

Increasing IA effectiveness by green procurement

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Abstract

The aim of this paper is to contribute towards the knowledge of increasing environmental performance of the construction industry by focusing on strengthening the links between project planning and project implementation. The paper identifies the possibilities for and the challenges involved in developing an interlinked process for Environmental Impact Assessment and Green procurement. In order to enhance the environmental performance of the construction industry, demands have been raised to reduce the environmental impacts during all stages of planning and construction process. Application of green procurement is one way to take environmental issues into consideration. However, planning for green procurement at the stage of environmental impact assessment is still not evident in the construction sector. Since EIA is a legal requirement for almost all construction projects, the improved coordination between EIA and green procurement could strengthen the linkage between planning and construction phases. The possibilities and challenges for this coordination have been identified by focusing on the theory of integration of EIA with planning. The consideration of EIA as a planning tool and integrating principles of EIA within the design process of projects could provide space for the introduction of green procurement into EIA. Future research should focus on the analysis of the dimensions of institutionalization and the factors that influence the policy integration; link between activities and environmental aspects; and on developing a model for integrating EIA and green procurement.

Introduction

The construction sector is one of the industrial sectors that make a large contribution to the environmental load in society. According to UNEP (2003), the construction industry is responsible for half of the consumption of natural resources. The construction industry every year generates fifty percent of the global emissions of greenhouse gases and the agents of acid rain (CEPA, 2000). Increasing concerns on sustainability has led organizations to take different initiatives so as to address the environmental impacts caused by construction activities. As per Ofori (2000), these initiatives involve the introduction of environmental friendly construction materials and the development of complex assessment tools for materials, projects and buildings, by means of which the stringent demands of clients and agencies have been taken into consideration by designers and contractors. Green public procurement, described as a means for government agencies to incorporate environmental requirements in their purchases and procurements (Varnäs, et al., 2009) is one such initiative that has started gaining attention in the construction sector. As a government regulation, Environmental Impact Assessment (EIA) has been accepted by the construction industry in different countries to evaluate environmental impacts of construction projects. Two important standards, BS 7750 (in 1992) and ISO 14000 series (in 1996), were promulgated to guide the construction industry towards active Environmental Management Systems (EMS) for pollution abatement (Chen, et al., 2005). Although increased linking between Environmental Impact Assessment (EIA) and Environmental Management Systems (EMS) has been suggested and discussed to ensure that the commitments made in the environmental impact statement are translated into action in the project (c.f. Marshall, 2002; Varnäs, et al., 2009), the linkage between the project planning and construction phase has been problematical. The construction process is usually multi-tiered, involving several

stakeholders with varied objectives, which often leads to complications *when assuming direct responsibility for addressing environmental issues* (Ofori, 2000). Varnäs, et al.(2009) draw attention towards the use of green procurement as a facilitating agent for the link between EIA and EMS. They also indicate the need to understand the scope for improving the coordination between green procurement and EIA in order to initiate discussions on and planning for green procurement at the EIA stage itself. The aim of this paper is to contribute towards the knowledge of increasing environmental performance of the construction industry by focusing on strengthening the links between project planning and project implementation. An overview of the possibilities for and the challenges involved in improving the coordination between EIA and green procurement within the construction sector is provided. While elucidating the state of the art, issues within the implementation process of green procurement are identified and different views on effective green procurement are specified. Further, an attempt is made to propose directions for future research on the proactive role that EIA could play. This paper is based on an ongoing research project with (working) title "Improving the environmental performance of the construction sector through linking Environmental Impact Assessment and Green Procurement", which aims to design an interlinked process for EIA and green procurement.

The paper is based on a literature review on green public procurement, in general, and has identified issues from an international perspective. Additionally, various research reports developed by concerned authorities on green public procurement have been reviewed. Further, literatures on EIA and its integration with planning have been included in the review in order to understand the scope available for EIA to adopt a progressive role by contributing towards "sustainable patterns of development planning" (Jay, et al., 2007) and to identify the possibilities for integrating green procurement.

EIA, EMS and Green Procurement

EIA and its relation to EMS

EIA involves an analysis of the characteristics of the proposed development and of its environmental and social context in order to identify, predict and evaluate the likely significant environmental and socio-economic impacts arising from the development, to suggest alternatives and to propose mitigation measures.

EIA should ideally be an aid to choose the least disruptive alternative location and the best technological option, and to devise mitigation and management measures to reduce negative impacts and enhance benefits. Once a project has been approved, an EMS can facilitate in ensuring that the capacity exists to implement required environmental management, to optimise daily operations and thus abate harmful consequences and maximize benefits (Sánchez and Hacking, 2002). The concept of EMS has therefore been developed as an operational support tool with a procedural framework for monitoring processes against performance standards imposed by legislation.

Integration of EIA with environmental management is currently being endorsed by the United Nations Environment Programme as one of its general principles toward good practice of EIA. However, the extent of effective linkage of EIA and EMS, in practice, has been questioned. While EIA is a regulatory measure, EMS is a voluntary one often taken up much later and by a different team (Slinn, et al., 2006). The benefits of the EIA-EMS integration, as Sánchez and Hacking (2002) highlight, is that there would be no need to repeat the EIA effort of describing the affected environment and identifying impacts once it is decided to implement an EMS. They also specify that it would benefit project proponents, regulators and concerned stakeholders especially with the process of converting the management measures proposed in EIA to enforceable commitments. The obstacles that challenge the EIA-EMS integration include insufficient interaction between the EIA consultant and proponent project team, focus of public debate on approval and disapproval rather than on the technical details of project management and the tendency of the proponents to view EIA more as a bureaucratic process than as a useful planning tool (Sánchez and Hacking, 2002).

