained about the perceived lack of delineation of authority for final investment approvals between the various agencies. In response, the authorities introduced the Certificate of Environmental Clearance Rules in 2001 and placed all environment approvals under one authority, the Environment Management Authority (Trinidad & Tobago National Report, 2004).

One of the more critical components in the EIA process is scoping (Bowers Marriott, 1997). The scoping process enables the EIA to focus on the most significant impacts that may arise as a result of the project and involves the public to ensure that issues important to the public are also considered in the EIA. However, only a handful of EIA laws in SIDS (e.g. the Federated States of Micronesia Environment Protection Act of 2001) make any explicit mention of scoping. Morgan (1999) argues that such failure to incorporate the scoping phase in the legislation leads to various interpretations and standards for the scoping process, and can result in voluminous but poorly focused impact assessment documents. A summary of the problems in EIA caused by poor scoping and vice versa is explored in detail in Morgan (1999).

Table 12.2. Summary of EIA structure in SIDS

SIDS	EIA legal provision (Year)	EIA consultative process	Main sector
Bahrain	✔ Bahrain Environmental Code of Conduct		Industrial
Fiji	✔ (2007) Environment Management (EIA) Regulations	✔	Tourism
Samoa	✔ (1998) Lands, Surveys and Environment (EIA) Regulations	✔	Tourism
Seychelles	✔ (1996) Environment Impact Assessment Regulations	✔	Tourism
Mauritius	✔ (1993) Environment Protection Act	✔	Tourism
Cook Islands	✔ (2003) Environment Act	✔	Tourism
Comoros	✔ Presidential Decree		
Tonga	✔ (2003) Environment Impact Assessment Act	✔	Land use changes
Antigua & Barbuda	✔		
Papua New Guinea	✔	✔	Mining
Jamaica	✔ (1991) Natural Resources Conservation Authority	✔	Tourism and land use changes
Trinidad & Tobago	✔ (2001) Certificate of Environmental Clearance		
Dominica			Tourism
Palau	✔ Environment Quality Protection Board Regulations		Tourism
Barbados	✔	✔	Tourism
St Lucia	✔ (2001)	✔	Tourism
Solomon Islands	✔ (1998) The Environment Act	✔	

Source: National Reports on Progress on Barbados Plan of Action, retrieved from: www.sidsnet.org

In situations where the EIA mandate rests with the agency responsible for the environment, various institutional mechanisms are in place to ensure timely approval of EIA, including EIA Appraisal Committee (Seychelles); Interagency meetings (Barbados): EIA Committee (Tonga); or by the relevant technical unit, e.g. coastal zone, wildlife protection (Jamaica). In most cases, once the EIA review has been completed, recommendations are sent to the responsible government minister for a decision.

Public consultation is a necessary process in the implementation of EIA (Philip, 2001). The Cook Islands Environment Act of 2003 prescribes the manner in which the public are to be consulted with particular emphasis on accessibility of EIA information, availability of EIA information for review, and procedures for the receipt and processing of comments from the public. The Seychelles EIA regulations even prescribe the frequency of public advertisements for review of the EIA. To respond to comments from the public, the Seychelles authorities recently prescribed the hosting of public meetings at community level to present the project during the scoping process, and publicity on national television and a simplified version of the EIA to facilitate public review and comments. Similarly, in Guyana, public participation occurs at three key stages of the EIA process, namely the scoping, the preparation of the EIA, and the EIA review (Bynoe, 2006). The Belize Environment Impact Assessment (amendment) Regulations 2007 even includes a definition of public consultation:

> *Section 2:* 'Public Consultation for the purpose of this regulation means a two-way flow of information from the project proponents and the EIA team, to the general public and vice versa, with the objective of deliberating together, allowing the general public, especially local communities close to the project site, opportunities to express their opinions, advise or point of view, while simultaneously ensuring that the project proponents or the EIA team provide details and explanations of the proposed undertaking, project, program or activity for which an Environmental Impact Assessment is being prepared. This process should be open and accessible to the public.'

