

Review Article

Review of EIA in East Africa: Challenges and Opportunities in Ethiopia and Kenya

Abebe Temesgen Gebreyesus, Sammy Koskei, Yaoliang Shen, Feiyue Qian

School of Environmental Science and Engineering, Suzhou University of Science and Technology, Suzhou, China

Email address:

temesengebreyesus70@yahoo.com (A. T. Gebreyesus), samuelkoskei@yahoo.com (S. Koskei)

To cite this article:Abebe Temesgen Gebreyesus, Sammy Koskei, Yaoliang Shen, Feiyue Qian. Review of EIA in East Africa: Challenges and Opportunities in Ethiopia and Kenya. *Earth Sciences*. Vol. 6, No. 4, 2017, pp. 44-50. doi: 10.11648/j.earth.20170604.11**Received:** May 30, 2017; **Accepted:** June 14, 2017; **Published:** July 20, 2017

Abstract: Environment is vital medium for the ecosystems to be sustained, however human beings have put pressure on it, due to recent rise in populations and rapid industrialization. These have led to uncontrolled anthropogenic activities, which interferes with natural ecosystems and affects sustainability of development. For this reason, Ethiopia and Kenya decided to adopt and implement the Environmental impact assessment (EIA) tool, so as to make sure the environment is protected and sustained. This paper focuses on the common challenges in both East African nations in order to increase accountability and transparency during implementation of any project. It also comprises EIA guidelines comparison based on principles and procedure of EIA and indicates possible way out in which EIA might be used more productively in the future.

Keywords: East Africa, Ethiopia, Kenya, Environmental Impact Assessment Methods, Challenges, Opportunities, Sustainable Development

1. Introduction

Despite their economic progress in recent years, both East African nations Ethiopia and Kenya experience environmental problems mainly due to unwise use of natural resources and poorly planned development projects prompted by rapid population growth. This is because the environment has not featured on the development agenda in past, project evaluation and decision-making mechanisms have focused only on short-term technical feasibility and economic benefits. Thus, neglected environmental and social as well as long-term economic dimensions have resulted in a situation where the countries experiences in recent periods. As result, further development along the same line has to be cut short because the efforts in reversing the damages to the environment at a later time is usually costly or even irreversible.

Ethiopia and Kenya have a number of mega projects going on due to good economy and improved standard of intellectuals within their territory [1]. For instance, the current standard gauge railway line that link the two

countries. The railway line runs all the way from Mombasa to Addis Ababa, and will increased bilateral relation between Ethiopia and Kenya in terms of business and other opportunities. However, these projects have been identified to cause environmental destruction, since it affects one of the following; landscapes, cultural sites, game reserves, residential areas and ecosystems. In order to protect these entities, both countries have embraced and implemented EIA tool, after learning the effectiveness from developed countries.

In Ethiopia EIA is handled by Environmental Protection agency (EPA), which they issue the licenses and monitors the whole process [2]. While in Kenya, National Environment Management Authority (NEMA) is a license issuing authority under the Environmental Management Coordination Act (EMCA). In addition, other overseeing agencies includes Lead agency to review the EIA report [3].

This review paper includes the brief history of EIA evaluation in Ethiopia and Kenya. It confirms that both

countries begun the processes of EIA implementation after 1970s, but in Ethiopia and Kenya formalization of this tool in 2002 and 2003 respectively. The brief preview of benefits and challenges experience in the process of implementation of EIA is discussed. Finally, this report touches on methods followed during application EIA license.

2. Origin and Evaluation

Even though, extrapolations of the concerns of human actions on the environment are as old as recorded history, the current usage of Environmental Impact Assessment has its origin in USA in the late 1960s. Possibly the most common outset of EIA is as planning tool: assessments are done to forecast and evaluate the impacts of proposed projects and its alternatives. However, the influence of EIA has not been limited to the USA. By early 1990s, over 40 countries had embraced EIA program [4]. In addition, EIAs requirements are even imposed on countries that have no formal program because of bilateral and multilateral aid agencies call for EIAs on the projects they fund.

