FINAL REPORT

PREPARATION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK FOR EDUCATION SECTOR PROJECT

Submitted To:

MINISTRY OF EDUCATION, YOUTH AND SPORTS (MOEYS)

Prepared By:

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<td>ITB</td>
<td>Inter Tropical Boundary</td>
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<td>KVIP</td>
<td>Kumasi Ventilated Improved Pit Latrine</td>
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<td>Legislative Instrument</td>
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<td>Abbreviation</td>
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<td>PIC</td>
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EXECUTIVE SUMMARY

INTRODUCTION

This report presents an Environmental and Social Management Framework for the Education Sector Project (EdSeP) of the Ministry of Education Youth and Sports (MOEYS). Though the project is aimed at improving the educational standards of the receiving communities, its implementation must be designed to be environmentally sensitive to avoid any undesirable adverse consequences of the given intervention. The assignment was executed from 6th October to 12 November 2003 by a team of Consultants from the Ghana Institute of Management and Public Administration (GIMPA).

The EdSeP will include – under the Pilot Programmatic Scheme – the construction of about 400 primary schools, including water points and sanitation facilities, per year, as well as the provision of teacher accommodations. These schools are to be built in poor, targeted areas; while the location of these facilities and the timing of their constructions is not yet determined, criteria have been developed to identify the areas where these interventions will take place.

OBSERVATIONS AND CONCLUSIONS

- The project areas are predominantly rural and most part of these areas have no access to pipeborne water. Groundwater is mainly the source of drinking water for majority of the communities in the project area visited. The two major forms of groundwater used are hand-dug wells and boreholes. Thus for the EdSeP, the water points available for consideration are tap (pipeborne) water, hand-dug wells or boreholes. It could also be any combination of the above depending on the supply of pipeborne water, quality of groundwater, and groundwater extraction and recharge rates.

- Sanitation facilities would be provided for the 400 primary schools to be built. The sanitation facilities observed in the beneficiary districts were the Kumasi Ventilated Improved Pit Latrine (KVIP), Aqua Privy, Pour Flash, Water Closet (WC), Pit Latrine, Ventilated and Improved Pit (VIP), Environ Loo among others. KVIP, which is popular for families, would be under a lot pressure if used for major schools. The most recommended sanitation facilities by all the districts visited are Aqua Privy for areas without access to pipeborne water and WCs for areas with access to pipeborne water.

- Under the Pilot Programmatic Scheme (PPS) of the Education Sector Project (EdSeP), the focus of the activities for implementing the Programme of Work 2003-2004 would be 40 districts, selected on the basis of their comparative deprivation. The regional distribution of deprived districts indicates that, with the exception of Greater Accra Region, the rest of the regions have pockets of deprivation that need to be addressed. Statistics indicated that the three regions in northern Ghana have sections of their populace experiencing an intensification of vulnerability and exclusion and that more than 40% of their population live in poverty. In educational terms, the Western Region comes next to the three northern regions in terms of deprivation.
The total population of the selected districts has been computed to be 6,124,068 by the end of 2003, out of which 3,034,028 are males and 3,090,040 are females. It must be mentioned that 4,848,469 people in the area are found in the rural areas and 1,274,600 people are in the urban areas. The proportion of children under 15 years in 2000 was 41.3%, which was a significant decline from 45% in 1984, and though it is still high, is a reflection of declining fertility. The ratio of the elderly to children also increased from 8.5 in 1984 to 12.8 in 2000, which is a further indication of ageing of the population, though slight. The dependent population (<15 and +64) is determined to be 46.6 and the adult population (adult population 18+) is determined to be 52.6%.

The study area is predominantly rural. The rural-urban split of the study area is 20.8-79.2%. The 2000 Population and Housing Census indicated that educational attainment in Ghana (3 years and more) was pre-school (3.2%), primary (18.6%), Middle/JSS (21.1%), Secondary SSS (6%), Vocational/Technical (2.2%), Post Secondary (1.5%), Tertiary (2.8%), and None (43.3%), and the school attendance (3 years and more) was pre-school (13.8%), primary (54.3%), Middle/JSS (16.5%), Secondary SSS (8.3%), Vocational/Technical (2.0%), Post Secondary (1.7%), and Tertiary (3.5%). About 86% of rural households live in communities that have access to a primary school; 62% of households live in areas, which have access to a junior secondary school, while 10% live in communities, which have access to a senior secondary school.

Almost all rural schools are public schools. The primary schools are usually in the communities, where the rural households live. Other households however have to travel between 1 and 10 miles to get to the nearest primary school depending on the ecological zones.

Boys and girls in the Forest zone appear to be much more likely to be enrolled in primary schools than their counterparts from the Coastal and Savannah zones. In the Savannah zone, girls are less likely than boys to be enrolled in primary schools.

Lack of finance appears to be the main reason for non-enrolment of children in rural areas in primary schools. A lot of the enrolled children in primary schools miss classes continuously for various reasons. It was observed in a primary school visited in Kintampo District (Savannah Zone) during the fieldwork that more than half the children skip school during market days.

The most serious schooling problems in the rural communities include lack of school building, insufficient furniture, lack of qualified teachers, high cost of schooling, lack of textbooks, and lack of accommodation for teachers, among others. It was noted in all the districts visited during the fieldwork that some primary school children carry their chairs to school.

About 19.5% of the primary schools in the districts visited during the fieldwork have sanitation facilities. A good number of these primary schools are relatively new. With regards to water points, only about 3.47% of the primary schools of the districts visited during the fieldwork have water points. The water points are pipeborne water taps and boreholes. In almost all the cases, the surrounding residents were noted to be patronizing the water points.
It was observed during the fieldwork that about 4.6% of the primary schools in the visited districts have electricity. They are new and are found in the urban sections of the districts. None of the primary schools in the districts visited has telephone.

With regards to refuse cans, only 0.83% of the schools in the district, which were visited during the fieldwork, have refuse or garbage cans. The pupils in the bulk of the primary schools pick the rubbish around the schools and dump them onto a chosen site or burn them.

Almost 10% of the primary schools in the districts visited during the fieldwork have some sort of landscape, which is of utmost importance in checking erosion. It must be mentioned that in the forest zone, due to the abundance of rainfall, landscape is easily carried out and maintained.

The need for sanitation facility, water points, electricity, telephone, refuse disposal system, and landscape was discussed during the fieldwork with District Authorities, District Directorate of Education, members of Parent-Teachers Associations, Headteachers, Teachers, and school pupils. It was observed that water points and sanitation facilities were chosen equally as the most important necessity of primary schools. These were followed by electricity, refuse disposal system, landscape and telephone, in that order.

Rural community dwellers are exposed to a host of health problems related directly to inadequate water (quality and quantity) and lack of proper sanitary provisions. These problems are compounded by absence of basic health infrastructure and health education. Some of the common diseases are malaria, guinea worm, kwashiorkor, cholera and diarrhoea.

Ghana’s EIA procedures provide for the registration of proposed developments with the Environmental Protection Agency (EPA) and subsequent screening to determine the level of environmental assessment required. The EdSeP, at this stage, has no identified specific sites for implementation, and is of various components and therefore is categorised to be under EPA’s Strategic Environmental Assessment and World Bank’s Strategic Environmental and Social Assessment.

A single Environmental Approval would be issued for the EdSeP, on the basis of the Strategic Environmental Assessment, by the EPA. For individual projects, the EPA will undertake its appraisal on project-by-project basis once the site specific assessment is considered satisfactory. The level of assessment for any individual project would depend on size or scale of project, nature/type and magnitude of impacts, location (land use consideration, compatibility and sensitivity), and resource base and resource at risk. The EPA has adequate environmental assessment and management capacity.

Investigations indicate that ground water supplies are generally suitable for most domestic and industrial purposes. However there are some areas with occurrence of high concentrations of manganese, iron, salinity, fluoride, and total hardness, e.g. in sections of Bongo, Wassa West and Fanteakwa Districts and other contiguous districts to the above mentioned. Community Water and Sanitation Agency (CWSA) determines, whether groundwater meets the required standards before giving their
approval for its usage. Supposing the groundwater in a given area has high concentrations of manganese, iron, salinity, fluoride, or total hardness, the CWSA would advise on exactly which corrective measures to take.

- Most of the project impacts would be localized due to its small scale. Field studies and lessons from similar programmes show that issues such as community involvement, community ownership and selection of appropriate sites, destruction of farms or property and resettlement and compensation, adjoining land uses, groundwater quality/contamination, employment opportunities, timing of constructional activities, demolitions of existing school building, quality of materials, supervision of works, and selection and design of types of project components, operation and maintenance, availability of teachers, odour, groundwater depletion/aquifer recharge, security, and solid and liquid waste management are some of the key concerns, which influence the success, and sustainability of such projects.

- The EdSeP activities may likely produce domestic solid waste, commercial solid waste, and constructional/demolition waste. These are expected to comprise food waste, paper, cardboard, wood, rubber, plastic, sand, soil, stone, concrete, bricks, aluminum, glass during the constructional phase and food waste, paper, cardboard, plastics, textiles, rubber, leather, wood, glass, tin cans, and sand. The solid waste generation is estimated to be between 0.2–0.5kg/capita/day. The average population of the schools visited including the teachers is 220. The teachers’ accommodation, which is part of the project, is likely to provide an additional population of 20 making the total population to be 240. This population multiplied by the average/capita of waste generation per day will be 84–120 kg/day.

- Mostly, solid waste bins are placed at vantage points in the schools for waste collection. The waste after having been collected is mostly not segregated. The means of transportation have been either wheelbarrows or carried by pupils to the various disposal sites. These disposals sites are pits 10-30m away from the schools, where the rubbish is dumped and at times burnt. Because of the nature of the wastes, not all are burnt and thus rendering the pits full within a very short time. The waste usually contains large quantities of sand, which also contribute to making the pits full. Pits are therefore dug very often all around the school premise with its associated environmental impact.

- The components of the EdSeP will be implemented by various organisations including Government agencies, District Administrations, Architectural firms, and Construction Contractors. The environmental concerns raised earlier therefore require that some aspects of project design and implementation, and tender and contractual documents preparation should be environmentally sensitive. They would be expected to screen for site selection; potential environmental and social impacts; mitigation of impacts; and to be able to outline steps for monitoring of potential impacts, with a process for triggering subsequent environmental and/or social assessments, where necessary. This, they would carry out with the assistance of the CHECKLIST Matrix in Appendix V by apportioning Estimated Impact Magnitude (-2, -1, 0, +1, and +2) to the identified potential project impact.

- Undertaking the identification of the potential project impacts would facilitate the filling of EPA’s Environmental Assessment Preliminary Registration Form EAI, a sample of which has been included as Appendix IV. Those responsible for the
screening process would be provided with training on how to fill the forms and on Environmental Impact Assessment procedures.

- It must be mentioned that based on the information gathered during the screening exercise and provided on the EPA's EA1 Form, the EPA officers would visit the proposed project sites to assess the adequacy of the information provided and also the appropriateness/suitability of the selected site, among others, and they would decide whether to give approval at this stage or require further analysis in the form of Preliminary Environmental Assessment or a more thorough assessment in the form of a complete Environmental Impact Assessment.

- In the case of the Preliminary Environmental Assessment, a less detailed form of EIA, which leads to a Preliminary Environmental Report (PER). The Terms of Reference (TOR) are determined by the EPA. For the Environmental Impact Assessment (EIA), detailed study based on an initial scoping report is to be carried out on TOR agreed with the EPA.

- The proposed measures to mitigate the potential impact of the implementation of the EdSeP components have been prepared in the form of guidelines. The guidelines are provided to ensure that good environmental practices are adopted to avoid and/or limit adverse consequences from the proposed interventions. They have covered all the project's environmental concerns and institutional framework. These guidelines are the recommended procedure to follow in the implementation of the EdSeP.

- The Environmental Mitigation Plan for the implementation of the EdSeP has been prepared to cover potential environmental and social impacts resulting from project activities, proposed mitigation measures, institutional responsibilities for implementation of the mitigation measures, monitoring indicators, institutional responsibilities for monitoring the implementation of the mitigation measure, cost estimates for these activities, and time horizons for implementation of the EMP.

RECOMMENDATIONS

The recommendations for the EdSeP have been prepared in the form of guidelines (ESMF) and monitoring procedures. The major recommendations have been summarised below:

a. Community Involvement and Ownership

- Selection of Contact Persons: Although their support and involvement is essential, community leaders like Chiefs and Assembly Members do not always make the best contact persons for project implementation. In some situations, efforts should be made to identify other opinion leaders particularly those who appear to catch the vision and can assist in sensitising the people. Contacts should be made with children, women, groups, the poor, teachers, and parents, as they constitute the major beneficiary group of the project. This is to be performed by the District Implementation Committees (DICs).

- Education: Selected beneficiary communities should be educated on all aspects of the intended intervention well ahead of time. This should include the benefits, problems and financial implications among others. Animation,
film shows, drama and posters are some of the methods that could be used to educate the people. This is the responsibility of the DICs.

- **Conflict Resolution:** All issues of conflict and misunderstanding identified prior to implementation should be exhaustively addressed and resolved by the DICs, using e.g. public forum to arrive at compromises. The tendency of using the project itself as a means of overruling potential conflict and misunderstanding should be avoided.

- **Community Ownership:** Community participation/involvement is a vital issue that has been identified to ensuring sustainability of any project. Most of the communities targeted by the EdSeP are among the most deprived in the country. This makes it more meaningful that they identify themselves with the project and its success by ensuring that assistance is provided to siting and constructing of the project’s components and to teachers, who would work in the establishment. Steps should thus be taken by the DICs to sensitise and involve the beneficiary communities from the start of the project.

- **Monitoring:** A third party, consultant, should be engaged to determined the level of involvement, sensitisation and understanding or otherwise of the project in the beneficiary communities prior to the start of the project. Report on findings should be sent to the National Implementation Committee (NIC).

### b. Project Site Selection

The DSACs and Contractors should hold consultations with the District Environmental Management Committees (DEMC), the Land Commission and the Water Resource Commission in siting the project components. The recommendations for site selection of projects should consist of the following:

- Avoid locating projects near cultural sites such as sacred groves and burial grounds and other places that may give offence to the people.

- Avoid siting facilities near unsanitary locations, e.g. rubbish dumps, which might lead to outbreak and spread of infectious diseases.

- The sanitation facilities should not be sited near water bodies.

- Involve other nearby communities that might send their children to the schools too in order to avoid conflict, which could lead to tensions in the use of the school

- The population of the communities in the catchment area would have to be consulted in siting the school in order that the school facility is not extremely under-utilised

- In considering the catchment area, the sustainability of enrolment over the years should also be looked at.
• Ensure that the project site has sufficient land area for the construction of all
the project’s components, facility installation and for future expansion, if
necessary.

• Avoid ecologically sensitive sites such as flat plains, which are liable to
flooding, aquifer recharge zones, steep terrain prone to erosion and threat to
fragile habitat and endangered species.

• Avoid sites close to other land uses, such as major highways, hospitals, quarry,
etc. that may impact negatively on the pupils or vice-versa.

c. Timing of Constructional Activities

The construction work should be planned by the contractors taking cognizance of
the following:

• Cultural and Religious Activities – Some religious and cultural activities may
engage the attention of the people over an extended period of time, such
periods should be avoided as much as possible.

• Seasonal Migration – Periods and seasons when some of the people migrate
out of their communities to seek employment elsewhere should be factored into
the planning.

• Favourable Climatic Conditions – Activities requiring extensive excavation
work like water projects must be timed to coincide with periods of conductive
climate. In some areas, especially northern Ghana, the rainy season renders
inaccessible parts of the regions, thus construction work has to be planned in
the dry season.

d. Resettlement and Compensation

• Any person or group of people to be affected by the project in the form of loss of
farms, income, livelihoods, access to natural resource, houses and other
landed property should be compensated or resettled. It must be mentioned that
the user of land, whether he/she is owner of the land or not, should be
compensated. The State Lands Act 1963 section 6(1) provides that any person,
whose property is affected by public projects, shall be entitled to compensation.
The same Act provides avenues for people, who are not satisfied with the
compensation to seek redress. The Lands Act provides for payment of
compensation and resettlement of displaced people, whose lands or landed
property are affected by projects being undertaken by Government, where there
are gaps or discrepancies between the Land Act and the World Bank Policy, the
World Bank Policy would apply. The policy is found in Appendix VI.

Inspections should be carried out by the EPA and District Implementation
Committees to determine whether there are destruction of farms, displacement
of households, loss of land, and property or landed property, in order to
determine whether the right procedures have been followed with regards to
compensations and resettlements.
e. Source of Raw Materials

- The project consultant should ensure that the contractorprocures building materials such as sand, stones, and laterite from licensed and approved sites.

- As long as chain-sawn lumber remains illegal, contractors should be urged not to employ them in the construction of any of the facilities of the project.

Visual inspection of the Construction materials should be carried out by the DICs, paying particular attention to lumber. They should not be chain-sawn lumber.

f. Operation /Maintenance and Odour

- The management and maintenance of the components of the project should be in the hands of the District Assembly through the District Directorate of Education. Spare parts for water points should be made available, as they are difficult to come by in the rural areas.

Inspection should be carried out on the project components during the operational phase in order to assess the condition, proper management or otherwise and to determine the availability of back up spare parts especially for the water points. This inspection is to be carried out by the DICs, GES and MOEYS.

- Good housekeeping of sanitation facilities (KVIP, VIP, Pit Latrine, and Pan Latrine) should be enshrined in the operations of the school, and to be carried out either by the pupils or by a private company in order to ensure the facility's sustainability

Periodic monitoring and evaluation of the sanitation facilities should be undertaken to assess their condition with regards to cleanliness and use or otherwise. This should be supervised by the DICs and crosschecked by GES and MOEYS.

g. Quality of Work and Workmanship Specification

- All building works contracted for the Government of Ghana are to be executed according to the General Specification for Building Works published by the Government of Ghana in November 1995. These specifications are Ghana Standard Board and British Standards specifications.

The District Tender Boards and DICs are to ensure that the contract documents are in accordance with the General Specification for Building Works published by the Government of Ghana in November 1995, which mainly are Ghana Standard Board and British Standards specifications.

They would also inspect the construction while it is in progress with the help of the Public Works Department Engineers of the Districts to assess whether the specifications are being adhered to correctly. The DICs are to ensure that the contractors apply, as applicable, the guidelines prepared herein for the mitigation of impacts, in order to achieve quality of work.
h. Quality of Materials

- All the materials to be used in the construction of the project components are to be new, of best quality and manufacture and in accordance with the current British Standard and Ghana Standard Board specifications, where they exist. Where they do not exist, samples are to be provided for tests to be carried out on the materials. When samples have previously been submitted and approved, all subsequent deliveries should be in accordance with the sample.

The contract documents prepared for the execution of the project should insist on the use of materials of the highest quality, which are of the current Ghana Standard Board or British Standard specifications. The DICs and members of NIC would visit sites to inspect the materials and would ensure that subsequent deliveries would be in accordance with the samples previously inspected and approved.

i. Supervision of the Works

- Supervision of the works would be done by the District Implementation Committees in order to have proper control of the construction of the components of the project and reports prepared and sent to the NIC. This is further mentioned in the recommendations for Institutional Framework.

j. Selection and Design of Types of Project Components

- The design of the project components and the selection of types of water points and sanitation facilities are to be carried out in conjunction with or by the District Assemblies and District Implementation Committees. The DAs have their developmental plans and know, for example, which communities would be served with pipeborne water within a year or two. This proposal is also to avoid the selection or design of impractical project components, which would be imposed on the beneficiaries.

The selection of type of school building, teachers’ quarters, water points and sanitation facilities should be done by the DAs and DICs. Report on the project component selections made would be sent to the NIC.

k. Security

- The water points must be protected to prevent misuse, accident and intentional pollution. Wells and boreholes should be secured by raising concrete barrier structure and provided with cover and lock. The sanitation facilities must be secured by lock when the schools are not in session.

Visual inspection of the water points and sanitary facility is required to determine whether they are secured by concrete barriers and with locks. The DICs and GES are to undertake this inspection.
1. **Groundwater Depletion/Aquifer Recharge**

- This is relevant for wells and boreholes. Design considerations should ensure that abstraction rates are consistent with natural aquifer recharge. Consultations with the regional CWSA would provide information on the aquifer recharge.

  Questionnaires could be applied to the teachers and pupils to determine whether there are times that the groundwater gets depleted or the yield is observed to reducing. This would be carried out by the DICs and CWSA.

**m. Groundwater Quality**

- Water is intended for human consumption and should be subjected to quality analysis by the Community Water and Sanitation Agency (CWSA) to determine whether it meets the required standards before giving approval. Supposing the groundwater does not pass the standard tests, the CWSA would advise on exactly which steps to take. It is imperative to mention that during the operational phase regular quality analysis would also have to be carried out to ensure that the water continues to be suitable for drinking.

  The DICs are to liaise with the CWSA in monitoring the groundwater quality, document the data properly and to prepare reports to be submitted to EPA, GES and MOEYS.

**n. Groundwater Contamination**

- Work on septic tanks and pits would have to be carried out professionally and to the highest quality to avoid contamination of groundwater during the constructional phase, and leachate into groundwater during the operational phase. Work quality inspections are to be carried out by DICs.

**o. Availability of Teachers**

- The Deprived Schools Teacher Incentive Scheme, prepared by the Ghana Education Service, should be implemented to ensure sustainability of the project.

  The Ministry of Education Youth and Sports, Ghana Education Service and the Ministry of Finance should see to the implementation of the Deprived Schools Teacher Incentive Scheme. Performance assessments of the scheme should be undertaken by an independent consultant to monitor its implementation.

**p. Liquid Waste Management in Primary Schools**

- Measures to guide the operation of schools with regards to Liquid Waste Management in order to ensure the project’s sustainability include:
  - Provide enough toilet seats and urinal points to cater for the school
  - Ensure that the pupils use these facilities without resorting to “free-ranging”
- Ensure that the pupils are sensitised to understand the reasons why they are to use these facilities. Sanitation and hygiene could be incorporated into their school work.
- Incorporate waste water disposal in the design to ensure that waste water from wash basins flow into proper gutters, where they are available
- Put in place a programme, including inspection of schools, to ensure Proper House Keeping of the facility
- Put in place a programme to periodically empty septic tanks of the Aqua Privy or WCs, either through private entities or the District Assembly, to ensure that they do not overflow.
- The DAs would be required to have a septic emptier or an improvised one, as it was apparent from the field work that Aqua Privy is better for schools in areas, where there is no pipeborne water, than the KVIP.

Liquid waste management should be monitored during operational stages of the project. This should be undertaken by the DICs, GES and crosschecked by the Ministry of Education Youth and Sports.

q. Solid Waste Management in Primary Schools

- Provide enough garbage cans of right sizes and with covers to cater for the school's rubbish collection needs
- Ensure that the pupils use these facilities and that they do not throw rubbish anywhere else
- Ensure that the pupils are sensitised to understand the reasons why they are to use these facilities. Sanitation and hygiene could be incorporated into their school curricula.
- Incorporate garbage cans and rubbish collection points in the design of the school to make garbage cans easily accessible to the pupils and teachers.
- Put in place a programme, including inspection of schools, to ensure Proper House Keeping of the school.
- Put in place a programme for the evacuation of the collected rubbish, either by private entities or the District Assembly, once everyday or every other day.

Periodic monitoring and inspections should be undertaken by the DIC, GES and MOEYS during the constructional and operational phases of the project. The condition of solid waste management should be determined. The parameters to use are siting of garbage cans, number, and proximity to one another.

r. Project Management Structure

- The management structure for the EdSeP implementation with regards to environmental management is proposed to be coordinated by a National Implementation Committee (NIC), which is expected to be the highest authority. This committee is expected to provide overall policy guidance and would comprise of the heads and key technical personnel of Ministry of Education Youth and Sports (MOEYS), Ghana Education Service (GES),
Ministry of Local Government and Rural Development (MLGRD), and Community Water and Sanitation Agency (CWSA). The responsibility for the overall project management is proposed to be vested in the NIC, which would be headed by a National Co-ordinator. Under the NIC is the District Implementation Committees (DICs), which are expected to consist of representatives of Regional Education Office, District Education Office, Metropolitan Authority (District Assembly), Traditional Authorities, PTAs, School Management Committees (SMCs), and Teachers. The DIC is to be headed by the District Chief Executive (DCE).

s. Environmental Management

- The EdSeP under EPA requirement is categorised under Strategic Environmental Assessment (SEA). It is expected however that, individual components would be subjected to appropriate project level assessment following approval of the SEA prior to the project implementation. In this regard, it is proposed that the District Implementation Committees liaising with representatives of the Construction Contractors be responsible for ensuring that project specific level assessment requirements are met. They should receive initial training and orientation from Environmental Consultants in order to have the requisite skills.

t. The Role of the EPA in the Project

- The EPA plays a lead role in the administration of EIA in Ghana. The EPA Act (Act 490, 1994) and the Environmental Assessment Regulation (LI 1652) 1999 mandate the Agency to ensure compliance with laid down EIA procedures provided comprehensively for site-specific project impact assessment. The EdSeP in its preparatory assessment is to be considered under the Strategic Environmental Assessment (SEA). A single Environmental Approval would be issued for the EdSeP, on the basis of the Strategic Environmental Assessment, by the EPA. For individual projects, the EPA will implement monitoring programmes on project-by-project basis once the site specific assessment is considered satisfactory. The level of assessment for any individual project would depend on size or scale of project, nature/type and magnitude of impacts, location (land use consideration, compatibility and sensitivity), and resource base and resource at risk. In general, there are three environmental assessments available under the Ghana EIA procedures:

(a) Individual Projects for which only Registration may be required using Form EA1

(b) Individual Projects for which Preliminary Environmental Assessment may be required

(c) Individual Projects for which Environmental Impact Assessment may be required

- The EPA would register all EdSeP project components and monitor environmental compliance following implementation.
• EPA would also maintain a register of all EdSeP project components in all the regions and prompt its regional officers to monitor the projects and provide updated information on their environmental performance and status.

• Finally, the EPA would assist, monitor, and ensure that the District Implementation Committees comply with laid down EA procedures in the implementation of the individual projects, especially when it comes to Site Selection and the issue of Compensation and Resettlement.

u. Role of District Administrations

• District Assemblies (DAs) are empowered under Act 462 of 1993 to be responsible for development, improvement and management of human settlements and the environment in their districts.

• In order to facilitate the work of the DAs in this regard, District Implementation Committees (DIC) are proposed to be formed in all the districts that would receive the EdSeP project components.

v. Role of District Implementation Committees

• The District Implementation Committees have a major role to play in any of the developments under the EdSeP in their district and are required to ensure ultimate sustainability.

• It is proposed that the EdSeP involves the DICs in all aspects of project implementation to ensure that the best available procedures are adopted to enable compliance with sound environmental practice.

w. Capacity Building

• The members of the National Implementation Committees (NIC), District Implementation Committees and the groups of potential contractors are to be provided with Environmental Awareness Training. For the last two groups the training would also be aimed at developing and improving on skills to screen for site selection and potential environmental and social impacts, fill the environmental forms, be able to comprehend and take mitigation measures and take steps to monitor the potential impacts of the Project.

x. Cost estimates of the implementation of the mitigation measures & monitoring

• The total amount to be incorporated into the projects costs with regards to implementation and monitoring of the mitigation measures is US$ 1,100,909. This amount consists of: $200,000 for monitoring Community Involvement, $36,364 for monitoring Noise measurements, $454,545 for Back up spare parts, $200,000 for monitoring the availability of teachers, and $210,000 for capacity building.
1. INTRODUCTION
This is the Draft Final Report on the preparation of an Environmental and Social Management Framework for the Education Sector Project of the Ministry of Education Youth and Sports (MOEYS). The assignment was executed from 6th October to 12 November 2003 by a team of Consultants from the Ghana Institute of Management and Public Administration (GIMPA).

1.1. Background of the Assignment
Improving the educational sector is one of the key issues of Ghana's development agenda, over the years. In pursuit of restoring the standard of education, governments have made various efforts with the view of ensuring that the education services provided fulfil the expectations of the individual as well as making available the requisite human resource capital for national development.

In this regard, the Government of Ghana has received significant assistance from its Development Partners, who have, through a variety of interventions and funding programme, provided additional resources to enable the Educational Sector to confront the numerous challenges in delivering educational services to all levels.

Currently, an Educational Sector Project (EdSeP) to be funded by IDA is being developed. The proposed Education Sector Project is to support the Government of Ghana’s efforts to improve educational services. It will build on progress achieved in recent years mainly the achievements of the Basic Education Sector Improvement Programme. The EdSeP would also support the Ministry of Education Youth and Sports (MEYS) to implement its Education Strategic Plan and Work Programme (2003 – 2015).

The strategic plan spells out the Ministry’s policies, targets, strategies and advises and adopts an “issues-based” approach to sector development. It identifies four (4) principal areas of focus:

- Equitable access to education
- Quality of education
- Education management
- Science and technology

The development objectives of the Education Sector Project (EdSeP) were developed in the strategic context of past efforts in the sector. In 2002, for example, the Government launched parallel sector reviews in order to be in a position to reach the Millennium Development Goals (MDGs), and in 2003, the Government completed its Ghana Poverty Reduction Strategy (GPRS), which aims at promoting equitable human resource development, and gives a central place to education. At the same time, Ghana became eligible to apply to the Education for all/Fast Track Initiative (EFA/FTI).

The Ministry of Education Youth and Sports (MOEYS) then started preparing an Education Strategic Plan (ESP), which links sectoral objectives to those coming from a poverty reduction perspective. The ESP translates the Government’s priorities and builds on a dialogue with its development
partners. The EdSeP is at the point of convergence on these strategic streams and is complementary to the forthcoming Poverty Reduction Support Credit (PRSC), the Bank-financed operation to support the GPRS. Within this context, and given the other operations currently in place or being prepared, the objective of the EdSeP are to (i) strengthen the efficiency and management of the education sector, and (ii) ensure equitable access to quality education services at all levels.

In support of these objectives, the EdSeP will include – under the Pilot Programmatic Scheme – the construction of about 400 primary schools, including water points and sanitation facilities, per year, as well as the provision of teacher accommodations. These schools are to be built in poor, targeted areas.

1.2. Objectives of the Study

The MOEYS required an environmental and social analysis of all components of the EdSeP, with particular attention to civil works activities.

According to the Terms of Reference (TOR), the purpose of the proposed study was threefold. Firstly, the consultants would develop an Environmental and Social Management Framework (ESMF) which would enable those responsible for future construction activities to (i) screen for potential environmental and social impacts due to construction activities; (ii) identify and apply appropriate mitigation measures; and (iii) monitor the implementation of these measures.

Secondly, the study will assess the relevant institutional capacity for mitigating as well as implementing these measures.

Thirdly, the proposed study will include an appropriately budgeted Environmental Mitigation Plan (EMP) for the entire project to facilitate its implementation.

1.3. Scope of the Study

In developing the ESMF, the consultant would carry out the following tasks:

(i) Review the biophysical characteristics of the environment in the urban and rural areas to be covered by the project, and highlight the major constraints that need to be taken into account in the course of project implementations.

(ii) Assess the potential environmental and social impacts of construction activities in the urban and rural areas and recommend mitigation measures as appropriate, including cost estimates;

(iii) Assess the potential environmental and social impacts of the provision of water points and sanitation facilities under the project, and make recommendation;

(iv) Assess the need for liquid and solid waste collection, disposal and management under the proposed project, and make recommendations accordingly;
(v) Review Ghana's environmental policies, legislation, regulatory and administrative frameworks in conjunction with the World Bank's recommendations as to how to close these gaps in the context of the proposed project as appropriate;

(vi) Review the Conventions and Protocols to which Ghana is a signatory;

(vii) Assess existing environmental assessment and management capacity, as well as the capacity to implement the proposed mitigation measure, and make recommendations as appropriate, including potential capacity building and training needs and their costs;

(viii) Prepare an Environmental and Social Management Framework (ESMF) to enable those responsible for construction activities to (a) screen for: (i) site selection; (ii) potential environmental and social impacts; (iii) mitigation of impacts; and (b) to outline (i) steps for monitoring of potential impact, with a process for triggering subsequent environmental and / or social assessments, where necessary, and (ii) institutional responsibilities for the afore-mentioned activities. The ESMF should also include references to Ghana's environmental policies and laws as well as to the World Bank's safeguard policies to ensure that these are respected during project implementation.

(ix) Prepare an Environmental Mitigation Plan (EMP) for the implementation of EdSeP. The EMP should outline: (i) potential environmental and social impacts resulting from project activities; (ii) proposed mitigation measures; (iii) institutional responsibilities for implementation of the mitigation measures; (iv) monitoring indicators; (v) institutional responsibilities for monitoring the implementation of the mitigation measure; (iv) cost estimates for these activities; and (vii) time horizons for implementation of the EMP.

The full Terms of Reference is given as Appendix 1.

1.4. **Output of the Study**
From the terms of reference the output of the study would be an Environmental Assessment Report containing:

- Environmental and Social Management Framework (ESMF)
- Environmental Mitigation Plan (EMP) for the Implementation of EdSeP.
2. DESCRIPTION OF THE PROPOSED PROJECT

2.1. Summary of Project Components and Sub-Components

The EdSeP is currently presented as a packaged project with three main components:

A: Capacity Building and Management
B: Pilot Programmatic Scheme, and
C: Development and Innovation in Tertiary Education

A: Capacity Building and Management

The Capacity Building and Management component aims to strengthen the institutional basis and the management capacity needed:

- To power the national neo-developmental drive.
- For efficient delivery of education services.

The objectives, outputs, and indicators of this component can be categorized according to the two sub-components as follows:

The Sector-based Rationalization:
The objective is to carry out a Sector-Based Rationalisation that will result in normalized functions and cross-agency as well as internal division of labour with clarified responsibilities and scope of authority. This is expected to serve the additional purpose of facilitating the Government’s decentralization policy. The main outcome of the rationalization will be the establishment of mandate for each main organization unit with their roles and functions devoid of inherent duplications and overlaps. This process will generate a report detailing the normalized functions and role of the organization units within the Ministry of Education Youth and Sports, their place on the organization map and their authority and responsibility levels.

Agency-based Capacity building and Modernization

The objective is to improve the availability, quality and utilization of human resources, physical resources, financial resources and information resources, while improving procedures and providing efficient systems to effectively manage these resources.

The outputs of the diverse operations under this sub-component are: the Vision and Mission statements and, internal structure of the organization units with job descriptions for staff; improved Systems and Procedures for human, physical, financial and information resources management.

Indicators that the planned activities have been successfully carried out are: Staff assigned to jobs with job description and knowing the vision and mission of the Ministry of Education Youth and Sports as well as that of their parent organization unit; Multi-year training program; Systems design and pilot
Proposal for the implementation of a computerized information system for human, physical, and financial resources management.

B: The Pilot Programmatic Scheme
The Pilot Programmatic Scheme is aimed at lending complete support to and aiding the full implementation of the Education Sector Plan. The objective is to use a pilot scale implementation to develop and test a mechanism that will enable the Ministry of Education Youth and Sports and Development Partners to move to full-scale sector-wide approach, leading, ultimately, to a more comprehensive budgetary support.

