EIA implementation and follow up

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EIA implementation and follow up: a case study of Koga irrigation and watershed management project- Ethiopia

By:
W.B. Abebe**,** W.J.A.M. Douven, M.McCartney, J. Leentvaar

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Abstract
In Ethiopia, the importance of follow-up in the environmental impact assessment (EIA) process is clearly recognized. Follow-up involves the implementation of measures taken to mitigate the adverse environmental impacts of a project and monitoring to determine their effectiveness. This paper reports on a study of the follow-up of EIA-recommended mitigation measures in the Koga irrigation and watershed management project. The study found that the monitoring of impacts and the implementation of mitigation measures are currently very poor. Public participation in the project is also very limited. Hence, unless improvements are made it is likely the sustainability of the project may be severely compromised.

Keywords: EIA; Follow-up; Implementation; Environmental Management Plan; Flow assessment; Ethiopia; Koga project; Public participation.

1. INTRODUCTION

Environmental impact assessment (EIA) is a process which attempts to identify, predict and mitigate the ecological and social impacts of development proposals and activities. It also helps to assist decision-making and to attain sustainable development. The effectiveness of EIA depends on several factors, among which the quality of EIA guidelines, EIA reports and implementation and follow-up of EIA recommendations are of particular importance (Arebo, 2005).

The EIA process starts with identifying a development proposal with which problems to be imposed by the project are known or need to be examined. Then, screening of the proposal determines whether an EIA is necessary and at what level the assessment should occur. In the Ethiopian EIA guideline (EPA, 2000) three categories of development projects are defined:

- schedule 1 projects must carry out a full EIA and obtain agreement from the respective authority before proceeding;
- schedule 2 projects must undertake preliminary environmental assessment
- schedule 3 projects need no assessment

The scoping stage is the process of interaction which aims at identification of: boundaries of the EA studies, important issues of concern, significant effects and factors to be considered. The outcome of scoping is a scoping report or Terms of Reference (TOR) for undertaking a full scale EA. The next step of the EIA process is undertaking Environmental impact study. Environmental Impact Study Involves: impact prediction,

impact analysis, consideration of alternatives, preparation of management plan (mitigation, monitoring activities), and preparation of contingency plan. Finally, reviewing, decision making and implementation and follow-up will be followed.

Arebo (2005), from his study on EIA in Ethiopia, suggested that improving the EIA guidelines quality, filling gaps, and finding ways of minimizing the capacity limitations and the ineffective implementation of the guidelines by development proponents are key issues which need to be addressed if the guidelines are to be effectively applicable in practice. According to EPA Australia (1995), EIA follow-up is needed because relatively little attention is paid to the actual effects arising from project construction and operation. Without some form of systematic follow-up to decision making, EIA may become just a paper chase to secure a development permit, rather than a meaningful exercise in environmental management to bring about real environmental benefits. This paper aims to assess the EIA implementation and follow-up mechanism, with a focus on an irrigation development project in the district of Mecha, Amhara National Regional State, Ethiopia.

The aim of this study was to determine the critical factors affecting the successful implementation of EIA mitigation measures, developed to minimize environmental and social impacts of the Koga irrigation and watershed management project. The research questions addressed were:

- To what extent are EIA-recommended mitigation measures implemented by the project proponent?
- How do regulatory bodies ensure implementation of EIA-recommended mitigation measures?
- How and to what extent did the public participate in the EIA process?
- What are the likely downstream impacts of the project and to what extent where they considered?

2. METHODS

The research method comprised both a literature review and field work. The literature review centered on issues of sustainability and links to EIA and the MDGs as well as EIA experiences in Ethiopia and other countries. The fieldwork was composed of interviews; collecting and review of project specific EIA related documents and field observation.

For the interviews, both semi-structured and structured questionnaires were used. This enabled the perceptions and opinions of specialists (from the project and EPA), the community (upstream/downstream) and management bodies (from the project, EPA and other organs) to be gathered. The extent of public participation in the project was assessed using “the Aarhus practice evaluation criteria for public participation”; adopted from European convention on public participation (Hartley and Wood, 2004). Besides the Environmental Management Plan, accomplishment reports, monitoring reports and permit conditions of the project were reviewed. Finally, field observations were undertaken to independently assess the accomplishments of the EIA-recommendations.

