NEPAL INDIA TRADE AND TRANSPORT FACILITATION PROJECT (NITTFP)

Environmental and Social Management Framework

A Guidance Document for dealing with Environmental and Social Issues during Planning, Design and Construction of Sub-Projects under the NITTFP

March 25, 2013 (Draft Version)

Project Co-ordination Office, Ministry of Commerce and Supplies
Government of Nepal

Table of Contents

Acronyms

AADT	Annual Average Daily Traffic
BFC	Barandabhar Forest Corridor
BOQ	Bills of Quantities
CAS	Country Assistance Strategy
CBO	Community-Based Organization
CFAA	Country Financial Accountability Assessment
CFS	Container Freight Station
CPS	Country Partnership Strategy
DFID	Department for International Development (UK)
DoC	Department of Customs (Nepal)
DoR	Department of Roads (Nepal)
DoTM	Department of Transport Management (Nepal)
EA	Environmental Assessment
EMP	Environmental Management Plan
ESMF	Environmental and Social Management Framework
FCS	Fragile and Conflict Affected States
GAP	Governance and Peach Action Plan
GATT	General Agreement on Tariffs and Trade
GDF	Gender Development Framework
GESU	Geo Environment and Social Unit (Nepal DoR)
GoI	Government of India
GoN	Government of Nepal
GTZ	German Agency for International Cooperation
ICD	Inland Clearance/Container Depot
ICP	Integrated Check Posts
ICT	Information and Communication Technology
IEE	Initial Environment Examination
IFC	International Finance Corporation

IPPF	Indigenous Peoples Planning Framework
LCF	Local Consultative Forum
LCLA	Local Community Liaison Assistant
LPI	Logistics Performance Index
M&E	Monitoring and Evaluation
MoCS	Ministry of Commerce and Supplies (Nepal)
MoF	Ministry of Finance (Nepal)
MoPPWTM	Ministry of Physical Planning, Works and Transport Management (Nepal)
NGO	Non-governmental Organization
NITDB	Nepal Intermodal Transport Development Board
NITTFP	Nepal-India Trade and Transport Facilitation Project
NLTA	Non-Lending Technical Assistance
N-M	Narayanghat-Mugling
NTNC	National Trust for Nature Conservation (Nepal)
NTTFC	National Trade and Transport Facilitation Committee
OAG	Office of the Auditor General (Nepal)
ORAF	Operational Risk Assessment Framework
PAP	Project-Affected Person
PCO	Project Coordination Office
PFM	Public Financial Management
PIC	Public Information Center
RAP	Resettlement Action Plan
RoW	Right-of-Way
RPF	Resettlement Policy Framework
RSDP	Road Sector Development Project
RTI	Right to Information
SA	Social Assessment
SAARC	South Asian Association for Regional Cooperation
SAR	South Asia Region
SIA	Social Impact Assessment

SOE	Statement of Expenditure
VCDP	Vulnerable Community Development Plan
VDC	Village Development Committee
VOC	Vehicle Operating Cost
WBG	World Bank Group
WDR	World Development Report

Chapter 1

INTRODUCTION

1.1 Background

The South Asia Region (SAR) has experienced rapid growth of Gross Domestic Product over the past three decades, averaging nearly six percent per annum. However, there are two faces of this development. The first South Asia is dynamic, growing rapidly, highly urbanized, and is benefiting from global integration. The second South Asia is largely agricultural, landlocked, exhibits high poverty levels, suffers from many conflicts, is lagging and needs to be better integrated with the dynamic sectors in the region. Divergence between the two faces of the region is on the rise and several policy, institutional, and infrastructure constraints contribute to this dichotomy. Together, SAR economies account for 2.4 percent of world GDP. However, their share of world trade is only 1.3 percent, indicating a relatively poor performance in trade. Intra-regional trade as a share of total trade in South Asia is less than 5 percent, the lowest in the world.

The South Asia Region has the potential to raise growth through increased intra-regional trade. The region has the highest population density in the world and the average distance between cities and borders is low. These features naturally propel trade between countries, but presently this is hindered by policy, administrative and physical barriers. The World Bank's 2012 Logistics Performance Index (LPI), a global multi-dimensional assessment of logistics performance, shows that as in previous years, South Asia lags behind all other regions except Sub-Saharan Africa in overall logistics performance. India's performance is relatively strong (ranked 46), but the two landlocked countries, Afghanistan and Nepal, are among the weakest performers (ranked 131 and 151 out of 155, respectively). These two countries are also the poorest in the region. Estimates suggest that annual intra-regional trade in the region could increase from the current US$5 billion to US$20 billion if restrictions on trading with neighbors are removed. The benefits of scale economies could be even larger for the small landlocked countries.

With regard to Nepal specifically, exports suffer from low productivity, high tariffs, and poor transportation infrastructure. Over 60 percent of Nepal's imports and exports are traded with India, while China is emerging as a major source of imports for the country. Nepal needs policies to enhance linkages to shipment lines, improve the efficiency of customs, expand airport storage capacity, and address transport and labor issues.

In addition to policy and institutional reforms aimed at removing domestic constraints to growth and job creation, market integration and infrastructure connectivity are key elements to removing the trade facilitation constraints faced by landlocked countries such as Nepal. That landlocked countries face much higher trade costs than coastal countries is well established. Such countries have to rely on their coastal neighbors for access to export gateways and to access regional and global markets. The interdependence is across several fronts, in terms of infrastructure development, harmonization and integration of policies and procedures and synchronization of operational practices. Effective cooperation and coordination across these areas is fundamental to reducing trade costs and enhancing trade competitiveness.

To address the hard and soft infrastructure bottlenecks to trade and transport connectivity, the Government of Nepal has requested financial and technical assistance from the World Bank to support the Government's goals of enhancing international and intra-regional trade by addressing the infrastructure and non-infrastructure constraints in the country.

1.2 Need for the Project

Nepal is a geographically small landlocked country, nestled between China and India, the two most populous and among the world's most rapidly growing economies. Its territory is mostly mountainous and hilly and its transport infrastructure is poor, leaving many communities with limited access to local and international markets. As a consequence, transport costs are high and the country near-completely depends on India for transit routes.

Sharing about 1,800 km long border and 26 border points, India is often considered Nepal's 'natural' trading partner. The port of Kolkata in India has been serving as Nepal's access to the sea and is a major transit point for Nepal's third-country trade. India also provides a large market for Nepali goods and services, and is Nepal's largest trading partner, with about 60 percent of Nepal's trade going to or coming from India. Despite its proximity and deep economic relations with India as well as China, Nepal's trade outcomes have been poor. Since 2007, exports have been stagnant, while imports have increased by more than 50 percent resulting in high trade deficit.

The Nepal Trade Integration Strategy (NTIS), 2010 prioritizes the need to facilitate trade and improve the country's export competitiveness. Key objectives include strengthening the capacity of the country's trade-related institutions, strengthening export industries that promote economic inclusion, and strengthening the Government's capacity to implement the NTIS, coordinate trade-related institutions and technical assistance. To take advantage of the opportunity to transform Nepal from a landlocked to a land-linked country that links to regional and global trade,

Nepal would need to address its high transport costs, attributable to its poor transport infrastructure and cumbersome trade-related policies, systems and procedures.

Enhancing trade competitiveness is one of six priorities of the Government of Nepal's development plan. The Nepal Trade Integration Strategy (NTIS), 2010 seeks to enable inclusive growth in Nepal through enhancing the competitiveness of Nepal's exports and reducing the cost of trade. The priorities of this strategy include: (i) reducing the time and cost of trade-related transactions through efforts at simplification, harmonization, and automation; (ii) building the capacity of domestic trade-related institutions including for sanitary and phytosanitary inspections, trade negotiations, trade facilitation and logistics, and monitoring and regulating trade-related sectors; and, (iii) enhancing the Government's ability to coordinate trade-related institutions and development partners.