The main component of the programmatic scheme is:

The Annual Programme of Work
As a tool for realizing the ambitions of the Education Sector Plan, the PoW and, with it, the planning process, is intended to create a more efficient mechanism to channel funds to decentralized structures; to create a favourable environment for MOEYS and its implementing agencies to take direct and full responsibility for the PoW; and generate increased ownership from Development Partners. It is also a mechanism by which deprived areas would be the major beneficiaries of activities under the themes of the PoW.

The major participants of the planning process and implementation include the MOEYS, the GES with its Regional and District Education offices, the Faith-based organizations, NGO, Development Partners, and the National Development Planning Commission (the inter-ministerial body responsible for coordinating sectoral plans).

C: Development and Innovation in Tertiary Education Component
The Teaching and Learning Innovation Fund (TALIF) is a primary mechanism of the Education Sector Project for assisting tertiary institutions to improve their teaching and learning activities. In line with the derived specific objectives of the Fund, this component has further been organized into six sub-components:

a) Improving the quality of teaching and learning
This sub-component is intended to help improve capacity in knowledge and skills development through a revision of the curricula at program and course levels to reflect changes in technology advances and the evolving requirement of the labour market.

b) Sharpening and relevance and skills content of polytechnic education
This sub-component is structured to make teaching staff aware of the changing skills expectations of the labour market, while improving opportunities for students to acquire a diversified set of skills that make them better suited for life in their environment.
c) **Improving the efficiency with which tertiary institutions manage academic programs.**
This sub-component will focus on enhancing the capacity of educational and supervisory institutions to manage their human and financial resources more efficiently and effectively.

d) **Expanding access to strategically important post-graduate programs**
This sub-component will look at increasing the capacity institutions to absorb the increases demand for enrolment for tertiary education.

e) **Tackling the problem of HIV/AIDS**
With the aim of stabilizing and reducing the incidence of HIV/AIDS, this sub-component will focus on increasing awareness through integration into curricular where appropriate and, introducing structures to give support to the HIV/AIDS affected.

f) **Broadening Access**
Distance education programme will be used to improve assess to education of people in remote and poorer regions.

g) **ALIF: Management And Structures**
TALIF operates in partnership with the National Council of Tertiary Education (NCTE) and participating universities. Management of the Fund’s activities will be collaboration between the Campus Proposal Review Committee (CPRC) of participating tertiary institutions on the one hand, and the TALIF unit (TU) within the NCTE on the other hand.

2.2. **Project Facilities**
In order to achieve its objectives, the EdSeP, under the Pilot Programmatic Scheme, would construct about 400 primary schools, including water points and sanitation facilities, and teachers accommodation. The project facilities have been discussed below.

2.3. **Primary School Building**
A Primary School in Ghana usually comprises a 6-classroom building and an office. Each of the classrooms is built to accommodate about 35 pupils. The dimensions range between 42m² (7m x 6m) and 56m² (7m x 8m). Primary schools usually have enough playing ground for games such as football and athletics.

2.4. **Water Points**
The project would support the construction of water points for the 400 primary schools to be built. The water points to be constructed for a given catchment area would depend on the availability of water resource, practical costs and the water quality.

The project areas would be predominantly rural and most part of these would not have access to pipeborne water. Among the relatively safe and practical sources of water for such areas without pipeborne water is groundwater.
Groundwater is mainly the source of drinking water for majority of the communities in the project area visited.

The two major forms of groundwater tapping are hand-dug wells and boreholes. Thus for the EdSeP, the water points could be tap (pipeborne) water, hand-dug wells or boreholes. It could also be any combination of the above depending on the supply of pipeborne water, quality of groundwater, and groundwater extraction and recharge rates.

2.5. Sanitation Facilities
In addition to the water points, sanitation facilities would be provided for the 400 primary schools to be built. The sanitation facilities observed in the beneficiary districts were the Kumasi Ventilated Improved Pit Latrine (KVIP), Aqua Privy, Pour Flash, Water Closet (WC), Pit Latrine, Ventilated and Improved Pit (VIP), Environ Loo among others.

KVIP, which is popular for families, would be under a lot pressure if used for major schools. The most recommended sanitation facilities by all the districts visited are Aqua Privy for areas without access to pipeborne water and WCs for areas with access to pipeborne.

2.6. Teachers’ Quarters
In addition to the water points and sanitation facilities, the project would construct accommodation facility for teachers.
3. DESCRIPTION OF AREA OF INFLUENCE

3.1. Introduction
Under the Pilot Programmatic Scheme (PPS) of the Education Sector Project (EdSeP), the focus of the activities for implementing the Programme of Work 2003-2004 would be 40 districts, selected on the basis of their comparative deprivation. In selecting the 40 districts that qualify under this broad description, the Ministry of Education Youth and Sports obtained information from education statistics provided by the districts.

3.2. Regional Distribution
The regional distribution of deprived districts indicates that, with the exception of Greater Accra Region, the rest of the regions have pockets of deprivation that need to be addressed. Statistics indicated that the three regions in northern Ghana have sections of their populace experiencing an intensification of 'vulnerability and exclusion' and that more than 40% of their population live in poverty. In educational terms, the Western Region comes next to the three northern regions in terms of deprivation. See the Regional Boundaries Map of Ghana, Figure 1.

The Table 1 below shows the regional distribution as derived from the selection:

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Beneficiary Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>12</td>
</tr>
<tr>
<td>Upper East</td>
<td>6</td>
</tr>
<tr>
<td>Western</td>
<td>5</td>
</tr>
<tr>
<td>Brong Ahafo</td>
<td>4</td>
</tr>
<tr>
<td>Upper West</td>
<td>3</td>
</tr>
<tr>
<td>Eastern</td>
<td>3</td>
</tr>
<tr>
<td>Ashanti</td>
<td>3</td>
</tr>
<tr>
<td>Central</td>
<td>2</td>
</tr>
<tr>
<td>Volta</td>
<td>2</td>
</tr>
<tr>
<td>Greater Accra</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
</tr>
</tbody>
</table>
Figure 1: Map of Ghana

Ghana

Gulf of Guinea

GIMPA/ MOEYS Environmental and Social Management Framework, November 2003
3.3. **Selected Districts**

The selected districts as per the regional distribution are presented in Table 2 below:

**Table 2: Selected Districts**

<table>
<thead>
<tr>
<th>Region</th>
<th>Districts</th>
</tr>
</thead>
</table>
| Northern        | 1. Saboba Chereponi  
|                 | 2. East Gonja  
|                 | 3. East Mamprusi  
|                 | 4. West Gonja  
|                 | 5. West Mamprusi  
|                 | 6. Savelugu Nanton  
|                 | 7. Zabzugu-Tatale  
|                 | 8. Bole  
|                 | 9. Yendi  
|                 | 10. Tolon-Kumbungu  
|                 | 11. Nanumba  
|                 | 12. Gushiegu Karaga                                                          |
| Upper East      | 1. Bawku West  
|                 | 2. Bawku East  
|                 | 3. Builsa  
|                 | 4. Kassena Nankani  
|                 | 5. Bongo  
|                 | 6. Bolgatanga                                                               |
| Western         | 1. Juabeso Bia  
|                 | 2. Sefwi-Wiaso  
|                 | 3. Mpohor Wassa East  
|                 | 4. Wassa Amenfi  
|                 | 5. Ahanta West                                                              |
| Brong Ahafo     | 1. Sene  
|                 | 2. Wenchi  
|                 | 3. Atebubu  
|                 | 4. Kintampo                                                                |
| Upper West      | 1. Nadowli  
|                 | 2. Jirapa-Lambussie  
|                 | 3. Tumu Sissala                                                            |
| Eastern         | 1. Kwahu North  
|                 | 2. Birim North  
|                 | 3. Birim South                                                             |
| Ashanti         | 1. Ejisu-Juaben  
|                 | 2. Sekyere East  
|                 | 3. Offinso                                                                  |
| Central         | 1. Gomoa  
|                 | 2. Abura-Asebu-Kwamankese                                                  |
| Volta           | 1. Nkwanta  
|                 | 2. Kete-Krachi                                                              |
| Greater Accra   |                                                                          |
4. DESCRIPTION OF THE LEGAL, REGULATORY AND ADMINISTRATIVE FRAMEWORK

4.1. Ghana’s Environmental Policy

Ghana’s National Environmental Policy aims at ensuring a sound management of resources and the environment and to avoid any exploitation of these resources in a manner that might cause irreparable damage to the environment. The policy endorses the preventive approach to environmental management and emphasises the need to promote socio-economic development within the context of prescribed acceptable environmental standards and safeguards. In effect, it seeks reconciliation between economic planning and environmental resource development with the view to achieving sustainable national development.

The Policy Statement seeks among other things:

1. to ensure environmentally sound use of both renewable and non-renewable resources in the process of national development

2. to develop procedures for the utilization of land resources in a manner that would ensure the maximum degree of economy in the use of land and avoid or minimize conflicts

3. to institute and implement the concept of sustainable development by requiring prior environmental impact assessments of new investments and developments that would be deemed to affect the quality of the environment.

4.1.1. The Need for Environmental Management

Environmental consideration is increasingly taking centre-stage in development planning and policy decision-making process at all levels: individual, national and global. This is due to growing concerns over the damage being caused to the environment by various activities in the country’s quest for social progress and economic development. It is now widely accepted that the quality of life is being threatened by the effects of air and water pollution, the destruction of forests, degradation of agricultural lands and uncontrolled exploitation of natural resources.

The current destructive paths of development are clearly unsustainable and there is now the need to reverse the trend and preserve the integrity and the natural resource base of the environment, both for the present and future generations, through effective environmental management interventions and strategies.

4.1.2. Environmental Protection Agency

The Environment Protection Agency (EPA) was established under Section (1) of the EPA Act, 1994, Act 490. It replaced NRCD 239 of 1974 and SMCD 58 of 1976, which established and managed the earlier Environmental Protection Council (EPC). The role of the Council was advisory in that it, among other things, advised Government on all environmental matters, co-ordinated activities of all bodies concerned with environmental matters and served as a channel of communication between these bodies and Government. The Council did not have the mandate to enforce any of its...
policies under the 1992 constitution of Ghana; chapter six (Directive Principles of State Policy), Article 41 makes it a constitutional duty for the state:

a) To take appropriate measures to protect and safeguard the National environment for posterity.
b) To co-operate with other state and bodies to protect the wider Global Environment.
c) To endeavour to preserve and protect places of historical interest and preserve artefacts

In line with these constitutional provisions, the EPA now has regulatory and enforcement power under Act 490.

4.1.3. Environmental Assessment Regulations, 1999, L.I. 1652

The EPA has also developed various national environmental quality guidelines, namely:

- Effluent Discharge Quality Guidelines,
- Ambient Air Quality Guidelines,
- Ambient Noise Level Guidelines.

The trust of the Agency's overall approach includes compliance promotion to facilitate good environmental practice and to seek co-operation and collaboration from those whose activities could potentially injure the environment.

There has and would always be, however, the need for regulatory regime for enforcement action against those who seek to gain through misuse of the environment or who through negligence, ignorance or inadvertence, damage the environment. Hence Part II of the Act mandates Enforcement and Control Powers on the Agency to respond appropriately to activities, which in the opinion of the Agency constitutes a threat to public health.

These enforcing measures have included and continue to include measures without the courts, namely: abatement notices, prohibition notices and noise control notices to rectify or avoid a situation of pollution. Measures with the courts include prosecution, civil injunction and recovery of cost.

In responding to the present sectoral laws on the environment, the EPA has established the Compliance & Enforcement Network (CEN). The network comprises the Police, the Navy, AMA, Officials of the Attorney General Office, the Standards Board, The Factory Inspectorate Department, Town and Country Planning Department, as well as other Stakeholders. The CEN ostensibly ensures cross-sectoral, inter agency and multi-disciplinary approach to enforcement of Chapter II of the EPA Act.
4.1.4. Environmental Impact Assessment (EIA) in Ghana

The fundamental principle underlying Ghana’s formal Environmental Impact Assessment (EIA) Procedures is the preventive approach to environmental management in which EIA is applied as a tool, especially at the project-specific level.

EA is recognized and applied in Ghana to development projects as well as other undertakings as an environmental permitting pre-requisite and a major environmental management tool. The existing procedures have evolved over time since EA became a requirement in Ghana in 1989, to screen and evaluate all developments, undertakings, projects and programmes, which have the potential to give rise to significant environmental impacts.

The procedures establish an EA process of which one principal objective is the requirement to provide enough relevant information to enable the Environmental Protection Agency to set an appropriate level of assessment of any proposed undertaking, investment or programme for the assessment for the necessary review and to facilitate the decision-making process for EA approval. The information may be gathered through an environmental impact assessment study and published in an Environmental Impact Statement (EIS), Preliminary Environmental Report (PER), or by completing an Environmental Assessment Preliminary Registration, Form EA1 or EA2, depending on the complexity, nature, and location of the proposed undertaking.

EPA is mandated by law to ensure compliance with laid down Environmental Impact Assessment (EIA) procedures in the planning and execution of development projects, including compliance in respect of existing projects. The basic objectives of the EIA system are

1. to integrate environmental management and economic decisions at the earliest stages of planning an undertaking or investment and

2. to provide avenues for the involvement of the public, proponents, private and government agencies in the assessment and review of proposed undertakings, among others

It is imperative to mention that, the procedures provide for the registration of proposed developments with the EPA and subsequent screening to determine the level of environmental assessment required for the necessary projects environment authorization or otherwise. The EdSeP, at this stage, has no identified specific sites for implementation of its various components and therefore cannot be strictly assessed under the existing Ghana EIA procedures. A more general approach incorporating an overall assessment of the programme is therefore a Strategic Environmental Assessment.

4.1.5. Strategic Environmental Assessment (SEA)

The introduction of SEA extends the aims and principles of EIA upstream to the higher, pre-project level of decision-making. It affords an important new means of analysing and addressing the environmental effects of programmes, policies and plans and other proposed strategic actions. SEA
represents a proactive approach to integrating environmental considerations into the higher levels of decision-making.

Generally, the rationale for introducing SEA as a decision making instrument is threefold:

- Incorporating sustainability considerations into policy making
- Addressing cumulative and large scale effects
- Strengthening and providing direction for individual project level EIA

Often, broader, less detailed assessments are required at these levels compared to EIA. Both processes have common elements, but increasing modification to procedure and methodology are necessary when moving from the project to the policy level. A comparison of these and other key characteristics of EIA and SEA are presented in Table 3 below:

Table 3: Comparison of EIA with SEA

<table>
<thead>
<tr>
<th>EIA of Individual Projects</th>
<th>SEA of Policy, Plans and Programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Takes place at the end of decision-making cycle</td>
<td>Takes place at earlier stages of decision making — cycle</td>
</tr>
<tr>
<td>Reactive approach to development proposal</td>
<td>Pro-active approach to development proposals</td>
</tr>
<tr>
<td>Identifies specific impacts on the environment</td>
<td>Also identifies environmental issues of sustainable development</td>
</tr>
<tr>
<td>Considers limited number of feasible alternatives</td>
<td>Considers broad range of potential alternatives</td>
</tr>
<tr>
<td>Limited review of cumulative effects</td>
<td>Early warning of cumulative effects</td>
</tr>
<tr>
<td>Emphasis on mitigating and minimizing impacts</td>
<td>Emphasis on meeting environmental objectives, maintaining natural systems</td>
</tr>
<tr>
<td>Narrow Perspective, High level of detail</td>
<td>Broad perspective, lower level of detail to provide a vision and overall framework</td>
</tr>
<tr>
<td>Well-defined process, clear beginning and end</td>
<td>Multistage process, overlapping components, policy level is continuing, iterative</td>
</tr>
<tr>
<td>Focus on standard agenda, treats symptoms of environmental deterioration</td>
<td>Focuses on sustainability agenda, gets at sources of environmental deterioration</td>
</tr>
<tr>
<td>It is site specific</td>
<td>It does not have any specific site, but area of influence</td>
</tr>
</tbody>
</table>

Source: Environmental Protection Agency

SEA provides the avenue for streamlining EIAs of individual projects, making them more consequential and reduces time and cost in their preparation. It also provides simple and practical framework for the preparation of EIAs for individual projects.
The frameworks for SEA vary sometimes substantially, and indicate the flexible adaptation of SEA to different levels and types of decision-making. As presently institutionalised, SEA is a multi-stage process that encompasses a spectrum of approaches and diverse arrangement, procedures, and methods. These include EIA-based environmental appraisal and integrated policy and planning systems, and range in emphasis from assessing the impact of implementing a policy or plan to applying SEA iteratively to build environmental aspects throughout the formulation of a proposed approach.

Environmental risks and consequences also vary with the level of generality involved in the decision-making. For instance, when moving from policy to individual project stage of the decision cycle, environmental consequence considerations shift from indirect to direct effects.

In Ghana SEA has been applied to projects such as the Village Infrastructure Project (VIP), Agricultural Services Sector Improvement Programme (ASSIP) and to the Ghana Poverty Reduction Strategy (GPRS).

4.2. Other Relevant Policies and Laws

4.2.1. Public Health Act

Ghana does not as yet have a Public Health Act, however, it does have laws and regulations pertaining to the protection of the environment and health. These laws could be traced from the criminal code, ordinances, legislative and executive instruments, acts, bye-laws of the District Assemblies etc. Some of these laws include:

- Law on Statutory Nuisances (Towns Ordinance Cap 86 of 1954), which deals with animals, overgrowth of weeds, overcrowding, waste disposal, street and premise cleansing, trades, vermin, water etc.
- Criminal code - Act 29 of 1960 (chapters 8 and 9);
- Mosquitoes Ordinance - Cap 75;
- Vaccination Ordinance - Cap 76;
- The Quarantine Ordinance - Cap 77;
- Infectious Disease Ordinance - Cap 78 of 1908 amended in 1924;
- Food and Drugs Law of 1992 (PNDCL 305b);
- Bye-laws of the various Assemblies (e.g. Local Government Bulletin 1995, of the Accra Metropolitan Assembly);
- Model Bye-Laws (by the Ministry of Local Government and Rural development e.g. Control of Restaurants and Eating Houses);
- Registration of Birth and Death - Act 301 of 1965;

4.2.2. National Sanitation Policy

The National Environmental Sanitation Policy aims at developing and maintaining a clean, safe and pleasant physical environment in all human settlements, to promote the social, economic and physical well-being of all sections of the population.

The principal components of environmental sanitation identified in the policy include:
• Collection and sanitary disposal of wastes, including solid wastes, liquid wastes, excreta, industrial wastes, clinical and other hazardous wastes;
• Storm-water drainage;
• Cleansing of thoroughfares, markets and other public spaces;
• Control of pests and vectors of disease;
• Food hygiene;
• Environmental sanitation education;
• Inspection and enforcement of sanitary regulations;
• Disposal of the dead;
• Control of rearing and straying of animals;
• Monitoring the observance of environmental standards.

These services, the policy noted, must be provided reliably and continuously to mitigate the negative effects of social and economic activity in human settlements. The policy also recognises the importance of the legislation, technical and human resource capacities, the roles of various institutions, the community and the private sector in the delivery of sanitation services. The Ministry of Local Government and Rural Development is in the process of consultation to start implementing the policy.

The formulation of clearly defined waste management and sanitation policy seeks to achieve the objective of protecting public health and improving the quality of life. The benefits of such policies are fully realised when all sectors of the economy are fully served with appropriate sanitation facilities. Once all sectors of the population are served with basic level of sanitation, incremental improvements can be made, as economic development provides funding and/or as public perceptions change.

4.2.3. Draft Water Policy
Ghana does not have an overall comprehensive water resources management policy in the form of strategies, national water master plans, mechanisms for inter-sectoral co-ordination, conflict resolution nor until recently, for tariff setting. This is not to suggest that there are no existing policies or regulations governing the entire water sector. Regulation of water use such as abstraction, and pollution control is fragmented among a number of agencies

Currently, a draft water policy has been prepared and being discussed. The objectives of the policy include:-

• Invitation of private sector operations into the urban water supply system. This will be carried out through the leasing of GWC’s facilities.
• Development of a legal, business and regulatory framework to give effect to private sector participation. An advisory committee on urban water restructuring has been set up to advise the minister of works and housing on how to involve the private sector;
• Making communities the owners and managers of their water and sanitation facilities;
- Strengthening of the community water and sanitation division of GWSC and eventually making it an autonomous agency to address the water and sanitation needs of the rural population;
- Examination of appropriate strategies for ensuring that water service to vulnerable groups, including the urban poor, is affordable;

The customary laws and practices cover water conservation, pollution control, protection of catchments and protection of fisheries. These are enforced through various sanctions usually dictated by fetish priests and priestesses. The laws are appropriate for small communities where traditional authority is strong but will not be applicable in urbanized settlements. Though the customary practices cannot be applied in urbanized communities, the discretion should be left to District Assemblies who will be required to enact bye-laws to regulate water use, to use such customary laws and practices as they consider appropriate at the local (farmer or fisherman) level.

4.2.4. Forest Policy
The Forest Policy of Ghana has been enunciated in very broad general terms. The policy among others advocates the following:

- management and conservation of Ghana's permanent estate of forest and wildlife resources; for sustainable production of domestic and commercial produce and conservation of biological diversity and the environment;
- development of viable forest and wildlife based industries for fuller utilisation of forest and wildlife resources;
- promotion of sustainable forestry and wildlife management among local people to ensure conservation of life sustaining systems, maintenance of positive cultural traditions, preservation of scenic areas and enhancement of recreational tourists and income generating opportunities particularly in the rural areas;
- promotion of adaptive research and technological advancement in the management, utilisation and development of forest and wildlife to ensure harmonisation of sustainable development with conservation values of resources;
- development of effective capability at national, regional and district levels for sustainable management of forest and wildlife resources.

A sound forest policy needs to be backed up by a strong legislative framework. Ghana's forest laws may be grouped into three categories: Reservation Laws, Forest Resource Protection Laws, and Timber Trade Laws. These laws have evolved over the years more or less since the beginning of this century. Over the years, most of these laws have been revised.

4.2.5. Planning Policies
The Town and Country Planning Ordinance 1951 (Cap 84) is the principal legislation in force regulating the general planning and development of human settlements. Its principal object was: "the orderly and progressive development of land, town and other areas whether urban or rural for conserving and developing resources and to preserve and improve
amenities thereof". The Towns Ordinance, Cap 86 (1951) was also passed for the more efficient regulating of towns and promoting public health.

Ghana is operating a new decentralised development planning system. The system is part of a wider public administration reform, which was instituted to improve the effectiveness of national institutions, administration, environment and development. The four underlying laws that give effect to the reforms and establishes the new decentralised planning system are:

- The Civil Service law, PNDCL 327 of 1993.

The new planning system establishes an institutional and administrative framework for providing and effecting national development, taking comprehensive account of socio-economic development in order to attain functional efficiency and environmental harmony.

The current management of physical growth of urban areas is carried out through a system of:

- landuse planning and management that provides a zoning framework to guide physical development;
- detail technical examination and guidance of individual physical developments to conform to the provisions of approved landuse plans and building regulations;
- delivery of basic settlement infrastructure and services by various agencies of central and local government.

4.3. World Bank’s Operational and Safeguard Policies

The operations of the World Bank are guided by a comprehensive set of policies and procedures, dealing with the Bank’s core development objectives and goals, the instruments for pursuing them, and specific requirements for Bank financed operations. The core of this guidance lies in the Operational Policies (OPs) which are short, focused statements that follow from the Bank’s Articles of Agreement, its general conditions, and from policies specifically approved by the Board. Other parts of the Manual address procedures, good practice and advise on implementation of policies. Within the overall set of Operational Policies, Bank management has identified ten key policies that are critical to ensuring that potentially adverse environmental and social consequences are identified, minimized, and mitigated. These ten are known as the "Safeguard Policies" and receive particular attention during the project preparation and approval process. These policies are:

1. Environmental Assessment (EA)
2. Natural Habitats
3. Forestry
4. Pest Management
5. Cultural Property
6. Indigenous Peoples
7. Involuntary Resettlement
8. Safety of Dams
9. Projects involving International Waters
10. Projects in Disputed Areas

The objectives of these policies are outlined below:

**4.3.1. Environmental Assessment Policy (Operational Policy: OP 4.01)**
The objectives of this policy are:

- To ensure that projects proposed for bank financing are environmentally and socially sound and sustainable
- To inform decision makers of the nature of environmental and social risks and
- To increase transparency and participation of decision makers in the decision-making process

**4.3.2. Natural Habitats Policy (Operational Policy: OP 4.04)**
The objectives of this policy are:

- Safeguard natural habitats and their biodiversity
- Endure sustainability of services and products, which natural habitats provide to human society
- Bank does not finance projects that convert *critical natural habitats*
- If significant conversion or degradation of a non-critical natural habitat, must show there are no feasible alternatives and include mitigation measures, e.g., establishing or strengthening an ecologically similar area.

**4.3.3. Cultural Property Policy**
The objectives of this policy are:

- to ensure that physical cultural resources are identified and protected in World Bank projects
- to ensure that National Laws governing the protection of physical cultural property are complied with

The policy covers archaeological and historical sites, historic urban areas, sacred sites, graveyards and burials. It is implemented as an element of the Environmental Assessment. Consultations have been held to have this policy note converted into an Operational Policy.

**4.3.4. Forestry Policy (Operational Policy: OP 4.36)**
The objectives of this policy are:

- Forests are managed in a sustainable manner
- Significant areas of forest are not encroached upon
- The rights of communities to use their traditional forest areas in a sustainable manner are not compromised
4.3.5. Pest Management Policy (Operational Policy: OP 4.09)
The objectives of this policy are:

- Ensure pest management activities follow an Integrated Pest Management (IPM) approach
- Minimise environmental and health hazards due to pesticide use
- Develop national capacity to implement IPM and to regulate and monitor the distribution and use of pesticides

4.3.6. Safety of Dams Policy
The main objective of this policy is:

- to ensure due consideration is given to the safety of dams in projects involving construction of new dams, or that may be affected by the safety or performance of an existing dam or dams under construction

Important considerations under this policy are

- Dam Height
- Reservoir Capacity

4.3.7. Involuntary Resettlement Policy: (Operational Policy OP 4.12)
The objectives of this policy are:

- To avoid or minimise involuntary resettlement and related disruption
- To provide transparent compensation procedures for the involuntary acquisition of land
- To assist the affected persons in their efforts to improve their standards of living or at least to restore them

This policy is implemented through a Resettlement Action Plan (RAP)

4.3.8. Indigenous Peoples Policy: (Operational Policy OP 4.20)
The objectives of this policy are ensure that indigenous peoples:

- Are afforded respect for their dignity and cultural uniqueness in the development process
- Do not suffer adverse effects
- Receive culturally-compatible social and economic benefits
- Benefit from prior consultation and informed participation

This policy is implemented through an Indigenous Peoples Development Plan (IPDP)

4.3.9. International Waterways Policy: (Operational Policy OP 7.50)
The main objective of this policy is:

- To ensure project will neither affect the efficient utilisation and protection of international waterways, nor adversely affect relations between the Bank and its Borrowers and between riparian states
4.3.10. Projects in Disputed Areas Policy: (Operational Policy OP 7.60)
The main objective of this policy is to ensure any territorial dispute affecting a project is identified at the earliest possible stage so as:

- Not to affect relations between the Bank and its member countries
- Not to affect relations between the Borrower and neighbouring countries
- Not to prejudice the position of either the Bank or the countries concerned

4.3.11. Operational Procedures
The World Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making.

EA is a process whose breadth and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. The Bank favours preventive measures over mitigatory or compensatory measures, whenever feasible.

EA takes into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples, and cultural property); and transboundary and global environmental aspects. EA considers natural and social aspects in an integrated way. It also takes into account the variations in project and country conditions; the findings of country environmental studies; national environmental action plans; the country's overall policy framework, national legislation, and institutional capabilities related to the environment and social aspects; and obligations of the country, pertaining to project activities, under relevant international environmental treaties and agreements. The Bank does not finance project activities that would contravene such country obligations, as identified during the EA. EA is initiated as early as possible in project processing and is integrated closely with the economic, financial, institutional, social, and technical analyses of a proposed project.

The borrower is responsible for carrying out the EA. For Category A projects, the borrower retains independent EA experts not affiliated with the project to carry out the EA. For Category A projects that are highly risky or contentious or that involve serious and multidimensional environmental concerns, the borrower should normally also engage an advisory panel of independent, internationally recognized environmental specialists to advise on all aspects of the project relevant to the EA. The role of the advisory panel depends on the degree to which project preparation has progressed, and on the extent and quality of any EA work completed, at the time the Bank begins to consider the project.
The Bank advises the borrower on the Bank's EA requirements. The Bank reviews the findings and recommendations of the EA to determine whether they provide an adequate basis for processing the project for Bank financing. When the borrower has completed or partially completed EA work prior to the Bank's involvement in a project, the Bank reviews the EA to ensure its consistency with this policy. The Bank may, if appropriate, require additional EA work, including public consultation and disclosure.

The *Pollution Prevention and Abatement Handbook* describes pollution prevention and abatement measures and emission levels that are normally acceptable to the Bank. However, taking into account borrower country legislation and local conditions, the EA may recommend alternative emission levels and approaches to pollution prevention and abatement for the project. The EA report must provide full and detailed justification for the levels and approaches chosen for the particular project or site.

### 4.3.12. Environmental Assessment (EA) Instruments

Depending on the project, a range of instruments can be used to satisfy the Bank's EA requirement: environmental impact assessment (EIA), regional or sectoral EA, environmental audit, hazard or risk assessment, and environmental management plan (EMP). EA applies one or more of these instruments, or elements of them, as appropriate. When the project is likely to have sectoral or regional impacts, sectoral or regional EA is required.

### 4.3.13. Environmental Assessment: Roles of Bank and Borrower

The Bank screens and sets EA Category, advises borrower on the Bank's EA requirements, reviews and determines if EA provides adequate basis for processing project for Bank financing and makes report available in Infoshop.

The Borrower is responsible for carrying out EA, consulting project-affected groups and local NGOs, and providing information in timely manner prior to consultation in a form and language understandable and accessible to groups being consulted.

### 4.3.14. Environmental Screening

The Bank undertakes environmental screening of each proposed project to determine the appropriate extent and type of EA. The Bank classifies the proposed project into one of four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.

#### 4.3.14.1. Category A

A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. EA for a Category A project examines the project's potential negative and positive environmental impacts, compares them with those of feasible alternatives (including the "without project" situation), and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental
performance. For a Category A project, the borrower is responsible for preparing a report, normally an EIA (or a suitably comprehensive regional or sectoral EA) that includes, as necessary, elements of the other instruments.

4.3.14.2. Category B:
A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural habitats—are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be designed more readily than for Category A projects. The scope of EA for a Category B project may vary from project to project, but it is narrower than that of Category A EA. Like Category A EA, it examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. The findings and results of Category B EA are described in the project documentation (Project Appraisal Document and Project Information Document).

4.3.14.3. Category C
A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.

4.3.14.4. Category FI
A proposed project is classified as Category FI if it involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts.

4.3.14.5. EA Requirements
The EA requires:

1. Description of proposed project
2. Analysis of alternatives
3. Baseline data
4. Analysis of potential impacts
5. Environmental Management Plan comprising
   - Mitigation Measures
   - Monitoring Activities
   - Budget and Schedule for Mitigation and Monitoring
   - Institutional Strengthening Measures
6. Information on Consultation Process

4.3.14.6. Strategic Environmental and Social Assessment
This is an emerging tool in the World Bank. Its objective is to upstream environmental and social issues into development planning, decision-making and implementation processes at the strategic level. It offers:
- Early Identification of Issues
- Evaluation of Alternatives
- Assessment of Cumulative Impacts
- Assessment of Risks

Examples of projects conducted are:
- Locust Control in Africa and West Asia
- Drainage Sector in Pakistan

4.3.15. EA for Special Project Types

4.3.15.1. Sector Investment Lending
For Sector Investment Loans (SILs), during the preparation of each proposed subproject, the project coordinating entity or implementing institution carries out appropriate EA according to country requirements and the requirements of this policy. The Bank appraises and, if necessary, includes in the SIL components to strengthen, the capabilities of the coordinating entity or the implementing institution to (a) screen subprojects, (b) obtain the necessary expertise to carry out EA, (c) review all findings and results of EA for individual subprojects, (d) ensure implementation of mitigation measures (including, where applicable, an EMP), and (e) monitor environmental conditions during project implementation. If the Bank is not satisfied that adequate capacity exists for carrying out EA, all Category A subprojects and, as appropriate, Category B subprojects—including any EA reports—are subject to prior review and approval by the Bank.

4.3.15.2. Sector Adjustment Lending
Sector Adjustment Loans (SECALs) are subject to the requirements of this policy. EA for a SECAL assesses the potential environmental impacts of planned policy, institutional, and regulatory actions under the loan.

4.3.15.3. Financial Intermediary Lending
For a Financial Intermediary (FI) operation, the Bank requires that each FI screen proposed subprojects and ensure that subborrowers carry out appropriate EA for each subproject. Before approving a subproject, the FI verifies (through its own staff, outside experts, or existing environmental institutions) that the subproject meets the environmental requirements of appropriate national and local authorities and is consistent with this OP and other applicable environmental policies of the Bank.

In appraising a proposed FI operation, the Bank reviews the adequacy of country environmental requirements relevant to the project and the proposed EA arrangements for subprojects, including the mechanisms and responsibilities for environmental screening and review of EA results. When necessary, the Bank ensures that the project includes components to strengthen such EA arrangements.

For FI operations expected to have Category A subprojects, prior to the Bank's appraisal each identified participating FI provides to the
Bank a written assessment of the institutional mechanisms (including, as necessary, identification of measures to strengthen capacity) for its subproject EA work. If the Bank is not satisfied that adequate capacity exists for carrying out EA, all Category A subprojects and, as appropriate, Category B subprojects—including EA reports—are subject to prior review and approval by the Bank.

4.3.15.4. Emergency Recovery Projects
The policy set out in OP 4.01 normally applies to emergency recovery projects processed under OP 8.50, Emergency Recovery Assistance. However, when compliance with any requirement of this policy would prevent the effective and timely achievement of the objectives of an emergency recovery project, the Bank may exempt the project from such a requirement. The justification for any such exemption is recorded in the loan documents. In all cases, however, the Bank requires at a minimum that (a) the extent to which the emergency was precipitated or exacerbated by inappropriate environmental practices be determined as part of the preparation of such projects, and (b) any necessary corrective measures be built into either the emergency project or a future lending operation. The Africa Region requires an environmental assessment within six months of project effectiveness.

4.3.16. Institutional Capacity
When the borrower has inadequate legal or technical capacity to carry out key EA-related functions (such as review of EA, environmental monitoring, inspections, or management of mitigatory measures) for a proposed project, the project includes components to strengthen that capacity.

4.3.17. Public Consultation
For all Category A and B projects proposed for IBRD or IDA financing, during the EA process, the borrower consults project-affected groups and local nongovernmental organizations (NGOs) about the project’s environmental and social aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them.

4.3.18. Disclosure
For meaningful consultations between the borrower and project-affected groups and local NGOs on all Category A and B projects proposed for IBRD or IDA financing, the borrower provides relevant material in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted.

For a Category A project, the borrower provides for the initial consultation a summary of the proposed project’s objectives, description, and potential impacts; for consultation after the draft EA report is prepared, the borrower provides a summary of the EA’s conclusions. In addition, for a Category A
project, the borrower makes the draft EA report available at a public place accessible to project-affected groups and local NGOs. For SILs and FI operations, the borrower/FI ensures that EA reports for Category A subprojects are made available in a public place accessible to affected groups and local NGOs.

