

Environment Management Framework

Nepal: School Sector Development Plan

Prepared by the Government of Nepal
Ministry of Education, Science and Technology
Center for Education and Human Resource Development

ABBREVIATIONS

CBO's	-	Community Based Organizations
CLS	-	Core Labor Standard
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
IEE	-	Initial Environmental Examination
JAR	-	Joint Consultative Mission (JCM) and Joint Annual Review
JFPs	-	Joint Financing Partners
MOE	-	Ministry of Education
NEGSIFMN	-	National Environmental Guidelines for School Improvement and Facility Management in Nepal 2004
PIM	-	Program Implementation Manual
SESP	-	Secondary Education Support Program
SIP	-	School Improvement Plan
SMC	-	School Management Committees
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

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I. INTRODUCTION

A. Background

1. The Government of Nepal has been implementing the School Sector Development Plan (hereinafter referred as “SSDP” or “the Plan”) for a period of 2016-2023 to continue the Government’s efforts to ensure equitable access to quality education for all. SSDP is a harmonized program between the Government of Nepal (GoN) and nine Joint Financing Partners (JFP): the ADB, World Bank, UNICEF, European Union, Global Partnership of Education, Government of Australia, JICA, Finland, and Norway. The Plan addresses the educational reform and developmental needs of the country in the current context. SSDP also complements government strategy to support the recovery of the education sector from the serious damage caused by the 2015 earthquake.

1. Mission, Goal and Objective

2. **Mission.** Schools to produce the needed human resources to elevate the country’s status from a Least Developed Country by 2022 and to reach the status of a middle-income country by 2030.

3. **Goal.** To provide all citizens with the opportunity to become functionally literate and numerate, and to develop the life skills and knowledge required to enjoy a productive life.

4. **Objective.** To improve the quality, equitable access, and efficiency of basic and secondary education in Nepal by supporting the Government’s program and policies.

2. Physical Infrastructure Development in SSDP

5. The physical infrastructure development of schools is one of the components of SSDP, The Plan intends to construct 365 integrated and disabled friendly schools, with the following detail:

Table 1: Year-wise Targets for Disaster Risk Reduction and School Safety Program

Targets	Unit	2016/17	2017/18	2018/19	2019/20	2020/21	Total
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	38,000
Number of school blocks (4 rooms) established with minimum conditions and DRR requirements	No.	7,000	7,000	7,000			21,000
Number of damaged classrooms repaired and retrofitted	No.	6,500	6,500	6,500			19,500
Numbers of schools retrofitted	No.	150	150	150	150	150	750
Develop and implement time-bound action plan for the (re)construction of safe basic and secondary schools.		√					

Targets	Unit	2016/17	2017/18	2018/19	2019/20	2020/21	Total
Develop and approve prototype designs for new school construction		√					
Construction of need-based classrooms with WASH facility	No.	1	2	10	30	50	93

3. The Purpose of EMF

6. This Environmental Management Framework (hereinafter referred to as “the Framework” or “EMF”) is prepared for addressing environmental and safeguards issues in SSDP. EMF sets out the principle, rules, guidance, steps, responsibilities and procedures for assessing and addressing environmental risks and impacts as parts of the process of preparation and approach of the sub project to be implemented under the SSDP through the support of the joint financing partners (JFPs). Likewise, the EMF confirms with the environmental provisions of the Government of Nepal (GON) and constitutes a common environmental safeguard provisions to be followed while implementing the Plan.

7. This EMF guides the key institutions¹ on the process of selection, screening, and categorization of environmental risks to perform further environmental assessment (eg, Initial Environmental Examination and preparation of Environmental Management Plans etc.), monitoring and implementation of the environmental management plan (EMP), and reporting as per the safeguard requirements of the JFPs and GoN. This EMF (i) provides overview of the SSDP and its components; (ii) explains the generally anticipated environmental impacts and mitigation measures for the school subprojects; (iii) specifies the requirements that will be followed in relation to environmental screening, categorization, environmental assessment, institutional arrangements for implementation of EMF, monitoring and meaningful consultation with affected people and relevant stakeholders, and information disclosure requirements; (iv) specifies the safeguard criteria that are to be used in selecting the school; (v) assesses the adequacy of the borrower’s capacity to implement national legal requirement and safeguard requirements of development partners, and identifies the need for capacity building; (vi) specifies EMF implementation procedures, including required resources and capacity development support; and (vii) describes the responsibilities of the borrower/executing agency (EA) in relation to the preparation, implementation, compliance monitoring and reporting of overall safeguards implementation.

8. The Framework describes the steps involved in identifying and mitigating the potential adverse environmental impacts from infrastructure construction and implementation. EMF ensures protection of health and hygiene of students, environmental sustainability, and welfare of affected stakeholders, and considers measures to minimize disaster risks. The EMF guides for strengthened institutional mechanism for safeguards implementation and monitoring and suggests templates to prepare environmental screening, Initial Environmental Examination (IEE), environmental due diligence report (EDDR), environment management plan (EMP), compliance monitoring checklist, and reports.

9. The relevant environmental safeguard policies of GoN and JFPs, and the lessons learned from the past experience in the sector were referred while preparing this Framework. The review also included feedback received from central level consultations; qualitative and quantitative assessments of environmental safeguard compliance processes and capacity assessment of the executing and

¹ The Ministry of Education, Science and Technology (MoEST) and the Centre for Education and Human Resource Development (CEHRD) are envisaged to be the executing and implementing agencies of the Plan, respectively. The EA and IA shall be further defined later based on the institutional reorganization by the new federal government.

implementing agencies. The Framework also refers to the requirements of the National Environmental Guidelines for School Improvement and Facility Management in Nepal (NEGSIFMN), 2004.

II. ASSESSMENT OF LEGAL AND INSTITUTIONAL FRAMEWORK

A. Legal provisions of GON

1. Assessment of Legal Framework

10. **The Constitution of Nepal 2015** defines the right to live in clean environment as one of the fundamental rights of its citizens (Article 30). The Article 30 (3) confirms for a proper balance between environment and development in the development works of the nation. Article 51 f(2) calls for development of environment friendly and sustainable infrastructure. Article 51 g(1) states to protect, promote and make sustainable use of natural resources. Also Article 51 g(7) stresses to adopt appropriate measures to abolish or mitigate existing or possible adverse environmental impacts on the nature, environment and biological diversity. Proceeding from and conformable to the Constitution, the Government of Nepal has passed a series of environmental laws and policies and implementing regulations and standards. These legislations that provide the framework within which the environmental assessment is carried out in Nepal are presented in the following Table 2.1. The subprojects (individual schools) selected for implementation under the Plan shall be basically guided by the provisions in the Constitution, and comply with the environmental laws, rules, standards, and guidelines presented in the following Table 2.1 while preparing, monitoring and reporting environmental safeguards of the subprojects.

Table 2.1: The Relevant National Environmental Policies and Legal Provisions of GON

SN	Environmental Policies and Legal Provisions	Description of Requirements
1	Three Years Plan, 2017-2020, GoN	Requires all projects to be formulated and constructed based on methods that optimally utilize local skills and resources and generate employment opportunities. Attention is paid towards minimizing the impacts of climate change and protecting environment. It aims to minimize adverse impacts on human, property, culture, environment and economy by disasters. The policy aims to integrate disaster risk management in all development activities in order to reduce loss of human and property.
2	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.
3	Climate Change Policy, 2011, GoN	The policy includes climate adaptation and disaster risk reduction; low carbon development and climate resilience; access to financial resources and utilization; capacity building, peoples' participation and empowerment; study, research, technology transfer; climate friendly natural resources management; and institutional set up with legal provisions for monitoring and evaluation.
4	National Water Supply and Sanitation Policy 1993	Water quality supplied to school and labor camps shall be monitored.

SN	Environmental Policies and Legal Provisions	Description of Requirements
5	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.
6	Environment Protection Act, 1997, GON (Also discussed in para 13-16)	Any development project, before implementation, shall complete environmental assessment, which may be either IEE or an EIA depending upon the location, type and size of the projects. The IEE/EIA shall be approved by the government prior to implementation of the project/subprojects. The EPA (i) sets out the review and approval process of IEE and EIA; (ii) stipulates that no one is to create pollution that would cause adverse impacts on the environment, or generate pollution beyond the prescribed standards; (iii) specifies Ministry of Population and Environment ² being in charge to conduct safeguards inspection of approved projects to ensure that pollution prevention, control or mitigation is carried out according to the approved EMP; (iv) provides protection of national heritage and places with rare species of plant and wildlife, and high biodiversity; and (v) describes the enforcement mechanism for environment protection, and the process for taking punitive action against the polluters.
7	Environment Protection Rule (EPR) 1997 (amendment), GON, fifth amendment	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. EPR also has provision for dealing with pollution control, and conservation of national heritage and biodiversity. Schedule 1 lists the projects those require IEE and Schedule 2 lists projects those require EIA. 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.
8	Solid Waste Management Act, 2068 BS (2011)	Article 4 provides the responsibility of the solid waste management under the prescribed standards to persons or institutions that has generated the waste; Article 5 mandates reduction of the waste at source and making arrangements to dispose the disposable solid waste within their own area or making arrangement for the reuse thereof and discharging the remaining solid waste thereafter; Article 9 has provision for making the institution responsible to transport the solid waste to the waste disposal facility; Article 18 provisions for the service for the solid waste management; Article 21 has provision for making local body responsible for the monitoring of solid waste management; Article 38 stipulates discharge of solid waste without the consent of the local body as an offence, and Article 39 provisions for the punishment /penalty in case of offense.
9	Solid Waste (Management and Resources Mobilization) Rules, 2013	Solid Waste Management Rules has provided authority to local bodies for the segregation, transportation and disposal of solid waste as well as operation of sanitary landfill site. Local bodies may monitor the company, organization, and projects producing solid wastes, for ensuring proper segregation, reducing the wastes

