
Social impact assessment: a case study of a sewerage project in Barbados

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Abstract: The purpose of this paper is to investigate the reasons of social impacts of projects in developing countries despite of thorough impact assessment in appraisal phase of projects. A case study approach on a sewerage project in Barbados was undertaken using primary and secondary information. The study reveals that although the impact assessment report suggested appropriate mitigation measures, but they were not implemented by the contractors. The study suggests fostering an interconnected and symbiotic relationship between appraisal and implementation phases of a project in order to manage project environment. Additionally, a more vigilant and proactive supervisory role should be instituted and strengthened over time and adapted within the dictates of environmental needs.

Keywords: social impact assessment; Barbados; project appraisal and implementation.

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1 Introduction

The study described in this report was undertaken in light of the tension between the proponents and the affected people of the South Coast Sewerage Project in Barbados. This tension is related to the disruption of business and residential activity, diminished commercial revenue, redirection of traffic, dust and other construction disturbances. Contracts 2 and 4 of the sewerage project, because of their direct effect on the public, were the project components that had the greatest potential to provoke conflict, public resentment and animosity. The implementation of these two construction contracts (in particular Contract 2, which was poorly implemented by the contractor) resulted in substantial impacts on the travelling public, residents and commercial enterprises, and created negative public sentiment against the project as a whole. Contracts 2 and 4 were in stark contrast to the smooth implementation of Contracts 1 and 3, which were in areas where construction did not directly affect the public.

The aim of the study was to examine the role of social impact assessment as a contributor to the implementation of the South Coast Sewerage Project. The study involved:

- a review of the evaluation criteria found within the social impact assessment literature
- identification of the social impact assessment process used for the sewerage project
- an analysis of the significance of differences between the sewerage project's social impact assessment process and the procedures postulated in the literature.

The study was limited to the pre-operational phase of the sewerage project under the direction of the original construction contractor. It did not address the works currently being undertaken by the current construction contractor.

This report on the study begins with a general discussion of the process of social impact assessment/social appraisal, provides a description of the purpose and contractual components of the project under review, presents an analysis of how the social impact assessment procedure affected project activities and draws conclusions based upon the preceding information. Information was obtained from project documents, journals, books, the internet and interviews. Interviews were used rather than surveys because interviews facilitate a more relaxed, free-response environment, which can yield issues not anticipated during a survey instrument development process.

2 Social impact assessment models

The important link between the SIA methodology and the South Coast Sewerage Project's experiences can be introduced via several sources found in the literature. Taylor et al. (1995) states,

"We contend that all environmental alterations have social implications. This is not to say that the focus of every analysis will be social, but that all environmental outcomes should be looked at, in the final analysis, as being social."

SIA was defined (Bowles, 1981) as the systematic advance appraisal of impacts on the day-to-day quality of life of persons and communities when their environment is affected by development or policy change. Such a process facilitates the development of project alternatives and possible mitigation measures. Taylor et al. (1995) perceives SIA as a process for research, planning and management of change that can be applied readily to project design, appraisal and implementation. It has become firmly established internationally as part of the project development cycle, combining social analysis, social monitoring and public involvement and consultation. The aforementioned gentlemen propose that

"There are two special concerns in this process: can it be done sufficiently quickly to meet the requirements of the decision-makers and can the results be presented in a way that everyone involved can use?"

Projects often fail (Analoui, 1991) to achieve their objectives because of a lack of stakeholder interest and commitment, which results from a failure to incorporate stakeholders into the decision-making process from the beginning of project planning. Analoui suggests that participation assists in the formulation of sound and realistic plans, reduces resistance based on misapprehension, provides feedback on progress and helps to sustain support via closer involvement of relevant institutions and officials during implementation. Such a consensus process is said to require tremendous interpersonal skills as it involves presenting technical information in layman's terms and mitigating harmful political interference without antagonising influential politicians.

The public participation in SIA preparation is viewed in at least two ways. First, Derman and Whiteford (1986) define involvement as 'Direct involvement by people in the design and implementation of development projects'. Second, involvement is thought to be (Daneke, 1983) 'The measurement of local attitudes about projects and potential impacts'. The latter is more representative of the process that was used for the South Coast Sewerage Project. Unfortunately, the idea of 'empowering' communities, regardless of the intentions or the anticipated development consequences, is often received with scepticism or fear.