Towards meeting the priorities identified in the NTIS, the World Bank is currently implementing the Nepal Regional Trade Non-Lending Technical Assistance Program (NLTA) designed to enhance the government's capacity to implement the NTIS by providing technical assistance to the key trade-related institutions to: (a) develop plans for trade facilitation and logistics; (b) put in place an effective monitoring system; (c) undertake key sector studies and receive just-in-time expertise (as needed) and; (d) draft capacity development plans (including for HR development, change management and coordination).

Institutions covered by this NLTA include the Ministry of Commerce and Supplies (and its agencies Nepal Intermodal Transport Development Board Secretariat and Trade and Export Promotion Council), Department of Customs, and Ministry of Physical Planning, Works and Transport Management. Key results expected include: (i) Enhanced capacity to monitor transport time and costs at Nepal's main trade corridor, the Kolkata-Raxaul-Birgunj-Kathmandu Corridor; (ii) Enhanced capacity to coordinate trade-related institutions and development partners; and (iii) Enhanced capacity/knowledge in trade facilitation and logistics.

To take forward the actions/activities identified by the NLTA, ***the Nepal India Trade and Transport Facilitation Project (NITTFP)*** has been designed. The Government of Nepal (GoN) has requested the World Bank to provide IDA financing, to support Nepal in addressing its commitments to enhancing regional trade including along the Kathmandu-Kolkata Corridor. Apart from improving road segment within Nepal in need of repair and expansion, reforms are planned to address the fragmented supply chains arising from operational, organizational, procedural, regulatory issues and business practices, and to modernize the transit regime within Nepal and between Nepal and India.

1.3 Objectives of the Project (NITTFP)

The proposed development objective is to facilitate efficient transport and transit of goods traded between Nepal and India including third-country trade. This will be done by reducing key trade-related infrastructure constraints within Nepal, and by alleviating soft barriers to trade between Nepal and India. The expected outcome as a result of project interventions is a reduction of transport time and logistics costs for Nepal's international trade.

The project seeks to enhance Nepal's capacity to promote and facilitate international trade, and support cooperation in trade and transport facilitation between Nepal and its largest trade partner as well as trade gateway, India.

1.4 Components of the Project

The project would comprise of three components. The proposed activities under each of these components have been briefly described below:

Component 1: Modernize transport and transit arrangements between Nepal and India

The project seeks to improve the efficiency of the systems used to manage and control the movement of Nepal's and India's international trade by providing technical assistance to introduce a modern and effective transit regime between the two countries including assistance to:

(a) Nepal to propose evidence-based amendments to the Transit Treaty and Rail Services Agreement in order to expedite the movement of third-country trade passing through the two countries;

(b) Nepal and Indian Customs to simplify and harmonize customs and border management procedures, processes and systems, especially to provide for electronic interchange of transit data; and,

(c) the road transport regulatory authority in Nepal to strengthen and modernize the regulation of international trucking services including axle load control and road safety from a transport management perspective.

Component 2: Strengthen Trade-Related Institutional Capacity in Nepal

(a) **Trade Portal and Single Window System Development**

The project will finance the design, development and implementation of two closely interrelated information and communications technology (ICT) systems and related business process improvements to improve transparency and

integrity, lower trade transaction costs, improve inter-agency coordination and reduce the time taken to clear goods. These systems will also assist Nepal to comply with current and future WTO requirements (GATT Article X) dealing with publication of trade rules and transparency. The Nepal Trade Information Portal (NTIP) will provide a single user-friendly website where comprehensive and up to date information on all tariff and non-tariff measures (including all relevant rules, regulations, procedures and fee schedules) applied at the time of import, export or transit is readily accessible to traders. The Nepal Single Window System (NSW) will allow traders to submit and have processed all required import, export and transit documentation electronically via a single gateway instead of submitting essentially the same information numerous times to different government entities. A significant amount of preparatory work for the component has already been undertaken under the Bank-managed NLTA program including an assessment of the legal and regulatory framework, preparation of options for the most effective governance and operational models, preparation of the technical and functional architecture for the NSW, preliminary work on business process simplification, change management and communication as well as capacity building for officials and the trading community. Lessons from successful Trade Portal and National Single Window systems elsewhere in the world (such as Lao PDR for the Trade Portal and Singapore, Philippines, and Indonesia for the Single Window) have been incorporated into the project design.

(b) **Institutional strengthening for Inter-agency Coordination including financing of Project Coordination Office (PCO)**

Coordinating the multiple trade-related agencies in any country is a complex resource-intensive task, and Nepal currently does not have sufficient capacity to manage this task and ensure active and sustainable cooperation between multiple stakeholders. As such, the focus of this sub-component will be on strengthening Nepal's National Trade and Transport Facilitation Committee and the capacity of the Ministry of Commerce and Supplies (MoCS) to coordinate the trade-related agencies. Since the PCO is established within MoCS, its capacity will be strengthened to coordinate the implementation of the different activities and components of the project. Technical advisors will be hired for every sub-project, as well as skills for procurement, financial management, environmental and social safeguards, and monitoring and evaluation (M&E).

Component 3: Improve Select Trade-Related Infrastructure

a) **Expand and upgrade the Narayanghat-Mugling road section and implement measures for improvement of entire Birgunj-Kathmandu Corridor:** Upgrade and expand 33km of the Narayanghat-Mugling road section to Asian Highway Standard and address road safety, axle load control and biodiversity conservation issues along the trade corridor. This section experiences the heaviest traffic load carrying 90 percent of Nepal's international trade traffic (about 6000 vehicles per day).

   Since the improvement of border post infrastructure is expected to increase traffic along the entire Corridor from Birgunj to Kathmandu, the Project will also finance studies for the upgrading and expansion of other segments along the Corridor including the Birgunj-Hetauda section. Studies to be financed include those for environmental and social safeguards (including biodiversity management) as well as feasibility and design studies for the upgrading and maintenance of bridges along the corridor, and for the upgrading and expansion of the Birgunj-Hetauda road section.

b) **Build a Container Freight Station (CFS) in Kathmandu:** To facilitate the loading and distribution of goods in the Kathmandu Valley, a CFS will be built in the Kathmandu Valley. The CFS will contain a parking lot and warehousing facility. Government will acquire the required land. Five possible sites were reviewed, with the optimal one being the site in Chobar formerly used for a cement factory and is now no longer operational. This site is owned by Government with access to the Inner Ring Road and Outer Ring Road.

c) **Improve the infrastructure at Birgunj and Bhairahawa ICDs:** Improvements are needed at these two key ICDs to facilitate further trade and to improve the efficiency of current trade.

   At the Birgunj ICD, the existing warehouse shed covers only about half the length of a train shipment. During the rainy season, the remaining goods are exposed to the elements and perishables goods would rot or suffer damage. There is also insufficient space for the loading and unloading of existing and anticipated future goods trade, which prolongs the queue/idle time and clearance time. Disabling of a set of unused tracks would create additional space for loading and unloading of Nepal's international goods trade which would also speed up these processes. The new extra space is especially needed for edible oils.

   At the Bhairawa ICD, heavy rains and usage have caused severe damage to the surface of the ICD infrastructure including the access road and parking lot. Resurfacing with better materials is needed to restore the ICD to a useable

state. A maintenance plan will also be prepared to prevent such damage in the future.

d) **Pilot Multi-Functional Joint Analysis Laboratory** (including for Customs and SPS testing including food, plant, and animal quarantine): i) Provide capacity and change management support to agencies and stakeholders involved in the SPS testing and certification process to agree to simplify and harmonize their procedures within Nepal, and to draft a work plan towards upgrading standards and mutual recognition of certifications between Nepal and India. If co-located multi-functional laboratories are deemed necessary to facilitate the clearance process, a work plan with the input and agreement of stakeholders will be drafted which will include a governance plan, HRD plan, and operational procedures.

The agencies and stakeholders involved in this initiative/working group include the Ministry of Commerce and Supplies, Department of Customs, Department of Agriculture, Department of Livestock Services, Department of Food Technology and Quality Control, and the Chamber of Commerce. (ii) Finance the provision of equipment, IT systems and connectivity, technical assistance, staffing and human resources capacity development, and change management support to pilot one or two new multi-functional, multi-agency, joint analysis laboratories at locations to be determined by stakeholders.