Analysis of results was done by comparing the perceptions of different stakeholders on the accomplishment of the project and by comparing the accomplishment reports with the

Environmental Management Plan. In addition comparison of the conditions included in the permit with the Environmental Management Plan was also undertaken.

3. KOGA PROJECT: A REVIEW OF EIA RELATED DOCUMENTS

Documents reviewed include: Environmental impact assessment (EIS) (Acres and Shawel, 1995); Environmental management, monitoring and resettlement plan (WAPCO and WWDSE, 2005); Implementation reports for the last three years (KIWMaP, 2006); EPA's Monitoring report for last year only(EPLAUA, 2006); Environmental (compensation) monthly flow data and related things (MacDonald, 2004a & 2004b); and additionally: EIA summary, (approval document of lender org.) by (ADF, 2000); Appraisal report (ADF, 2001); and Irrigation and drainage system design and its environmental consideration; including Hydrology data (downstream flow assessment)-obtained from design-consultant (McDonald, 2006a & 2006b).

The Environmental impact assessment (EIS) of Koga project (Acres and Shawel, 1995) assessed impacts both during construction & operation. It encompassed all components of the environment: Spatial component- land use, settlement, public facility; Physical component-land, climate, hydrology; Biological component- Flora and fauna; inc. aquatic species; and Socio-economic & cultural component- demography, employment, health, culture, institutions and services. Most of the impacts in the EIS are qualitative. It also under estimated some impacts- like the impacts on downstream fisheries.

The document for Environmental flow assessment (EFA) of the project indicates that the Q95 method was used for determining environmental flow requirements. This method does not address variable nature of the hydrological regime. The environmental management plan (EMP) document has revised the impacts initially covered in the EIS; prepared plans for about twenty activities to mitigate the major impacts such as: control of liquid and solid pollution from labor camps; Restoration plan for quarry sites; Aquatic weed control; Public health; Training and extension courses for farmers; Sustenance of riverine fishery; Watershed management; Settlement and compensation payment,… etc. The report has some limitations. Specifically, the public consultation process is not mentioned, there are no analyses of project scenarios/alternatives and there is no mention of a monitoring plan for erosion and siltation.

A summary of some of the implementation actions taken from the three years accomplishment report, compared to the environmental management plan are tabulated below (KIWMaP, 2006).

Table 3.1. Summary table of three years implementation of mitigation measures

Environmental Mgt Plan/EMP/	Accomplishment report
1. Watershed mgt plan	COD=23%, terrace=13.5%, Gully treatment=14.6%
2. Resettlement plan	Resettled=9%, compensation= 11%
3. Control of pollution from labour camp	No report/ No activity

4.Public health	Farmers training=30%, No other activity
5. Control of air pollution	No report/ No activity
6. Maintenance of riverine fishery	No report/ No activity

4. KOGA PROJECT: OPINIONS, PERCEPTIONS AND FIELD OBSERVATIONS

4.1. Interviews:

4.1.1. The community (Farmers)

The interview focused on public participation and implementation of mitigation measures. Figure 4.1 gives a summary of the results of the public participation from interviews conducted for the community based on the ten Aarhus practice evaluation criteria.

