SOCIAL AND ENVIRONMENTAL IMPACT ASSESSMENT - THEORETICAL CONTRIBUTIONS

Nuno Moutinho* and Helena Mouta

School of Technology and Management, Polytechnic Institute of Bragança, Portugal

* Corresponding author: nmoutinho@ipb.pt, IPB, Campus de Santa Apolónia, Apartadao 1134, 5301-857 Bragança, Portugal

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ABSTRACT

When we have to make an investment decision, we have to consider social and environmental factors that can bring some doubts about the project. We analyse not only which social and environmental characteristics to assess, but also identify main risks and show how to mitigate them. In addition, we support the idea that both areas have to be analysed at the beginning of the project and that it has to be done at the time investors analyse other factors, in particular technical issues.

INTRODUCTION

In capital budgeting, the traditional approach only takes into consideration financial aspects, undervaluing any others that may influence project viability. However, basing an investment decision only on financial criteria may lead to inadequate decisions. Complex decision-making cannot be based solely on financial criteria.

The investment decision-making process is complex and goes beyond financial aspects. Financial techniques should only be used as a guide and other factors should be taken into account, since they may influence the analysis of uncertainty. Therefore, even if financial conditions are very favorable, neglecting additional qualitative information may cause serious problems. The difficulties inherent to the evaluation of these aspects are related to their intangible nature and to the difficulty in measuring them, making their analysis strongly subjective. Investment decisions should include subjective considerations, particularly when it is difficult to quantify the costs and benefits associated with projects. Non-financial evaluation techniques supply information about less tangible factors and are expected to be able to identify competitive advantages to a project that financial techniques cannot capture (Chen, 1995). This way, financial projections may be improved and made less risky when non-financial aspects are considered in project appraisal.

Lopes and Flavell (1998), Love et al. (2002) and Datta and Mukherjee (2001) show evidence that supports the importance of analysing non-financial aspects in Project appraisal. Apart from financial, commercial, strategic, technical, organizational and human aspects, those studies highlight the importance of the analysis of social and environmental aspects. In a survey of Portuguese companies, Moutinho and Lopes (2010) find evidence that 62,5% of companies analyse environmental aspects and 40,6% consider social aspects in project appraisal. In this study, 55,2% and 33,3% of companies consider environmental and social aspects either important or very important in Project analysis.

The problem that recently occured with the oil extraction by Brittish Petroleum (BP) in the Gulf of Mexico makes us question whether all the aspects that could affect that project were taken into account when it was first considered. The crude oil spill from an oil well at sea has very serious social and environmental consequences. The Economist (2010a) mentions that the possible source of the problem may be related to the fact that management compensation and workers' personal advancement is more dependent on cost cuts than technical efficiency. This oil spill at sea has high costs for the project and an extremely negative impact on the company. The 63 miles of coastline affected, with impacts on fishing and tourism activities, mean clean-up costs and damages of $ 20 billion and fines of up to $ 17 billion for BP. Beyond the environmental problems, many local inhabitants have lost their jobs (The Economist, 2010d). To perform the clean-up operations, the company was forced to seek financing at higher rates, since its credit rating was downgraded. Due to this problem, the company has suffered a strong loss of reputation, will have to answer criminally to justice and may face retaliation in the form of refusal to grant further licenses to extract oil in that area (TheEcocomist, 2010,c). The first authors report that BP's market value has decreased substantially as a consequence of this problem, more than two to three times the costs of reparing the damage, due to the uncertainty of the operation taking place. The Economist (2010b) mentions that the final cost of the huge oil spill remains unquantifiable and The Economist (2010c) considers that many of the consequences will last for a long time: "When the waters finally clear, though, there could be some interesting sharks swimming in them".

Have the heads of BP analysed the environmental and social consequences that could come from this project? Have they ever thought about the social and environmental aspects of the project or have they just

taken into consideration the commercial and financial profits they could obtain in the short-term, making the most of the increase in crude oil price?
This work intends to present the information that should be analysed in an investment project in two areas, environmental and social, with important impact on the project's success.
This paper is organized as follows. In section two and three, we review the existing literature on social and environmental issues, respectively. In both sections we analyse which social and environmental characteristics to analyse, we identify main risks and we propose ways to mitigate them. We also consider which is the best moment to analyse these two types of factors. Finally, we present our conclusions.