1.5 Project Cost and Financing

The estimated total project cost is US$101 million (m). IDA will finance US$99 million, and the IFC will provide US$2 million in support from its South Asia Regional Trade and Integration Program (SARTIP).

The components of the proposed Project represent a subset of the Government's plan to facilitate regional trade and transport. Due to IDA financing constraints and implementation capacity considerations, this first regional project for trade and transport facilitation in SAR will not finance all of the sub-projects and activities submitted by Government to the World Bank Group. Instead, this project is being considered as an entry project for the sector, and follow-on projects can be expected following successful implementation of this project.

1.6 Need for Environment and Social Management Framework

Although the general thrust and broad project interventions are well understood as outlined above, the specific details about the project components/activities except for the investment proposition as defined under 3a (the road sub-component) above are yet to be defined and therefore the nature and scale of their impacts, will be known

only later. In such a situation, where sub-projects or activities will be located in different development regions of the country with varying geographical, topographical and socio-economic conditions, a need was felt to prepare a document that will 'guide' the planning, design and construction elements of sub-projects. Such a guidance document or a framework would help in integrating and harmonizing the environment and social management principles in the various stages of project preparation and execution. In this context, an Environment and Social Management Framework (ESMF) (this document) has been prepared for the Nepal India Trade and Transport Facilitation Project.

The Environment and Social Management Framework will form part of the comprehensive environmental and social management approach that has been adopted for addressing the potential environmental and social impacts from this project, even when these are considered minor in nature.

1.7 Purpose and Objectives of the ESMF

The Environment and Social Management Framework seeks to:

1. Establish clear procedures and methodologies for environmental and social planning, review and approval of sub-projects to be financed under the Project.
2. Consolidate and facilitate understanding of all essential policy and regulatory features of the Government of Nepal as well as the World Bank's environmental and social safeguards regime that are applicable to the project
3. To provide practical guidance on the implementation of the environmental and social management measures.
4. Specify institutional arrangements, including appropriate roles and responsibilities for managing, reporting and monitoring environmental and social concerns of the sub-projects and;
5. Determine the other institutional requirements, including those related to training and capacity building needed to successfully implement the provisions of the ESMF.

The application and implementation of the ESMF therefore, will:

1) Support the integration of environmental aspects into the decision making process of all stages related to planning, design, execution, operation and maintenance of sub-projects, by identifying, avoiding and/or minimizing adverse environmental impacts early-on in the project cycle.

2) Minimize environmental degradation to the extent possible resulting from either individual sub-project or through indirect, induced and cumulative effects of project activities.

3) Enhance the positive/sustainable environmental and social outcomes through improved/appropriate planning, design and implementation of sub-activities/sub-components.

4) Build the capacity of the Project Coordination Office of the Ministry of Commerce and Supplies to take-up and coordinate responsibilities related to application and implementation of the ESMF, including the preparation of the sub-project specific Environmental Assessment and Management Plans (if required).

5) Protect human health and minimize impacts on cultural property.

The use/implementation of the Environment and Social Management Framework will also support compliance with applicable legal/regulatory requirements of Govt. of Nepal as well as with the requirements set forth in the relevant Bank policies.

1.8 Application of the ESMF

The ESMF would be integrated into the preparation and implementation stages of the various project components/sub-projects. It is an essential ingredient aligned with the project/sub-project activities and is to be followed through the entire project cycle from planning, including site identification; design; implementation and operation/maintenance to attain the above outlined purpose and objectives.

The ESMF will enable potential social and environmental concerns of the proposed sub-projects to be thoroughly assessed in the planning/design phase and will allow for appropriate measures to be considered during the project implementation. The ESMF has been developed as a decision-making tool to ensure that the activities selected and implemented under project are responsive and sustainable both environmentally and socially. This framework will serve as a tool to guide the project implementers to select the optimal project intervention required to address social and environmental concerns and accordingly prepare/design mitigation plan/s for the planned sub-project/activity.

1.9 Revision/Modification of the ESMF

The ESMF will be an 'up-to-date' or a 'live document' enabling revision, when and where necessary. Unexpected situations and/or changes in the project or sub-component design would therefore be assessed and appropriate management measures will be incorporated by updating the Environment and Social Management Framework. Such revisions will also cover and update any changes/modifications

introduced in the legal/regulatory regime of the country. Also, based on the experience of application and implementation of this framework, the provisions and procedures would be updated, as appropriate in agreement with the World Bank and the implementing agencies/ departments.

1.10 Limitations of the ESMF

This Environment and Social Management Framework has been developed in line with World Bank's Operational Policies (OPs) and is based on the national and state laws and regulations, as applicable at the time of preparation of this document. Any proposed modifications in the laws, regulations or guidelines that were notified as 'draft' at the time of preparation of this document have not been considered.

1.11 Key Contents of the ESMF

The Environment and Social Management Framework for NITTFP has been structured along the lines:

- Chapter 1: Introduction
- Chapter 2: Over-view of the Project Area
- Chapter 3: Regulatory and Legal Framework
- Chapter 4: Potential Environmental and Social Impacts
- Chapter 5: Environmental and Social Management Process for NITTFP
- Chapter 6: Resettlement Policy Framework (including Framework for Vulnerable Community Development)
- Chapter 7: Environment Management Framework (including Codes of Practice)
- Chapter 8: Consultation and Dissemination Framework
- Chapter 9: Institutional Arrangements (including monitoring and reporting).
- Annexures

Chapter 2

OVER-VIEW OF THE PROJECT AREA

Nepal is a geographically small land locked country, nestled between China and India, the two most populous and among the world's most rapidly growing economies. Nepal, occupying the central part of the Hindu-Kush Himalayan belt, covers an area of 147,181 square kilometer. The country shares border with India on east, west and south and with the China Xizang Autonomous Region in the north. It is separated from Bangladesh by the 15 kilometer strip of India's West Bengal and from Bhutan by India's Sikkim. On an average it extends about 900 km in east- west and 200 km in north-south direction. A brief over-view about environmental and social conditions of Nepal is being provided in this chapter for better appreciation of the conditions in which project activities will be planned and executed.

2.1 Topography

The altitude ranges from below 60 m to more than 8000 m in the Himalayas. Despite its small size, Nepal has a rich diversity of landforms. Geologically and ecologically, the country can be divided into three distinct regions namely the Terai, Hill Region (consisting of Shiwaliks and Middle Himalayas), and Greater/High Himalayas. The Terai or the plain region is about 300 m above sea level. The Hill Region is situated at 1000 mt. to 4000 mt. above sea level, encompassing the Kathmandu valley, which is the most urbanized and in terms of agriculture the most fertile land for food production. The high elevation Mountain Region has the world's highest peak at 8,848 m (Sagamartha/Mount Everest). All three regions run parallel to each other as continuous ecological belts with unique and diverse ecological zones. Broadly, the terai plain occupies about 20 percent of the total area of the country and the rest is hills and mountains.

2.2 Climate

Nepal's climate pattern varies in similar pattern to its altering altitude. In the Terai Region, the climate is tropical and sub-tropical. Based on altitude, Nepal is classified into five climatic zones.

- Tropical and sub-tropical zone (altitude below 1200 m);
- Cool, temperate zone (altitude between 1200 to 2400 m);
- Cold zone (altitude of 2400 to 3600 m);
- Sub-arctic climatic zone of altitude 3600 to 4400 m.
- Arctic zone with altitude above 4400 m.

The average annual precipitation is around 1600 mm of which almost 80 percent occurs during the period of June-September. The variation ranges from less than 300 mm in the rain shadow dry region to around 5000 mm in the wet region.

2.3 Hydrology

About 6000 rivers drain Nepal. These rivers are broadly classified into three categories based on the nature of their source and discharge. In the first category are perennial rivers that originate in the Himalayas and carry snow fed flows with significant discharge even in the dry season. This includes the Koshi, Gandak, Karnali and Mahakali river systems. In the second category are the rivers, which originate in the mid-lands of Mahabharat range of mountains and are fed by precipitation as well as ground water regeneration, including springs. Mechi, Kankai, Kamala, Bagmati, West Rapti and Babai rivers fall under this category. Although these rivers are also perennial, they are commonly characterized by wide seasonal fluctuations in discharge. The third category of river systems includes a large numbers of small rivers in the terai, which originate from the southern Siwalik range. These rivers are seasonal and are characterized by flash floods during the monsoon and little or no discharge during dry season. They drain the areas between basins covered by large and medium rivers.