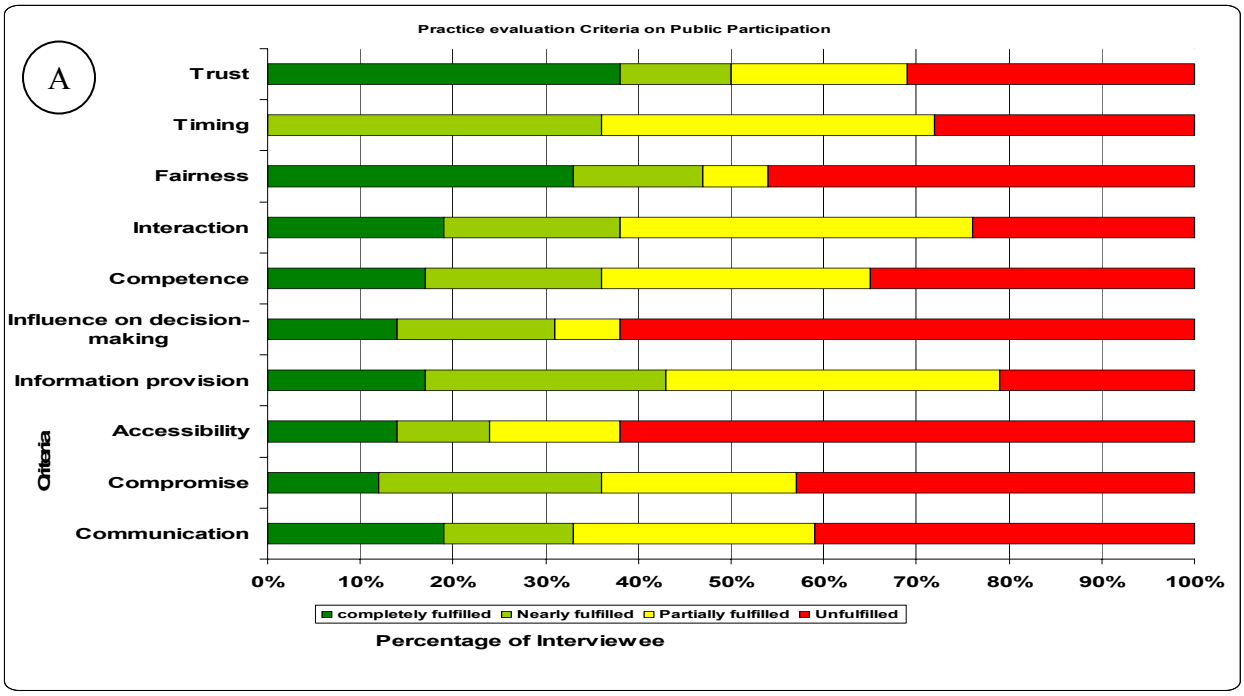

Figure 4.1: Aarhus Practice Evaluation Criteria for Public Participation, community's opinion (A, B)

The following explains the criterion on the above graph:

Communication: is used to determine whether the project material is presented in a non-technical format and is understandable to lay people.

Based on the questions interviewed the answers obtained are grouped and rated as follows (under different rating category): The overall interpreted result for this criterion are: 19% of the interviewees agreed that *communication* criterion for the project is completely fulfilled, 14% nearly fulfilled, 26% partially fulfilled and 41% of the

community said that the project did not provide project materials in a clear format, implying that the criterion are not fulfilled (figure 4.1). This indicates that nearly half of the interviewed people living in Koga catchment have no clear understanding of the project document or the project itself based on the materials provided through project training and meetings.

Similarly, the other criteria can be explained based on the interview result shown on the above graph. The over all result indicates: more than 40% of the interviewed farmer community agreed that all the criteria are unfulfilled; more than 20% of the respondents said all the criteria are partially fulfilled; and the remaining said either nearly fulfilled or completely fulfilled. It can be concluded from this result that the project in public participation has poor performance.

4.1.2. Specialists

The interviews with specialists focused on the implementation of the EIA recommendations, permit conditions and downstream impacts. The results obtained from the interviews conducted indicated that more than 70% of the specialists felt that the project is less satisfactory on the appropriateness and feasibility of mitigation measures designed for the environmental impacts the project is imposing (figure 4.2). In addition, the sufficiency of the environmental management plan (EMP) in terms of institutional arrangement, time schedule, cost, integration of EMP with the project schedule and fulfilment of expert staff is judged to be below satisfactory by more than 90% of the specialists.

Half of the experts agreed that the mitigation measures which have been accomplished already can be judged as satisfactory in their effectiveness. However, the technical capacity and commitment to implement mitigation measures were judged to be lacking and below satisfactory by all stakeholders, including project proponent, contractors, local organisations, regulatory agency and affected parties. This indicates that the extent of accomplished mitigation measures is minimal. This was widely agreed by the interviewees. In addition, the willingness of the surrounding community to be involved is judged to be below satisfactory by almost all the specialists. Moreover, the sufficiency of environmental management actions, such as awareness creation, training and technical support, allocation of resources, consultation and involvement of relevant stakeholders was judged to be below satisfactory by almost 80% of specialists.