Armour (1990) holds the view that impact assessment yields the most significant benefits when it is

"...Fully integrated with planning at the appropriate jurisdiction level where project development occurs. When this integration is accomplished, environmental and socioeconomic factors become central to planning decisions, rather than being treated as external or peripheral to the planning process."

Armour maintains that such 'integration' necessitates a comprehensive understanding of both the nature of planning and how the evolution of SIA and its methodologies can mesh with modern planning models.

Burdge (1998) states that SIA assists a project to attain a higher success rate because the process provides an understanding of how an action is likely to interact with the socio-cultural environment of the host location, which affords the opportunity to create a more symbiotic relationship between the action and people. SIA seeks to minimise conflicts that could significantly diminish the financial, economic, developmental, institutional and other goals sought by a project. He believes, however, that Third World countries are somewhat lacking in the establishment and utilisation of legal and administrative frameworks that define the responsibilities of the various governmental departments within environmental and social assessment processes.

Research findings developed by Milbrath and Rickson (1989) (from a Taiwanese study) revealed that:

- the absence of the involvement of project-affected people in decision-making will probably lead to the perception that government (project proponent) is not concerned with their welfare
- if local opinion is not surveyed by the planning agency, the said agency cannot estimate what people are amenable to accept and support.

Burdge (1998) says that Social Impact Assessment (SIA) has become increasingly important because

"Attempts at modernisation in both First and Third World countries have altered the physical environment, created untold economic problems as well as disrupting the lives of countless millions of the world's population. When the developments were few and the numbers of people small, concern was less and the impacts on life-sustaining eco-systems were fewer. However, accelerated growth has brought the earth's resources and its people closer to sustainable limits. As a result, community leaders, policy makers, legislators and even the average citizen want to know the consequences and impacts of change prior to project approval."

3 Project description

The South Coast Sewerage Project is a subcomponent of the Solid Waste Management Program (which encapsulates physical, legislative and institutional strengthening initiatives and intervention) of the Government of Barbados. The implementation of the South Coast Sewerage Project commenced in 1995; however, the foundation for this work was the Environmental Impact Assessments conducted during the 1980s. These studies sought to identify the problems and solutions for solid waste management.

The South Coast Sewerage Project aims to capture all sewerage emanating from private and commercial entities in an area from Bay Street to Oistins reaching 1 mile inland. The aim of the project is to assist in protecting fragile coral reefs and to help sustain the fishing and tourism industries. Studies revealed that 70% of the South Coast's waste was captured in suck wells or septic tanks. Septic tanks are, however, prone to overflowing and the suck wells directly interact with the seawater because the South Coast's groundwater table is very high (five feet below the surface in some areas).

This interchange between groundwater, sewerage and seawater has the potential to cause major environmental and health problems. As an additional benefit, the project will seek to eliminate the spending of substantial funds on septic tank clearance by South Coast property owners.

One expected negative environmental effect is an increase in algae, which deprives reefs of oxygen (and life). The resulting reef devastation can prompt beach erosion that would inevitably affect (negatively) the tourism industry and the economy as a whole. Another effect is the destruction of seagrass beds, which have diminished the near-shore fish population. The high levels of bacteria present in the sewerage pose a health risk to persons bathing in the sea which has interacted with the sewerage.

The South Coast Sewerage Project also provides benefits to a predecessor project – the Bridgetown Sewerage Plant at Fontabelle in the parish of St Michael. In 1995, the Bridgetown plant was handling 25,000 gallons a day, as contrasted with its design capacity of 5,000 gallons. This situation has resulted in septic trucks being turned away from the plant; a consequence that has made some environmentalists fearful that the contents of some of these ‘rejected trucks’ found their way into the sea. Stephen Lindo, the engineer in charge of the Waste Water Division of the Barbados Water Authority in 1995, stated that with the development of the South and West Coast Sewerage Projects, there would be considerably less pressure on the Bridgetown plant.