2.4 Vegetation

The vegetation distribution in Nepal follows the climate spectrum. The Terai and Churia ranges are covered in moist deciduous vegetation consisting of *Khair* (Acacia catechu), *Sal* (Shorea rbusta), *Sisoo* (Dalbergia sisoo). At elevations of 5000 feet to about 10,000 feet which encompasses the Maharabhata ranges, the vegetation largely consist of a mixture of Pines, Oak, Rhododendrons, Walnuts and Larch. Beyond this vegetation belt, Birch and Rhododendrons abound. In the mid-mountain region, remaining forests are largely restricted to the most inaccessible forest areas, where there are limited human habitations and livelihood activities. But in the Terai region, Sal forests have been removed for habitation, infrastructure and other human activities.

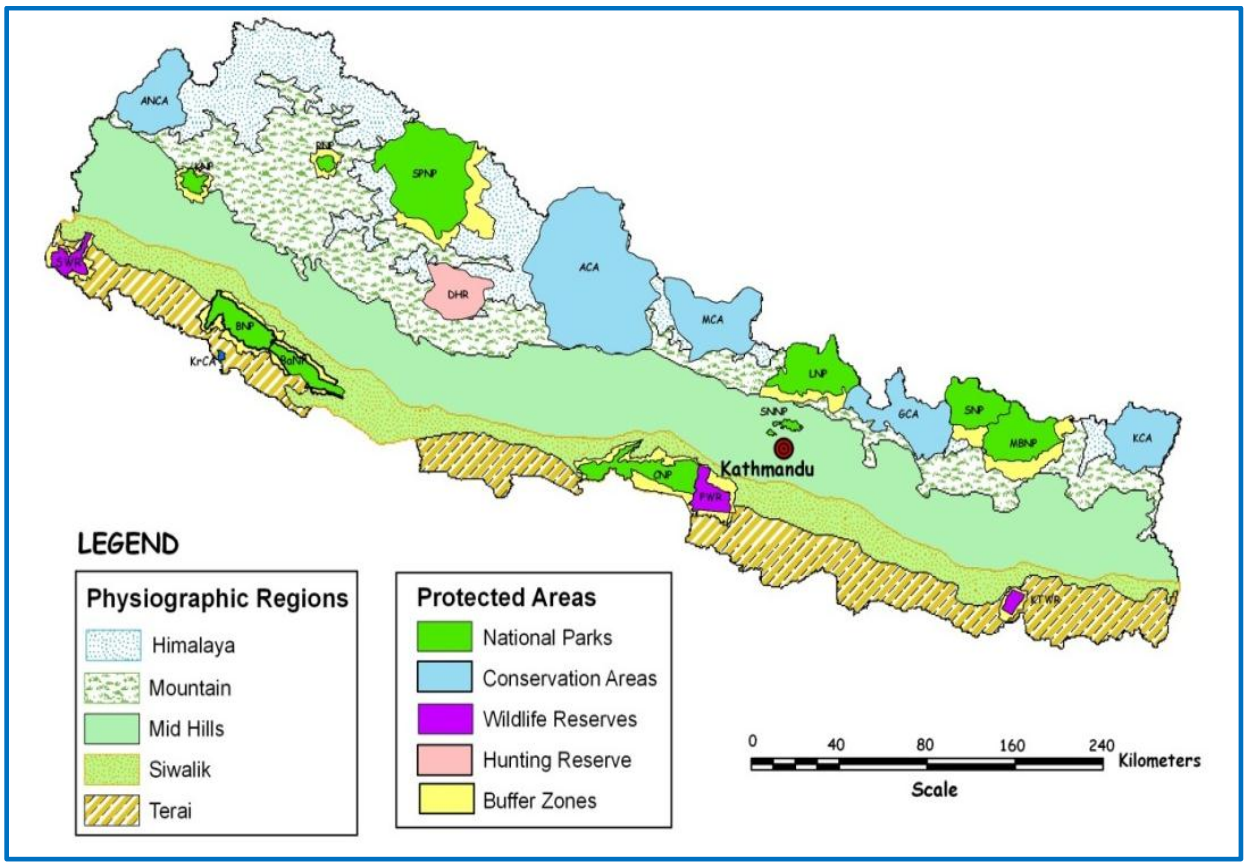
2.5 Fauna

From the lowlands of the Terai to the icy heights of the Himalaya, Nepal possesses biological diversity that is truly impressive. Nepal is one of the few countries in the world where the population of several keystone species have increased following the establishment of protected areas. The country has been highly successful in establishing an impressive network of protected areas as a means of protecting biodiversity. To date, from just 8% in 1980s, over 18% of the country's surface area

is now under protected area jurisdiction. The ratio of protected area to total land area of the country is one of the highest in Asia. With the introduction of the Buffer Zone concept, the area under conservation regime will increase further.

Although Nepal possesses an area of just 147,181 sq km (a mere 0.1% of the world's total landmass), it nevertheless accounts for over 2% of the world's flowering plants, about 8% of the world's bird species and over 4% of the world's mammal species. With such a vast biological repository of global significance, Nepal is undoubtedly a biological (as well as a cultural) hotspot that deserves special attention. And the fact that two of the protected areas Royal Chitwan and Sagarmatha National Parks are listed as UNESCO World Heritage Sites stands testimony to this.

Figure 2.1: Physiographic Regions and Protected Areas of Nepal



In terms of faunal distribution, the Terai arc region habours a majority of wildlife species including Tigers, Leopards, Gaur, Elephants, Wild Buffalo, Deer – Chital, Sambar, Swamp Deer. The Rapti valley located in the south central of the country has the largest population of the One-horned Rhinoceros.

Population of wild animals in the middle belt is relatively low compared to the Mountain and the Terai region largely to forest area clearing for human habitation. However, connecting corridors from the Terai to the Mountain ranges allow genetic

connectivity. The Musk deer, Tahr, Goral, Wild Sheep and Snow Leopards inhabit the Mountain (alpine) ranges. The river systems and wetlands are also rich in biodiversity, which includes several aquatic species and birds.

2.6 Natural Disasters

Rugged topography, young geology and monsoon climate, all combine to produce high rate of run-off, erosion and sedimentation. At times, tremendous natural forces as earthquakes, floods and landslides are unleashed. Human activities have also resulted in pressure on bio-physical resources of the country. Such natural features associated with intense monsoon rainfall as well as human interventions render the country highly vulnerable to water induced disasters such as floods, landslides, debris flow etc. demanding effective and sustainable counter measures.

Fragile geology, steep topography, high intensity rainfall and drainage congestion make Nepal's eco-system quite delicate. Floods, landslides and debris flows have been a common feature and have become a matter of great concern for human security, livelihood and sustainability of infrastructure.

2.7 Trade and Transport Infrastructure

Nepal’s territory is mostly mountainous and hilly and its transport infrastructure is poor, leaving many communities with limited access to local and international markets. It is largely dependent on India for transit connections and for links to marine transport from the Bay of Bengal, even for goods coming from China.

The transport sector in Nepal is dominated by road transport, which accounts for almost all domestic passenger and freight movements. Nepal does not have an operational domestic railway system, except for a short stretch at Birgunj that connects to the Indian system. Waterways and ropeways transport are also practically non-existent in Nepal. Road transport is therefore the only dominant mode of transport within the country and between the country and its neighbors. Road congestion is increasing at Nepal’s borders because of higher traffic volumes and because transit is constrained by the poor condition of roads.

All of these constraints and the country’s difficult terrain conspire to make Nepal’s transport costs among the highest in the world and second highest in South Asia after Afghanistan.