However, until 1997 Ethiopia did not have a comprehensive environmental policy [5]. Experience in the past has shown that different development schemes have caused massive environmental problems as traditional project preparation and decision-making mechanisms were based on short-term technical feasibility and economic benefits [5]. June 1992 Rio Earth summit, laid the foundation for the multi-sectorial nature of the environment, and commitment to establish focal environmental agency appropriate legal regime for the protection of the environment. The formulation of several policies, strategies and action plans aimed at achieving sustainable development in Ethiopia and the first EIA proclamation (proclamation number 299/2002) issued in 2002 [6].

Similarly, in 1970, government of Kenya was determined to enlightening environmental impacts assessments [7]. Until then, the National Environment Action Plan and the National Policy on Environment emphasized the need for environmental impact assessment (EIA) on development of any projects. EIA was given legal status and more recognition by incorporation into the environmental management and Coordination Act (EMCA) in 1990s [7]. The Environmental Management and Coordination Act 1999 clearly make EIA mandatory for all projects specified in the Act. [3], and it was then further formalized in 2003 through the Environmental Impact Assessment and Audit guidelines [8].

3. The Opportunities of EIA

In general, as planning tool for informed decision, EIA is significant input to improved project design and siting with improved opportunities for public involvement in environmentally sensitive decision-making process. Thus, the main advantages of EIA includes: increased accountability and transparency during the development process, improved

integration of projects into their environmental and social setting, reduced environmental damages, create more effective projects in terms of meeting their financial and/or socio-economic objective and enhance appositive contribution towards achieving sustainability.

EIA ensures that development of any project is sustainable, and it does not surpass the capacity of the environment to accommodate change without long-term damage [9]. Many ecologies such as population ecology, community ecology and ecosystem ecology have been preserved because systematic procedural EIA tool. Through the monitoring process of the projects under the enforcement of EIA as required by governing bodies for instance, National Environmental and Management Authority (NEMA) in Kenya can reduce the environmental destruction. EIA essentially relies on substantially on integrity and good practice. Another reason why EIA has an effect on a project is that it makes sure the environmental effects of major expansion and other projects likely to have significant environmental effects are fully examined, understood and justified before decisions are made on whether the projects should proceed [9]. However, there are many challenges and gaps for full implementation of EIA in developing countries like Ethiopia and Kenya. Some of the common challenges are revised in section 6.

4. Environmental Impact Assessment Methods

Environmental Impact Assessment methods are mean to address both project-related and cumulative environmental effects [10]. It is to identify, predict and value changes of an action, relating to environmental issues considering physical, chemical, biological, socioeconomic, cultural, landscape values and processes [11].

Objective of methodologies in east Africa (Ethiopia and Kenya) is clear and can be summarized as follow:-

- i. Understand the nature and location of the project and possible alternatives
- ii. Identify factors of analysis and assessment objective
- iii. Preliminary identification of impacts and scoping
- iv. Base line study and evaluation in the absence of project
- v. Prediction and assessment of impacts and alternatives comparison
- vi. Mitigation
- vii. Monitoring and impact management

According to experiences of both countries EIA process different methods has been used according to legal demand to meet the requirement in measuring impact. The methods possibly include expert's judgment, checklist and matrices, flow and decision trees, multi criteria analysis, case comparison, simulation models, GIS and map overlays, contingency analysis and other economical evaluation but there is no single ideal method. Finally, all possible impacts must be described according to the following criteria:

- i. Nature of the impact- this should describe “what will be affected and how”.
- ii. Extent – this should indicate whether the impact will be local, regional, national or even international.
- iii. Duration – this should review the lifetime of the impacts.
- iv. Intensity – here it should be established whether the impact is destructive or innocuous.

These methods can be further summarized as follows according to [10];-

- a. Community-based methods: - It involves family participatory approaches, which emphasizes local knowledge and action. This will enable stakeholders to get enough information for the analysis as well as sensitizing the communities involve.
- b. Consultation methods: - This method is a systematic investigation of the perceptions of stakeholders to ensure their concerns are heard.
- c. Participatory methods:- This method encourage people to be creative, open their perspectives, understand the choices that another person might face, and make choices free from their usual responsibilities. It engages public participation for the purpose of collection of data and analysis.
- d. Workshop-based methods:- It is a way where stakeholder prepare and hold series of workshop for the purpose of collection of data that can lead to planning, implementation and monitoring of any project which can interfere with the environment.