² The Ministry of Forest and Environment in the changed context to federalism

SN	Environmental Policies and Legal Provisions	Description of Requirements
		generation at its source, and reusing and recycling waste to the extent possible. Local bodies have also the authority to determine service charge for solid waste collection and management.
10	Land Act 2021–1964	The Article 4 of the Act provisions the registrations of land parcels and maintain inventory of the land owners. It spells out provisions for recovering land revenue; and prohibits cultivation on public lands and registration of such land.
11	Land Acquisition Act, 1977 and Land Acquisition Rules, 1969, GON	Specifies procedural details on land acquisition and compensation with an aim to minimize hardships on project affected persons/families.
12	Labor Act, 2017	Labor Act has provided flexibility in different modes of hiring workers: Labor Act has set out the duties of employer towards workers which include making appropriate safety and health arrangement, arrangements ensuring no adverse effect on workers from use, operation, storage or transport of chemical, physical or biological liquids; disseminating necessary notice, information and conducting training related to safety and health arrangements. It also sets out the general obligation of employer towards non-workers such as putting the signs to indicate the safety or health hazards, to manage gas, chemicals waste so as not to cause adverse effect on local animals, people or environment.
13	Child Labor (Prohibition and Regularization) Act, 2001	It prohibits engaging children in factories, mines or similar risky activities and to make necessary provisions with regard to their health, security, services and facilities while engaging them in other activities. Children below 14 years are strictly prohibited to be engaged in work as laborers. Engagement of child in works as a laborer against his/her will by way of persuasion, misrepresentation or by subjecting his/her to any influence or fear or threat or coercion or by any other means is prohibited.
14	Building Act, 2055 BS	Building Act, 2055 BS (1999) has necessary provisions for the regulation of building construction works in order to protect building against earthquake, fire and other natural calamities, to the extent possible. It has the provisions relating to design and approval of building, and states that the building shall be built under the supervision of a designer.
15	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 appropriate planning.
16	Forest Rules, 1995, GON	Elaborates legal measures for the conservation of forests and wildlife. Tree cutting clearance is required from Department of Forest. Expenses incurred for cutting trees and transportation shall be borne by the infrastructure developer.
17	Ancient Monument Prevention Act 1956	Digging of ground for building, water supply pipes or sewerage in an area declared as preserved monument areas should take prior approval/permit from the Department of Archaeology (Clause 5, Article 3).
18	National Park and	Addresses the conservation of ecologically valuable areas and

SN	Environmental Policies and Legal Provisions	Description of Requirements
	Wildlife Conservation Act 1973	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 persons. It lists 26 species of mammals, 9 species of birds, and 3 species of reptile as protected wildlife.
19	Working Procedure to Use National Forest Area for National Priority Projects, 2074 B.S. (2017 AD)	Following are the main features: <ul style="list-style-type: none"> • EMP/IEE/EIA study is mandatory for obtaining y clearances. • Alternative analysis has to be done during feasibility study for avoiding forest area or if forest area cannot be provided then there should be provision for having minimal loss of vegetation. • Concerned Ministry has to obtain concurrence from Ministry of Forest and Soil Conservation³ 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 district forest office (DFO).
20	Soil and Watershed Conservation Act, 1982, GoN	Article 10 prohibits the following activities within a protected watershed area without the prior permission of the concerned Watershed Conservation Officer: (i) block, store or divert in anyway water from any stream, rivulet, waterfall or underground water for any purpose; (ii) cut or destroy natural vegetation and other forest products; (iii) cause accumulation and sedimentation of accumulated boulders, rocks, sand, soil, mud; (iv) extraction of natural aggregates; (v) dumping of solid waste.
21	Explosive Material Act 1962, GoN	It requires prior approval of Chief District Officer to purchase and use explosives.
22	Local Government Operation Act, 2017	Local Government Operation Act, 2074, formulated in accordance with the spirit of Constitution of Nepal, grants the local level units legislative, executive and judicial rights. Local governments now have authority to manage teachers, staff and education up to the basic level—Grade 8—and oversee basic medical care. The local legislature has the power to formulate local laws in line with the Act drafts provided by the Centre, while the local judiciary can decide cases related to irrigation, daily wages and pastures, among others. The smallest units among three tiers of the government can set up their own city police force, issue land ownership certificates and collect revenue on property, besides registering births, deaths and marriages. They are also allowed to levy the taxes on house rent, entertainment, property, tourism, among others, in compliance with the tax laws of the Central and Provincial governments.
23	Water Resources Rules, 1993	The Regulation sets out the procedure to register a WUA and to obtain a license and sets out the rights and obligations of WUA and license holders. Rule 12 to 21 stipulates the provision and procedures of licensing for the water resource utilization; Rule 32 to 35 stipulates provisions, procedures and responsibilities for the acquisition of land and property for the development of water resources;
24	Nepal National Building	The national Building Code of Nepal was endorsed in 2060/4/12 BS

³ Ministry of Forest and Environment in the changed context

SN	Environmental Policies and Legal Provisions	Description of Requirements
	Code, 2060	(July 2003). It deals with the strength of buildings, consideration safety and fire hazards, construction materials etc.
25	Act on Reconstruction of the Earthquake affected structure, 2072 (2015) and Rule on Reconstruction of the Earthquake Affected Structure 2072 (2015)	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.
26	National Drinking Water Supply Standard, 2006	The Nepal Drinking Water Quality Standards and Guidelines (including standard limits, guidelines for the required frequency for water quality monitoring, and the process and schedule for measuring the standards in active use in the country).
27	Nepal Ambient Air Quality Standards 2012 (2069 B.S)	Limits of the ambient air quality parameters around the construction sites.
28	Nepal Noise Standards 2012 (2069 B.S.)	Noise levels for different land use categories and noise generating equipment.

2. International Environmental Agreements

11. Nepal is party to the following international environmental agreements that have broad relevance to works and environmental assessment of works during the SSDP implementation: (i) World Heritage Convention, 1978- for parties to ensure the protection and conservation of the cultural and natural heritage situated on territory of, and primarily belonging to, the State; (ii) Convention on Biodiversity, 1992- require the environmental assessment for projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects; (iii) UN Framework Convention on Climate Change, 1992 and subsequent protocols- take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.

12. Nepal has been a signatory country for ILO convention. The ILO Convention and Core Labor Standard (CLS) has set minimum standards that should be the rights of every worker, all over the world. The CLS are a set of four internationally recognized basic rights and principles at work: (i) freedom of association and effective recognition to the rights to collective bargaining; (ii) elimination of all forms of forced or compulsory labor; (iii) effective abolition of child labor; and (iv) elimination of discrimination (gender based) in employment and occupation. Other labor standard covers (i) occupational health and safety, (ii) employment promotion including mechanism; (iii) minimum wages, (iv) social security; and (v) labor administration.

13. The relevance of the aforementioned environmental agreements to the project are on their emphasis for human activities (such as development projects) to: (i) take on/institute measures to protect the local, as well as global, natural resources and/or environment; (ii) prevent and/or reduce the causes of climate change, and (iii) anticipate and mitigate the adverse impacts of climate change.

3. National Environmental Assessment Requirements and Review Procedures

14. The EPA and EPR are the key legal provisions governing the environmental safeguards in Nepal. Section 3 of the EPA mandates project developers to carry out environmental assessment of projects at the level of IEE or EIA. It prohibits implementation of any project without receiving environmental

clearance from the GON in the form of approved EIA or IEE. Rule 2 and 3 of the EPR requires a project developer to carry out IEE or EIA for the type and size of projects as listed in the Schedule 1 or 2, respectively.

15. Generally no significant environmental implications are envisaged by the implementation of project and subproject under SSDP. Proposed construction activities like partial construction in schools, addition of school blocks and classrooms may incur minimal level of impacts. However for introduction of new schools and larger projects like Model Schools then necessary Environmental Assessment under EPA and EPR should done. List of building infrastructures requiring IEE or EIA study, as per the EPR, are listed in the Attachment 1.

16. **Concerned Sector Ministries** are responsible for the: (i) review and approval of IEE ToRs and IEE reports; monitoring and evaluation of project implementation impacts.

17. **Permits.** The following permits must be obtained by the project prior to construction: (i) IEE survey permit within forest areas from the Department of Forest; (ii) Tree cutting clearance from Ministry of Forest and Environment, or Cabinet approval for occupying forest areas for development work; and (iii) Permit from the Department of Archaeology for work in sensitive archaeological areas.

B. Safeguard Policy of Development Partners

18. The safeguard requirements of the Joint Financing Partners (JFPs- the co-financing in the Plan) are as listed in following Table 2.3.

Table 2.3: Safeguard Policies of Joint Financing Partners in SSDP

SN	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 for individual school subproject while screening by using rapid environment assessment checklist (REA), environmental implications shall still be reviewed, and mitigation measures suggested by preparing an environment due diligence report (EDDR).
2.	World Bank	The World Bank's policies EA OP/BP 4.01 is triggered. According to this SSDP has been categorized as Environmental Category B Project. The objective of OP4.01 is to ensure that Bank-financed projects are environmentally sound and sustainable, and that decision-making is improved through appropriate analysis of actions and mitigation of their likely environmental impacts. This policy is triggered if a project is likely to have adverse environmental and social impacts in its area of influence. The construction activities under SSDP may incur some site-specific adverse environmental and social impacts, which will require preparation of EMPs.
3.	EU	The liability for environmental damage falls into three categories namely; protected species & natural habitats, water and soil. The SSDP activities won't trigger any negative implications in above three categories.

SN	Development Partner	Safeguard Policies
4.	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 may discourage girl students from fulltime attending the school and may force some of them to drop out of the school. 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.
5.	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.