Any separate Category B report for a project proposed for IDA financing is made available to project-affected groups and local NGOs. Public availability in the borrowing country and official receipt by the Bank of Category A reports for projects proposed for IBRD or IDA financing, and of any Category B EA report for projects proposed for IDA funding, are prerequisites to Bank appraisal of these projects.

Once the borrower officially transmits the Category A EA report to the Bank, the Bank distributes the summary (in English) to the executive directors (EDs) and makes the report available through its InfoShop. Once the borrower officially transmits any separate Category B EA report to the Bank, the Bank makes it available through its InfoShop. If the borrower objects to the Bank's releasing an EA report through the World Bank InfoShop, Bank staff (a) do not continue processing an IDA project, or (b) for an IBRD project, submit the issue of further processing to the EDs.

4.3.19. Implementation

During project implementation, the borrower reports on (a) compliance with measures agreed with the Bank on the basis of the findings and results of the EA, including implementation of any EMP, as set out in the project documents; (b) the status of mitigatory measures; and (c) the findings of monitoring programs. The Bank bases supervision of the project's environmental aspects on the findings and recommendations of the EA, including measures set out in the legal agreements, any EMP, and other project documents.

4.4. Review Ghana’s Environmental Policies and World Bank’s Recommendations

Generally, the environmental policies and objectives of these policies of Ghana and the World Bank are practically the same and towards the same purposes.

The following points, with regards to the above captioned, have been observed:

- The World Bank's area of influence is global and transcending borders where as the EPA's influence is of national scope. It must be mentioned however that the EPA cooperates with its counterparts in neighbouring countries.

- The World Bank operates on a Lender-Borrower relationship whilst the EPA functions on Authority-Developer relationship. In both cases the developers and borrowers are held to account with regards to safeguarding the environment and human settlement. The roles of the Lender and Authority on one side and those of the Borrower and Developer on another are on the same lines.
• Both the World Bank and EPA play advisory roles, ensuring that governments and developers make informed choices

• It must be pointed out that all but two of the ten safeguard policies of the World Bank have been captured and elaborated on extensively in the National Environmental Policy and in the Ghana Environmental Action Plan. However Indigenous Peoples and Safety of Dams have not been highlighted.

• The Environmental Assessment screening and requirements of both the World Bank and EPA are carried out as per similar categories. It is important to note that the categories correspond to each other, e.g.

  a. World Bank’s Category C corresponds to EPA’s Registration Assessment by filling the FORM EA1

  b. World Bank’s Category B corresponds to EPA’s Preliminary Environmental Assessment

  c. World Bank’s Category A corresponds to EPA’s full Environmental Impact Assessment

  d. World Bank’s Strategic Environmental and Social Assessment corresponds to EPA’s Strategic Environmental Assessment

• With regards to consultations, the EPA has better opportunities to reach and crosscheck with grass roots levels than the World Bank.

  4.4.1. Summary with regards to EdSeP’s Categorisation

The EdSeP, as it can be observed from the previous epigraph, is what the World Bank considers as Strategic Environmental and Social Assessment, which is the same as EPA’s Strategic Environmental Assessment at the decision-making and strategic level. On individual project level, it is of World Bank’s Category B.

  4.5. Conventions and Protocols

Ghana has been an active participant at the international level in the negotiation of various treaties on the environment. The following are list of some of the major international conventions and treaties in which Ghana participated and has ratified:

- Convention on the High Seas. (29.4.1958)
- Convention on the Continental Shelf. (29.4.1958)
- Convention on Fishing and conservation of the Living Resources of the High Seas.
- Convention on African Migratory Locust (23.5.1962)
- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water (5.8 1963)
- International Convention for the Conservation of Atlantic Tunas. (14.5.1966)
- Treaty on Principles Governing Activities of States in the Exploration and Use of Outer space including the Moon and other Celestial Bodies. (27.1.1962)
- International Convention Relating to Intervention on the High Seas in Cases of oil Pollution Causalities. (29.11.1969)
- Convention of Wetlands of International Importance Especially as Waterfowl Habitat. (2.2 1971)
- Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (10.4.1972)
- Convention Concerning the Protection of the World Cultural and Natural Heritage (23.11.1972)
- Vienna Convention for the Protection of the Ozone Layer, (22.3.1985)
- Montreal Protocol on Substances that Deplete the Ozone Layer. (16.9.87)
- Convention on the Conservation of Migratory Species of Wild Animals. (1.4.1988)
- London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer. (26.9.90)
- Convention for Cooperation in the Protection and Development on the Marine and Coastal Environmental of the West and Central African Region (23.3.9)
- United Nations Framework Convention of Climate Change (9.5.2992)
- Convention on Biological Diversity (5.6.1992)

A brief summary of the objectives and basic principles of some of these conventions is provided below:

### 4.5.1. Rotterdam Convention on Prior Informed

Toxic pesticides and other hazardous chemicals kill or seriously sicken thousands of people every year. They also poison the natural environment and damage many wild animal species. Governments started to address this problem in the 1980s by establishing a voluntary Prior Informed Consent procedure. PIC required exporters trading in a list of hazardous substances to obtain the prior informed consent of importers before proceeding with the trade.

In 1998, governments decided to strengthen the procedure by adopting the Rotterdam Convention, which makes PIC legally binding. The Convention establishes a first line of defense by giving importing countries the tools and information they need to identify potential hazards and exclude chemicals they cannot manage safely. If a country agrees to import chemicals, the Convention promotes their safe use through labeling standards, technical assistance, and other forms of support. It also ensures that exporters comply with the requirements.

GIMPA/ MOEYS Environmental and Social Management Framework, November 2003
4.5.2. The Montreal Protocol on Substances that deplete the Ozone Layer
The Montreal Protocol on Substances that Deplete the Ozone Layer was finally agreed upon on 16 September 1987 at the Headquarters of the International Civil Aviation Organization in Montreal. The final agreement contains clauses to cover the special circumstances of several groups of countries, especially developing countries with low consumption rates who do not want the Protocol to hinder their development.

The Protocol was only a first step, as was realised at the time. But once it was agreed, events developed with astonishing speed. New scientific evidence showed that very much tighter and greater controls would be needed, and Governments and industry moved further, and faster, than anyone would have believed possible.

4.5.3. UN Convention on Biological Diversity
The objectives of this Convention are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Article 14 of the convention- Impact Assessment and Minimising Adverse Impacts - stipulates that:

1. Each Contracting Party, as far as possible and as appropriate, shall:
   (a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures;

   (b) Introduce appropriate arrangements to ensure that the environmental consequences of its programmes and policies that are likely to have significant adverse impacts on biological diversity are duly taken into account;

   (c) Promote, on the basis of reciprocity, notification, exchange of information and consultation on activities under their jurisdiction or control which are likely to significantly affect adversely the biological diversity of other States or areas beyond the limits of national jurisdiction, by encouraging the conclusion of bilateral, regional or multilateral arrangements, as appropriate;
(d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage; and

(e) Promote national arrangements for emergency responses to activities or events, whether caused naturally or otherwise, which present a grave and imminent danger to biological diversity and encourage international cooperation to supplement such national efforts and, where appropriate and agreed by the States or regional economic integration organizations concerned, to establish joint contingency plans.

2. The Conference of the Parties shall examine, on the basis of studies to be carried out, the issue of liability and redress, including restoration and compensation, for damage to biological diversity, except where such liability is a purely internal matter.

4.5.4. The Basel Convention

A central goal of the Basel Convention is “environmentally sound management” (ESM), the aim of which is to protect human health and the environment by minimizing hazardous waste production whenever possible. ESM means addressing the issue through an “integrated life-cycle approach”, which involves strong controls from the generation of a hazardous waste to its storage, transport, treatment, reuse, recycling, recovery and final disposal.

Many companies have already demonstrated that “cleaner production” methods which eliminate or reduce hazardous outputs can be both economically and environmentally efficient. The United Nations Environment Programme’s (UNEP) Division on Technology, Industry and Economics works to identify and disseminate “best practices”

In the coming decade, more emphasis will be placed on creating partnerships with industry and research institutions to create innovative approaches to ESM. One of the most critical aspects of ESM is lowering demand for products and services that result in hazardous by-products. Consumers need to educate themselves as to the methods used in production processes and think about what they buy every day.

The Basel Convention contains specific provisions for the monitoring of implementation and compliance. A number of articles in the Convention oblige Parties (national governments which have acceded to the Convention) to take appropriate measures to implement and enforce its provisions, including measures to prevent and punish conduct in contravention of the Convention.

Because hazardous wastes pose such a potential threat to human health and the environment, one of the guiding principles of the Basel Convention
is that, in order to minimize the threat, hazardous wastes should be dealt with as close to where they are produced as possible. Therefore, under the Convention, transboundary movements of hazardous wastes or other wastes can take place only upon prior written notification by the State of export to the competent authorities of the States of import and transit (if appropriate). Each shipment of hazardous waste or other waste must be accompanied by a movement document from the point at which a transboundary movement begins to the point of disposal. Hazardous waste shipments made without such documents are illegal. In addition, there are outright bans on the export of these wastes to certain countries. Transboundary movements can take place, however, if the state of export does not have the capability of managing or disposing of the hazardous waste in an environmentally sound manner.

4.5.5. Kyoto Protocol to the United Nations Framework Convention On Climate Change

Under the Kyoto Protocol, which was adopted under the UNFCCC, industrialised countries must reduce their carbon emissions reductions (ERs) in developing countries and transition economies. Two provisions are particularly important:

- Article 6 of the Kyoto Protocol allows for the “Joint Implementation” (JI) of projects by industrialised countries, including those with economies in transition. Under this provision, an entity in such country finances or purchases ERs from a project in another.
- Article 12 of the Kyoto Protocol provides for a similar project-based mechanism, the so-called “Clean Development Mechanism” (CDM) under which an entity in an industrialised country finances or purchases ERs from a project in a developing country. The purpose is to assist developing countries with sustainable development through the transfer of cleaner technology and financial resources for specific projects while at the same time contributing to the objectives of the Convention by lowering carbon emissions.

On the issue of climate change, Ghana believes that although it is a global problem which therefore demands a global solution, the consequences of the phenomenon will affect the lives of its citizens either directly or in an indirect manner. Ghana therefore, signed the United Nation’s Framework Convention on Climate Change (UNFGCC) 1992 and ratified the same in September 6, 1995. As party to the convention, Ghana has participated in some of the activities designed to enhance capacity of members to meet their commitments under the Convention.

A national awareness creation conference on Climate Change was held in Ghana in 1996 to disdain, among other things, the extent to which impacts of climate change can undermine local and national development efforts. It was also used as a forum to encourage participation in activities that will reduce CFC emissions and enhance removals, by sinks. A national greenhouse gas inventory has been prepared to raise understanding of climate change issues and provide data on GHG emissions from energy, agriculture, forestry and industrial sectors.
According to Article 2 of the Protocol, each Party included in Annex I, in achieving its quantified emission limitation and reduction commitments under Article 3, in order to promote sustainable development, shall:

(a) Implement and/or further elaborate policies and measures in accordance with its national circumstances, such as:
   (i) Enhancement of energy efficiency in relevant sectors of the national economy;
   (ii) Protection and enhancement of sinks and reservoirs of greenhouse gases not controlled by the Montreal Protocol, taking into account its commitments under relevant international environmental agreements; promotion of sustainable forest management practices, afforestation and reforestation;
   (iii) Promotion of sustainable forms of agriculture in light of climate change considerations;
   (iv) Research on, and promotion, development and increased use of, new and renewable forms of energy, of carbon dioxide sequestration technologies and of advanced and innovative environmentally sound technologies;
   (v) Progressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention and application of market instruments;
   (vi) Encouragement of appropriate reforms in relevant sectors aimed at promoting policies and measures, which limit or reduce emissions of greenhouse gases not controlled by the Montreal Protocol;
   (vii) Measures to limit and/or reduce emissions of greenhouse gases not controlled by the Montreal Protocol in the transport sector;
   (viii) Limitation and/or reduction of methane emissions through recovery and use in waste management, as well as in the production, transport and distribution of energy;

(b) Cooperate with other such Parties to enhance the individual and combined effectiveness of their policies and measures adopted under this Article, pursuant to Article 4, paragraph 2(e)(i), of the Convention. To this end, these Parties shall take steps to share their experience and exchange information on such policies and measures, including developing ways of improving their comparability, transparency and effectiveness. The Conference of Parties serving as the meeting of the Parties to this Protocol shall, at its first session or as soon as practicable thereafter, consider ways to facilitate such cooperation, taking into account all relevant information.
### 4.5.6. Beijing Amendment

According to C. Article 2F, paragraph 8 of the protocol, the following paragraph shall be added after paragraph 7 of Article 2F of the Protocol:

Each Party producing one or more of these substances shall ensure that for the twelve-month period commencing on 1 January 2004, and in each twelve-month period thereafter, its calculated level of production of the controlled substances in Group I of Annex C does not exceed, annually, the average of:

(a) The sum of its calculated level of consumption in 1989 of the controlled substances in Group I of Annex C and two point eight per cent of its calculated level of consumption in 1989 of the controlled substances in Group I of Annex A; and

(b) The sum of its calculated level of production in 1989 of the controlled substances in Group I of Annex C and two point eight per cent of its calculated level of production in 1989 of the controlled substances in Group I of Annex A.

However, in order to satisfy the basic domestic needs of the Parties operating under paragraph 1 of Article 5, its calculated level of production may exceed that limit by up to fifteen per cent of its calculated level of production of the controlled substances in Group I of Annex C as defined above.

### 4.5.7. UN Convention on Drought and Desertification

Combating desertification is essential to ensuring the long-term productivity of inhabited drylands. Unfortunately, past efforts have too often failed, and around the world the problem of land degradation continues to worsen. Recognizing the need for a fresh approach, 179 governments have joined as of March 2002, the United Nations Convention to Combat Desertification. This Convention aims to promote effective action through innovative local programmes and supportive international partnerships.

The treaty acknowledges that the struggle to protect drylands will be a long one - there will be no quick fix. This is because the causes of desertification are many and complex, ranging from international trade patterns to unsustainable land management practices. Real and difficult changes will have to be made, both at the international and the local levels.

### 4.5.8. Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement of Hazardous Waste within Africa

#### 1. Hazardous Waste Import Ban

All Parties shall take appropriate legal, administrative and other measures within the area under their jurisdiction to prohibit the import of all hazardous wastes, for any reason, into Africa from non-Contracting Parties. Such import shall be deemed illegal and a criminal act. All Parties shall:

(a) Forward as soon as possible, all information relating to such illegal hazardous waste import activity to the Secretariat who shall distribute the information to all Contracting Parties;
(b) Co-operate to ensure that no imports of hazardous wastes from a non-Party enter a Party to this Convention. To this end, the Parties shall, at the Conference of the Contracting Parties, consider other enforcement mechanisms.

2. Ban on Dumping of Hazardous Wastes at Sea and Internal Waters
(a) Parties in conformity with related international conventions and instruments shall, in the exercise of their jurisdiction within their internal waters, territorial seas, exclusive economic zones and continental shelf, adopt legal, administrative and other appropriate measures to control all carriers from non-Parties, and prohibit the dumping at sea of hazardous wastes, including their incineration at sea and their disposal in the seabed and sub-seabed. Any dumping of hazardous wastes at sea, including incineration at sea as well as seabed and sub-seabed disposal, by Contracting Parties, whether in internal waters, territorial seas, exclusive economic zones or high seas shall be deemed to be illegal;

(b) Parties shall forward, as soon as possible, all information relating to dumping of hazardous wastes to the Secretariat, which shall distribute the information to all Contracting Parties

4.5.9. General Review of provisions in national and international Legal and Institutional provisions

a. Implementation of Conventions and Protocols
Even though Ghana has signed and ratified quite a number of international conventions and protocols, only few have been translated into national laws and regulations for implementation. The major problem here is the requisite capacity building and scarce financial resources needed to implement these conventions

b. Lack Of Comprehensive Legal Framework For Development Control
There is a general lack of comprehensive and well-coordinated legislative framework that compels the project developers to abide by set standards and which prescribe adequate sanctions that the law may impose on deviant developers. The national laws relating to development control are scattered.

c. Conflict Between National and International Laws
There are several conflicts among the multiplicity of laws that affect the environment and development implementation. Generally, these conflicts can be resolved by developing a comprehensive environmental and development control regime.

d. Obsolete Laws
Most of the national laws that regulate development control are old and have obsolete provisions. This has made the implementation of development projects either impossible or irrelevant in view of the changing needs of society.
e. **Rights Of The Citizen**
The existing legal framework for project development control overlooks the right of the citizen vis a vis the state in such matters. Even though the constitution of Ghana provides for the payment of compensation for the acquisition of individual property (as against the state), the existing laws do not require public sector agencies to make specific budgetary provision for the adverse impact development of public infrastructure may have on private citizens. There is therefore the need for reciprocal provisions to protect the rights of individuals who own existing development. Particularly, the development of school infrastructure often impact adversely on already existing development in the form of burrow pits creation, dust and noise though no provision to ameliorate or compensate for the adverse impact is provided. Section 56 of Act 462, provides a mechanism for the individual to seek compensation in such instances but it is the view of the consultant that there needs to be complementary requirements for public sector agencies to budget for envisaged adverse impact.

f. **General Dichotomy Between Centralized And Decentralized Laws**
It was observed that most of the relevant laws passed before the 1992 Constitution are centralized in their approach whilst those made after are decentralized in character. For example, the *Local Government Act, 1993*, Act 462 is based on the key principle of decentralization whilst the *Town and Country Planning Ordinance, Cap 84* is centralized and sets up T&CPD as a monolithic central government organization with regional/district branches. It would appear that so far as permit approval is concerned, a problem is created in fitting the centralized institutions into the scheme of things at the decentralized local level.

g. **Multiplicity Of Institutions With Development Control Functions**
It was confirmed that a multiple number of institutions have been either assigned or perform developmental functions. The institutions involved include, but are not limited to the District Assemblies, the Water Resources Commission, Lands Commission and the Environmental Protection Agency.
5. METHODS AND TECHNIQUES USED IN ASSESSING AND ANALYSING THE IMPACTS

5.1. General Approach to the Assignment
The Consultants adopted a participatory approach towards the execution of the assignment.

This approach entailed the involvement of all key stakeholders in the education sector in the process of data collection and analysis, and the development of interventions.

The purpose was to build consensus on the formulation of the project and commitment to project implementation.

The Consultants held preliminary meetings with the Chief Director of the Ministry of Education, Youth and Sports to agree on the general approach, level of collaboration and essential inputs to be provided by the Ministry.

5.2. Methods of Data Collection
The consultants employed a mixture of methods and techniques to collect data for the execution of the assignment. Both primary and secondary data were collected. The methods/techniques used are highlighted below:

5.2.1. Literature Review/Desk Study
The consultants collected and reviewed a number of documents relevant to the assignment. The main documents reviewed and which provided valuable secondary data included:

- The Ghana Education Strategic Plan (ESP) – Volumes 1 and 2.
- Draft Project Appraisal Document of the Education Sector Project.
- Environmental Protection Agency (1996), Environmental Assessment Procedures in Ghana.
- Conventions and Protocols relating to Environmental Protection Assessment to which Ghana is a signatory.
- Organizational Structure of the MOEYS.
- Education Sector Policies and Procedures of the MOEYS.
- Maps (administrative and geographical) and Profiles of the 40 Districts (Topographic sheets, vegetation, terrain, climatic conditions, population densities, cultural and traditional practices, social development, occupations, sacred grooves, reserves, streams etc.)
- World Bank’s Involuntary Resettlement Policy
- World Bank’s Operational and Safeguard Policies

5.2.2. Design and Administration of Data Collection Instruments
The Consultants designed interview guides and questionnaires to help in the data collection process.
The questionnaires and interview guides are given in Appendix 2. Questionnaires were administered to, and interviews held with, various stakeholders.

The first phase of data collection involved the administration of questionnaires and interviews with officials of the following institutions:

- Ministry of Education, Youth and Sports
- Ministry of Local Government
- Ministry of Environment and Science
- Ministry of Works and Housing
- Ghana Education Service (GES)
- Environmental Protection Agency
- Lands Commission
- Land Valuation Board
- World Bank
- Ministry of Local Government and Rural Development
- Survey Department
- Town and Country Planning

The second phase of data collection involved field visit to the selected Districts.

### 5.2.3. Field Work

The Consultants carried out field visits to ten (10) out of the forty (40) project districts as was agreed upon at the negotiations for the contract. The selected districts, based on quantum and geographical spread are as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Northern</td>
<td>West Gonja</td>
</tr>
<tr>
<td>ii. Northern</td>
<td>Tolon-Kumbungu</td>
</tr>
<tr>
<td>iii. Upper East</td>
<td>Bolgatanga</td>
</tr>
<tr>
<td>iv. Western</td>
<td>Ahanta West</td>
</tr>
<tr>
<td>v. Brong Ahafo</td>
<td>Kintampo</td>
</tr>
<tr>
<td>vi. Upper West</td>
<td>Sisala</td>
</tr>
<tr>
<td>vii. Eastern</td>
<td>Birim South</td>
</tr>
<tr>
<td>viii. Ashanti</td>
<td>Offinso</td>
</tr>
<tr>
<td>ix. Central</td>
<td>Gomoa</td>
</tr>
<tr>
<td>x. Volta</td>
<td>Kete Krachi</td>
</tr>
</tbody>
</table>

The underlying reasons for this selection were:

i. This was not a specific Environmental Impact Assessment but rather Strategic Environmental Assessment.

ii. Limited time (4 weeks) within which to undertake the study.

As part of the fieldwork, focus group discussions were held with identified groups, which included teachers, school management boards and school children.
In each of the above districts, interviews were held with officials of various agencies and questionnaires were also administered to same. The following provided data inputs:

- District Chief Executives
- District Coordinating Directors
- District Planning Officers
- District Engineers
- District Director of Education
- Headteachers
- Teachers
- Community Water and Sanitation Engineers
- Ghana Water Company Chemists
- Members of Parent-Teachers Associations
- Members of School Management Committees
- School Children

The school children and parents talked to were both male and female. Almost all the parents interviewed were farmers and traders. About half of the teachers and head teachers interviewed were women. Lastly, one District Director of Education and one District Coordinating Directors were women.

In view of the limited time frame, two (2) teams of consultants undertook the fieldwork concurrently. The full list of Institutions contacted is given as Appendix 3.

5.3. **Assessing and Analysing of Environmental Social Impacts**

The methodology adopted for assessing and analysing the impacts was the descriptive type. This type was most suitable since the main purpose of the analysis was to provide an environmental and social impacts perspective of EdSeP. Other reasons for deciding to employ the descriptive approach included the fact that an exploratory descriptive studies could be less expensive, relatively easy to implement and able to yield results in a fairly short period of time. The main objectives of the environmental and social analysis were to:

- Assess any potential environmental and social impacts that could emanate from investing in the pre-construction, construction and operational phases of the Project.
- Assist MOEYS in determining actions to mitigate the environmental and social adverse effects of EdSeP activities.
- Enable MOEYS in playing the capacity building in the long-term to address EdSeP environmental issues.

In order to determine potential impacts and develop the relevant mitigation measures the following factors were considered:

- Pre-constructional phase social impacts
- Constructional phase impacts
- Operational phase impacts
  - Environmental Impacts such as solid and liquid waste generation, collection, disposal and management
  - Social Impacts such as resettlement issues
Following the analysis, a draft report was prepared and submitted to the Client.

5.4. Outline of the Work Plan for the Assignment

The outline followed for the execution of the assignment is given in Figure 2.

Fig. 2: Outline of Work Plan for the Assignment
6. CONSULTATIONS WITH KEY STAKEHOLDERS

The various institutions, organisations, Ministries, Departments and Agencies, individuals and stakeholders consulted are:

6.1. Ministry of Education Youth and Sports

The Ministry of Education Youth and Sports was contacted for the following information:

- The Ghana Education Strategic Plan (ESP) – Volumes 1 and 2.
- Draft Project Appraisal Document of the Education Sector Project.
- Organizational Structure of the MOEYS.
- Education Sector Policies and Procedures of the MOEYS.
- Introductory letters were obtained from the Chief Director of the Ministry to all areas that were visited to facilitate the administration of questionnaires.
- Policy issues were also obtained from top personnel of the Ministry.

The MOEYS by itself has no capacity for environmental assessment and management. However its Departments/Agencies like the GES through the school management committees have some knowledge and skills in environmental management.

6.2. Ministry of Lands and Forestry

The Ministry of Lands and Forestry was contacted on land acquisition procedures. They in turn directed the consultants to Lands Commission and Land Evaluation Board.

6.3. Lands Commission

The Lands Commission coordinates with relevant public agencies and government bodies to perform functions such as:

- On behalf of the Government, manage public lands and any land vested in the President by the 1992 constitution or by another law or any land vested with the Commission.
- Advise the Government, local Authorities and Traditional Authorities on the framework for the development of a particular area of Ghana to ensure that the development of individual piece of land is coordinated with the relevant development plan for the area in concern
- Formulate and submit to Government on national policy with respect to land use and capability
- Advise on and assist in the execution of a comprehensive programme for the registration of title to land throughout Ghana.

Policy and plan implementation and enforcement under the commission are also carried out by various agencies in their respective areas of competence such as Town and Country Planning, Lands Department, Forestry Department, and Forestry Commission.

The Lands Commission has not developed any capacity in environmental assessment and management.
6.4. **Land Valuation Board**

Article 20 Clause 2 stipulates that compulsory acquisition of property by the State shall be made under a law which makes provision for the prompt payment of fair and adequate compensation. The Lands Valuation Board is the body that determines what is the appropriate compensation payable for any landed property compulsorily acquired by the State. The Lands Valuation Board was therefore consulted for modalities of claims and compensation payments. In instances where there are discrepancies between the Ghanaian law and the World Bank Policies, the World Bank policy apply.

The Land Valuation Board has no capacity for environmental assessment and management.

6.5. **The Ministry of Local Government and Rural Development**

This Ministry was contacted on the role the District and Municipal Assemblies are playing in the environmental management. The municipal assemblies are responsible for waste management. Similarly the DAs are responsible for waste disposal and management in the Districts.

6.6. **Environmental Protection Agency**

The EPA plays a lead role in the administration of EIA in Ghana. The EPA Act (Act 490, 1994) mandates the Agency to ensure compliance with laid down EIA procedures provided comprehensively for site-specific project impact assessment. The EdSeP in its preparatory assessment is to be considered under the Strategic Environmental Assessment (SEA).

A single Environmental Approval would be issued for the EdSeP, on the basis of the Strategic Environmental Assessment, by the EPA. For individual projects, the EPA will implement monitoring programmes on project-by-project basis once the site specific assessment is considered satisfactory. The level of assessment for any individual project would depend on the following factors.

- size or scale of project
- nature/type and magnitude of impacts
- location (land use consideration, compatibility and sensitivity)
- resource base and resource at risk

The EPA has environmental assessment and management capacity. The Agency has offices in all the 10 regions of the country, staffed with highly qualified personnel.

6.7. **Town and Country Planning**

The Town and Country Planning in the districts would scrutinize and approve, or otherwise, the building plans and would provide a Zoning Report. The Building Plans and the Zoning Report are to be attached to the EA1 Form and submitted to EPA. (See Appendix 4)

The Town and Country Planning Department has limited environmental assessment and management capacity.
6.8. **Metropolitan Authorities & District Assemblies**

Ghana has a system of local government and an administration, which is as far as practicable decentralized. The District Assemblies and Metropolitan Authorities are the highest political authorities in the districts and they have the deliberate, legislative and executive powers. The functions of these local authorities include the formulation and execution of plans, programmes and strategies for the effective mobilization of resources necessary for the overall development of the districts.

More importantly, the management and final disposal of wastes at landfill sites or into sewerage systems is the responsibility of the district and the metropolitan assemblies. An effective management of school waste in Ghana cannot be possible without a deep involvement and participation of the assemblies. The concerns of some of the District and Metropolitan Assemblies have been sought and factored into this document.

6.9. **District Directorate of Education (Including Headteachers and Teachers)**

The District Directorate of Education comprised of the District Director and the Assistant District Directors. There are four Assistant District Directors in the Structure of the Ministry of Education Youth and Sports at the District level. The Assistant Directors are in charge of the following:

- Planning, Monitoring and Data Collection
- Administration, Budget, and Financial Control
- Human Resource Management and
- Supervision and Management of Teaching and Learning

The Assembly in consultation with the above Directorate plan, implement and monitor the development of any education facility in the District. However, this is not the case in some of the districts where the directorate of education are not involved in decision-making regarding the planning and implementation of school projects.

6.10. **Traditional Authorities**

Almost all the Districts visited had the Chiefs as the custodians of the land. They were therefore directly responsible for the acquisition of any piece of land. In some few places however the Tindanes (The Chief Priests) had much control over the land.

In that regard any acquisition of any piece of land in the any area had to pass through these Lords. Usually the District Assembly would have to be consulted first before one is lead to the Chief and Elders for a release of any portion of a land.

In all the Districts visited, the District Chief Executives and the District Directors of Education indicated that land for public school buildings were mainly released by the Chiefs.

6.11. **Beneficiary Communities (PTA and Pupils)**

Community participation/involvement is a key factor in the sustainability of projects of the nature of the EdSeP. The Beneficiary Communities therefore have a role to play. They have to be involved right from the beginning in the
decision-making processes at the pre-constructional stage. For instance they need to be consulted in the siting of the facilities. Most districts that neglected these key stakeholders at the pre-constructional stages of projects in the district faced problems in the end. Projects had to battle with low patronage. The sense of ownership has to be built right from the start of the project.

6.12. District Environmental Management Committees (DEMC)
The above committees are directly responsible for environmental issues in the district. They have direct oversight responsibility concerning issues of water and sanitation. They play a key role in terms of organisation for cleanliness within the district. They have representatives in almost all the schools in the districts. Their representatives are also teachers in the schools.

Their opinion in the Pre-constructional and especially the operational stage of the EdSeP facility is very paramount, as it would go a long way to ensure project sustainability. Members of the DEMC have had some training in Environmental Management.

6.13. District Public Works Departments
The District Public Works Departments are responsible for the civil works of the districts. Construction of school buildings and their maintenance rests more with the DAs and the GES.

Most contractors who had been awarded contracts had come from outside the district. Except for DA funded schools, the contractors are hired from outside.

6.15. Community Water and Sanitation Agency
The Community Water and Sanitation Agency is a semi-autonomous agency established by Act 564 of 1998 with its own Board of Directors.

As a main agency for local level development within the governmental machinery the DAs are to work through District Water and Sanitation teams to establish district water and sanitation programmes and promote the project in eligible communities. The DAs will open separate accounts and contribute a certain percentage of funds to the cost of facilities demanded by the communities within their area of operation. The agency's roles among other thing are to:

- Preparation and review of annual district water and supply and sanitation plans
- Promotion and dissemination of information on Community and water Sanitation Projects and arouse the interest of the Communities
- Identification of interested communities and prioritisation of communities and based upon established criteria
- Ensuring all members of the community, especially women actively participate in decision making

The CWSA has responsibility for facilitating the animation, construction and operation of water and sanitation facilities.
7. BIOPHYSICAL CHARACTERISTICS OF URBAN AND RURAL ENVIRONMENTS

7.1. Introduction
The biophysical characteristics have been prepared as general baseline information, relevant to the EdSeP project, on Ghana and then zeroing in on the rural areas, as per the ecological zones (savannah, forest and coastal) because the beneficiary districts for the EdSeP project components are predominantly rural.

7.2. Water Resources
Water is fundamental to life and essential for nearly every human endeavour. Water resources have to be developed to provide for human consumption, agriculture (crop production, livestock, fisheries) and industrial applications (power generations, processing). Generally, water supply development in Ghana is influenced by an abundance of surface water and occurrence of ground water. Surface water is being used to supply potable water to population centres (above 10,000 people), provide hydropower and for irrigation among others. Ground water is used mainly to provide potable water in low population areas and areas, where surface water is inadequate.

7.2.1. Surface Water
The main river basins in Ghana, which constitute the available surface water sources, are the White Volta, Black Volta, Oti, Lower Volta, Pra, Ankobra, Tano, Bia, Coastal Drainage (mainly Ayensu and Densu) and Tordze Aka Basins. The distribution of these basins are summarized.

Rainwater harvesting also serves as a source of surface water available to many rural communities. The mean annual rainfall varies from 2,250mm in the west coastal area, to about 750mm in the eastern coastal area (around the capital, Accra), and 100mm in the North. This indicates that the South Western part of the country is well watered unlike the semi-arid savannah to the North and the Central and Eastern coastal plains. The variability and uneven distribution of rainfall result in water deficit in some parts of the country during the year. Investigations reveal that though surface water quality is generally good, local pollution however exists particularly in the mining localities and areas of intensive agricultural activities.

7.2.2. Groundwater
Aquifers underlie almost all areas in the country. Occurrence of ground water however is controlled principally by the local geology and other factors such as topography and climate. In northern Ghana, aquifers have been located at between 10m and 60m depth with an average of 27m. In southern Ghana, due to thicker soil cover, boreholes are deeper, ranging between 25m and 80m depth with an average of 42m (Bannerman, 1986).
Borehole yields vary between 10 litres/min to 600 litres/min with over 60% ranging between 10 litres/min to 50 litres/min. The average depth, location of aquifers, yields transmissivities and hydraulic conductivities in the various geological formations are given in Table 4 below. In Figure 3 is the Borehole Yield Map of Ghana.

Table 4: Hydrological information on Ghanaian rocks (1000 acre-ft/yr)

<table>
<thead>
<tr>
<th>Geological Formation</th>
<th>Age</th>
<th>Well Depth (m)</th>
<th>Aquifer Horizons (m)</th>
<th>Yield m3/h</th>
<th>T m2/d</th>
<th>K m/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary Recent</td>
<td>Tertiary</td>
<td>20-40</td>
<td>3-25</td>
<td>1.0-12.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Amisian</td>
<td>Upper Jurassic</td>
<td>5-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apollonian</td>
<td>Upper Cretaceous</td>
<td>25-300</td>
<td>250-300</td>
<td>1.5-2.7</td>
<td>870</td>
<td>72</td>
</tr>
<tr>
<td>Accraina and Sekondian</td>
<td>Devonian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltaina</td>
<td>Paleozoic</td>
<td>20-80</td>
<td>20-35</td>
<td>1.0-12.0</td>
<td>160</td>
<td>4.5</td>
</tr>
<tr>
<td>Buem</td>
<td>Upper Precambrian</td>
<td>20-80</td>
<td>20-35</td>
<td>1.0-12.0</td>
<td>50</td>
<td>4.5</td>
</tr>
<tr>
<td>Togo</td>
<td>Upper Precambrian</td>
<td>20-80</td>
<td>20-65</td>
<td>1.5-8.0</td>
<td>4</td>
<td>0.37</td>
</tr>
<tr>
<td>Tarkwaian</td>
<td>Middle Precambrian</td>
<td>25-60</td>
<td>15-35</td>
<td>1.0-12.0</td>
<td>331</td>
<td>0.27</td>
</tr>
<tr>
<td>Granites</td>
<td>Middle Precambrian</td>
<td>20-65</td>
<td></td>
<td>1.0-32.0</td>
<td>7-120</td>
<td>0.12</td>
</tr>
<tr>
<td>Birrimaian</td>
<td>Middle Precambrian</td>
<td>60-80</td>
<td>25-35</td>
<td>1.5-17.5</td>
<td>29</td>
<td>0.05</td>
</tr>
<tr>
<td>Dahomeyan</td>
<td>Lower Precambrian</td>
<td>60-100</td>
<td>25-50 &amp; 65-75</td>
<td>1.5-32.0</td>
<td>0.14-62.5</td>
<td>0.61</td>
</tr>
</tbody>
</table>

Source: Geological Survey Department

7.2.3. Ground Water Quality

In terms of quality, investigations indicate that ground water supplies are generally suitable for most domestic and industrial purposes. However there are some areas with occurrence of high concentrations of manganese, iron, salinity, fluoride, and total hardness in sections of Bongo, Wassa West and Fanteakwa Districts and other contiguous districts to the above mentioned.