The US\$ 73.1 million South Coast Sewerage Project, which is being jointly financed by the Inter-American Development Bank (IDB), the European Investment Bank and the Government of Barbados, comprises four major contracts. These contracts are:

- *Contract 1: construction of a treatment plant.* This package is at Graeme Hall in Christ Church. It was completed in 1997, at a cost of US\$ 10 million.
- *Contract 2: placement of system components.* This contract, which in 2002 was underway, consists of about 40 kilometres of pipes under the street. It is being built for US\$ 22.1 million. The original contractor was relieved of its duties, because of certain discrepancies. The contract is now being undertaken by another company. This project’s components create a tremendous impact upon the public, via traffic diversions, dust, noise and inconvenience. The government, via the Project Execution Unit (PEU), generally responded to these problems in three ways:
 - the establishment of a ‘Traffic Committee’
 - the establishment of a ‘Utilities Coordination Committee’
 - the use of Micro tunnelling.
- *Contract 3: construction of a marine outfall.* This contract, which was built near Needhams Point, was completed in November 1996 for approximately US\$ 6.5 million. There was some public concern over the effects that would be borne by the Carlisle Bay ecosystem because of this project component. The planned location, however, was prompted by a one-year island-wide study, which revealed that the currents in this area were not only the fastest but were 99% offshore in direction. Additionally, a substantially long outfall (1.1 kilometres) was used that contained diffusers to improve the dispersion process.

- *Contract 4: connection of system components.* There are two components of this particular phase:
 - installation of 40,000 water metres on an island-wide basis
 - connection of properties within the project area to the new sewerage system.

Such connections were delayed by the prior suspension of Contract 2. After problems were experienced by the Bridgetown Sewerage Project in relation to leaving connections up to customers, the PEU decided to carry out the connections themselves (via contract).

4 Social impact assessment of South Coast Sewerage Project

The benefits offered by the South Coast Sewerage Project, like any improvement, also have associated negative (social) ramifications. The Appraisal Report (Verella, 1992) commissioned by the Inter-American Development Bank highlighted several positive and negative social impacts related to the project.

The positive impacts: These benefits will accrue within the operational phase of the project. They are:

- reductions in the pollution risks to the groundwater (sheet water) in the South Coast area provided sewer service
- improvements in coastal water quality (primarily bacteriological and nutrient quality) because of decreased untreated sewage discharges, leading to decreases in the deterioration of near-shore coastal reefs, enhancement of South Coast fisheries and reductions in beach erosion
- improvements in tourism opportunities because of cleaner beaches and better coastal water quality and coral reefs.

The negative impacts: These impacts are primarily related to the construction phase of the project. They are:

- local decreases in air quality because of construction dusts and carbon monoxide emissions from construction vehicles
- local increases in noise
- some terrestrial and aquatic disturbances in the Graeme Hall area because of construction of the sewage treatment plant
- local increases in the turbidity of coastal waters and resultant small impacts on coastal fisheries because of construction of the outfall line
- disruptions in South Coast area traffic, particularly along Highway 7 (this disruption and the associated traffic diversions bore a significant impact upon businesses such as restaurants and gas stations, which are heavily dependent upon through flow traffic for patronage)
- short-term disruption in some South Coast tourism.

5 Planned mitigation measures

Verella's (1992) Construction Impact Analysis recognised that project construction would cause serious nuisances to the tourism industry and to public transport whilst at the same time the cost of full utilisation of the no-dig approach was too financially burdensome; thus, he proposed the development of construction mitigation measures and a traffic management plan. Verella (1992) suggested,

"Because the South Coast Sewerage Project involves different government agencies and covers a broad range of responsibilities (environment, health, traffic, water and land use, utilities, tourism ...) coordination among government agencies is crucial and the Government of Barbados has also to take fully into account the views of affected people and local non-governmental organisations (NGOs). This coordination could be best achieved through interagency meetings. The objective is to ensure that mitigation measures have been recognized early in the construction process, and well defined through proper planning and decision making."

This appraisal suggested that

"A new image of planning, based on public participation and development of consensus and focusing on the amelioration of project impacts, begins to replace the centralized style of planning. So, the government has to take the views of affected groups and local NGOs and the Procedures for Classifying and Evaluating Environmental Impacts of Bank Operations require that local populations affected by a proposed project and concerned non-governmental organisations be consulted at various points in the environmental assessment process. The purpose of these consultations is to obtain local viewpoints and perceptions of local physical environmental conditions that a project may cause through its impacts on the environment. It is important that these communities be involved in the process."