SOCIAL ANALYSIS

Framework

The US Department of Commerce (1994) defines social impact as the group of consequences for human population of any private or public action that alters the way people live, work, entertain themselves, relate to eachother, organize to meet their needs, and, generally, act as members of society. The term includes cultural impacts, envolving alterations of the norms, values and beliefs that guide the knowledge acquisition process.
In order to analyse social context, it is necessary not only to know the range of impacts, but also to understand the social dynamics and the social differentiation processes prevailing in the project's area. The evaluation of impacts in human environments should be performed through direct, aesthetic, physical, historic, cultural, economic, social and health effects. On the other hand, it is also necessary to analyse the effects of conditions and factors that determine the state and conditions of the quality of life, employment, health, housing, monetary wealth and life style of those affected by the activities. It is also important to know the reaction to the implementation of the project and the social impacts and alterations in context, in a way to establish the appropriate procedures for its management (Barendse e Visser, 1995).
Smith (1995) presents as a basic principle the absence of suffering in the communities as a resulto f the company's activities. In this way, the project must be adapted to the values and objectives of the community. The companies should take on their social responsibility by integrating social impacts and concerns into project planning and implementation. For Schoeffel (1995) the project should be conducted based on the local sociological reality, so as to motivate the population to do what is intended to the company's benefit. It is necessary to deal with these issues not only in the short term, but also in the long run, protecting a positive relationship with the community.
McPhail e Davy (1998) suggest the integration of social concerns into the project through the analysis of private, governmental, local community and non-governmental organizations (NGO) factors.
Concerning private factors, the adoption of a social and environmental policy may supply the basis for the management of social aspects. The principles that should be reflected in this policy include: mutual respect, local partnerships, community involvement, long-term commitment, enphasis on sustainability, and acknowledgement of the legitimacy of the various stakeholders' perspectives.
On the one hand, it is necessary to identify the stakeholders and aknowledge the legitimacy of their perspectives. The groups of society that will be affected must, then, be identified and the social impact of the project in the population evaluated (Lopes and Flavell, 1998), so as to develop benefits that preserve the local identity and ensure a good relationship with the various stakeholders (Juslén, 1995). On the other hand, it is necessary to collect information on the initial situation of the aspects that will be affected in order to allow an analysis of the impact of the project on those aspects, when implementing it (Lopes and Flavell, 1998). It may also be important to verify the consequences of similar projects, if they exist, to determine the probable effects of the project on that community. Instead, it is possible to analyse the experience of other projects in similar communities, in order to predict how the project affects the community (US Department of Commerce, 1994).
Finally, there should be a concern for the integration of the evaluation of social and environmental impacts (relating to natural resources and human activity), for both may affect local communities deeply. Social and environmental effects are closely related (Taylor et al., 1995; Smith, 1995). Juslén (1995) identifies landscape and cultural heritage, as well as soil, water, air, climate and natural diversity as environmental aspects that have na impacto n social evaluation.
The governmental factors presented by McPhail e Davy (1998) highlight the importance of local governments as defenders of the interests of the population and as entities that uphold the respect for social issues. On the one hand, the legal basis for the integration of social and environmental concerns into the project should be verified. Then, it is necessary to analyse the governmental demands, specified in legislation, related to political involvement in project planning. It is important also to clearly define the institutional responsibilities in managing the social and ecological aspects and the adequate development of the project's ability to deal with its "obligations" in terms of capability, expertise and financial resources. It mau also be interesting to study the government's strategic plan for granting concessions and identifying social and environmental constraints. This way, the government may wanr companies against investments in areas where social and environmental aspects may strongly contrain

the project's development. Of importance are also the institutional responsibilities between governments and the private sector for the support of social and community activities, namely in terms of housing, water and sanitation, education and training, healthcare, and infrastructures, such as roads and bridges.
The decision to invest should also consider the factors related to the civil society and NGO (McPhail and Davy, 1998). On the one hand, the possible development of partnerships of the civil society and NGO with governments and private entities should be analysed. On the other hand, it is also important to verify if the communities and the NGO recognize the legitimate role of governments in the decisions of strategic development in the best interests of the nation or region. Furthermore, it is important to analyse the attitude of the civil society and of the NGO in regard to the influence of companies in the government's social policies. Therefore, the limitations of companies to exercise social and political influence should be acknowledged, as well as their lack of authority to do it. It may also be relevant to analyse the structural development of the local community, verifying the legitimacy of the licenses of the NGO to work in the country, representing the population or groups of interest in the population. Finally, the company should understand the traditional role of NGO in the defense of social and/or environmental causes and their role as a partner in the development of long-term solutions.
The US Department of Commerce (1994) presents variable that may be influenced, positively or negatively, by the project, such as:

- Population characteristics: presents the population and the alterations that are expected to happen, ethnic and racial diversity, arrival and departure of temporary residents;
- Communities and institutional infrastructures: refers to the dimension, structure and organization level of local government. Also includes historical and present data on employment and industrial diversification, the size and level of activity of voluntary associations, religious organizations and groups of interest, and more importantly, how these institutions relate to one another;
- Social and political resources: refers to the distribution of authority and power, the identification of stakeholders and affected parties, as well as the leadership ability within the community or region;
- Individual and family alterations: factors that influence the daily life of individuals and families – includes attitudes, values, perceptions, family characteristics, work networks, friendship, risk perceptions, health and safety;
- Community resources: includes natural resources and use of land, availability of housing and community services such as healthcare, police, fire department, sanitation, historical, archaeological, and cultural resources.

The adequate management of these variables and social concerns is essential. In this analysis, there should be a balance between social, environmental, and economic considerations, allowing the combination of elements of social capital, environmental responsibility, and sustainable development.
Lopes and Flavell (1998) point out the most important social impacts: Job creation, health improvement and education programmes, building of housing, migration, expropriation, financial benefits, increase of monetary wealth of the population and construction of infrastructures to support the project; Evans (1987) adds the efficient use of resources; Juslén (1995) presents the level of pollution, psico-social impacts (e.g.: community cohesion), impact in state and private services, impact in mobility (transport, safety, obstacles) and self-esteem of participating citizens.
The social analysis should also be based on the evaluation of cultural factors. It is essential to know the cultural context to better understand differentiated management decisions. Cultural problems occur more frequently in international projects. The cultural factors involve the analysis of norms, values, beliefs, attitudes and traditions (Burdge, 2002), but also religious influence (Schoeffel, 1995), as well as the verification of the social conditions (ethnicity or race, family extent, predominantly rural population), econmic conditions (per capita income, real wages, formal and stable sector employment, imported and exported goods, growth of work force, unemployment) and political conditions (age of the nation, political history, power of private and public institutions, legislation, strong or weak political system) – Muriithi e Crawford (2003). Boyacigiller (1990) points out the dominat religion, the business language, form of government, economic development and levels of emigration as necessary for the adequate analysis of the project. Shenkar (2001) shows evidence that companies prefer to invest in culturally similar countries. The greater the cultural distance, the lower the performance tends to be, the higher the cost of information and the lower the control of operations.

Social Risk Factors

Lopes and Flavell (1998) refer that the existence of social opposition to the project, the existence of public surveys with results that are adverse to the interest of the project, the lack of understanding of local culture may imply the end of the project, cause alterations in its specifications, as well as delays and increase in costs.
To Juslén (1995) the evaluation of social impacts is due to: possible environmental impact; intense public pressure; and demand from authorities. The objective would be to make sure that all significant impacts, positive or negative, are included in the analysis, since the identification of social risks may lead to the postponement or abandom«nement of the project, or its implementation as a pilot, with the possibility to

implement when those social issues are overcome (Lopes and Flavell, 1998).

Minimization of Social Risk

The company should develop knowledge and abilities to manage social aspects. McPhail and Davy (1998) suggest the prevention of negative environmental and social impacts through preventive correctional measures as preferable to the resolution of impacts afterwards, in a climate of litigation and public opposition.

The development of the project together with the community may lead to the reduction of negative impacts, which improves the public acceptability of the project. The understanding of the affected community's past behavior, as well as the profound knowledge of the country and people is fundamental for the project's compatibility with the population's habits (Lopes e Flavell, 1998; US Department of Commerce, 1994).

As a way to avoid the community's opposition to the project, the companies show an interest in ensuring socially responsible behaviours (McPhail and Davy, 1998). A good public image of the project should be built for, in analyzing the conditions the project offers to the society, the most important thing is the sense of perception, from the community, of the advantages the project offers (Lopes and Flavell, 1998). However, it is essential to verify if the result of the project compensate the spending necessary to make it socially acceptable.