III. GENERAL PRINCIPLES AND ACTION PLAN FOR EMF

19. The EA and IA shall follow a prescribed set of environmental protection approach in implementing the works to ensure environmental sustainability. The general principles for environmental management shall incorporate the following, among others:

- The EA and IA shall be responsible for undertaking overall environmental compliance in the project activities;
- Environmental Focal Person of IA shall be responsible for undertaking overall environmental compliance in the subproject activities in the district. A qualified person (with environment/social experience) shall be designated to lead as Safeguard Focal Person All the subprojects to be funded under the SSDP shall be subject to environmental screening/assessment using a subproject screening checklist (sample checklist provided in Attachment 4) to prevent adverse environmental impacts;
- As per the screening findings, necessary actions for eg. EMPs preparation shall be done by environmental specialist for addressing the risks and impacts;
- Comply with the National Environmental Guideline for School Improvement and Facility Management of the Government, the National Building Code, design guidelines for school building construction and other relevant guidelines to avoid or minimize environmental impacts;
- Child-friendly (well lighted and well ventilated), earthquake resistant, aesthetically pleasing school shall be promoted following the model designs prepared by GoN;
- Design of school infrastructures shall harmonize with local surroundings, manage disaster risks and adopted with the risks of climate change;
- Priority shall be given on the use of locally available construction materials.
- Avoid sensitive ecological areas, and encourage planting trees around the school promoting green development as well as to act as visual and sound barrier;
- School buildings at vulnerable areas with risks of slide, erosion or flood shall consider the risks in design and for addition of floors to minimize them;
- Schools shall be resilient to the impacts of extreme climatic variations (raising plinth level to protect from flood, keeping buildings above highest flood level on struts, increase

strength of building to resist storm, avoid river bank erosion area, avoid or stabilize landslide areas and retrofit to reduce risks of earthquake);

- Alternative solutions and final designs shall be subject to community consultation, particularly with the students and teachers, and their suggestions shall be given priority;
- Water availability in schools shall be ensured. Promote rain water harvesting;
- Annual water quality monitoring shall be carried out on all water sources to ensure safe drinking water to the students and teachers;
- Keep provision for adequate sanitation facilities for teachers and students. The toilets for girls and boys shall be separate with privacy and water facility;
- Environment friendly and energy-efficient options (solar power) shall be promoted.
- Climate Change has become an inevitable fact. Hilly and mountainous areas of Nepal are more vulnerable to the effects of environmental and climate variability, such as change in precipitation patterns, higher rainfall intensity causing accelerated soil erosion and landslides, drought in some areas, pronounced warming in high altitude regions resulting in snow and glacial melt, among others. The lower terai plain is vulnerable to water induced disasters like flood, sedimentation, river bank erosion, and water-logging. Thus to reduce such natural disasters environmental screening/assessment shall be done in effective way, whereas to reduce physical vulnerability of critical infrastructures the design of specific school shall consider through the retrofitting and rehabilitation of existing infrastructure.
- Forest Clearance Requirements: GON has developed and approved the “Working Procedures for Providing Forest Land to Other Provisions” in February 2007 as per the provision in the Forest Act, 1993. The conditions that are to be met by the projects in such context are as follows:
 - The project shall do plantations in an area of land equal to the area occupied by the project’s physical structures designed under the Facility in a forest, in the locations as preferred by the District Forest Office (DFO); and
 - The project has to plant and grow 25 tree saplings in the area referred by the DFO for the loss of each tree above 10 cm diameter felled in the project area. The project shall bear all costs of plantations, maintenance, and protection of the plantation areas for five years, and such areas shall be handed over to the DFO.

IV. ANTICIPATED ENVIRONMENTAL IMPACTS

20. One of the major project interventions is construction of schools. As construction activities will be mostly carried within the existing premises the adverse impacts envisaged is expected not to be significant. Environmental concerns will be mostly related to management of spoil disposal, storage of construction materials, stability, landslide, erosion, air and noise pollution, water pollution and sanitation.

A. Beneficial Impact of SSDP

21. The experience of the past projects and programs have suggested that most of the policy interventions by SSDP will induce positive impacts. Similarly, the policy action to make access to education more equitable, which includes construction of school infrastructure, especially classrooms and district education office⁴ buildings, will also contribute positively in developing a healthy and safer school environment.

Table 4.1: Likely Beneficial Impacts and Proposed Enhancement Measures

⁴ Or the designated institution in the federal context

Impacts from the Subproject	Benefit Enhancement Measure
Increase in employment opportunity for local beneficiaries	Maximize manual work and provide employment opportunity to local poor, vulnerable, and women. Assist them to invest the amount earned from wages in small enterprise.
Increase in skill of stakeholders including SMCs in both construction and operation of school infrastructure.	Provide awareness and training to local stakeholders including SMCs, who will be responsible in future to operate and maintain their irrigation systems. Train local workers with accredited construction trainings so that they get job with higher economic benefits within or outside the country.
Gender development for health, sanitation, and sustainable environment	Implement GESI action plan.

B. Adverse Impact of SSDP

Construction activity may cause some adverse environmental impacts, although expected to be of low significance. Any residual impact shall be avoided or significantly reduced by adopting typical mitigation measures, as presented in following Table 4.2.

Table 4.2: Likely Adverse Impacts and Proposed Mitigation Measures

Category	Potential Impact	Mitigation Measures
Slope stability	Landslide or gully erosion on slopes that may cause risk to the 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; • Avoid or maintain adequate distance from landslide or erosion areas; • Adopt right angle of cut on slopes based on soil type • Stabilize slopes by engineering and bio-engineering measures; • Take measures 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.
Spoil disposal	<ul style="list-style-type: none"> • Damage of surrounding agriculture and forest land • Drainage blockage causing erosion • Spoil tipped over slope may cause slide 	<ul style="list-style-type: none"> • Minimize spoil by balancing cut and fill wherever possible through proper landscaping within the school premises; • Restrict disposal of spoil on surrounding open space, agriculture land or forest area without proper planning and engineer's approval, and in consent with the landowner; • Manage spoil to reclaim land with landscaping and vegetation; • Do not dispose spoil blocking natural 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 and around school premises; • Arrange for smooth drainage flow with proper downstream protection; • Cover bigger size drainage channels; • Drainages shall be with required sand traps, generally at 20

Category	Potential Impact	Mitigation Measures
		m intervals.
Water Availability and Quality	<ul style="list-style-type: none"> • Lack of water supply. • Sub-standard or inadequate drinking water provided to workers and students. • Students fall sick due to waterborne disease. 	<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; • 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.
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. 	<ul style="list-style-type: none"> • Resettlement and or land acquisition issue shall follow the stipulations in the resettlement framework.
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 harassing wildlife; • Do not work at night near high biodiversity areas; • Plant trees around school infrastructure; • Construction shall be done at least 100m away from ecologically sensitive areas.
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; • Do not to block air flow. class room will be oriented for 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 burrow 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.

Category	Potential Impact	Mitigation Measures
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; • Minimize visual impacts by landscaping and planting vegetation.
	<ul style="list-style-type: none"> • Noise during construction of schools 	<ul style="list-style-type: none"> • Arrange construction schedule at off-school time to minimize disturbance while doing work that may generate noise above the threshold; • Reduce noise levels including the need to keep within standards.
Employment Opportunity	<ul style="list-style-type: none"> • Local people employed in project activities 	<ul style="list-style-type: none"> • Whenever possible local people should be given preference for construction related works • Contractors encouraged using local labor, wherever possible
Separate toilets for boys and girls	<ul style="list-style-type: none"> • Girl student dropout of school due to lack of separate toilet facility 	<ul style="list-style-type: none"> • Provide separate toilets at adequate distance for male and female students; • Water supply to be available in the toilets; • One latrine should be designed for about 30 pupils.
Ensure safe drinking water to schools	<ul style="list-style-type: none"> • Arsenic and pollution contained drinking water will be hazardous for health • Lack of sufficient water for drinking and sanitation 	<ul style="list-style-type: none"> • Arrange water supply facility as the first priority in schools; • Adopt rain water harvesting for non-drinking purposes; • Annually test water quality; • Practice conservation of water and provide awareness to students for conservation; • Protect and keep water source clean and protected; • Supply of water shall be managed by concerned local and provincial governments, although the Plan shall ensure availability of water.
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"> • 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 protective gears to workers working in hazardous areas; • Keep first aid box ready at work areas and camps.

Category	Potential Impact	Mitigation Measures
Solid waste management Hazardous waste	<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. 	<ul style="list-style-type: none"> • 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, recovery and recycling system established in the school; • Ban on the use of plastic products in schools. Safe disposal of hazardous waste.
Health, hygiene, and safe food	<ul style="list-style-type: none"> • Unhealthy living condition in school • Food related diseases 	<ul style="list-style-type: none"> • Promote health, hygiene and sanitation 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; • School shall explore possibility of providing hygienic day meal to the students.
Community health and safety	<ul style="list-style-type: none"> • Project related hazards to communities 	<ul style="list-style-type: none"> • Identify and assess potential impacts on local community during all stages of project; • Establish preventive and protective measures; • Awareness about different disease is given. • 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 equipment in schools; • Encourage the students to practice environment friendly activities.
Use of wood for construction, cooking and heating	<ul style="list-style-type: none"> • 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)	Damages to school properties. Possible human harm.	<ul style="list-style-type: none"> • Incorporate safety measures during site selection and design of physical facilities; • Create awareness about natural calamities and extreme climate to teachers and students; • Retrofitting of old structures for safety against earthquake.

Category	Potential Impact	Mitigation Measures
storm, flood etc)		<ul style="list-style-type: none"> • Make new structures earthquake resistant; • Construction of flood protection for schools in flood plain areas; • Allow safe passage to storm drainage; • Necessary preparedness and information on 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 work.
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.

V. ENVIRONMENTAL ASSESSMENT AND MANAGEMENT PLAN (EMP)

A. Environmental Criteria for Subproject Selection

22. Following environmental criteria shall be adopted, in general, for selection of subproject (schools):

- Subproject shall avoid areas prone to instability, frequent landslides or flooding;
- The subproject area shall not lead to drainage congestion, salinization, and water logging;
- The subproject shall avoid environmentally critical habitat areas and shall not incur any measurable adverse impacts or likelihood of such. The environmentally critical area includes national parks, wildlife reserves, conservation areas, wetland areas, world heritage sites, and other areas such as known religious and archeological sites (EPR 1997) and those defined by the requirements of JFPs;
- Any subproject requiring EIA as per government and Category A of JFP's safeguard requirements will not qualify for implementation under the Project.

