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DISCUSSION ON A FRAMEWORK FOR BEST PRACTICE ENVIRONMENTAL IMPACT TIME EFFECTIVENESS OF ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF COAL MINING

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ABSTRACT

The mineral resource exploitation plays an important role in China's economic development, but it also causes many environmental problems, especially ecological problem. In coal mining, in order to achieve sustainable use of these resources, we must pay special attention to eco-environmental protection. This article first briefly introduced the current status of environmental impact assessment (EIA) in China; it then discussed the time effectiveness of EIA through the analysis of its current status, using EIA and environmental protection check and acceptance in coal mining projects. The authors consider that one-time assessment of environmental impact on the coal projects and "three simultaneous" acceptance of the coal projects implemented in china currently is not reasonable. Long-term environmental impact cannot be clearly described in coal project whose production period is up to several decades. In addition, many environmental impacts in the current acceptance stage are not truly reflected; at last, the authors proposed that EIA and environmental protection check and acceptance of coal mining projects which belong to ecological projects should be carried out by stages.

INTRODUCTION

Environmental assessment (EA) is the assessment of the environmental consequences (positive negative) of a plan, policy, program, or actual projects prior to the decision to move forward with the proposed action. In this context, the term "environmental impact assessment" (EIA) is usually used when applied to actual projects by individuals or companies and the term "strategic environmental assessment" (SEA) applies to policies, plans and programmes most often proposed by organs of state.It is a tool of environmental management forming a part of project approval and decision-making. Environmental assessments may be governed by rules of administrative procedure regarding public participation and documentation of decision making, and may be subject to judicial review.

Since the MDGs were agreed, the poverty Goal (the first Goal listed above) has gained the highest profile and probably is the most influential in guiding development efforts. Sustainable poverty alleviation (eradication is even more ambitious) is currently attracting enormous expenditure in financial resources. The emphasis on poverty alleviation has created important initiatives such as Poverty Reduction Papers (supported by a range of agencies) and the Comprehensive Development Framework (World Bank). Most of this effort is aimed at enhancing economic development whose benefits will flow, it is expected, to the poorest sections in a country. There are three main challenges posed by the MDGs. First, it is necessary to ensure, to the extent possible, that actions to achieve one Goal do not compromise the ability to achieve any of the

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other Goals (it may be necessary to accept such an outcome, on a temporary basis, but efforts should be made to avoid it). This requires the ability not only to assess the outcome of the action on the Goal, but also the positive and negative impacts of the intended action on the ability to achieve any of the other Goals. Basically, it is an issue of ensuring the most cost-effective allocation of resources during the economic development of a country.

An example of this trend is in the World Bank, which has reaffirmed its commitment to both its safeguarding policies and to environmental mainstreaming through use of SEA for policies, programmes and other strategic-level interventions.5 The focus is on "environmental sustainability". It has taken a relatively cautious approach to expanding SEA beyond the existing use of Sectoral and Regional Environmental Assessments, by initiating a pilot programme of SEAs to learn from experience. Currently, the World Bank is reorganizing its environmental and social review of budgetary support lending (a variety of types exist and it is expected to be renamed "Development Support Lending"). The Board of Governors has decided that the Bank will examine the environmental and social implications of such lending at a level of detail proportional to the potential impacts. The procedures for mainstreaming will not be based on the existing safeguarding policy nexus. It is realized that these are too oriented to investment lending (projects) and cannot be easily transferred to budgetary support lending. The aim is to transfer the "spirit" of the safeguards, but not the specific procedural detail.

Generally, the development of surface and underground mines workings below the phreatic level changes the hydraulic gradient, and thus affects the surface water and groundwater flow configurations and regimes. Flow of water can be induced towards the mining excavation and thus requires pumping large quantity of water that creates extensive and prolonged cone of depression. Therefore, hydrogeological, environmental and economic effects require an appropriate water management strategy in order to reduce socio-economic impacts of mine dewatering. The mine water management involves the avoidance of high risk of inrush which invariably attracts high cost that can make the mining venture economically unviable. Thus, mine water management has difficulties derived from the physical environment, mining activity, technical, social-economic and political factors. Mine water drainage can modify the water balance in the region

Constituent	Range (mg/l)		Average concentration	No of samples
	Max	Min.		
Ca^{2+}	24.05	1.60	6.04	32
Mg^{2+}	158.08	6.08	31.94	32
$Na^{+} + K^{+}$	20.88	3.52	7.13	30
SO^{2-}_{4}	420.00	14.80	136.39	32
SO^{2-}_{3}	0.60	2.20	1.38	19
CT^{-}	17.37	1.99	4.86	32
$HCO_3 + CO^{2+}_{3}$	80.50	3.40	31.25	32
Free O_2	8.00	1.50	4.00	50
Free CO_2	230.00	4.00	51.68	30
Total Fe^{2+}	25.76	8.40	8.94	32
TDS	715.00	8.50	195.15	80