Surprisingly, no one seemed to know about permit conditions in relation to terms of the procedures for certification and the composition of the permit. The sole exception was one of the specialists from EPA, who said that: *The permit procedure has been depicted in EPA, EIA guidelines where as practical application is not yet started in our region. To speak the truth EIAs are done only for donor acceptance for funding the project and it is a mere 'add on' formality*"

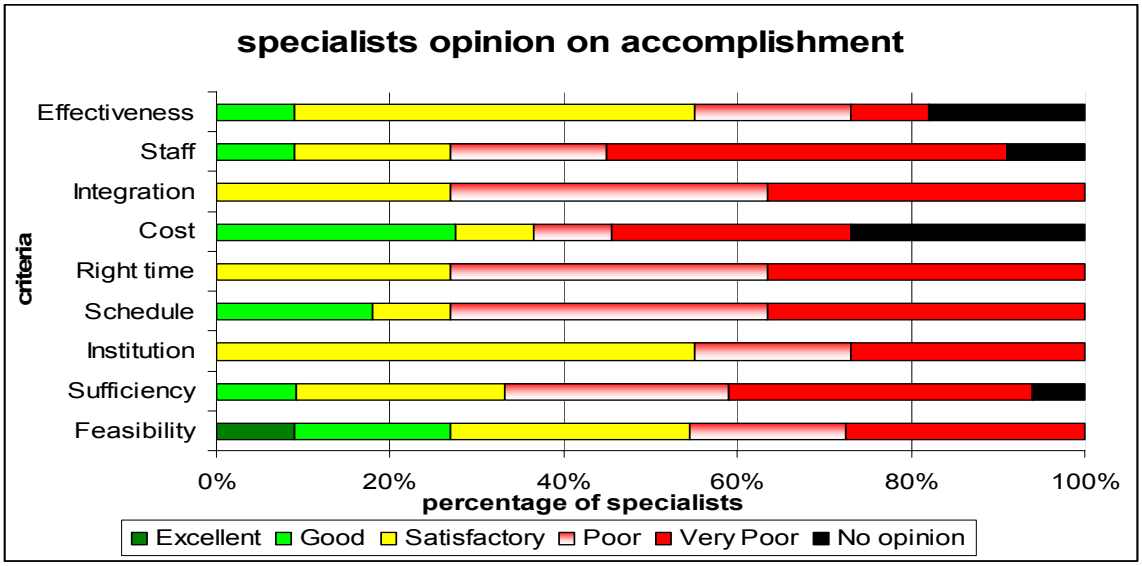

Figure 4.2: Implementation of mitigation measures as judged by specialists' perspective

The Specialists were questioned on: i) the main strengths in the current implementation of mitigation activities of the project, i) the main constraints in the current implementation of environmental management actions of the project; and iii) the key measures that can be taken in order to improve the implementation of environmental management actions for irrigation projects. Opinions and perceptions of the interviewed specialists are summarised below:

Strengths of the project in implementing mitigation measures

- The existence of favourable policy framework;
- EIA document was prepared during the feasibility study stage of the project by hiring foreign consultant; implying that a genuine attempt was made to identify negative impacts. Subsequently the EIA documents were revised by EPLAUA;
- The availability of financial resources; commitment of executive bodies and working together with district agriculture and rural development office for watershed management activities.

Weaknesses / Constraints of the project in implementing mitigation measures

- The EMP and monitoring plan do not include the required inputs for environmental management. Moreover, there is no unit within the project team that is dedicated to the environmental management of the project.
- The responsibility of each stakeholder is not well defined and no skilled personnel are assigned to lead the EIA implementation. Because of this, there is currently no institutional responsibility for environmental management action.
- Catchment treatment is not being carried out. Generally there is lack of attention for watershed management and rehabilitation activities in the upstream watershed are poor. There is also a delay in resettlement activities.
- Political turmoil (political instability) and low participation of the people. Training for development agents and farmers has not been completed. Moreover

there has been no provision of materials like transportation, communication, instruments (hoe, bucket) and improved crop seed.

- There is no budget for the upstream activities. Soil and Water Conservation is done by free (by community participation). Moreover, there is lack of an efficient working system, lack of a strong coordinating body and lack of timely budget flow and balanced resource allocation.
- Many of the yearly activities of the project are not clearly known by all the concerned parties. There is no strong coordination between different bureaus and institutional responsibilities are not clearly understood. There is a lack of awareness of beneficiaries and hence no genuine community participation.