23. Detail of the school selection criteria for implementation under the sub project is presented in Attachment 2.

B. Environmental Screening and Categorization of Subproject

24. An environmental screening using checklist (see in Attachment 4) and the environment protection rule (EPR, 1997) of GoN shall be used to ascertain environmental assessment category of each school subproject. The environmental screening shall determine if an IEE is required or a brief due diligence report (DDR) for environment will be sufficient for the subproject. If an IEE is not needed, environmental implications shall still be carried out for each school and a Due Diligence Report (DDR) shall be prepared. The IEE/DDR shall be prepared prior to detailed design of the proposed subproject.

C. Environmental Assessment Procedure

25. The IEE or DDR preparation procedure is discussed in the following subsections:

1. Process for Environmental Due Diligence

26. The environmental due diligence report (DDR) shall be a brief environmental statement of the subproject with only a few significant impacts, if any, from implementation of the subproject. The report shall be prepared by adopting the following procedure:

(i) **Information Collection.** The collection of information shall be based on observation, public consultations and documents review. Coordination shall be maintained with the safeguard focal person of EA/IA, and the project management consultant for documenting site-specific environmental concerns. Local stakeholders including village representatives, longtime residents of the area, NGO/CBOs, school management committees; teachers and students shall be consulted during information collection.

(ii) **Preparation of Environmental Due Diligence Report.** The information on physical, biological and socio-economic & cultural environment of the subproject area will be compiled in coordination with the technical and social team. The environmental due diligence report shall consider any site-specific and significant environmental impacts and propose mitigation measure to avoid, minimize or compensate the impact. A template of DDR is proposed in Attachment 4.

2. Process for Initial Environmental Examination (IEE)

27. There could be a few subprojects requiring initial environmental examination as per the findings of environmental screening for which IEE report shall be prepared. The IEE process shall involve the following steps:

a. **Terms of Reference (TOR) for IEE Study.** TOR for IEE study shall be prepared, which will be a planning tool to determine the requirements for an IEE study. The TOR shall list the likely environmental impacts, methodology of assessment, extent of the impacts, examine mitigation options, and propose the study schedule for the IEE study. It will also identify if experts in certain special areas are required for the study depending on the nature and location of the subproject. Approval from MoEST shall be obtained on TOR for IEE study of each subproject prior to commencing the environmental assessment.

28. Preparation of an IEE report will follow the prescribed format provided in Environmental Protection Rule, 1997. A brief outline is presented hereunder for ready reference:

b. **IEE Assessment Process.** An outline of the activities for conducting IEE study is presented below:

(i) **Desk Study.** Environmental assessment needs to be based on current information, including an accurate project description and appropriate environmental and social baseline data. Secondary information shall be collected from official publications, maps, and reports.

- (ii) **Stakeholder Consultations.** Local level stakeholders and government agencies shall be consulted by means of Focus Group Discussions (FGD) or meetings. A 15 days public notice shall be published in a daily national newspaper. A copy of the notice shall be pasted in the school, rural municipality/municipality, District Coordination Committees (DCCs), schools, hospitals and post offices of the project area. A Deed of Enquiry (*Muchulka*) of pasting of notice shall be collected and annexed to the IEE. 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. Consultation with stakeholders shall be meaningful that begins early in the subproject preparation stage and shall continue throughout the subproject cycle.
- (iii) **Field Assessment and Baseline Data Collection.** Existing environmental status of the subproject area shall be collected covering physical, biological, socio-economic and cultural environment. The baseline data (encompassing landforms, geology, soil, climatic condition, water quality, air quality, acoustic environment, biodiversity, physical and cultural heritage and socio-economic characteristics) shall be collected by using various survey tools like consultation, focus group discussion, participatory rural appraisal, household survey, interview, transect survey, sampling and testing. The collected data shall be tabulated and analyzed to identify potential environmental impacts. Structured checklist shall be used for baseline data collection. 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, PM₁₀ in air).
- (iv) **Consideration of Alternatives.** The environmental implications of different alternatives shall be assessed, particularly focusing on no action alternative, project alternative, construction method, construction materials and their source, and schedule of construction. Selected alternatives shall be supported by sufficient environmental justifications.
- (v) **Prediction of Environmental Impacts and Mitigation Measures.** The primary and secondary data collected shall be tabulated and analyzed. Based on the analysis, predict environmental risks and anticipated impacts as a result of construction and operation of subprojects. Assess potential direct, indirect, cumulative, and induced impacts and risks. The impacts will be identified in terms of their nature, significance, extent, reversibility, and duration. Table 5.3 and 5.4 provides a non-exhaustive list of environmental impacts that are likely to be encountered in the subprojects and their possible mitigation measures. The impacts will be identified in terms of their significance, extent, reversibility, and duration
- (vi) **Design of Environmental Management Plan.** Prepare Environmental Management Plan (EMP) as a part of the IEE (also for DDR). EMP shall be prepared with monitoring requirements for potential environmental impacts and their suggested mitigation measures. The mitigation measures shall be based on “no harm” principle. EMP shall include method of mitigation measures, indicators, frequency and location of undertaking monitoring and reporting, cost for undertaking mitigation measures, and responsible agencies. Emergency response procedures, related institutional arrangements, capacity development and training measures shall also be included in the EMP. The level of details, complexity of the environmental planning documents, and priority of the identified measures and actions will be commensurate to the subproject’s impacts and risks. The mitigation measures shall follow the principle to avoid, minimize, mitigate or compensate the

environmental impacts. Appropriate compensatory measures (offset) shall ensure that the subproject does not cause significant net degradation to the environment. The EMP shall define expected outcomes as measurable events to the extent possible. The performance indicators or targets shall be such that they can be tracked over defined periods. EMP shall categorize environmental mitigation measures to be implemented during different stages of the subproject, for example design, construction, and operation and maintenance stages. EMP shall be responsive to changes in project design, such as changes in canal alignment, technology, unforeseen events, and monitoring results. Provision shall be made for uncertainties and unanticipated impacts. EMP shall be updated and made site-specific for each contract capping the detailed engineering design. The EMP shall include at least the proposed mitigation measures, environmental monitoring and reporting requirements, institutional or organizational arrangements, implementation schedule, indicative budget, capacity development and training measures, and performance indicators.

- (vii) **Consultation and Participation, Grievance Redress Mechanism and Information Dissemination.** Carry out meaningful consultation with affected people and facilitate their informed participation. The subproject preparation team shall disseminate information about the plan and subproject to the general public, affected communities, NGOs, civil society and other related stakeholders beginning early in the subproject cycle and continue throughout the subproject. Received suggestions shall be taken in to account in the subproject preparation and IEE. Stipulate the continued consultations with stakeholders throughout project implementation, as necessary, in the IEE. Draft IEE shall be kept open for public review and comments in the offices of concerned local bodies, central agencies and field offices of the subprojects. Softcopy of the final IEE will be submitted to JFPs for disclosure on JFP's's website. A grievance redress mechanism shall also be proposed in the IEE report (also refer section VIII).
- (viii) **IEE Report.** IEE report shall be prepared following the template presented in the following Table 5.1. Template for Due Diligence Report (DDR) is presented in Attachment 4.

Table 5.1: Outline of IEE

1. Executive Summary
2. Policy, Legal, and Administrative Framework
3. Description of the Project (with salient feature)
4. Description of the Environment (Baseline Data)
 - a. Physical environment
 - b. Biological environment
 - c. Socio-economic and cultural environment
5. Anticipated Environmental Impacts and Mitigation Measures
 - a. Beneficial impacts
 - b. Adverse impacts
6. Analysis of Alternatives
7. Information Disclosure, Consultation and Communication
8. Grievance Redress Mechanism
9. Environmental Management Plan
10. Conclusion and Recommendations

29. Draft of the IEE shall be distributed to the local agencies and kept open for public review as a measure of disclosure. Recommendation letter from all the related Rural Municipalities and Municipalities shall be collected and annexed to the IEE, as per the requirement of EPR. The IEE will be approved by the concerned ministry (MOEST). The draft IEEs shall be submitted to JFPs for review and approval prior to submission to the concerned ministry for approval. The IEE or DDR shall be attached with detailed design of the infrastructure, and environmental management cost shall be part of the detailed design and the project cost.

D. Review and Approval

30. The environment specialist of the IA shall review the IEE. The IEE shall be shared with JFP's for feedback. Upon receiving comments from JFP and finalization, the IA shall forward the IEE to the concerned ministry (Ministry of Education) for review and approval. A final copy of the government approved IEE shall be disclosed in the EA's website.

E. CONSULTATION, DISCLOSURE AND GRIEVANCE REDRESS MECHANISM

A. Consultation

31. One of the principles of environmental safeguard shall be to carry out meaningful consultation with affected people and facilitate their informed participation. The "meaningful consultation" shall be understood as a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

32. Stakeholders (beneficiaries, local agencies, NGOs, CBOs) shall be consulted starting from environmental screening and categorization, and TOR preparation for the environmental assessments. Nepal's EPR specifies that the opinion and suggestions on the potential environmental impacts of the proposed subproject shall be sought from the public by the proponent during the conduct of IEE. According to this, the concerned stakeholders are consulted through a 15 day notice published in national newspaper during preparation of TOR. The stakeholder communities, beneficiaries, and affected people shall be consulted during baseline data survey, and informed about the likely potential impacts of the subproject and proposed mitigation measures. Response and suggestions of the stakeholders shall be documented in the IEE report, and shall be taken into account during subproject design.

33. Public consultation during environmental assessment shall be conducted to comply with the requirements of both the JFP and the Government, which may be (i) at least once, following procedure of the GoN and at a frequency as per the safeguards requirement of the concerned JFP; (ii) in the early stages of the environmental assessment process to allow the affected communities and other interested parties to share their views on the proposed activity, environmental issues and concerns without and with the proposed activity, ensures to address the issues and concerns, and their willingness to participate in the continuing consultation process throughout activity implementation and in environmental monitoring

activities. Additional consultations include key informant interviews and random interviews with affected persons/households.

