

**Environment Management Framework
For
School Sector Development Plan (SSDP)
Nepal**

**Government of Nepal
Ministry of Education
Department of Education**

10, October, 2017

Acronyms

CSSP = Community School Support Project

DRR = Disaster Risk Reduction

EA = Executive Agency

EDDR = Environment Due Diligence Report

EFA = Education for All

EMF = Environmental Management Framework

EMIS = Education Management Information System

EMP = Environmental Management Plan

GoN= Government of Nepal

IA = Implementing Agency (IA)

Initial Environmental Examination (IEE)

JAR= Joint Consultative Mission (JCM) and Joint Annual Review

MoE = Ministry of Education

NEGSIFMN = National Environmental Guidelines for School Improvement and Facility Management in Nepal

PIM = Program Implementation Manual

SESP = Secondary Education Support Programme

SIP = School Improvement Plan

SSIP = School Physical Facilities Improvement Plan

SSDP = School Sector Development Plan

SSRP = School Sector Reform Plan

TEP = Teacher Education Project

WASH = Water Sanitation and Hygiene

Executive Summary

School Sector Development Plan and Construction Works

Physical infrastructure development of schools and District Education Offices (DEO) constitutes an important activity in School Sector Development Plan (SSDP). Potential environmental issues in SSDP are mainly limited to impacts from construction works and sites. These, for example, are construction of administrative buildings, schools & hostels, buildings, library & laboratory blocks, construction of new class rooms & rehabilitation of existing class rooms, provisions of toilets & water supply. Similarly, SSDP gives strategies to support the recovery of the education sector from the 2015 earthquakes that affected a large part of the country and the constrained economic situation that followed and has seen parts of the population being pushed back into poverty.

Environmental Assessment (EA)

The DOE is in the process of revising this Environmental Management Framework (EMF) under SSDP, which has been undertaken as EA for SSRP (Chapter - II). The EA was based on a series of reviews of construction works undertaken in the Basic & Primary Education Project (BPEP II), Secondary Education Support Program (SESP), Education for All (EFA) including field visits and consultation with stakeholders with respect to practices related to school physical facility improvement, and operation and maintenance of facilities. The EA concluded that SSRP's Environmental concerns are related to actions/activities under physical infrastructure.

Environmental issues in SSRP are mainly limited to potential impacts from building construction works and sites. These issues relate to school site selection and planning (appropriateness of sites, orientations of buildings considering climatic factors, and use of appropriate design standards, ensuring supply of safe drinking water (e.g. arsenic-free groundwater in Terai), proper sanitation (school latrine and waste management at school), and appropriate classroom conditions (e.g. light, ventilation, temperature, noise).. Location of the school or its facilities in risky or sensitive spots such as in flood-prone/risk, or landslide risk areas, is also a concern besides risks from earthquakes as Nepal is in a high earthquake risk zone.

Minor and localized impacts may arise from construction/upgrading of small scale administrative buildings or school blocks or new/additional classrooms or may be related to providing facilities such as drinking water and sanitation as well as to their operation and maintenance. Since the individual works under SSDP are small, environmental issues are assessed to be small and localized. No large, significant and/or irreversible impact is anticipated. Even cost sharing types of schools, DEO financed schools and laboratory buildings fall into the category of small to medium type construction which doesn't require specific environmental assessment from GON and DPs perspectives. Substantial experiences has been gained from BPEP II, SESP, and EFA to manage these issues.

The EA, therefore, concluded that the SSDP is not likely to present severe environmental risks and/ or highly significant potential adverse impacts in its area of influence. Hence, the nature of activities under SSDP doesn't trigger any national or environmental requirements by Development Partner institutions. The SSDP, as a whole, does not require any environmental clearance. However, in order to manage the minor and localized impacts GON has prepared an Environmental Management Framework for SSDP.

Environmental Management Framework (EMF)

The findings of the EA were used to prepare Environmental Management Framework (EMF) for SSDP. This has incorporated the experiences of the other projects such as EFA, emerging lessons and updating the National Environmental Guidelines for School Improvement and Facility Management in Nepal. The EMF is intended to be used as a practical tool during program formulation, design, implementation, and monitoring. The EMF defines simplified steps, procedures and guidelines or criteria and/or standards to be used while planning and developing schools' physical infrastructure under SSDP. These, for example, are related to screening, preparation of simple environmental management and mitigation plan. It describes the steps involved in identifying and mitigating the potential adverse environmental impacts of activities. Hence, EMF in SSDP will ensure the environmentally friendly design and construction of school physical facilities and other educational infrastructures by meeting safeguard policies of the GON. Salient features of the EMF are:

- SSDP activities, in general, do not require formal environmental assessment such as Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE). However, each SSRP physical infrastructure activity (school improvement activities as well as DEO administrative buildings) will be subject to environmental screening.
- At the school level, each participating school will utilize the EMF while preparing the School Improvement Plan (SIP).
- Emphasize effective use of already accepted policy and standards such as National Environmental Guidelines for School Improvement and Facility Management in Nepal; structural and disaster safety of buildings, child- and gender-friendly design and construction, inclusive design and constructions for disables, design guidelines for school buildings construction from environmental perspective (Annex - IX) etc.
- Recommendations of environmental screening and EMF will be incorporated in the plan, design and contract documents.
- The regular monitoring system of the DOE will also include indicators and monitoring mechanisms as specified in the EMF. There will be monitoring during pre-construction, construction and operational phases.

Institutional Arrangements, Roles and Responsibilities for EMF implementation

The Department of Education (DOE), Central Level Project Implementation Unit (CLPIU), District Education Office (DEO), District Level Project Implementation Unit (DLPIU) and School Management Committee (SMC) are the main implementing agencies. The roles and responsibilities of these agencies for implementing EMF with respect to planning, construction, and operation of associated facilities have been assigned in the EMF. The School Improvement Plan (SIP) will incorporate the EMF requirements at school level. The school construction will be managed by communities. Some of EMF requirements would have already been incorporated in the School Building Design and Construction Manual and other manuals developed by DOE. The following paragraph presents highlights of the roles and responsibilities of difference agencies:

- DEO/ DLPIU will conduct a preliminary survey of environmental conditions of the school and its surrounding area as part of the physical survey of schools.
- The proposed school improvement activities as well as administrative buildings will be subject to environmental screening. This will be done by the DEO/DLPIU.
- The DOE/DEO and CLPIU/DLPIU ensures incorporation of EMF provisions into ASIP and SIP. For the construction of district education offices, the EMP will be prepared by the DOE/ CLPIU and included as a part of the contract document.
- The Environmental Officer at DOE/CLPIU/PIS will check/ verify random screening and samples of the SIP, and all screening of district education offices. Incorporation of EMP in design/tender documents will be checked by the Environmental Officer of the DOE.
- The DEO regularly monitors implementation of the environmental works in the schools and reports to DOE. DOE/ PSS Environmental Officer will prepare consolidated report on environmental works. DOE/PSS and the relevant district DEO visits randomly selected samples of schools on four-monthly basis to check environmental compliance as outlined in the EMF. Findings of this will feed into government's quarterly portfolio review meeting.
- DOE/CLPIU will conduct annual interactions on implementation of the EMF. Annual GON and DPs joint review of SSDP will also cover implementation of the EMF. The field level monitoring will be carried out by DEO. Sub project level monitoring will be conducted by DEO at regular basis and by DOE at an intermittent basis. The compliance audit of the EMF will be an integral part of the overall monitoring and reporting system.

Capacity Building

Capacity building at different levels (DOE, CLPIU, DEO, DLPIU and SMC) is necessary in order to implement the EMF successfully. The suggested capacity strengthening measures, for example, include: i) providing environmental competency/human-resources, ii) training, orientation and awareness activities on environmental planning and management of school and

school-facilities, and iii) mechanisms for coordination and for accessing specific environmental services e.g. water-quality testing, climate responsive school building construction etc.

In consideration of increasing workload envisaged for implementation of the EMF and the nonexistence of environmental competency at centre, GoN/MOE will have a full-time Environmental Officer at DOE/ CLPIU to look after the EMF activities for SSDP. The Officer will be responsible for implementation of the EMF and its provisions, including compliance checking, facilitation, coordination and ensuring dissemination, orientations and capacity building activities. Additional human resources or agency will be hired, if necessary, in order to effectively implement the EMF. DEO/ DLPIU will develop and implement an EMF training, orientation and awareness program targeting to SMC, DEO/ DLPIU, other district level partners as well as service providers (including engineering design team).

EMF Dissemination and Disclosure

GON will disclose the EMF on their web sites (MOE as well as DOE/CLPIU), and will also place the reports in public places for wider dissemination. Upon approval of EMF by MOE, the DOE/CLPIU will publish the document in Nepali language. The Nepali version of EMF will be circulated to DEOs/ DLPIUs and SMCs through the Program Implementation Manual (PIM). The document will be widely circulated to DOE/CLPIU, DEO/DLPIU, collaborating INGOs/NGOs. Through regular orientation program, DOE/CLPIU will disseminate EMF to engineers/sub engineers, district education officers, design consultant and other partners.

Table of Contents

A. INTRODUCTION	1
1. Program Description	1
1.1 SSDP Mission, Goal, Purpose and Objectives.....	1
1.2 Physical Infrastructure Development in SSDP	2
2. Environmental Management Framework.....	3
3. The Need for EMF in SSDP	4
B. ASSESSMENT OF LEGAL FRAMEWORK	5
1. Assessment of Legal Framework	5
1.1 Review of National Environmental Policies and Legislation of Nepal.....	5
1.2 Safeguard Policy of Development Partners	7
2. Safeguard Requirements of Government of Nepal	8
C. INSTITUTIONAL ARRANGEMENT AND CAPACITY	9
1. Institutional Arrangement	9
2. Review of Institutional Capacity of EA and IA	12
D. ANTICIPATED ENVIRONMENTAL IMPACTS	13
1. Positive Impact of SSDP	13
2. Negative Impact of SSDP	14
E. ENVIRONMENTAL ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN (EMP)	19
1. Environmental Screening and Categorization of Subprojects.....	19
2. Environmental Assessment Procedure.....	20
3. Environment Management Plan.....	21
a. Mechanism for Implementation of EMP.....	22
F. GENERAL PRINCIPLES AND ACTION PLAN FOR EMF	22
1. General Principles and Action Plan	22
2. Mechanism for Implementation of EMF.....	23
3. Capacity Development.....	25
4. Budgetary Requirement	25
G. ENVIRONMENTAL MONITORING AND REPORTING	26
H. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM	32

1. Consultation and Information Disclosure	32
2. Grievance Redress Mechanism.....	32
ANNEX- 1	35
ANNEX- 2	39
ANNEX - 3	40
ANNEX - 4	41
ANNEX - 5	43
ANNEX - 6	44
ANNEX - 7	46
ANNEX - 8	62
ANNEX - 9	63
ANNEX – 10.....	65

A. INTRODUCTION

1. Program Description

The Government of Nepal developed the School Sector Development Plan (SSDP) for the July 2016 to July 2023 period to continue its efforts to ensure equitable access to quality education for all. Based on this seven year plan, an implementation programme has been developed for the first five years (2016-2021). The previous education sector plan, named the School Sector Reform Plan (SSRP) (MoE 2009a) ran from 2009 to mid-July 2016. Under this plan there was a five-year School Sector Reform Programme (2009–2014) (MoE 2009b), which was followed by a two-year extension programme (2014–2016) (MoE 2014c).

The SSDP continues the government’s efforts to ensure access to quality education for all through the Education for All (EFA; 2004-2007) programme, the Secondary Education Support Programme (SESP; 2003-2008), the Community School Support Project (CSSP; 2003-2008), the Teacher Education Project (TEP; 2002-2007) and most recently, the SSRP (2009-2016). In short, the SSDP addresses the educational reform and developmental needs of the country in the current context.

SSDP gives strategies to support the recovery of the education sector from the 2015 earthquakes that affected a large part of the country and the constrained economic situation that followed and has seen parts of the population being pushed back into poverty.

SSDP is a harmonized program between the Government of Nepal (GoN) and nine development partners: the ADB, World Bank, DfID, UNICEF, European Commission and the governments of Australia, Denmark, Finland, and Norway.

1.1 SSDP Mission, Goal, Purpose and Objectives

SSDP has been developed to support the achievement of the country’s vision 2022 by working towards the following mission, goal and purpose:

SSDP’s mission — For Nepal’s school education to produce the needed human resources to elevate Nepal’s status from a Least Developed Country by 2022 and to reach at the status of the middle income country by 2030.

SSDP’s goal — To contribute to socio-economic development and reduce disparities in the country through the continuous and inclusive development of its human resources capacity by facilitating all citizens with opportunities to become functionally literate, numerate, and to develop the basic life skills and knowledge required to enjoy a productive life, taking into account the diversity of context and needs and with regards to the forthcoming federalization of the country.

SSDP's purpose — To improve the equity, quality, efficiency, governance and management of the education sector.

1.2 Physical Infrastructure Development in SSDP

One of the components of the SSDP is physical infrastructure development of schools and District Education Offices. Under the physical infrastructure component, the following activities are envisioned:

Table 1: Year-wise targets for SSDP disaster risk reduction and school safety programme activities.

Targets	Unit	2016/17	2017/18	2018/19	2019/20	2020/21
Provision of safe learning facilities						
Number of classrooms established with minimum enabling conditions and DRR requirements including provision of WASH	No.	7,000	3,000	5,000	8,000	15,000
Number of school blocks (4 rooms) established with minimum conditions and DRR requirements	No.	7,000	7,000	7,000		
Number of damaged classrooms repaired and retrofitted	No.	6,500	6,500	6,500		
Numbers of schools retrofitted	No.	150	150	150	150	150
Develop and implement time-bound action plan for the (re)construction of safe basic and secondary schools.	No.	1				
Develop and approve prototype designs for new school construction	No.	1				
Construction of need based classrooms, WASH facilities	No.	1	2	10	30	50
Strengthening school disaster management						
Develop a set of educational training packages on DRR for students, teachers and SMCs	No.	1				
Develop DRR kits and materials for schools	No.	1	1			
Development and distribution of DRR awareness program	Schools	29,010	29,010	29,010	29,010	29,010
Strengthening preparedness and risk reduction at school level	Schools	29,010	29,010	29,010	29,010	29,010
Incorporate key DRR messages into professional development and training	No.					

Targets	Unit	2016/17	2017/18	2018/19	2019/20	2020/21
packages.		1				
Provide guidelines for head teachers and SMCs on risk assessment and school safety planning	No.	1				
Support disaster readiness in the SIP planning process.	No.	1				
Include specific DRR related roles and responsibilities in SMCs's ToRs	No.	1				
Incorporate a DRR component in EMIS	No.	1				
Institutionalizing risk reduction and resilience education						
Update pre- and in-service teacher training and other relevant training packages to incorporate DRR	No.	1				
Develop a communications strategy to promote DRR information to children, communities and parents	No.	1				

SSDP's basic education physical targets and beneficiaries

- 365 integrated schools with resource classes for children with disabilities

2. Environmental Management Framework

The Government of Nepal has set a goal of creating environmental frameworks for enabling environmental conditions, healthier learning environment in the Nepalese school campuses, but without affecting public health, surrounding environment and communities adversely in the construction and operation of the school physical facilities and other educational infrastructures.