The stakeholders, as an important source of information, have a fundamental role in identifying social and environmental concerns, as well as in developing management strategies to increase the project's benefits while minimizing negative impacts (McPhail and Davy, 1998). The involvement of stakeholders may be done through information exchange, consultation, participation and joint decision-making. Public participation may allow the clarification of areas where there are conflicts and lead to the resolution of those conflicts (Rivers and Buchan, 1995).

The members of the community should be given the opportunity for a timely presentation of their proposals and perspectives, creating a dynamic and opinion interchange. The creation of population liaison committees – as a channel of information and discussion – is a viable solution in this dynamic to avoid suspicions, create motivation or ensure mutual cooperation (Lopes and Flavell, 1998). This way, the opinion of the stakeholders in the community works as an information input to the project (McPhail and Davy, 1998; Lopes and Flavell, 1998).

When implementing a project that goes against the community's interest, it is necessary to develop preferencial benefits to the affected communities, in order to capture their interest in the project. The local population should be granted priority access to these benefits and the placement of the project should be such that it maximizes these benefits. The projects may imply the construction of housing and other infrastructures such as roads, schools, hospitals, as well as job creation for the local population (Lopes and Flavell, 1998). When immigration is essential for a project, it is important to account for the interests of local populations (McPhail and Davy, 1998). On the other hand, a company should attribute fair compensation to the population for damages caused, present and future, based on local values and community traditions (Lopes and Flavell, 1998). The main stakeholders should be granted (directly and indirectly, in a fair and equitative manner) the distribution of income from the project. While for Lopes and Flavell (1998) the injection of money into the community constitutes na alternative, McPhail and Davy (1998) refer that compensations should not be monetary, but based on the improvement of the community's conditions so that all the members may benefit. The bigger the problems caused, the larger the compensation should be.

It is also necessary to investigate the possibility of directing a portion of the government's reward towards the development of local initiatives and to stimulate private investments in the community (McPhail and Davy, 1998). The project's promoter should complement the government's responsibilities, increasing the existing social choice. Smith (1995) adds that the companies should contribute to the resolution of matters with social impact, even if they are outside the scope of the project. The support of local activities allows the expansion of the good relationship with the local community throughout the lifespan of the project (Lopes and Flavell, 1998).

The advantages of these partnerships with the community, essential if the companies want to maintain the informal license to work, are related to the mobilization of resources (financial, skilss, among others), the improvement in the understanding of potential adversities and the transfer of knowledge and technologies (McPhail and Davy, 1998). Other partnerships may arise with local governments, NGO or financial international institutions in the preparation of social programmes to support sustainable development or promote sócio-economic development. On the other hand, Chase (2002) and Pradhan and Rawlings (2002) refer that it may be advantageous to implement the project, especially those with high social needs, in regions supported by the World Bank, since this institution would replace the company in taking social responsibilities.

To McPhail and Davy (1998) there should be a concern in dealing with effective conflict situations - the reduction of potential conflicts with the community can bring opportunities: easier access to future exploration concessions; lower costs resulting from (less) delays in the decision-making; improvement of the workers' quality of life. The companies and communities must develop ways to resolve differences without involving third parties, based on mutual trust and understanding.

However, when a solution is not possible, intermediaries should be used that are imparcial, respectable, independent and accepted by all parties involved.
To deal with social aspects, it is essential to maintain constant interaction between social teams and all others. Managers, on the other hand, must be trained and prepared to be watchful of social aspects and to deal with social problems (Lopes and Flavell, 1998). In developing a social and environmental policy, it is important to use qualified personnel, create understanding of these issues among technical, environmental and social specialists, as well as knowing and understanding the value of social and human capital (McPhail and Davy, 1998). Therefore, a project must be implemented with respect for economic and financial criteria, without exceeding the maximum acceptable level of damage determined by the cost-benefit ratio and by the social standards (Knudsen and Scandizzo, 2005).
The projects should be culturally accepted, otherwise they become impracticable. The managers should be trained about local culture and try to adapt the project without injuring susceptibilities or the social values of the local population. Sometimes, this means changing or eliminating aspects of the project that are considered inacceptable by the community (Lopes and Flavell, 1998). In this way, the project becomes compatible with the values and traditions of local society.
Note that the bigger the project, the higher the probability that its social impact is also high. For each step of the project, the potential impacts in each social variable identified must be evaluated and the problems should be analised through their constituent parts.