Summary of Hydrochemistry of Enugu Coal Mines

These ions are highly toxic to man, plants and aquatic life, and thus render the water unfit for human drinking and agriculture; and unusable for other domestic and industrial purposes. The acidity of the streams does not support plants and animal life living in the water and thus the re-establishment of this life will require several months (Hert, 1985). Due to high acidity of the soil nutrients, natural vegetation is scarce or absent where coal (mine) wastes deposit exist. Therefore, plant

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growth failures are usually associated with extreme acidity which characterised most coal (mine) wastes and which must be moderated before any pant nutrient balances or seeding method are attempted (Smith and Sobek, 1978).

Type	Example of each type
1. Passive participation	Consultant or extension worker appears in village and tells villagers that an irrigation scheme will be constructed to 'improve' crop yields.
2. Participation in information giving	Consultant or extension worker appears in village and asks for information about their crops, and about seasonal water flows. Records their answers and leaves.
3. Participation by consultation	Consultant or extension worker explains that crop yields need to be improved, and that the government intends to build an irrigation scheme. They seek the views and responses of villagers (for example, how they feel it might increase soil erosion), and then leave.
4. Functional participation	Consultants or extension workers inform villagers that they intend to construct an irrigation project. The consultants then facilitate the development of a village committee to discuss particular aspects of the project (such as minimising soil erosion, downstream impacts on fisheries; or to agree on arrangement for water management).
5. Interactive participation	Local villagers identify their own needs, and external facilitators work with them to assist in finding solutions to potential negative impacts - and improving positive effects. In some cases, new institutions will develop at the local level, which might then play a role in the management of their own project and its impacts. Villagers then have a real stake in maintaining structures or practices.
6. Self-Mobilization	Villagers plan and identify their own irrigation structures, perhaps learning from experience in a nearby village. They may develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used.

Typology of Participation in EIA (adapted from Adnan et al., 1992)

Effectiveness of EIA

In the mid-1990s, a major international review of the effectiveness of EIA was implemented (Sadler, 1996). This study was wide-ranging in its scope and comprehensive in the depth of its analysis and provides the most recent comparative information on the benefits of EIA, and also of its major weaknesses. The review showed that to date, no country has abandoned EIA, or weakened its EIA procedures. Indeed, any legal amendments that have been made have tended to strengthen these procedures and increase their scope and effectiveness. Thus, EIA has been "tried and tested" at the project level. The main advantages and benefits of EIA are:

• Improved project design/siting;

• More informed decision-making

• More environmentally sensitive decisions;

• increased accountability and transparency during the development process;

• Improved integration of projects into their environmental and social setting;

• Reduced environmental damage;

• More effective projects in terms of meeting their financial and/or socio-economic objectives; and

• A positive contribution towards achieving sustainability. Despite widespread agreement on these achievements, it is recognized that they do not occur uniformly or consistently in all countries or organizations.

EIA scope

• small-scale projects not included in most EIA systems although their cumulative impacts may be significant over time.

EIA application

• Difficulties in ensuring adequate and useful public involvement (or participation);

• Insufficient integration of EIA work at key decision points in relation to feasibility and similar studies in the project life-cycle; with some major decisions being made even before EIAs are completed;

• Lack of consistency in selection of developments requiring specific EIA studies;

• Weak procedures for obtaining early agreement on the scope of EIA studies;

• Inadequate understanding of the relative roles of baseline description and impact prediction;

• Poor integration of biophysical environmental impacts with social, economic and health effects;

• Production of EIA reports which are not easily understood by decision makers and the public because of their length and technical complexity;

• Lack of mechanisms to ensure that EIA reports are considered in decision-making;

• Weak linkages between EIA report recommendations on mitigation and monitoring and project implementation and operation; and

• Limited technical and managerial capacities in many countries to implement EIAs. Basically, some aspects of EIA application to physical development projects require general improvement. It is one of the intentions of this document to suggest ways to remedy these weaknesses and overcome these constraints.

CONCLUSION

Today since EIA have developed dramatically, it is an inevitable trend to further refine management, especially in coal mining projects where the ecological impacts are main impacts. Refinement from the perspective of environmental management makes us carry out overall process environmental management to the construction projects, and recognize problematic situations and to "know what to do". In addition, we can also adapt new environmental protection measures and put forward a new environmental protection requirement in light of EIA of different mining areas and new environmental protection technologies at different times, hence promoting the coordinated development of economy and environment and contributing to the creation of a harmonious society.

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