The Construction Impact Analysis identified stakeholders such as media representatives, businesspersons (e.g., hoteliers, restaurateurs, car rental companies), cooperatives and unions in public transport, and special interest groups like the Caribbean Conservation Association, Barbados National Trust and Barbados Environmental Association. Stakeholder meetings were promoted as being crucial to developing confidence in a decision-making process and permitting full opportunity for community comment at the planning and design stages of the mitigation plan and traffic diversion programme. Verella (1992) stated,

"Even if the project induces some non-pre-visible negative effects, citizen participation distributes the risks. Properly conducted, such public meetings help to lay a foundation of openness, agreement and trust for all the deliberations that follow."

Verella said that to develop an effective mitigation management plan it would be necessary to have:

- a clear and concise definition of what should be a mitigation plan
- interagency coordination that crosses sectoral boundaries
- a mechanism to resolve disagreements between the different agencies involved, the contractor and the engineer
- the capacity to monitor the mitigation measures.

Verella (1992) indicated that by drawing attention to impact issues in advance of project execution, it is possible to avoid some of the implementation costs and delays associated with unanticipated problems. He said that the contractor also should assess and be concerned with the social ramifications of its work plan. In an interview with the Information Officer of the project, he stated that potential project-affected people should be informed that the project work must be done and that the contractor should begin, do the work and leave as quickly as possible. Benefits will inevitably occur, i.e., no more septic tank clearing and an improved eco-social landscape within the South Coast that will help sustain the vital tourism sector and have other benefits.

The project's Information Officer indicated that a Utilities Coordination Committee was established as a risk mitigation measure. This committee, which consists of members from the PEU, the contractor, consulting engineers and representatives from the utility companies (e.g., Barbados Light & Power Co. Ltd, Barbados Water Authority, National Petroleum Corporation and Cable and Wireless Bartel), was organised to coordinate the tunnelling activities of the contractor.

Another mitigation method is a Traffic Committee that includes the contractor, the consulting engineer, representatives from the PEU, Barbados Transport Board, Ministry of Public Works, Barbados Transport Co-op Society Limited, Barbados Hotel and Tourism Association, Sanitation Service Authority, Barbados Fire Service, Ambulance Service and the Royal Barbados Police Force. The purpose of the Traffic Committee is to convene before work commenced in any particular area, map the route that construction would take and determine diversions that are the least disruptive and that offer maximum accessibility to those living and working near the work.

Road closures or traffic diversions must conform to regulations established by the traffic Coordinating Committee; they must be deemed necessary; and it is preferred that diversions be as short as possible and through roads that have the needed capacity. Emergency access (or a lane) for ambulance, fire and police services is usually provided within areas of rerouted traffic. If such access cannot be provided, radio contact is used between such services and on-site project staff, to determine when emergency vehicles are en route and when to initiate accessibility measures, such as covering trenches with steel plates or clearing the roadway (before the arrival of emergency vehicles).

The location of the utility infrastructure (pipes, cables, etc.) is determined with the assistance of the utility company representatives that serve on the committee, so as to avoid accidental disruption during excavation. Teams from the National Petroleum Corporation and the Barbados Water Authority are always on site and on call to solve problems caused by the project's activities. These personnel are paid by the sewerage project. If the project work requires a temporary suspension of a utility service, the utility coordination committee facilitates the early notification of the public.

Such committees represented what the then Minister of Health described (in a 4th November 1994 sitting of the Barbados House of Assembly) as: 'A committee to conduct the widest possible consultation to minimise inconvenience and dislocation'. During the same sitting of the House, the former Prime Minister expressed his hope that the experience of the Bridgetown Sewerage Project would inform the operations of the South Coast project. He said that there would be a lot of public inconvenience involving noise pollution and traffic problems, and he hoped the project would be executed quickly and efficiently without substantial dislocation. In the authors' opinion, the comments made by the former Prime Minister exhibited the vital need for construction evaluations

of completed projects so they could become a guide for the planning, implementation and controlling of subsequent project initiatives.

Pedestrian access is provided to businesses in the areas undergoing open trenching. Residents are provided with alternate parking arrangements when their garages are rendered inaccessible. Local access is always accommodated.

The micro tunnelling approach (based on laser technology) used a six-kilometre area in which conventional open trench construction would cause long diversions of travel and extreme inconvenience, particularly to tourists. These locations are the most dense infrastructural, business and residential areas. Micro tunnelling creates a tunnel under the street and lays pipes via a process called 'pipe jacking'. Micro tunnelling costs US\$ 1 million per kilometre more than open trench construction. Because of the high cost, use of this mechanism is confined to areas very sensitive to disruption. The South Coast Sewerage Project represents the largest use of micro tunnelling technology within the Western Hemisphere and the first time this method has been used in the Caribbean.