Community Water and Sanitation Agency (CWSA) determine, whether groundwater meets the required standards before giving their approval for its usage. Supposing the groundwater in a given area has high concentrations of manganese, iron, salinity, fluoride, or total hardness, the CWSA would advise on exactly which corrective measures to take.

It imperative to mention that during the operational phase regular quality analysis would also have to be carried out to ensure that it continues to be suitable for drinking.

The standard for groundwater quality as prescribed by the World Health Organisation (WHO) is presented in the Table 5.
### Table 5: Groundwater Quality

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>25</td>
</tr>
<tr>
<td>Colour</td>
<td>HU</td>
<td>50</td>
</tr>
<tr>
<td>PH</td>
<td>-</td>
<td>6.5-8.5</td>
</tr>
<tr>
<td>Temperature</td>
<td>°C</td>
<td>-</td>
</tr>
<tr>
<td>Nitrite</td>
<td>mg/l</td>
<td>0.3</td>
</tr>
<tr>
<td>Nitrate (NO₃)</td>
<td>mg/l</td>
<td>45</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>mg/l</td>
<td>1.5</td>
</tr>
<tr>
<td>Chloride (Cl)</td>
<td>mg/l</td>
<td>250</td>
</tr>
<tr>
<td>Copper</td>
<td>mg/l</td>
<td>-1</td>
</tr>
<tr>
<td>Total Hardness</td>
<td>mg/l</td>
<td>500</td>
</tr>
<tr>
<td>Total Iron (Fe)</td>
<td>mg/l</td>
<td>0.3 (1.0 mix)</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>mg/l</td>
<td>0.5</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>mg/l</td>
<td>5</td>
</tr>
<tr>
<td>Sulphate</td>
<td>mg/l</td>
<td>250</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/l</td>
<td>0.01</td>
</tr>
<tr>
<td>E. Coli</td>
<td>-</td>
<td>0/100ml</td>
</tr>
<tr>
<td>T. Coliform</td>
<td>-</td>
<td>0/100ml</td>
</tr>
</tbody>
</table>

Source: WHO Standards

### 7.3. Geology

The geological foundation of Ghana comprises the following rock formations:

- Basic intrusive and granitic pre-cambrian formations occurring in an outer rim around the centre
- A Pre-Cambrian Dahomeyan system of massive crystalline granulites, gneisses, schists and sedimentary remnants in the south eastern plains
- The Pre-Cambrian system of argillaceous sediments volcanic and calcareous materials, which are metamorphosed and folded granitised or intruded by granites.
- The restricted Tarkwain sandstones, phyllites and conglomerates.
- The Buem formation of shales, sandstones, volcanic, limestone, tillite and grit
- The Paleozoic Voltain formation of shales. Mudstones, sandstones, conglomerate, tillite, and limestone
- The Devonian Sekondian and Accrain marine sandstones and shales in small areas along the coast.
- The Cretaceous-Eocene sands, Clay and limestone at the eastern and western extremities of the coast
- The Upper Tertiary red, limonitic sandy pebbly clay overlying the Lower Tertiary materials near the coast
- Recent and unconsolidated material occurring along the coast
- Drift and iron pan capping dispersed widely in all environments.
Figure 4: Ecological Zones of Ghana

ECOLOGICAL ZONES OF GHANA
(GHANA LIVING STANDARDS SURVEY)
The geology has considerable influence on the relief and the soils. The land is generally below 600m. The lowest lying areas occur in the middle Volta Basin and in a broad belt along the coastal. The broad physiographic regions of the land include the Coastal Plains, the Buem-Togo ranges, the forest Dissected Plateau, the Southern Voltaian Plateaux, the Savannah High plains and the Gambaga Escarpment. The ecological zones in Ghana are presented in Figure 4.

7.4. Soils
The major soils in Ghana are indicated in Figure 5. These soils include:

7.4.1. The Oxisols (Oxisols USDA, Ferric, Plinthic Aerisols FAO)
These are developed under evergreen rain forest with rainfall above 1778mm. They are strongly leached soils with predominant kaolinitic clays and deficient humus content. The oxysols are strongly susceptible to erosion on exposure and to rapid nutrients depletion. These soils occur around the extreme southwest corner of Ghana.

7.4.2. The Ochrosols (Ultisols, USDA, Rhodic Ferralsol, FAO)
The ochrosols are developed in both forest and savannah environment under rainfalls between 900mm and 1650mm. The savannah ochrosols occur in the northern and coastal savannahs in the middle range of the rainfall limits and under a single maximum rainfall on the northern savannahs. The profile may contain iron pan or gravel at depths, which are shallower in the savannah areas. The organic matter content is low especially in the savannah soils and is draughty in the surface horizons. The ochrosols are extremely important agriculturally. They are widely cultivated in both forest and savannah areas. Like many other soils, however, their nutrient-vegetation relationships are fragile and they are susceptible to water erosion.

7.4.3. Groundwater laterite (Inceptisols, USDA, Plinthic, Ferrasol, FAO)
The ground water laterite profile consists of a few cm to 61cm of sandy or silty loam over iron pan or undulating mottled clay in upland locations. They are concretionary to the surface, where the surface material is disturbed. These are said to be the poorest soils in humid tropical Africa with low nutrient status. They are draughty, mostly unfarmed over the granites, where they may be degraded through erosion.
**7.4.4. Tropical Black Earths (Vertisols, SDA, Pellic Vertisols, FAO)**

These are the dark grey cracking clays in the northern and coastal savannah areas under rainfalls of between 1000 mm and 1270 mm. The black earths occur in low topographic positions.

They are extremely heavy textured and cannot be effectively cultivated with traditional implements. Their nutrient status is generally good though nitrogen and phosphorus may be lacking. Their patchy occurrence in the northern savannas and frequent presence of rock outcrops over the granites makes it difficult to develop them on an extensive scale. They are less subject to erosional or nutrient degradation because of their topographic position.

**7.4.5. Tropical Grey Earths (Alfisols, USDA, Gleyic solenetz, FAO)**

These are grey hardpan soils in gentle savannah topography over acid rocks. They occur mainly on the Accra-Ho-Keta plains under rainfalls between 600 mm and 900 mm.

The profile is characterized by the occurrences of a hard compact sandy clay pan a few centimetres below the surface. These are very little used soils. They have low organic matter, nitrogen and phosphorus status. They become waterlogged in the rainy season but draughty in the dry season. Susceptibility to water erosion and high sodium content in the lower horizons present problems in use.

**7.4.6. Other Soils**

The other major soils of Ghana comprise the intergrades of the above soils and their lower topographic associates: the acid gleisols (Gleysols: USDA; Dystrio gleysols (FAO) in various alluvial and terrace material, the lithosols on steep slopes (Entisols: USDA, FAO), the regosols (Entisols: USDA, Rhegosols: FAO) on coastal sands and estuarine fills and the sodium vleisols (inceptisols, USDA; Gleyic solonchacks: FAO) in marginal lagoonal environments.

**7.5. Climate**

The climate in Ghana is tropical. Southern Ghana is humid whilst northern Ghana, which falls partly in the sahelian zone, is relatively dry. During the harmattan season the northern savannah area becomes extremely dry with relative humidity as low as 25% or less in January. Average temperatures vary form about 24°C in the south to around 36°C in the north.

Two main physical phenomena, the equatorial trough and the associated Inter Tropical Boundary (ITB) influence the climatic conditions of the country, as mentioned above. The ITB influences the attraction of alternate air masses from the north and the south called the northeast trade winds and the southeast monsoon winds respectively.

The northeast trade winds are associated with a dry cool wind known as the Harmattan, which affects Ghana during the months of November-March.
In Ghana the mean annual rainfall varies from 2250 millimetres in the West Coastal area to about 750 millimetres in the eastern coastal area and 100 millimetres in the North. The rainfall distribution during the year follows four main patterns. These are:

i. Single rainy season increasing from March with the peak in August/September. This occurs in the northern savannah areas typified by Tamale and Navrongo.

ii. Single rainy season of steady rainfall between March and October. This occurs in the transition zone and is typified by Kete Krachi.

iii. Two rainy seasons with peaks in May/June and October. This occurs in the forest zone typified by Kumasi.

iv. Two rainy seasons, the principal one reaching its peak in May/June and subsidiary one in October. This occurs in the whole of the coastal region, however the Western section has the heaviest rainfall in the whole country typified by Axim, whilst the dryer Eastern section is typified by Accra.

7.6. Measurable Project Related Indicators

The following information on the current conditions of Ghana and of the beneficiary districts covering such relevant topics to the project as population, age structure of population, distribution of rural and urban population, and issues relating to education and health, is provided as a baseline to form the basis for benchmarking and future monitoring and evaluation.

7.6.1. Population of Ghana

When Ghana gained independence in March 1957, its population was barely 6 million. The first post-independence population census conducted in 1960 recorded the number of people on the country at 6.7 million, giving an inter-censal growth of rate of 4.2% between 1948 and 1960 (Ghana 1994). By 1970, the population of Ghana increased to 8.6 million with an annual are of increase of 2.4%. The 1984 census put the country’s population at 12.3 million thus indicating a growth rate 2.6%. The population and housing census of 2000 fixed the population of Ghana at 18,912,079.

The declared population is an increase of 53.8% over the 1984 population of 12,296,081 and represents an intercensal growth rate of 2.7%. While this rate is lower than the rate for West Africa (2.9%), it is high in comparison with the rate for the world (1.5%) and the average for less developed countries (2.0%).

The population at the end of 2003 is estimated at 20,485,690, at a growth rate of 2.7%. For this estimation, the year 2000 was taken as the base year and the following formula was applied:

\[ P = P_0 (1+t)^n, \]
where $P$ is the population of the derived year, $P_0$, is the population of the base year, $t$ is the rate of yearly growth and $n$ is the number of years in the period.

Population trends from analysis of census data from 1960, 1970, 1984 and 2000 indicated a progressive increase of rural to urban migration from 23% to 32%. The absence of social amenities like schools, water, electricity, roads, hospitals, entertainment spots, post offices and banks has contributed to the depressed conditions in the rural areas. This has resulted in a situation where many young men of employable age drift to the urban areas.

The bulk of rural dwellers are therefore women, children and the elderly. The same conditions do not make it attractive enough for teachers, health workers and other professionals to move to and/or work in the rural areas.

**7.6.2. Population of the Beneficiary Districts**

The total population of the selected districts is computed, as per formula (1), to be 6,124,068 by the end of 2003, out of which 3,034,028 are males and 3,090,040 are females. It must be mentioned that 4,848,469 people in the area are found in the rural areas and 1,274,600 people are in the urban areas.
The projected population of the selected districts is detailed in Table 6 below:

<table>
<thead>
<tr>
<th>Region</th>
<th>District</th>
<th>Population</th>
<th>Sex</th>
<th>Locality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Northern</td>
<td>Saboba-Chereponi (NR)</td>
<td>101,656</td>
<td>50,690</td>
<td>50,966</td>
</tr>
<tr>
<td></td>
<td>East Gonja (NR)</td>
<td>189,020</td>
<td>96,983</td>
<td>92,037</td>
</tr>
<tr>
<td></td>
<td>East Mamprusi (NR)</td>
<td>189,413</td>
<td>92,906</td>
<td>96,507</td>
</tr>
<tr>
<td></td>
<td>West Gonja (NR)</td>
<td>150,922</td>
<td>75,950</td>
<td>74,972</td>
</tr>
<tr>
<td></td>
<td>West Mamprusi (NR)</td>
<td>124,596</td>
<td>61,932</td>
<td>62,664</td>
</tr>
<tr>
<td></td>
<td>Savalugu Nanton (NR)</td>
<td>97,454</td>
<td>48,419</td>
<td>49,035</td>
</tr>
<tr>
<td></td>
<td>Zabzugu-Tatale (NR)</td>
<td>85,791</td>
<td>41,916</td>
<td>43,875</td>
</tr>
<tr>
<td></td>
<td>Bole (NR)</td>
<td>137,726</td>
<td>68,428</td>
<td>69,298</td>
</tr>
<tr>
<td></td>
<td>Tolon-Kumbungu (NR)</td>
<td>143,886</td>
<td>72,358</td>
<td>71,527</td>
</tr>
<tr>
<td></td>
<td>Nanumba (NR)</td>
<td>156,283</td>
<td>77,707</td>
<td>78,576</td>
</tr>
<tr>
<td></td>
<td>Gushiegu Karaga (NR)</td>
<td>135,867</td>
<td>66,049</td>
<td>69,818</td>
</tr>
<tr>
<td></td>
<td>Yendi (NR)</td>
<td>141,363</td>
<td>70,114</td>
<td>71,249</td>
</tr>
<tr>
<td>Upper East</td>
<td>Bawku West (UER)</td>
<td>87,313</td>
<td>41,590</td>
<td>45,723</td>
</tr>
<tr>
<td></td>
<td>Bawku East (UER)</td>
<td>333,538</td>
<td>159,742</td>
<td>173,796</td>
</tr>
<tr>
<td></td>
<td>Kassena-Nankani (UER)</td>
<td>161,930</td>
<td>77,900</td>
<td>84,030</td>
</tr>
<tr>
<td></td>
<td>Builsa (UER)</td>
<td>81,647</td>
<td>40,074</td>
<td>41,572</td>
</tr>
<tr>
<td></td>
<td>Bongo (UER)</td>
<td>84,366</td>
<td>39,319</td>
<td>45,046</td>
</tr>
<tr>
<td></td>
<td>Bolgatanga (UER)</td>
<td>247,854</td>
<td>120,685</td>
<td>127,168</td>
</tr>
<tr>
<td>Western</td>
<td>Juabeso-Bia (WR)</td>
<td>265,424</td>
<td>136,613</td>
<td>128,811</td>
</tr>
<tr>
<td></td>
<td>Sefwi-Wiaso (WR)</td>
<td>161,344</td>
<td>82,853</td>
<td>78,490</td>
</tr>
<tr>
<td></td>
<td>Mphor Wassa East, WR</td>
<td>132,796</td>
<td>69,741</td>
<td>63,055</td>
</tr>
<tr>
<td></td>
<td>Wassa Amenfi (WR)</td>
<td>253,886</td>
<td>132,955</td>
<td>120,931</td>
</tr>
<tr>
<td></td>
<td>Ahanta West (WR)</td>
<td>103,056</td>
<td>49,854</td>
<td>53,203</td>
</tr>
<tr>
<td>Brong Ahafo</td>
<td>Sene (BAR)</td>
<td>89,003</td>
<td>46,185</td>
<td>42,818</td>
</tr>
<tr>
<td></td>
<td>Wenchi (BR)</td>
<td>180,507</td>
<td>90,608</td>
<td>89,899</td>
</tr>
<tr>
<td></td>
<td>Atebubu (BAR)</td>
<td>176,920</td>
<td>90,027</td>
<td>86,893</td>
</tr>
<tr>
<td></td>
<td>Kintampo (BAR)</td>
<td>158,882</td>
<td>81,743</td>
<td>77,139</td>
</tr>
<tr>
<td>Upper West</td>
<td>Nadowli (UWR)</td>
<td>89,599</td>
<td>42,651</td>
<td>46,947</td>
</tr>
<tr>
<td></td>
<td>Jirapa Lambussie (UWR)</td>
<td>104,891</td>
<td>49,286</td>
<td>55,605</td>
</tr>
<tr>
<td></td>
<td>Tumu Sissala (UWR)</td>
<td>92,551</td>
<td>44,564</td>
<td>47,987</td>
</tr>
<tr>
<td>Eastern</td>
<td>Birim North (ER)</td>
<td>133,735</td>
<td>66,097</td>
<td>67,638</td>
</tr>
<tr>
<td></td>
<td>Birim South (ER)</td>
<td>194,272</td>
<td>94,135</td>
<td>100,137</td>
</tr>
<tr>
<td></td>
<td>Kwahu South (ER)</td>
<td>235,581</td>
<td>113,659</td>
<td>121,922</td>
</tr>
<tr>
<td>Ashanti</td>
<td>Sekyere East (AR)</td>
<td>170,492</td>
<td>88,704</td>
<td>81,789</td>
</tr>
<tr>
<td></td>
<td>Offinso (AR)</td>
<td>150,215</td>
<td>74,826</td>
<td>75,389</td>
</tr>
<tr>
<td></td>
<td>Ejisu-Juabeng (AR)</td>
<td>134,508</td>
<td>64,219</td>
<td>70,289</td>
</tr>
<tr>
<td>Central</td>
<td>Gomoa (CR)</td>
<td>211,000</td>
<td>95,771</td>
<td>115,229</td>
</tr>
<tr>
<td></td>
<td>Abura-Asebu-K (CR)</td>
<td>97,589</td>
<td>46,022</td>
<td>51,567</td>
</tr>
<tr>
<td></td>
<td>Nkwanta (VR)</td>
<td>163,863</td>
<td>81,066</td>
<td>82,797</td>
</tr>
</tbody>
</table>

GIMPA/ MOEYS Environmental and Social Management Framework, November 2003
7.6.3. Age-Structure of Population: Ghana

The proportion of children under 15 years in 2000 was 41.3%, which was a significant decline from 45% in 1984, and though it is still high, is a reflection of declining fertility.

The proportion of composition of the elderly at 5.3%, a substantial increase from 4% in 1984 is also a reflection of the improvement in health and life expectancy.

The ratio of the elderly to children also increased from 8.5 in 1984 to 12.8 in 2000, which is a further indication of ageing of the population, though slight.

The fact that the population is ageing is also reflected in the increase of the median age from 18.1 in 1984 to 19.4 in 2000.

The dependent population (<15 and +64) is determined to be 46.6 and the adult population adult population (18+) is determined to be 52.6%.

Figure 6: Age-Structure of Population: Ghana

7.6.4. Distribution of Rural-Urban Population

The study area is predominantly rural. The rural-urban split of the study area is 20.8-79.2%.

Table 7 below shows the percentage distribution of population by rural and urban areas per district.
### Table 7: Rural-Urban Split

<table>
<thead>
<tr>
<th>Region</th>
<th>District</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Saboba-Chereponi (NR)</td>
<td>6.7%</td>
<td>93.3%</td>
</tr>
<tr>
<td></td>
<td>East Gonja (NR)</td>
<td>13.7%</td>
<td>86.3%</td>
</tr>
<tr>
<td></td>
<td>East Mamprusi (NR)</td>
<td>18.1%</td>
<td>81.9%</td>
</tr>
<tr>
<td></td>
<td>West Gonja (NR)</td>
<td>14.5%</td>
<td>85.5%</td>
</tr>
<tr>
<td></td>
<td>West Mamprusi (NR)</td>
<td>16.2%</td>
<td>83.8%</td>
</tr>
<tr>
<td></td>
<td>Savalugu Nanton (NR)</td>
<td>36.2%</td>
<td>63.8%</td>
</tr>
<tr>
<td></td>
<td>Zabzugu-Tatale (NR)</td>
<td>21.2%</td>
<td>78.8%</td>
</tr>
<tr>
<td></td>
<td>Bole (NR)</td>
<td>11.9%</td>
<td>88.1%</td>
</tr>
<tr>
<td></td>
<td>Tolon-Kumbungu (NR)</td>
<td>15.7%</td>
<td>84.3%</td>
</tr>
<tr>
<td></td>
<td>Nanumba (NR)</td>
<td>19.8%</td>
<td>80.2%</td>
</tr>
<tr>
<td></td>
<td>Gushiegu Karaga (NR)</td>
<td>21.1%</td>
<td>78.9%</td>
</tr>
<tr>
<td></td>
<td>Yendi (NR)</td>
<td>34.9%</td>
<td>65.1%</td>
</tr>
<tr>
<td><strong>Upper East</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bawku West (UER)</td>
<td>10.0%</td>
<td>90.0%</td>
</tr>
<tr>
<td></td>
<td>Bawku East (UER)</td>
<td>20.5%</td>
<td>79.5%</td>
</tr>
<tr>
<td></td>
<td>Kassena-Nankani (UER)</td>
<td>15.9%</td>
<td>84.1%</td>
</tr>
<tr>
<td></td>
<td>Builsa (UER)</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>Bongo (UER)</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>Bolgatanga (UER)</td>
<td>21.5%</td>
<td>78.5%</td>
</tr>
<tr>
<td><strong>Western</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Juabeso-Bia (WR)</td>
<td>7.1%</td>
<td>92.9%</td>
</tr>
<tr>
<td></td>
<td>Sefwi-Wiawso (WR)</td>
<td>23.4%</td>
<td>76.6%</td>
</tr>
<tr>
<td></td>
<td>Mpoohor Wassa East, WR</td>
<td>12.8%</td>
<td>87.2%</td>
</tr>
<tr>
<td></td>
<td>Wassa Amenfi (WR)</td>
<td>13.3%</td>
<td>86.7%</td>
</tr>
<tr>
<td></td>
<td>Ahanta West (WR)</td>
<td>20.0%</td>
<td>80.0%</td>
</tr>
<tr>
<td><strong>Brong Ahafo</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sene (BAR)</td>
<td>8.6%</td>
<td>91.4%</td>
</tr>
<tr>
<td></td>
<td>Wenchu (BR)</td>
<td>30.1%</td>
<td>69.9%</td>
</tr>
<tr>
<td></td>
<td>Atebubu (BAR)</td>
<td>33.1%</td>
<td>66.9%</td>
</tr>
<tr>
<td></td>
<td>Kintampo (BAR)</td>
<td>26.9%</td>
<td>73.1%</td>
</tr>
<tr>
<td><strong>Upper West</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nadowli (UWR)</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>Jirapa Lambussie (UWR)</td>
<td>13.7%</td>
<td>86.3%</td>
</tr>
<tr>
<td></td>
<td>Tumu Sissala (UWR)</td>
<td>10.4%</td>
<td>89.6%</td>
</tr>
<tr>
<td><strong>Eastern</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Birim North (ER)</td>
<td>9.8%</td>
<td>90.2%</td>
</tr>
<tr>
<td></td>
<td>Birim South (ER)</td>
<td>49.0%</td>
<td>51.0%</td>
</tr>
<tr>
<td></td>
<td>Kwahu South (ER)</td>
<td>38.2%</td>
<td>61.8%</td>
</tr>
<tr>
<td><strong>Ashanti</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sekyere East (AR)</td>
<td>33.7%</td>
<td>66.3%</td>
</tr>
<tr>
<td></td>
<td>Offinso (AR)</td>
<td>31.0%</td>
<td>69.0%</td>
</tr>
<tr>
<td></td>
<td>Ejsu-Juaben (AR)</td>
<td>26.5%</td>
<td>73.5%</td>
</tr>
<tr>
<td><strong>Central</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gomoa (CR)</td>
<td>26.1%</td>
<td>73.9%</td>
</tr>
<tr>
<td></td>
<td>Abura-Asebu-K (CR)</td>
<td>29.1%</td>
<td>70.9%</td>
</tr>
<tr>
<td><strong>Volta</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nkwanta (VR)</td>
<td>23.7%</td>
<td>76.3%</td>
</tr>
<tr>
<td></td>
<td>Krachi (VR)</td>
<td>18.6%</td>
<td>81.4%</td>
</tr>
</tbody>
</table>

Source: Computed from 2000 Population & Housing Census: Ghana Statistical Service
7.6.5. Education
While literacy can be acquired through reading and private informal channels, the formal schooling system remains the best process for improving access to information and broadening the horizon of the people.

According to the 2000 Population and Housing Census, educational attainment in Ghana (3 years and more) was pre-school (3.2%), primary (18.6%), Middle/JSS (21.1%), Secondary SSS (6%), Vocational/Technical (2.2%), Post Secondary (1.5%), Tertiary (2.8%), and None (43.3%), and the school attendance (3 years and more) was pre-school (13.8%), primary (54.3%), Middle/JSS (16.5%), Secondary SSS (8.3%), Vocational/Technical (2.0%), Post Secondary (1.7%), and Tertiary (3.5%).

7.6.6. Availability of Schools in Rural Areas
About 86% of rural households live in communities that have access to a primary school; 62% of households live in areas, which have access to a junior secondary school, while 10% live in communities, which have access to a senior secondary school. Almost all rural schools are public schools. About 19.5% of the primary schools in the districts visited during the fieldwork have sanitation facilities. A good number of these primary schools are relatively new. Table 8 below shows the rural households with access to schools. Please see Figure 4: Ecological Zones of Ghana

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>Primary</th>
<th>JSS</th>
<th>SSS/technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>88%</td>
<td>64%</td>
<td>5%</td>
</tr>
<tr>
<td>Forest</td>
<td>91%</td>
<td>71%</td>
<td>15%</td>
</tr>
<tr>
<td>Savannah</td>
<td>80%</td>
<td>51%</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>86%</td>
<td>62%</td>
<td>10%</td>
</tr>
</tbody>
</table>

7.6.7. Distance rural households travel to get to the nearest primary school
The primary schools are usually in the communities, where the rural households live. Other households however have to travel between 1 and 10 miles to get to the nearest primary school depending on the ecological zones, as per the Table 9 below:

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>&lt;1 mile</th>
<th>1 mile</th>
<th>2 miles</th>
<th>3 miles</th>
<th>4 miles</th>
<th>&gt;5 miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>88.0%</td>
<td>5.0%</td>
<td>2.5%</td>
<td>0.0%</td>
<td>2.5%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Forest</td>
<td>91.0%</td>
<td>3.0%</td>
<td>2.0%</td>
<td>2.0%</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Savannah</td>
<td>80.0%</td>
<td>4.0%</td>
<td>8.0%</td>
<td>3.0%</td>
<td>1.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td></td>
<td>86.3%</td>
<td>4.0%</td>
<td>4.2%</td>
<td>1.7%</td>
<td>1.5%</td>
<td>2.3%</td>
</tr>
</tbody>
</table>

7.6.8. The Proportion of boys and girls of primary school age enrolled
Boys and girls in the Forest zone appear to be much more likely to be enrolled in primary schools than their counterparts from the Coastal and Savannah zones. In the Savannah zone, girls are less likely than boys to be enrolled in primary schools. This is illustrated in Tables 10 and 11 below:
Table 10: The Proportion of boys of primary school age enrolled

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>Almost all</th>
<th>At least half</th>
<th>Less than half</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>27.0%</td>
<td>44.0%</td>
<td>29.0%</td>
</tr>
<tr>
<td>Forest</td>
<td>54.0%</td>
<td>41.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Savannah</td>
<td>16.0%</td>
<td>46.0%</td>
<td>38.0%</td>
</tr>
<tr>
<td></td>
<td>32.3%</td>
<td>43.7%</td>
<td>24.0%</td>
</tr>
</tbody>
</table>

Table 11: The Proportion of girls of primary school age enrolled

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>Almost all</th>
<th>At least half</th>
<th>Less than half</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>23.0%</td>
<td>42.0%</td>
<td>35.0%</td>
</tr>
<tr>
<td>Forest</td>
<td>53.0%</td>
<td>41.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Savannah</td>
<td>16.0%</td>
<td>28.0%</td>
<td>56.0%</td>
</tr>
<tr>
<td></td>
<td>30.7%</td>
<td>37.0%</td>
<td>32.3%</td>
</tr>
</tbody>
</table>

7.6.9. Main reasons why some children in rural communities are not enrolled in primary schools

The most common reasons why children some children in the rural communities are not enrolled in primary schools, by ecological zones have been summarized in Table 12 below. Lack of finance appears to be the main reason for non-enrolment of children in rural areas in primary schools.

It must be mentioned that, due to the same reasons, a lot of the enrolled children in primary schools miss classes continuously. It was observed in a primary school visited in Kintampo District (Savannah Zone) during the fieldwork that more than half the children skip school during market days.

Table 12: Main reasons why some children in rural communities are not enrolled in primary schools

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>58.0%</td>
<td>10.0%</td>
<td>10.0%</td>
<td>6.0%</td>
<td>3.0%</td>
<td>2.0%</td>
<td>0.0%</td>
<td>11.0%</td>
</tr>
<tr>
<td>Forest</td>
<td>70.0%</td>
<td>7.0%</td>
<td>5.0%</td>
<td>2.0%</td>
<td>7.0%</td>
<td>2.0%</td>
<td>0.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Savannah</td>
<td>64.0%</td>
<td>6.0%</td>
<td>7.0%</td>
<td>8.0%</td>
<td>0.0%</td>
<td>1.0%</td>
<td>11.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td></td>
<td>64.0%</td>
<td>7.7%</td>
<td>7.3%</td>
<td>5.3%</td>
<td>3.3%</td>
<td>1.7%</td>
<td>3.7%</td>
<td>7.0%</td>
</tr>
</tbody>
</table>

Note:  
A: Inability of parents to fund child’s education  
B: Lack of Parental Interest  
C: Lack of Interest in School going children  
D: School too far away  
E: Inadequate schools/classrooms  
F: Dangers faced by children on their way to school e.g. getting drowned in rivers  
G: Children are used for work e.g. work in the field, work during market days, and taking care of younger siblings or weak and aged parents  
H: Other Reasons

7.6.10. Schooling Problems

The most serious schooling problems in the rural communities include lack of school building, insufficient furniture, lack of qualified teachers, high cost of schooling, lack of textbooks, and lack of accommodation for teachers, among others. It was noted in all the districts visited during the fieldwork that some primary school children carry their chairs to school.
The Parent and Teachers Associations contacted during the said fieldwork also indicated that they usually fund the purchase of furniture for their children in school. Table 13 summarises the schooling problem.

Table 13: The most serious schooling problems in the rural communities

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>43.0%</td>
<td>25.0%</td>
<td>2.0%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>10.0%</td>
<td>0.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Forest</td>
<td>38.0%</td>
<td>19.0%</td>
<td>10.0%</td>
<td>10.0%</td>
<td>6.0%</td>
<td>2.0%</td>
<td>3.0%</td>
<td>12.0%</td>
</tr>
<tr>
<td>Savannah</td>
<td>59.0%</td>
<td>8.0%</td>
<td>9.0%</td>
<td>1.0%</td>
<td>4.0%</td>
<td>3.0%</td>
<td>1.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td></td>
<td>46.7%</td>
<td>17.3%</td>
<td>7.0%</td>
<td>5.3%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>1.3%</td>
<td>12.3%</td>
</tr>
</tbody>
</table>

Note:  
A: Lack of school building  
B: Insufficient Furniture  
C: Lack of Qualified Teachers  
D: High Cost of Schooling  
E: Lack of Textbooks  
F: Inadequate supply of stationery and other school materials  
G: Lack of accommodation for teachers  
H: Other Reasons

7.6.11. Primary Schools with Sanitation Facilities
About 19.5% of the primary schools in the districts visited during the fieldwork have sanitation facilities. A good number of these primary schools are relatively new. The practice with regards to schools without sanitation facilities is either free ranging or walking to the nearest public toilet in the community.

7.6.12. Primary Schools with Water Points
With regards to water points, only about 3.47% of the primary schools of the districts visited during the fieldwork have water points. The water points are pipeborne water taps and boreholes. In almost all the cases, the surrounding residents were noted to be patronizing the water points. In most of the schools without water points, the school authorities each day buy or fetch water, which is kept in each classroom in a bucket with cover and a cup for the pupils.

7.6.13. Primary Schools with Electricity
It was observed during the fieldwork that about 4.6% of the primary schools in the visited districts have electricity. They are new and are found in the urban sections of the districts.

It has been recommended in the guidelines that electricity be incorporated into the designs of the project facilities, even if the area, where the school is sited does not have electricity. This is to make it easy to access electricity without extra costs and inconvenience, when the facility reaches the area.

7.6.14. Primary Schools with Telephone
None of the primary schools in the districts visited has telephone. It has been recommended in the guidelines that telephone lines be incorporated into the designs of the project facilities, even if the area, where the school is sited is not linked to the national telephone network. This is to make it easy to access telephone services without extra costs and inconvenience, when the facility reaches the area.
7.6.15. Primary Schools with Refuse Cans
With regards to refuse cans, only 0.83% of the schools in the districts, which were visited during the fieldwork, have refuse or garbage cans. The pupils in the bulk of the primary schools pick the rubbish around the schools and dump them onto a chosen site or burn them.

7.6.16. Primary Schools with Landscape
10% of the primary schools in the districts visited during the fieldwork have some sort of landscape, which is of utmost importance in checking erosion.

It must be mentioned that in the forest zone, due to the abundance of rainfall, landscape is easily carried out and maintained.

7.6.17. The Need for Facilities as per Order of Importance
The need for sanitation facility, water points, electricity, telephone, refuse disposal system, and landscape was discussed during the fieldwork with District Authorities, District Directorate of Education, members of Parent-Teachers Associations, Headteachers, Teachers, and school pupils. It was observed that water points and sanitation facilities were chosen equally as the most important necessity of primary schools. These were followed by electricity, refuse disposal system, landscape and telephone, in that order.

7.6.18. Adult Literacy
Adult literacy programmes appears to have been most active in the savannah zone, with three quarters of the households living in communities, where there is or has been an adult literacy programme. Table 14 below shows households living in communities, where there is or has been an adult literacy programme.