34. Public consultation shall ensure the participation of a fair representation of stakeholders (i) those who will benefit from, and will be affected by, the proposed works; (ii) the vulnerable groups- the poor (those within the poverty threshold), ethnic minorities, informal settlers, people with disabilities, youth, migrants, women (especially women that are heads of households), and seniors; (iii) other interested groups, e.g. NGOs, religious groups, business associates, civil society, academe, etc. The Consultation process shall be well documented. All relevant views and concerns raised during the consultation shall be: (i) incorporated in the IEE, and (ii) considered in the design of the proposed activity. Attendance sheets and notes of informal and formal consultations shall be included in the IEE as proof that consultations had been held. The EA/IA shall be open to contact for consultation by the public on environmental assessment matters during the conduct of IEE or review of environmental implications.

B. Information Disclosure

35. The EA shall be responsible for ensuring that all environmental assessment, environmental monitoring and grievance redress documents are properly kept as part of the project records. These documents shall be made available in the National and English languages and at locations where these can be easily accessed by stakeholders including affected people. Information on the subprojects shall be disclosed in a form and at a location easily accessed by local stakeholders. Where possible, summary information shall be disseminated in local language.

36. The documents to be disclosed in the concerned JFP's website and at EA and each IA Offices shall include: (i) draft EMF for project implementation before subproject appraisal; and (ii) final IEE report of subprojects after receipt; (iii) Environmental DDR. The draft IEE report shall be made available to interested stakeholders on request. The final IEE will be made available/accessible to the general public.

37. The IEE and EMP will also be disclosed on the EA and offices of respective sub project local bodies' websites and hard copies of the IEE will be documented on those offices.

C. Grievance Redress Mechanism

38. Schools are established by the communities in Nepal and no land acquisition will be financed under the SSDP. Therefore impact to community due to project intervention is less. Even though during the project implementation, if incase local or vulnerable groups get affected by project intervention then this need to be properly and timely addressed. Therefore, to address complains of affected person, CEHRD has developed a working procedure "Grievance Redress Procedure 2074" to quickly and transparently address the grievances, and without retribution to the Affected People (AP) or student.

39. According to this procedure, there must be a complain box inside the school premises, which shall be easily access and in the secure place where student/ individual can file their complaints without disclosing their identity. The box shouldn't be inside the principal room or in the staff room where student/ individual feel insecure and difficulty to register complaints. To resolve the grievances directly at field and project level a Grievance Redress Committee (GRC) shall be formed in every school with the member of School Management Committee, Principal, Parent and Teacher Association, 2 members (1 Male and 1 Female) from Child club, Female member from RM/M and focal teacher from school. The meeting of committee shall be take place once a month where local police staff, Health/ Medical officer,

social worker, local child protection committee or NGO and INGO shall also be invited. Student should be aware about complain box and grievance redress mechanism therefore, school should provide GRM information to student in every 3 months. The committee will ensure confidentiality during the inquiry process and will ensure that in the course of investigation a complaint. The GRC follows mediation/arbitration method/procedure to negotiate or resolve a grievance.

Procedure of Grievance Redress

40. In general, the complainant shall register or drop their complaint in complain box. The format of complain form is given in Attachment 6. Then, focal teacher and one member from committee shall open the complain box once a week or if necessary box can be open in mid of week also. Then complain will be categories as follows:

- Child protection/ Sexual harassment
- Educational Learning
- Physical Infrastructure (including affect on environment)

41. Then after GRC will discuss about complain and shall fix the resolving time. According to character of complain, related expert or institution will be involved. If legal investigation is needed then committee will involve police personal also. If complainant is not satisfied with the investigation made by school committee then complaint shall appeal in following individual or institution, and the format of mapping of service provider is in Attachment 11.

- School management committee
- Police station
- Rural Municipality or Municipality
- Local Education officer
- Local Children Protection section
- District Administration office

Recording and Reporting of GR

42. In every four month and annually the focal teacher of the school will prepare a report on the basis of complain or grievance registered and complain resolved by GRC. The format of the reporting mechanism is given in Attachment 9 monthly reporting where as Attachment 10 format is for annual reporting. Focal teacher will manage written complain and oral complain in different files. Resolved or the investigation applied in complain shall be managed according to the format given in Attachment 8 (Recording format). A record shall be maintained by the focal teacher for the problems which will be solved outside of school. Complaint confidentiality shall be maintained.

43. The process about GR, GRC and the problem resolved shall be regularly monitored by education officer of local government, resource person and principal. The monitoring report shall be provided to related school. School shall provide motivational training, resource or prize for the implementation GRM.

44. If school couldn't resolve the problem or the character of matter is beyond the school limit, then it will be transfer to the local/ Centre level. Similarly in the Centre level, there shall be GRC which be led by the MoEST, CEHRD, and JFPs related officers. The GRC will first discuss the issue with the complainant and try to resolve the matter at field level within 7 days. If required, the complaint will be discussed with the safeguard focal point and the IA Chief, and make efforts to resolve the issue in consultation with the complainant. If the complaint is dismissed, the affected person will be informed of

their rights in taking the next step. A copy of the decision will be kept for record, and status reported in routine progress report.

45. If disputant is not satisfied with the decision made by the GRC or not interested to resolve his/her complaint with the established GRM within the school, he/she is free to seek the solution of his/her problem through judicial system of the government or other justice delivery services.

F. INSTITUTIONAL ARRANGEMENT AND MECHANISM FOR EMP/EMF IMPLEMENTATION

A. Institutional Arrangement

46. Ministry of Education Science and Technology (MOEST) is presently the executing agency (EA) and the Centre for Education and Human Resource Development (CEHRD) at Central level and Educational Development Coordination Unit (EDCU) at district level offices of Federal Government. Education Development Directorate (EDD) at Province Level, and Infrastructure Development and Environment Development Section (IDEDS) at Local Level respectively are the implementing agency (IA). School Management Committees and Parent Teacher Association are fully responsible to implement the work under technical supervision of the Implementing Agency (IA). The EA and IA shall appoint a safeguard focal person to coordinate and ensure full compliance to SMF guided SIP during the Plan implementation. However, in all level of government system in education sector there should be a safeguard desk and placement to look after consequences of adverse impacts of construction activities. The management support consultant to EA and IA shall technically support the safeguard focal point in the EA and IA to operationalized the safeguards mechanism and comply with the safeguard requirements.

47. The EA/IA shall ensure that EMP provisions are included in the bidding document, and further ensure the EMP implementation activities are clearly listed in BOQ with quantity and cost. Consequences for failing to comply with safeguard requirements will be clearly stated in the contract documents.

Table 7.1: 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 SSDP	EA JFP review	
1.2	Printing, Publication of EMF in Nepali & its wider circulation	EA/IA	EA shall provide EMF guidelines to IA for implementation
1.3	Dissemination of EMF through the Plan Implementation Manual (PIM)	EA/IA	EA will ensure that stakeholders e.g. IA, SMC and others understands the EMF requirements and EMF provisions are followed while planning and implementation of school physical improvement.
1.4	Incorporation of EMF aspects in School Improvement Plan (SIP)	IA/SMC	IA will ensure that EMF is an integral part of decision making for SSDP activities.
1.5	Dissemination of EMF	EA/IA	All are made aware on how to

SN	Activities	Responsibilities	Remarks
	through regular orientation programs organized for Engineers, Sub-Engineers, Education Officers, I/NGOs and other partners working in collaboration with the EA/IA		incorporate EMF provisions in planning and implementing the Plan.
2	Environmental Assessment and Management		
2.1	Environmental Screening of Infrastructure using the Environmental and Social Screening Checklist	IA with the support of environment specialist of the management consultant and in coordination with SMC	Environmental and Social Screening Checklist provided in the EMF. Categorize environmental assessment type (IEE or EDRR).
2.2	Incorporate EMF requirements in SIP preparation guidelines	EA with the support of environment specialist of the management consultant	Follow provisions of the approved EMF
2.3	Environmental assessment and prepare environmental management plan.	IA	Follow the steps given in the approved EMF
2.4	Incorporation of EMP provisions in contract document	IA with the support of the environment specialist of the management consultant	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	IA Periodic verification by EA Support of environment specialist of the management consultant	IA with support of the environment specialist of the management consultant will conduct routine monitoring, document compliance or non-compliance, fill monitoring checklist, and prepare monthly reporting. They will check adequacy of environmental safeguards maintained in district works. EA shall verify if EMP recommendations are being complied by the subprojects.
4	Monitoring & Auditing		
	Compliance Audit - during implementation - annually	EA and IA (as an integral part of overall program implementation audit) shall visit representative samples and monitor environmental safeguards performance by the subproject.	Verifies overall compliance to EMF and other environmental safeguard requirements.
5.	Annual Reporting and		

SN	Activities	Responsibilities	Remarks
	Feedback		
	Interactions/workshops - reports	IA shall report the status and environmental functioning of the subproject and recommend for improvement to EA. Instruct contractor to undertake corrective measures.	IA will prepare quarterly and semi-annual environmental compliance monitoring report and forward to EA for compilation and preparation of consolidated report for submission to JFPs.

B. Capacity Development

48. Capacity in environmental management needs to be strengthened at all levels of the EA and IAs and SMC. The EA with support of JFPs shall plan and implement capacity strengthening measures through training and orientations. Following capacity development program has been recommended:

Table 7.2: Capacity Development Plan

SN	Activities	Remarks
1	EMF translation to Nepali, Printing & Publication for information dissemination to stakeholders for their awareness	
2	Capacity building training for EA/IA and SMC	Monitoring & Supervision Arrangements for DOE, DEO etc)
3	Setting up a safeguard mechanism in the overall subproject implementation and establish Environment Management Information System (EMIS)	Train EA/IA staff Environment Consultant Contractors
4	Central level institutional capacity strengthened Regional, provincial and district level institutional capacity strengthened	Sufficient institutional capacity to implement the SSDP at all levels

C. Budgetary Requirement

49. The tentative budgetary requirement for implementation of EMF may include as presented in following Table 7.3.

Table 7.3: Cost for Implementation of EMF

SN	Particular of Activities	Cost (in\$)
1	EMF translation in Nepali, Printing & Publication, and distribution (500 copies)	5,000
2	<i>Capacity building of EA, IA, SMC and the safeguard staff of consultant and contractors</i>	100,000
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	EMP implementation including cost for spoil disposal & management, bioengineering, camp site management, occupational health and safety, compensatory plantation etc.	Cost to be estimated for each EMP activity for individual school subproject and

SN	Particular of Activities	Cost (in\$)
		included in BOQ.
5	Environmental monitoring cost and reporting	\$10,000 per subproject.