Environmental Management Framework (EMF) guides to integrate Environmental Assessment (EA) and Environmental Management Plan (EMP) into the Education sector subproject preparation process. The Framework describes the steps involved in identifying and mitigating the potential adverse environmental impacts from infrastructure implementation activities, and extreme climatic conditions. EMF is intended to be used as a practical tool during school infrastructure planning, design, implementation, and monitoring. This Framework outlines environmental screening procedures, assessment methodologies, environmental management (mitigation, monitoring and documentation), and reporting for the components of the Program; and to specify institutional structure and mechanism to carryout compliance to environmental management plan. EMF ensures protection of health and hygiene of students, environmental

sustainability, and welfare of affected stakeholders. The EMF also addresses Disaster Risk Reduction (DRR).

The program components eligible for funding under the SSDP will be required to satisfy the safeguard policies of development partners including ADB and the World Bank, in addition to conformity with relevant provisions of the Government of Nepal (GoN). These policies will also be considered to comply with environmental safeguard issue. Thus, a donor harmonized EMF was prepared for SSRP in May 2009 and is revised for SSDP in June 2017. The EMF has been updated for the purpose of SSDP, and includes strengthened institutional mechanism for implementation and monitoring of safeguards, and templates to prepare Initial Environmental Examination (IEE) report, due diligence report (DDR), monitoring checklist, and reporting format.

This EMF provides general policies, guidelines, and procedures to be integrated into the implementation of all infrastructures under the Program. In preparing this document, relevant environmental safeguard practices, compliance, and past experience in the sector were reviewed. The review also included central level consultations; qualitative and quantitative assessments of environmental safeguard compliance processes in the DoE; capacity assessment of the implementing agency; and information on the capacity of their field level staff.

3. The Need for EMF in SSDP

EFA through DOE has set the module for the development and implementation of National Environmental Guidelines (NEG) and other related policies/ acts to ensure that the school improvement and facility management under the program meet acceptable national and international norms. This NEG deals with the environmental issues associated with the planning, construction, and operational stages of the school physical facilities and other educational infrastructures, including monitoring the implementation.

This EMF has been developed by the Ministry of Education of Government of Nepal especially for the proposed operation to ensure due diligence, to avoid any environmental degradation issues. The purpose of this framework also includes assisting the implementing agency in screening all the sub projects for their likely environmental impacts, identifying suitable mitigation measures and implementation of these measures through an environmental management plan.

B. ASSESSMENT OF LEGAL FRAMEWORK

1. Assessment of Legal Framework

1.1 Review of National Environmental Policies and Legislation of Nepal

The national policies, acts and guidelines for safeguard requirements relevant to the Program are as listed in following Table 2.

Table 2: GON National Policies, Environmental Acts, Regulations and Guidelines

SN	Environmental Acts, Regulations and Guidelines	Description of Requirements
1.	An Approach Paper to The Thirteenth Plan (FY 2013/14 – 2015/16). GON	Adapt to the adverse impacts of climate change by making human activities and development processes environment-friendly as called for under the principles of green development. And mainstream disaster management into the development process so that the risks and impacts of disasters are mitigated.
2.	Environmental Protection Act, 1997, GON	Any development project, before implementation, shall pass through environmental assessment, which may be either IEE or an EIA depending upon the location, type and size of the projects. Provision for dealing with pollution control, and conservation of national heritage.
3.	Environmental Protection Rule 1997 (amendment, 2007), GON	The EPR and its schedules clearly provide various step-wise requirements to be followed while conducting the EIA/IEE study. It also obliges the Proponent to timely consult and inform the public on the contents of the proposal. Provision for dealing with pollution control, and conservation of national heritage is also present. Schedule 1 listed projects require IEE and Schedule 2 listed projects require EIA study. The criteria are based on size of projects and cost. It also lists environmentally sensitive areas where any proposal regardless of size and cost will require an EIA.
4.	Forest Act, 1993 (amendment, 2007), GON	Requires decision makers to take account of all forest values, including environmental services and biodiversity, not just the production of timber and other commodities. It includes several provisions to ensure development, conservation, management, and sustainable use of forest resources based on approved work plan.
5.	Forest Rules, 1995, GON	Elaborates legal measures for the conservation of forests and wildlife. Expenses incurred for cutting trees and transportation shall be borne by proponent.
6.	National Parks and Wildlife Conservation Act, 1973, GON	Addresses for conservation of ecologically valuable areas and indigenous wildlife. The Act prohibits trespassing in park areas, prohibits wildlife hunting, construction works in park area, damage to plant and animal, construction of huts and house in park area without permission of authorized person. It lists 26 species of mammals, nine species of birds, and three species of reptile as protected wildlife.

7.	Local Infrastructure Development Policy (2005); Local Self Governance Act (1999) and Regulation (2000), GON	Empowers the local bodies for the conservation of soil, forest and other natural resources and implements environmental conservation activities. It commits to make local infrastructure sustainable by adopting labor based, environment friendly, and participatory work method. They ensure environmental assessment for developing local infrastructures.
8.	Land Acquisition Act, 1977 and Land Acquisition Rules, 1969, GON	Specifies procedural matters on land acquisition and compensation
9.	National Environmental Impact Assessment Guidelines, 1993, GON	Provides guidance to project proponent on integrating environmental mitigation measures, particularly on the management of quarries, borrow pits, stockpiling of materials and spoil disposal, operation of the work camps, earthworks and slope stabilization, location of stone crushing plants etc.
10.	National Environmental Guidelines for School Improvement and Facility Management in Nepal, 2004	Provides guidance to project proponent to ensure environmental safeguards in school facility development activities.
11.	Parks And Trees Act (Chapter 216) 2005	An Act to provide for the planting, maintenance and conservation of trees and plants within national parks, nature reserves, tree conservation areas, heritage road green buffers and other specified areas, and for matters connected therewith.
12.	Environment Friendly Local Governance Framework, 2013	To make the entire nation environment friendly and achieve its indicators from the level of household, tole, settlement, village, municipality and district.
13.	Act Relating to Reconstruction of the Earthquake affected structure, 2015 (2072) (RA 2015) and Rule Relating to Reconstruction of the Earthquake affected structure (2072) (RR2015/16)	To promptly complete the construction works of the structures damaged due to a devastating earthquake of 25 April 2015 (12 Baishakh 2072) and subsequent aftershocks, in a sustainable, resilient and planned manner, and to promote national interests and provide social justice by making resettlement and translocation of the persons and families displaced by the Earthquake.
14.	Water Resources Act 1992 of GoN.	It states to make arrangements for the rational utilization, conservation, management and development of the water resources that are available in the Nepal in the form of surface water, underground water or in whatsoever form and it is required to make timely legal arrangements for determining beneficial uses of water resources, preventing environmental and other hazardous effects thereof and also for keeping water resources free from pollution.

15.	National Drinking Water Quality Standard (NDWQS) 2005	This provides the list of 27 physical, chemical and biological parameters to be tested and their importance and mandatory for any water utilities.
16.	Solid Waste Management Act 2011,	This stresses on 3R, source segregation, healthcare waste management, institutional arrangements and PPP (polluters pay principle) and producers responsibilities.
17.	Working Procedure to Use National Forest area for National Priority Projects, 2074 B.S. (2017 AD)	<ul style="list-style-type: none"> • EMP/IEE/EIA study is mandatory for obtaining forestry clearance. • Alternative analysis has to be done during feasibility study for avoiding forest area or if not having minimal loss of vegetation. • Concerned Ministry has to obtain concurrence from Ministry of Forest and Soil Conservation before approving IEE/EIA • Provision of compensatory plantation (with protection for five years) at the ratio of 1:25 plants by the project or provide plantation and protection cost to concerned DFO.
18.	Labour Act, 2048 (1992)	• provisions for safety of workers and employees working in various sectors.

1.2 Safeguard Policy of Development Partners

The safeguard requirements of development partners co-financing in the Program are as listed in following Table 3.

Table 3: Safeguard Policies of Development Partners

S.N	Development Partner	Safeguard Policies
1.	ADB	According to the Safeguard Policy Statement 2009 of ADB, the SSDP falls under Environment Category B (though unlikely to have any significant environmental impacts) and Category C (minimal or no adverse environmental impacts). Nevertheless, if an IEE level assessment is not required, environmental implications shall still be reviewed and mitigation measures suggested by preparing a due diligence report
2.	International Development Association (IDA)	EA policy OP 4.07 is triggered. According to this SSP has been categorized as Environmental Category B Project. Thus, in case of SSP, environmental impacts due to program activities must be fully identified and appropriate mitigation measures clearly defined with cost.
3.	AusAID	The SSP falls under scenario 1 of environmental marker set by Aus AID, which states no significant environmental impact. The monitoring of unexpected environmental impacts should be incorporated into activity's monitoring & evaluation process.
4.	EU	The liability for environmental damage falls into three categories namely; protected species & natural habitats, water and soil. The SSP activities won't trigger any negative implications in above three categories.

5.	UNICEF	Helping schools provide supplies, safe water and sanitation. Water, sanitation and hygiene are crucial to encouraging girls to go to and stay in school. Lack of clean and separate sanitation facilities in schools is causing many girls from attending school full time and forces some of them to drop out altogether. Children of both sexes are sapped of nutrients, energy and the ability to learn if they are infected with water-borne parasites. These issues have been addressed in this EMF.
6.	Finland	Emphasizes the importance of environmental considerations in all activities with a view to forestalling threats, and creating conditions conducive to prosperity based on the sustainable use of natural resources. It supports environmental programs and the development of environmental administration.

No significant environmental implications are envisaged by the implementation of SSDP. Proposed district education office (DEO) building and school building construction and rehabilitation activities may incur minimal level of impacts. Rather beneficial impacts from implementation of the Program significantly outweigh any adverse impacts.

2. Safeguard Requirements of Government of Nepal

Schedule 1 related to Rule 3 of the Environment Protection Rule (amendment 2007) and No 65, Appendix 49, Notice 1 Rule Relating to Reconstruction of the Earthquake affected structure (2072) (RR2015/16) of GON requires Initial Environmental Examination (IEE) for buildings with following size or location:

- a. Construction / reconstruction of residential or commercial building and their combination with a built up area or floor area between 5,000 to 10,000 sq.m.;
- b. Cinema hall, theater, community hall, stadium, concert hall, spot complex with a capacity of 1,000 to 2,000 people to pass at one time;
- c. Development of residential area on 1 to 4 ha. size of land;
- d. Land development program of 10 to 100 ha. size;
- e. Construction of hard surface pavement of size more than 10 ha. (for example dry port, bus park, parking lot etc.);
- f. Development of site with cutting or filling of more than 20,000 cu.m. earth;
- g. Construction / reconstruction of buildings above 10 stories or 25m height to 16 stories or 50m height;
- h. Construction work that may require clearing of more than 5 ha. forest area;
- i. Reconstruction work that may require clearing of 0.75 ha. forest area;

j. Environmental Impact Assessment (EIA) is required for any infrastructure to be constructed in historical, cultural, and archeological sites; national park, wildlife reserve, wetlands, and conservation area; and main source of drinking water supply;

k. Any construction work not listed in the schedule of Environment Protection Rule and that cost between Rs.50 million to Rs.250 million.

l. Any reconstruction projects with the cost less than Rs 150 million and Rs 250 million.

The School Sector Development Plan (SSDP) is categorized as environment Category B and C. Preparation of Initial Environmental Examination (IEE) may not be required in SSDP where proposed construction works under the program will be less than the above thresholds. However, their environmental implications shall be assessed and a due diligence report (DDR) shall be prepared with environmental management plan for any potential impacts. School infrastructures with more than the threshold value will require an EIA level study, and will not be considered under the SSDP.

C. INSTITUTIONAL ARRANGEMENT AND CAPACITY

1. Institutional Arrangement

Ministry of Education is the executing agency (EA), and Department of Education (DOE) and Central Level Project Implementation Unit (CLPIU) are the implementing agency (IA) of the SSDP. DOE and CLPIU allocates program and budget to all 75 District Education Offices (DEOs) and District Level Project Implementation Unit (DLPIU), who allocate program and budget to recipient school. Schools are fully responsible to implement their program under technical supervision of DEO. The physical improvement section (PIS) of the DOE is responsible for design and implementation of physical infrastructures. Implementation arrangement for the school infrastructure development is presented in following Table 4.

Table 4: Implementation Mechanism for Infrastructure Development

SN	Activity	Implementation Mechanism	Responsibility
1.	Classroom Construction	<p>School Selection</p> <ul style="list-style-type: none"> Physical Survey of Schools <p>Technical staff of DEO will use the standard format(School Selection Criteria Attachment 2) developed by DOE & conduct a survey of overall school in the district.</p> <ul style="list-style-type: none"> Preparation of School Physical Facilities Improvement Plan (SPIP) SMC will prepare SPIP. This includes activities to be performed in schools, estimated 	<ul style="list-style-type: none"> DOE/PIS CLPIU DEO DLPIU SMC

		<p>cost to perform such activities and contribution of schools in such activities</p> <ul style="list-style-type: none"> • Analysis of Education Data <p>Insert date on Education Management Information System (EMIS) & analyze educational indicators.</p>	
		<p>Prioritization of Schools Selection</p> <p>Based on educational indicators given in Annex –2 school are prioritized for support.</p> <ul style="list-style-type: none"> • Program Setting <p>The whole school approach concept shall be followed in order to completely include all the facilities for school & get approved from DEO. The approval of DEO/AREA officer is required prior the expenses of such construction budget by the school.</p> <ul style="list-style-type: none"> • Preparation of Cost Estimates <p>Prepare cost estimates of each individual components of school physical facilities and getting approval from DEO. The district rates & GON norms should be followed in cost estimates. The cost should include the contribution from school & program.</p> <ul style="list-style-type: none"> • Agreement with School <p>Based on the cost estimate & indicating the clear cut responsibilities of local community an agreement is signed between DEO & SMC. The name of schools & list of activities/programs to be conducted in such schools, DEO will arrange technicians</p> <ul style="list-style-type: none"> • Release of Funds to Schools <p>Upon technical clearance for construction of such selected schools, the fund will be released to respective schools.</p> <ul style="list-style-type: none"> • Expenditure by School is Tied with Work Progress <p>Based on progress of work, the fund will be released/spent by the school.</p> <ul style="list-style-type: none"> • Documentation <p>DEO shall prepare a documentation related to construction of school (i.e. Physical survey form, agreement, evaluation document, measurement book,</p>	

		<p>report). Each 2 sets of documents are prepared. One set will be retained at school & another set shall be forwarded to DEO.</p> <ul style="list-style-type: none"> • Supervision of Construction Works <p>DEOs will assign technical personnel (Engineer/Sub Engineer) to supervise & monitor construction activities in schools. For this, there is also a practice of utilizing technicians through NGOs/INGOs as per the MOU.</p> <ul style="list-style-type: none"> • Construction should Comply with Agreement <p>Construction should comply with clauses of agreement. The breach of contract, sub-standard work & delay could subject to legal action by DEO to chairman of SMC & personnel involved.</p> <p>There should be provision for RAMP to wheel chair users.</p>	
2.	Support to school water supply system as a part of improving external environment.	<p>a. Implementation mechanisms same as 1</p> <p>b. Other Requirements</p> <ul style="list-style-type: none"> • Water Availability for drinking & sanitation. • Tube well should be at least 15m from soak pit or septic tank. • The fencing of school & external environment improvement is entirely the responsibility of school 	<ul style="list-style-type: none"> • DOE/CLPIU • DEO/DLPIU • SMC • Community
3.	Separate Toilet for Boys & Girls	<p>a. Implementation mechanism same as 1</p> <p>b. Other Requirements</p> <ul style="list-style-type: none"> • The boys & girls toilet should maintain a distance • Construction of RAMP for wheel chair users • Availability of water in school for water supply & sanitation purposes • Other requirements as of no. 2 	<ul style="list-style-type: none"> • DOE/PIS • CLPIU • DEO • DLPIU • SMC • Community
4.	Construction of District Education Office Building	<p>a. Based on DOE's design/drawing the cost estimates shall be prepared. The norms shall follow district & GON. The procurement of work shall follow as per procurement guidelines of GON. The tender document shall be prepared. 1 set of tender documents should be sent to DOE/PIS.</p>	<ul style="list-style-type: none"> • DOE/PIS • CLPIU • DEO

		<ul style="list-style-type: none"> • Publish tender notice • Evaluate the bids • Agreement with bidders. A copy shall be forwarded to DOE/PSS <p>Under the close supervision of technician construction work should be done</p>	<ul style="list-style-type: none"> • DLPIU
--	--	--	---

The National Environmental Guidelines for School Improvement and Facility Management in Nepal 2004 (NEGSIFMIN) guides for ensuring environmental safeguards in MOE/DOE operations.