2.8 Population

The Preliminary Results of National Population Census, 2011 of the county estimates a total population of 26.7 million. Female population is estimated at 13.69 million while the male population stands at 12.92 million that is 48.56 percent males against

51.44 percent females. Nearly 1.8 million people live in mountains, 11.5 million in hills and 13.4 million in Terai. The population increased by 14.99 percent in the past decade with an average annual growth rate of 1.40 percent. Multiethnic and multilingual country with as many as 102 ethnic groups and 92 languages are noted in the country.

2.9 Gender Profile

Net Primary Enrollment in schools has increased from 81 percent in 2002 to 94.5 percent in 2010. Gender and social parity have been achieved in primary education. The Gender Parity Index for secondary school net enrollment has also increased from 0.87 (2007) to 0.98 (2010). Quota-system brought in over 33 percent of women in the Constituent Assembly. However, women's low status in the control of resources and political decision making remains, as does high incidence of violence against women (including early marriage and sex selective abortions).

The maternal mortality rate declined from 538 in 1996 to 380 per 100,000 live births, earning Nepal the MDG Millennium Award in 2010. The Infant Mortality Rate dropped from 79 in 1996 to 39 in 2010. At least one-third of deliveries are now in the presence of trained health workers. Full immunization coverage rose from 43 percent in 1996 to 87 percent in 2011.

The mortality rate among children under five years has been halved during the past 10 years which could be due to well-coordinated scale up of highly effective child survival interventions, such as vitamin A distribution, immunization and pneumonia treatment. The largest challenge today is addressing mortality among newborns, now accounting for 54 percent of all deaths among under-five children.

Gender disparities in political participation are decreasing both in elected and administrative government. Women now make up over 30 percent of the representatives in parliament. Implementation of an inclusion policy of women in the civil service shows positive trends. Although the legal age of marriage is 20 for both male and female, it is hardly implemented in Nepal. According to Muluki Ain marriage chapter, the legal age for marriage is 20 for both male and female 2010 or 18 where the marriage is solemnized with the consent of guardians.

About 55 per cent women aged 25-49 were married by the age of 18 in 2011, according to Nepal Demographic Health Survey (NDHS). Likewise, 18 per cent of women aged 25-49 years in Nepal are married by the age of 15. Women in Nepal get married at a fairly young age — the median age of marriage for women aged 25-49 in 2011 was 17.5 years. Only 19 per cent of men in the same age group are married by 18 years of age and the median age at first marriage for men aged 25-49 is 21.6, four years later than women, NDHS reported. As per the survey, only two per cent of

Nepali women aged 25-49 years had given birth by the age of 15, while 23 per cent gave their first birth by the age of 18.

2.10 Economic Characteristics

According to the Global Human Development Report 2009, Nepal has the lowest GDP per capita among all South Asian countries (UNDP 2009). It also ranks below most of her neighbors in the Human Development Index (HDI) ladder. The GDP per capita for Nepal in 2010 was about ------. The slow pace of economic growth in Nepal is also reflected in its GDP growth rates over recent years.

Human settlement is sparse in the Himalayan region due to harsh environmental conditions - the mountain region is the traditionally populated zones of the country. The Terai region, due to its comparative advantage in transportation and agriculture resources, has led to the higher population growth than in other regions. The economy remains heavily dependent on agriculture as approximately 66 percent of the national population is engaged in agriculture. In terms of output, however, only 36 per cent of the nation's GDP is accounted for by this sector.

Nepal remains in the 2013 list of Fragile and Conflict Affected States (FCS). The significant progress, including in the reintegration of the ex-combatants, is yet to result in completion of the peace process as outlined the Comprehensive Peace Agreement of 2006.

2.11 Land holdings

The land holding is a significant imbalance in land distribution according to the national survey in 2001/02. Only 5% of the population hold 27 % of lands of size 3 ha or more. About 51 % of the population confined 59% of land of size 0.5-3 ha. Likewise, about 44 % of the people hold 14 % of land of size less or equal to 0.5 ha.

2.12 Poverty

The country's current poverty level is 25.4 per cent, suggesting that it has been reduced by 5.5 percentage points since 2005. The 2008-2009 assessment of variation in poverty incidence geographically and socially remains much the same as 2005 reporting period. The 2009 assessment indicates that 95.5 per cent of poor people live in rural areas and the incidence of poverty in rural areas (28.5 per cent) is almost four times higher than that in urban areas (7.6 per cent). Furthermore poverty reduction rate in rural areas (18 per cent) is slower than that in urban areas (20 per cent). Remittances are one of the main contributors to poverty reduction.

2.13 Poverty Alleviation Programs

In the Tenth Plan followed by the second three-year Interim Plan (2010-12), the government has given priority to poverty alleviation. In this regard, some key programs such as Social Mobilization and Empowerment, Income Generation through Micro-enterprise Promotion, Community Infrastructure, Capacity Building and Human Resources Development have been emphasized to reduce poverty through Poverty Alleviation Fund (PAF) in Nepal. PAF seeks to contribute directly to achieve the national objectives: to attain the level of poverty to 10 percent in 20 years in pursuant with the long term goal of Nepal Government; and to reduce poverty by half by the year 2015 as per the Millennium Development Goals.

Chapter 3

REGULATORY AND LEGAL FRAMEWORK

All activities under the project must be consistent with the applicable laws, regulations, and notifications of the Govt. of Nepal that are relevant in the context of the proposed interventions/activities. The Project Coordination Office (PCO), Ministry of Commerce and Supplies (MoCS) and the concerned line departments/agencies would ensure that the sub-projects/activities proposed and executed under NITTFP are consistent with the regulatory and/or legal framework, whether national, state or municipal/local. Additionally, it is also to be ensured that activities are consistent with World Bank's operational policies and guidelines. This section is not a legal opinion on the applicability of the law but serves as guidance in the application of the various laws and regulations to the current project context.

3.1 Key Applicable National Environmental Laws and Regulations

This section highlights the salient features of select laws, which may have a bearing on the design and implementation on some proposed activities/interventions under the project. A summary of such applicable rules and regulations is furnished in the table below:

Table 3.1: Applicable Environmental Policies, Acts, and Regulations

Act/Regulation	Key Requirement/s or Salient Features	Applicability
Environmental Protection Act, 2053 BS (1997)	Any development project, before implementation, to pass through environmental assessment, which may be either IEE or an EIA depending upon the location, type and size of the project.	May Be. Depending on the location, type and size, a sub-project may require an IEE or an EIA
Environmental Protection Rule, 2054 BS (1997; Amendment, 1999)	Obliges the proponent to inform the public on the contents of the proposal in order to ensure the participation of stakeholders.	Yes. This would apply to individual sub-project as well as the over-all operation.
Forest Act, 2049 BS (1993)	Section 68 of the Forest Act, 1993 empowers the Government in case of no alternatives, to use the Forest Area for the implementation of the project if it is considered as a national priority by the Government.	Yes - if a sub-project is proposed on forest land.

Act/Regulation	Key Requirement/s or Salient Features	Applicability
	If there are no significant adverse effects on the environment while conducting such a plan, the Government may give assent to use any part of the Government Managed Forest, Community Forest, Leasehold Forest or Religious Forest for the implementation of such a plan or project.	
Forest Rules, 2051 BS (1995)	• Elaborates legal measures for the conservation of forests and wildlife. • Rule 65 of the Forest Regulation stipulates that in case the execution of any project having a national priority in any forest area causes any loss or harm to any local individual or community, the proponent of the project itself shall bear the amount of compensation to be paid.	• Yes. Applicable if the sub-project location falls within a forested area. • Yes. Applicable if sub-project location is selected within a forest area.
Forest Policy (2000)	Policy emphasizes the conservation of natural resources and biodiversity. The Forest Policy has re-emphasized the conservation of forests, species and soil, and their sustainable use. The policy calls upon enhancing people's participation in the development and management of forests, and promotes to include the communities in the decision-making process. The policy also promotes benefit sharing, which are accrued from natural resources management, particularly the forests. The policy instruments oblige the project proponent to avoid or limit damage and/or affect the environmental resources while implementing project and/or program.	Yes. Applicable if the sub-project location falls within a forested area.
National Parks and Wildlife Conservation Act, 2029 BS (1973)	• Highlights prohibited activities in a protected area. Activities are not allowed in protected areas (National Park, Conservation Area, Wildlife Reserve, Hunting Reserve, Strict Nature Reserve and Buffer zones) without a written permission from authorized officials.	Yes. Applicable when a proposed sub-project is within a protected area.