Evaluation of Social Aspects

Lopes and Flavell (1998) indicate that the evaluation of these factors should be concentrated in the early stages of the project. For Taylor et al. (1995) the description of the social impacts should be made since the beginning to allow the team to identify the critical points. However, apart from the information collected in the beginning, it is important that new information can be obtained at any time. A proactive attitube should be adopted in the study of negative social effects, before they occur, so that recomendations can be given to avoid them. Therefore, the evaluation of social impacts must be performed continually throughout the project, in different ways for each step (Juslén, 1995).
The social analysis should be performed, according to Lopes and Flavell (1998), together with the project's technical analysis so that it can be an input to the technical analysis. McPhail and Davy (1998) highlight the importance of evaluating this component together with the environmental analysis, due to possible (negative) impacts that these issues may have on local communities. Lopes and Flavell (1998) consider that, in order to increase the credibility of the analysis, the social evaluation must be made not only by internal specialists, but also by external, independent specialists. It is fundamental that the project manager also be involved in the analysis. A good relationship with the exterior social liaison group must also be sought out so that all the problems that are identified may be solved.

ENVIRONMENTAL ANALYSIS

Framework

Senécal et al. (1999) define the environmental impact analysis as the process of identifying, predicting, evaluating and minimizing the biophisical, social and other effects of the development proposals. They, therefore, present as the main goals: ensuring that environmental considerations are explicitly incorporated into the decision-making process; forecasting and avoiding, minimizing or compensating negative effects; protecting the productivity and capability of natural systems and ecological processes; promoting sustainable development; and optimizing the use of resources and opportunity management. To these, McGrath and Bond (1997) add the knowledge of the environmental benefits and costs of the project.
The environmental evaluation should contain the impacts on the environmental and ecologic contexts, as well as the impacts on the social, cultural, economic, political contexts, as well as in terms of health and life style, among others (Lawrence, 1997; Senécal et al., 1999). The environmental impacts may affect the quality of air, water, soil, fauna and flora, geology, ecosystem, landscape, historical monuments, tradition and health (Thérivel, 1997). Lopes and Flavell (1998) add safety as a factor to be considered in this analysis.
The projects should be viewed as a way to preserve, or at least not harm, the environment (Lopes and Flavell, 1998). Damania (2001) defends that investing in damage control may be lucrative, in that it may more than compensate in terms of cost savings in the future.
The environmental damage is closely related with social issues in the sense that the greater they are, the lower the well-being of the community tends to be, given that these damages affect the quality of the human environment (Dijkstra, 2003; US Department of Commerce, 1994). The environmental factors should be adequately incorporated into the investment decisions so that they are socially accepted, ensuring the companies' social responsibilities as their ultimate goal (Jiliberto, 2002; Tribe, 1996). All socially inacceptable potential environmental impacts are to be avoided.
According to Lopes and Flavell (1998) the analysis of environmental aspects is often determined by the need to respect the regulations on those environmental effects. To Tribe (1996), as well, the control and monitorization of environmental issues is, usually, the direct result of legislation. In fact, it is necessary to analyse the goal of state environmental policy in terms of: discouraging activities with undesirable green effects; encouraging the

modification of industrial activity with desirable green effects. The state intervention may happen through: grants, taxes, licenses and control mechanisms.
For Leu et al. (1996) the fundamental components of na effective environmental impact evaluation system should incorporate the following aspects: environmental policy, regulations and technical guidelines, environmental administrative support, clearly defined environmental impact evaluation procedures, state of the reports of environmental impact evaluation, monitoring and incentive to upholding the environmental impact valuation, effective practical implementation of the environmental impact evaluation, resource availability (human and phisical) to implement the environmental impact evaluation, implementation of strategic environmental impact evaluation and international interactions. When performing the environmental analysis, companies should consider the interests of the main stakeholders in the project and adopt green behaviours that do not harm the project (Buysse and Verbeke, 2003; Weston et al., 1997). On the other hand, it may also be relevant to define the environmental area of influence of the project, especially in case there are environmental impacts in a country (region) different than that where it is implemented (Mansouri and Youssef, 2000). Note that the attention dispensed to environmental aspects may vary from project to project, depending on the industry, duration (McGrath and Bond, 1997) and size (Tribe, 1996).