2. Review of Institutional Capacity of EA and IA

Table 5 presents capacity analysis of the EA (Ministry of Education) and IA (Department of Education and **Central Level Project Implementation Unit**).

Table 5: Existing Capacity of EA and IA in environment management

S.N	Agency	Existing Capacity		Existing Resources		
		Knowledge/ Experience in Environmental Management	Manpower	Environmental Desk	Provision of Budget	Logistics and Facilities
1	MOE	X	No institutional setup or position to look after environmental safeguards.	No	No	No
2	DOE	X√	Environment specialist is assigned. Capacity development activities should be done for better management.	Yes	No	No
3	CLPIU	X√	Officer is appointed to look after environmental safeguards	Yes	Yes	Yes
4	DEO	X	No institutional setup or position or assigned personnel for environmental safeguard.	No	No	No
5	DLPIU	X	No institutional setup or position or assigned personnel for	No	No	No

			environmental safeguard.			
6	SMC	X	They have not received awareness about this.	No	No	No

Note: X: Lack of capacity, X√: Basic Knowledge, √: Adequate capacity

A safeguard desk is established at the DOE and CLPIU. In DOE, the safeguard desk is led by officer of Gender Equity and Social Inclusion Section. A fulltime Environment Specialist is appointed within the physical improvement section of the department. Whereas in CLPIU, an Officer is appointed to look after environmental safeguards. The specialist shall cover environmental safeguard issues including mainstreaming of environmental best practices, coordinate environmental management activities in school programs, and facilitate capacity building activities of central and local level stakeholders.

A safeguard desk shall be established at the DEOs, who shall designate focal persons responsible for planning, assessment, and implementation of EMP, and monitoring and reporting of environmental safeguards activities in the district programs. The SMC and schools also lack adequate capacity to deal with environmental issues. Central, regional, district and field level orientation and capacity development programs in ensuring environmental safeguards shall be designed in the program to implement best practice for school development.

The Implementing Agency (Department of Education) will be responsible for preparing environmental assessment and implementing Environmental Management Plan (EMP) as outlined in this Environmental Management Framework (EMF) and submit to the concerned development partner for review prior to commencement of works. The EMF confirms environmental safeguard policies of the development partners, including ADB, and the requirements of the Government of Nepal.

D. ANTICIPATED ENVIRONMENTAL IMPACTS

The environmental assessment matrix shows that most of the proposed policy actions will not impact the environment, while the policy action aiming to make access to education more equitable might have some negligible impacts related to school and classroom construction. Construction activities will be accommodated within the existing school premises avoiding private property including land acquisition.

1. Positive Impact of SSDP

The experience of ESP III and SSRP has found that most of the policy interventions by the SSDP will provide positive impacts on local environmental setting. Similarly, the policy action to make access to education more equitable, which includes construction of school infrastructure, especially classrooms and district education office buildings, will also contribute positively to the local environment by developing a healthy and safer school environment with natural light

and well ventilated classrooms, structures resilient to environmental extremes (including climate variability such as severe storms and geophysical hazards such as earthquakes and landslides), improve hygiene among children, provide clean drinking water safe against arsenic and fluoride contamination. The safer school will also provide multiple services to community.

Capacity building of stakeholders in environmental safeguards, including improved methods of construction, retrofitting of old structures, and preparation of resilient infrastructure will enhance knowledge and awareness for sustainable school infrastructure development in the future.

The program will contribute to alleviation of poverty and improving the socio-economic by using appropriate labour intensive methods for some of the construction programme present employment opportunities to local people (including women) and generate direct income benefits to local households.

2. Negative Impact of SSDP

Construction activity may cause some adverse environmental impacts, which will require careful management. These impacts can be avoided or significantly reduced by adopting the above general principles and action plan for EMF and by adopting mitigation measures as identified in EMP of IEE report or EDDR.

Some typical environmental impacts and mitigation measures from school infrastructure construction and operation activities are listed in the following Table 6, which shall be treated as a guide during environmental assessment, EMP preparation, and implementation.

Table 6: Potential Environmental Impact and Mitigation Measures

Category	Potential Impact	Mitigation Measures
Slope stability	Landslide or gully erosion on slopes that may threaten school infrastructure.	<ul style="list-style-type: none"> • Follow National Environmental Guideline for School Improvement and Facility Management for site selection, design and monitoring activities. • Follow Nepal National Building Code • Avoid or maintain adequate distance from landslide or erosion areas. • Adopt right angle of cut on slopes. • Stabilize slopes by engineering and bio-engineering measures. • Measures taken to avoid undercutting of hill toes that may cause slide. • Use check dam and channeling of water to avoid erosion and slide. • Do not exert excess load on slopes by disposing spoil. • Bio engineering approach in addition to engineering structures for slope stability.
Soil disposal	<ul style="list-style-type: none"> • Damage of agriculture 	<ul style="list-style-type: none"> • Minimize spoil by balancing cut and fill wherever

	<p>and forest land</p> <ul style="list-style-type: none"> • Drainage blockage causing erosion • Spoil tipped over slope may cause slide 	<p>possible.</p> <ul style="list-style-type: none"> • Restrict disposal of spoil on agriculture land or forest area. • Manage spoil to reclaim land with proper landscaping and vegetation. • Do not dispose spoil on drainage path.
Drainage Management	<ul style="list-style-type: none"> • Drainage congestion • Water logging • Vector proliferation 	<ul style="list-style-type: none"> • Design adequate drainage passage following natural path. • Fill ditches in school premises • Discharge drainage flow with proper downstream protection. • Cover bigger size drainage channels • Drainages shall be with required sand traps, generally at 20 m intervals
Water Availability and Quality	<ul style="list-style-type: none"> • Lack of water supply. • Sub-standard or inadequate drinking water provided to students. • Students fall sick due to waterborne disease. • Absence of water quality assurance programme 	<ul style="list-style-type: none"> • Ensure availability of adequate drinking water supply to the school. • Regular testing of drinking water at least once a year. • Arsenic test in ground water in terai districts is recommended. • Adequate water for sanitation is available. • Promote efficient and rational use of water, incorporation of rain water harvesting system in schools. • Assess alternative if existing source of water is drying up due to climate variations. • Standardise on a wellhead design that minimises the risk of pollution; • Water safety plan to be implemented in the school water supply system from source to mouth.
Loss of land	<ul style="list-style-type: none"> • No additional land will be required, as all construction work will be done within the premises of school. Any new area required will be through voluntary donation by land owners or buying in the market through direct negotiation. 	<ul style="list-style-type: none"> • Resettlement and or land acquisition problems are not anticipated in SSP. The DOE will not do any involuntary land acquisition. All donations and purchases, if any, will be voluntary. DOE will not only ensure that land donations are fully voluntary, but also that such donations do not involve physical displacement or any significant adverse impacts upon incomes of the donor household. All voluntary land transactions will meet the criteria as mentioned in resettlement framework of the Program.
Location of School in protected areas, buffer zones, and critical habitats.	<ul style="list-style-type: none"> • Encroachment in protected areas • Impact on biodiversity • Disturbance to wildlife habitat 	<ul style="list-style-type: none"> • Avoid national parks, conservation areas, wetland and other ecologically sensitive areas for establishing school • Restrict disturbance and harassment to wildlife. • Restrict use of catapult by students • Do not work at night near high biodiversity areas

		<ul style="list-style-type: none"> • Plant trees around school infrastructure. • Construction should be done in 100 m distance from ecologically sensitive area.
Clearing of trees	<ul style="list-style-type: none"> • Trees removed for construction of school infrastructure. • Loss of habitat. 	<ul style="list-style-type: none"> • Felled trees are replaced by compensatory plantation at minimum 1:25 ratio. • Plant trees at periphery of school to serve as dust and noise barrier. • Be careful not to block air flow, natural light and sun light reaching the class rooms.
Quarries and borrow pits	<ul style="list-style-type: none"> • Pollution, disturbance and damages (slope failure, bank cutting) from quarry operations • Safety risks from abandoned quarries or borrow pits 	<ul style="list-style-type: none"> • Quarry shall be approved by Engineer. • Quarries safely closed by re-grading slopes, protected by structures, and vegetation, as necessary.
Stone crushing	<ul style="list-style-type: none"> • Dust and noise pollution 	<ul style="list-style-type: none"> • Locate crusher plant, if any, away from settlement, school, and forest area. • Enclose and use water sprinkler to arrest dust. • Buy required material from authorized operating plants.
Air and noise pollution	<ul style="list-style-type: none"> • Dust nuisance to children from construction works • Air pollution generated due to old school buses • Dust and noise generated by vehicles passing by schools 	<ul style="list-style-type: none"> • Dust generating type of work is done during off-school time. • Labors use mask and safety gears. • Water sprinkled on road surface and work areas. • Cover material during transportation. • Plant trees to act as dust barrier. • Old school buses shall be well maintained. • Exhaust pollution test regularly done. • Traffic sign shall be kept mentioning “School Zone”, Speed control measures like bumps shall be kept. Plantation of trees around periphery of school will act as dust and noise barrier. • Minimise visual impacts by careful siting, landscaping and planting of vegetation.
	<ul style="list-style-type: none"> • Noise during construction of schools 	<ul style="list-style-type: none"> • Arrange work schedule at off-school time to minimize disturbance while doing work that may generate noise above the threshold. • Reduce noise levels including the need keep within stated limits and the provision of personal protective equipment.
Employment Opportunity	<ul style="list-style-type: none"> • Local people employed in project activities 	<ul style="list-style-type: none"> • Construction methods shall be within the skills of local people

		<ul style="list-style-type: none"> Contractors encouraged using local labor, wherever possible.
Separate toilets for boys and girls and differently able friendly toilets	<ul style="list-style-type: none"> Girl student out of school due to lack of separate toilet facility 	<ul style="list-style-type: none"> Follow WASH guideline Provide separate toilets at adequate distance between boys and girls. Water supply is available in the toilets. One latrine should be designed for about 30 pupils (20 for girls and 40 for boys). Stagger break time as required.
Ensure safe drinking water to schools	<ul style="list-style-type: none"> Arsenic and pollution contained drinking water hazardous for health Lack of sufficient water for drinking and sanitation 	<ul style="list-style-type: none"> Follow drinking water quality guidelines Arrange water supply facility as one of priority in schools Adopt rain water harvesting for non-drinking purpose Annually test water quality Practice conservation of water and train students not to waste water. Water supply should be managed in collaboration of MoE and Ministry of Water Supply and Sanitation (MoWSS) in School.
Occupational health and safety	<ul style="list-style-type: none"> Lack of minimum required facilities of space, ventilation, sanitation, light and safe drinking water in camps Lack of safety tools Lack of safe construction practices Vector disease 	<ul style="list-style-type: none"> Follow Labour act, 2048 (1992) Insure all workers Provide adequate space with ventilation, clean toilets, solid waste management, light and safe drinking water in camps Provide mosquito net at labor camps Keep camp and work area clean and without water logging Highest priority to safe construction practices Provide safety gears to workers working in hazardous areas Keep first aid box ready at work areas and camps
Solid and hazardous waste management	<ul style="list-style-type: none"> Spreading of waste, pungent smell, deterioration of aesthetics Use batteries, laboratory chemicals disposed haphazardly. Leachate of hazardous waste in soil and water. Burning plastic and rubber. Improper incineration and spread of dioxins and furans in environment 	<ul style="list-style-type: none"> Follow solid waste management guidelines Proper solid waste management system shall be introduced in schools with segregation of waste, and its proper disposal. Encourage composting to use in school garden. Awareness raising on solid waste management with waste minimization, reduce, recovery and recycling (3R principles). Ban use of plastic products in schools. Safe disposal of hazardous waste. Use of liners in waste management facilities to avoid contamination of ground water by leachate and toxic pollutions. Avoid incineration. Use of double chambered

	<ul style="list-style-type: none"> • Tyre as alternative source 	incinerator if there is no alternative.
Health, hygiene, and food safety	<ul style="list-style-type: none"> • Unhealthy living condition in school • Food related diseases 	<ul style="list-style-type: none"> • Promote health measures in schools. (hand washing facilities, safe disposal of human excreta, supply of clean and treated water, etc). • The norms prescribed for toilet by NEGSIFMIN shall be followed. • Hygienic day meal provide by school.
Community health and safety	<ul style="list-style-type: none"> • Project related hazards to communities 	<ul style="list-style-type: none"> • Identify and assess risks to potential impacts during all stages of project • Establish preventive and protective measures • Conduct public health information and education program for critical issues like STDs and HIV/AIDS • Fencing and posting warning signs at work areas
Orientation of school.	<ul style="list-style-type: none"> • Impact on comfort of students. • Impact on energy efficiency. 	<ul style="list-style-type: none"> • Design and construct climate friendly school buildings. • Orientation determines magnitude of natural heating and lighting available inside the building. Orientations shall be based on the climate type of the place where school facilities are planned. • Natural lighting and orientation of school building shall be integral part of design. Use of renewable energy like solar shall be promoted. • In hot climate, using GI sheet roof in school means subjecting school kids to high temperatures. Innovative ways need to be looked at to address such issues. • Use of energy efficient bulbs and equipments in schools. • Awareness generation of students to bring a change in culture to be environment friendly.
<ul style="list-style-type: none"> • Use of wood As construction materials • Material specifications • Cooking and heating by firewood in camps 	Deforestation	<ul style="list-style-type: none"> • Minimize use of wood for construction. • Use local materials as much as possible. • Innovations shall be integrated in design for making schools more child and environmentally friendly. • Contractor shall supply kerosene or LPG at camps and restrict cooking and heating in firewood
School safety (fire, earthquake, hail stone, thunder storm,	Damages to school properties. Possible human harm.	<ul style="list-style-type: none"> • Follow DRR guideline • Incorporate safety measures during site selection and design of physical facilities.

flood etc)		<ul style="list-style-type: none"> • Create awareness about natural calamities and extreme climate to teachers and students. • Retrofitting of old structures for safety against earthquake. Make new structures earthquake resistant. • Construction of flood protection for schools in flood plain areas. • Allow safe passage to storm drainage. • Necessary preparedness and emergency rescue measures shall be an integral part of the program. • Awareness generation among students in the event of disaster. • Set up an environmental monitoring and feedback mechanism for sound environmental management of the works.
Emergency situation during disaster	Increased risks to students during disaster.	<ul style="list-style-type: none"> • Schools shall prepare emergency plan and conduct regular drill • Establish emergency contact and communication system • Ensure emergency equipment and facilities like fire extinguisher/water hose, first aid boxes, whistles, torch lights etc. • Establish evacuation route and meeting points. • Establish differently able evacuation route.