Ethiopia and Kenya share the same methods, which is found to be more effective for controlling and monitoring environment degradation believed to be cause by intensive projects. One of the examples of this project that is currently taking place between these two countries is Lamu Port-South Sudan- Ethiopia –Transport (LAPSSET) Corridor [1]. It is a flagship project that includes ports (Lamu Port etc.), airports (Isiolo Airport, Manda Lamu Airport etc.), standard gauge railway (Kenya- Sudan- Ethiopia), and highways roads (Lamu -Garissa). These entire projects require many anthropogenic activities that might interfere with the environment. If environmental impact assessment is not applied, there will be compromising of the environment that leads to destruction of ecosystem, cultural sites or socioeconomic activities of the communities in the land and surrounding areas where projects are done.

5. EIA Procedural Steps in Ethiopia and Kenya

5.1. Screening

All projects must be submitted to a screening exercise. However, especial concern should be taken during screening process since all projects in environmentally sensitive areas are regarded to cause significant impact and require undergoing a full EIA process irrespective of their nature based on articles 92 of 1995 constitution [12] and article 14/1

of the 1996 Investment proclamation No. 37. According to EIA, proclamation activities that may be treated for EIA process are listed in three schedules depending on the likely impacts on environment. Schedule 1, are projects which may have adverse, and significant environmental impacts, therefore require full EIA. Schedule 2 are those projects whose type, scale or other relevant characteristics have potential to cause some significant environmental impacts but not likely to warrant an environmental impact study, and Schedule 3 are projects which would have no impact and does not require environmental impact assessment. This step also includes pre-screening process to establish contact between proponent and environmental agencies and to form mutual understanding about the requirements. The screening stage in both countries contains similar information, except that in Kenya this stage does not go through schedule 1 and schedule 2 as in Ethiopia.

5.2. Scoping

Scoping identifies the potential environmental impacts associated with the development to ensure that the EIA focuses on pertinent issues. During this stage, relevant alternatives are investigated and critical issues are identified to forward into further processes. The proponent is expected to prepare a detailed plan of study for scoping exercise to warrant and protect the identification of interested and affected parties in Ethiopia. Authorizing body (NEMA) in Kenya give the mandate the proponent responsibility to prepare scoping or a registered expert may prepare the EIA on behalf of the proponent [7].

5.3. Environmental Impact Study

Environmental Impact Study is a fundamental technical part of the EIA process. Under article 4 (1) of the EIA proclamation no. 299/2002, state that identification of specific impacts, prediction, and determination of the characteristics of the main impacts of a project. It also enforces evaluation of the significance of the residual impacts that likely to involve a negative significant impact and that cannot be mitigated. Design of mitigation measures and consideration of all feasible alternatives, preparation of management plan taking into account the mitigation, monitoring activities, and preparation of contingency plan are the main considerations to determine impact.

5.4. Impact Analysis

In this phase, the likely impacts are analyzed in detail in accordance with Term of Reference developed by the proponent and approved by the competent authority. Hence, the potential size and characteristics of identified impact, by using recommended impacts identification methods, can be predicted based on well-defined values of significance, comparison of all feasible alternatives, fundamental documentation of the values and beliefs on which judgments are based, acceptable methodology, statistical significance of research, and experimental findings. In this stage, because

forecasting impact is a technical exercise where certain specialist study result is required, a proponent may be required to appoint technical specialists to prepare certain aspect of the Environmental Impact Statement (EIS).

5.5. Public Participation

According to EIA proclamation, public participation provision made clear that any environmental impact study report should pass through public commenting. The proponent needed to make accessible the EIS to public for comments and should ascertain before submitting the report to competent agency that the comments made by the public and in particular by the communities likely to be affected by the implementation of a project are incorporated into the EIS as well as in its evaluation.