Table 14: households living in communities, where there is or has been an adult literacy programme

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>Households living in communities, where there is or has been adult literacy programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>61.0%</td>
</tr>
<tr>
<td>Forest</td>
<td>56.0%</td>
</tr>
<tr>
<td>Savannah</td>
<td>76.0%</td>
</tr>
</tbody>
</table>

7.6.19. Major Health Problems Facing Households in Rural Communities
Rural community dwellers are exposed to a host of health problems related directly to inadequate water (quality) and quantity and lack of proper sanitary provisions. These problems are compounded by absence of basic health infrastructure and health education. Some of the common diseases are malaria, guinea worm, kwashiorkor, cholera and diarrhoea. Table 15 below shows the major health problems facing household in rural communities by ecological zones.
Table 15: Major Health Problems Facing Households in Rural Communities

<table>
<thead>
<tr>
<th>Ecological Zone</th>
<th>Malaria</th>
<th>Hernia</th>
<th>Guinea Worm</th>
<th>Bilharzias</th>
<th>Measles</th>
<th>Cholera</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal</td>
<td>59%</td>
<td>5%</td>
<td>19%</td>
<td>2%</td>
<td>3%</td>
<td>5%</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td>Forest</td>
<td>63%</td>
<td>2%</td>
<td>2%</td>
<td>13%</td>
<td>4%</td>
<td>6%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>Savannah</td>
<td>40%</td>
<td>25%</td>
<td>11%</td>
<td>1%</td>
<td>11%</td>
<td>6%</td>
<td>4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

7.6.20. Industry of economically active Population

The economically active population as per ecological zone are employed or engaged in different sectors i.e. agriculture, mining and quarry, manufacturing, construction, public administration, and education among others. The details have been presented in the Table 16 below:

Table 16: Industry of Economically Active Population

<table>
<thead>
<tr>
<th></th>
<th>Savannah</th>
<th>Forest</th>
<th>Coastal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Hunting, Forestry</td>
<td>71.81%</td>
<td>54.34%</td>
<td>50.04%</td>
</tr>
<tr>
<td>Fishing</td>
<td>3.04%</td>
<td>3.86%</td>
<td>6.12%</td>
</tr>
<tr>
<td>Mining and Quarry</td>
<td>1.18%</td>
<td>1.87%</td>
<td>1.71%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>7.27%</td>
<td>9.49%</td>
<td>11.89%</td>
</tr>
<tr>
<td>Electricity, Gas, Water</td>
<td>0.53%</td>
<td>0.50%</td>
<td>0.42%</td>
</tr>
<tr>
<td>Construction</td>
<td>0.72%</td>
<td>1.65%</td>
<td>2.24%</td>
</tr>
<tr>
<td>Wholesale and Retail Trade</td>
<td>6.60%</td>
<td>13.19%</td>
<td>11.70%</td>
</tr>
<tr>
<td>Hotels and Restaurants</td>
<td>1.42%</td>
<td>2.68%</td>
<td>2.89%</td>
</tr>
<tr>
<td>Transport, Storage and Communication</td>
<td>1.15%</td>
<td>2.87%</td>
<td>2.94%</td>
</tr>
<tr>
<td>Financial Intermediation</td>
<td>0.17%</td>
<td>0.29%</td>
<td>0.34%</td>
</tr>
<tr>
<td>Real Estate &amp; Business Activity</td>
<td>0.78%</td>
<td>0.66%</td>
<td>1.14%</td>
</tr>
<tr>
<td>Public Administration</td>
<td>0.54%</td>
<td>0.86%</td>
<td>0.91%</td>
</tr>
<tr>
<td>Education</td>
<td>1.49%</td>
<td>2.91%</td>
<td>3.09%</td>
</tr>
<tr>
<td>Health and Social Work</td>
<td>0.36%</td>
<td>0.79%</td>
<td>0.74%</td>
</tr>
<tr>
<td>Other Community Service</td>
<td>1.47%</td>
<td>3.49%</td>
<td>3.30%</td>
</tr>
<tr>
<td>Private Households</td>
<td>1.43%</td>
<td>0.51%</td>
<td>0.50%</td>
</tr>
<tr>
<td>Extra-territorial organisation</td>
<td>0.04%</td>
<td>0.03%</td>
<td>0.03%</td>
</tr>
</tbody>
</table>

Source: Computed from 2000 Population and Housing Census

7.6.21. Household Expenditure

The mean annual household expenditure and the mean annual per capita expenditure according to ecological zones have been presented in the Table below:

Table 17: Household Expenditure

<table>
<thead>
<tr>
<th></th>
<th>Mean annual household expenditure, ¢</th>
<th>Mean annual per capita expenditure, ¢</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savannah</td>
<td>8,689,724</td>
<td>1,393,150</td>
</tr>
<tr>
<td>Forest</td>
<td>15,056,307</td>
<td>3,704,038</td>
</tr>
<tr>
<td>Coastal</td>
<td>16,937,427</td>
<td>4,255,723</td>
</tr>
</tbody>
</table>

Source: Computed from the Ghana Living Standard Survey, 2000
7.6.22. Solid Waste Management Practices
Solid Waste Management forms an essential part of the primary school construction and operation. It involves technical, managerial, administrative, logistical and financial support at the local level. It is aimed at:

- Ensuring and protecting public health within communities and the schools and
- Promoting environmental hygiene and cleanliness in the schools and the communities.

7.6.23. Solid Waste Composition
Knowledge on the source and types of solid wastes, along with the data on its composition and generation rates, is basic to the design and operation of all elements of the Solid Waste Management System. The term solid waste is all-inclusive and encompasses all source, classifications, compositions and properties.

The following major solid waste categories related to this project can be distinguished:

i. Domestic Solid Waste
ii. Commercial Solid Waste
iii. Constructional/Demolition waste.

Tables 17 and 18 below provide indicative data on type and average in percentages of amount of Solid Waste that are usually generated during such activities as mentioned under this project.

Table 18: Constructional Phase

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>PERCENTAGE AMOUNT IN TONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organic</strong></td>
<td></td>
</tr>
<tr>
<td>- Food Waste</td>
<td>5</td>
</tr>
<tr>
<td>- Paper</td>
<td>5</td>
</tr>
<tr>
<td>- Cardboard</td>
<td>1</td>
</tr>
<tr>
<td>- Wood</td>
<td>13</td>
</tr>
<tr>
<td>- Rubber</td>
<td>0.5</td>
</tr>
<tr>
<td>- Plastic</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>In-organic</strong></td>
<td></td>
</tr>
<tr>
<td>- Sand</td>
<td>20</td>
</tr>
<tr>
<td>- Soil</td>
<td>7</td>
</tr>
<tr>
<td>- Stone</td>
<td>20</td>
</tr>
<tr>
<td>- Concrete</td>
<td>10</td>
</tr>
<tr>
<td>- bricks</td>
<td>10</td>
</tr>
<tr>
<td>- Aluminium</td>
<td>2</td>
</tr>
<tr>
<td>- Glass</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 19: Operational Phase

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic</td>
<td>80%</td>
</tr>
<tr>
<td>- Food Waste</td>
<td>20</td>
</tr>
<tr>
<td>- Paper</td>
<td>30</td>
</tr>
<tr>
<td>- Cardboard</td>
<td>5</td>
</tr>
<tr>
<td>- Plastics</td>
<td>10</td>
</tr>
<tr>
<td>- Textiles</td>
<td>4</td>
</tr>
<tr>
<td>- Rubber</td>
<td>4</td>
</tr>
<tr>
<td>- Leather</td>
<td>2</td>
</tr>
<tr>
<td>- Wood</td>
<td>5</td>
</tr>
<tr>
<td>In-Organic</td>
<td>20%</td>
</tr>
<tr>
<td>- Glass</td>
<td>2</td>
</tr>
<tr>
<td>- Tin cans</td>
<td>3</td>
</tr>
<tr>
<td>- Sand</td>
<td>15</td>
</tr>
</tbody>
</table>

Our visits to the schools showed little variations in composition as well as in quantities generated per capita. The similarities are mainly linked to the similarities in socio-economic conditions, climate, school size, personal consumption habits etc. The solid waste generation is estimated to be between 0.2 – 0.5kg per capita per day.

7.6.24. Solid Waste Collection, Transportation, and Disposal

Mostly, solid waste bins are placed at vantage points in the schools for waste collection. The waste after having been collected is mostly not segregated. The means of transportation have been either wheelbarrows or carried by pupils to the various disposal sites.

These disposals sites are some pits 10-30m away from the schools where they are dumped and at times burnt. Because of the nature of the waste, not all are burnt and thus rendering the pits full within a very short time. The waste usually contains large quantities of sand which also contribute to making the pits full very fast. Pits are therefore dug very often all around the school premise with its associated environmental impact.

Generally, solid waste from within the communities are collected and transported to selected solid waste dumpsites by the District or Metropolitan Assemblies. In most urban areas, private companies have been involved in the collection, transportation and disposal of solid waste.

7.6.25. Estimating Quantity of Solid Waste Generation

An average weight of 0.2 – 0.5-kg/capital/day of solid waste is generated in the schools visited. A class should have an average of 25-35 pupils. Normally a primary school would have six classes, and a headteachers office. The average population of the schools visited including the teachers is 220. The teachers’ accommodation, which is part of the project, is likely to provide an additional population of 20 making the total population to be 240. This population multiplied by the average capita waste generation per day is 84 –120 kg/day per school.
8. DESCRIPTION OF THE ENVIRONMENTAL & SOCIAL IMPACTS OF THE PROJECT

8.1. Introduction

This section deals with the main potential environmental concerns likely to arise from the construction of primary school buildings, water points, sanitation facilities, and teachers' accommodation under the EdSeP. Though the project is aimed at improving the standards of living of the receiving communities, its implementation must be designed to be environmentally sensitive so as to avoid any undesirable adverse consequences of the given intervention. For example, providing school building construction could create problems of erosion and water contamination.

Although most of the project impacts would be localized due to the relatively small scale, they have to be tackled. Field studies and lessons from similar programmes show that issues such as community involvement, community ownership and selection of appropriate sites are some of the key concerns, which influence the success, and sustainability of such projects.

As it has been mentioned, schools would be built in 40 districts, with their corresponding water points and sanitation facilities. Each of the individual projects would be developed in three continuous stages, namely:

- Pre-constructional Phase (Site Survey and Preparatory Stage)
- Construction Phase
- Operational Phase (Occupancy Stage)

These general and localized issues of concern are discussed below.

8.2. Pre-Constructional Phase

8.2.1. Site Survey

Spot levels of the selected sites for the construction of schools, water points, sanitation facilities and teachers' quarters are usually taken to produce topographical maps that would help in the preparation of engineering designs and drawings. This would assist also in the setting out of road to the school and the teachers' quarters.

8.2.2. Site Clearing

Site clearing involves the clearing of shrubs and removal of topsoil to reduce levels and particularly improve the terrain of the selected sites.

8.2.3. Mobilisation

Site offices and store for safe keeping of construction materials are usually built. This is also usually done alongside with the movement of equipment and machinery to the site as well as stock piling of necessary building materials to be employed in the execution of the project.

8.2.4. Site Selection

Siting of project components within a community poses a whole range of problems which impact on project's success and sustainability. Some of the key issues are:

- Locating projects near cultural sites such as sacred groves and burial grounds, which could be regarded as insulting and frowned upon or shunned by the people.
• Conflict with existing or proposed land use which could create problems of incompatibility
• Conflict with nearby communities leading to tension in the use of the school
• Addressing the question of resettlement considering the selected site and immediate surrounding were homes to inhabitants of the community
• The population of the micro location of the school would have to be considered in order that the school is not located in sparsely populated catchment areas.
• Sufficient land area for facility installation and future expansion
• Ecologically sensitive sites such as plains, which are liable to flooding, aquifer recharge zone, which may be lost, steep terrain prone to erosion and threat to fragile habitat and endangered species.

8.2.5. Site Preparation and Levelling
Preliminary site preparation involving clearing the site of its top vegetation and removal of top soil, to facilitate the setting out of the layout plan, usually provokes erosion particularly in areas of heavy rainfall and poor drainage, and could potentially reduce rain water percolation into the ground.

Site levelling could interfere with the natural drainage pattern of the area. Storm water run-off could increase. This potential increase in runoffs could enhance erosion, which could cause silting of the natural drainage channel. This in turn could adversely affect the hydrological properties of the area and receiving streams, and could lead to flooding.

The work of the surveyors could have effects on farms. They usually slash and clear their paths in carrying out their work. The selection of the site for the school building could also be on a farm of member(s) of the community.

8.2.6. Community Sensitisation, Involvement and Ownership
Not involving communities in projects that are benefited by them, usually leads to serious setbacks. If community involvement issues are not handled properly, they could create suspicion, tension and misunderstanding; eventually leading to beneficiaries not fully identifying with the project or in rare cases rejection or sabotage. The major issues to consider with regards to major obstacles to effective project implementation and sustainability are the siting, timing of construction work, and extent and level of involvement of beneficiary communities.

8.2.7. Employment Opportunities
The site clearing, topsoil removal, the putting up of site offices and store, and the delivery of construction materials would provide employment opportunities for members of the community.

8.2.8. Timing of Construction Activities
Timing of construction of some of the project component is critical either because of the labour base requirement or suitability of the environment.
The factors of concern here are:

- Cultural activities that take away the people from the community, such as festivals, funerals, market days and others, which divert the attention of the people, affect labour-based projects. In some part of northern Ghana, the period between December to February is devoted to funerals. Some religious practices such as extensive fasting reduce available labour force.

- In some areas climatic conditions are vital consideration for construction. In dry areas where water is scarce and the ground is very hard, construction activities are best undertaken during the rainy periods.

- In some areas, especially northern Ghana, the rainy season renders inaccessible parts of the regions, thus construction work has to be carried out during the dry season.

- Seasonal migration out of rural communities to seek employment for extended periods (up to three months or more) also affect the labour supply.

8.2.9. Resettlement and Compensation
Acquisition of land for the construction of school building could have adverse impact on people's income and livelihoods and their properties, and on people's access to land, property, and other natural resources. In case this situation occurs, the World Bank resettlement and compensation policy would apply.

8.3. Constructional Phase
The identifiable net changes in key environmental issues like Socio-economic, Adjoining Land Use, Air Quality (Dust), Noise and Traffic, Burrow Pits, Liquid and Solid Waste Generation, Occupational Hazards and Public Accidents at Project Sites, Source of Raw Materials, Drainage Interface, Water Quality, Quality of Work and Workmanship Specification, Quality of Materials, Storage of Materials, Supervision of Works, and Selection of Types of Project Component’s Design would be assessed in this section

8.3.1. Burrow Pits
Laterite and sand excavation for construction work could create borrow pits. These can be found littered all over the rural areas and contribute to land degradation. Borrow pits can trap water and create problems associated with stagnant water bodies such as mosquito breeding and other water borne diseases. They also have the potential of disrupting natural drainage patterns.

8.3.2. Drainage Interface and Water Quality
Site levelling and the subsequent ‘cutting and filling’ could interfere with the natural drainage pattern of the area. Storm water run-off could increase. This potential increase in runoffs could enhance erosion, which could cause silting of the natural drainage channel. This in turn could adversely affect the hydrological properties of the area and receiving streams, and could lead to flooding.
8.3.3. Source of Raw Materials
The construction industry has been one of the fastest growing industries in the past decade. Varieties of materials are used in this industry. Those of relevance, as far as potential impacts are concerned, are lumber, sand, and stones. For example, the extraction of chain-sawn lumber is illegal in Ghana. Its usage could cause degradation to the environment of the extraction sources.

8.3.4. Noise
During the construction period, the use of such equipment and machinery as concrete mixers, poker vibrators, dumpers, and borehole equipment and machinery, among others could generate noise in the project area, especially in the urban areas. The most significant health effect associated with noise of high intensity over prolonged periods or very loud intensity noise for relatively brief periods (Impact Noise) is physical damage to the ears known as Noise Induced Hearing Loss (NIHL). Noise levels in workplaces exceeding 85-dB (A) on an eight-hour Time Weighted Average (TWA) are injurious to the ears. The threshold of hearing tends to increase with length of exposure to high intensity noise. Other recognised effects of noise are irritability, headache, and sleep disturbances and increased risk of accidents due to interference with communication.

8.3.5. Air Quality (Dust)
Particulate matter on the project site would increase considerably during the construction phase. This could be caused by the removal of topsoil and vegetation, the movement of vehicles and equipment and the constructional activities in general. The increase in particulate matter on the site would decrease gradually over the construction period. This issue is particularly serious in the urban residential areas. The recommended ambient air quality standard for total particulate for Ghana (EPA 1977) is 260μg/l for residential areas.

8.3.6. Transport and Traffic
Building materials supply to the site would be frequent for sand, stones, cement, and blocks, especially during early stages of the construction period. This could create a degree of traffic and accidents in the routes to the project site.

8.3.7. Occupational Hazards and Accidents
Materials and equipment used for the construction work could be harmful, when not handled with care. There is the possibility of loose nail scattering on the site as result of its usage. These nails could pose danger to both workers and visitors to the site. The construction of wells, sanitation pits is also hazardous task. The possibility of workers or members of the communities drowning in the wells or falling into the pits cannot be overruled. Loose scaffolds and debris falling from heights could also be harmful to workers. Other potential hazards include injury from sharpened tools and instruments, dust effect on workers and vehicular accidents.

8.3.8. Solid Waste Generation
The constructional stage of the project, like almost all-human activity, would produce solid waste. This is expected to come from the cuts and
pieces of wood, steel, plastic tubes and blocks. Also included in the solid waste are the polyethylene bags and paper that are seen in many a Ghanaian settlement or activity, and waste packaging materials for building implements.

8.3.9. Risk of Water Body Pollution

Site preparation involving clearing the site of its top vegetation and removal of top soil could provoke erosion, which could runoff into and pollute the receiving water bodies. It must be mentioned that exposed water bodies are also prone to contamination from human related activities like waste disposal and indiscriminate defecation, in this case from the construction workers. Faecal matter and other contents of run-off could introduce microbial/biological agents, which would spread pathogens and cause diseases (e.g. diarrhoea, dysentery and cholera).

8.3.10. Groundwater Quality/Contamination

The construction of wells and the drilling for borehole sites could have adverse effects on the groundwater quality.

8.3.11. Employment Opportunities

The project is expected to create employment for artisans, labourers and supervisors in the districts, where the schools would be built. The site clearing, topsoil removal, the sinking of the holes and wells could provide employment opportunities to the beneficiary communities.

8.3.12. Emergence and Development of Businesses

The project would boost trading among construction allied industries e.g. cement and iron rods production and other building materials manufacturers, suppliers and distributors. Other businesses such as the hospitality industry would also benefit immensely.

8.3.13. Quality of Materials

The quality of materials to be employed in the construction of the project’s components could affect the final component products and the sustainability of the project. The materials mainly comprise hardcore, Portland cement, aggregates, water, reinforcement (steel bars), ready mixed concrete, expansion joint material, bricks, block, sand, roofing sheets, timber (softwood, hardwood, and plywood), timber preservative, adhesives, doors, screws and nails, bolts, ironmongery, louvre carriers, Tubing, Fitting and Accessories, Glass, Borehole Equipment, and Paints among others.

8.3.14. Storage of Materials

The delay of materials in reaching the site and not storing them appropriately could have adverse effect on the continuity of the construction work and on the expected completion deadlines.

8.3.15. Supervision of the Works

Supervision by the District Authorities of works being carried out in the districts but contracted and controlled by national level entities in Accra is usually made impractical, as the contractors do not respond in any way
to the District Authorities. This situation could have adverse effect on the quality of work and hence the project’s sustainability.

8.3.16. Selection of Types of Project Component’s Design
The design of the project components and the selection of types of water points and sanitation facilities, if carried out without taking into consideration the beneficiaries preferences, the climatic conditions of the area and availability of resources such as groundwater, pipeborne water, and funds for the maintenance of the facilities, could defeat the very purpose of the project.

8.4. Operational Phase

8.4.1. Availability of Teachers
About 80% of the beneficiary districts are rural communities and one of the concerns identified during the field visit was the non-availability of teachers.

The absence of teachers’ accommodation and social amenities like schools, water, electricity, roads, hospitals, entertainment spots, post offices and banks have contributed to the depressed conditions in the rural areas, which make it difficult for teachers to accept postings to these areas. School buildings with pupils without teachers would defeat the very purpose of the project, thus ensuring the availability of teachers remains a major concern.

8.4.2. Operation and Maintenance
Lack of proper maintenance and adequate repairs to the building could compromise the intended objectives and the sustainability of the project.

With regards to water points, boreholes and wells fitted with pumps raise problems of maintenance and availability of spare parts. Most rural communities lack skilled personnel and resources. The sustainability of such projects could thus be adversely affected in the long term.

The sanitation facilities in general will raise problems of cleanliness and maintenance. The sustainability of such projects could be adversely affected and the purpose defeated if, for lack of good housekeeping and maintenance, the pupils tend towards “free-ranging”.

8.4.3. Solid Waste Generation
Solid Waste Generation is a result of human activity. These wastes could cause serious environmental problems together with their associated health hazards if proper and adequate measures are not put in place during the operational stage.
8.4.4. Traffic (Congestions, Accidents, etc)

The entry of school pupils to school in the morning and leaving school in the afternoon could cause traffic and even accidents on nearby streets/roads, especially in the urban areas.

8.4.5. Health and Safety

In any confined atmosphere for many people, as a classroom usually is, there is the possibility of easy spread of diseases such as poliomyelitis, chicken pox, measles, respiratory tract infections, cholera, malaria, etc. The children that pick sicknesses from school may transmit them to their households, which could further lead to more proliferation in the communities.

8.4.6. Groundwater Quality/Contamination

Although ground water sources are generally good as potable water, there are areas, where problems of high concentrations of contaminants such as manganese, fluoride, iron and high salinity exits. Conditions of high total hardness and low pH also occur. The salinity problems occur in the coastal savannah areas. Low pH water tends to attack pumps and well parts and this together with iron from rock formation leads to the widespread occurrence of high iron concentrations, which is observed in parts of Fanteakwa District. Use of agro-chemicals also results in some level of ground water pollution especially in areas of high water table and porous soils.

8.4.7. Groundwater depletion/Aquifer Recharge

Sinking of wells to draw water depletes ground water, which is replaced through natural recharge. Where withdrawal rate exceeds the aquifer recharge rate, problems arise leading to dryness of the well, as well as possible nearby shallow wells. If this persists, the whole aquifer could be depleted.

Withdrawal of large amounts of groundwater causes porous formations to collapse resulting in subsidence. In such instances, flooding becomes a problem if the area affected is coastal and sinks below sea level.

Rapid population growth can contribute to ground water over draft. Aquifer depletion arising from over use of fresh water reservoirs may also cause salt water infiltrations, especially along coastlines.

8.4.8. Security

In the absence of formal security arrangements, open water points have unrestricted access. This poses several problems such as:

- risk of drowning by children and other vulnerable persons
- misuse and abuse by unscrupulous persons

8.4.9. Habitat for Disease Vectors

The use of the water point could create tiny impoundments that could provide suitable habitats for certain disease vectors to multiply and spread. Common examples are:

- Snail Vectors: schistosomiasis (bilharzias)
- Mosquito Vectors: malaria and filariasis
8.4.10. **Flies and Pest**
The operation of any such sanitation facility as KVIP, VIP, Pit Latrine, and Pan Latrine could lead to the increase in the number of flies and pests in the surrounding communities of the project’s location. Flies and pests are agents that spread pathogens and cause diseases (e.g. diarrhoea, dysentery and cholera).

8.4.11. **Pollution of Surface Water**
There is the possibility of overflow of faecal material from the pits, especially if storm water runs into the pits. This could pollute nearby water bodies by introducing microbial/biological agents, which would spread pathogens and cause diseases (e.g. diarrhoea, dysentery and cholera).

8.4.12. **Odour**
Odour is usually related to such sanitation facilities as KVIP, VIP, Pit Latrine, and Pan Latrine. This issue is related to good housekeeping as mentioned in the previous paragraph.

Apart from this odour being unpleasant, it is likely to contain pathogens like bacteria, viruses and fungi. The danger associated with such biological hazards is that the micro-organisms may be airborne thereby exposing pupils, teachers and households in the vicinity, to the risk of infections. The micro-organisms are likely to enter the body by inhalation through the nasal cavity and could result in pneumonitis, pneumonia and septicaemia (infection of blood).

8.4.13. **Danger of Explosion**
Sanitation facilities are usually constructed with pits or septic tanks. Digestion of faecal material, which typically occurs in these pits and tanks, generate methane gas as a result of the actions of the micro-organisms. When the facility is not properly constructed and maintained, the possibility of explosion cannot be ruled out.

8.4.14. **Liquid Waste**
The current practice with regards to liquid waste in primary schools, which have sanitary facilities, e.g. WCs and Aqua Privy, excreta and urine are channelled into septic tanks that are emptied periodically into various treatment plants. Most other liquid wastes, e.g. water used in washing hands and at times, urine too, flow into gutters, which enter the external sewerage system and ends up in water bodies draining the area, where the school is located. In some cases, particularly in the rural areas, where plumbing facilities are rudimentary, some of these liquid wastes such as water used to wash hands and urine wind up on the ground in the vicinity of the school.

8.4.15. **Solid Waste**
The current practice in connection with solid wastes in primary schools, is throwing the pieces of paper, broken pencils, pieces of chalks, remnants of food, empty plastic water sachet, used food packaging materials, plastic bags, etc into garbage cans or away onto the school’s compound and surrounding vicinity. The rubbish is burnt, buried or
dumped onto a corner of the school's compound, particularly in rural areas, or taken away by waste collection companies or the District Assembly to the district's rubbish dump site in parts of the urban areas.
9. ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

9.1. Introduction
The components of the EdSeP will be implemented by various organisations including Government agencies, District Administrations, Architectural firms, and Construction Contractors. The environmental concerns raised earlier therefore require that some aspects of project design and implementation and tender and contractual document preparation should be environmentally sensitive.

The organization for the construction activities and implementation of the EdSeP, under this section, are expected to screen for site selection; potential environmental and social impacts; mitigation of impacts; and to be able to outline steps for monitoring of potential impacts, with a process for triggering subsequent environmental and / or social assessments, where necessary.

9.2. Screening for Site Selection
Screening for site selection is perhaps the most important task, apart from the design works, in the pre-constructional phase. In doing this, it is imperative to take into consideration the adjoining land uses to locate a Primary School together with a water point and a sanitation facility.

In general, technical considerations may limit the range of alternative sites for some components, particularly water projects. It is expected that all necessary studies, e.g. hydrological, climatic, soils etc., for relevant components will be carried out by appropriate authorities. However the following must be considered when siting the components of the EdSeP.

9.2.1. Cultural Sites
Avoid locating projects near cultural sites such as sacred groves and burial grounds and other places that may give offence to the people.

9.2.2. Adequate Land Area
Ensure sufficient land area is available for facility installation and future expansion.

9.2.3. Sanitation and Public Health
Avoid siting facilities near unsanitary locations, e.g. rubbish dumps, which might lead to outbreak and spread of infectious diseases.

9.2.4. Pollution of Water Bodies
The sanitation facilities should not be sited near water bodies.

9.2.5. Conflict with Nearby Communities
Involve nearby communities that might send their children to the schools in the management of school in order to avoid conflict, which could lead to tensions in the use of the school.

9.2.6. Population’s Impact on the School
The population of the micro location of the school (the communities in which the school is constructed) would have to be considered in siting the school in order that the school facility is not extremely under-utilised.
9.2.7. Ecologically Sensitive Sites
Avoid ecologically sensitive sites such as flat plains, which are liable to flooding, aquifer recharge zones, which may be lost, steep terrain prone to erosion and areas that pose threat to fragile habitats and endangered species.

9.2.8. Conflict with Nearby Land Uses
It is important to avoid siting a primary school close to other land uses, such as major highways, hospitals, quarry, etc. that may impact negatively on the pupils or vice-versa.

9.3. Screening for Potential and Social Impacts
Under this section those responsible for the construction and implementation of the components of the EdSeP are expected to screen for potential project impact as per a checklist, in Appendix 5. They would also be expected to apportion Estimated Impact Magnitude (−2, −1, 0, +1, and +2) of the identified potential project impact. The potential project impacts as per the mentioned checklist include the following:

- **Farm Lands**: Are there farm lands in the project area?, Will project result in more or improved farm lands?, and Will projects result in loss or damaged farm land?
- **Soil Erosion**: Will project help to prevent soil loss or erosion?, Will project directly cause or worsen soil loss or erosion?, Could project indirectly lead to practices that could cause soil loss or erosion?
- **Slope Erosion**: Does project involve modification of slopes?, Will project affect stability of slopes directly or indirectly?, Could project cause people or property to be located where existing unstable slopes could be a hazard?, and Is it necessary to consult a geotechnical engineer?
- **Surface Water Quantity**: Do surface water resources exist in project area?, Is information available on present and future demands on water resources as a result of the project?, Will project help to increase or preserve available surface water supplies?, Will project increase demand or cause loss of available surface water?, and Is it necessary to consult a hydrologist?
- **Surface Water Quality**: Is current data available on existing water quality?, Will project lead to additional natural or man made discharges into surface water, Will project help to improve or protect surface water quality, Could project cause deterioration of surface water quality and Is it necessary to consult a water chemist?
- **Ground Water Quantity**: Do ground water resources exist in project area?, Is information available on demands on ground water resource as a result of the project?, Will project help to increase or preserve available ground water supplies?, Will project increase demand or cause loss of available ground water?, and Is it necessary to consult a hydrologist?
- **Ground Water Quality**: Is information available on present water quality?, Will project cause any natural or man-made discharge into ground aquifer, Will project help to improve or protect ground water quality, Could project cause deterioration of ground water quality, and Is it necessary to consult a to consult a chemist or hydrologist?
- **Air Quality:** Is information available on existing or quality?, Will project produce any air emission directly?, Will project help to reduce existing air pollution sources?, Could project lead to practices that worsen air quality, Could project lead to a change in engine or fuel use that could cause serious air problem ?, Is it necessary to consult an air quality specialist?
- **Noise:** Is noise now a problem in project area?, Will project help in reducing undesirable noise conditions? Will project cause increases in noise generating conditions? And Could project cause movements of people to high noise level locations
- **Aquatic Ecosystems:** Are there any aquatic ecosystems in the project area such as rivers, streams, lakes or ponds which might be considered significant?, and Will project affect the use of these systems for human consumption?
- **Wetland Ecosystems:** Are there any wetlands ecosystems in the project area such as marsh, swamp, flood plains, or estuary which might be considered significant?, and Will project affect the use or condition of such wetlands?
- **Terrestrial Ecosystems:** Are there any terrestrial ecosystem in the project area such as forest, savannah, grassland or desert which might be considered significant, Will project affect the use or condition of such system
- **Endangered Species:** Is the existence of endangered species in the project area known? And Will project affect the habitat of any such species
- **Migratory Species:** Do migratory fish, birds, or mammals use the project area? and Will project affect the habitat of such species?
- **Beneficial Plants:** Do non-domesticated plants occur in the project area, which are used or sold by local people? and Will project affect these species by reducing their habitat in any way?
- **Beneficial Animals:** Do non domesticated animals occur in the project area, which are used or sold by local people and Will project affect these species by reducing their habitat in any way
- **Pest-Plants and Animals:** Are there currently any problems with pest (plants or animals) in the project area? Are there any plants or animals in the area, which might be pests because of ecological changes brought about by the project? Will project improve increase he habitat for such species?
- **Disease Vector:** Are there known diseases in the project area transmitted through vectors? Will project increase vector habitat?, Will project decrease vector habitat or provide opportunity for control?, Are there clinics or other disease control programmes in operation or planned for the area?, Is it necessary to consult a public health officer?
- **Resource / Land Use:** Are lands in he project area intensively developed? Will project increase pressure on land resources?, Will project result in decreased holdings by small land owners? and Should a land use planner be used?
- **Distribution Systems:** Will project enhance the equitable distribution of agricultural and /or manufactured products?, Will project increase demand for certain commodities within or outside the project area?, Will project result in decrease in production of certain vital commodities?
• **Employment:** Will project increase the rate of employment? and Will project remove job opportunities from the area?

• **At-Risk Population:** Are the adverse impacts of the project unequally disturbed in the large population? and Have the at-risk groups been identified?

• **Existing Population:** Are there currently any people living in or near the project area? Will project affect people in or near the project area? Has liaison been established with the community? Will community participation in projects design and implementation be necessary?, Is it necessary to consult a sociologist?

• **Migrant Populations:** Are there currently any mobile groups in the target population? and Is it necessary to consult a sociologist?

• **Cultural and Religious Values:** Is it necessary to consult a sociologist? Are there special superstitions or taboos that will affect acceptance of the project?

• **Tourism and Recreation:** Is there at present a significant degree of tourism in the area? Is there unexploited tourism or recreation potential in the area?, Will project adversely affect existing or potential tourist or recreation attractions?

Undertaking the identification of the potential project impacts as explained above would facilitate the filling of EPA’s **Environmental Assessment Preliminary Registration Form EA1**, a sample of which has been included in the Appendix 4. Those responsible for the screening process would be provided with training on how to fill the forms and on Environmental Impact Assessment procedures.

It must be mentioned that based on the information gathered during the screening exercise and provided on the EPA’s EA1 Form, the EPA officers would visit the proposed project sites to assess the adequacy of the information provided and also the appropriateness/suitability of the selected site, among others and they would decide whether to give approval at this stage or require further analysis in the form of Preliminary Environmental Assessment or a more thorough assessment in the form of a complete Environmental Impact Assessment.

In the case of the Preliminary Environmental Assessment, a less detailed form of EIA, which leads to a Preliminary Environmental Report (PER). The Terms of Reference (TOR) are determined by the EPA.

For the Environmental Impact Assessment (EIA), detailed study based on an initial scoping report is to be carried out on TOR agreed with the EPA.

**9.4. Mitigation of Impacts**

The proposed measures to mitigate the potential impact of the implementation of the EdSeP components have been prepared in the form of guidelines. The guidelines are provided to ensure that good environmental practices are adopted to avoid and/or limit adverse consequences from the proposed interventions. Some of the guidelines given below are of a general nature, applicable to all components, while others are component specific.
These guidelines are not exhaustive, project implementation should be guided by experience and knowledge gained from other projects.

9.4.1. Guidelines for Community Involvement

9.4.1.1. Selection of Contact Persons

Although their support and involvement is essential, community leaders like chiefs and assembly members do not always make the best contact persons for project implementation.

In some situations efforts should be made to identify other opinion leaders particularly those who appear to catch the vision and can assist in sensitising the people. This however is the prerogative of the implementation committees. They should be on the look out for opinion leaders, who could be employed to sensitisise the rest of the community members.

Contact should be made, as much as practicable, with all the groups that would be affected one way or the other by the project, i.e. school children, parents, women groups, Community Based Organisation (CBOs), teachers, members of the District Assembly, traditional authorities, and school management committees. In doing this, gender balance has to be ensured in order to promote dialogue and capture the inputs of the women in the beneficiary communities. These groups would assist in the sensitisation process.

9.4.1.2. Community Sensitisation

Selected beneficiary communities should be educated on all aspects of the intended intervention well ahead of time. This should include the benefits, problems and financial implications among others. Animation, film shows, drama and posters are some of the methods that could be used to educate the people.

Community participation/involvement is a vital issue that has been identified to ensuring sustainability of any project. Most of the communities targeted by the EdSeP are among the most deprived in the country. This makes it more meaningful that they identify themselves with the project and its success by ensuring that assistance is provided to siting and constructing of the project’s components and to teachers, who would work in the establishment. Steps should thus be taken to sensitisise and involve the beneficiary communities from the start of the project.

9.4.1.3. Conflict Resolution

All issues of conflict and misunderstanding identified prior to implementation should be exhaustively addressed. The tendency of using the Project itself as a means of overruling potential conflict and misunderstanding should be avoided.

9.4.2. Guidelines for Project Site Selection

The site selection of the project components is perhaps the most important stage, except for the construction work. Here, consultations should be made with the District Environmental Management Committees (DEMC),
the Land Commission and the Water Resource Commission. The guidelines for site selection of projects should consist of the following:

- Avoid locating projects near cultural sites such as sacred groves and burial grounds and other places that may give offence to the people.
- Avoid siting facilities near unsanitary locations, e.g. rubbish dumps, which might lead to outbreak and spread of infectious diseases.
- The sanitation facilities should not be sited near water bodies.
- Involve other nearby communities that might send their children to the schools too in order to avoid conflict, which could lead to tensions in the use of the school.
- The population of the communities in the catchment area would have to be consulted in siting the school in order that the school facility is not extremely under-utilised.
- In considering the catchment area, the sustainability of enrolment over the years should also be looked at.
- Ensure that the project site has sufficient land area for the construction of all the project’s components, facility installation and for future expansion, if necessary.
- Avoid ecologically sensitive sites such as flat plains, which are liable to flooding, aquifer recharge zones, and steep terrain prone to erosion and threat to fragile habitat and endangered species.
- Avoid sites close to other land uses, such as major highways, hospitals, quarry, etc. that may impact negatively on the pupils or vice-versa.