Moreover, to aware school and community nearby we can establishing or strengthening Eco Clubs or encouraging WASH Clubs to address environment issues. At least quarterly a year or use sacred or special school occasions or days like World Environment Day, National Sanitation Week, Earth Day or the School Anniversary Day to engage the students and teachers and staff for Environmental Activities. And Necessary Environmental friendly activities shall be clear on Bill of Quantities (BOQ) for effective implementation.

E. ENVIRONMENTAL ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN (EMP)

According to the Safeguard Policy Statement 2009 of ADB, the SSDP falls under Environment Category B (though unlikely to have any significant environmental impacts) and Category C (minimal or no adverse environmental impacts).

1. Environmental Screening and Categorization of Subprojects

An environmental screening using rapid environmental assessment (REA) checklist shall be done to ascertain environmental category of each school infrastructure. Initial Environmental Examination (IEE) shall be carried out for category B investment. IEE will not be required for

category C subprojects, but a due diligence report (DDR) shall be prepared with EMP. This EMF provides guideline to prepare both IEE report and DDR. An outline of these reports is provided in attachment 4 and 5 in this EMF respectively.

2. Environmental Assessment Procedure

The environmental assessment procedure for each school infrastructure shall be as follows:

a. Environmental Screening

The environmental screening of the subprojects shall be done by using the Rapid Environmental Assessment (REA) checklist (included as Attachment 1). The REA checklist shall be filled prior to detailed design of the proposed investment. Findings of the environmental screening shall conclude if an IEE is required or a brief DDR will be adequate for the infrastructure. The Initial Environment Examination (IEE) or Due Diligence Report(DDR) shall be attached with detailed design of the infrastructure. The proposed template of REA checklist is presented in Attachment 1.

b. Process for Environmental Due Diligence

The environmental due diligence report will be a brief environmental statement of the subproject with only significant impacts, if any. The report shall be prepared by adopting following procedure:

- . **(i) Collection of information.** The information is based on observation, public consultations and documents review. Coordination shall be maintained with the focal person of safeguard desk of DEO, and technical team for documenting site- specific environmental concerns. Local stakeholders including teacher and students shall be consulted during documentation of the information.
- . **(ii) Preparation of environmental due diligence report.** The information on physical, biological and socio-economic and cultural environment of the subproject area will be compiled in coordination with the technical and social team. The environmental due diligence report shall be prepared with REA checklist added with any site-specific and significant environmental impacts. The proposed template for the environmental due diligence report is presented in Attachment 4.

c. Process to prepare Initial Environmental Examination (IEE)

There could be few subprojects attracting initial environmental examination for which IEE report shall be prepared. The IEE process shall involve following:

Scoping and preparation of TOR for IEE Study: An IEE scoping is a planning exercise to determine the scope for the IEE study. Scoping quickly assess the existing environmental status

of the project area, lists the likely environmental impacts, and advise methodology of assessment. The TOR also advise team of experts for the assessment and study schedule. The TOR shall be approved by MOE before commencing the IEE study.

Assessment Methods: An outline of the activities for conducting IEE study is presented below:

- (i) Desk Study. Review of information such as maps, reports, and EMF for the Project. Checklist for collecting site information is also finalized.
- (ii) Consultations. Communities and local stakeholders (teacher, students, parents, social workers etc.) shall be consulted by means of Focus Group Discussions (FGD). If required, discussion with concerned government offices (soil and watershed conservation; forest; water supply) will also be undertaken.
- (iii) Field Assessment. Assessment of the potential and significant environmental concerns shall be done to collect data and analyze any potential impacts.
- (iv) Sampling and Testing. Special tests may be necessary in certain cases where water pollution issues need to be investigated (water quality for arsenic or fluoride content, noise level, PM 10 in air).
- (v) Consideration of Alternatives. The environmental implications of different alternatives will be briefly assessed, particularly focusing on location of infrastructure, design and orientation, method of construction, source of construction materials, and schedule of construction).
- (vi) Identification of Environmental Impacts and Mitigation Measures. The impacts will be identified in terms of their significance, extent, reversibility, and duration.
- (vii) Design of Environmental Monitoring Plan. The IEE or DDR shall propose EMP where monitoring requirements for potential environmental impacts are identified, mitigation measures prepared, method of mitigation measure developed, indicators suggested, frequency of undertaking monitoring activity decided, cost estimated, and responsible agency for undertaking the monitoring identified.
- (viii) IEE Report. IEE report shall be prepared in brief following the template presented in attachment 5.

3. Environment Management Plan

Environment Management Plan (EMP) will be carried out to mitigate negative impacts or enhance the environment during implementation of a subproject. As an environmental management measures, EMPs will outline specific mitigation measures, environmental monitoring requirements, and related institutional arrangements, including budget requirements

for implementation. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the subproject is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in this document. An EMP for each subproject will be developed as part of the DDR.

The bid documents will include the requirement to incorporate necessary resources to implement the EMP. The EMP will form part of the contract document, and if required, will need to be further updated during the construction phase of a subproject.

a. Mechanism for Implementation of EMP

. Implementation of mitigation measures shall be ensured by following the EMP:

- (i) **Integrating EMP provisions in program design:** In terms of specific mitigation measures, cost, and specific implementation criteria.
- (ii) **Implementation modality:** Most of physical construction works and monitoring shall be directly done through SMCs closely supervised by DEOs. Their capacity development in environmental monitoring shall be enhanced.
- (iii) **Bill of Quantities:** The tender instruction to bidders shall clearly mention the specific mitigation measures identified in EMP with cost.
- (iv) **Supervision and Monitoring:** A mechanism for systematic and hierarchical monitoring and reporting system shall be established by making the safeguard desks overall responsible.

F. GENERAL PRINCIPLES AND ACTION PLAN FOR EMF

1. General Principles and Action Plan

The DOE will follow a set of principles in implementing the infrastructures under SSDP to ensure environmental sustainability of the subprojects. The general principles of the environmental management in the Program will be as mentioned below.

- a. At the DOE and CLPIU, the designated environmental specialist is responsible for undertaking overall environmental compliance and social specialist is responsible for overall social compliance in the Program activities. A full time social specialist led the Safeguard Desk at DOE.
- b. Safeguard Desk at the District Education Offices (DEOs) shall be responsible for undertaking overall environmental compliance in the subproject activities in the district. A qualified person (program coordinator or his/her assigned official,

- preferably engineer/overseer with environment/social experience) shall be designated to lead the Safeguard Desks. They shall be responsible for subproject specific EMP compliance and reporting.
- c. All the subprojects to be funded under the Program shall be subject to environmental screening/assessment in order to prevent adverse environmental impacts.
 - d. Implementation of school infrastructure shall follow the National Environmental Guideline for School Improvement and Facility Management prepared by the Government, Nepal National Building Code, WASH guideline, DRR guideline drinking water quality guidelines, solid waste management guidelines and design guidelines for school building construction (refer Annex 7) to avoid or minimize environmental impacts.
 - e. For Occupational Health and Safety, Labour act, 2048 (1992) shall be followed.
 - f. All the mitigation measure presented above in table 6.

2. Mechanism for Implementation of EMF

Implementation of the EMF must be integrated into program's overall planning, design, budget, and implementation. The key agencies involved in implementation of this framework are MOE, DOE, CLPIU, District Education Offices (DEO), DLPIU and School Management Committees (SMCs). MOE/DOE/ CLPIU has overall coordination responsibility. The DEO, DLPIU and SMC have planning and implementation responsibilities at the district and community levels respectively. The Department of Education (DOE) and District Education Office (DEO) will implement and monitor compliance of the provisions in the EMF. Following Table 7 presents the mechanism of implementation of the EMF.

Table 7: Mechanism for Implementation of EMF

SN	Activities	Responsibilities	Remarks
1	Preparation of EMF, its Approval Circulation & Incorporation in Program		
1.1	Approval of EMF for SSP	MOE	
1.2	Printing, Publication of EMF in Nepali & its wider circulation	DOE	DOE provides EMF guidelines to DEOs for implementation
1.3	Dissemination of EMF through Program Implementation Manual (PIM)	DOE/DEO	DOE will ensure that stakeholders e.g. DEO, SMC and others understands the EMF requirements and EMF provisions are followed while planning and implementation of school physical improvement programs (SPIP) and DEO office buildings.
1.4	Incorporation of EMF aspects in	DEO/SMC	DOE will ensure that EMF is an

	School Improvement Plan (SIP)		integral part of decision making for SSP activities.
1.5	Dissemination of EMF through regular orientation programs organized for Engineers, Sub-Engineers, District Education Officers, I/NGOs and other partners working in collaboration with DOE	DOE/DEO/ Partner INGOs	All are made aware on how to incorporate EMF provisions in planning implementing SIP
2	Environmental Assessment & Management		
2.1	Environmental Screening of Infrastructure using the REA Checklist	DEO	REA checklist provided in the EMF, Categorize environmental assessment type (IEE or DRR)
2.2	Incorporate EMF requirements in SIP preparation guidelines	DOE	Follow provisions of the approved EMF
2.3	Environmental assessment of the works. Prepare environmental management plan.	DOE	Follow the steps given in the approved EMF
2.4	Incorporation of EMP provisions in contract document	DEO	EMP requirements clearly defined in BOQ and contract agreement.
2.5	Utilize EMF requirements in school construction	SMC	Follow provisions as advised in SIP
3.	EMP Monitoring		
	-during implementation -quarterly, feeding into government's quarterly portfolio review meeting -verification with field visit to representative samples	DOE supervised by DOE	DOE will conduct routine monitoring, document compliance or non-compliance, fill monitoring checklist, and prepare monthly reporting. DOE will check adequacy of environmental safeguards maintained in district works. Verifies if EMP recommendations are being complied into sub projects implementation. Consolidate quarterly progress report.
4	Monitoring & Auditing		
	Compliance Audit - during implementation - annually	MOE/DOE Central Level Team (as an integral part of overall program implementation audit) Visits random representative samples.	Verifies overall compliance to EMF & other environmental safeguard requirements.
5.	Annual Reporting & Feedback		
	- interactions/workshops - - reports	DOE (DOE reports status and environmental functioning of the infrastructure & recommendations for improvement of MOE)	DOE will conduct an annual interaction to replicate the best practices.

3. Capacity Development

Capacity in environmental management needs to be strengthened at all levels of the EA and IAs including MOE, DOE, DEO and SMC. GON will implement capacity strengthening measures through training and orientations. Following capacity development program has been recommended:

Table 8: Capacity Development Program

SN	Particular of Activities	Remarks
1	EMF translation to Nepali, Printing & Publication	
2	Technical Strengthening of DOE	Monitoring & Supervision Arrangements for DOE, DEO etc)
2.1	Setting up a safeguard desk in DOE and DEOs	Designated person will lead the desks in DEOs
3	Central level institutional capacity strengthened Regional, provincial and district level institutional capacity strengthened	Sufficient institutional capacity to implement the SSDP at all levels

4. Budgetary Requirement

The tentative budgetary requirement for implementation of EMF may include as presented in following Table 8

Table 9: Cost for Implementation of EMF

SN	Particular of Activities	Cost (in\$)
1	EMF translation in Nepali, Printing & Publication, and distribution (500 copies)	5,000.00
2	Technical Strengthening of DOE in safeguard compliance	
2.1	Setting up a safeguard desk in DOE and DEOs	25,000.00
2.2	Capacity building of MOE,DOE, DEOs and SMCs (Training, Research & Development)	100,000.00
3	Environmental screening, preparation of environmental assessment reports and EMPs	To be included in the subproject cost at the rate of about \$2000 per IEE and \$ 500 per DDR
4	Environmental monitoring by DEOs and DOE/MOE, and reporting	To be included in sub project cost at the rate of \$1,000.
5	Environment Activities and Improvement.	To be included in sub project cost at the rate of \$1,000.

Here, Environment improvement activities mean any of the mitigation measure listed on table 6. But the fund for these activities will distributed only if it is enlisted on Bill of Quantities.

G. ENVIRONMENTAL MONITORING AND REPORTING

The purpose of environmental supervision is to make sure that specific mitigation measures identified in the environmental assessment and agreed in the contract are satisfactorily implemented. In addition, monitoring is necessary to ensure that the envisaged purpose of the project are achieved and results in desired benefits to the target population without adversely affecting natural environmental resources. The monitoring activities of the Program will include verifying compliance with the environmental management plan during project implementation. In general, the environmental specialist of IA will monitor the following indicators: (i) loss of agricultural lands; (ii) drainage congestion/water logging; (iii) surface water pollution; (iv) dust and noise pollution; (v) distance between tube wells and sanitary latrines; vii) occupational health and safety arrangements; viii) maintenance of water supply and sanitation facilities, (ix) impact of climate change and disasters and their management, etc. A Management Information System (MIS) will be developed to record the environmental mitigation and monitoring information along with infrastructure development data. A climate change adaptation and disaster risk reduction plan will also be developed.

In addition, testing for arsenic in drinking water will be carried out at required intervals in arsenic potential areas. 5% of the total water samples will be tested in laboratory for quality assurance. Moreover, to understand the condition of infrastructure and facilities, DOE and DEO shall conduct key informant interview or focal group discussion. The questionnaire for interview or group discussion is at Annex 9.

Implementation of mitigation measures will be ensured through both routine and periodic monitoring. Monitoring activities for project at different phase of implementation will be follows:

Table 9: A Sample of Pre-Construction Monitoring

SN	Indicators of Monitoring	Types of Monitoring/ Method of Monitoring	Monitoring Frequency	Responsibility for Monitoring	Monitoring Indicators
1	Printing, publication & distribution of revised EMF to all stakeholders (DOE, DEO, SMC)	Direct observation	ONCE	DOE	Printed copies of EMF in all stakeholders
2	Incorporation of EMF in SIP	Review of documents	ONCE	DEO	Introduce Environmental activities in SISIP
3	Environmental and Social Screening	Field survey	ONCE	DOE/ DEO	Fill format For Rapid Environmental Assessment (REA) Checklist
4	Incorporation EMP in design and tender document	Direct observation	ONCE	DOE	In bill of quantities
5	Drinking Water Quality Test	Sampling, lab testing& comparison with generic standards For Arsenic, testing follow protocols mentioned in EFA document. For microbiological parameters like E-coli daily test is necessary. Protocol may be followed as per NDWQS 2005.	ONCE	DEO	Result of physical, chemical and micro-biological parameters of water test.
6	Grievances Redress Mechanism	Logging the complaints & remedy will be done within 2 to 4 weeks.	ONCE	SMC/DOE/ DEO/MOE	Registered complaints, meeting minutes and documents.