The Belize regulation and others (e.g. Federated States of Micronesia) also provide for a formal public hearing to enable the public to provide comments on the EIA. Despite these efforts the participation of the public is still limited and constrained by the technical nature of an EIA.

Sustainable development issues in the implementation of EIA in SIDS

Small island states face a number of challenges in the implementation of EIA. A review of SIDS National Reports to the Review of the BPOA provided sufficient evidence to show that EIA implementation in SIDS needs to be strengthened in terms of legal, institutional, capacity, monitoring and implementation requirements.

Policy and procedural issues

The public and investors for the most part perceive EIAs as an additional layer and cost in government bureaucracy (Payet, 2003). Awareness of the importance of the EIA as a means of facilitating planning, addressing potential hurdles and public issues, reducing project risk and ensuring that key local issues that are often not immediately evident to investors are addressed, establishes EIAs as end-products as well as processes which are key to achieving sustainable development. In many SIDS the screening process is still subject to the discretion of the government, with no clear guidance on which criteria will be used to select those projects to be subject to an EIA. This approach is to provide the government with an opportunity to consider all projects in light of their potential impacts. In some cases, certain government projects that would have normally required an EIA are exempt,

for example government housing projects. This naturally causes mistrust in the system and undermines the potential support required to establish a respected national EIA mechanism.

Samoa has adopted an integrated approach which incorporates land use planning, coastal zone management, tourism projects, energy and wastes, land degradation and proper management of eco-attractions into the EIA process (Samoa National Report, 2004). Such adaptations to the EIA process require an adequate institutional and research framework to ensure that the EIA process takes into account current scientific knowledge and the analytical requirements such an integrated assessment would entail. Increasingly, integrated assessments of climate change impacts are becoming a necessity for small island states and linkages to development are primordial. Thus, for lack of appropriate mechanisms, the EIA process is being extended to take into consideration broader sustainable development issues as well as emerging global crises such as climate change and the energy crisis. Tuvalu has initiated EIA procedures to encompass disaster risk reduction arising from severe extreme events and sea level rise, and uses EIA outcomes to influence policy and development on the coast (Tuvalu National Report, 2004). The need to integrate the EIA process into the social, economic and environmental plans and policies was seen as a priority in Antigua & Barbuda (National Report, 2004).

One often ignored step in the EIA process is the consideration of alternatives (Steinemann, 2001). This area of analysis requires a consideration of the cost-benefit of each option as well as significant impacts arising from the alternative. A review of Jamaica's EIA process conducted in 1997 revealed that analyses of alternatives are non-existent or weak (Reeson, 2000). Similarly in Mauritius, Ramjeawon & Beedassy (2004) are of the view that 'alternatives, including the option of "no development" are generally not addressed'.

The lack of baseline data due to lack of resources for sustained research and environmental monitoring seriously undermines the potential for the EIA process to contribute to sustainable development (Porter & Fittipaldi, 1998). In the same manner, analysis and publication of research when done is not easily achievable for many SIDS. Funding for basic climate, terrestrial and ocean observing systems, as well as monitoring and evaluation mechanisms for social development are not available or are fragmented (UNFCCC, 2007). In many instances there is little remote sensing coverage and access to the data, and there is insufficient quantitative and qualitative research capacity to analyse socio-economic dynamics in general and for social impact assessments in particular.

Capacity and institutional issues

There are serious capacity constraints in SIDS that affect the implementation of the EIA process. These capacity issues stem from a lack of technical experts to undertake EIA studies, engage stakeholders, conduct EIA reviews and generally to ensure the EIA is up to standard and meets the minimum international best-practice (Payet, 2003; Ramjeawon & Beedassy, 2004). For example, the capacity to handle various types of EIAs in Seychelles is seriously constrained by lack of staff in the Environment Department. Despite efforts to recruit, many move to the private sector for better remuneration. Furthermore, lack of in-house capacity affects the monitoring and auditing of the EIA process. Similarly preparation

of an EIA is often sub-standard and causes enormous delays in the planning approval process, as reports move back and forth between EIA consultants and reviewers. A quality assurance framework is lacking in all of the EIA cases evaluated in SIDS.