Compulsory property acquisition has been necessary in areas where micro tunnelling shafts are built. The PEU tried to use locations within car parks and other open areas that do not deprive the owners of substantial use of their property. When construction is complete, the acquired areas will house manholes and will still be available for use by their prior owners. There is only a change in ownership and not land use. The rationale for purchasing the land (as opposed to perhaps leasing for the time of tunnelling) is that the government must have access to the shafts for maintenance. Land also was acquired for the five pumping/lift stations.

A compensation mechanism is provided for businesses that make substantiated claims for the payment of damages for financial losses resulting from construction activities. The PEU obtains legal and accounting advice before making a recommendation to the Cabinet of the Government of Barbados, which determines the amount of damages paid.

Concerning property damage, it was expected that some damage would be inevitable. The contractual arrangement with project contractors includes a provision that in states where damage occurs, the contractor must indemnify the property owner by repairing the damage. Photographs are taken prior to the commencement of work in an area, to have a baseline against which to compare property before and after damage occurs.

The Public Relations arm of the PEU was initiated in October 1996 to create a direct link to media houses and as a mechanism for disseminating information to the public. News features were secured via the print and electronic media, for example a programme named 'Eye on the Project'. An Information Centre is near the construction, as a readily available and identifiable source of project-related information. The Centre both initiates and responds to requests for information. Visitors have even inquired about the project at the Centre.

Lectures/presentations are conducted for students. Promotion of the positive social impacts of the project is accomplished by inviting schools to visit the project to gain a first hand glimpse of the activities. Students from tertiary institutions, such as the University of the West Indies and the Barbados Institute of Management and Productivity, have asked to be kept informed about the activities surrounding the sewerage project. Presentations have been delivered to social organisations such as the Rotary Club of Barbados (South) and the Lions. Information on the project has been produced and given out to hotels along the South Coast.

Public sentiment, wherever project work is to be conducted, has been akin to 'We support the Sewerage Project, we know what it is for, but can't you all go

somewhere else first'. His assertion shows that people accept the benefits but would rather not have the downside of construction impacts.

A series of national town hall meetings were held prior to beginning construction of the sewerage project. The project proponents spoke at length about the project, what the public could expect from the project and what the project would need from the relevant stakeholders in order to be effective. Such meeting presentations were confirmed by newspaper reports. For example, in the *The Sun* on 18 June 1994, the then Project Manager outlined the benefits of the project and stated "Even though there would be some disruption of traffic, it would be kept at a minimum because of a new system that would be employed".

Subsequent to beginning construction, there have been more focused meetings (termed 'strategic meetings' by the Information Officer) that specifically target the members of the district in which work is to begin. The rationale behind this targeted approach is not only to directly work with people affected by the project but because each area to undergo work can be faced with a different experience (in terms of work time, noise etc.). The experience varies because of unique determinants such as the geological make up (solid rock vs. sand vs. sediment), infrastructure composition etc.

A preliminary work plan is presented to attendees of the meeting, who are then free to state their concerns, needs, misgivings etc. These strategic meetings are held at least four weeks in advance of the initiation of construction (where possible), in order to facilitate any alterations needed to the preliminary work plan in response to the needs of the host community.

6 Inadequate implementation of mitigation measures by the original contractor

Operational stipulations within Contract 2 should have been guided by the recommendations that arose from the SIA that was commissioned by the Inter-American Development Bank (IDB). The Information Officer noted that it was necessary to have the full cooperation of the contractor in order to execute successfully the mitigation mechanisms. He concluded, however, that such cooperation was not forthcoming to the extent needed. This situation resulted in a negative reaction from the public and the perception that the negative social effects were not planned for and that the PEU was taking a reactionary approach to social issues.

The original contractor for the South Coast project was advised that construction workers were to be supervised by a site foreman who was to ensure that the workers did not disrupt or disrespect the persons on whose properties they worked or the general public. Unfortunately, this advice was not always appreciated. There even appeared to be disruptions along socio-economic lines. Persons in more affluent areas were treated better than those within lower socio-economic areas. The Information Officer believed that cultural and language barriers may have contributed to such situations. If that were the case, it raises questions about the effectiveness of the contractor pre-qualification process and its ability to ensure an adequate level of competence in pre-qualified bidders.