Table 10: A Sample of Construction Phase Monitoring

SN	Indicators of Monitoring	Types of Monitoring/ Method of Monitoring	Monitoring Frequency	Responsibility of Monitoring	Monitoring Indicators
1.	Preparation of Monitoring Report	Records/ Documents	Annual	Safeguard Desk/ SMC/DEO/DOE	Reports
2.	Drinking Water Quality	Sampling, lab testing & comparison with generic standards For Arsenic, testing follow protocols mentioned in EFA document (5% of the total water samples will be tested in laboratory for quality assurance.) For microbiological parameters like E-coli daily test is necessary. Protocol may be followed as per NDWQS 2005.	Annual	Safeguard Desk /SMC Note: DEO shall coordinate with district Dept. of water supply & sanitation, NGO, INGOs working in water & sanitation sectors.	Result of physical, chemical and microbiological parameters of water test.
3.	Dust and noise generating work done in off school time	<ul style="list-style-type: none"> • Direct Observation • Logging the complaints & remedy will be done within 2 to 4 weeks. 	Annual	Safeguard Desk/DEO	<ul style="list-style-type: none"> • Type of machinery and vehicles purchased for the program • Complaints from local residents • Number and type of protective dust and hearing devices dispensed to workers
4.	Transportation of construction material in covered condition, & safe loading & unloading of Construction materials.	<ul style="list-style-type: none"> • CM/Direct Observation • Logging the complaints & remedy will be done within 2 to 4 weeks. 	Regular during construction	/SMC	<ul style="list-style-type: none"> • Type of machinery and vehicles purchased for the program • Complaints from local residents • Photographs

5.	Water sprinkling in dusty construction area & access roads	<ul style="list-style-type: none"> • CM/Direct Observation • Logging the complaints & remedy will be done within 2 to 4 weeks. 	Every Day	SMC	<ul style="list-style-type: none"> • Complaints from local residents • Photographs
6.	Stockpiling of excavated materials	CM/Direct Observation	Every Day	SMC	Photographs
7.	Reuse of excavated materials	CM/Direct Observation	Every Day	SMC	Photographs
8.	Solid waste segregation disposal	CM/Direct Observation	Every Day	SMC	Photographs
9.	Soil Contamination	Soil Test	Annual	SMC	Different parameter test result
10.	Quarry & Borrow Pits	Direct Observation	Quarterly	DEO/SMC	Photographs
11.	Occupational health and safety, use of safety gears	Direct Observation	Everyday	DEO/SMC	<ul style="list-style-type: none"> • Number and type of protective devices dispensed to workers • Photographs
12.	Safety to children	Record of injury & availability of First Aid Box	Everyday	DEO/SMC	Registered file
13.	Encroachment in environmentally and socially sensitive area	Direct Observation	Once in 3 months	DEO/SMC	Photographs
14.	Consumption of wood as additional fuel source	Direct Observation	Everyday	DEO/SMC	<ul style="list-style-type: none"> • No. of trees fell • Photographs
15.	Use of tyres/ rubber as alternative energy source	Direct Observation	Everyday	DEO/SMC	Photographs
16.	Children below 18 are at work in construction site	Direct Observation	Everyday	DEO/SMC	Identity card of workers

17.	Grievances Mechanism	Redress	Logging the complaints & remedy will be done within 2 to 4 weeks.	Annual	SMC/DOE/DEO/MOE	Registered complaints, meeting minutes and documents.
-----	----------------------	---------	---	--------	-----------------	---

Table 11: A Sample of Operational Phase Monitoring

SN	Indicators of Monitoring	Types of Monitoring/ Method of Monitoring	Monitoring Frequency	Responsibility for Monitoring	Monitoring Indicators
1.	Preparation of Monitoring Report	Records/ Documents	Annual	SMC/DEO/DOE	Reports
2.	Drinking Water Quality and management	<ul style="list-style-type: none"> • Sampling, lab testing & comparison with generic standards • Interview with Teachers and students 	Annual	DEO/DOE	<ul style="list-style-type: none"> • Result of physical, chemical and micro- biological parameters of water test. • Filled questionnaire form.
3.	Adequate natural light, air ventilation	<ul style="list-style-type: none"> • Direct Observation • Interview with Teachers and students 	Annual	DEO/DOE	<ul style="list-style-type: none"> • Photographs of infrastructure. • Filled questionnaire form.
4.	Clean and renewable energy	<ul style="list-style-type: none"> • Observation • Interview with Teachers and students 	Annual	DEO/DOE	<ul style="list-style-type: none"> • Photographs of equipments. • Filled questionnaire form.
5.	Rainwater Harvesting	<ul style="list-style-type: none"> • Observation • Interview with Teachers and students 	Annual	DEO/DOE	<ul style="list-style-type: none"> • Photographs of infrastructure. • Filled questionnaire form.
6.	Solid waste management system	<ul style="list-style-type: none"> • Records of waste collected and managed • Interview with Teachers and students 	Annual	DEO/DOE	<ul style="list-style-type: none"> • Photographs of infrastructure. • Filled questionnaire form.

7.	Sanitation and drainage	<ul style="list-style-type: none"> • Observation • Interview with Teachers and students 	Annual	DEO/DOE	<ul style="list-style-type: none"> • Photographs of infrastructure. • Filled questionnaire form.
8.	Number of orientation, training and awareness program	<ul style="list-style-type: none"> • Observation 	Regular	DEO/DOE	<ul style="list-style-type: none"> • Register, • Records • Photographs
9.	Impact Audit	<ul style="list-style-type: none"> • Compliance with EMF 	Annual	DEO/DOE	Reports

The MOE/DOE will monitor the provisions mentioned in the frameworks to ensure that they are complied with during implementation of the SSP. The MOE/DOE will prepare bi-annual reports on environmental compliance and submit this during the Joint Consultative Mission (JCM) and Joint Annual Review (JAR). In addition, a section on status of environmental safeguard activities will be included in each progress report.

DOE will carry out annual review to assess how effectively the environmental safeguard requirements have been followed.

H. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

The EMF will be shared by the executing agency (EA) with all the concerned stakeholders. After the final approval, this will be translated in Nepali and distributed to relevant stakeholders. The EMF will be posted in the official web site of MOE/DOE/CLPIU. It will be part of the project implementation manual.

1. Consultation and Information Disclosure

Consultation and information disclosure will be a continuous process during project/ program preparation and implementation strategy. Meaningful stakeholder consultation and participation and disclosure of information is provided and feedback is obtained and considered on the implementation of subprojects. Affected persons in particular will be consulted at various stages to ensure: (i) incorporation of views/concerns of affected persons, particularly the vulnerable, on environmental impacts and mitigation measures; (ii) identification of any help required by affected persons; (iii) avoidance of potential conflicts for smooth project implementation.

The EA will ensure to conduct meaningful consultation with affected people and concerned stakeholders, including civil society and facilitate their informed participation. The meaningful consultation shall begin early in the subproject preparation stage and carried out in an ongoing basis throughout the subproject cycle, timely disclosure in understandable format by the local stakeholders; consultation is organized in congenial environment without intimidation, and is gender sensitive. The process and results shall be documented and incorporated in the environmental assessment report.

The EA shall provide relevant environmental information, including the IEE and environmental monitoring report in a timely manner, and shall keep the reports at accessible place and in a form and language understandable to affected people and other stakeholders. The EA shall submit to ADB the final IEE report and environmental monitoring reports for disclosure on ADB's website.

2. Grievance Redress Mechanism

The grievance redress mechanism (GRM) is to resolve complaints as quickly as possible and at

the local level; and, if that is not possible, to provide clear and transparent procedures for appeal. Following the local traditional and cultural practices, unsatisfied group will go to School Management Committee (SMC), District Level Project Implementation Unit and District Education Office (DEO) with their complaints at first. Knowledgeable local peoples of SMC and DEO receive complaints or hear the grievances of people and will solve minor problems because the law allows resolving minor civil cases in the community. If they cannot resolve a specific case then they forward such case to the Grievance Redress Committee (GRC), this committee shall have member of Department of Education (DOE), Central Level Project Implementation Unit (CLPIU) and Ministry of Education (MOE). GRC with the minutes of the hearings at both school and district levels shall take the decision.

To ensure impartiality and transparency, hearings on complaints will remain open to the public. The GRCs will record the details of the complaints and the reasons that led to acceptance or rejection of the particular cases. The SMC/DEO will keep records of all resolved and unresolved complaints and grievances and make them available for review as and when asked for by DOE, ADB and other development partners and any entities interested in the program. Grievances will be redressed within two to four weeks from the date of lodging the complaints.

The key functions of the GRCs shall be to (i) record the complains, categories and prioritize them; (ii) settle the grievances in consultation with complainer and the Program staff; (iii) report to the aggrieved parties about the decision/solution; and (iv) forward the unresolved cases to higher authorities.

ANNEXS

ANNEX- 1

FORMAT FOR RAPID ENVIROMRNTAL ASSESSMENT (REA) CHECKLIST

- Sub Project title:
- General Information

Name of the School	
Address	
Telephone/ Fax	
Email	
Proposed Infrastructure	

- Screening Questionnaire

Activity	Screening Question	Status		Scale of Impact			Remark
A. Infrastructure Site	Is the school infrastructure adjacent to or within any of the following environmentally and socially sensitive area?	Yes	No	High	Medium	Low	
	1. Protected Area						
	2. Buffer zone of Protected Area						
	3. Special area for protecting biodiversity						
	4. Wetland						
	5. Land mass moved area						
	6. Water logging area						
	7. Underground Utilities						
	8. Quarrying area						

	9. River Bank							
	10. Cultural Heritage Site							
B. Potential Impact	Will the school infrastructure							
	1. Cause encroachment on above environmentally and socially sensitive area?							
	2. Slope stability	• Increase the possibility of landslide or erosion in the site?						
		• What is the texture of soil?						
	3. Deterioration	• cause short term and long term Surface water quality						
		• cause short term and long term Ground water quality						
		• effect the Air quality from the dust of construction						
	4. Water Management	• effect the source of local drinking water						
		• effect the Irrigation system						
		• get adequate water supply						
	5. Waste Management	• effect the drainage system						
		• contaminate the soil and groundwater by leachates from the waste disposal						

		<ul style="list-style-type: none"> • increase Hazardous materials from mining and construction materials (e.g. bitumen, cement paint, explosive fuels, lubricants etc) 						
	6. Habitat Destruction	<ul style="list-style-type: none"> • hamper any rare, threatened or endangered species found nearby 						
		<ul style="list-style-type: none"> • remove large number of trees 						
	7. Noise pollution	<ul style="list-style-type: none"> • effect community by noise producing from blasting and use of vibration 						
	8. Health and safety	<ul style="list-style-type: none"> • cause risks and vulnerabilities due to physical, chemical, biological, and radiological hazards 						
		<ul style="list-style-type: none"> • cause transmission of disease from workers to locals 						
	9. Land Acquisition	<ul style="list-style-type: none"> • Will there be any acquisition of land? 						
		<ul style="list-style-type: none"> • Will there be any dislocation of community? 						
		<ul style="list-style-type: none"> • Will there be any loss of agriculture land? 						
	10. Vulnerable groups	<ul style="list-style-type: none"> • Hamper poor, women and children 						
	11. Indigenous People	<ul style="list-style-type: none"> • Possibility of conflict with local people? 						
	12. Social conflicts	<ul style="list-style-type: none"> • If workers from other regions or countries are hired? 						

C. Natural Disaster	Is the construction site is frequently hit by natural disasters?						
---------------------	--	--	--	--	--	--	--

Required level of Environmental Assessment (IEE or DDR)	What is the environmental assessment category (Due Diligence Report or Initial environmental Examination) as per Schedule 1 of Environment Protection Rule 1997 (amended 2007)?	
Reason		
Screening done by/ date		
Environment category approved by/date:		

ANNEX- 2

SCHOOL SELECTION CRITERIA

1. 1st Phase: Evaluate all the district level school

The Schools destroyed by wind, fire, landslides, earthquakes & other natural calamities which require new construction.

The school whose classroom is borrowed by resource centre

Community managed schools

Schools running special programs

Based on different educational indicators like enrollment of dalit students (X), enrollment of girl students (Y), ratio of grade 5 to grade 1 students (Z)

Index = $0.4x + 0.3y + 0.3z$ The school with highest index will get the highest priority and low index as lowest priority.

2. 2nd Phase

$$\text{Adequacy of classroom} = \frac{\text{No of classroom in primary level}}{\text{Total no of classes running in primary level (including sections)}}$$

If, $ACR < 1$, then construction of new classroom & furniture could be provided

$$\text{Classroom Pressure} = \frac{\text{Area of all the classrooms in primary level (m}^2\text{)}}{\text{Total no of students in primary level}}$$

If, $CP < 0.75 \text{ m}^2\text{classroom}$ & furniture could be provided.

$$\text{Student Density} = \frac{\text{Total no of students in primary level}}{\text{Total no of classroom in primary level}}$$

If $SD > 50$: In Kathmandu and Terai new classroom and furniture could be provided

If $SD > 45$: New classroom and furniture could be provided in hilly region

If $SD > 40$: New classroom and furniture could be provided in mountain region

ANNEX - 3

POLICY OF DEPARTMENT OF EDUCATION

A. DOE Policy for Improvement of School Physical Facilities (Classrooms, Toilet & WS)

- **Decentralization (Construction through Community)**
 - Need Identification through community
 - Program implementation through Community
 - Ensuring ownership & thereby ensuring sustainability of the created facilities
- **Collaboration with I/NGOs**
 - Harmonization
 - Quality Supervision
 - Involvement of Social Mobilization
 - Better Transparency (Public Audit)
 - Effective in awareness Raising

B. DOE Policy on design & construction of school building

- **Structural safety of buildings**
 - Design and construction as per National Building Code
 - Safe against Earthquake and strong storms
 - Construction supervision by qualified Engineers/Sub-Engineers.
- **Child-friendly design & construction**
 - Classrooms (0.75sqm per children,T:50,H:45,M:35students per classroom)
 - Furniture (Floor seating for grade 1 and 2)
 - Water supply facilities
 - Separate toilets for girls & boys
- **Environment-friendly design & construction**
 - Enforcement of *National Environmental Guidelines for School Improvement and Facility Management in Nepal*
- **Inclusive design & construction for disables**
 - Ramp construction for wheelchair movement
 - One bigger door in every classroom & toilet for wheel chair movement
- **Community contribution in facility development**
 - Creates ownership feeling
 - Ensure sustainability of the created facilities
 - Ensure regular repair & maintenance

ANNEX - 4

OUTLINE OF ENVIRONMENTAL DUE DILIGENCE REPORT

- Sub Project title:
- General Information

Name of the School	
Address	
Telephone/ Fax	
Email	
Project Investment	

- Sub Project Description:
 - Introduction
 - Existing Environmental and Social Safeguard Compliance

Table of Salient Environmental and Socio-economic features of the Project area

Indicator	Description
Climate	
Rainfall	
Relative Humidity	
Wind Speed	
Ambient Air Temperature	
Air Quality	
Ambient Noise Level	
Soils and elevations	
Flora	
Fauna	
Birds	
Land use	
Demography	
Living and Cultural Standard	

- Other utilities
- Status of Damage (in case of disaster affected area)
- Proposed school construction
- Emergency preparedness and Response Plan

Project related evidence should be added

- Environmental Sensitivity and Due Diligence: (REA Checklist)
- Budget (total cost estimate of the school construction)
- A sketch showing environmental features of the schools and its surrounding
 - Geographical location maps (google map)
 - Topographic survey maps of the land
- Land title/ Ownership of the land
- Minutes of the meeting with SMC and Memorandu of Understanding
- Local authorities (VDC/Municipality) approval
- Architectural building plans/ map
- Structural drawing and design
- Bill of quantities

Conclusion and Recommendation

Format for preparing Environmental Management Plan

SN	Work Activity	Indicative Impacts (refer table 4.1)	Proposed Mitigation Measures (refer table 4.1)	Cost Estimate (and the item number in BOQ in which the cost is provisioned)	Schedule of Implementation	Implementing and supervising responsibility

ANNEX - 5

OUTLINE OF INITIAL ENVIRONMENTAL EXAMINATION (IEE) REPORT

- (i) Executive Summary
- (ii) Project Description (with salient feature)
- (iii) Description of Existing Environment in the Project Area Physical environment Biological environment Socio-economic and cultural environment
- (iv) Potential Environmental Impacts and Mitigation Measures Beneficial impacts and maximization measures Adverse impacts and mitigation measures
- (v) Analysis of Alternatives
- (vi) Institutional Arrangements
- (vii) Environmental Monitoring and Management Plan (EMP)
- (viii) Public Consultation and Disclosure Mechanism
- (ix) Grievance Redress Mechanism
- (x) Conclusion and Recommendations

Annexes: (include approved TOR with approval letter; public notice certificate of deed (Muchulka); format of survey questionnaire, recommendation letter from rural municipality/municipalities; maps, photographs; detail of property acquisition with photo; list of trees to be cleared; list of community infrastructures to be affected by the project etc.).