Environmental Risk Factors

Given the importance of preserving the environment, incurring in environmental damages may cause public discontent and social opposition to the project. Not following environmental legislation, if it exists, and the existence of public environmental surveys with results negative to the project may assume great relevance, if they cause delays and increased costs for the project. Not fulfilling environmental requirements may cause loss of image and reputation for the project. On the other hand, the existence of environmental legislation may influence the decision to implement the project (Lopes and Flavell, 1998; Nardini, 1997).
Tribe (1996) points to three groups of sources of environmental impact. The first refers to the impact on production due to the demand for input materials (renewable or non renewable), namely: the needs of energy, the level of pollution originated by the production and the use of local natural resources. The second refers to the impact on the use of product characteristics, such as: the pollution with the use of the product; the energy used; the production of waste materials; noise; and other types of pollution. The third refers to the impact at the end of the use of the product, verifying if the materials are recyclable.

Minimizing Environmental Risks

The objective of this analysis includes the minimization of the negative environmental impacts (Lopes and Flavell, 1998; Zaring, 1996), which necessarily means not ignoring them, even when legislation imposes nothing, adopting an open and consultive attitude and elaborating environmental impact studies.
As a way to improve the alignment of the company and its strategy with the growth of environmental concerns, and expectations of the stakeholders, the companies should voluntarily establish minimum standards for environmental requirements when there is no legislation, deepen the demands of environmental regulations, and lastly not lower the environmental demands to levels below minimum standards aiming at lowering costs (Buysse and Verbeke, 2003; Lopes and Flavell, 1998).
The pursuit of the goals of the project often means the existence of na adequate trade-off between environmental, financial and technical aspects. There should, thus, be a balance between the best possible technology, its cost, and the perceived environmental level (Lopes and Flavell, 1998). According to Damania (2001) and Gray and Shadbegian (1997) the environmental issue in companies often depends on the technology adopted – the better and more recent the technology, the less damages tend to be caused to the environment. The adoption of new techniques and a more efficient technology in environmental terms is influenced by environmental regulation, in that the increase in environmental restrictions leads to the increase in investments in "clean" technologies (Farzin and Kort, 2000; Gray and Shadbegian, 1997).
The adoption of a consultive perspective includes the participation of the public, as a way of not excluding those that may be affected. Therefore, social analysis techniques are used to mitigate the opposition based on environmental factors, such as: informing and listening to all those affected and interested through the creation of community liaison committees, compensation for damages caused, avoiding suspicions through the use of independent experts and making use of the knowledge of the local population (Lopes and Flavell, 1998).
It is important to try to satisfy the environmental expectations of all the stakeholders, although not all are equally important for the companies. Lopes and Flavell (1998) identify the local community and the NGO, such as Greenpeace and Friends of the Earth, as important groups of environmental pressure that can push companies to improve their environmental performance. Buysse and Verbeke (2003) add as main environmental stakeholders the clients and shareholders. In fact, many companies implement environmental activities due to the pressure from stakeholders (Gilley et al., 2000).
The most adequate process of environmental management must be based on flexibility and continuity, so as to allow na immediate response to any unforseen impact. A proactive project management also allows