Key measures that can be taken to improve the project in implementing mitigation measures

- Multi-sectoral integration (both in function and organization) i.e. working with EPLAUA and organizing an environment management unit (structural adjustment) with in the project;
- Very clear environmental monitoring plan should be designed along with provision of a budget that is sufficient to enable full implementation.
- Catchment treatments should be given attention and their implementation should be carried out prior to the commencement of the project (i.e., the upstream watershed should be treated before the construction of the irrigation dam so that siltation load will be reduced).
- There should be public participation and awareness creation for the community.
- The project must form relations with development agent day to day to solve any problems, which arises from farmers and development agents.
- The project must supply farm tools to SWC, to facilitate road construction. SWC measures could be done by cash for work.

5.1.3. Management Bodies

The interview of the management bodies focused on follow-up activities and the permit conditions. The different components of EIA follow-up activities were tested by interviews. Figure 4.3 below summarises the results.

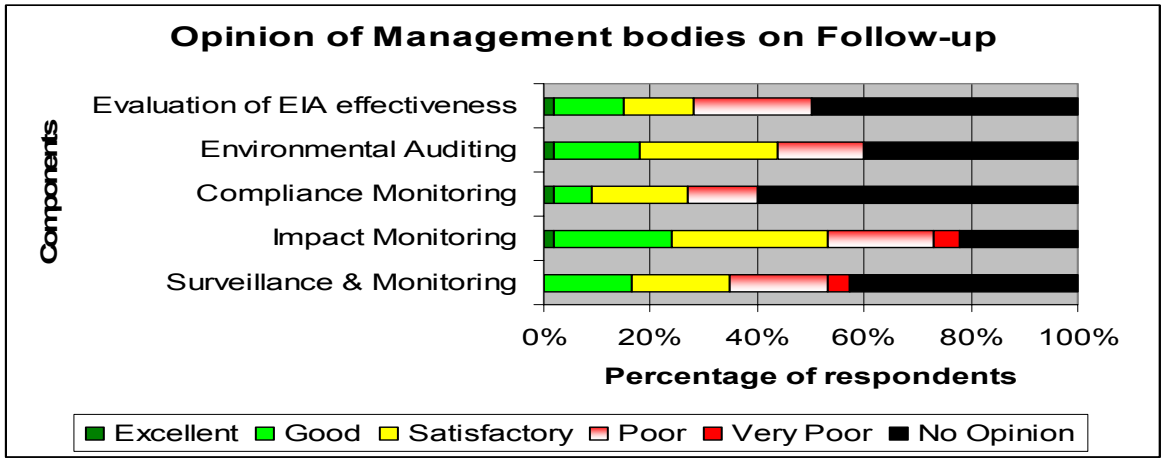

Figure 4.3: Management bodies' Rating of EIA Follow-up Activities (A, B)

The permit condition of the project with respect to EIA was included in the interviews. The strengths and weaknesses of the project in implementing mitigation measures were also investigated. Of course possible improvements on the current EIA implementation of the project were proposed. A summary of opinions is presented below:

The project has no official permit certificate as the interview results indicated. Rather the lender organisation (i.e., the African Development Bank) set an obligation to undertake EIA and because of this the project prepared its own EIA document. A group of AfDB experts has visited the site and approved the EIA document (ADF, 2000). From the government side no one has checked the project EIA document for approval. Rather it has simply endorsed the EIA summary sent by AfDB. A management body from the regional bureau indicated that the procedures for permit certification are not well organized. The EIA should be approved by the concerned organization before implementation, but the EIA document was sent to the regional Environmental Protection Authority (EPLAUA) only after implementation had commenced. One of the management bodies said about the composition of the so called permit (EIA Report) that:

"*The document (EIA summary by AfDB) identified the environmental impacts on implementing this koga project and how to mitigate these impacts. The permit recommends preparing environmental management and monitoring plan.*"

In fact, some of the management bodies from stakeholder organisations also said they know nothing (no opinion) about the permit condition, monitoring activity and others (see fig4.3).

The following are summaries of the opinions and perceptions of management bodies on the performance of the project with respect to implementation of EIA-recommended mitigation measures:

Strengths of the project in implementing mitigation measures

- Despite of the fact that the project does not have an environmental specialist the project is trying to control dust pollution at construction site, safety issues, and water pollution.
- Planting different tree species; introduction of different crop species; introduction of different technologies
- The main strength of this project is to have its own EIA document. During operation the project has tried to consider environmental issues.
- The project document has a clear monitoring plan

Weaknesses of the project in implementing mitigation measures

- Absence of environmental specialist (institutional problem).
- No organized action plan.
- Different people (especially executive bodies) come with different opinion.