G. ENVIRONMENTAL MONITORING AND REPORTING

50. 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 is achieved and results in desired benefits to the target population without adversely affecting the environmental resources. The monitoring activities of the implementation plan shall include verifying compliance with the environmental management plan.

51. 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.

52. Implementation of mitigation measures will be ensured through both routine and periodic monitoring. Monitoring activities for project at different phase of implementation are presented in the following tables.

Table 8.1: 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 EMF to all stakeholders	Direct observation	Once	EA	Printed copies of EMF and distribution record to concerned stakeholder
2.	Incorporation of EMF in Subproject Implementation Procedure	Review of documents	Once for each subproject	EA	Introduce Environmental activities in SIP
3.	Environmental and Social Screening	Field survey	Once for each subproject	EA and IA SMC	Rapid Environmental Assessment (REA) Checklist filled and environmental classification decided
4.	Incorporation EMP in design and tender document	Review of design and bidding document	Once for each subproject	EA and IA	EMP provisions in the bill of quantities; and contract agreement

SN	Indicators of Monitoring	Types of Monitoring/ Method of Monitoring	Monitoring Frequency	Responsibility for Monitoring	Monitoring Indicators
5.	Drinking water quality test	Review of bidding document Test result in quarterly and semi-annual reports	Once	EA and IA	Sampling and lab testing responsibility in contractor's BOQ Result of physical, chemical and micro- biological parameters of water test.
6.	Grievances Redress Mechanism	Confirm GRC has been formed Review the GRM register	On-going	SMC IA EA	Registered complaints, meeting minutes and documents.

Table 8.2: 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	Quarterly	Safeguard Desk/IA Environment consultant	Reports submitted to JFP
2.	Drinking Water Quality	Sampling, lab testing & comparison with generic standards	Annual	Contractor IA	Result of physical, chemical and micro- biological parameters of water test.
3.	Dust and noise generation	Direct Observation Complaints from local people	Monthly	Contractor IA Environment consultant	Complaints from local residents
4.	Transportation of construction material.	Direct Observation Complaints by local stakeholders	Regular during construction	Contractor Environment consultant IA	Photographs Complaints from local residents
5.	Water sprinkling in dusty construction area & access roads	Direct Observation Complaints by local stakeholders	Every Day	Contractor Environment consultant SMC	Complaints from residents Photographs
6.	Stockpiling of excavated materials	Direct Observation	Every Day	Contractor Environment consultant SMC	Photographs
7.	Reuse of excavated materials	Direct Observation	Every Day	Contractor Environment consultant SMC	Photographs
8.	Solid waste segregation	Direct Observation	Every Day	Contractor Environment consultant	Photographs

SN	Indicators of Monitoring	Types of Monitoring/ Method of Monitoring	Monitoring Frequency	Responsibility for Monitoring	Monitoring Indicators
	disposal			SMC	
9.	Soil Contamination (only if required by Engineer)	Soil Test	Annual	Contractor	Different parameter test result
10.	Quarry & Borrow Pits	Direct Observation	Quarterly	Contractor Environment consultant SMC	Photographs
11.	Occupational health and safety, use of safety gears	Direct Observation	Everyday	Contractor Environment consultant SMC	Number and type of protective devices dispensed to workers Number of injury Photographs
12.	Safety to children	Record of injury & availability of First Aid Box	Everyday	Contractor Environment consultant SMC	Registered file
13.	Encroachment in environmentally and socially sensitive area	Direct Observation	Once in 3 months	Contractor Environment consultant SMC	Photographs
14.	Consumption of wood as additional fuel source	Direct Observation	Everyday	Contractor Environment consultant SMC	Photographs
15.	Children below 18 are at work in construction site	Direct Observation	Everyday	Contractor Environment consultant SMC	Identity card of workers
16.	Grievances Redress Mechanism	Logging of the complaints.	Annual	Contractor Environment consultant SMC	Registered complaints, meeting minutes and documents.

Table 8.3: 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 IA	Reports submission

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	SMC IA	Result of physical, chemical and microbiological parameters of water test.
3.	Adequate natural light, and ventilation	<ul style="list-style-type: none"> • Direct Observation • Interview with Teachers and students 	Annual	SMC IA	Photographs. Filled questionnaire form.
4.	Clean and renewable energy	<ul style="list-style-type: none"> • Observation • Interview with Teachers and students 	Annual	SMC IA	Photographs. Filled questionnaire form.
5.	Rainwater Harvesting	<ul style="list-style-type: none"> • Observation • Interview with Teachers and students 	Annual	SMC IA	Photographs. 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	SMC IA	Photographs. Filled questionnaire form.
7.	Sanitation and drainage	<ul style="list-style-type: none"> • Observation • Interview with Teachers and students 	Annual	SMC IA	Photographs. Filled questionnaire form.
8.	Number of orientation, training and awareness program	<ul style="list-style-type: none"> • Observation 	Regular	SMC IA	Register, records and photographs

53. The EA/IA will monitor the provisions mentioned in the Framework to ensure that they are complied with during implementation of the SSDP. The EA and IA will prepare semi-annual environmental compliance monitoring report and submit during the Joint Review Meeting (JRM) and Budget Review Meeting (BRM). In addition, a section on status of environmental safeguard activities will be included in each progress report.

The EA will carry out annual review to ascertain the environmental safeguards performance of the SSDP.

Attachment 1: School Infrastructures Requiring IEE or EIA according to EPR/RRR

Particulars	IEE Threshold	EIA Threshold
<ul style="list-style-type: none"> Residential or commercial building 	<ul style="list-style-type: none"> Construction of residential or commercial building and their combination with a built-up area or floor area between 5,000 to 10,000 sq.m.; 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; 	<ul style="list-style-type: none"> Construction of residential or commercial building and their combination with a built-up area or floor area more than 10,000 sq.m.; Cinema hall, theater, community hall, stadium, concert hall, spot complex with a capacity of more than 2,000 people to pass at one time;
<ul style="list-style-type: none"> Residential area development 	<ul style="list-style-type: none"> Development of residential area on 1 to 4 ha. size of land 	<ul style="list-style-type: none"> Development of residential area on more than 4 ha. size of land
<ul style="list-style-type: none"> Land development 	<ul style="list-style-type: none"> Land development program of 10 to 100 ha. size; 	<ul style="list-style-type: none"> Land development program of more than 100 ha. size;
<ul style="list-style-type: none"> Pavement construction 	<ul style="list-style-type: none"> Construction of hard surface pavement of size more than 10 ha. (for example dry port, bus park, parking lot etc.); 	
<ul style="list-style-type: none"> Earth management 	<ul style="list-style-type: none"> Development of site with cutting or filling of more than 20,000 cu.m. earth; 	
<ul style="list-style-type: none"> Multi storied building 	<ul style="list-style-type: none"> Construction of buildings above 10 stories or 25m height to 16 stories or 50m height; 	<ul style="list-style-type: none"> Construction of buildings above 16 stories or more than 50m height;
<ul style="list-style-type: none"> Forest area 	<ul style="list-style-type: none"> Construction work that may require clearing of up to 5 ha. forest area (up to 0.75 ha as per NRA working procedure for EQ affected work); 	<ul style="list-style-type: none"> Construction work that may require clearing of up to 5 ha. forest area (>0.75 ha as per NRA working directive);
<ul style="list-style-type: none"> Cost 	<ul style="list-style-type: none"> Any construction work not listed in the schedule of EPR and that cost between Rs.50 million to Rs.250 million. Any reconstruction projects with the cost between Rs 150 million and Rs 250 million 	<ul style="list-style-type: none"> Any construction work not listed in the schedule of EPR and that cost above Rs.250 million.
<ul style="list-style-type: none"> Work in sensitive areas 		Any project located in following areas: (i) Historical, cultural and ancient areas (ii) National park, wildlife reserve, wetland and conservation areas (iii) Water source areas for public drinking water supplies

**Source: Environment Protection Rules (EPR, 1997, amended 2007)*

Attachment 2: School Selection Criteria

1. 1st Phase: Evaluate all schools located in the district
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, $CP < 0.75$ m²classroom & 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

Attachment 3: Policy of Center for Education and Human Resource Development (Then 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(0.75sqmperchildren,T:50,H:45,M:35studentsper 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 wheel chair 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

Attachment 4: Outline of Environmental Due Diligence Report

Environmental Due Diligence Report

..... School

..... District

Nepal: School Sector Development Plan

..... 2018

A. Introduction

B. The Proponent and Address

Name of Proposal: DDR

of School subproject

Name of Proponent:, Government of Nepal

Address of Proponent:

Singha Durbar, Kathmandu, Nepal

Phone No.: +977-01-

Fax: +977-01-

e-mail:

Web:

C. The Subproject

1. Existing Status

1.Brief introduction of the school with current situation.

Table 1: Existing Status of the Subproject

Components	Current Availability
Main Building with classrooms	
Library	
IT Room	
Toilet	
Water supply & Storage system	
Open space, playground and garden	

2. Proposed Scope of Work

2. Brief description of the major reconstruction/ additional works proposed to be included under the subproject

D. Brief Description of the Environment Around the School Area

1. Physical Environment

3.Topography, geology, slope, land slide, air quality, water quality, sewerage system, solid waste management sites, climate, rainfall, wind, sunshine hours, water source.

2. Biological Environment

4. The subproject area does not fall under any protected area or their buffer zones. Only common flora and fauna are observed around the subproject area. Clearing of trees [is/ is not] required for implementing the subproject works. A total ofnumber of trees were cleared. The cleared trees were ofspecies.