Act/Regulation	Key Requirement/s or Salient Features	Applicability
	• The rule (Conservation Area Management Rule, 1996) helps in screening the sub-components of the project by assessing negative listings. • Addresses conservation of ecologically valuable areas and indigenous wildlife. The Act prohibits wildlife hunting, construction of houses and huts, damage to plants and animals etc. within the park and reserve, without the written permission of authorized agency/official-in-charge.	Yes. Yes. Applicable if a proposed sub-project location is within or close to a protected area.
National Environmental Impact Assessment Guidelines, 2050 BS (1993)	The guidelines provide 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.	Yes. Applies to civil works related with the construction/ improvement of facilities/ infrastructure in the project.
Solid Waste Management and Resource Mobilization Act 1987 (with amendment in 1992)	The Act describes the procedures for disposing solid waste. It categorizes harmful hazardous wastes and provides information on several controlling measure. There is provision to appoint inspection officer for checking and monitoring solid waste control and management. The inspector has authority to take action against the polluter or polluting agency. Disposal of battery and electronic goods can be carried out on the basis this act but it does not provide specific guidelines for the disposal of such wastes. Auctions are the procedure usually followed to dispose such wastes. Proposed amendment of 2011 for this act is under the process of endorsement.	May apply – depends on type of waste generated during construction and operation of facilities supported by the project.
The Labor Act, 2048 BS (1992)	Regulates the working environment and deals with occupational health and safety aspects.	Yes.

Act/Regulation	Key Requirement/s or Salient Features	Applicability
Local Self Governance Act, 2055 BS (1999)	Empowers the local bodies for conservation of soil, forest and other natural resources. Sections 28 and 43 of the Act provide the Village Development Committee (VDC) a legal mandate to formulate and implement programs related to protection/conservation of environment during the formulation and implementation of a district level plan.	Yes.
Local Self Governance Act, 2055 BS (1999)	• The Act provides more autonomy to District Development Committees (DDC), Municipalities and Village Development Committees. • Empowers the local bodies for the conservation of soil, forest and other natural resources and implements environmental conservation activities. • Sections 28 and 43 of the Act provide the Village Development Committee (VDC) a legal mandate to formulate and implement programmes related to protection of environment during the formulation and implementation of a district level plan.	Yes
The Interim Constitution of Nepal, 2063 (2007)	It has provision of right regarding environment and health - Every person shall have the right to live in clean environment; Every citizen shall have the right to get basic environmental service free of cost from the State as provided for in the law.	Yes
The National Transport Policy, 2058 BS (2001)	The policy emphasizes construction and improvement of the road/s that provide beneficial environmental impacts (MPPW, 2001). The policy also focuses on making arrangement to dispose battery, waste oil, grease and other oily substances at designated places.	Yes. Applies to N-M Road sub-project and may apply to other sub-projects that require creation of access roads.

Act/Regulation	Key Requirement/s or Salient Features	Applicability
Climate Change Policy GoN, 2001	Addresses the issues of climate adaption and disaster risk reduction. Fore-casting water-induced disasters, reducing vulnerabilities and providing early warning information for disaster management are some of the key points of the policy. The policy provides some guidelines to address the issues of *vulnerable infrastructure* in the context of reducing their risk to climate related disasters.	Yes. Applicable especially in the Terai region where land is susceptible to floods during peak rainy season and in hills which are prone to landslides.
National Bio-safety Framework and Policy, 2006	To protect bio-diversity and human health from the unfavorable impacts of imports, production and the use of genetically modified organisms (GMOs).	Yes.
Three Years Interim Plan, 2007-08 to 2009-10	Requires that all projects be formulated and constructed based on methods that optimally utilize the local skill and resources and generate employment opportunities.	Yes.
Information and Communication Policy, 2059 BS	The policy has developed long-term requirements for information and communication.	Yes.

3.2 Key Applicable National Social Laws and Regulations

There are a several laws related to addressing social issues in the country. The policies relevant to the project are briefly explained below.

Table 3.2: Applicable Social Policies, Acts, and Regulations

Act / Regulation	Salient Feature/s	Applicability
The Interim Constitution of Nepal 2063 BS (2007)	Article 19 of the Interim Constitution (2063) (2007)), Right to Property, states that "(i) Every citizen shall, subject to the laws in force, have the right to acquire, own, sell and otherwise dispose of the property"	Yes – if a sub-project requires private land acquisition.

Act / Regulation	Salient Feature/s	Applicability
	(ii) The State shall not, except in the public interest, requisition, acquire, or create any encumbrance on the property of any person. This clause shall not be applicable on property acquired through illegal means. (iii) Compensation shall be provided for any property requisitioned, acquired or encumbered by the State in implementing scientific land reform program or in public interest in accordance with law. The compensation and basis thereof and operation procedure shall be as prescribed by the law.	Yes – if a sub-project requires private land acquisition.
Land Acquisition Act, 2034 (1977 AD) and Land Acquisition Rules, 2026 BS (1969 AD)	The Land Acquisition Act (LAA), 2034 (1977), first promulgated in 1961 (Land Acquisition Act, 2018) is the core legal document to guide tasks related to land acquisition and resettlement activities in Nepal. Government can acquire land at any place in any quantity by giving compensation to the land owner pursuant to the Act for any public purposes or for operation of any development project initiated by government institutions.	Yes – if a sub-project requires private land acquisition.
Land Reform Act (LRA) 2021 (1964).	This Act establishes the tiller's right on the land, which he is tilling. The LRA additionally specifies the compensation entitlements of registered tenants on land sold by the owner or acquired for the development purposes.	Yes – if a sub-project requires private land acquisition.
The Forest Act, 1993	Clause 68 (1) of the Forest Act 2049 (1993) states that the government may permit the use of any part of government-managed forest, leasehold forest or community forest, if there is no alternative for the implementation of a plan or project of national priority without significantly affecting the environment. According to the clause 68 (2), if any loss to persons or community is involved while permitting use of such land, it is required to compensate the loss.	Yes – if a sub-project requires acquisition of forest land.

Act / Regulation	Salient Feature/s	Applicability
Guthi Corporation Act, 2033 (1976)	Land acquisition must also comply with the provisions of this Act. Section 42 of this Act states that Guthi (religious trust land) acquired for a development must be replaced with other land, rather than compensated in cash.	Yes – if a sub-project requires acquisition of Guthi land.
Labour Act, BS 2048 (1992)	This Act classifies those persons younger than 15 years as children and those between the ages of 15 and 18 as ''*Nabalik*.' The act specifies that working hours for Nabalik and women must be between 6 a.m. and 6 p.m. and prohibits night working hours for women. Children are prohibited from working. The Act also states that equal opportunity shall be given to women as that of men. Regular work hours for other employees must not exceed 8 hours in a day and 48 hours in week. For work conducted beyond that period, over time allowances must be paid at the rate of 150% of the normal hourly wages, not to exceed 4 hours each day. According to this act, employee wage rates shall not be less than the rate fixed by the concerned GoN offices.	Yes. The act is mandatory and directly relevant to implementation of the proposed project activities. It provides for the mode of appointment, working hours, control of child labor, equal remuneration and other labor requirements.

3.3 International Conventions

Nepal is signatory to many international conventions, which deal with the protection of environment and safeguard social interest. A few key that may apply to the project include the following:

Table 3.3: Applicable International Norms

Convention	Salient Feature/s	Applicability
Convention on Biological Diversity (CBD), 1992	The Convention on Biological Diversity was signed by Nepal at Rio de Janeiro on June 12, 1992. The convention and particularly Article 14 provides a broad framework on the need for carrying out EIA to minimize adverse impacts of the projects and programs on biodiversity.	Yes. Applies if a sub-project requires EA or may impact bio-diversity/ protected species/ areas.