9.4.3. Guidelines for the Timing of Constructional Activities
Some of the construction work under the EdSeP would require community labour involvement, especially in the rural areas. In order to ensure availability of labour the following points should be considered.

- **Cultural and Religious Activities** – Some religious and cultural activities may engage the attention of the people over an extended period of time, such periods should be avoided as much as possible.

- **Seasonal Migration** – Periods and seasons when some of the people migrate out of their communities to seek employment elsewhere should be factored into the planning.

- **Favourable Climatic Conditions** – Activities requiring extensive excavation work like water projects must be timed to coincide with periods of conductive climate. In some areas, especially northern Ghana, the rainy season renders inaccessible parts of the regions, thus construction work has to be planned in the dry season.

9.4.4. Guidelines for Construction Work
The mitigation measures for the environmental concerns raised with regards to the construction of the building and general construction work of the other components have been addressed as follows:

- **Erosion during Constructional Phase** – The site should not be cleared and left unused for a long time. The contractors are to ensure
that the site clearance, topsoil removal, compacting, cutting and filling, and foundation construction follow each other in order to avoid or minimize the incidence of erosion. The construction work could also be timed to avoid the rainy season.

- **Erosion during Operational Phase** – Steep areas are generally prone to erosion. Lands selected for project components should be level or have minimum slope. Where this is unavoidable due to the terrain, the surrounding of the project’s components should be covered with green grass.

- **Destruction of Farms** - The issue of destruction of farms falls under Ghana’s Land Policy, which stipulates that prior agreement of compensation payment with the potential affected parties has to be reached even before setting off to survey the sites and for construction work to begin. It must be mentioned that the user of a farmland, whether he/she is owner of the land or not, should be compensated. The compensation must be an amount not less than replacement cost including cost of labour.

- **Risk of Water Body Pollution** – One part of this issue is related to erosion, which has already been addressed. With regards to human activities, especially indiscriminate defecation and disposal of waste materials, the contractors engaged in the construction activities should have on site mobile toilet facilities and garbage cans and ensure that their workers do not resort to free ranging and indiscriminate dumping of rubbish.

- **Resettlement and Compensation** – Any person or group of people to be affected by the project in the form of loss of farms, houses and other landed property should be compensated or resettled. It must be mentioned also that any people that due to the project, lose access to natural resource, income, or livelihood should be compensated, and that users of land, regardless of the owners, should also be compensated. It is the policy of the Government of Ghana to pay compensation to people, whose properties, lands or landed property are affected by projects being undertaken by the Government.

The State Lands Act 1963 section 6(1) provides that any person, whose property is affected by public projects shall be entitled to compensation. The same Act provides avenues for people, who are not satisfied with the compensation to seek redress. Although the Lands Act provides for payment of compensation and resettlement of displaced people, whose lands or landed property are affected by projects being undertaken by Government, where there are gaps or discrepancies between the Land Act and the World Bank Policy, the World Bank Policy would apply.

The World Bank Policy on Involuntary Resettlement is the Appendix VI.
• **Burrow Pit** – Excavating for laterite, sand and gravel create stagnant water bodies in borrow pits. These become habitats for breeding of mosquitoes and other diseases vectors. Methods of control include filling, draining and improved landscaping.

• **Drainage Interface and Water Quality** - Site selection is to be done properly to avoid interference with the natural drainage pattern of the project area.

• **Source of Raw Materials** - The project consultant should ensure that the contractor procures building materials such as sand, stones, and laterite from licensed and approved sites. The contractors should be urged not to employ chain-sawn lumber in the construction of any of the components of the project.

• **Noise** - Ear protection gadgets are to be provided to workers on the construction site, who would be exposed to high noise intensities

• **Dust** – The impact of dust generation from construction work is more of a residual problem. However, during construction, efforts should be made to reduce dust impacts by frequent watering, providing of dust masks for workers and undertaking good work practices.

• **Operation /Maintenance and Odour** - Good housekeeping of sanitation facilities e.g. KVIP, VIP, Pit Latrine, and Pan Latrine is to be enshrined in the operations of the school, and to be carried out either by the pupils or by a private company in order to ensure the facility's sustainability

• **Quality of Work and Workmanship Specification**.-. All building works contracted for the Government of Ghana are to be executed according to the General Specification for Building Works published by the Government of Ghana in November 1995. These specifications are Ghana Standard Board and British Standards specifications. The DICs are to ensure that the contractors apply, as applicable, the guidelines prepared herein for the mitigation of impacts, in order to achieve quality of work.

• **Quality of Materials**.-. All the materials to be used in the construction of the project components are to be new, of best quality and manufacture and in accordance with the current British Standard and Ghana Standard Board specifications, where they exist. Where they do not exist, samples are to be provided for tests to be carried out on the materials. When samples have previously been submitted and approved, all subsequent deliveries should be in accordance with the sample.

• **Storage of Materials** - The materials would have to be stored under cover clear of the ground and protected from dampness and the
weather in such a way as to prevent decay or attack by fungus or insects.

- **Supervision of the Works** - Supervision of the works would be done by the District Implementation Committees in order to have proper control of the construction of the components of the project. This is further mentioned in the Guidelines for Institutional Framework.

- **Selection of Types of Project Component's Design** - The design of the project components and the selection of types of water points and sanitation facilities are to be carried out in conjunction with or by the District Assemblies and District Implementation Committees. The DAs have their developmental plans and know, for example, which communities would be served with pipeborne water within a year. This proposal is also to avoid the selection or design of impractical project components, which could be imposed on the beneficiaries.

- **Disease Vectors** – These are associated with the tiny impoundments and wet patches that form near wells and boreholes and recommended preventive measures include:
  - Avoidance of stagnant little ponds or wet patches round the water points, preventing users from washing their hands, pans, feet, or clothes, etc. close to the water point
  - Disease prophylaxis

- **Security** – The water points must be protected to prevent misuse, accident and intentional pollution. Wells and boreholes should be secured by raising concrete barrier structure and provided with cover and lock. The sanitation facilities must be secured by lock when the schools are not in session.

- **Pollution of Surface Water** - The site of the construction of sanitation facility would be properly selected to avoid low lying areas, and drainage pattern or water flow paths in order to avoid overflows in the case of flooding of the area.

- **Groundwater Depletion/Aquifer Recharge** – This is relevant for wells and boreholes. Design considerations should ensure that abstraction rates are consistent with natural aquifer recharge. Consultations with the regional CWSA would provide information on the aquifer recharge.

- **Groundwater Contamination** - Work on the septic tanks and pits would have to be carried out professionally and to the highest quality to avoid contamination of groundwater during the constructional phase, and leachate into groundwater during the operational phase.

- **Groundwater Quality** – Water is intended for human consumption and should be subjected to quality analysis by the Community Water and Sanitation Agency (CWSA) to determine, whether it meets the required standards before giving approval. Supposing the
groundwater does not pass the standard tests, CWSA would advise on exactly which steps to take. It is imperative to mention that during the operational phase regular quality analysis has to be carried out to ensure that the water meets the set standards.

The standard for groundwater quality as prescribed by the World Health Organisation (WHO) is presented in Table 19 below:

**Table 20: Chemical and Bacteriological Parameter Standards**

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>25</td>
</tr>
<tr>
<td>Colour</td>
<td>HU</td>
<td>50</td>
</tr>
<tr>
<td>PH</td>
<td>-</td>
<td>6.5-8.5</td>
</tr>
<tr>
<td>Temperature</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Nitrite</td>
<td>mg/l</td>
<td>0.3</td>
</tr>
<tr>
<td>Nitrate</td>
<td>mg/l</td>
<td>45</td>
</tr>
<tr>
<td>Nitrite</td>
<td>mg/l</td>
<td>0.3</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>mg/l</td>
<td>1.5</td>
</tr>
<tr>
<td>Chloride (Cl)</td>
<td>mg/l</td>
<td>250</td>
</tr>
<tr>
<td>Copper</td>
<td>mg/l</td>
<td>-1</td>
</tr>
<tr>
<td>Total Hardness</td>
<td>mg/l</td>
<td>500</td>
</tr>
<tr>
<td>Total Iron (Fe)</td>
<td>mg/l</td>
<td>0.3 (1.0 mix)</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>mg/l</td>
<td>0.5</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>mg/l</td>
<td>5</td>
</tr>
<tr>
<td>Sulphate</td>
<td>mg/l</td>
<td>250</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/l</td>
<td>0.01</td>
</tr>
<tr>
<td>E. Coli</td>
<td></td>
<td>0/100ml</td>
</tr>
<tr>
<td>T. Coliform</td>
<td></td>
<td>0/100ml</td>
</tr>
</tbody>
</table>

- **Occupational Hazards and Public Accidents at Project Sites** - Materials and equipment used for the construction of the project components should be marked to explain visually their potential impact. The workers should always use helmets on the site. The construction areas for the water points and sanitation facilities should be marked and delimited in order to avoid accidents. Reasonably practicable precautions are to be taken and instructions given in the identification, use, handling, storage, transport and disposal of hazardous substances, e.g. petroleum products on the construction site.

- **Odour** - Good housekeeping of sanitation facilities e.g. KVIP, VIP, Pit Latrine, Pan Latrine, Aqua Privy, and WC is to be enshrined in the operations of the school, and to be carried out either by an employee of the DA or by a private company in order to ensure the facility’s sustainability.

- **Flies and Pest** - Good housekeeping of sanitation facilities e.g. KVIP, VIP, Pit Latrine, and Pan Latrine is to be incorporated into the maintenance schedule of the school, and to be carried out either by the pupils or by a private company in order to prevent the proliferation of flies and pest.
• **Operation/Maintenance** – The management and maintenance of the components of the project would be in the hands of the District Assembly through the District Directorate of Education. Spare parts for the Water points would have to be made available, as they are difficult to come by in the rural areas. It should be the responsibility of the DA to see to the management and maintenance of the sanitation facility.

• **Danger of Explosion** - A ventilation tube with the right height, would have to be incorporated properly in the design of the sanitation facility in order to diffuse the generated gases in the pits and the septic tanks. It would also have to be included in the contract’s technical specification.

9.4.5. **Guidelines for the Availability of Teachers**
A lot of work has already been done in this area, by different entities, to address the above concern. It is however recommended that the Deprived Schools Teacher Incentive Scheme, prepared by the Ghana Education Service, be implemented to ensure sustainability of the project.

9.4.6. **Guidelines for Liquid Waste Management in Primary Schools**
The measures to guide the operation of the schools with regards to Liquid Waste Management in order to ensure the project’s sustainability are:

- Provide enough toilet seats and urinal points to cater for the school
- Ensure that the pupils use these facilities without resorting to “free-ranging”
- Ensure that the pupils are sensitised to understand the reasons why they are to use these facilities. Sanitation and hygiene could be incorporated into their school work.
- Incorporate waste water disposal in the design to ensure that waste water from the wash basins flow into proper gutters, where they are available
- Put in place a programme, including inspection of schools, to ensure Proper House Keeping of the facility
- Put in place a programme to periodically empty the septic tanks of the Aqua Privy or WCs, either through private entities or the District Assembly, to ensure that they do not overflow.
- The DAs would be required to have a septic emptier or an improvised one, as it was apparent from the Field Work that Aqua Privy is better for schools in areas, where there is no pipeborne water, than the KVIP.
9.4.7. Guidelines for Solid Waste Management in Primary Schools

The measures to guide the operation of the schools with regards to Solid Waste Management in order to ensure the project's sustainability are:

- Provide enough garbage cans of the right sizes and with covers to cater for the school's rubbish collection needs
- Ensure that the pupils use these facilities and that they do not throw rubbish anywhere else
- Ensure that the pupils are sensitised to understand the reasons why they are to use these facilities. Sanitation and hygiene could be incorporated into their school curricula.
- Incorporate garbage cans and rubbish collection points in the design of the school to make the garbage cans easily accessible to the pupils and teachers.
- Put in place a programme, including inspection of schools, to ensure Proper House Keeping of the school.
- Put in place a programme for the evacuation of the collected rubbish, either by private entities or the District Assembly, once everyday or every other day.

9.4.8. Guidelines for Institutional Arrangement, Framework and Responsibilities

Although the EdSeP is within the domain of the Ministry of Education Youth and Sports, its implementation requires multi-faceted interventions involving several ministries, government agencies, district administrations and the beneficiary communities. This section deals with the relevant institutional arrangements – existing and proposed – which would facilitate the implementation of the project with emphasis on ensuring environmental soundness and sustainability.

9.4.8.1. Beneficiary Communities

The beneficiary communities are the main focus and recipients of the projects, for which the main strategy is to reduce the geographical inequality in primary education in the selected deprived areas. They include children, women groups, parents, and the poor.

9.4.8.2. Political Authorities

At the district level, the District Assembly and the District Directorate of Education are of key importance to the project's sustainability.

9.4.8.3. Chiefs, Opinion Leaders and CBOs

These are also very important to the project, as they usually wield immense influence on decisions regarding the establishment and location of facilities.

9.4.8.4. Head Teachers, Teachers and PTAs

The headteachers, teachers and Parent-Teachers Associations have extraordinary importance in the running and overseeing the maintenance of the facilities, and inculcating environmental awareness into the pupils.
9.4.8.5. Ministry of Education Youth and Sports and Ghana Education Service
The MOEYS and GES are important in the implementation of the project and are to see to the training and supply of teachers to the schools to ensure the project's sustainability.

9.4.8.6. EPA
The EPA would assist, monitor, and ensure that the District Implementation Committees comply with laid down EIA procedures in the implementation of the individual projects, especially when it comes to Site Selection and the issue of Compensation and Resettlement.

9.4.8.7. Town and Country Planning
The Town and Country Planning in the districts would scrutinize and approve, or otherwise, the building plans and would provide a Zoning Report. The Building Plans and the Zoning Report are to be attached to the EA1 Form (See Appendix 4) and submitted to EPA.

The Town and Country Planning is recognised as the Government agency with the responsibility for general layout and development programmes of sections of our land. With regards to the layout of school building, it applies the old British guidelines for space index. For instance these guidelines suggest that for a full stream a minimum of 6 acres of land is required, 1.5 acres for structure and ancillary.

The type of materials and sizes to be used lie in the purview of the design experts. However it is required that building permits be sought from the agency prior to construction of structures.

Town and Country Planning's assessment capacity starts with site selection to ensure suitability and sustainability of project. These are usually incorporated in zoning and planning of developing areas.

However variation of policies and consequent conflict with other agencies have created handicaps to this capacity, e.g. issuance of permits in conflict with EPAs permitting policies. These overlap to confuse the authority of each other.

9.4.8.8. Waste Management Departments
One of the main concerns of the implementation of any project such at the ones under the EdSeP, is the management of waste and liquid waste. The Waste Management Department in the districts are important in the planning of the collection and disposal of liquid and solid waste.

9.4.8.9. Community Water and Sanitation Agency
The Community Water and Sanitation Agency (CWSA) are important in determining the quality of groundwater and advising on what to do in case any of the parameters exceeds the limit.
9.4.8.10. Project Management Structure Guidelines

The major requirement of the project management arrangements is the formation of an autonomous unit responsive to beneficiaries and working across many varied sectors to ensure:

- Strong co-ordination on policy matters
- Effective co-ordination on technical matters including environmental issues
- Capacity building within the staff of EdSeP Secretariat, District Implementation Committee, and the District Tender Board.

The management structure for the EdSeP implementation with regards to environmental management is proposed to be coordinated by a National Implementation Committee (NIC), which is expected to be the highest authority. This committee is expected to provide overall policy guidance and would comprise of the heads and key technical personnel of

- Ministry of Education Youth and Sports (MOEYS)
- Ghana Education Service (GES)
- Ministry of Local Government and Rural Development (MLGRD)
- Community Water and Sanitation Agency (CWSA)

The responsibility for the overall project management is recommended to be vested in the NIC, which would be headed by a National Co-ordinator.

Under the NIC are the District Implementation Committees (DICs), which are expected to consist of representatives of:

- Regional Education Office
- District Education Office
- Metropolitan Authority (District Assembly)
- Traditional Authorities
- Parents-Teachers Associations
- School Management Committees (SMCs)
- Teachers

The DIC is to be headed by the District Chief Executive (DCE).

9.4.8.11. Environmental Management Guidelines

As indicated, with regards to the Ghana's EPA requirements, the EdSeP is considered to be in the ambit of Strategic Environmental Assessment (SEA). It is expected though that, individual components would be subjected to appropriate project level assessment following approval for the SEA prior to effective implementation.

In this regard, it is proposed that the District Implementation Committees liaising with representatives of the Construction Contractors be responsible for ensuring that project specific level assessment requirements are met. They would receive initial training
and orientation from the Environmental Consultant in order to have the requisite skills. However, they would be supported from time to time by environmental consultants engaged from the private sector.

9.4.8.12. Guidelines of the Role of the EPA in the Project

The EPA plays a lead role in the administration of EIA in Ghana. The EPA Act (Act 490, 1994) mandates the Agency to ensure compliance with laid down EIA procedures provided comprehensively for site-specific project impact assessment. The EdSeP in its preparatory assessment is to be considered under the Strategic Environmental Assessment (SEA).

A single Environmental Approval would be issued for the EdSeP, on the basis of the Strategic Environmental Assessment, by the EPA. For individual projects, the EPA will implement monitoring programmes on project-by-project basis once the site specific assessment is considered satisfactory. The level of assessment for any individual project would depend on the following factors.

1. size or scale of project
2. nature/type and magnitude of impacts
3. location (land use consideration, compatibility and sensitivity)
4. resource base and resource at risk

In general, there are three environmental assessments available under the Ghana EIA procedures. These are:

- **Individual Projects for which only Registration Assessment may be required**
  
  Registration Assessment (RA) is based on information provided in completing Form EA1, which is the starting point in Ghana's EIA procedures. The appropriate EPA Regional office would receive a duly completed EA registration form EA1 and Environmental Assessment Checklist, in duplicate, in respect of the particular project to be developed. The EPA officers would visit the proposed project sites to assess the adequacy of the information provided and also the appropriateness/suitability of the selected site, among others.

- **Individual Projects for which Preliminary Environmental Assessment may be required**
  
  Preliminary Environmental Assessment – a less detailed form of EIA, this leads to a Preliminary Environmental Report (PER). The Terms of Reference (TOR) are determined by the EPA after the RA. If there is the need for further analysis, after the appropriate RA, the relevant EPA Regional office would advise on the scope of the Preliminary EA to cover the development. The officers would assist by assessing the adequacy of information provided and the suitability of proposed mitigation actions in the PER.
Individual Projects for which Environmental Impact Assessment may be required

Environmental Impact Assessment (EIA) – detailed study based on an initial scoping report and carried out on TOR agreed with the EPA. These are sub-projects, which may be located in environmentally sensitive or critical areas. It has been found from the SEA that the micro natures of the proposed EdSeP components are such that full scale EIA may not be necessary. However, certain water projects have potential for environmental sensitivity, and it is important that greater attention is paid to siting them.

Finally, the EPA would assist, monitor, and ensure that the District Implementation Committees comply with laid down EIA procedures in the implementation of the individual projects, especially when it comes to Site Selection and the issue of Compensation and Resettlement.

9.4.8.13. Guidelines for EPA’s Registration of the Projects

The EPA Regional Offices would register all EdSeP project components located in their respective regions and monitor environmental compliance following implementation.

EPA Head office would also maintain a register of all EdSeP project components in all the regions and prompt the regional officers to monitor the projects and provide up to date information on their performance and status.


District Assemblies (DAs) are empowered under Act 462 of 1993 to be responsible for development, improvement and management of human settlements and the environment in their districts.

In order to facilitate the work of the DAs in this regard, District Implementation Committees (DIC) are proposed to be formed in all the districts that would receive the EdSeP project components.

The recommended membership of the DIC is as follows:

i. Representatives of Regional Education Office
ii. Representative of District Education Office
iii. Regional Programme Officer of the EPA
iv. Representatives of the District Assembly
v. Representatives Traditional Authorities.
vi. Representatives of local Environmental NGOs or Community Based Organisations
vii. Representative from Ghana Water and Company and Community Water and Sanitation Agency
viii. The District Medical Officer or Health Superintendent
ix. Representative of the Waste Management Department
x. Representative of the National Council on Women and Development in the District
xi. Representatives of PTA members
xii. Headteachers and Teachers Representatives
xiii. Representatives of the District Environmental Management Committees (DEMC), where they exist

9.4.8.15. Role of District Implementation Committees
District Implementation Committees have a major role to play in any of the developments under the EdSeP in their district and are required to ensure ultimate sustainability. The key functions envisaged for the DICs with regard to environmental issues are:

1. Responsible for liaising with EPA and other relevant agencies
2. Work with project environmental consultants when required
3. Work with the District Tender Board
4. Responsible for registering all project components within the zone with the EPA, including completing Form EA1, any other documentation, and/or the attached project environmental screening checklist (Appendix 5)
5. Recommend the engagement of external environmental technical assistance/consultants where necessary and provide relevant terms of reference for the work to be executed
6. Ensure compliance with all recommendations by EPA and other regulatory agencies
7. Play a lead role in site selection for various EdSeP components within the district and initiating collation of baseline data
8. Ensuring the determination and payment of the appropriate compensation and resettlement, where it is due
9. Inspecting and Monitoring of environmental components of pre-constructional, constructional and operational stages and providing periodic report as and when necessary.

It is proposed that the EdSeP involves the DICs in all aspects of project implementation to ensure that the best available procedures are adopted to enable compliance with sound environmental practice.

9.4.9. Guidelines for Compensation and Resettlement with regards to Land Acquisition
The acquisition of land for government projects is regulated by the Lands Act 1963. Under Section 6 (1) of the Act, any person who suffers any loss or damage as a result of construction, rehabilitation, maintenance etc. shall be entitled to compensation. This includes people, who lose access to natural resource, income and livelihoods.


It is the policy of the Government of Ghana to pay compensation to people, whose properties, lands or landed property are affected by projects being undertaken by the Government. The State Lands Act 1963 section 6(1)
provides that any person, whose property is affected by public projects shall be entitled to compensation. The same Act provides avenues for people, who are not satisfied with the compensation to seek redress.

Although the Lands Act provides for payment of compensation and resettlement of displaced people, whose lands or landed property are affected by projects being undertaken by Government, where there are gaps or discrepancies between the Land Act and the World Bank Policy, the World Bank Policy would apply. The policy is found in Appendix VI.

9.4.10. Guidelines for Capacity Building
The members of the National Implementation Committees (NIC), District Implementation Committees and the groups of potential contractors are to be provided with Environmental Awareness Training. For the last two groups the training would also be aimed at developing and improving on skills to screen for site selection and potential environmental and social impacts, to be able to comprehend and take mitigation measures and to take steps for monitoring of potential impact.

Not all the mitigation measures and monitoring procedures require expenditure of funds. For any money to be spent, quotations or cost estimates should be collected from at least three entities, and evaluated for the appropriate one (with high points both financial and technical terms) to be selected before approving the works’ execution, unless of course the work is to be carried out by employees of the District Assembly. Estimates however have been presented in the EMP.

9.5. Monitoring of Potential Impacts
The monitoring of environmental effects is necessary to ensure that predicted impacts are addressed effectively and efficiently through the mitigating measures indicated.

The three main objectives of the monitoring exercise are:

- To ensure that any additional impacts not identified in the analysis of the potential environmental and social impacts of the construction of classrooms and provision of water points and sanitation facility.
- To ensure that the proposed mitigating actions are appropriate for addressing the impact and
- To send feedback information to Ministry of Education Youth and Sports and EPA in order that appropriate modifications can be to either the operational activities or to the environmental management plan in terms of mitigating measures to be applied.

The monitoring would have to be done by giving points e.g. from 1 to 5, to the major concerns and their corresponding mitigating actions and reports on findings would be written and submitted to EPA and the Ministry of Education Youth and Sports.

The monitoring would cover the following environmental concerns/mitigating measures:
9.5.1. Community Involvement
The DIC would interview opinion leaders, chiefs, assembly members and
the members of the communities in the catchment areas prior to the start
of the project to determine their understanding or misunderstanding of the
project and would send report on the findings to the NIC.

The monitoring of the implementation of Community Involvement guidelines
should be carried out by a third party, and report sent to NIC.

9.5.2. General Operation and Maintenance
Inspection would have to be carried out on the project components during
the operational phase in order to assess the condition, proper management
or otherwise and to determine the availability of back up spare parts
especially for the water points.

This inspection is to be carried out by DICs, GES, and MOEYS, as the DAs
would have the implementation responsibility.

9.5.3. Project Site Selection
The monitoring of the project site selection is expected to be carried out by
evaluating the Checklist for Screening and undertaking site visits for
confirmation. This is to be accomplished by the DIC and EPA’s Regional
Environmental Officer.

9.5.4. Timing of Construction Work
The construction work would have to be planned by the contractors in such
a way that Cultural and Religious Activities, Seasonal Migration, and
Climatic Conditions do not have adverse effect on the progress of work at
the site. The District Tender Board and DICs would monitor this issue by
evaluating the work schedule/plan of the contractors.

9.5.5. Erosion and Surface Water Pollution
Visual inspection of the Construction site would be carried out by the
District Implementation Committees to look for signs of erosion. During the
operational stage, inspections would determine whether lawns (landscape)
have been provided around the facilities.

9.5.6. Destruction of farms, Loss of Property and Lands
Inspections should be carried out by the Land Valuation Board and District
Implementation Committees to determine whether there are destruction of
farms, displacement of households, loss of land, and property or landed
property, in order to determine whether the right procedures have been
followed with regards to compensations and resettlements. Monitoring of
the above would be performed by EPA and NIC.

9.5.7. Burrow Pit
Visual inspection of the areas, where laterite, sand and gravel are excavated
to determine filling, draining and improved landscaping would have to be
carried out by members of DIC and report submitted to NIC.
9.5.8. Source of Raw Materials
Visual inspection of the Construction materials, paying particular attention to lumber. They should not be chain-sawn lumber. This is to be carried out by the DIC and report submitted to NIC.

9.5.9. Noise
The level of noise is to be measured during construction site inspections by the DIC to determine, whether they are within the accepted limits (<85dB), and if they are found to be above this limit, out of range, then the workers are to be seen to be using Ear protection gadgets.

9.5.10. Dust
During construction site inspections, the DIC would determine whether the frequent watering of the site is being carried out. The inspection has to be visual.

9.5.11. Liquid and Solid Waste Generation
Inspections, with regards to solid waste, during the constructional and operational stages by the DIC and NIC would indicate whether there are garbage cans on the site and in the schools. The parameters to use are siting of the garbage cans, number, and proximity to one another.

With regards to liquid waste, during operational stages, a questionnaire could be used to obtain data from teachers and pupils on whether the septic tank is emptied when necessary or otherwise. This would have to be done by the DIC and crosschecked by Ghana Education Service and the Ministry of Education Youth and Sports.

9.5.12. Operation/Maintenance, Odour and Flies & Pest of Sanitary Facility
A questionnaire could be utilized to obtain data from teachers and pupils on the condition with regards to cleanliness and use or otherwise of the sanitary facilities. Visual inspections would have to be undertaken too. This would be done by the DICs and crosschecked by Ghana Education Service (GES) and the Ministry of Education Youth and Sports.

9.5.13. Groundwater Quality/Contamination
Water intended for human consumption should be subjected to regular quality analysis to ensure that it is suitable by the Community Water and Sanitation Agency (CWSA) before giving approval. During the operational phase regular quality analysis would also be carried out to ensure that the water continues to be suitable for drinking. The DICs are to liaise with the CWSA in monitoring the groundwater quality, document the data properly and to prepare reports to be submitted to EPA and Ministry of Education Youth and Sports.

9.5.14. Groundwater Depletion/Aquifer Recharge
Questionnaires could be applied to the teachers and pupils to determine, whether there are times that the groundwater gets depleted or the yield is observed to reducing. This would be carried out by the DICs and CWSA.
9.5.15. Disease Vectors
Visual inspection is required here to ensure that wet patch or puddles are not created around the water points. The important point here is to monitor and ensure that the surroundings of the water points are as dry as possible. This activity would be carried out by the DICs and GES.

9.5.16. Security
Visual inspection of the water points and sanitary facility is required to determine whether they are secured by concrete barriers and with locks. The DICs are to undertake this inspection.

9.5.17. Danger of Explosion of Sanitation Facility
Inspection would have to be carried out during construction phase to determine the quality of the work done on the pits and septic tanks by DIC and CWSA.

9.5.18. Occupational Hazards and Accidents
Inspection would have to be carried out during constructional phase to monitor and evaluate the measures put in place with regards to Occupational hazards and Public Accidents at the project site, e.g. use of helmets, delimiting of pits, etc. This would have to be done by the DICs.

9.5.19. Availability of Teachers
The Ministry of Education Youth and Sports, Ghana Education Service and the Ministry of Finance would see to the implementation of the Deprived Schools Teacher Incentive Scheme. Performance and Impact assessments would be used by an independent consultant to monitor the implementation of this measure.

9.5.20. Quality of Work and Workmanship Specification
The District Tender Boards and DICs are to ensure that the contract documents are in accordance with the General Specification for Building Works published by the Government of Ghana in November 1995, which mainly are Ghana Standard Board and British Standards specifications.

They would also inspect the construction while it is in progress with the help of the Public Works Department Engineers of the Districts, to assess whether the specifications are being adhered to correctly. The number of visits to the sites would depend on whether the contractors are complying to the specifications or not. The DIC would prepare reports on their findings, which would be submitted to the NIC.

The DICs are to ensure that the contractors apply, as applicable, the guidelines prepared herein for the mitigation of impacts, in order to achieve quality of work.

9.5.21. Quality of Materials
The District Tender Boards and DICs are to ensure that the contract documents are in accordance with the General Specification for Building Works published by the Government of Ghana in November 1995, which mainly are Ghana Standard Board and British Standards specifications. They would visit to inspect the materials and to ensure that subsequent
deliveries would be in accordance with the samples previously inspected and approved.

9.5.22. Storage of Materials
The DIC would inspect the sites to ensure that materials are stored under cover clear of the ground and protected from dampness and the weather in such a way as to prevent decay or attack by fungus or insects. They would send report to the NIC.

9.5.23. Supervision of the Works
The supervision of the works would be done by the DICs with the Public Works Department Engineers of the districts to have proper control of the construction of the components of the project and reports prepared and sent to the NIC.

9.5.24. Selection of Types of Project Component’s Design
The selection of types of designs for school buildings, teachers’ quarters, water points and sanitation facilities would be done by the DAs and DICs or in conjunction with the DAs and DICs. The DICs are better in the know of the right types of designs of project component for their communities, especially considering their local weather conditions. Report on the project component designs and selections made would be sent to the NIC, which would vet and provide final approval.
10. ENVIRONMENTAL MITIGATION PLAN (EMP)

10.1. Introduction
Considering the various environmental and social impacts of EdSeP, it is imperative for mitigation measures to be put in place so as to avoid any negative consequences.