ANNEX - 6

ENVIRONMENTAL MONITORING REPORT FORMAT

Monitoring will include:

- Implementation Status of mitigation measures as listed in the Environmental Management Plan (EMP). Please report if the EMP measures are complied / being complied / not complied. If not complied, give reasons and recommend corrective measures with implementing agency.
- Impact Monitoring: Impact monitoring will focus on key indicators of the impacts predicted in the EMP. Report on impacts occurred due to implementation of the project and mitigation measures adopted. Assess whether the identified impacts were accurate and the mitigation measure designed and implemented were sufficient / adequate / effective. Suggest corrective measures. The corrective measures will be monitored for its compliance and reevaluated next time again.

Environmental Monitoring Format

Detail of Infrastructure:

District:

Date:

Reported by:

SN	Activity activity (List form EMP of IEE report or DDR)	Potential Impact	Mitigation Work (as in EMP) Current Status (with supporting data*) and Follow-up Required	Remarks

Note: The monitoring format shall be attached to the monthly progress report.

* Data could be nos. and % of female in work group; Nos. of training with nos. of participants (M/F); nos. of trees removed and replanted etc.

A safeguard monitoring report may include the following elements:

- Background/context of the monitoring report (adequate information on the project, including physical progress of project activities, scope of monitoring report, reporting period);
- Changes in project scope and adjusted safeguard measures, if applicable;
- Qualitative and quantitative monitoring data;
- Monitoring parameters/indicators and methods based on the monitoring plan/program previously agreed upon with concerned DPs;

- Monitoring results compared against previously established benchmarks and compliance status (e.g., national environmental emission and ambient standards and/or standards set out in the WB's EHS guidelines; timeliness and adequacy of environmental mitigation measures; IR compensation rates and timeliness of payments, adequacy and timeliness of IR rehabilitation measures including serviced housing sites, house reconstruction, livelihood support measures, and training; budget for implementing EMP, RP, or IPP, timeliness and adequacy of capacity building, etc.);
- Monitoring results compared against the objectives of safeguards or desired outcomes documented (e.g. IR impacts avoided or minimized; livelihood restored or enhanced; IP's identity, human right, livelihood systems and cultural uniqueness fully respected; IP not suffer adverse impacts, environmental impacts avoided or minimized, etc.);
- If noncompliance or any major gaps identified, include a corrective action plan;
- Records on disclosure of monitoring information to affected communities;
- Identification of key issues, or complaints from affected people, or recommendations for improvement;
- Monitoring adjustment measures recommended based on monitoring experience/trends and stakeholders response;
- Information about actual institutional arrangement for implementing the monitoring program/plan provided or adjusted, as may be required;
- Proposed items of focus for the next report and due date.

ANNEX - 7

DESIGN GUIDELINE FROM SCHOOL BUILDING CONSTRUCTION FROM ENVIRONMENTAL PERSPECTIVE

1. Background

The technical options for achieving a healthy environmental solution depends on different variables. This section proposes the practically achievable options through the understanding of different combinations of those variables.

A host of interrelated considerations- from site design to transportation issues factor into the creation of a "high-performance" environmentally friendly school. To effectively integrate environmentally friendly strategies, these options must be evaluated together from a whole school building perspective early in the design process. To do this, school will required to form a team of players from the community and school to work in collaboration with design team. The school design team must have expertise in integrating safety, energy, and environmental considerations into school design. Inputs from all stakeholders factor into good functional design to ensure the environmentally friendly construction of school.

The following list provides basic information about some key elements to consider when designing a high performance environmentally friendly school building. District education office and Department of Education include these elements in their Request for Qualifications (RFQ) or Request for Proposals (RFP) for design professionals. Once a design team is selected, comprehensive design guidelines available through Department of Education can provide the team with detailed information on the following strategies.

2. Commitment and Motivation

The single most important factor in achieving environmentally friendly school is the presence of committed and informed people.

The success of efforts in promoting environmentally friendly school relies on the awareness and commitment of the community to want such a program and to ensure that it is maintained within the community. The collective recognition and understanding of the problem by families and community members can help to bring about support and action for efforts to influence behaviors and conditions that will improve the environmental situation in school.

Community commitment is strengthened/marked by

- Acknowledgement of the importance of the problem from education, environment and other groups
- Allocating local resources, e.g. public money for incorporating environmentally friendly products in schools
- Combining the program with other programs in the community, such as primary health care and sanitary environment
- Ongoing efforts to attract media attention
- Involving existing councils, school committee, organizations such as women's group, NGO, Eco clubs etc
- Use of both problem solving as well as environment promoting approaches to improve school environment

1.1 Supportive school policies/practices: Development of supportive school policies and practices related to environmental improvement is to make a program sustainable. For example; regulations for improving and maintaining adequate sanitary facilities and a safe water supply at the school are essential. Also, collaboration and coordination between the education and environment sectors and between the school and the community are important requirements for success.

Examples of supportive policies and regulations

- Required periodic coordination between environment and education authorities at local, district, and national levels
- Rules about cleanliness for students and personnel, and about the proper use of latrines and water supply facilities
- Rules about keeping the school environment clean

Examples of supportive practices in schools

- School curriculum includes environment/environment preservation
- Proper use of hygienic toilets/latrines
- Regular cleaning of toilets/latrines
- Existence and use of proper hand washing facilities
- Safe food and water
- Formation of eco clubs, environmental awareness campaigns in schools
- Teacher's training on environment related subjects
- School/community projects and outreach

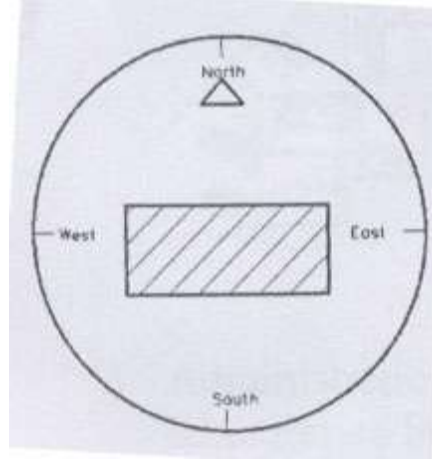
2. School Building Location

2.1 Orientation: School building orientation is very important as it determines magnitude, natural heating, and lighting available inside the building. Orientations are based on the climate type of the place where school facilities are planned. In Nepal three geo-zones are available viz: Terai, Mountain, and Hill. The orientation of school building in each of the above type is described below.

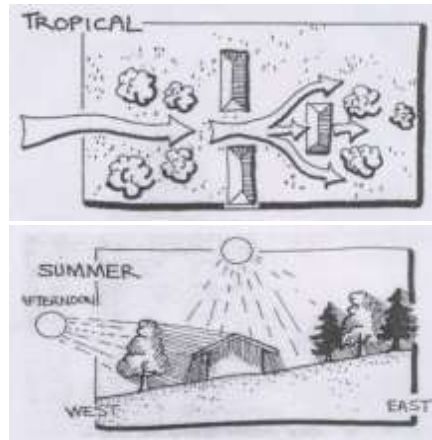
Terai Region

Arrange the school buildings in such a way that the prevailing winds can be used in cooling rooms.

The school buildings should be oriented facing between West to North. In case, the building can't be avoided facing East, West or South, evergreen trees have to be planted to prevent direct sunlight entering the building



Orientation criteria sometimes are influenced by the change in the school timing. For instance, during the summer in some parts of the Terai, there is a practice of conducting the classes early in the morning (6.30 hrs to 10.30 hrs with no break); in such cases, facing North or North-East causes direct glare in the class rooms; other side of the coin is that in such a case and when the site does not permit the ideal orientation, orientating the classrooms towards West- West-South supported by other measures may be permitted.

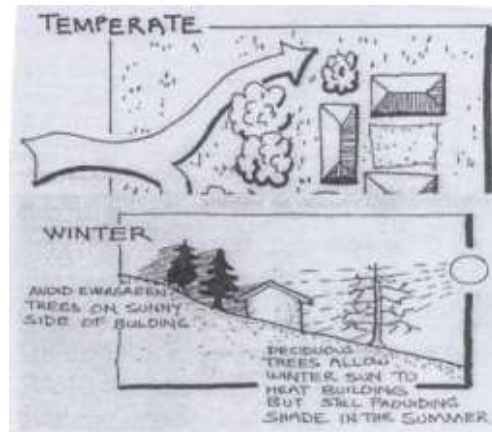


Mountain Region

In the mountain region, making use of sun to heat the rooms is a good design concept. Therefore, building orientation should be between East and West. One-way to block the seeping winter wind is to plant trees in the direction of the prevailing wind.

Hill Area

It is advisable to provide deciduous trees and at the same time allow winter sun to heat up the buildings.



Understanding the location and the surroundings including the contour is very important for developing the Master Plan. A building that looks good and fits well at one site may not necessarily look good at another site. Poor site selection for school buildings can lead to high costs on account of earth retaining structures. A careful study of the terrain can easily help to reduce this as shown in the illustration and table. For any given location, a site that results in the minimum cut height “h” should be selected.

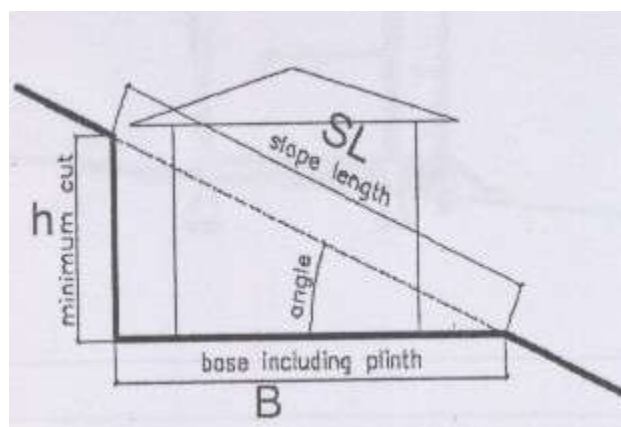
3.2 Site Selection and Planning: Both, site selection and site planning have a major input on the relative "greening" of any school facility being planned. Site selection for school includes such issues as transportation and travel distances for students, impacts on wildlife corridors, and impact on the hydrology. Decisions that school make during the site planning will impact the immediate natural community as well as the school building, energy consumption and student comfort. Good site planning minimizes site clearing; preservation of existing vegetation may\ provides a low maintenance. Mature stands of native vegetation in school compound often provide the desired energy conserving shade and wind control that would otherwise require years to develop for expensive new plantings. Thoughtful placement of a school building on a site promotes energy conservation by taking advantage of natural site features such as topography, sunlight, shade and breezes.

While selecting the site or laying the school building, it is very important to note of features like religious objects, protected forests, river, stream, landslides etc. within and around the site. These are additional factors that need attention apart from other factors.

School building should protect its occupants from rain, wind, sun and snow, and seismic risks. Schools should be designed to prevent extremes of temperatures inside classrooms. Standard design for schools in mountain, hill and Terai will be different due to different climatic conditions.

3.3 Approximation for earth cutting and retaining wall

Schools in mountain and hill region of Nepal fall on slopes. Poor site selection for school buildings can lead high cost on account of earth retaining structures. A careful study of terrain can easily help to reduce this as illustrated in the table. For any given location, a site that results in the minimum cut height “h” should be selected.



	Small Multipurpose hall			Large Multipurpose hall		
Angle	B	H	SL	B	H	SL
5	19.7	1.72	19.78	24.3	2.13	24.39
10	19.7	3.47	19.97	24.3	4.28	24.63
15	19.7	5.26	20.32	24.3	6.49	25.07
20	19.7	7.17	20.97	24.3	8.85	25.86
25	19.7	9.18	21.72	24.3	11.32	26.79
30	19.7	11.37	22.73	24.3	14.02	28.04

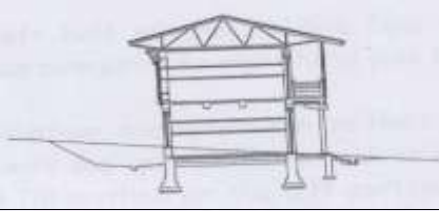
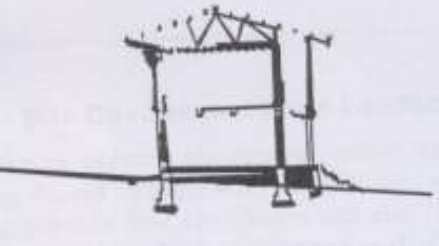
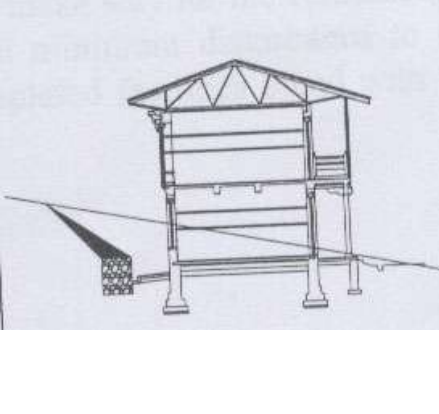

B	H	SL
24.3	2.13	24.39
24.3	4.28	24.63
24.3	6.49	25.07
24.3	8.85	25.86
24.3	11.32	26.79
24.3	14.02	28.04

	Academic buildings		
Angle	B	H	SL
5	11.7	1.02	11.74
10	11.7	2.06	11.86
15	11.7	3.12	12.45
20	11.7	4.26	12.45
25	11.7	5.45	12.90
30	11.7	6.75	13.50

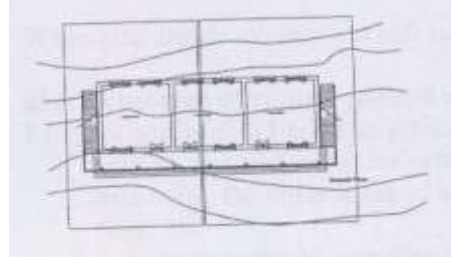
This table will help to guide during the site selection and site development.