The Information Officer found that the original contractor failed to adequately notify the PEU of the contents of their operational work plans, their work schedules and where they were going to initiate different aspects of the project. Such lack of

communication/coordination made it very difficult for the PEU to forewarn adequately business/residential parties and the public of the impending inconveniences.

The major example of ineffective coordination occurred in the area of St Lawrence Gap. Here, a marl road that was built near the Graeme Hall Swamp infringed upon the properties of several persons. Widespread negative media coverage resulted from this incident, which was not known by the PEU. The Information Officer noted that the PEU bore the criticism for the poor performance and the resulting negative impacts. Situations such as this led to the negative perception of the project by the public and the affected communities and eventually lead to the termination of the services of the original contractor. The former Health Minister subsequently explained that the firm was dismissed because it was 'insensitive to the public affected by the work'.

The aforementioned issue is symptomatic of inadequate contractor professionalism and poor utilisation of the mitigation mechanisms specified by the SIA, in conjunction with the inadequate monitoring and controlling of the operations of the contractor by the PEU.

Such empirical evidence substantiates the postulation (Burdge 1999) that

"... Simply to discover irreversible effects is not enough, however, because we must attempt to implement programmes to avoid undesirable effects of the impacts. It is the planning agency or agencies that bear the responsibility for intervening in such matters."

Burge (1999) suggests that design should promote project flexibility to opportunities and threats, which in turn places greater demands on project management skills and supervision. Unfortunately, such circumstances may suggest some applicability of the view (Adhikari and Kirkpatrick, 1991) that

"A common failing of project analysis has been to emphasise financial and economic appraisal at the expense of managerial and institutional strengthening for project implementation. Many project failures are due not to production/technology, but to institutional weaknesses."

Some persons think that the contractor perceived the mitigation measures to be a cost burden, which diminished their bottom line, rather than as a means of ensuring smoother implementation via the avoidance of social tension and resistance. Perhaps they might have subscribed to the view (Corbett, 1985)

"Government planning in Third World settings often assumes that local people will adjust to new technology or policies, and the consideration of local customs, knowledge, and attitudes is irrelevant to the long-term economic success of projects and plans."

If such were the perception of the said contractor, it would be quite ironic because the company as a result of its inadequate use of mitigation measures was unable to earn the full contract fee that it was trying to maximise. Its equipment was seized by the Government of Barbados, with which it is currently undergoing arbitration, and the company's reputation could be tarnished to the point where it could find it very difficult to ever again be awarded work within the Caribbean. Who says that social issues do not really matter?

World Health Organisation officials maintain that the costs associated with conducting SIAs for major projects were significantly less than the remedial costs necessitated by unforeseen post-implementation impacts. Additionally, it is proposed by Burdge (1999) that

“Ignoring social impacts and not doing public involvement may be one reason why so many projects are subject to bad publicity which leads to lengthy and acrimonious litigation. This kind of public reaction is expensive in time and money for project proponents.”

The problems that occurred tend to suggest that the ‘lowest/least evaluated bidder’ criterion, upon which the awarding of contracts for works is typically based, is not necessarily synonymous with the least-cost bid. The winning firm that was ultimately dismissed presented the lowest bid of US\$ 22 million, which was significantly lower than the US\$ 32.6 million bid by an Argentine and Ecuadorian consortium, the US\$ 35.3 million by a British firm or the US\$ 36.5 million bid by a Portuguese firm.

The bid that presented the lowest price has produced considerable costs in terms of social problems, construction time overruns and costs associated with selecting a new contractor to take over for the original contractor, in addition to the burden of litigation. This contract, which was touted for completion within 30 months time (by September 1998), was still ongoing in 2001. The unsuccessful bids were all within the relatively small range of US\$ 32.6–US\$ 36.5 million, whereas the original contractor was US\$ 10.6 million less than its nearest rival. This difference should have raised concerns during the bid selection process.

Another concern of the affected parties was the uncertain duration construction. The inconvenience rendered by the project was generally seen as ‘the price of progress’, but the duration of construction-related inconveniences was of concern. Such uncertainty was compounded by newspapers reporting three different construction durations ranging from two to three-and-a-half years. None was achieved. In 2001, construction had been underway for six years. The newspapers also reported the number of properties to be connected as ranging from 3,000 to 3,500.