Convention	Salient Feature/s	Applicability
ILO Convention on Indigenous and Tribal Peoples, 1989 (No.169)	In 2007, the UN Declaration on the Rights of Indigenous Peoples was adopted by the General Assembly. Nepal ratified ILO Convention No. 169 on September 14, 2007 (BS 2064/05/28). Article 1 of the convention provides a definition of tribal and indigenous peoples. Article 6 requires consultation with the peoples concerned through appropriate procedures and, in particular, through their representative institutions, whenever consideration is being given to legislative or administrative measures which may affect them directly. In Article 15, it states that indigenous and tribal peoples shall, wherever possible, participate in the benefits of natural resource utilization activities and shall receive fair compensation for any damages which they may sustain as a result of such activities. Article 16(2) clearly mentions that where the relocation of these peoples is considered necessary, such exceptional measures and such relocation shall take place only with their free and informed consent. Where their consent cannot be obtained, such relocation shall take place only following appropriate procedures established by national laws and regulations, including public inquiries where appropriate, which provide the opportunity for effective representation of the peoples concerned. Article 16(3) mentions that, whenever possible, these peoples shall have the right to return to their traditional land as soon as the grounds for relocation cease to exist. Article 16(5) specifies the persons thus relocated shall be fully compensated for any resulting loss or injury.	Yes. If there is presence of indigenous people in the sub- project area, the convention requirements are applicable to the proposed project.

Convention	Salient Feature/s	Applicability
Ramsar Convention on Wetlands	On the basis of this convention, The Nepal Environmental Policy and Action Plan (NEPAP) 1993 gives high priority to identification and protection of marshes, wetlands and water bodies, which are significantly rich in biodiversity. This plan has also recommended a study to assess the biological diversity of endemic plants and animals, both terrestrial and aquatic that occurs outside protected areas on farmlands, pastures, rangelands, forests, rivers, lakes and ponds. NEPAP is an effective initiative for the protection of wetlands and has provided a good policy foundation for developing the National Biodiversity Action Plan.	Yes. Applies if the sub-project area falls within or near wetlands, marshes or major water bodies.
Basel Convention, 1989	Basel Convention on the control of trans-boundary movements of Hazardous Waste and their disposal was adopted in 1989. The convention came into force in 1992 and 170 parties have been in this convention in 2008. The objectives of this convention are: - to minimize quantity and hazard of wastes generated. - to endure environmentally sound management and adequate disposal facilities to dispose of wastes as close as possible to their point of generation. - to reduce trans-boundary movements. - to prohibit exports from developed to developing countries. - to provide support to Member States.	No. The Basel Convention may not apply since project activities would not involve trans-boundary movement of hazardous materials.
Agenda 21	It is a non-binding international statement of goals and principles. It encourages countries to promote activities that are well supported in Nepal, such as alleviation of poverty, improved land use, conservation of biodiversity, public participation, empowerment of women, respect of indigenous cultures, working with NGOs, development of human resources etc.	Yes.

Convention	Salient Feature/s	Applicability
Other International Legal Instruments	• Plant Protection Agreement for the South East Asia and the Pacific (as amended), 1956. • Convention on International Trade in Endangered Species of Wild Fauna and Flora, (CITES), 1973 both deal with the protection of the environment	Yes. To ensure that traded products are not listed on CITES.

3.4 Applicable World Bank Policies

The World Bank's environmental and social safeguard policies (ten of them) are a cornerstone of its support to sustainable poverty reduction. The objective of these policies is to prevent and mitigate undue harm to people and the environment in the development process. These policies provide guidelines for the identification, preparation, and implementation of programs and projects.

The following operational policies of the World Bank are relevant in context of this Project from an environmental viewpoint:

Environmental Assessment (OP 4.01)

Environmental Assessment is used in the World Bank to identify, avoid, and mitigate the potential negative environmental impacts associated with Bank's lending operations early-on in the project cycle. The policy states that Environment Assessment (EA) and mitigation plans are required for all projects having significant adverse environmental impacts or involuntary resettlement. Assessment should include analysis of alternative designs and sites, or consideration of "no option" and require public participation and information disclosure before the Bank approves the project.

In World Bank operations, the purpose of Environmental Assessment is to improve decision making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted and their concerns addressed. The World Bank's environmental assessment policy and recommended processing are described in Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment.

Natural Habitat (OP 4.04)

The policy implementation ensures that Bank-supported development projects give proper consideration to the conservation of natural habitats, in order to safeguard

their unique biodiversity and ensure the sustainability of the environmental services and products which natural habitats provide to human society.

This policy is applicable when a project (including any subproject under a sector investment or financial intermediary loan) with the potential to cause significant conversion (loss) or degradation of natural habitats, whether directly (through construction) or indirectly (through human activities induced by the project).

Forest Policy (OP 4.36)

The implementation of the policy ensures that envisaged forest sector activities and other Bank sponsored interventions which have the potential to impact significantly upon forested areas:

(a) Do not encroach upon significant natural forest areas that serve important social, environmental or local economic purposes.

(b) Do not compromise the rights of local communities to continue their traditional use of forests in a sustainable fashion.

(c) Do not finance commercial logging operations, in the case of primary tropical moist forest, nor any purchase of equipment for this purpose.

Cultural Property (OP 4.11)

The World Bank Policy OP/BP 4.11 defines physical cultural resources as movable or immovable objects, sites, structures, groups of structures, natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community.

The Bank assists countries to avoid or mitigate adverse impacts on physical cultural resources from development projects that it finances. The impacts on physical cultural resources resulting from project activities, including mitigating measures, may not contravene either the borrower's national legislation, or its obligations under relevant international environmental treaties and agreements. The borrower addresses impacts on physical cultural resources in projects proposed for Bank financing, as an integral part of the environmental assessment (EA) process.

Indigenous People (OP 4.10)

This policy states that any development process under the Bank finance should fully respect the dignity, human rights, economies, and cultures of Indigenous Peoples.

Project should engage in a process of free, prior, and informed consultation with IPs that should result in broad community support to the project by the affected Indigenous Peoples.

Projects should include measures to avoid potentially adverse effects on the Indigenous Peoples' communities or when avoidance is not feasible, minimize, mitigate, or compensate for such effects. Project should ensure that the Indigenous Peoples receive social and economic benefits that are culturally appropriate and gender and inter-generationally inclusive.

The Policy will apply if there is presence of IPs in the sub-project area and if there are, the project will consult the indigenous community and will prepare vulnerable community development plan.

Involuntary Resettlement (OP 4.12)

OP 4.12 recognizes that involuntary land taking resulting in loss of shelter, assets or access and income or sources of income should be addressed by the project. Displaced persons should be meaningfully consulted, given opportunities to participate in planning and implementing resettlement programs and assisted in their efforts to improve their livelihoods and standards of living. Absence of legal title to land should not be a bar for compensation, resettlement, and rehabilitation assistance. Vulnerable groups such as indigenous people, women-headed households, and senior citizens should be entitled to special benefit package in addition to compensation and resettlement. The Operational Policy will be applicable in case there is involuntary land taking resulting in displacement of people and / or loss of livelihood or source of livelihood.

Chapter 4

POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

4.1 Potential Environmental Impacts

The proposed project will contribute to positive economic growth both locally in the project area and at the regional level between Nepal and India by removing barriers to trade and transportation created due to poor condition of hard and soft infrastructure. The main beneficiaries from the Project will be traders and businesses in Nepal and India who will benefit from reduced time and cost of exporting and importing goods. Consumers will also benefit from lower prices on imported goods.

The proposed improvement and upgrading of the Narayanghat-Mugling (N-M) road, one of the key interventions planned under the project will result in positive benefits. The expected positive outcomes of this sub-project include improved connectivity between the terai districts and Kathmandu enhancing access to economic opportunities, administrative centres, health services, higher education facilities and savings in travel time and transportation costs for the local population using the road. Beneficiaries will also include road users as well as households and shopkeepers near the road, who will benefit from safer road conditions.