The following illustrations show some of the real site situations. The site engineers can refer to these illustrations to find optimal solutions, which the master plan may not show.

Site situations and earth cutting

<p>Here the ground is at 50 slopes and it is cut to fit the building. As such, no retaining wall is required if the cut surface is riveted with vegetation.</p>		
<p>In this case, the building is placed with minimum disturbance to the ground. This is possible if the slope of the ground is less than 50. However, some filling may be required to bring the rooms in one level.</p>		
<p>Between 100 and 150 slopes, massive retaining wall is not necessary. Study the topography of the site and go for low height retaining or gabion wall. If the ground is not loose or marshy, the heights of these walls can be of half the cut height. The upper half height can be manipulated as per the table given depending on the angle of repose. If a gabion wall is built, cover the top of the walls with good soil and plant greenery for beautification.</p>		
<p>For a grade between 15°-20°, the height of the retaining wall can be approximately $\frac{2}{3}$ rd of the cut. However, as the ground becomes steeper to 200, this rule-of-thumb may not be applicable. In this case, follow the illustration given below.</p>		

Here, the left half of the building falls on a steep slope as compared to right hand side half. In such a situation, one option can be the use of combined single and split retention wall or adopt the cut and fill method on the left portion, and only cut method on the right. However, before making the decisions, economic advantages have to be considered.



Both site selection and site planning have a major input on the relative "greening" of any school facility being planned. Site selection for school includes such issues as transportation and travel distances for students, impacts on wildlife corridors, and impact on the hydrology. Decisions that school make during the site planning will impact the immediate natural community as well as the school building, energy consumption and student comfort. Good site planning minimizes site clearing; preservation of existing vegetation may provide a low maintenance landscape and avoids supplemental irrigation. Mature stands of native vegetation in school compound often provide the desired energy conserving shade and wind control that would otherwise require years to develop for expensive new plantings. Thoughtful placement of a school building on a site promotes energy conservation by taking advantage of natural site features such as topography, sunlight, shade and breezes.

While selecting the site or laying the school building, it is very important to note of features like religious objects, protected forests, river, stream, landslides etc. within and around the site.

These are additional factors that need attention apart from other factors.

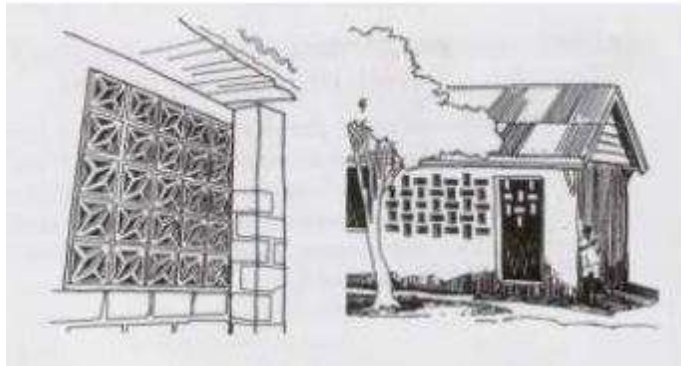
4. Day Lighting and Windows

Poor indoor lighting in classroom can have many harmful effects on health and well being of teachers and students. A poorly lit classroom can lead to eyesight problems. Poor lighting within the classroom can also make students feel more depressed. Generally, these problems can be remediated by adding windows to the classroom to increase the amount of natural light, however because of different climatic condition of Nepal, window selection should be based where facility is planned. Increasing natural light is also important for classroom cleanliness; if a classroom is dark, it is more difficult to see dust and dirt and thus more difficult to clean properly.

Increased use of daylight helps to reduce electric lighting usage, and avoiding the heat generated by lighting fixtures. High performance windows with low e-glazing also help to minimize heat gain in warmer months and heat loss in colder.

It was noted that in Terai of Nepal, people try to increase ventilation, which may result in a teacher standing against the glare from an open window. In mountain, because of cold, the tendency is to build small window resulting in dark classrooms.

An alternative to large windows is the perforated screen wall. This is a solid masonry wall punctured by numerous closely spaced holes through which light can filter. If the wall is built of bricks the perforation effect can be achieved by simply leaving spaces between the bricks at regular intervals. If it is made of concrete (or earth-cement) blocks, special moulds can be used to produce blocks with decorative holes. Where masonry is not used for construction, or where there do exist large window openings, other kinds of screens can be created, for example using horizontal bamboos.



A perforated window is an alternative to a window opening in warm climates. It provides security and relatively even distribution of light.



A louvered window could provide glare-free light at the front of classroom

The advantages of perforated screen wall are that it provides security and a relatively even distribution of light. The disadvantages are that it does not protect against wind, cold and dust, and classroom (particularly if large) can remain rather dark unless the internal walls are also light colored. Care must be taken to orient the building so that direct sunlight does not penetrate the screen wall, since this will almost certainly lead to glare.

In mountains, where small windows are necessary to reduce heat loss, it makes sense to maximize the light which light that can enter through a small opening. A roof light lets in considerably more light than a window of equal size in a wall. A provision of sky light in CGI

roof is found in schools in mountain. This arrangement helps to bring more light into the center of the classroom, which is often poorly served by wall windows. However, care has to be taken to avoid direct sunlight falling onto desks.

It is also important to make the best use of any light once it has entered the room. Untreated mud-and dung plaster on the walls, for instance will make a room relatively dark. The underside of a thatched roof will absorb lot of light. The level of light can be dramatically increased with a light colored ceiling and lime wash on the walls. These can also reduce glare by ensuring that light is reflected from all directions. In addition, adoption of matt-finished blackboard and regular repainting it can be relatively cheap way of mitigating the impact of poor lighting.

5. Renewable Energy Systems

Use of solar and wind technologies with battery storage can provide emergency power supply, or a source of steady power. Renewable energy system in school can increase maintenance requirements, but they also reduce utility costs. Some schools located in hills of Nepal have no electricity. So for the lighting and other purposes like operation of basic science equipment, computer, it is necessary to find alternative means of electricity. Renewable energy could become an important element for meeting school energy demand.

In mountains of Nepal, majority of children don't take shower because of unavailability of hot water. Even school with necessary infrastructure and other facilities lacks this facility. Introducing solar technologies for water heating purposes could solve this problem.

6. Ventilation Systems

Adequate school ventilation is important. The poor ventilation in schools can lead to respiratory problems, and easily transmit tuberculosis and other infectious diseases. Constructing schools with a sufficient number of windows may improve ventilation. Alternatively, schools can be constructed using bricks with holes drilled through them ("air-bricks"), which allow fresh air to circulate within the classroom.

Using the whole-building approach, school designers can factor in energy saving choices that reduce heating and cooling loads.

7. School Sanitation

The high incidence of disease, particularly among children is largely attributed to unsafe drinking water, poor personal hygiene practices and unsanitary environment. Each and every school should have adequate safe water supply system and sanitation facility. But majority of

rural schools in Nepal neither have proper water supply nor sanitation system, particularly toilets.

7.1 General Criteria for Hygienic Facilities and Safe Water Supply in School: There are many methods that can be used to provide hygienic sanitation facilities and a safe water supply at school. The principles and criteria involved in the selection of appropriate methods stipulate that those chosen should be:

- Technically and environmentally sound
- Financially affordable
- Socially and culturally acceptable
- Reliant on labor and resources available in the community
- Simple to install, operate and maintain
- Easily accessible by the students
- Related to reducing public health problems that are perceived as priorities within the community

8. Drinking Water

A "safe water supply" is a source of water that is not contaminated by dirt, bacteria, parasites, or anything else that could cause contamination.

To promote school health an easily accessible water supply should be available that provides sufficient safe water to meet school needs. School water needs, can be estimated by questioning stakeholders of school about their daily water use. If this is not possible, minimum water need should be calculated. To ensure that the water is potable, either the water supply should be protected or the water should be treated before use. Often, unprotected water sources such as springs, traditional wells and ponds, can be improved and this may be preferable to constructing new supplies. However, unprotected sources are open to contamination and pose a potential health risk. School environmental health program should therefore promote the use of protected drinking water source.

Some countries have set minimum standards for the supply of safe drinking water to pupils. For instance, in Viet Nam, every school is supposed to provide 0.33 liters of boiled water per pupil per day in summer and 0.1 liters in winter.

Characteristics of low-risk water sources

- The water source is fully enclosed or protected (capped) and no surface water can run directly into it.
- People do not step into the water while collecting it.

- Latrines are located as far away as possible (minimum 15 meters away) from the water source and preferably not on higher ground. If there are community concerns about this, expert advice should be sought.
- Solid waste pits, animal excreta and other pollution sources are located as far as possible from the water source.
- There is no stagnant water within 5 meters of the water source.
- If wells are used, the collection buckets are kept clean and off the ground or a hand pump is used.

Among the many types of water sources schools in Nepal are found using the sources like protected springs, dug wells, boreholes, and piped water supply.

8.1 The Available Types of Water Sources in Nepalese Schools

8.1.1 Protected Springs: A spring is where underground water flows to the surface. Springs may occur when the water table meets the ground surface, these are called gravity springs. In some cases, ground water is held under pressure and a spring comes to the surface because of a natural break in the rock, or because a shallow excavation is made. Springs can make very good water supplies provided they are properly protected against contamination. If springs are found above the school, they can feed a pipe system for providing water close to school. When a spring is at the same or lower level than the school, it can still be protected, but greater care is needed and it is unlikely that water will flow through the pipe system by gravity. The first step in deciding whether a spring should be protected is to determine whether it provides enough water for expected number of students. It can easily be done by measuring the time it takes for the spring to fill a bucket of known volume.

8.1.2 Dug wells: Dug wells are usually shallow wells dug by hand, although some may be quite deep, and they are often lined with bricks. However, unless artesian water is tapped, many dug wells go dry or have very little water in dry periods because it is difficult to sink wells below the water table without using more sophisticated techniques.

8.1.3 Boreholes: Boreholes are narrow holes drilled into the ground that tap into groundwater. Generally as the borehole is drilled, a lining of plastic, steel or iron is sunk to protect the hole from collapsing. The lining has slots in the bottom section to allow entry into the borehole and gravel is placed around the bottom of the lining to improve flow and provide filtration. The top few meters around the borehole should be sealed using concrete, and a concrete apron is cast around the top of the borehole to prevent surface water from flowing into the lined shaft. A stand is usually cast into the apron to provide a stable base for the pump. Once the borehole is completed it should be cleaned with chlorine and the pump installed. Majority of the schools in the hill and Terai of Nepal use boreholes with hand-pumps. Boreholes usually provide good

quality water, but the water sometimes contains harmful chemicals, such as fluoride and arsenic, or nuisance chemicals such as iron, etc. The school should carry out chemical analysis of water in a regular interval as discussed under the monitoring protocol of this guideline.

8.1.4 Piped water supply: Many schools in Nepal have piped water systems. These piped water systems are often small and rely on community management. Most piped water supplies include storage tanks so that water is always available, even when demand is heaviest. Such tanks are usually necessary because the rate of water use at peak times of the day in school is greater than the average rate of use throughout the day. The tanks also provide emergency storage in the event of a breakdown. Piped system in a school requires regular maintenance.

Pipe leaks likely to be used heavily by student. As a result, the taps are more likely to break and will need frequent replacement. One-way of dealing with these issues is to give someone in the school responsibility for school taps and making repairs. To prevent the accumulation of stagnant water around school taps, school could build a concrete “apron” at the base of taps and include a drain and soakage pit.

Another problem with piped systems is that students do not consider the impact of how much water they use, and may not think it is important to turn off the tap after use. When there is a lot of water, this may not have negative consequences. However, where the amount of water available is limited, there will be shortage of water. Schools with piped water systems should thus be aware of these impacts of their water use and good water use should be promoted.

8.2 Rainwater harvesting scheme in schools

Although rainwater can be a good source of water for drinking and other purposes in school, it may be seasonal, and it is often difficult for a school to rely on rainwater alone. This technology could be used in conjunction with other available sources of water. Schools for their own use could collect rainwater. If the rainwater is to be used for drinking purpose it is better to collect it from a roof, rather than from ground catchments where it may become contaminated. Ground catchments are more appropriate for use in garden and watering of grounds.

Using roofs to collect rainwater is relatively easy and a lot of water can be collected. For example; 50 mm of rainfall on a 4-m² roof yields 200 liters of water. All that is required are gutters around the roof that discharge into a collection tank. The roofing material is important and hard surfaces, such as iron sheets or tiles. Hard surfaces are also easier to keep clean and are less likely to have insects and animals living in them.

Any roof used to collect rainwater for human consumption must be thoroughly cleaned at the start of the rainy period. Birds and animals may leave faeces on the roof and these can be a source of pathogens. There should be a system for diverting the flow of water in gutters away from the tank, so that the first rain (which are more likely to pick up contamination from the roof) are not

collected. A small filter may be added to the top of the collection tank as an added protection. The tank should also be cleaned every year and any silt or algal matter removed. After cleaning and before use, the tank should be scrubbed using a chlorine solution (bleach).

Water should be drawn from a tap at the base of the tank, rather than with a bucket, which may contaminate the water. It is better not to bury the collection tank, even partially, since contaminated water from the soil can enter the tank. Covering the tank is also essential for preventing contamination of the water and for reducing opportunities for disease vectors to breed.

8.3 School Water Treatment and Safe Handling of Water

The best option for improving the school water quality is to treat water in the school by filtering, chlorinating, boiling or leaving the water to settle. Individual school could select the options as appropriate. These options are discussed in more detail in following sections.

8.3.1 Boiling: Bringing water to a rolling boil (20 minutes) will destroy pathogens in the water and make it safe to drink.

8.3.2 Candle filters: Candle filters are hollow, porous ceramic cartridges, commonly found used in schools of Nepal. Although they do not filter out all pathogens, they remove the larger ones such as protozoa, worms, and bacteria (but not viruses). Ceramic candles need careful maintenance and should be cleaned and boiled at least once a week, even if they are not clogged. If a candle filter becomes clogged, it should be scrubbed under running water with a stiff brush free of soap. To reduce the risk that water will pass through a candle without being filtered, such as through small crack, candle filters should be regularly inspected and replaced if necessary.

8.3.3 Chlorination: This will kill most bacteria and some viruses. Since that taste of chlorine disappears when water is left in open containers, very small lump of bleaching powder can be added to a 20-liter water container and the mix left to stand for at least 30 minutes. After this time, if a faint smell of chlorine can be detected in the water, it should be low –risk and palatable to drink. Chlorine should only be added to clear water otherwise the dirt in the water would absorb it. Other disinfections systems have been developed for treating water, particularly through the use of solar radiation. This technology is commonly known as “SODIS” in Nepal. This is effective in treating water, although this may take longer than chlorine disinfections.