5.6. EIA Report

EIA Report is a comprehensive assessment of the environmental impacts of the project obligatory to the Terms of Reference. It is used to generate sufficient information on significant impacts that makes possible the preparation of an EIS, which enables the competent authority to determine whether and under what conditions the project shall proceed. Thus, EIS is designed to assist the proponent, the competent authority, and the Interested and Affected Parties to undertake their respective roles in accordance with the Terms of Reference.

5.7. Review of EIA Quality

Reviewing is to ensure that the information for decision-making is sufficient, scientific and technical accuracy of EIA-report. Thus, the competent authority should make sure that an independent specialist reviewer from the person who prepares the EIS has reviewed or has been assigned to review. The authority should also make sure that all the considerations including compliance with the “approved Terms of Reference”, feasibility of alternatives, assessment of impacts, inclusion of appropriate mitigation measures, monitoring schemes, and implementation arrangements.

5.8. Decision-Making

The competent authority may approve the project without conditions, approve the project with condition and refuse implementation of project based on EIA proclamation No. 299/2002 by taking into account all the required information in EIS, within 15 working days in Ethiopia. Whereas in Kenya, decision if finalized within 3 months [7].

5.9. Appeals

EIA proclamation has given provision for complaint procedures where any person dissatisfied with the authorization, decision on validity of approval or monitoring

or any decision of the competent authority regarding the project may submit a grievance notice to the head of the competent authority as may be appropriate. In Ethiopia the decision of the head of the competent authority shall, as provided under article 17 (1) of the proclamation, be issued within 30 days following the receipt of the grievance. On the other hand, in Kenya any person or institution has the right to appeal on any matter relating to the EMCA though time is not clearly specified [7].

Table 1. Time Frames for reviewing and decision-making.

Action required	Countries time frame (working Days)	
	Ethiopia	Kenya
Review IEE report and make decision	15	45
Review scoping report and make decision	15	14
Review EIA report and make decision	30	90
Appealing	30	Not clear
Decision for apple	30	90

Figure 1 and Figure 2 are methods that are applied in Ethiopia and Kenya respectively. The two flow charts have many similarities, except only a few of the changes. The issuing authority in Ethiopia is called EPA while in Kenya is called NEMA, whereby in both countries these authorities will issue the license only if the proponent shall comply with the procedures stated as in the flow charts below[13][14].