To address capacity weaknesses, the South Pacific Environment Programme (SPREP) has organised a number of EIA awareness and training programmes for the Pacific islands. Similarly in the Western Indian Ocean, the Global Environment Facility funded the Western Indian Ocean Land-based Sources of Pollution project and organised a series of EIA and SEA training at regional level. However, EIA also requires a certain amount of field experience, multidisciplinary skills and a good foundation in environmental science. In St Kitts and Nevis the problem is acute as the government finds it difficult to retain well-qualified and trained individuals in the environment management sector (St Kitts and Nevis National Report, 2004). A number of online resources are currently available (see page 223) which could be used to support capacity building at the local level.

Institutional issues are highlighted in the particular case of St Lucia where the responsibility for land management is currently overseen by a number of governmental, parastatals and even project-oriented setups (St Lucia National Report, 2004). Consequently, there is considerable overlap of responsibilities, lack of clarity in who implements which laws and EIAs are not routinely undertaken as part of development applications.

EIA implementation in practice

A lack of follow-up and monitoring of the implementation of the EIA management plan defeats the entire purpose of an EIA, which is meant to predict and mitigate the impacts of a particular activity. There are various approaches and methods for monitoring and auditing EIA (Bisset & Tomlinson, 1988), however implementation of these measures presents a challenge to government authorities in SIDS, especially when the number of ongoing projects outstrips available resources. Hence, the significant benefits and contributions to sustainable development arising from the continuous assessment of the impacts are not integrated within the overall EIA process (Shepherd, 1998). The EIA process in Jamaica includes the preparation of the management plan, which includes the mitigation actions and the monitoring programme. A regulatory and compliance unit is responsible in co-operation with local government authorities to monitor the implementation of the impact mitigation measures and compliance to the conditions of the planning approval. Reeson (2000) is of the view that monitoring the implementation of those mitigation measures and the planning conditions are poor. Ramjeawon & Beedassy (2004) and Turnbull (2002) identified similar weaknesses in the monitoring of mitigation measures in EIA implementation in Mauritius and Fiji, respectively.

The EIA process is also constrained by the nature of land ownership in small islands. In the Cook Islands, whilst the Land Use Act provides for land zoning, the land tenure system of the Cook Islands does not conform to zoning as land use rights lie with the individual landowning families (Cook Islands National Report, 2004).

Social Impact Assessment and Strategic Impact Assessment

Glasson (1999) argues that EIA should cover an assessment of the social, economic and environmental impacts of projects. This approach emphasises the integrated nature of development and the fact that social impacts cannot be treated in isolation of economic and environmental impacts or vice versa. However, in practice, both social and economic impact assessments are not adequately addressed in EIA due to the lack of sufficient expertise in the EIA team.

Social Impact Assessments (SIA) and Strategic Environment Assessments (SEA) are not legislated in the majority of SIDS. An SIA analyses the consequences of projects on human populations in terms of their livelihood, general well-being and societal needs, which includes cultural issues (Vanclay & Bronstein, 1995). In many SIDS, the social impact is considered part of the EIA process and thus the SIA becomes limited in scope and application.

On the other hand, the SEA is a relatively new concept in SIDS. The link between EIA and SEA is that the latter process can significantly streamline and strengthen the project EIA process and thus follow similar steps, including screening, scoping, impact assessment, and monitoring (Wood, 2003). This is especially significant in small islands where land allocation, habitat encroachment and natural resource constraints are very closely linked. One of the key constraints to the implementation of SEA in SIDS is capacity, which is further compounded by a lack of capacity to properly implement the existing EIA process.

However, there are numerous efforts aimed at introducing SEA in several SIDS. As part of a regional project to develop a regional environment strategy, the World Wide Fund for Nature (WWF) partnered with the Asian Development Bank to undertake an SEA of the Fiji Tourism Development Plan (Levett & McNally, 2003). The SEA was undertaken to determine whether the tourism development plan was sustainable through a consideration of the likely environmental and social impacts of the plan. The study concluded that (i) a precautionary approach should be adopted to tourism development and (ii) complete implementation of the EIA process is a prerequisite for the plan to be sustainable.