- Lack of consideration of the catchment treatments. The Physical and Biological soil and water conservation activities are not in good condition.
- Lack of accountability and responsibility to stakeholder organisations.

Key measures for improvement of the project in implementing mitigation measures

- The institutional set up for this project should incorporate an environmental specialist.
- Sufficient budget should be allocated for EIA follow-up activities.
- Short-term training should be provided for the Authority technical staff.
- Clear accountability and responsibility of implementing bodies should be determined
- The financial system of the project should be improved.

4.3. Results for the key factors of the EIA process

The status of the whole EIA process based on the case study of Koga project is shown in Figure 4.4. This is based on the combined results of all factors.

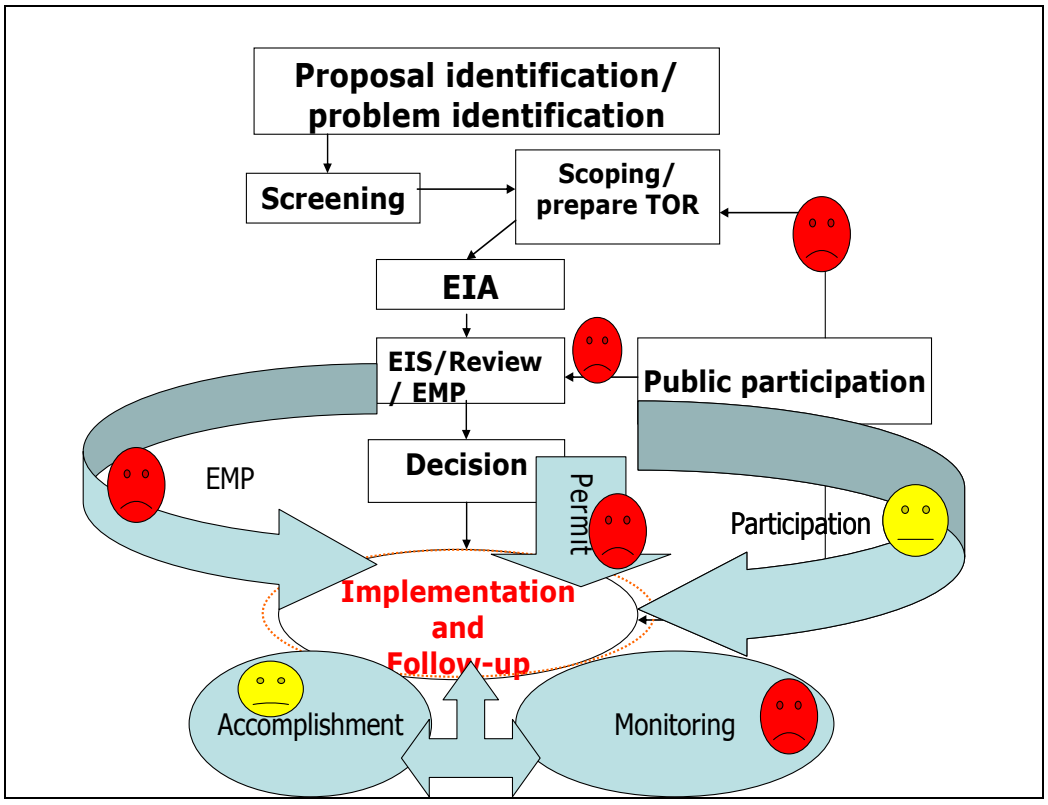

Figure 4.4: The points of weaknesses on the EIA process as studied on Koga project

Having all the information through review of EIA-related documents, interviews and field observation on the performance of the Koga irrigation and watershed management project; the status of the (Ethiopian) whole EIA process was found to be poor on five activities of the major stages/sub-stages. These are: i) no **public participation** on scoping (at planning stage so to say), ii) no **public participation** on EIA review iii) **EMP** is not a

finalised document, it remains just a draft, iv) the project has no formal **permit,** and v) there is no **monitoring** activity. The EIA process was found to be very weak with regard to two activities: i) lack of **public participation** on implementation or project execution and lack of **accomplishment/implementation** of EIA-recommended mitigation measures.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusions

EIA implementation and follow-up for the case of the Koga irrigation and watershed management project was investigated using available literatures, interviews of major stakeholders and field observations. From this research the following conclusions are drawn for each of the research questions posed:

Research Question 1: To what extent are EIA-recommended mitigation measures implemented by the project proponent of Koga irrigation and watershed management project?