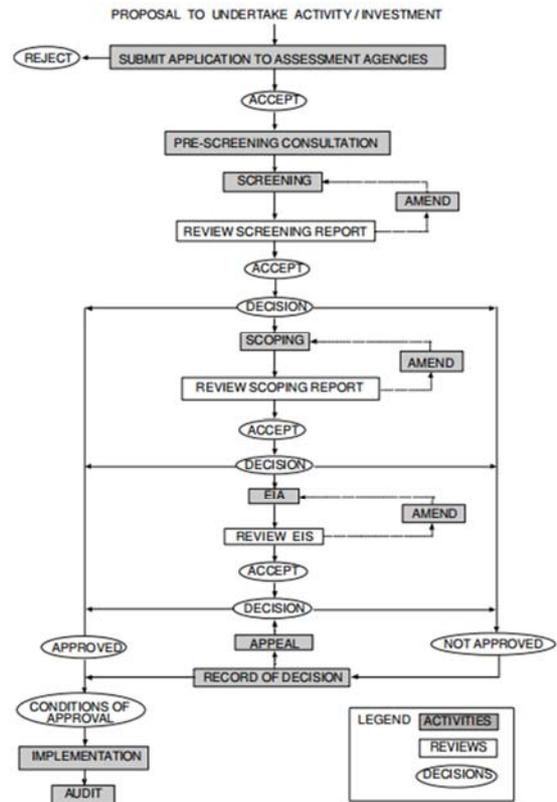
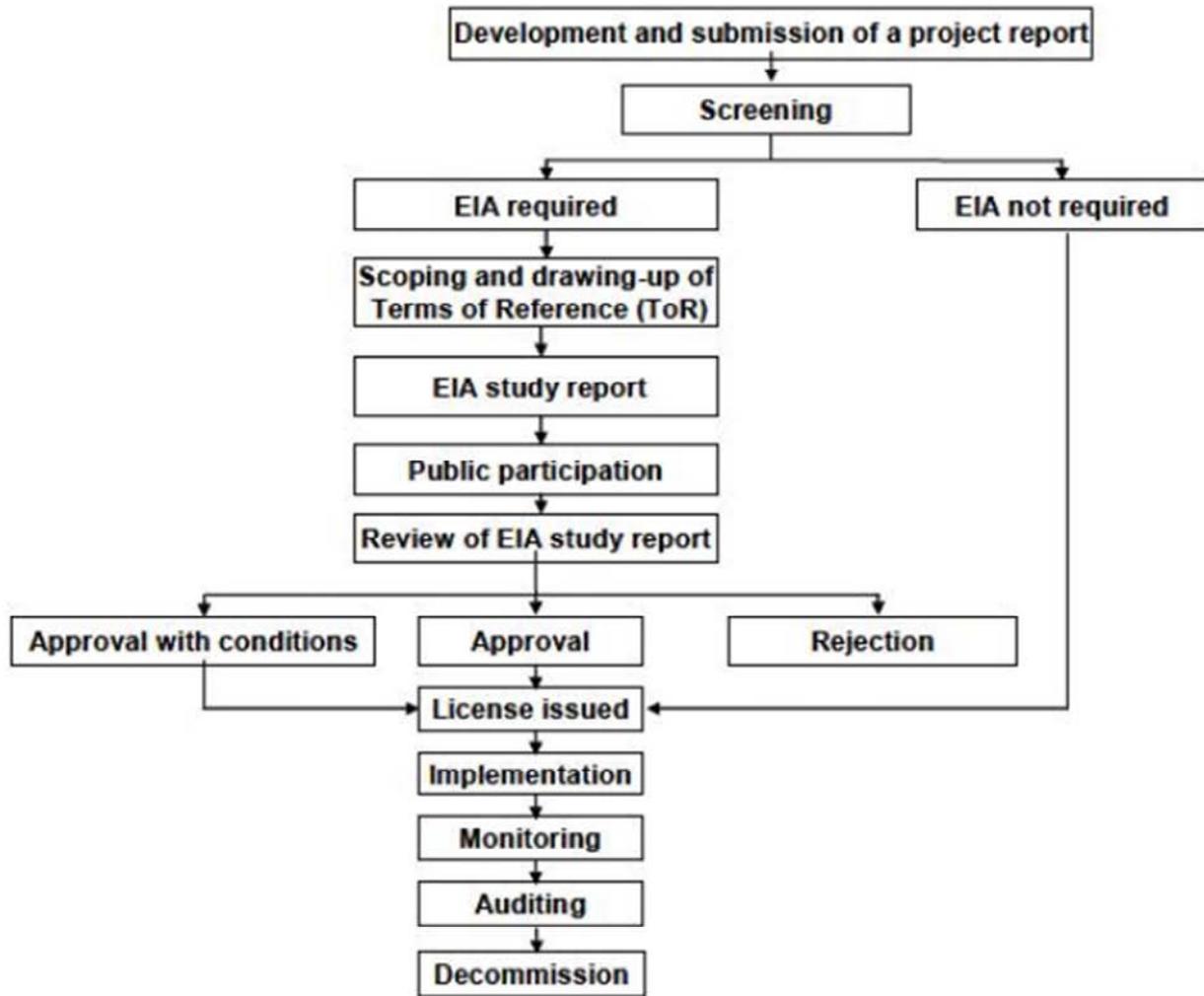


Figure 1. EIA procedural flow chart for Ethiopia.



Source: EPA Ethiopia guideline, 2000 and Rebelo & Guerreiro, 2006 respectively.

Figure 2. EIA procedural flow chart for Kenya.

6. Comparison of EIA Guidelines: Ethiopia, Kenya and USA

Table 2. Comparing EIA guidelines of Ethiopia and Kenya with USA.