Green procurement

Green Procurement in the public sector is termed Green Public Procurement and defined as “the approach by which public authorities integrate environmental criteria into all stages of their procurement process, thus encouraging the spread of environmental technologies and the development of environmentally sound products, by seeking and choosing outcomes and solutions that have the least possible impact on the environment throughout their whole life-cycle” (Bouwer, et al., 2006). As regards the construction sector, environmental preferences have been observed in road construction and city tunnel projects (Faith-Ell, et al., 2006; Varnäs, et al., 2009). However, planning for green procurement at the stage of environmental impact assessment is still not evident in the construction sector. Varnäs, et al.(2009) show that a construction project in Sweden has identified environmental procurement preferences to be a form of linkage between EIA and the *follow up* of the environmental requirements and management of the environmental aspects (through contractors’ EMSs). While their study reveals that green procurement would be an aid to link EIA and EMS, it also points towards an inquiry for investigating the scope to enhance coordination between green procurement and EIA so as to initiate discussions on green procurement and thereby planning for environmental procurement preferences at the EIA stage itself. Since EIA is legally required for almost all major construction projects, this coordination could strengthen the linkage between planning and construction phases.

Finding ways to deal with missing linkages, current issues, current views on effective green procurement and impact assessment

Improving coordination between EIA and green procurement

We relate the possibilities of and challenges for linking EIA and green procurement to the integration of project planning and EIA. EIA, in its beginning years, required preparation of environmental impact statements that provided recommendation to decision makers as to whether a project was environmentally sound or not. This manner of conducting EIA, based on a passive model, tends to keep it isolated from direct involvement in the environmental design and management of projects. Nevertheless, for many years now, EIA has been evolving into a more active process, wherein measures and mitigatory design changes to reduce adverse environmental effects are developed. However, despite these achievements, there is a need to move beyond EIA as a standalone activity. The tendency to isolate planning/design activities from environmental assessment activities is a structural weakness observed in EIA procedures (McDonald and Brown, 1995). EIA has to be enabled in a way that it contributes to “more sustainable patterns of development planning” (Jay, et al., 2007). McDonald & Brown (1995) argue that EIA devoid of planning is absolutely insufficient in any case, be it industrial projects at the local level or big infrastructure projects at the regional level. They stress the need for the development of administrative systems that avoid marginalization of environmental expertise from the real planning process and endorse creative linkages between environmental aspects and project design. Richard & Frost (1988) view EIA as a planning tool available for ensuring the identification of all avenues of a project at the design phase. The integration of principles of EIA within the design and decision-making process of projects has been described as adaptive environmental impact assessment (Holling, 1978). This integration could provide space for the introduction of green procurement into EIA. The challenges foreseen in such integration involves issues of ineffectiveness and inefficiency with the current rigid practices of EIA rather than with the fundamental goals and concepts (McDonald and Brown, 1995); complexities in linking legal requirements directly to the integration; difficulties in deliberating between perspectives, as to what is norm and what is additional (Isaksson, et al., 2009) and lack of institutional framework (Keysar and Steinemann, 2002).

Issues within Green Public Procurement

As per the evidences collected by Smith, et al. (2005) during their study, the responsibility for operating green procurement has mainly been given to individual purchasers or procurers, leading to a large number of unmonitored purchasing decisions. Lam, et al.(2007) have found that the problems with existing specifications in construction are not just associated with variability in technical competence, but also with the ambiguous description of the responsibilities amongst the stakeholders and the infrequent use of reliable models. These issues have led to inconsistency of work quality in the construction process (Lam, et al., 2009). Faith-Ell (2005) shows that green procurement in Swedish road maintenance contracts is affected by inadequate transfer of information on environmental requirements between key actors and lack of a mechanism for the systematic follow up of requirements.

Towards effective Green Procurement and Impact Assessment

The study of Smith, et al. (2005) indicates that to make green procurement effective, it needs to be a whole-organization activity and linked to other current and developing agendas. Powell, et al. (2006) stress the need for the development of a holistic concept of sustainable procurement, which views it not as a separate objective, but rather from the perspective of a comprehensive approach to sustainability, addressing the key question on the appropriate role for sustainable procurement in a sustainable society and how policies need to be integrated at all scales to achieve it. Michelsen and Boer (2009) have noticed in their study that several researchers focus on the necessity of a close association between procurers and environmental experts. Li and Geiser (2005) recommend the integration of relevant policy instruments while specifying environmental requirements in purchasing contracts and further state that the influences of this synergy to the society and the environment would be larger than the sum of implementing each policy instrument separately. These arguments compliment the idea of coordinating green procurement with EIA, which would demonstrate the integration of policy instruments towards achieving effective green procurement and value-added impact assessment.

Way forward and directions for future research

While past studies have shown that green procurement can link EIA and EMS, the way forward has to focus on advancing the idea of integrating EIA and green procurement by identifying policy level strategies to merge planning, green procurement and EIA so as to derive the expected benefits. The future research has to be directed towards developing mechanisms for genuine integration and not "piggybacking on EIA" (Vanclay, 2004). Organizational, procedural and normative structures, which form the dimensions of institutionalization (Lenschow and Zito, 1998) and the factors, which influence the policy integration, under these three broad categories (Persson, 2004) have to be analyzed in future research. Research should also explore how these linkages could be designed together with various stakeholders and concerned authorities. At the fundamental level, research has to focus on establishing the link between activities and environmental aspects that Sánchez and Hacking (2002) identify and in so doing develop a model for integrating EIA and green procurement.

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