companies to avoid the occurrence of potential negative environmental impacts and maximizes the global environmental performance (Morrison-Saunders, 1996).
Aiming at minimizing the negative environmental impacts Hart (1995, *cit. in* Buysse and Verbeke, 2003) developed a corporate environmental strategy based on five pillars: investment in the product and in the manufacturing process as a way to obtain green skills; investment in employees environmental knowledge; investment in organizational skills, measured by the involvement of functional áreas in environmental management; environmental management based on a written environmental plan and the elaboration of internal and external environmental reports; integration of environmental issues and participation of green managers in the strategic planning. Tribe (1996) adds the use of recycled material.
Within environmental analysis, it is also important to gather base data for the future comparison and monitoring, and it is often necessary to do some experimental work (Lopes and Flavell, 1998).
The environmental aspects should take relevance in the decision-making process, knowing that the risks will be minimal if the projects do not deviate from the Basic Principles established by the International Association for Impact Assessment: "***Purposive*** - the process should inform decision making and result in appropriate levels of environmental protection and community well-being; ***Rigorous*** - the process should apply "best practicable" science, employing methodologies and techniques appropriate to address the problems being investigated; ***Practical*** - the process should result in information and outputs which assist with problem solving and are acceptable to and able to be implemented by proponents; ***Relevant*** - the process should provide sufficient, reliable and usable information for development planning and decision making; ***Cost--effective*** - the process should achieve the objectives of EIA within the limits of available information, time, resources and methodology; ***Efficient*** - the process should impose the minimum cost burdens in terms of time and finance on proponents and participants consistent with meeting accepted requirements and objectives of EIA; ***Focused*** - the process should concentrate on significant environmental effects and key issues; i.e., the matters that need to be taken into account in making decisions; ***Adaptive*** - the process should be adjusted to the realities, issues and circumstances of the proposals under review without compromising the integrity of the process, and be iterative, incorporating lessons learned throughout the proposal's life cycle; ***Participative*** - the process should provide appropriate opportunities to inform and involve the interested and affected publics, and their inputs and concerns should be addressed explicitly in the documentation and decision making; ***Interdisciplinary*** - the process should ensure that the appropriate techniques and experts in the relevant bio-physical and socio-economic disciplines are employed, including use of traditional knowledge as relevant; ***Credible*** - the process should be carried out with professionalism, rigor, fairness, objectivity, impartiality and balance, and be subject to independent checks and verification; ***Integrated*** - the process should address the interrelationships of social, economic and biophysical aspects; ***Transparent*** - the process should have clear, easily understood requirements for EIA content; ensure public access to information; identify the factors that are to be taken into account in decision making; and acknowledge limitations and difficulties; ***Systematic*** - the process should result in full consideration of all relevant information on the affected environment, of proposed alternatives and their impacts, and of the measures necessary to monitor and investigate residual effects" (Senécal et al., 1999).

Environmental Impact Assessment

The analysis of environmental aspects should begin in the initial stages of the project's life cycle, so as to influence the development of the project in the following stages (Lopes and Flavell, 1998; Senécal et al., 1999; Tribe, 1996). Note that the environmental aspects should be reviewed through time. The assessment should be phased with the development of the project, so that the conclusions of a certain stage are taken into account in the definition of the work for the following stage (Lopes and Flavell, 1998).
The analysis of the environmental aspects should be carried out in coordination with the technical analysis of the project, so as to become an input to the technical alternatives (Lopes and Flavell, 1998; Zaring, 1996). To perform this assessment, na environmental coordinator should be designated in the initial stages that relates the environmental impact studies to the project manager, so that he can coordinate with all the other areas (Lopes and Flavell, 1998). To Buysse and Verbeke (2003) and Zaring (1996) a manager should also be in charge of the responsibilities for environmental management.
McGrath and Bond (1997) refer that the environmental assessment should be performed by experienced consultants. In fact, also Lopes and Flavell (1998) and Weston et al. (1997) indicate that, apart from the internal experts, it may be necessary to recruit local and international external experts with specific knowledge of the place or region. They may supply an independent opinion with the objective of better understanding the specific problems and needs of the area, without neglecting the existence of other functional areas.

CONCLUSIONS AND FURTHER RESEARCH

Given the limitations of the financial analysis in project appraisal - resulting of not incorporating qualitative, intangible and subjective aspects - it is to be expected that other factors, of non-financial nature, may affect the implementation and viability of investment projects.

As in the scope and objectives of International Conference on Project Economic Evaluation 2011 the "economic perspective of the project underlines the need to properly consider and include in the analysis the social and environmental dimensions of the projects".

WBCSD (2005, p.5-6) refers that the assessment of impacts on social and environmental systems "requires a range of different approaches, methods and techniques. Direct impacts are relatively straightforward to identify, but the assessment of indirect and cumulative impacts is more complex and the determination of magnitude (size and extent of the impact) and significance (the importance for decision making) is difficult. Social impacts are often the most difficult to predict, due to the lack of a clear cause-effect relationship when working with human responses to change, meaningful baselines, etc. A good environmental social impact assessment process helps a company identify the critical social and environmental issues associated with a project, and ensure that positive impacts are optimized and negative impacts are minimized and mitigated. An effective environmental social impact assessment process can improve local community understanding of the whole project, increasing trust between the company and the local community, as well as increasing the sustainability of the project.

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