10.2. Mitigation Measures
The Mitigation measures to address the potential environmental and social impacts are presented in a matrix in Table 20. The matrix is constructed on the following headings:

i. Potential environmental and social impacts resulting from project activities

ii. Proposed mitigation measures

iii. Institutional responsibilities for implementation of the mitigation measures

iv. Monitoring indicators

v. Institutional responsibilities for monitoring the implementation of the mitigation measure

vi. Cost estimates for these activities (Please refer to Table 18 overleaf)

vii. Time horizons for implementation of the EMP.
Table 21: Environmental Mitigation Measures and Cost

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<tr>
<td><strong>Community Involvement</strong></td>
<td>* Involve the community members, women groups, community based organisations, school children, parents, and community leaders e.g. Chiefs, assembly men and opinion leaders (Ensure gender balance with regards to the above) * Conflict Resolution * Community Sensitisation and Skills Programme</td>
<td>DICs</td>
<td>Use of questionnaires to identify conflicts and misunderstanding and to assess understanding of the project. Determine the involvement of women, children and the poor. Report to be sent to NIC</td>
<td>Consultant</td>
<td>@ US$5,000 for 40 Districts = US$200,000</td>
<td>Pre Constructional Phase, 1-3 months prior to project's implementation</td>
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<tr>
<td><strong>Site Selection</strong></td>
<td>Use of Checklist * Avoid cultural sites * Avoid ecologically sensitive sites * Ensure sufficient land area * Avoid unsanitary locations * Avoid major water bodies * Involve other nearby communities * Consider the population of catchment * Consider sustainability of enrolment * Avoid major highways, hospitals, quarry * Sensitise communities to send children to school. * Distance from school to the major community should not exceed 5km.</td>
<td>District Site Advisory Committee (DSAC) and Contractors</td>
<td>Evaluate filled Checklist for the site visit screening exercise</td>
<td>DIC working with the EPA's Regional Officer</td>
<td>To be carried out at no cost to the Project</td>
<td>Pre-constructional</td>
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<tr>
<td><strong>Community Ownership</strong></td>
<td>* Sensitisation and involvement of beneficiary communities</td>
<td>DIC</td>
<td>Use Questionnaires to assess understanding and involvement in the project. Report to NIC</td>
<td>DICs and NIC</td>
<td>Cost, if any, should be borne by District Assemblies</td>
<td>Pre-constructional</td>
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<tr>
<td><strong>Timing of Constructional Activities</strong></td>
<td>Planning of Construction Work to avoid conflict with: • Cultural and Religious Activities • Seasonal Migration? • Climatic Conditions • Farming activities</td>
<td>Contractors</td>
<td>Evaluation of Contractors’ Construction Work Plan / Schedule</td>
<td>District Tender Board and DICs</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional</td>
</tr>
<tr>
<td><strong>Erosion during Constructional Phase</strong></td>
<td>• Site should not be cleared and left unused for a long time • Construction work could also be timed to avoid the rainy season.</td>
<td>Contractors</td>
<td>Site Visit by the DICs</td>
<td>DICs</td>
<td>No Cost involved to the Project</td>
<td>Constructional Phase</td>
</tr>
<tr>
<td><strong>Erosion during Operational Phase</strong></td>
<td>• Lands selected for project should be level or have minimum slope. • The surrounding of the project’s buildings and facilities should be covered with green grass (landscape).</td>
<td>Contractors</td>
<td>Site Visits by the DICs</td>
<td>DICs</td>
<td>No Cost involved to the Project</td>
<td>Operational Phase</td>
</tr>
<tr>
<td>** Destruction of Farms and Property**</td>
<td>Compensation and Resettlement prior to the start of project</td>
<td>DIC and Land Valuation Board</td>
<td>Meeting affected people. Application of Ghana’s Land Policy and World Banks Resettlement and Compensation Policy</td>
<td>NIC/EPA</td>
<td>Average of €1.5M/acre=US$170.45 6 acres is $1,023/school. Thus, 400 schools would require a provisional budget of $409,091. This is to be borne by the Ghanaian Government, as World Bank funds cannot be used to pay compensation</td>
<td>Pre-constructional Phase</td>
</tr>
<tr>
<td><strong>Risk of Water Body Pollution</strong></td>
<td>Contractors should have on site mobile toilet facilities and garbage cans and ensure that workers do not resort to “free ranging” and indiscriminate dumping of rubbish</td>
<td>Contractors</td>
<td>Site Visits</td>
<td>DIC</td>
<td>No Cost involved to the Project</td>
<td>Constructional Phase</td>
</tr>
<tr>
<td><strong>Burrow Pit</strong></td>
<td>Measures include filling, draining and improved landscaping of source of laterite and sand</td>
<td>Contractors</td>
<td>Visit to the sources of sand and laterite</td>
<td>DIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional/Constructional Phases</td>
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GIMPA/ MOEYS Environmental and Social Management Framework, November 2003
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<td>Drainage Interface and Water Quality</td>
<td>Site selection is to be done properly to avoid interference with the natural drainage pattern of the project area</td>
<td>DIC and Contractors</td>
<td>Visit the site for screening</td>
<td>EPA</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional Phase</td>
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<tr>
<td>Source of Raw Materials</td>
<td>Avoid the use of chain-sawn lumber in the construction of any of the project components</td>
<td>Contractors</td>
<td>Inspect the Lumber</td>
<td>DIC and a wood specialist if it is deemed necessary</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional/Constructional Phases</td>
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<tr>
<td>Noise</td>
<td>Ear protection gadgets are to be provided to workers on the construction site</td>
<td>Contractors</td>
<td>Site Inspections and Noise Level Measurements: Limit is 85dB Observe that, where necessary, the workers are provided with ear protecting gadgets</td>
<td>DIC with an Official of Factory Inspectorate Division of Ministry of Manpower Development or any other relevant specialist</td>
<td>Noise measurement by private entities per selected location on a given site or factory averages $100,000, thus 2 inspections per 400 sites per 4 location of the sites would cost US$36,364.00</td>
<td>Constructional Phase</td>
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<tr>
<td>Dust</td>
<td>• Efforts should be made to reduce dust impacts by frequent watering, • Dust masks should be provided for workers • Ensure good work practices</td>
<td>Contractors</td>
<td>Site visit and visual inspection</td>
<td>DIC</td>
<td>No Cost involved to the Project</td>
<td>Constructional Phase</td>
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<tr>
<td>Odour</td>
<td>Good housekeeping of: • Sanitation facilities</td>
<td>School Management Committees and DA</td>
<td>Inspection of Cleanliness</td>
<td>DIC, GES and MOEYS</td>
<td>Cost of Workers employed by the DA for management of sanitation facilities is to be borne by the DA</td>
<td>Operational Phase</td>
</tr>
<tr>
<td>Quality of Materials</td>
<td>Materials to be used in the construction of the project components are to be new, of best quality and manufacture and in accordance with the current British Standard and Ghana Standard Board specifications, where they exist. Where they do not exist, samples are to be provided for tests to be carried out on the materials.</td>
<td>Contractors</td>
<td>Tender and Contract Documents and periodic inspection of works</td>
<td>District Tender Board and DIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional Phase</td>
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<tr>
<td>Quality of Work and Workmanship Specification</td>
<td>Construction works are to be executed according to the General Specification for Building Works published by the Government of Ghana in November 1995</td>
<td>Contractor</td>
<td>Tender and Contract Documents and periodic inspection of works</td>
<td>District Tender Board and DIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional and Constructional Phases</td>
</tr>
<tr>
<td>Storage of Materials</td>
<td>The materials storage would be under cover clear of the ground and protected from dampness and the weather in such a way as to prevent decay or attack by fungus or insects</td>
<td>Contractors</td>
<td>Site Visit and Inspection</td>
<td>DIC and the Public Works Department Engineers</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional and Constructional Phases</td>
</tr>
<tr>
<td>Supervision of the Works</td>
<td>Supervision of the works would be done by the DICs in order to have proper control of the construction of the components of the project</td>
<td>DICs</td>
<td>Quality Inspection and Reporting on Construction Work</td>
<td>NIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional and Constructional Phases</td>
</tr>
<tr>
<td>Selection of Types of Project Component’s Design</td>
<td>The design of the project components and the selection of types of water points and sanitation facilities are to be carried out in consultation with or by the District Assemblies and District Implementation Committees</td>
<td>DIC and DA</td>
<td>Reports on Design and selection of design type of Project Components</td>
<td>NIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional and Constructional Phases</td>
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<tr>
<td>Disease Vectors</td>
<td>Avoiding the formation of stagnant little ponds or wet patches round the water points, preventing users from washing their hands, pans, feet, or clothes, etc. close to the water point. Education users.</td>
<td>School Authorities</td>
<td>School Inspection</td>
<td>DIC and GES</td>
<td>No Cost involved to the Project</td>
<td>Operational Phase</td>
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| Security | • The water points must be protected to prevent misuse, accident and intentional pollution. Wells and boreholes should be secured by raising concrete barrier structure and provided with cover and lock.  
• The sanitation facilities must be secured by lock when the schools are not in session | School Authorities | School Inspection | DIC and GES | 3 Padlocks for 400 schools would be US$ 13,636. Cost is to be borne by DAs | Operational Phase |
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<tr>
<td><strong>Groundwater Depletion/Aquifer Recharge</strong></td>
<td>Design considerations should ensure that abstraction rates are consistent with natural aquifer recharge. Consultations with the regional CWSA would provide information on the aquifer recharge.</td>
<td>Contractor</td>
<td>Proposed abstraction rates against existing natural aquifer recharge rate</td>
<td>CWSA and DIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional Phase</td>
</tr>
<tr>
<td><strong>Groundwater Quality</strong></td>
<td>Water should be subjected to quality analysis to determine, whether it meets the required standards before approval. Supposing the groundwater does not pass the standard tests, the CWSA would advise on exactly which steps to take. During the operational phase, the water quality would have to be tested annually.</td>
<td>Contractor</td>
<td>Chemical and Bacteriological Parameters Standards (See Table 9.1)</td>
<td>CWSA and DIC</td>
<td>For Pre-constructional and constructional phase, there is no Cost involved to the Project During operational phase, the DA should assume the cost of water quality tests</td>
<td>Pre-constructional Phase</td>
</tr>
<tr>
<td><strong>Groundwater Contamination</strong></td>
<td>Work on the septic tanks and pits are to be carried out professionally and to the highest quality to avoid contamination of groundwater during the constructional phase, and leachate into groundwater during the operational phase.</td>
<td>Contractor</td>
<td>Work Quality Inspection and Reporting</td>
<td>DIC</td>
<td>No Cost involved to the Project</td>
<td>Constructional Phase</td>
</tr>
<tr>
<td><strong>Flies and Pest</strong></td>
<td>Good housekeeping of sanitation facilities is to be enshrined in the operations of the schools.</td>
<td>Pupils and DA</td>
<td>School Inspection</td>
<td>DIC, GES and MOEYS</td>
<td>-Cost of Workers employed by the DA for management of sanitation facilities is to be borne by the DAs</td>
<td>Operational Phase</td>
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<tr>
<td><strong>Pollution of Surface Water</strong></td>
<td>The site of the construction of sanitation facility would be properly selected to avoid low lying areas, and drainage pattern or water flow paths in order to avoid overflows in the case of flooding of the area.</td>
<td>Contractor</td>
<td>Use of Checklist For the site visit screening exercise</td>
<td>DIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional</td>
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| Occupational Hazards and Public Accidents | • Materials and equipment used for the construction of the project components should be marked to explain visually their potential impact.  
• The workers should always use helmets on the site.  
• The construction areas for the water points and sanitation facilities should be marked and delimited in order to avoid accidents.  
• Reasonably practicable precautions are to be taken and instructions given in the identification, use, handling, storage, transport and disposal of hazardous substances, e.g. petroleum, products on the construction site. Education is necessary. | Contractor | Site Inspection | DIC | No Cost involved to the Project | Constructional Phase |
| Operation/Maintenance | • The management and maintenance of the facilities of the project would be in the hands of the District Assembly through the District Directorate of Education  
• Spare parts for the Water points would have to be made available, as they are difficult to come by in the rural areas. It should be the responsibility of the DA to see to the management and maintenance of the sanitation facility | DA | Inspection of the Project Components | DIC/MOEYS/GES | -Cost of Spare Parts back up for borehole equipment and maintenance of buildings is US$ 454,545  
-Cost of Painting of buildings and facilities is to be borne by the DAs. | Operational Phase |
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<tr>
<td><strong>Danger of Explosion of the sanitation facility</strong></td>
<td>Sufficient ventilation tubes and of the right height would be incorporated properly in the design of the sanitation facility in order to diffuse the generated gases in the pits and the septic tanks. It would also have to be included in the contract's technical specification.</td>
<td>Contractor and Design Engineer</td>
<td>Tender and Contract Documents and periodic inspection of works</td>
<td>District Tender Board and DIC</td>
<td>No Cost involved to the Project</td>
<td>Pre-constructional Phase</td>
</tr>
<tr>
<td><strong>Availability of Teachers</strong></td>
<td>The Ministry of Education Youth and Sports, Ghana Education Service and the Ministry of Finance would see to the implementation of the Deprived Schools Teacher Incentive Scheme. Performance assessment would be used by an independent consultant to monitor the implementation of this measure.</td>
<td>- Ministry of Education Youth and Sports&lt;br&gt;- Ghana Education Service&lt;br&gt;- Ministry of Finance</td>
<td>- Performance and Impact Assessment</td>
<td>Consultant</td>
<td>US$ 5,000 per district thus, total cost estimate is US$ 200,000</td>
<td>Operational Phases</td>
</tr>
<tr>
<td><strong>Liquid Waste Management in Primary Schools</strong></td>
<td>- Provide enough seats for the toilet and points for the urinal&lt;br&gt;- Ensure that the pupils use these facilities&lt;br&gt;- Ensure that the pupils understand the use of these facilities&lt;br&gt;- Incorporate waste water disposal in the design&lt;br&gt;- Put in place a programme, including inspection of schools, to ensure Proper Housekeeping&lt;br&gt;- Put in place a programme to periodically empty the septic tanks of the Aqua Privy or WCs&lt;br&gt;- The DAs would be required to have a septic emptier or an improvised one</td>
<td>- Design Engineer&lt;br&gt;- School Authorities&lt;br&gt;- DAs</td>
<td>- Tender and Contract Documents and periodic inspection of works&lt;br&gt;- School Inspection and Questionnaires</td>
<td>DIC/GES/MOEYS</td>
<td>Septic emptiers would be required to operate and manage Aqua Privy and WCs. This should be the responsibility of the District Assemblies, and not to be borne by the project.</td>
<td>Operational Phases</td>
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| Solid Waste Management in Primary Schools | • Provide enough garbage cans of the right sizes and with covers  
• Ensure that the pupils use these facilities  
• Ensure that the pupils understand the importance of the facilities  
• Put in place a programme to ensure Proper House Keeping  
• Put in place a programme for the evacuation of the collected rubbish | • School Authorities  
• DAs | • School Inspection and Questionnaires | DIC/GES/MOEYS | The provision of garbage cans, with covers and wheels for 400 schools, 6 cans per school, is estimated at US$75,000, which should be part of project costs.  
The DA should assume the cost of rubbish collection and disposal programme | Operational Phase |
| Compensation and Resettlement with regards to Land Acquisition | • Any person or group of people to be affected by the project in the form of loss of farms, houses and other landed property should be compensated or resettled. It must be mentioned also that any people that due to the project, lose access to natural resource, income, or livelihood should be compensated, and that users of land, regardless of the owners, should also be compensated. It is the policy of the Government of Ghana to pay compensation to people, whose properties, lands or landed property are affected by projects being undertaken by the Government, and where there are gaps or discrepancies between the Land Act and the World Bank Policy, the World Bank Policy would apply. | DIC and Land Valuation Board | Meeting affected people. Application of Ghana’s Land Policy and World Banks Resettlement and Compensation Policy | EPA/NIC | Average of $2.5 million/acre = US$284  
6 acres is US$1705 per school.  
Thus, 400 schools would require a provisional budget of US$681,818.  
This is to be borne by the Ghanaian Government, as World Bank funds cannot be used to pay compensation for land and, normally other property | Pre-constructional Phase |
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<tr>
<td><strong>Capacity Building</strong></td>
<td>The members of the National Implementation Committees (NIC), District Implementation Committees and the groups of potential contractors are to be provided with Environmental Awareness Training. For the last two groups the training would also be aimed at developing and improving on skills to screen for site selection and potential environmental and social impacts, to be able to comprehend and take mitigation measures and steps for monitoring of potential impact.</td>
<td>Consultants</td>
<td>Skills Assessment, employing questionnaire</td>
<td>DIC and NIC</td>
<td>US$ 5,000 per district = US$200,000</td>
<td>At least 2 months before the start of project</td>
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<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>US$10,000 for the NIC and shortlisted contractors</td>
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<td></td>
<td>Thus, total cost estimate is US$ 210,000</td>
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<td></td>
<td>The total amount to be incorporated into the projects costs with regards to implementation and monitoring of the mitigation measures is <strong>US$ 1,100,909</strong></td>
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<td></td>
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<td></td>
<td></td>
<td>This amount consists of: <strong>$200,000</strong> for monitoring Community involvement, <strong>$36,364</strong> for monitoring noise measurements, <strong>$454,545</strong> for Back up spare parts, <strong>$200,000</strong> for monitoring the availability of teachers and <strong>$210,000</strong> for capacity building</td>
<td></td>
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</table>
11. RECOMMENDATIONS
The recommendations for the EdSeP have been prepared in the form of guidelines (ESMF) and monitoring procedures. The major recommendations have been summarised below:

a. Community Involvement and Ownership

- **Selection of Contact Persons:** Although their support and involvement is essential, community leaders like Chiefs and Assembly Members do not always make the best contact persons for project implementation. In some situations, efforts should be made to identify other opinion leaders particularly those who appear to catch the vision and can assist in sensitising the people. Contacts should be made with children, women, groups, the poor, teachers, and parents, as they constitute the major beneficiary group of the project. This is to be performed by the District Implementation Committees (DICs).

- **Education:** Selected beneficiary communities should be educated on all aspects of the intended intervention well ahead of time. This should include the benefits, problems and financial implications among others. Animation, film shows, drama and posters are some of the methods that could be used to educate the people. This is the responsibility of the DICs.

- **Conflict Resolution:** All issues of conflict and misunderstanding identified prior to implementation should be exhaustively addressed and resolved by the DICs, using e.g. public forum to arrive at compromises. The tendency of using the project itself as a means of overruling potential conflict and misunderstanding should be avoided.

- **Community Ownership:** Community participation/involvement is a vital issue that has been identified to ensuring sustainability of any project. Most of the communities targeted by the EdSeP are among the most deprived in the country. This makes it more meaningful that they identify themselves with the project and its success by ensuring that assistance is provided to siting and constructing of the project's components and to teachers, who would work in the establishment. Steps should thus be taken by the DICs to sensitise and involve the beneficiary communities from the start of the project.

- **Monitoring:** A third party, consultant, should be engaged to determined the level of involvement, sensitisation and understanding or otherwise of the project in the beneficiary communities prior to the start of the project. Report on findings should be sent to the National Implementation Committee (NIC).

b. Project Site Selection
The DSACs and Contractors should hold consultations with the District Environmental Management Committees (DEMC), the Land Commission
and the Water Resource Commission in siting the project components. The recommendations for site selection of projects should consist of the following:

- Avoid locating projects near cultural sites such as sacred groves and burial grounds and other places that may give offence to the people.

- Avoid siting facilities near unsanitary locations, e.g. rubbish dumps, which might lead to outbreak and spread of infectious diseases.

- The sanitation facilities should not be sited near water bodies.

- Involve other nearby communities that might send their children to the schools too in order to avoid conflict, which could lead to tensions in the use of the school.

- The population of the communities in the catchment area would have to be consulted in siting the school in order that the school facility is not extremely under-utilised.

- In considering the catchment area, the sustainability of enrolment over the years should also be looked at.

- Ensure that the project site has sufficient land area for the construction of all the project’s components, facility installation and for future expansion, if necessary.

- Avoid ecologically sensitive sites such as flat plains, which are liable to flooding, aquifer recharge zones, steep terrain prone to erosion and threat to fragile habitat and endangered species.

- Avoid sites close to other land uses, such as major highways, hospitals, quarry, etc. that may impact negatively on the pupils or vice-versa.

c. Timing of Constructional Activities

The construction work should be planned by the contractors taking cognizance of the following:

- **Cultural and Religious Activities** – Some religious and cultural activities may engage the attention of the people over an extended period of time, such periods should be avoided as much as possible.

- **Seasonal Migration** – Periods and seasons when some of the people migrate out of their communities to seek employment elsewhere should be factored into the planning.

- **Favourable Climatic Conditions** – Activities requiring extensive excavation work like water projects must be timed to coincide with periods of conductive climate. In some areas, especially northern Ghana,
the rainy season renders inaccessible parts of the regions, thus
construction work has to be planned in the dry season.

d. **Resettlement and Compensation**

- Any person or group of people to be affected by the project in the form of loss of farms, income, livelihoods, access to natural resource, houses and other landed property should be compensated or resettled. It must be mentioned that the user of land, whether he/she is owner of the land or not, should be compensated. The State Lands Act 1963 section 6(1) provides that any person, whose property is affected by public projects, shall be entitled to compensation. The same Act provides avenues for people, who are not satisfied with the compensation to seek redress. The Lands Act provides for payment of compensation and resettlement of displaced people, whose lands or landed property are affected by projects being undertaken by Government, where there are gaps or discrepancies between the Land Act and the World Bank Policy, the World Bank Policy would apply. The policy is found in **Appendix VI**.

Inspections should be carried out by the EPA and District Implementation Committees to determine whether there are destruction of farms, displacement of households, loss of land, and property or landed property, in order to determine whether the right procedures have been followed with regards to compensations and resettlements.

e. **Source of Raw Materials**

- The project consultant should ensure that the contractor procures building materials such as sand, stones, and laterite from licensed and approved sites.

- As long as chain-sawn lumber remains illegal, contractors should be urged not to employ them in the construction of any of the facilities of the project.

Visual inspection of the Construction materials should be carried out by the DICs, paying particular attention to lumber. They should not be chain-sawn lumber.

f. **Operation /Maintenance and Odour**

- The management and maintenance of the components of the project should be in the hands of the District Assembly through the District Directorate of Education. Spare parts for water points should be made available, as they are difficult to come by in the rural areas.

Inspection should be carried out on the project components during the operational phase in order to assess the condition, proper management or otherwise and to determine the availability of back up spare parts especially for the water points. This inspection is to be carried out by the DICs, GES and MOEYS.
• Good housekeeping of sanitation facilities (KVIP, VIP, Pit Latrine, and Pan Latrine) should be enshrined in the operations of the school, and to be carried out either by the pupils or by a private company in order to ensure the facility's sustainability.

Periodic monitoring and evaluation of the sanitation facilities should be undertaken to assess their condition with regards to cleanliness and use or otherwise. This should be supervised by the DICs and crosschecked by GES and MOEYS.

g. **Quality of Work and Workmanship Specification**

• All building works contracted for the Government of Ghana are to be executed according to the General Specification for Building Works published by the Government of Ghana in November 1995. These specifications are Ghana Standard Board and British Standards specifications.

The District Tender Boards and DICs are to ensure that the contract documents are in accordance with the General Specification for Building Works published by the Government of Ghana in November 1995, which mainly are Ghana Standard Board and British Standards specifications.

They would also inspect the construction while it is in progress with the help of the Public Works Department Engineers of the Districts to assess whether the specifications are being adhered to correctly. The DICs are to ensure that the contractors apply, as applicable, the guidelines prepared herein for the mitigation of impacts, in order to achieve quality of work.

h. **Quality of Materials**

• All the materials to be used in the construction of the project components are to be new, of best quality and manufacture and in accordance with the current British Standard and Ghana Standard Board specifications, where they exist. Where they do not exist, samples are to be provided for tests to be carried out on the materials. When samples have previously been submitted and approved, all subsequent deliveries should be in accordance with the sample.

The contract documents prepared for the execution of the project should insist on the use of materials of the highest quality, which are of the current Ghana Standard Board or British Standard specifications. The DICs and members of NIC would visit sites to inspect the materials and would ensure that subsequent deliveries would be in accordance with the samples previously inspected and approved.

i. **Supervision of the Works**

• Supervision of the works would be done by the District Implementation Committees in order to have proper control of the construction of the components of the project and reports prepared and sent to the NIC.
This is further mentioned in the recommendations for Institutional Framework.

j. **Selection and Design of Types of Project Components**

- The design of the project components and the selection of types of water points and sanitation facilities are to be carried out in conjunction with or by the District Assemblies and District Implementation Committees. The DAs have their developmental plans and know, for example, which communities would be served with pipeborne water within a year or two. This proposal is also to avoid the selection or design of impractical project components, which would be imposed on the beneficiaries.

The selection of type of school building, teachers’ quarters, water points and sanitation facilities should be done by the DAs and DICs. Report on the project component selections made would be sent to the NIC.

k. **Security**

- The water points must be protected to prevent misuse, accident and intentional pollution. Wells and boreholes should be secured by raising concrete barrier structure and provided with cover and lock. The sanitation facilities must be secured by lock when the schools are not in session.

Visual inspection of the water points and sanitary facility is required to determine whether they are secured by concrete barriers and with locks. The DICs and GES are to undertake this inspection.

l. **Groundwater Depletion/Aquifer Recharge**

- This is relevant for wells and boreholes. Design considerations should ensure that abstraction rates are consistent with natural aquifer recharge. Consultations with the regional CWSA would provide information on the aquifer recharge.

Questionnaires could be applied to the teachers and pupils to determine, whether there are times that the groundwater gets depleted or the yield is observed to reducing. This would be carried out by the DICs and CWSA.

m. **Groundwater Quality**

- Water is intended for human consumption and should be subjected to quality analysis by the Community Water and Sanitation Agency (CWSA) to determine, whether it meets the required standards before giving approval. Supposing the groundwater does not pass the standard tests, the CWSA would advise on exactly which steps to take. It is imperative to mention that during the operational phase regular quality analysis would also have to be carried out to ensure that the water continues to be suitable for drinking.
The DICs are to liaise with the CWSA in monitoring the groundwater quality, document the data properly and to prepare reports to be submitted to EPA, GES and MOEYS.

n. **Groundwater Contamination**

- Work on septic tanks and pits would have to be carried out professionally and to the highest quality to avoid contamination of groundwater during the constructional phase, and leachate into groundwater during the operational phase. Work quality inspections are to be carried out by DICs.

o. **Availability of Teachers**

- The Deprived Schools Teacher Incentive Scheme, prepared by the Ghana Education Service, should be implemented to ensure sustainability of the project.

The Ministry of Education Youth and Sports, Ghana Education Service and the Ministry of Finance should see to the implementation of the Deprived Schools Teacher Incentive Scheme. Performance assessments of the scheme should be undertaken by an independent consultant to monitor its implementation.

p. **Liquid Waste Management in Primary Schools**

- Measures to guide the operation of schools with regards to Liquid Waste Management in order to ensure the project’s sustainability include:
  - Provide enough toilet seats and urinal points to cater for the school
  - Ensure that the pupils use these facilities without resorting to “free-ranging”
  - Ensure that the pupils are sensitised to understand the reasons why they are to use these facilities. Sanitation and hygiene could be incorporated into their school work.
  - Incorporate waste water disposal in the design to ensure that waste water from wash basins flow into proper gutters, where they are available
  - Put in place a programme, including inspection of schools, to ensure Proper House Keeping of the facility
  - Put in place a programme to periodically empty septic tanks of the Aqua Privy or WCs, either through private entities or the District Assembly, to ensure that they do not overflow.
  - The DAs would be required to have a septic emptier or an improvised one, as it was apparent from the field work that Aqua Privy is better for schools in areas, where there is no pipeborne water, than the KVIP.

Liquid waste management should be monitored during operational stages of the project. This should be undertaken by the DICs, GES and crosschecked by the Ministry of Education Youth and Sports.
q. **Solid Waste Management in Primary Schools**

- Measures to guide the operation of schools with regards to Solid Waste Management in order to ensure the project’s sustainability include:
  - Provide enough garbage cans of right sizes and with covers to cater for the school’s rubbish collection needs.
  - Ensure that the pupils use these facilities and that they do not throw rubbish anywhere else.
  - Ensure that the pupils are sensitised to understand the reasons why they are to use these facilities. Sanitation and hygiene could be incorporated into their school curricula.
  - Incorporate garbage cans and rubbish collection points in the design of the school to make garbage cans easily accessible to the pupils and teachers.
  - Put in place a programme, including inspection of schools, to ensure Proper House Keeping of the school.
  - Put in place a programme for the evacuation of the collected rubbish, either by private entities or the District Assembly, once everyday or every other day.

Periodic monitoring and inspections should be undertaken by the DIC, GES and MOEYS during the constructional and operational phases of the project. The condition of solid waste management should be determined. The parameters to use are siting of garbage cans, number, and proximity to one another.

r. **Project Management Structure**

- The management structure for the EdSeP implementation with regards to environmental management is proposed to be coordinated by a National Implementation Committee (NIC), which is expected to be the highest authority. This committee is expected to provide overall policy guidance and would comprise of the heads and key technical personnel of Ministry of Education Youth and Sports (MOEYS), Ghana Education Service (GES), Ministry of Local Government and Rural Development (MLGRD), and Community Water and Sanitation Agency (CWSA). The responsibility for the overall project management is proposed to be vested in the NIC, which would be headed by a National Co-ordinator. Under the NIC is the District Implementation Committees (DICs), which are expected to consist of representatives of Regional Education Office, District Education Office, Metropolitan Authority (District Assembly), Traditional Authorities, PTAs, School Management Committees (SMCs), and Teachers. The DIC is to be headed by the District Chief Executive (DCE).

s. **Environmental Management**

- The EdSeP under EPA requirement is categorised under Strategic Environmental Assessment (SEA). It is expected however that, individual components would be subjected to appropriate project level assessment.
following approval of the SEA prior to the project implementation. In this regard, it is proposed that the District Implementation Committees liaising with representatives of the Construction Contractors be responsible for ensuring that project specific level assessment requirements are met. They should receive initial training and orientation from Environmental Consultants in order to have the requisite skills.

### The Role of the EPA in the Project

- The EPA plays a lead role in the administration of EIA in Ghana. The EPA Act (Act 490, 1994) and the Environmental Assessment Regulation (LI 1652) 1999 mandate the Agency to ensure compliance with laid down EIA procedures provided comprehensively for site-specific project impact assessment. The EdSeP in its preparatory assessment is to be considered under the Strategic Environmental Assessment (SEA). A single Environmental Approval would be issued for the EdSeP, on the basis of the Strategic Environmental Assessment, by the EPA. For individual projects, the EPA will implement monitoring programmes on project-by-project basis once the site specific assessment is considered satisfactory. The level of assessment for any individual project would depend on size or scale of project, nature/type and magnitude of impacts, location (land use consideration, compatibility and sensitivity), and resource base and resource at risk. In general, there are three environmental assessments available under the Ghana EIA procedures:

(a) Individual Projects for which only Registration may be required using Form EA1

(b) Individual Projects for which Preliminary Environmental Assessment may be required

(c) Individual Projects for which Environmental Impact Assessment may be required

- The EPA would register all EdSeP project components and monitor environmental compliance following implementation.

- EPA would also maintain a register of all EdSeP project components in all the regions and prompt its regional officers to monitor the projects and provide up-dated information on their environmental performance and status

- Finally, the EPA would assist, monitor, and ensure that the District Implementation Committees comply with laid down EA procedures in the implementation of the individual projects, especially when it comes to Site Selection and the issue of Compensation and Resettlement.
u. **Role of District Administrations**

- District Assemblies (DAs) are empowered under Act 462 of 1993 to be responsible for development, improvement and management of human settlements and the environment in their districts.

- In order to facilitate the work of the DAs in this regard, District Implementation Committees (DIC) are proposed to be formed in all the districts that would receive the EdSeP project components.

v. **Role of District Implementation Committees**

- The District Implementation Committees have a major role to play in any of the developments under the EdSeP in their district and are required to ensure ultimate sustainability.

- It is proposed that the EdSeP involves the DICs in all aspects of project implementation to ensure that the best available procedures are adopted to enable compliance with sound environmental practice.

w. **Capacity Building**

- The members of the National Implementation Committees (NIC), District Implementation Committees and the groups of potential contractors are to be provided with Environmental Awareness Training. For the last two groups, the training would also be aimed at developing and improving on skills to screen for site selection and potential environmental and social impacts, fill the environmental forms, be able to comprehend and take mitigation measures and take steps to monitor the potential impacts of the Project.

x. **Cost Estimates of the Implementation of the Mitigation Measures and Monitoring**

- Not all the mitigation measures and monitoring procedures require expenditure of funds. For any money to be spent, quotations or cost estimates should be collected from at least three entities, and evaluated for the appropriate one (with high points both financial and technical terms) to be selected before approving the works' execution, unless of course the work is to be carried out by employees of the District Assembly. Estimates however have been presented in the EMP.
Table 22: Estimated Influence of Stakeholders and Environmental Assessment and Management Capacity of the Implementation and Monitoring of the mitigation measures of the EdSeP.

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<tr>
<th>STAKEHOLDER</th>
<th>Estimate of Influence rating from 1 to 5</th>
<th>Implementation of Mitigation Measures</th>
<th>Monitoring of Measures</th>
<th>Capacity Needs</th>
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<tr>
<td>District Assemblies</td>
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<td>5</td>
<td>5</td>
<td>Monitoring and Evaluation of Project Training</td>
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<td>District Directorate of Education (Including Headteachers and Teachers)</td>
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<td>5</td>
<td>5</td>
<td>Monitoring and Evaluation of Project Training</td>
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<td>Town and Country Planning</td>
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<td>Community Based Organisations</td>
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<td>2</td>
<td>3</td>
<td>Education and Sensitisation</td>
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<tr>
<td>Non-governmental Organisations operating in the Communities</td>
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<td>2</td>
<td>3</td>
<td>Education &amp; Sensitisation</td>
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<td>Traditional Authorities</td>
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<td>Environmental Management</td>
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<td>Beneficiary Communities (Women Groups, Children, Parents, Poor People, Teachers, School Management Committees)</td>
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<td>4</td>
<td>4</td>
<td>Education and Sensitisation</td>
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<td>District Environmental Management Committees (DEMCo)</td>
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<td>Design Engineers</td>
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<td>3</td>
<td>Monitoring</td>
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<td>Community Water and Sanitation Agency</td>
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APPENDICES
APPENDIX I

FULL TERMS OF REFERENCE FOR
ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

GHANA

EDUCATION SECTOR PROJECT
1.0 BACKGROUND

Improving the educational sector is one of the key issues of Ghana's development agenda, over the years, in pursuit of restoring the standard of the education, governments have made various efforts with view of ensuring that the education services provided fulfil the expectations of the individual as well as making available the requisite human resource capital for national development.

In this regard, the Government of Ghana has received significant assistance from its Development Partner, who has, through a variety of interventions and funding programme, provided additional resources to enable the Educational Sector to confront the numerous challenges in delivering educational services to all levels.

Currently, an Educational Sector Project (EdSeP) to be funded by IDA is being developed. The proposed Education Sector Project is to support the Government of Ghana's efforts to improve educational services. It will build on progress achieved in recent years mainly the achievements of the Basic Education Sector Improvement Programme. The EdSeP would also support the Ministry of Education Youth and Sports (MEYS) to implement its Education Strategic Plan and Work Programme (2003–2015).

The strategic plan spells out the Ministry's policies, targets, strategies and advices, and adopts and 'issues-based' approach to sector development. It identifies four (4) principal areas of focus:

- Equitable access to education
- Quality of education
- Education management
- Science and technology

2.0 THE PROJECT

The development objective of the Education Sector Project (EdSeP) were developed in the strategic context of past efforts in the sector. In 2002, for example, the Government launched parallel sector reviews in order to be in a position to reach the Millennium Development Goals (MDGs), and in 2003, the Government completed its Ghana Poverty Reduction Strategy (GPRS), which aims at promoting equitable human resource development, and gives a central place to education. At the same time, Ghana became eligible to apply to the Education for all/Fast Track Initiative (EFA/FTI). The Ministry of Education Youth and Sports (MOEYS) then started preparing an Education Strategic Plan (ESP), which links sectoral objectives to those coming from a poverty reduction perspective. The ESP translates the Government's EdSeP is at the point of convergence on these strategic streams and is complementary to the forthcoming Poverty Reduction Support Credit (PRSC), the Bank-financed operation to support the GPRS. Within this context, and given the other operations currently in place or being prepared, the objective of the EdSeP are to (i) strengthen the efficiency and management of the education sector, and (ii) ensure equitable access to quality education services at all levels.

In support of these objective, the EdSeP will include – under the Pilot Programmatic Scheme – the construction of about 400 primary schools, including water points and sanitation facilities, per year, as well as the provision of teacher accommodations. These schools are to be built in poor, targeted areas; while the location of these facilities and the timing of their constructions is not yet determine, criteria have been developed to identify the areas where these interventions will take place.
3.0 OBJECTIVES OF THE PROPOSED STUDY

The MOEYS requires an environmental and social analysis of all components of the EdSeP, with particular attention to civil works activities.

The purpose of the proposed study is threefold. First, the consultants will develop an Environmental and Social Management Framework (ESMF) which will enable those responsible for future construction activities to (i) screen for potential environmental and social impacts due to construction activities; (ii) identify and apply appropriate mitigation measures; and (iii) monitor the implementation of these measures. Second, the study will assess the relevant institutional capacity for mitigating as well as implementing these measures. Third, the proposed study will include an appropriately budgeted Environmental Mitigation Plan (EMP) for the entire project to facilitate its implementation.

4.0 SCOPE OF WORK

In developing the ESMF, the consultant will carry out the following tasks:

(x) Review the biophysical characteristics of the environment in the urban and rural areas to be covered by the project (See attached, Appendix 1), and highlight the major constraints that need to be taken into account in the course of project implementations.

(xi) Assess the potential environmental and social impacts of construction activities in the urban and rural areas and recommend mitigation measures as appropriate, including cost estimates;

(xii) Assess the potential environmental and social impacts of the provision of water points and sanitation facilities under the project, and make recommendations accordingly;

(xiii) Assess the need for liquid and solid waste collection, disposal and management under the proposed project, and make recommendations accordingly;

(xiv) Review Ghana's environmental policies, legislation, regulatory and administrative frameworks in conjunction with the World Bank's recommendations as to how to close these gaps in the context of the proposed project as appropriate;

(xv) Review the Conventions and Protocols to which Ghana is a signatory;

(xvi) Assess existing environmental assessment and management capacity, as well as the capacity to implement the proposed mitigation measure, and make recommendations as appropriate, including potential capacity building and training needs and their costs;

(xvii) Prepare an Environmental and Social Management Framework (ESMF) to enable those responsible for construction activities to (a) screen for: (i) site selection; (ii) potential environmental and social impacts; (iii) mitigation of impacts; and (b) to outline (i) steps for monitoring of potential impact, with a process for triggering subsequent environmental and / or social assessments, where necessary, and (ii) institutional responsibilities for the afore-mentioned activities. The ESMF should also include references to Ghana's environmental policies and laws as well as to the World Bank's safeguard policies to ensure that these are respected during project implementation.
Prepare an Environmental Mitigation Plan (EMP) for the implementation of EdSeP. The EMP should outline: (i) potential environmental and social impacts resulting from project activities; (ii) proposed mitigation measures; (iii) institutional responsibilities for implementation of the mitigation measures; (iv) monitoring indicators; (v) institutional responsibilities for monitoring the implementation of the mitigation measure; (iv) cost estimates for these activities; and (vii) time horizons for implementation of the EMP.