3 Socio Economic Environment

5. Ethnicity, DAG, population, occupation, health post, other schools, religious and cultural areas, number of students etc.

E. Environment Screening

Table 2: Environment and Social Screening Checklist

1. Name of Program:

2. Program related information

Name of the School	
Address	
Name of Head Teacher	
Telephone/ Fax	
Email	
Proposed Infrastructure <i>(Please list the specific type of construction work taking place)</i>	

3. Environment and Social Screening Questionnaire

Questions	Yes (√)	No (√)	Scale of Impact (√)			Problem Details/Remarks	Mitigation Measures
			High	Med	Low		
A. Situation of Construction Area							
1. Protected Area (Such as, National Park, Wildlife Conservation Area, Hunting Reserve and so on.)							
2. Buffer zone							
3. Wetland							
4. Special area for protecting biodiversity (Such as Botanical Garden, Zoo and so on)							
5. Near landslide and erosion							
6. Water logging area							
7. Underground utilities (Such as, drinking water pipe, sewage pipe and so on)							

8. Soil, stone, sand etc. quarrying area							
9. Near river bank							
10. Inside or near Cultural Heritage Site							
11. Near the Transmission Lines							
12. Will the school infrastructure cause encroachment on above listed sensitive area?							
B. Status of environment and social impact due to construction							
1.Slope	Possibility of landslide or erosion due to construction						
	Soil that easily moves with flow of water found in site.						
2.Water Management	Water availability in the site						
	Cause short term and long-term impact on surface and ground drinking water quality						
	Impact on source of water						
	Impact on the irrigation system						
3.Waste Management	Release of hazardous materials or chemicals(e.g. bitumen, cement paint, explosive fuels, lubricants and so on) from construction materials						
	Materials released during construction cause impact on drainage system.						
	Contamination in the soil, air and water by the waste disposal						
4.Habitat Destruction	Hamper any rare, threatened or endangered species found nearby						
	Removal of large number of trees (<i>Mention the numbers of trees removed</i>)						
5.Noise and Air pollution	Affect community by noise producing from blasting and use of vibration						
	Impact on the air quality from the dust of construction site						
6.Health and safety	Cause risks to the locals due to physical, chemical, biological, and radiological hazards						
	Cause transmission of disease from workers to the locals						

7.Land Acquisition/ Land received from donation	Land owned by school (<i>Mention if there are enough documentations in the remark section</i>)							
	Conflict on land ownership							
	Loss of agriculture land							
	Possibility of displacement of the local community							
8.Vulnerable groups	Possibility of negative impact on poor, women and children							
9.Indigenous People	Possibility of displacement / negative impact to local/indigenous people							
	People are aware about construction and its negative effect? (<i>Mention the process of consultation in remark</i>)							
10.Social conflicts	If workers from other regions or countries are hired							
C. Frequently hit by natural disasters								
D. Observation of remarks (write one/two lines on your observation about environmental and social impacts								

Date:	
Screening done by:	
Position:	
Institution Name:	
Address:	

Photos and Maps:

Notes to the screener:

1. While ticking "Yes" or "No" in above questions please explain the reason and mitigation measures to the extent possible.
2. Mitigation measures for the negative impact of school construction could be:
 - a. Health and Safety
 - Using occupational safety materials (Helmet, Gloves, etc.)
 - Medicine management (Cotton, Bandage, Cetamol, etc.)
 - b. Water and sanitation
 - Clean drinking water to workers
 - No adverse impact on water sources
 - Waste management
 - c. Slope
 - No construction in steep slope
 - Consultation with a technical expert if needed
 - Refer to National Building Code (NBC)
3. Benefits of filling Environment and Social Screening Checklist are as follows:
 - Possible environment and social impact due to construction can be identified during the early stage of project.
 - After identification of environment and social impacts, it will be easier to identify mitigation measures.
 - After identifying mitigation measures, it will be easy to prepare required budget, divide responsibilities and arrange logistics for monitoring.
 - It will help sustain the project.

F. Environmental Impacts and Mitigation Measures

6. Environment and Social Screening checklist suggests that no major adverse environmental impacts are envisaged from the implementation of the subproject. Nevertheless, few impacts those are site-specific and needs to be considered are (may include landslide, flood, tree cutting, wind, heavy snow, water supply scarcity etc.

- i.,
- ii.
- iii.

The following Table lists these potential impacts from the implementation of the subproject and typical mitigation measures.

G. Public Consultation and Information Disclosure

7. The preliminary public consultation with SMC, teacher, students and information disclosure took place on at subproject area. The major issues raised during the discussion were following:

Consultation organized for stakeholders

SN	Type of Consultation	Date	Place	Name of Organization	Number of participants
	Workshop organized				

List of People Consulted

SN	Name of the Participants	Date and Location	Signature

H. Conclusion and Recommendations

8. According to the environmental assessment and review framework for the project, the subproject falls in the environment Category C. Hence, this environmental due diligence report

is prepared. There are no major adverse environmental impacts except a few as outlined in para 7 and Table 3 along with cost of implementing the mitigation measures. The cost for implementing the mitigation measure shall be covered in the design of the subproject.

Table 3. Environmental Management Plan with Responsible Agency and Cost

SN	Work Activity	Potential Impacts	Proposed Mitigation Measures	Cost Estimate (NRs)	Schedule for Implementing Mitigation Measure	Implementing Agency
1						
2						
3						
4						
5						

Attachment 5: 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.

Environment Monitoring Checklist

1. Name of Project:

2. Information Related with Project:

Name of the School	
Address	
Telephone / Fax	
Email	
Proposed Construction Related work	

3. Compliance Status

SN	Activities to be Monitored	Indicator/ Compliance measures	Compliance Status	Recommendation of corrective action for non-compliance
1	Permit	Environmental reports have been already prepared and approved (IEE/DDR/EMP), provision in mitigation cost in BoQ		
2	School location	Environmental and Socially Sensitive area (Near Protected area, buffer zone, near critical habitat, cultural heritage area, hospital)		
3	Environment Awareness raising Orientation training	Number of events and participants		
4	Employment of local people	Number of local people involved in construction activities		
5	Work site safety management	Barricade the construction site, obtaining written permission, Management of stockpiling of construction materials (Cover, boundary)		
6	Slope stability	Landslide and gully erosion form due to school infrastructure Stabilize slope by engineering(retaining wall, check dam) and bio-engineering measures		
7	Spoil disposal management	Locations and Approval of Spoil disposal		
		Location of disposal site near the water courses (Y/N)		
		safely disposed spoil, Reuse of spoil materials		
		Spoil falling or being washed on to forest and farm land (Y/N)		
		Spoil disposal affecting		

		public interest, locals and their properties (Y/N)		
8	Drainage management	Drain water discharged into farmland/ risky areas, Water logging (Y/N), construction of adequate drainage passage following natural path		
9	Air and noise pollution	Dust nuisance due to construction activities, transportation of materials, Dust and noise generation work to be done during off-school, labour used personal protective equipment (PPE), cover material during transportation		
10	Water availability and quality	Drinking water adequate to workers, and students		
		fall sick due to waterborne disease/record of sick		
		Water quality test		
11	Quarry and borrow site management	Location, approval, pollution due to operation and supply of aggregates/stones		
		Rehabilitation of site		
12	Campsite management	Supply of safe drinking water, accommodation		
		Toilets facilities for workers		
		Energy used for cooking (fuel wood, kerosene, LPG, electricity)		
		Proper management of waste water, sanitation and waste disposal		
		First aid box		
		Restoration of work/labor camp site, stockpile yards		
13	Landslide and erosion control measures	Type of measures taken		
14	Clearing of trees	Number of trees cleared		
15	Crusher Plant	Location and approval, Measures used for pollution control		
		Rehabilitation		

16	Public/private Infrastructure	Damage due to construction activities,		
		Rehabilitation/compensation		
17	Occupational health & safety of workers	Number of Personal Protective Equipment (PPE) provided		
		Use of PPE by workers (%)		
		First aid kit provided with Medicines		
		Accidental insurance (number of workers)		
		Type & number of accident Occurred		
		Compensation provided		
		Number of workers fallen sick		
		Coordination with nearby health institution in case of accident and epidemics (Y/N)		
18	Land acquisition	Documentation/Record of land acquisition		
19	Community health and safety	Informative/safety signboard erected, fencing the construction sites		
		Awareness to community people		
		Social Conflict with workers		
20	School Safety	Damage school properties		
21	Provision of Separate toilet provision in project for boys and girls	Separate toilet construction for boys and girls, water facility		
22	Emergency situation during disaster	Risk to students, establish emergency contact, emergency equipment like fire extinguisher, first aid boxes, etc.		
23	Safeguard desk	Meeting, consultation, Provision of Safeguard Desk / Register		
		Number of meeting held		
24	Grievances received and addressed	Formation of GRC (Y/N)		
		Grievances Received number		
		Grievances Addressed number		

Date:

Reported by:

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 component of work, physical progress, 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 JFP;
- Monitoring results compared against previously established benchmarks and compliance status;

Monitoring results compared against the objectives of safeguards or desired outcomes documented;

- 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, complaints from affected people, and recommend 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.
- Photographs.

Attachment 6: Student complain writing form format

1. Date:
2. Name of Student:(leave this line if you don't want to disclose)
3. Class: (leave this line if you don't want to disclose)
4. Age: Gender:
5. Complain/ Event.....
6. Culprit:
7. Event or problem are new or repeated:
8. Solutions could be:

Attachment 7: Consultation organized for stakeholders

SN	Type of Consultation	Date	Place	Name of Organization	Number of participants
	Workshop organized				

Attachment 8: Recording Format for School Grievance Redress

School Name and Address:

.....

Local Level:

SN	Name of Student	Class	Grievance Recording Date	Brief Description of Grievance	Character of Grievance	Affected Person

.....

Focal Teacher Signature

Attachment 9: Four Monthly Reporting Format for School Grievance Redress

School Name and Address:

.....

Rural Municipality/ Municipality:

.....