An important consideration which is often not adequately addressed in the EIA process is the cumulative impacts of the development as well as the carrying capacity or absorptive capacity of the surrounding environment or resource (Bonnell et al., 2000). The concept of environmental limits and thresholds needs to be further elaborated in EIAs, as these are important contributors to sustainability. The Precautionary Principle is considered best practice for establishing 'safety margins' based upon critical loads or environmental pressure so that ecosystem function and services can be maintained and even enhanced in the long-term. Managing uncertainty is also an important consideration in the implementation of EIA (Glasson, 1999). However, various tools have been developed to minimise uncertainty or address uncertainty within the EIA context (Wood, 2005).

Mitigation and compensation mechanisms

Prevention of environmental degradation and mechanisms to ensure restoration of degraded habitats, while enshrined in EIA documents, are ineffective without an adequate

auditing and compensation mechanism (Sadler, 1996). The application of the 'Polluter Pays Principle' is an important sustainable development concept rarely integrated within the EIA process. The bonding system in Fiji was given as an example where government requests the deposit of a bond in case of default by the company during project decommissioning. However, this approach only caters for the final remediation for the site, post-EIA process, rather than considering the management of impacts during the construction and operating phases of the development project. Therefore, to ensure sustainability the EIA process must adequately cover the temporal and spatial dimensions of impact assessment.

In Papua New Guinea (PNG), even where EIA procedures are in place, the impacts of ongoing mining projects are routinely observed. The dumping and disposal of chemicals and other mining wastes in the river systems causes further damage to communities downstream, an issue often not considered in EIAs. Consumption of contaminated fish downstream leads to health problems which can only be compensated if the community takes the company to court and provided they can prove a direct connection between the pollutant source and the impact on their health (PNG National Report). It is therefore critical that the EIA process should be able to address those issues in a proactive manner, at all times ensuring that the impacts, whether downstream or in the immediate locality, are minimised (World Bank, 2008). To make the company liable for those short-comings, post-EIA, the PNG government has established a Mining and Sustainable Development Programme and Mine Closure policies to reduce the negative impacts and at the same time enable contributions to the sustainable development of affected areas (Perkins, 2007). One such programme is the BHP Billiton's exit agreement which allocates two-thirds of the receipts of its dividends to a long-term fund for use after mine closure and one third towards supporting current sustainability projects such as poverty alleviation through microfinance, renewable energy, forestry and water projects. An independent company (PNG Sustainable Program Ltd, www.pngsdp.com) based in Singapore manages the funds within a low-risk investment framework. At the end of 2005, the PNG SDP had US$175.5 million in its Long Term Fund (for post-mine-closure activities) and US$81.8 million in its Development Fund (for pre-mine-closure).

A similar approach is being adopted in Seychelles to ensure that tourism development contributes to the restoration and conservation of the country's natural capital (Payet, 2006). The Alphonse Foundation, set up to manage Alphonse Atoll, is an independent organisation funded by the Alphonse Resort and Hotel to manage conservation on the Atoll. The Island Conservation Society, an NGO, has the management contract to ensure conservation activities contribute to sustainable development at the island level. Since the island has no permanent residents, the funds are used for conservation and restoration of habitats exclusively. In contrast to the case of PNG, the Alphonse Foundation is an outcome of the EIA process which prescribed that aside from the mitigating measures to be implemented during the construction of the hotel, there is a need for the development of a long-term financial mechanism to sustain conservation activities on the island. This model is now being adopted throughout Seychelles.

Communications and outreach for sustainable development

Agenda 21 and other sustainable development declarations emphasise education, communications and awareness (Chapter 28 of Agenda 21). It is therefore vital that the EIA process encourages the development of appropriate outreach and communication materials to engage stakeholders, the public and even school children in the process. Webler (1995) argues that successful public participation goes beyond just participation in decision-making; rather it should initiate social learning processes which translate unco-ordinated individual actions into collective actions and from individual interests into shared interests. Therefore, effective communication and outreach is fundamental to addressing the intra-generational and inter-generational dimensions of sustainable development.