ISSUES	USA	KENYA	ETHIOPIA
EIA time frames	Time limits are defined between various stages of EIA process	Whole process timeline is defined in systematic manner.	Time limits are defined between various stages of EIA process
EIA screening	Clear on exempted projects but not well explained for other projects	Clear on preparation and submission, but clear on EIA guidelines as well as no specific details are given	Lists and thresholds are the most commonly suggested screening approach.
EIA scoping	Very well described with methods clearly explained	Methods and procedures plainly stated	Scoping by using TOR is the common approach
Public Participation	Methods, time, and forms specified	Clear in timeline and total involvement between proponent, issuing authority and Communities involved.	Public access to EIS report, and opportunity to comment
EIA Report	Contents detailed	Contents detailed	Contents detailed
Quality review	Required and explained	Not clear on the quality of review	Required but not clear
Environmental baseline studies	Requirements listed	Required to know the status of the project before implementation	Requirements are not specific and brief
Assessment of alternatives	Alternatives are listed including the 'no action alternative	Not fully stated	Not fully stated
Mitigation measures and impact management	Included in the alternatives evaluation	Included in both normal and alternatives evaluation	Included in the alternatives evaluation
EIA reporting	Explained and timeframe set	Clearly expounded and fully detailed	Clearly described and timeframe set
Decision making	Well explained	Described in detail	Briefly described

7. Gaps and Challenges

Despite the efforts showing a sign of positive beginning, due to different bottle necks in achieving full benefits of EIA, until now the real practical aspect of EIA in Ethiopia and Kenya has remained weak. Thus, this section highlighted major gaps and challenges hindering the full implementation of EIA in the both countries.

- a. Lack of implementing laws: Even through the EIA Proclamation was made years ago there is no sound, and well-coordinated enforcement mechanisms in place in order to specifically determine the liability of proponents to undertake EIA before licensed with an investment permit. The proclamation in both countries strictly outlaws the commencement of any projects requiring EIA before proper assessment (Proclamation 299/2002, Art. 5) [2]. The major reasons behind the miscommunication between the authority and the investment agency are due to the absence of legal means to enforce law. In the other hand, EIA proclamations of respective countries identified key sectors that should be subjected to EIA. However, the information to evaluate and validate the impact such as: lack Indicators for threshold values for specific development projects that require detailed EIA. Criteria for defining adverse significant impacts of a project and appropriate standards in order to review reports pertaining EIA study are the root causes of lack of implementation.
- b. Lack of Awareness: The implementation EIA is difficult in Ethiopia and Kenya. This is mainly because very little known among different stakeholders in both countries. As per lack awareness among the stakeholders, the common difficulties that are shared by both countries for the implementation of EIA include absence of sufficient knowledge about EIA and related laws at lower administrative structure especially at district level. While they are key actors in implementation, limited public EIA knowledge due to low level public participation during the law making process and the absence of a functional mechanism for ensuring public participation and environmental impact studies. Hence, lack of understanding of EIA has led many stakeholders with responsibility to implement EIA to have misconceptions about the importance of and contribution of EIA.
- c. Lack of capacity: One of the very important determining factors for ensuring full implementation of EIA process is implementation capacity. The capacity problem in both countries can be best seen from the perspective of consultants and of the EPA itself. In this regard, the consultants and EPA do not have full capacity to undertake EIA due to lack of multidisciplinary expertise and budget constraints. In addition, lack of infrastructure such as sufficient laboratories to conduct quality EIA processes, internet services, library facilities.

Even though the consultant is expected to have a qualified professional working group able to undertake effective EIA on

behalf of the proponent, most of the consultancies working with EIA in both countries do not have an interdisciplinary team, solid technical skills and legal know-how. In addition, as there is no code of conduct or criteria governing how such a multidisciplinary task should be handled, consultants risk being highly influenced by their clients. Furthermore As indicated on the EIA Proclamation, even though EPA and ... are given the authority to regulate the activities carried out by the proponents and also by governments, EPA and NA do not have capacity and legal means to enforce the law in reality. Thus, lack of infrastructure, limited financial capacity and lack of qualified experts are other major capacity problems of the EPA.