7 Social appraisal

Apart from the pre-construction social appraisal, the PEU, in conjunction with the Statistical Department and the Data Processing Unit, undertook a social study. The assessment sought to determine how the cost burden of the project could be borne by the beneficiaries. Unlike the Bridgetown Sewerage Project (developed in the 1970s and 80s), the South Coast Sewerage Project will result in 100% connection of the entities that fall within the area of development. The social appraisal also sought to determine the number of private properties (within the area served by project) that did not possess water-borne toilets and would thus need upgrading to maximise the benefits of the project. The PEU will use the study to make recommendations to the Government of Barbados for the reimbursement of some of the costs.

8 Conclusion

The consultative approach and the mitigation measures proposed by the Construction Impact Analysis within the project’s appraisal report appear to have been generally addressed by the PEU, as reflected in interviews with a member of the St Lawrence Gap Business Association, business and residential members of the affected areas and the Information Officer of the Sewerage Project. The extent to which parties affected by

the project played a proactive role within the planning process could be a point of debate (as people may always expect more than one can provide). The main problem that arose appears to have been the failure to adequately manage the contractor's implementation of the mitigation process.

The South Coast Sewerage Project indicates that a good appraisal process in conjunction with management and/or contractors that possess the necessary competence, motivation and personality are prerequisites for project success. Where either one exists without the other, failure will occur to some extent.

Additionally, from a psycho-management perspective, the consultation and cooperation (between project proponent and affected parties) engendered by the SIA process provided a sense of belonging, self-esteem and self-actualisation to people affected by the project. Theorists such as Maslow have said that such needs are fundamental to the development of the human psyche and this was substantiated for the South Coast Sewerage Project when several of the interviewees for this report expressed a desire for greater dialogue and awareness regarding their future interaction with project activities.

This finding can be demonstrated where it is suggested (Burdge and Vanclay, 1998) that often the greatest social impact of many projects or policies, particularly those planned for community benefit, is the stress that results from the uncertainty associated with it ... and being uncertain about the impacts that the project may have. Sometimes just experiencing a situation of rapid change is the cause of stress. By maximising community involvement in the Social Impact Assessment process, not just by consultation, but by directly involving locals in planning, uncertainty is reduced, the legitimacy of the Social Impact Assessment process and the development process is enhanced, the accuracy of the Social Impact Assessment is increased and the capacity for the Social Impact Assessment to include mitigation of impacts is maximised.

Because of problems experienced by the South Coast Sewerage Project, the PEU has rightly recognised the need to alleviate the situation by keeping abreast of any problems encountered by the project-affected parties (a Field Officer now facilitates this process). A more cooperative approach characterised by constant dialogue with the contractors (via the Consulting Engineers) regarding their work schedules, commitments etc., is now being used. The dissemination of information to the public and a public feedback mechanism also are being intensified. These changes can only augur well for the successful implementation of the project.

During a radio interview, the Information Officer of the PEU stated

"Once you're going to be having that close contact, there will always be some animosity. It will be difficult to do that type of work without crossing the paths or swords of some of the residents."

Such a statement may be partially true to the extent that it suggests that conflict is a part of life. SIA, however, provides project management with the opportunity to significantly reduce the conflict/tension that a project will inevitably generate if affected people are uninformed and uninvolved.

The above speculation is supported by the view of Taylor et al. (1995) that decisions of any social consequence will frequently involve some degree of conflict. Social assessment in general and public participation in particular can help to identify sources of conflict and opportunities for negotiation and mediation.

The vital importance of SIA to the South Coast Sewerage Project (similarly for other projects that take place within jurisdictions classified as part of the Third World) is exhibited by Burdge (1999) who noted that the costs of failures of impact assessment and mitigation implementation may be especially severe in Third World countries where they are borne by the public sector more often than the private. By projecting the distribution of costs and benefits of a project or policy, SIA has the potential of being a useful tool in ensuring social equity – given the political will and ability to act on the results of the SIA analysis.

An important lesson to be learned from the South Coast Sewerage Project can be summarised by noting that although SIA is recognised as important, it has yet to be integrated sufficiently in the Environmental Impact Assessment process. Integration into the institutionalised policy and decision-making process will depend upon a proven track record of making projects and policies better, as well as an understanding by policy makers as to what makes SIA important.

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