- The results indicate that among the 20 major activities indicated on the environmental management plan for implementing EIA-recommended mitigation measures two activities, namely: forest seedling plantation and livestock development were found to be satisfactory. Another three activities, namely: watershed management measures (conservation and production measures), public health and resettlement/compensation payment are unsatisfactory. The remaining activities have not been instigated or are not reported.
- The project has no any activities around the dam construction site for mitigating the environmental impacts of the construction work e.g. resettlement and compensation payment is not yet completed.
- There is no preparation for implementing mitigating measures of the downstream impacts was considered in the EMP. Farmers stated that they know nothing about what is going to be done in their area but they do anticipate problems both now and in the future.
- Division of responsibility and accountability of the stakeholder organisations is poor. No institution is taking the responsibility to fully engage in the watershed management component of the project. Moreover, the institutional set up of the project management unit (PMU) has no environmentalist.
- In relation to the MDGs, the project was intended to meet MDG requirements. The watershed development component of the project is meant to protect the environment. Therefore, the poor performance of this project in implementing mitigation measures for the environmental impacts will consequently result in a failure to meet MDGs.

Research Question 2: How do regulatory bodies ensure implementation of EIA-recommended mitigation measures in the Koga irrigation and watershed management project?

- The study results indicate that neither the project proponent nor consultants have environmental specialists. Consequently, the proponent is not undertaking formal monitoring. The regulatory agency, EPLAUA, has undertaken surveillance/monitoring only once, four years after the commencement of the project.
- A review of the monitoring report proved that the report was very weak with regard to both the number and contents of the activities monitored and recommendations given.
- The project has no formal permit certificate or document which can be used as an enforcement tool for the regulatory agency.

Research Question 3: How, on what stage and in what way was the participation of the public in EIA process; and what is it at the present situation?

- Results show that the performance of the project on public participation is very poor in all aspects tested.

Research Question 4: What are the downstream impacts and what is considered from environmental flow assessment point of view?

- The potential downstream impacts arising from changes in the flow regime are not mentioned. The Q95 method was used to determine the monthly flow releases to maintain the downstream river ecology. However, this considers only the maintenance requirements for a normal year. There is no consideration of drought requirements nor mention of higher flow requirements.
- Review of the irrigation and drainage system design document, shows that environmental considerations have been factored into structures to be installed downstream of the dam, although these are not mentioned explicitly in any documents.

5.2. Policy recommendations based on the research

Implementation

- Implementation of mitigation measures could be improved by clearly defining the responsibilities and ensuring accountability of the stakeholder organisations which are supposed to implement mitigation measures in collaboration with the project proponent (PMU).
- EIA should consider all feasible alternatives which may include different methods of undertaking a development. All impact indicators should be quantitative in order to ensure the monitoring can be conducted.
- Public participation should be strengthened. Past experience shows that preparing and undertaking ***community workshops*** and then organising strong "**farmers' development teams**" all over the Koga river catchment would improve public participation in the project.

Regulatory condition

- Permit certification is essential to enable the regulatory agency to enforce the implementation of mitigation measures.
- Follow-up and monitoring of EIA should be greatly improved. Incorporating environmentalists in the staff structure of the project and permitting consultants to include the cost of environmental activities would assist. Moreover, capacity of the staff of the regulatory agency needs to be improved. This will require short-term trainings and providing adequate budget for monitoring activities.

Environmental Flow Assessment

- The drawbacks of the Q95 method should be considered. Although the koga project has failed to do so, environmental flow assessment needs consensus of the affected and interested parties on the desired state of the river.
- A full building block analysis of flow requirements would undoubtedly have identified a range of flow requirements (drought and flood). As far as possible these should have been linked to the livelihood needs of downstream communities in relation to their natural resource requirements.

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[1] KIWMaP is abbreviation used for Koga Irrigation and Watershed Management Project