District:

Reporting Period:

Date:

SN	Character of Grievance	Number of complain	Female Student	Male Student	Age of Complaint			Status of Grievance			
					Less than 10 year	10-14 years	Above 14 – up to 18 years	Solved	In the process	Not settled	Transfer to the institution
A	Child Protection and Sexual Harassment										
	Emotional violence										
	Physical violence										
	Sexual harassment/ violence										
	Gender based violence										
	Negligence and Discrimination										
	Child Marriage										
B	Infrastructure										
	Physical Infrastructure and services										
C	Teaching Learning										
	Teaching Learning										
D	Others										

E	Total (A+B+C+D)									
---	-----------------	--	--	--	--	--	--	--	--	--

Description of unsettled complains of last 4 month

SN	Character of Grievance	Grievance registered Month	Cause

Attachment 10: Annual Reporting Format for School Grievance Redress

a) School Name and Address:

.....

b) Rural Municipality/ Municipality:

c) District:

d) Reporting Period:

e) Date:

f) Program activities related to Grievance Redress Procedures

SN	Program	Organized date	Targeted groups – students, parents, teachers, child club, working groups other (Mention)	Total Participant
	Orientation Program of Grievance Redress Procedure			

g) Details of Student task force for child right promotion and gender based violence prevention

SN	Information of member of student working group	Number of member of Working group		
		Total	Female student	Male student
1	Studying in Class 6			
2	Studying in Class 7			
3	Studying in Class 8			
4	Studying in Class 9			
5	Studying in Class 10			
6	Studying in Class 11			
7	Studying in Class 12			
	Total			

h) Progress of Grievances registered in a year

SN	Character of Grievance	Number of complain	Female Student	Male Student	Age of Complaint			Status of Grievance			
					Less than 10 year	10-14 years	Above 14 – up to 18 years	Solved	In the process	Not settled	Transfer to the institution
A	Child Protection and Sexual Harassment										
	Emotional violence										
	Physical violence										
	Sexual harassment/ violence										
	Gender based violence										
	Negligence and Discrimination										
	Child Marriage										
B	Infrastructure										
	Physical Infrastructure and services										

C	Teaching Learning										
	Teaching Learning										
D	Others										
E	Total (A+B+C+D)										

- i) Progress and achievement of Grievance Redress Committee
- j) Problem and challenge during Grievance Redress
- k) Expected support relevant to Grievance Redress
- l) Other remarks

Report prepared by.....
Signature.....

SN	Member of Grievance Redress Committee	
1	Name	Signature
2		
3		
4		
5		

Attachment 11: Mapping of service provider

SN	Services	Name and Address of Individual or institution (Service provider)	Name and contact number of Focal Point(Service provider)	Qualification/ Certificates	Other Information
	Health				
	Security/ Police				
	Mental Health Service				
	Legal Service				
	Nutrition Program				

	Education				
	Disability Services				
	Environment				

Attachment 12: Design Guideline from School Building Construction from Environmental Perspective

a. 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. Implementation Agencies 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 CEHRD can provide the team with detailed information on the following strategies.

b. 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

2.1 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

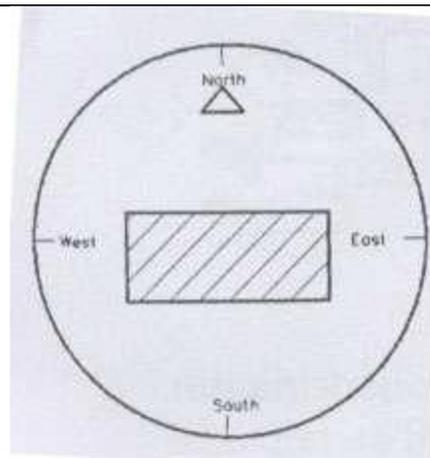
3. School Building Location

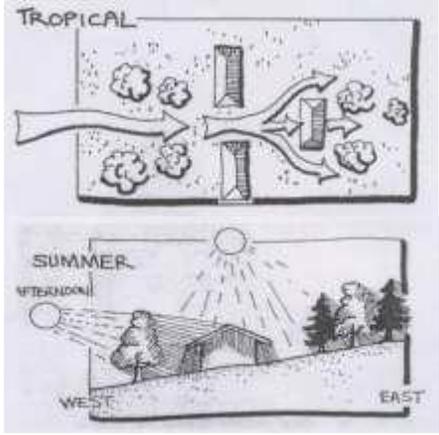
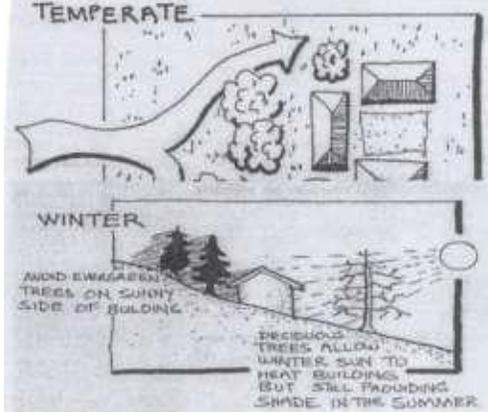
3.1 Orientation: School building orientation is very important as it determines magnitude, natural heating, and lighting available inside the building. Orientations are based on the climate type of the place where school facilities are planned. In Nepal three geo-zones are available viz: Terai, Mountain, 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 cannot be avoided facing East, West or South, evergreen trees have to be planted to prevent direct sunlight entering the building



<p>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.</p>	
<p>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.</p> <p>Hill Area It is advisable to provide deciduous trees and at the same time allow winter sun to heat up the buildings.</p>	

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.

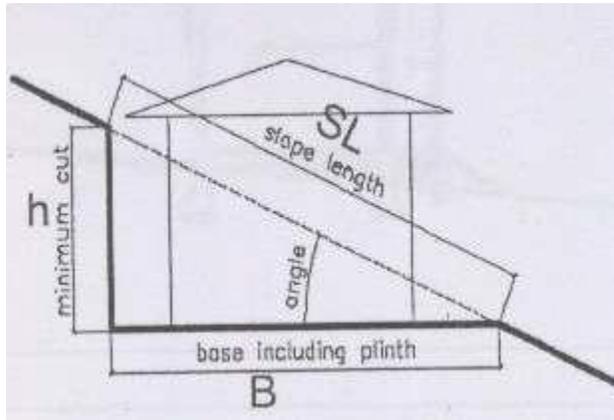
3.2 Site Selection and Planning: Both, site selection and site planning have a major input on the relative "greening" of any school facility being planned. Site selection for school includes such issues as transportation and travel distances for students, impacts on wildlife corridors, and impact on 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 asite 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.



Angle	Small Multipurpose Hall			Large Multipurpose hall		
	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

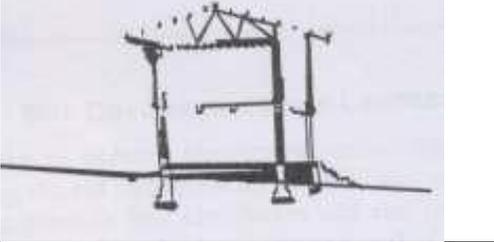
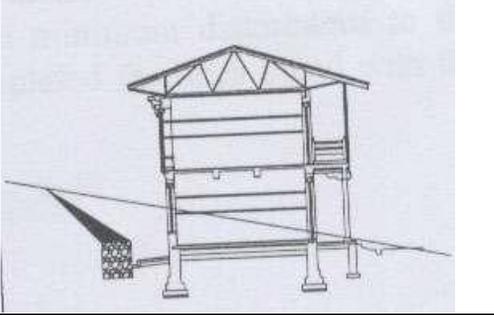
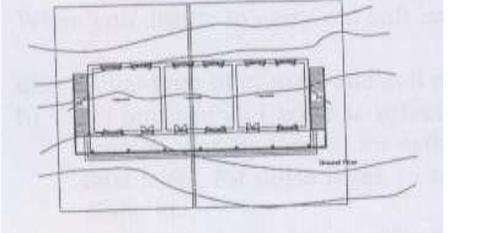
This table will help to guide during the site selection and site development.

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

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>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 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>	
<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.</p>	

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.

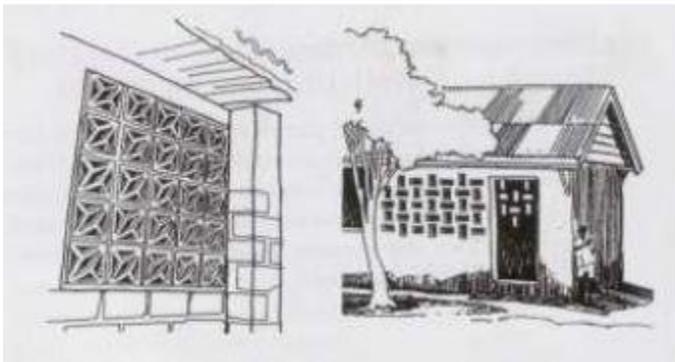
4. Day Lighting and Windows

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 mould 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 a 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 a 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 systems 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 do not 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. 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 both 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 feces 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 feces in school is one of the principal ways of breaking the fecal-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

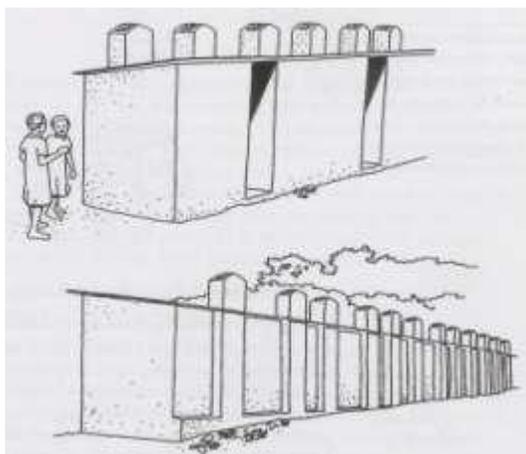
The planning and implementation of proper drainage system is very important. The following guidelines must be considered for drainage designing and in its construction.

- 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 sub drains, 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 desirous 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 does 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 chocking; 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.

Attachment 13: The Condition of Existing Infrastructure

A general format of stakeholder 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 replaces?
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?