Frequently water collected from a communal point and transported back to school for use becomes contaminated because of poor handling. Stakeholders of school should therefore be aware of the risks of contaminating the water and how it can be prevented.

8.4 Water Conservation

Although it is important that students use enough water for good hygiene, in areas where water is scarce it is also important not to waste water. As mentioned above, piped water supplies are particularly vulnerable to wastage, if they are not properly managed, the surrounding community of school may suffer water shortages. Most piped water systems leak and need to be checked regularly and repaired as soon as faults are discovered. Taps should be turned off immediately after use and students discouraged from playing with taps.

8.5 Sanitation Facilities

Safe disposal of excreta, so that it doesn't contaminate the environment, water, food, or hands is essential for ensuring a healthy school environment and for protecting personal health. This can be accomplished in many ways, some requiring water, others requiring little or none.

Regardless of method, the safe disposal of human faeces in school is one of the principal ways of breaking the faecal-oral disease transmission cycle. Sanitation is therefore a critical barrier to disease transmission.

One reason why latrines are often out of order in Nepalese schools is that they are frequently inappropriately designed for use by children to use. Latrines in Nepalese schools vary in design from communal three to six hole latrines served in schools in Sindhupalchowk, to simple pit latrines. The number of latrines available/observed in schools during the field visit was without exception insufficient to meet the needs of students, particularly at time of peak usage such as break. The situation contrasts with the standards generally accepted within the health, environment and education sectors, which are shown in box discussed below. The provision of **one latrine for approximately thirty pupils** is generally recommended, if urinals are also available. This represents **one latrine for every twenty girls** and **one for every forty boys**.

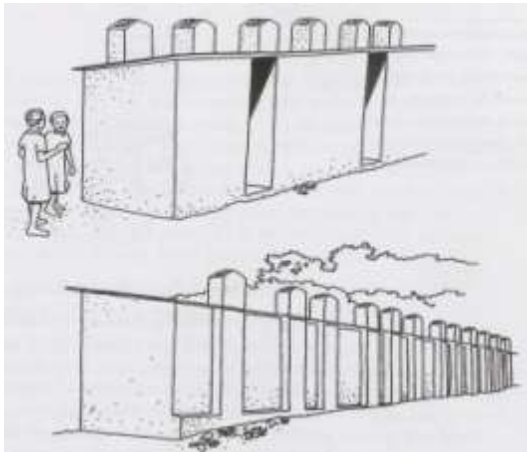
8.6 Drainage

The planning and implementation of proper drainage system is very important. The following guidelines must be considered for drainage designing and in its construction.

- The design should be as simple as possible considering for future development
- Generally, if the drains are not wider than 150X 150 mm, it can be left open but any drain bigger than 150 mm should be covered.
- Drains carrying off surface water can be open or covered
- In both the cases, silt traps at appropriate distances should be provided. However, if there is sudden level difference created by walls or land profiles, two silt traps may be required
- General rule of thumb is to provide silt traps at every 20 meters intervals for easy cleaning.
- All drainage should be self-cleaning and should function at minimum running maintenance costs.

- The main collection drain should always be covered or laid underground.
- Normal roof drains are 150X100 mm at 5% slope. The slope and depth will increase as the roof drain reaches the outlet of the collecting drain.
- Minimum size recommended for the collecting drain is 300 X250 mm and should be covered with concrete slab with perforation to take in surface runoff waters
- The depth of the collecting drain will depend on the locality and distance from the subdrains, such as roof drain, retaining wall drains, etc.
- While collecting and discharging surface waters, it should not cause public nuisance or pose danger to health and property.
- Beside the roof drains, it is an advantage and desirable to construct surface water drains around the school buildings, playgrounds, open spaces etc to prevent flooding during the monsoon.
- It is not advisable to seal off the manhole and inspection chamber with concrete completely if intermediate ventilation is not provided. This will cause cracks of pipes, disintegration of joints etc
- Any drain provided around or within the courtyard must be concealed.

8.7 Technologies for Excreta Disposal in School



The off-set latrine system is economic, easy in design, could be constructed with local available materials and easy to build and maintain for schools. The choice of technology to be adopted for toilet purely depends on the water availability, budget, soil type etc. This particular type is found very useful to recommend as standard design in Nepal.

This latrine do not require periodic emptying, once a pit is full it is sealed and a new pit is dug. The fecal matter is left to decompose in dry conditions for at least two years, the contents can be safely and the pit reused. These latrines could also be designed to allow fecal matter to compost and be reused in agriculture. Other designs that could be incorporated are two alternating pits, reducing the need for new pits. As shown in design, ventilation is installed to remove odor and flies, basic and locally available materials could be used. Mostly the toilets constructed in Nepal were problem of choking; students throw carelessly all the solid waste (paper, plastics etc) in toilet resulting in blocking the trap. As per the standard, the number of toilet required for each school will be calculated, and the toilet is

proposed in series as shown above. The urinals could be built to reduce the number of toilets required emptied manually.

One main reason for poor maintenance of the school toilets was due to separate toilets for staff and student usages. These arrangements create less emphasis and inadequate monitoring of student's toilet. This was observed even in one of those schools where there was plenty of water available for maintaining the toilet. It is suggested that in order to improve the sanitary condition of toilet and to gain students confidence towards cleanliness, all the stakeholders of school should share toilets.

For a school latrine to function properly it must be maintained and cleaned on a daily basis. Somebody must have specific responsibility for this and compliance must be checked. Groups of school children might do the cleaning in rotation.

ANNEX - 8

LABORATORY CHECKLIST FROM ENVIRONMENTAL PERSPECTIVE

S.N	Screening Question	Yes	No	Remarks
1.	Will the research academic work be laboratory based? (If the answer of question 1 is No, then go to question 4)			
2.	Does the laboratory have			
	i. environment, health and safety protocol or guidelines?			
	ii. adequate fire safety provision?			
	iii. safety provision for gas cylinder handling?			
	iv. proper waste disposal facilities?			
	v. adequate liquid waste management facilities?			
	vi. proper storage facilities for hazardous chemicals, pesticides etc?			
	vii. adequate ventilation system?			
	viii. first-aid facilities?			
	ix. emergency exit facilities?			
	x. trained professional to guide the researchers/ students about safety procedures?			
3.	will the laboratory based research work			
	i. produce hazardous waste materials?			
	ii. generate infectious waste?			
	iii. cause significant emissions of gas harmful to ions of gas harmful health?			
	iv. generate liquid waste?			
	v. cause any major noise?			
4.	Will the research work require interventions at field level?			
5.	Will the field based research work			
	i. located at or near an environmentally sensitive area?			
	ii. discharge any liquid waste in the environment?			
	iii. discharge large quantities of waste/ used water?			
	iv. generate hazardous waste?			
	v. impair downstream water quality?			
	vi. have any possible degradation in land and ecosystem?			
	vii. cause local air pollution from any plants/ system operation?			
	viii. generate excessive noise and/or dust?			
6.	Will medical, biophysical or clinical research be conducted using human subjects?			
7.	Will the project have any indirect impact on environment and ecosystem?			
8.	Will the research work involve permission or clearance of any government department or agency?			
9.	Will future expansion or implementation of research finding cause any major environment problem?			

ANNEX - 9

FACTORS TO UNDERSTAND THE CONDITION OF INFRASTRUCTURE AND FACILITIES

Interview/ Focus Group Discussion Questionnaire

Sanitation Facilities:	
1.	What is the type of existing latrines? (Are these single pit/ double pits/ twin pit latrine of attached with a septic tank?)
2.	What is the number of the available latrines and urinals?
3.	Is constructions/maintenance of the latrines OK? (Are the doors, plaster, roof etc. in good condition?)
4.	Are the latrines working well? (Are pits/ twin pits/ septic tanks/soak away working properly?)
5.	Are the latrines clean or are the dirty and smelly?
6.	Can the latrines be locked from inside?
7.	Do these latrines have privacy in terms of proper doors and location?
8.	Are the latrines kept under lock and key during school time?
9.	Is there a hand washing facility (soap, ash etc.) available?
10.	Are urinals available for the boys?
11.	Are the urinals smelly?
12.	Do the girls students stay at home because of having no proper latrines or because they have to share with boys?
13.	Do the latrines need any special maintenance?
14.	Is the number of latrines available sufficient for the number of students / teachers in each shift we have in the school? etc.
15.	Are the latrines having ramps? (Differently able friendly)
16.	Are children allowed to leave the classroom during classes to use the latrine? If not, the pressure on latrines at break/recreational time will increase and more latrines will be required.
Water Supply Facilities:	
1.	Are water supply facilities available in the premises?
2.	Is there enough water available for washing hands, cleansing, flushing and cleaning of the latrines?
3.	How is the physical condition of the water supply facilities?
4.	What and where is the source of water? Is water source drying up?
5.	What is the distance between water supply facility and latrines? (must be 15m apart)
6.	Are different sources of water used for sanitation and drinking purposes?
7.	Is the environment of water supply facility clean and does a soak away exist?
8.	Are there any reported events of sickness or contamination by drinking the existing water source?
9.	Does school treat drinking water?
10.	Is there Rain water harvesting system or tank to collect Rain Water?
Water Supply Improvements	
1.	Have stakeholders of school been fully consulted about the type of water supply?
2.	Have stakeholders of school had previous experiences with water supply improvements and have these been relayed to the relevant agency?
3.	How will the water supply be managed to ensure that it is reasonably accessible to everyone in the school?

4.	What are the long-term financial implications of the choice of water supply?
5.	Can the school afford to pay expected operation and maintenance cost?
6.	What spare parts are required and how often should they be replaced?
7.	Who will be trained to operate and maintain the water supply?
8.	Will the quality of the water be tested?
Waste Management	
1.	Does the latrine have incinerator for sanitary pads disposal?
2.	Does the incinerator is working well?
3.	Does the wastes are segregated before disposal?
4.	Where is the disposal site?
5.	Does the soil of disposal site is contaminated by leachate of waste?
6.	Does the ground water is contaminated by leachate of waste in disposal site?
Other	
1.	Do classes have natural light and adequate ventilation? (Windows)
2.	Does school have renewable energy system for emergency power supply?
3.	Does school have maintained greenery?
4.	Does school built on safe site?
5.	Does contractor provide fuel for cooking in camps?
6.	Any emergency preparedness for disaster?
Social	
1.	Is SMC involved in decision-making and all programs?
2.	What is the history of grievances in construction?
3.	What are the social/ informal mechanisms to handle construction related grievances?
4.	Any capacity building activities took place in school for students?
5.	Any capacity building activities took place in school for teachers and SMC?

ANNEX – 10

Land Acquisition and Resettlement

Based on the findings of the Social Assessment Team' review of the EFA, Resettlement and or land acquisition problems are not anticipated in SSRP. However, there is always risk of exploitation and marginalization of Dalits, Women, marginalized and endangered Janjatis 1 and other vulnerable groups by dominant groups. Nepalese society remains semi-feudal in character and the caste hierarchy, though officially illegal, remains very much in play in the rural areas. In order to ensure that the Dalits, Women, marginalized and endangered Janjatis and other vulnerable groups are not further marginalized in the course of development, it is recommended that the following approach be incorporated into the procedures for financing new classrooms or other school infrastructure of schools established during the SSRP period.

Rules of taking possession of land

Experience of implementing EFA reveals that Resettlement and or land acquisition problems are not anticipated in SSRP. The DoE will not do any involuntary land acquisition. All donations and purchases will be voluntary. DoE will not only ensure that any land donations are fully voluntary, but also that such donations do not involve physical displacement or any significant adverse impacts upon incomes of the donor household. All voluntary land transactions will meet the following criteria:

- (i) The land in question will be free of squatters, encroachers or other claims.
- (ii) Verification of the Voluntary nature of land donations in each case through formal public hearing.
- (iii) Land transfer will be completed through registration, with land title vested in the School; and
- (iv) Leasing of land or rights of use of land for schools will be duly documented.
- (v) Program Implementation Guidelines will include the principles of land acquisition described in this document.
- (vi) For any government building to be constructed under SSRP the land will be purchased from the open market. The DoE already has established practices in this regard and will follow the procedures while acquisition of land.

Procedure for school

Land Revenue office is responsible for land administration and registration of all types land in Nepal. The Survey Offices prepare land record through cadastral mapping. Major three types of land ownership are in practice i) registered private land, ii) registered public land and iii) unregistered (but cadastral mapped) government land (Ailani).

Normally the community approach to the land owner for contribution of land to the school. In this case either individual donate land free of cost or can ask for payment. To arrange the cash requirement there is practice that community people contribute cash to the school and school will make payment against the land take. These procedures are normally completed following willing sell or willing buy procedure of land administration.

DEO will arrange for a public hearing when the schools established during the period of SSRP seeks grants for construction as per Rule XXXX. This public hearing shall verify the information provided in the land assessment data sheet. Minutes of the meeting will be made available at DEO office. If grievances/claims raised during public meeting are not settled during the public hearing the funds will not be granted to the school.

All land transactions will be subject to registration (as per market transactions) under the ownership of the School that is involved in the project and will be done only after ensuring that new school infrastructure or additional classroom construction will indeed be built in that particular piece of land.

A grievance redress mechanism will be in place to hear complaints regarding land acquisition and SMC are using the Ailani land for the establishment of the school. Such types of land are used by the schools with the communities or local body consent. In case of land requirement from the individual or group of people, school.

Sample Formats

Land Acquisition assessment data sheet (to be used to record all land acquired for the schools)

- a) Location map

b) Land/ assets acquired

Plot no.	Area local unit	Area Sq. Ft equivalent	Description of assets in the land, if any	Date of acquisition(year, month, day)	Previous owner (choose one of the following: Individual/ Government /Public)	Name of the owner	Method of acquisition (choose one of the following; donation, sell-purchase/lease/right of use)	Previous use (choose barren land, farm land, squatter, describe in case of other uses)

c) Documentary proofs of land ownership or right of use. (Notarized or witnessed statements)

References

1. Act Relating to Reconstruction of the Earthquake affected structure, 2015 (2072) (RA 2015)
2. Rule Relating to Reconstruction of the Earthquake affected structure (2072) (RR2015/16)
3. Environmental Protection Act, 1997, GON
4. Environmental Protection Rule 1997 (amendment, 2007), GON
5. Environment Friendly Local Governance Framework, 2013
6. Environment Safeguards, A Good Practice Sourcebook Draft Working Document, 2012, ADB
1. Forest Act, 1993 (amendment, 2007), GON
2. Forest Rules, 1995, GON
3. Local Infrastructure Development Policy (2005); Local Self Governance Act (1999) and Regulation (2000) GON
4. National Drinking Water Quality Standard (NDWQS) 2005
5. National Parks and wildlife conservation act 1973 GON and regulation (2000) GON
6. National Environmental Impact Assessment Guidelines, 1993, GON
7. National Environmental Guidelines for School Improvement and Facility Management in Nepal, 2004
8. Parks And Trees Act (Chapter 216) 2005
9. Program Implementation Document, Ministry of Education, Nepal, 2008
10. Solid Waste Management Act 2011
11. School Sector Reform, Ministry of Education, Government of Nepal, 2008
12. Three Years Approach Paper, 2010/11-2012/13, GON
13. Water Resources Act 1992, GON
14. Working Procedure to Use National Forest area for National Priority Projects, 2074 B.S. (2017 AD)