8. Conclusion

Both the countries reviewed have an enabling legislative framework for conducting EIA. In terms of legal and procedural basis, the EIA systems of both countries are comparable except some slight differences. However, the systems are far behind in comparison to other advance countries in this area. Especially in implementation of EIAs systems, more might be needed to be done in order, to assure comprehensive and sound environmental management. Where the national capacity to implement the EIA requirement is lacking, legislation is just a useless tool. National capacity refers to capacity at all the levels where EIA is to be performed, reviewed, discussed, implemented, and monitored. This includes central and local governments, decentralized agencies, the private sector, NGOs and local communities. However, for EIA to bring about better environmental protection in East Africa, specific measures for example in monitoring, capacity building, decentralization, and participation must be evolved. In the same van, national implementation capacity is base for bilateral and regional efforts to environmentally sustainable development.

Thus, despite the fact that EIA may not bring or mitigate poor environmental management and performance in both nations, it has significant role to make informed decision that reduce environmental damages. Therefore, to address the common challenges for full implementation of EIA and for assuring environmentally sound development:

- I. The communities should be empowered to ensure a more collective and meaningful participation in the EIA process because informed population is more likely to demand for negative impacts of development activities to be addressed and
- II. Enhancing the capacity of both consultants and EPA and NEMA at all levels is important to improve the capacity building of the EIA system for both the nations.

Acknowledgement

This study was financially supported by Two-year International Master Program on Environmental Engineering authorized by the Chinese Ministry of Commerce

(2015E0434). Special acknowledgement goes to all the authors this paper have extracted secondary data from for the analysis.

References

- [1] G. Official website of the president, "LAPPSET Projects," 2013. [Online]. Available: <http://www.president.go.ke/projects/lappset-projects/>. [Accessed 25 May 2017].
- [2] F. G. Adugna, "Environmental Impact Assessment in Ethiopia: A General Review of History, Transformation and Challenges Hindering Full Implementation," *Journal of Environment and Earth Science*, vol. 6, no. 1, pp. 1-9, 2016.
- [3] GoK, "Environment Impact Assessment Guidelines and Administrative Procedures," NEMA, Nairobi, 2002.
- [4] N. Robinwn, "International Trends in Environmental Impact Assessment," *Boston College Environmental Affair Law Review*, vol. 19, no. 3, pp. 591-621, 1992.
- [5] D. Mellese and B. Mesfin, "Overview of Environmental Impact," MELCA Mahiber, Addis Ababa, 2008.
- [6] E. FDRE, "EIA Proclamation No. 299/2002," Federal Negarit Gazeta, Addis Ababa, Ethiopia, 2002.
- [7] A. Netherlands Commission for Environmental, "Kenya EIA profile," 2015. [Online]. Available: <http://www.eia.nl/en/countries/af/kenya/eia>. [Accessed 29 May 2017].
- [8] M. John, "The environmental (impact assessment and audit) regulations, 2003," Minister for Environment and Mineral Resources Kenya, Nairobi, 2009.
- [9] D. Scottish Natural Heritage, "A handbook on environmental impact assessment.," Scottish Natural Heritage, Edinburgh, Scotland, 2013.
- [10] Stantec, "Environmental Impact Assessment Methods," 2013. [Online]. Available: https://www.ceaa-acce.gc.ca/050/documents_staticpost/63169/93967/Sisson_EIA_July2013_Section_5-0_EIA_Methods.pdf. [Accessed 25 May 2017].
- [11] M. Doutora, "EIA Methodologies and techniques," IST, 2011.
- [12] FDRE, "A proclamation for the Establishment EPA (proclamation No. 9 of 1995)," Negarit Gazeta, Addis Ababa, 1995.
- [13] C. Rebelo, & J. Guerreiro, (2006). Comparing EIA Procedures and Contents in Kenya, Tanzania, Mozambique and EU. Work developed under the EU-funded project 'Peri-urban mangrove forests as filters and potential phytoremediators of domestic sewage in East Africa (PUMPSEA)', Contract Number 510863.
- [14] Provision for environmental impact assessment (EIA) in Kenya's legislation: A review of the environmental management & coordination act (EMCA) and environmental (impact assessment & audit) regulations (EIAAR) (PDF Download Available). Available from: https://www.researchgate.net/publication/254843495_Provision_for_environmental_impact_assessment_EIA_in_Kenya%27s_legislation_A_review_of_the_environmental_management_coordination_act_EMCA_and_environmental_impact_assessment_audit_regulations_EIAAR [accessed Jul 10, 2017].