5.0 REPORT

The report will include the following sections:

- Cover Page
- Table of Contents
- List of acronyms
- Executive Summary
- Introduction
- Description of the project
- Description of the areas of influence
- Description of the legal, regulatory, and administrative frameworks
- Methods and techniques used in assessing and analysing the impacts
- Consultations with affected people
- Description of the environmental and social impacts of the project
- Proposed Environmental and Social Management Framework (ESMF)
- Proposed Environmental Mitigation Plan (EMP)
- Recommendations
- List of individuals/institutions contracted
- References

6.0 SKILLS REQUIREMENTS

The consultant team will consist of a team leader specializing in environmental assessment, and member specializing in environmental sanitation issues, and a local consultant for data collection and collation. The team will have work experience in Sub-Saharan Africa, and will be conversant with the World Bank's safeguard policies.

7.0 TIMING

The services are expected to commence within one week of signing the contract, and expected to be completed within five weeks.

The timing of the completion of the services should be coordinated in such a way that the Final Report can be disclosed publicly in Ghana as well as at the World Bank's Infoshop before appraisal of the EdSeP. At that time, the Government of Ghana will issue a disclosure letter to the World Bank, (i) indicating that it has approved and disclosed the Final Report for EdSeP; and (ii) authorizing the World Bank to disclose the Final Report in its Infoshop.

8.0 REPORTING REQUIREMENTS

The consultant(s) shall be responsible for the preparation and timely submission of the following report though the Client's Coordinator to the Ministry of Education Youth and Sports.
Six copies of an Inception Report, containing the Consultant’s personnel, work schedule, work schedule/methodology and list of information obtained from the Client and other source, will be submitted two (2) weeks after commencing work to the Client and subsequently to the World Bank for review.

Six copies of a Draft Final Report, will be submitted four weeks after commencing work to the Client and subsequently to the World Bank for review and comments.

Six copies of the Final Report will be prepared within one (1) week of receiving the Client’s and the World Bank’s comments on the draft version.

9.0 OBLIGATION OF THE CONSULTANT

The consultant is expected to provide all the facilities and personnel necessary to accomplish the assignment. The consultant shall make his own arrangements and allowances for transport (in-city and up-country).

The consultant shall provide the expert or a team of experts, who shall be adequately qualified and experienced.

10.0 CLIENT’S INPUTS

The MOEYS will nominate a “Client Co-ordinator” from its staff to work with consultant on matters that will facilitate the smooth implementation of the assigned activities.
APPENDIX II

DATA COLLECTION GUIDES
GUIDE FOR INFORMATION GATHERING:
MINISTRY OF EDUCATION YOUTH AND SPORTS

1.0 WHAT ARE THE FACILITIES UNDER THE EdSeP PROJECT?
   1.1 SCHOOL BUILDING: Types and size of school building, types, number and size of classrooms, offices, and building materials, etc.
   1.2 WATER POINTS: Types of Water Points, Boreholes, dugwells, etc. sizes, list and types of equipment if any, size, etc.
   1.3 SANITATION FACILITY: Types, sizes, number of seats, number and volume of pits etc.
   1.4 WHERE CAN QUANTITATIVE DATA BE OBTAINED ON THE ABOVE MENTIONED FACILITIES

2.0 STATISTICS ON EXISTING SCHOOLS, ENROLMENT (Male and Female), SEATING PLACES/PUPIL, CORE TEXT BOOKS/PUPIL, TEACHERS (Male, Female, Trained, and Untrained), ENROLMENT RATE FOR PRIMARY SCHOOLS, and DROP OUTS RATE IN THE 40 DISTRICTS

3.0 WHAT ROLE DOES THE MINISTRY OF EDUCATION YOUTH AND SPORTS PLAY IN ENVIRONMENTAL ASSESSMENT AND MANAGEMENT OF SCHOOLS?

4.0 IS THERE A COMMITTEE IN CHARGE OF ENVIRONMENTAL ISSUES IN THE MINISTRY?

5.0 IS THEIR ROLE BEING PLAYED EFFECTIVELY

6.0 DOES THE MINISTRY HAVE A LIST OF CONTRACTORS USED FOR SCHOOL CONSTRUCTION AND REHABILITATION?

7.0 PLEASE PROVIDE A LIST OF THESE CONTRACTORS IN ORDER TO EVALUATE THEIR ENVIRONMENTAL ASSESSMENT CAPABILITIES
GUIDE FOR INFORMATION GATHERING:
ENVIRONMENTAL PROTECTION AGENCY

1.0 POLICIES AND GUIDELINES CONCERNING THE CONSTRUCTION OF SCHOOL BUILDINGS

2.0 RELEVANTS CONVENTIONS AND PROTOCOLS TO WHICH GHANA IS A SIGNATORY

3.0 OPINION ON GHANA ENVIRONMENTAL POLICIES AS COMPARED TO WORLD BANK TEN POINT OPERATIONAL SAFEGUARDS.

4.0 DIFFERENCE BETWEEN ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

5.0 WHAT TYPE OF WATER POINTS WOULD EPA RECOMMEND FOR THE RURAL SAVANNAH AREA, RURAL FOREST AREA, AND RURAL COASTAL AREA

6.0 WHAT TYPE OF SANITATION FACILITIES WOULD EPA RECOMMEND FOR THE RURAL SAVANNAH AREA, RURAL FOREST AREA, AND RURAL COASTAL AREA
GUIDE FOR INFORMATION GATHERING:
MINISTRY OF WORKS AND HOUSING

1.0 IS THERE A POLICY ON CONSTRUCTION OF SCHOOL BUILDINGS?

2.0 WHAT TYPE OF SCHOOL BUILDING AND BUILDING MATERIALS WOULD YOU RECOMMEND FOR THE FF:
   2.1 RURAL SAVANNAH AREA
   2.2 URBAN SAVANNAH AREA
   2.3 RURAL FOREST AREA
   2.4 URBAN FOREST AREA
   2.5 RURAL COASTAL AREA
   2.6 URBAN COASTAL AREA

3.0 DOES THE MINISTRY HAVE ENVIRONMENTAL ASSESSMENT AND MANAGING CAPACITY?

4.0 WHICH DEPARTMENT, BODY OR COMMITTEE IS IN-CHARGE OF ENVIRONMENTAL ISSUES IN THE MINISTRY?

5.0 IS THE DEPARTMENT OR COMMITTEE EFFECTIVE?
GUIDE FOR INFORMATION GATHERING:
MINISTRY OF LOCAL GOVERNMENT AND RURAL DEVELOPMENT

1.0 WHAT IS THE MINISTRY SANITATION POLICY REGARDING THE CONSTRUCTION AND MANAGEMENT OF SCHOOL FACILITIES (Considering Urban and Rural locations)

2.0 ARE THE DISTRICT ASSEMBLIES DIRECTLY INVOLVED IN SCHOOL HEALTH PROGRAMMES?

3.0 DO YOU HAVE THE PROFILES OF DISTRICTS?

4.0 DOES THE MINISTRY HAVE ENVIRONMENTAL ASSESSMENT AND MANAGING CAPACITY?

5.0 WHICH DEPARTMENT, BODY OR COMMITTEE IS IN-CHARGE OF ENVIRONMENTAL ISSUES IN THE MINISTRY?

6.0 IS THE DEPARTMENT OR COMMITTEE EFFECTIVE?
GUIDE FOR INFORMATION GATHERING:
LANDS COMMISSION

1.0 WHAT IS THE POLICY ON THE ACQUISITION OF LAND FOR SCHOOL BUILDING?

2.0 WHAT ARE THE PROCEDURES FOR LAND ACQUISITION WITH PARTICULAR
REFERENCE TO PUBLIC SCHOOL BUILDING?

3.0 LAND AREA FOR THE SELECTED DISTRICTS
3.1 Saboba-Chereponi (NR)
3.2 East Gonja (NR)
3.3 East Mamprusi (NR)
3.4 West Gonja (NR)
3.5 West Mamprusi (NR)
3.6 Savalugu Nanton (NR)
3.7 Juabes-Bia (WR)
3.8 Sene (BAR)
3.9 Zazugu-Tatale (NR)
3.10 Bole (NR)
3.11 Wenchi (BR)
3.12 Bawku West (UER)
3.13 Nkwanta (VR)
3.14 Bawku East (UER)
3.15 Yendi (NR)
3.16 Atebubu (BAR)
3.17 Sefwi-Wiaso (WR)
3.18 Abura-Asebu-K (CR).
3.19 Mpohor Wassa East (WR)
3.20 Wassa Amenfi (WR)
3.21 Tolon-Kumbungu (NR)
3.22 Affram Plains (ER)
3.23 Ejisu-Juabeng (AR)
3.24 Nadawli (UWR)
3.25 Nanumba (NR)
3.26 Gushikgu Karaga (NR)
3.27 Birim North (ER)
3.28 Krachi (VR)
3.29 Jirapa Lambussie (UWR)
3.30 Bulisa (UER)
3.31 Sekyere East (AR)
3.32 Gomoa (CR)
3.33 Kassena-Nankani (UER)
3.34 Offinso (AR)
3.35 Bongo (UER)
3.36 Ahanta West (WR)
3.37 Bolgatanga (UER)
3.38 Sissala (UWR)
3.39 Kintampo (BAR)
3.40 Birim South (ER)
3.41 Amanse East (AR)
3.42 Ketu (VR)
3.43 Ahafo Ano North (AR)
3.44 Nzema East (WR)
3.45 Asikuma-Odo. B (CR)
3.46 Ejura Sekyiodumase (AR)
3.47 Asunafo (BAR)
3.48 Mfantseman (CR)
GUIDE FOR INFORMATION GATHERING:
TOWN AND COUNTRY PLANNING

1.0 DO YOU HAVE POLICY AND GUIDELINES FOR THE LAYOUT OF SCHOOL BUILDINGS FOR BOTH URBAN AND RURAL AREAS?

2.0 WHAT ARE THE REQUIREMENTS FOR BUILDING PERMIT FOR SCHOOL CONSTRUCTION?
GUIDE FOR INFORMATION GATHERING:
SURVEY DEPARTMENT

1.0 DO YOU HAVE MAPS AND PROFILES FOR THE UNDER MENTIONED DISTRICTS?
1.1 Saboba-Chereponi (NR)
1.2 East Gonja (NR)
1.3 East Mamprusi (NR)
1.4 West Gonja (NR)
1.5 West Mamprusi (NR)
1.6 Savalugu-Nanton (NR)
1.7 Juabes-Bia (WR)
1.8 Sene (BAR)
1.9 Zazugu-Tatale (NR)
1.10 Bole (NR)
1.11 Wenchi (BR)
1.12 Bawku West (UER)
1.13 Nkwanta (VR)
1.14 Bawku East (UER)
1.15 Yendi (NR)
1.16 Atebubu (BAR)
1.17 Sefwi-Wiaso (WR)
1.18 Abura-Asebu-K (CR)
1.19 Mpoehor Wassa East (WR)
1.20 Wassa Amenfi (WR)
1.21 Tolon-Kumbungu (NR)
1.22 Affram Plains (ER)
1.23 Ejisu-Juabeng (AR)
1.24 Nadawli (UWR)
1.25 Nanumba (NR)
1.26 Gushiegu Karaga (NR)
1.27 Birim North (ER)
1.28 Krachi (VR)
1.29 Jirapa Lambussie (UWR)
1.30 Builsa (UER)
1.31 Sekyere East (AR)
1.32 Gomoa (CR)
1.33 Kassena-Nankani (UER)
1.34 Offinso (AR)
1.35 Bongo (UER)
1.36 Ahanta West (WR)
1.37 Bolgatanga (UER)
1.38 Sissala (UWR)
1.39 Kintampo (BAR)
1.40 Birim South (ER)
1.41 Amansie East (AR)
1.42 Ketu (VR)
1.43 Ahafo Ano North (AR)
1.44 Nzema East (WR)
1.45 Asikuma-Odo. B (CR)
1.46 Ejura Sekyiodumase (AR)
1.47 Asunafo (BAR)
1.48 Mfantseman (CR)
GUIDE FOR INFORMATION GATHERING:
WORLD BANK

1.0 WHAT ARE THE TEN (10) SAFETY AND OPERATIONAL SAFEGUARDS?

2.0 WHAT ARE THE ENVIRONMENTAL ASSESSMENT PROCEDURES OF THE WORLD BANK?

3.0 WHAT ELEMENTS WOULD BE INCORPORATED IN AN ENVIRONMENTAL MANAGEMENT PLAN?

4.0 WHAT IS YOUR OPINION OR ASSESSMENT OF GHANA'S ENVIRONMENTAL POLICIES ON ENVIRONMENTAL ASSESSMENT WITHOUT REGARDS TO THE WORLD BANKS POLICY ON ENVIRONMENTAL ASSESSMENT
INTERVIEW GUIDE FOR INFORMATION GATHERING AT THE COMMUNITY LEVEL

SECTION A: DISTRICT/COMMUNITY PROFILE

1. District
2. Region
3. Population in District
4. Number of existing schools (Categories)
5. Student population/school (Estimated) (Boys/Girls)
6. Number of teachers / school
7. Teacher/Pupil ratio in District or Community
8. Drop out population in District
9. Number of physically disadvantaged in communities
10. Opportunities available to the physically disadvantaged in schools
11. Communities served by existing schools
12. Distances of schools from communities
13. Types of schools (materials used, no. of rooms)
14. Accessibility of existing schools
15. Communities to be served by project
16. Distances of communities from project
17. Number of target students
18. Accessibility to the schools
19. Prevalent diseases and their rates among school pupils in the District/Community
20. Groups affected by prevalent diseases
21. Causes of the prevalent diseases
22. Existing healthcare providers
23. Distances from communities
24. Health seeking habits
25. Reasons for these health seeking habits
26. Awareness on diseases and sanitation
27. Community efforts to improve sanitation
28. Income-generating activities
29. Socio-economic status of women and children
30. Vulnerable groups
31. Fecundity Rate Of District
32. Age Structure of District
33. Gender ratios in schools

SECTION B: ENVIRONMENTAL AND SOCIAL IMPACTS OF PROVISION OF SCHOOL BUILDING

1. Vegetation (type, size of site cover, common plant and animal species)
2. Other natural resources e.g. water bodies (location, name?, distances from site and communities)

3. Soil characteristics

4. Aquatic Flora

5. Aquatic Fauna

6. Adjoining land use

7. Main occupation of communities

8. Farm lands within project area (size, type of crops, ownership)

9. General climatic conditions of site (rainfall, humidity, sunshine)

10. Road network (distances from communities/ site, types)

11. Vehicular movement in area / traffic

12. Facility to be provided (number, type, no. of classrooms, construction materials, roofing)

13. Need for resettlement

SECTION C: ENVIRONMENTAL AND SOCIAL IMPACTS OF PROVISION OF WATER POINTS

1. Existing sources of water
   - Location (s)
   - Type (s)/ quantities
   - Ownership
   - Number of users
   - Frequency of breakdown/ shortage
   - Frequency of maintenance/restoration
   - Time lapse before restoration
   - Current management practices of existing facility
   - Availability of restoration services & parts
   - Community involvement
2. Adjoining land use………………………………………………………………………………
3. Sources of Contamination of water resources………………………………………………
4. Water-related disease vectors in district…………………………………………………………
5. Operation and maintenance of new facility……………………………………………………
6. Protection/sustainability of new facility………………………………………………………

SECTION D: ENVIRONMENTAL AND SOCIAL IMPACTS OF PROVISION OF SANITATION.

FACILITY

1. Existing Sanitation facility
   - Location (s)…………………………………………………………………………………..
   - Type (s)/ quantities…………………………………………………………………………
   - Ownership…………………………………………………………………………………..
   - Number of users……………………………………………………………………………..
   - Frequency of breakdown/ shortage…………………………………………………………
   - Frequency of maintenance/restoration…………………………………………………
   - Time lapse before restoration……………………………………………………………..
   - Current management practices of existing facility………………………………………
   - Availability of restoration services & parts………………………………………………
   - Community involvement…………………………………………………………………

2. Adjoining land use………………………………………………………………………………
3. Sanitation-related disease vectors in district………………………………………………
4. Operation and maintenance of new facility…………………………………………………
5. Protection/sustainability of new facility……………………………………………………

SECTION E: SOLID WASTE COLLECTION, DISPOSAL AND MANAGEMENT

1. Number of existing facilities……………………………………………………………………
2. Distances from communities……………………………………………………………………
3. Location (s)……………………………………………………………………………………
4. Type (s)/quantities………………………………………………………………………………
5. Ownership……………………………………………………………………………………
6. Number of users…………………………………………………………………………………
7. Frequency of breakdown/ shortage……………………………………………………………
8. Frequency of maintenance/restoration……………………………………………………
9. Time laps before restoration………………………………………………………………
10. Quantity of Waste generation per school…………………………………………………
11. Current management practices of existing facility………………………………………..
12. Availability of restoration services & parts…………………………………………………
13. Community involvement……………………………………………………………………

GIMPA/ MOEYS Environmental and Social Management Framework, November 2003
SECTION F: LIQUID WASTE COLLECTION, DISPOSAL AND MANAGEMENT

1. Number of existing facilities
2. Distances from communities
3. Location(s)
4. Type(s) / quantities
5. Ownership
6. Number of users
7. Frequency of breakdown/ shortage
8. Frequency of maintenance/restoration
9. Time laps before restoration
10. Quantity of Waste generated per school
11. Current management practices of existing facility
12. Availability of restoration services & parts
13. Community involvement
15. Frequency
16. Authority responsible
17. Cost implications
18. Concerns over provision

SECTION G: ENVIRONMENTAL ASSESSMENT AND ENVIRONMENTAL MANAGEMENT CAPACITY FOR MITIGATION

1. List of stakeholders and their current roles (in school mgt., sanitation at schools, water supply, solid and liquid waste mgt.)
2. Strengths / opportunities in performing current roles
3. Weaknesses / threats in performing current roles

4. Involvement in policy formulation / implementation

5. Involvement in project implementation: (List stakeholders against boxes)
   a. Site selection
      [none]
      [little]
      [much]
   b. Type of facility
      [none]
      [little]
      [much]
   c. Choice of building materials
      [none]
      [little]
      [much]
   d. Award of contract
      [none]
      [little]
      [much]

6. Other aspects (name them)
   [none]
   [little]
   [much]

7. Experience in environmental assessment & management
   [none]
   [little]
   [much]
8. Comments on provision of facility in the district

9. Recommendations on environmental assessment & management

Interviewer

Date

INTERVIEW GUIDE FOR AGENCIES IN THE DISTRICTS

DISTRICT DIRECTOR OF EDUCATION

1. What are the criteria for siting school buildings?

2. Is the District Directorate of Education involved in the selection of site for school buildings?

3. What are the difficulties in selecting site for school buildings?

4. What are the numbers of schools in the District?

5. What is the pupil population in schools in terms of boys and girls?

6. What is the average Teacher per pupil ratio?

7. What is the drop out population in the District?

8. What is the number of physically disadvantaged children in schools in the District?

SCHOOL AUTHORITIES

1. What type of solid waste is generated by the school?

2. How often is the waste container emptied or taken away?

3. Is the solid waste burned, buried or what?

4. Give average distances that pupils commute from the school premises to the following facilities:
   - Toilet
   - Refuse
   - Water
5. What are the advantages and disadvantages of siting the school at this particular place?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

6. What are the advantages and disadvantages of siting school facilities?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

7. How many physically disadvantaged pupils are in the school and community?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

8. What provision has been made for the disadvantaged in the use of the school facilities?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

9. Any suggestions to improve your present circumstances?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

10. How often has the school experienced natural disasters like?
    - Rainstorms
    - Epidemics
    - Floods
    - Lightening
    - Windstorm
..............................................................................................................................
..............................................................................................................................

11. How often has the community experienced natural disasters?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

12. What are the common health problems in the school and community?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

13. What are the possible causes of the health problems?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

14. Where do you go for health treatment when there are health problems?
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................
..............................................................................................................................

DISTRICT ASSEMBLY

School Construction

1. What are the criteria for selection of sites for school – Primary/JSS, Secondary?
..............................................................................................................................

2. Who develops the criteria?
..............................................................................................................................

3. Any problems associated with site selection in the past?
..............................................................................................................................

4. Outline the process for acquisition of land for schools in the District.
..............................................................................................................................
5. What are the problems/difficulties with the process?.................................

6. Who is responsible for hiring and supervision of contractors for school buildings?

7. Any problems faced with construction of schools?.................................

8. What type of facilities are in the schools?

   Tick
   - Toilet [ ]
   - Water [ ]
   - Lights [ ]
   - Telephone [ ]
   - Refuse Disposal [ ]
   - Landscape [ ]

9. Rank the importance of the facilities [from 1, 2, 3...............]

10. Who is responsible for managing school facilities?

    - DAs
    - PTA
    - School Management Committee
    - Community

11. What are the problems encountered in the management of the facilities?..............

12. How can the management of the school facilities be improved?......................

13. How much maintenance cost is required for the effective management of the following school facilities?

<table>
<thead>
<tr>
<th>Facility</th>
<th>Cost Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toilet</td>
<td>-</td>
</tr>
<tr>
<td>Water</td>
<td>-</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>-</td>
</tr>
<tr>
<td>Painting</td>
<td>-</td>
</tr>
</tbody>
</table>
SCHOOL CHILDREN

1. Are problems encountered in the use of the following school facilities?
   - Toilet
   - Water
   - Refuse Disposal Sites
   - Tables
   - Furniture
   - Others.

2. Do you have any suggestions for improvement?

3. Do community members also use the school facilities?

4. Do you like it?

5. Are you consulted in the decision to site school facilities?

6. What role do you think you can play in the siting and management of school facilities?
APPENDIX III

LIST OF INDIVIDUALS AND INSTITUTIONS CONTACTED
LIST OF INDIVIDUALS AND INSTITUTIONS CONTACTED

- Environmental Protection Agency
- Ministry of Education Youth and Sports
- Ministry Of Local Government and Rural Development
- The World Bank
- Community Water and Sanitation Agency
- District Chief Executives
- District Planning Officers
- District Co-ordinating Directors
- District Directorate of Education
- Headteachers and Teachers)
- Town and Country Planning
- Traditional Authorities
- Parent and Teachers Association
- Primary School Pupils
- District Environmental Management Committees (DEMC)
- District Public Works Department Engineers
- Cassa Limited and China State Limited (Contractors)
APPENDIX IV

ENVIRONMENTAL ASSESSMENT PRELIMINARY REGISTRATION FORM

FORM EA1
ENVIRONMENTAL PROTECTION AGENCY, GHANA

ENVIRONMENTAL ASSESSMENT PRELIMINARY REGISTRATION FORM

(To be Completed in Duplicate)

FEE £5,000

Serial No. 04688

FORM EA1

PROPPONENT:

Address for correspondence

Contact person Position

Phone No. Fax No.

ASSESSMENT NO. FILE NO.

Environmental Protection Agency
P. O. Box M-326
Accra, Ghana

Tel: 664697/8, 664223
Fax: 662690
GUIDE FOR COMPLETING AN ENVIRONMENTAL ASSESSMENT REGISTRATION FORM

The Environmental Assessment Registration form is designed to provide enough relevant information to enable the EPA to set an appropriate level of assessment for a proposal referred to it. Failure to provide detailed information in a comprehensive manner may delay the assessment process.

It is not expected that this form will be appropriate for all purposes and, depending on your proposal, a more lengthy document may be necessary in addition to this form.

PROPOSAL

A simple, brief description of the proposal or proposed undertaking is required and must include: input processes, end results, output quantities and timing.

Please include flow diagram if available.

LOCATION

A map/site plan is essential.

It should indicate the geographic coordinates of site (Longitude and Latitude), elevation and slope of the site, any nearby areas or features of environmental significance (e.g. proposed or declared reserves, water courses, wetlands), and adjacent land uses, including the nearest homes or areas zoned residential.

SERVICES

Details of water supply, stormwater drainage, power corridors, access to and impact on roads and transport can all be of significance and should be noted where relevant.

ENVIRONMENTAL IMPACT

Criteria for assessing a project and setting a level of assessment are:

1. The character of the receiving environment
2. The potential impact of the proposal
3. Resilience of the environment to cope with change
4. Confidence of predicting impact
5. Plans, policies or other procedures which provide ways to manage potential environmental impact.
6. The input of other statutory decision-making bodies.
7. Degree of public interest.

The following potential environmental impacts may be relevant:

- effects on geomorphology, land stability and landscape
- effects on drainage and water quality (surface and ground)
- effects on biota
- effects on access and transport systems
- effects on existing services including power, water, and telephone
- effects on existing community facilities
- effects on existing contingency plans for safety and emergency services
- effects of emissions (gas, dust, noise and heat)
- management of solid and fluid wastes and stormwater
- impact on adjacent land uses including any conservation and recreation aspects
- impact of construction and operational activities
- visual impact
- social impact
1. PROPOSED UNDERTAKING/DEVELOPMENT

Title of proposal (General Classification of undertaking)

Description of Proposal (nature of undertaking, unit processes [flow diagram], raw materials, list of chemicals (source, types and quantities), storage facilities, wastes/ by-products (solid, liquid and gaseous)

Scope of Proposal (size of labour force, equipment and machinery, installed/production capacity, product type, area covered by facility/proposal, market)

2. PROPOSED SITE

Location (attach a site plan/map)

Current zoning

Distance to nearest residential and/or other facilities

Adjacent land uses (existing & proposed)

Site description
3. INFRASTRUCTURE AND UTILITIES
   Structures (buildings and other facilities)

Water (source, quantity)

Power (type, source & quantity)

Drainage

Road

Other major utilities (e.g. sewerage, etc)

4. ENVIRONMENTAL IMPACTS
   Potential environmental effects of proposed undertaking (Both constructional and operational phases).
5. OTHER ENVIRONMENTAL ISSUES

Potential significant risks and hazards associated with the proposal (including occupational health and safety) State briefly relevant environmental studies already done and attach copies as appropriate.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

6. MANAGEMENT OF IMPACTS AND ENVIRONMENTAL ENHANCEMENT MEASURES

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

DECLARATION:

I, ____________________________________________, hereby declare that the information provided on this form is true to the best of my knowledge and shall provide any additional information that shall come to my notice in the course of processing this application.

__________________________  __________________________
Signature             Date

* Use pages 6, 7, and 8 where space provided is inadequate.
APPENDIX V

CHECKLIST FOR ENVIRONMENTAL IMPACT ASSESSMENT OF EdSeP PROJECT COMPONENTS
CHECKLIST FOR ENVIRONMENTAL IMPACT ASSESSMENT OF
EdSeP PROJECTS COMPONENTS

DISTRICT: ........................................................................................................
PROJECT COMPONENT: ..............................................................................

POTENTIAL PROJECT IMPACT

1. Farm Lands

<table>
<thead>
<tr>
<th>A: Are there farm lands in the project area</th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Will project result in more or improved farm lands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C: Will project result in less or damaged farm land</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Estimated Impact Magnitude  -2  -1  0  +1  +2

2. Soil Erosion

<table>
<thead>
<tr>
<th>A: Will project help to prevent soil loss or erosion</th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>B: Will project directly cause or worsen soil loss or Erosion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C: Could project indirectly lead to practices that could cause soil loss or erosion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D: Is it necessary to consult a soils scientist?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Estimated Impact Magnitude  -2  -1  0  +1  +2

3. Slope Erosion

<table>
<thead>
<tr>
<th>a. Does project involve modification of slopes?</th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. Will project affect stability of slopes directly or indirectly?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Could project cause people or property to be located where existing unstable slopes could be a hazard?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Is it necessary to consult a geotechnical engineer?</td>
<td></td>
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</tbody>
</table>

Estimated Impact Magnitude  -2  -1  0  +1  +2
### 4. Surface Water Quality

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Do surface water resources exist in project area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Is information available on present and future demands on water resources as a result of the project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Will project help to increase or preserve available surface water supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Will project increase demand or cause loss of available surface water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Is it necessary to consult a hydrologist?</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Estimated Impact Magnitude: -2, -1, 0, +1, +2

### 5. Surface Water Quality

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Is current data available on existing water quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project lead to additional natural or man made discharges into surface water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Will project help to improve or protect surface water quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Could project cause deterioration of surface water quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Is it necessary to consult a water quality expert</td>
<td></td>
<td></td>
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</tbody>
</table>

Estimated Impact Magnitude: -2, -1, 0, +1, +2

### 6. Ground Water Quality

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Do ground water resources exist in project area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Is information available on demands on ground water resource as a result of the project?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>c. Will project help to increase or preserve available ground water supplies?</td>
<td></td>
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<td></td>
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<tr>
<td>d. Will project increase demand or cause loss of available ground water?</td>
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<tr>
<td>e. Is it necessary to consult hydrologist?</td>
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Estimated Impact Magnitude: -2, -1, 0, +1, +2
7. **Ground Water Quality**

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
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</thead>
<tbody>
<tr>
<td>a. Is information available on present water quality</td>
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<tr>
<td>b. Will project cause any natural or man-made discharge into ground aquifer</td>
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<tr>
<td>c. Will project help to improve or protect ground water quality</td>
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<tr>
<td>d. Could project cause deterioration of ground water quality</td>
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<tr>
<td>e. Is it necessary to consult a hydrologist</td>
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Estimated Impact Magnitude -2 -1 0 +1 +2

8. **Air Quality**

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</thead>
<tbody>
<tr>
<td>a. Is information available on existing or quality?</td>
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<tr>
<td>b. Will project produce any air emission directly?</td>
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<tr>
<td>c. Will project help to reduce existing air pollution sources?</td>
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<tr>
<td>d. Could project lead to practices that worsen air quality</td>
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<tr>
<td>e. Could project lead to a change in engine or fuel use that could cause serious air problem?</td>
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<td>f. Is it necessary to consult an air quality specialist?</td>
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Estimated Impact Magnitude -2 -1 0 +1 +2

9. **Noise**

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<tbody>
<tr>
<td>a. Is noise now a problem in project area?</td>
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<td></td>
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<tr>
<td>b. Will project help in reducing undesirable noise conditions?</td>
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<tr>
<td>c. Will project cause increases in noise generating conditions?</td>
<td></td>
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<tr>
<td>d. Could project cause movements of people to high noise level locations</td>
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Estimated Impact Magnitude -2 -1 0 +1 +2
### 10. Aquatic Ecosystems

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
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</thead>
<tbody>
<tr>
<td>a. Are there any aquatic ecosystems in the project area such as rivers, streams, lakes or ponds, which might be considered significant?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project affect the use of these systems for human consumption?</td>
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Estimated Impact Magnitude: -2 -1 0 +1 +2

### 11. Wetland Ecosystems

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
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<tbody>
<tr>
<td>c. Are there any wetlands ecosystems in the project area such as marsh, swamp, flood plains, or estuary which might be considered significant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Will project affect the use or condition of such wetlands</td>
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<td></td>
</tr>
</tbody>
</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 12. Terrestrial Ecosystems

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there any terrestrial ecosystem in the project area such as forest, savannah, grassland or desert which might be considered significant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project affect the use or condition of such system</td>
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<td></td>
</tr>
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</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 13. Endangered Species

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
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</thead>
<tbody>
<tr>
<td>a. Is the existence of endangered species in the project area known?</td>
<td></td>
<td></td>
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<tr>
<td>b. Will project affect the habitat of any such species</td>
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</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2
### 14. Migratory Species

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
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</thead>
<tbody>
<tr>
<td>a. Do migratory fish, birds, or mammals use the project area?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project affect the habitat of such species?</td>
<td></td>
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</tr>
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</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 15. Beneficial Plants

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
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</thead>
<tbody>
<tr>
<td>a. Do non-domesticated plants occur in the project area which are used or sold by local people?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project affect these species by reducing their habitat in any way?</td>
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<td></td>
</tr>
</tbody>
</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 16. Beneficial Animals

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Do non domesticated animals occur in the project area which are used or sold by local people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project affect these species by reducing their habitat in any way?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 17. Pest (Plants and Animals)

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there currently any problems with pest (plants or animals) in the project area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Are there any plants or animals in the area, which might become pests because of ecological changes brought about by the project?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Will project improve increase he habitat for such species?

Estimated Impact Magnitude: -2 -1 0 +1 +2
### 18. Disease Vector

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there known disease problems in the project area transmitted through sector?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project increase vector habitat?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Not Known</td>
<td>Not Known</td>
<td>Not Known</td>
</tr>
<tr>
<td>c. Are there clinics or other disease control programmes in operation or planned for the area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Is it necessary to consult a public health officer?</td>
<td></td>
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</tbody>
</table>

Estimated Impact Magnitude

<table>
<thead>
<tr>
<th>Impact Magnitude</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
</tr>
</thead>
</table>

### 19. Resource / Land Use

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are lands in the project area intensively developed?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project increase pressure on land resources?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Will project result in decreased holdings by small land owners?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Should a land use planner be used?</td>
<td></td>
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</table>

Estimated Impact Magnitude

<table>
<thead>
<tr>
<th>Impact Magnitude</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
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</table>

### 20. Energy Sources

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Will project increase demand for conventional energy sources?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project create demand for other energy sources?</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Estimated Impact Magnitude

<table>
<thead>
<tr>
<th>Impact Magnitude</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
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</thead>
</table>

### 21. Distribution Systems

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
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</thead>
<tbody>
<tr>
<td>a. Will project enhance the equitable distribution of agricultural and /or manufactured products?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project increase demand for certain commodities within or outside the project area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Will project result in decrease in production of certain vital commodities?</td>
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</tbody>
</table>

Estimated Impact Magnitude

<table>
<thead>
<tr>
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<th>+2</th>
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</table>
### 22. Employment

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Will project increase the rate of employment?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project remove job opportunities from the area?</td>
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<td></td>
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</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 23. At-Risk Population

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are the adverse impacts of the project unequally disturbed in the large population?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Have the at-risk groups been identified?</td>
<td></td>
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</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 24. Existing Population

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there currently any people living in or near the project area?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project affect people in or near the project area?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Has liaison been established with the community?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Will community participation in projects design and implementation be necessary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Is it necessary to consult a sociologist?</td>
<td></td>
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</tr>
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</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

### 25. Migrant Populations

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are there currently any mobile groups in the target population?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project result in the movement of people in or out of the area?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Is it necessary to consult a sociologist?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Estimated Impact Magnitude: -2 -1 0 +1 +2

GIMPA/ MOEYS Environmental and Social Management Framework, November 2003
### 26. Cultural and Religious Values

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Are cultural characteristics unique to the project area understood?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Will project adversely affect religious and/or cultural attitudes of area residents?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Are there special superstitions or taboos that will affect acceptance of the project?</td>
<td></td>
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</table>

Estimated Impact Magnitude: 

| -2 | -1 | 0 | +1 | +2 |

### 27. Tourism and Recreation

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>NOT KNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Is there at present a significant degree of tourism in the area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Is there unexploited tourism or recreation potential in the area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Will project adversely affect existing or potential tourist or recreation attractions?</td>
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Estimated Impact Magnitude: 

| -2 | -1 | 0 | +1 | +2 |
### SUMMARY OF ESTIMATED IMPACT MAGNITUDE

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**SPECIALIST TO BE CONSULTED**

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**OTHER ACTIONS TO BE TAKEN**
APPENDIX VI

WORLD BANK'S COMPENSATION AND RESETTLEMENT POLICY
APPENDIX VII

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REFERENCE

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