However, the tools to do so are lacking in SIDS. For example, no educational kits for EIA awareness at school level in SIDS were observed, although guidelines for the public were available. The Bahamas, Mauritius, Seychelles and Malta have published publicly available EIA guidelines in hard copy and on the web (see page 223). These guidelines, which cover particular sectors such as tourism, industry, mining, fisheries and infrastructure development, provide the lay person with key information on the EIA process and what the common impacts and issues are. Seychelles organises periodic television and radio programs on the EIA process, and the recent decision to advertise and report on EIA public meetings on national television serves to increase national awareness of the EIA process. One observation is that journalists and bloggers tend to cover EIA processes for controversial projects purely as a news item rather than creating awareness on the EIA process.

One of the biggest challenges of the EIA process is the provision of a layman's version of the EIA findings, with sufficient information for informed comments and questions. To circumvent this problem some EIAs prepare a public summary and also present the findings through a public EIA hearing. The role of parliamentarians in the EIA process is equally important but often ignored by central government or consultants. Parliamentary debates on particular EIAs are often useful in providing input into the scoping process.

To be consistent with the principles of sustainability it is therefore vital that EIA processes in SIDS are transparent, provide adequate and timely information, and encourage participation, debate and access to justice in cases where public rights have been ignored by the development.

Conclusions

Despite the proliferation of environmental and development tools and their shortcomings, environment impact assessments (now implemented together with social impact and strategic impact assessments) have remained the only legally binding government instrument to require that projects and policies to be undertaken in the most sustainable way. Emerging issues such as climate change adaptation and the assessment of carbon footprints are now essential components of EIAs. In many small island states consideration of the impacts of climate change and risks to development and other forms of human intervention are becoming important considerations in environment impact assessments, despite the significant gaps that exist in the implementation of the EIA process.

SIDS face specific constraints in terms of their small spatial size and limited space available for development, limited human resource capacity, the sensitivity and interconnectedness of ecosystems and globally significant habitats. However, these characteristics provide an opportunity for the EIA process to influence in a major way national development trends and to balance development and environment concerns. Whilst some of the larger countries may have the luxury of setting aside large tracks of land for conservation, migration corridors and buffer zones, development in small islands generates direct and indirect impacts on the whole ecosystem and the communities. As a result, the development of the EIA policy and associated legal frameworks in SIDS should be enshrined in a continuously evolving process, with sustainability objectives driving the EIA process at all levels of society.

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Environment Impact Assessment Resources

EIA Online training and manuals

EIA Open Educational Resource http://eia.unu.edu/
The United Nations University, RMIT University, and the United Nations Environment Programme (UNEP) jointly developed this open educational resource on Environmental Impact Assessment (EIA). The University of the South Pacific is listed as a partner.

UNEP Environmental Impact Assessment Training Resource Manual, Second Edition
http://www.unep.ch/etu/etp/acts/manpols/index.htm

The UNEP Environmental Impact Assessment (EIA) Training Resource Manual, Second Edition, has been updated to reflect the developments in EIA law, process and practice that have occurred since the preliminary version was published in 1996.

University of West Indies, Mona, Jamaica
http://www.mona.uwi.edu/geoggeol/EMU/emumscpro.htm#eia

The University offers a resident MSc in Integrated Urban and Rural Environmental Management; several theses are on EIA implementation in SIDS.

EIA Country websites and online resources

Arctic Region – http://arcticcentre.ulapland.fi/aria/
Australia – http://www.environment.gov.au/epbc/assessments/index.html
Canada – http://www.acee-ceaa.gc.ca/
Espoo Convention – http://www.unece.org/env/eia/
European Community – http://europa.eu.int/comm/dg11/eia/home.htm
Malta – http://www.eia-malta.org
Mauritius – http://www.gov.mu/portal/site/menvsite/
Seychelles – http://www.env.gov.sc/html/eia_-_guidelines.html
Sweden – http://www-mkb.slu.se/engelsk/indexe.htm
US-EPA – http://www.epa.gov

International organisations and journals

IAIA: International Association for Impact Assessment – http://www.iaia.org/
Environment Impact Assessment Review – http:///www.elsevier.com
African Journal of Environmental Impact Assessment and Management – http://www.ajeam-ragee.org/