However, specific interventions planned for the N-M road is likely to have some potential adverse environmental impacts in its area of influence. The road has been proposed for improvement under Component 3 of the project and an appreciation of its characteristics/ issues remains the most relevant from a safeguard analysis perspective for this project. Environmental Assessment (EA) was carried out for Narayanghat – Mungling Road and on the basis of the findings from this study, an Environment Mnanagement Plan has also been prepared. This separate report provides more information on this specific project activity.

The other trade-related infrastructure proposed under the project do not entail any adverse or significant environmental impacts. There may not be any adverse environmental impacts due to component 1 and 2 of the project. However, there are a few other infrastructure activities under component 3, for which the specific geographical location/s are not known.

In this light, the framework has identified the key potential adverse environmental impacts that may arise on account of the proposed inetervenions so that measures to address them can be taken early-on in the project planning and implmentation cycle.

Table 4.1: Potential Adverse Environmental Impacts

Sub-component	Activities	Probable Adverse Impacts
Building a Container Freight Station (CFS) in Kathmandu	• Construction of building • Development of associated site infrastructure	• Improper site selection • Potential clearing of forest patches • Potential destruction of niche habitat • Potential increase in local flooding and/or water logging from hard built surfaces with reduced percolation of floodwater • Temporary Noise and air pollution during construction/ demolition • Potential noise pollution during operation of wareshouse and associated infrastructure (including traffic) • Accidental pollution of air, soil and/or water from imported and exported products that are contaminated • Improper disposal of chemical re-agents used in laboratory analysis and other solid waste from the laboratory affecting surface/ground water • Loss of common property resources • Occupational Health and Safety Issues during construction and operation of trade facilities/infrastructure • Improper disposal of construction wastes affecting land and/or water resources • Change in land- use (such as from initial uses as agricultural or other subsistence activities).
Improve the infrastructure at Birgunj and Bhairahawa ICDs	• Extension of the warehouse shed • Paving between existing rail tracks • Re-paving of pavement	
Pilot Multi-Functional Joint Analysis Laboratory (including for Customs and SPS testing including food, plant, and animal quarantine)	• Refurbishment or construction of laboratories • Provision of equipment, IT systems and connectivity • Staffing and human resources capacity development, and change management support • Pilot one or two new multi-functional, multi-agency, joint analysis laboratories at locations to be determined by stakeholders	

The impacts identified at this stage are generic in nature. The ESMF requires higher level of specificity in terms of ascertaining the exact nature, scale, duration and severity of impacts during the planning and implementation stages of specific sub-components and activities. The specific impacts from sub-project activities will depend on location, design, construction and operation. Proper application and implementation of the ESMF would ensure that the project design and implementation of the proposed sub projects or activities are socially and environmentally responsive and sustainable.

4.2 Potential Social Impacts

There not be any adverse social impacts due to component 1 and 2 of the project. However, there are certain infrastructure under component 3 where the geographical locations are not known. The possible adverse social impacts due to the implementation of sub projects are listed below:

Table 4.2: Potential Adverse Social Impacts

Sub-component	Activities	Probable Impacts
Building a Container Freight Station (CFS) in Kathmandu	• Construction of building • Development of associated site infrastructure	• Involuntary land taking • Displacemnt of households (residential, commercial, residential cum commercial) • Loss of private immovable assets • Loss of livelihood • Loss of source of livelihood • Loss of common property resources
Improve the infrastructure at Birgunj and Bhairahawa ICDs	• Extension of the warehouse shed • Paving between existing rail tracks • Re-paving of pavement	
Pilot Multi-Functional Joint Analysis Laboratory (including for Customs and SPS testing including food, plant, and animal quarantine)	• Refurbishment or construction of laboratories • Provision of equipment, IT systems and connectivity • Staffing and human resources capacity development, and change management support • Pilot one or two new multi-functional, multi-agency, joint analysis laboratories at locations to be determined by stakeholders	

Social Impact Assessment was carried out for Narayanghat – Mungling Road under component 3 and Resettlement Action Plan and Vulnerable Community Development Plan have also been prepared.

Chapter 5
ENVIRONMENTAL AND SOCIAL MANAGEMENT PROCESS

The chapter lays out the steps for the environmental and social management process to be followed in the NITTFP.

5.1 Over-all Process for Managing Environmental Impacts/Issues

Two specific instruments have been developed for the project for effectively addressing the various identified environment and social issues:

1. Preparation of an Environment and Social Management Framework dealing with avoidance and minimization of the likely adverse impacts for the project as a whole and;
2. Environmental assessment and preparation of corridor-specific management plan for the Narayanghat-Mugling road, which has been identified as a key sub-project under Component 3 of the project. (report prepared separately)

Both these instruments include measures to minimize and mitigate environment and social impacts through all stages of the project. Proper integration of findings from the safeguard studies and public consultation process into the planning/decision-making process and engineering outputs (design and bidding documents) would help in avoiding/reducing the environmental and social issues that may arise due to the project.

To ensure that sub-projects (other than N-M road) do not cause any significant adverse impacts, the identified propositions will undergo an environment screening process. In case significant impacts are likely to occur, the sub-project/s in question will require environmental assessment and preparation of mitigation/management plans. The key steps for managing any potential adverse environmental impacts are outlined in the table below:

Table 5.1 : Key Steps for Managing Environmental Issues

Stages in Sub-Project Cycle	Steps in the Assessment Process
Sub-Project Identification & Pre-Feasibility Studies	1. Environmental Screening to determine key issues and appropriate selection of site. 2. Field verification to determine whether exclusion criteria have been adhered to.

Stages in Sub-Project Cycle	Steps in the Assessment Process
Project Design (for sub-projects that do not require detailed assessment)	1. Consultation with key stakeholders 2. Preparation of Environment Management Plan for sub-projects not requiring detailed assessment 3. Integration of the EMP into the Bidding Documents
Project Design (for sub-projects that require detailed assessment)	1. Initial Environmental Examination (IEE): Assessment of environmental impacts to determine level and scope of EA
	2. Scoping and TOR: Identification of key potential impacts and and propose terms of reference for the EIA accordingly.
	3. Baseline Data Collection: Identification of environmental and socio-economic conditions.
	4. Environmental Impact Prediction/Assessment: Assessment of impacts in terms of characteristics such as magnitude, extent, duration and significance in quantitative terms as far as possible; describe all reasonable alternatives, including preferred and 'no project' options.
	5. Mitigation Measures Design: Design to avoid, reduce and minimize adverse environmental impacts and enhance beneficial impacts
	9. Public Consultation and Participation: At various stages in the assessment process to ensure quality, compre-hensiveness and effectiveness of the stakeholders' participation and to adequately reflect/address their concerns.
	10. Preparation of Environmental Management Plan (EMP): Determination of specific actions to taken during engineering design and construction stages to minimize or mitigate negative impacts and enhance the positive impacts.

Stages in Sub-Project Cycle	Steps in the Assessment Process
	11. Report Preparation: Summary of all information obtained, analyzed and interpreted in a report form; also include a non-technical summary including methods used, results, interpretations and conclusions made. GoN's EPA and EPR do not demand for ISEA report. Rather IEE/EIA is sufficient for EA process but it should incorporate physical, chemical, biological, social, economic and cultural aspects/environment as these are considered to be the inseparable parameters of the existing environment as a whole.
Sub-Project Approval	1. Review and Approval of Technical and Safeguard Report/s: Review of report/s to assess if all possible issues have been adequately addressed to facilitate the decision-making process- decide if project should proceed, or if further alternatives must be examined or totally abandoned. 2. Integrate EMP into engineering design and bidding documents
Implementation	1. Orient / train the Contractor and other field staff on EMP requirements. 2. Supervise, Monitor and Regularly Report on EMP compliance 3. Determine clean-up and site rehabilitation before Completion and Final Bill Payment 4. Take corrective actions, as and if necessary
Post-Construction	1. Maintenance and Operation to include EMP compliance of post-operation stage

Keeping the over-all impacts of the project in mind and in particular the issues associated with the civil works of N-M road, NITTFP has been identified as a **category 'A'** project. OP 4.01 has been triggered to ensure that all major (like road) and minor (other trade-related infrastructure) investments are planned and

designed to be environmentally sound by integrating appropriate principles and approaches into the overall decision making process.

Exclusion Criteria

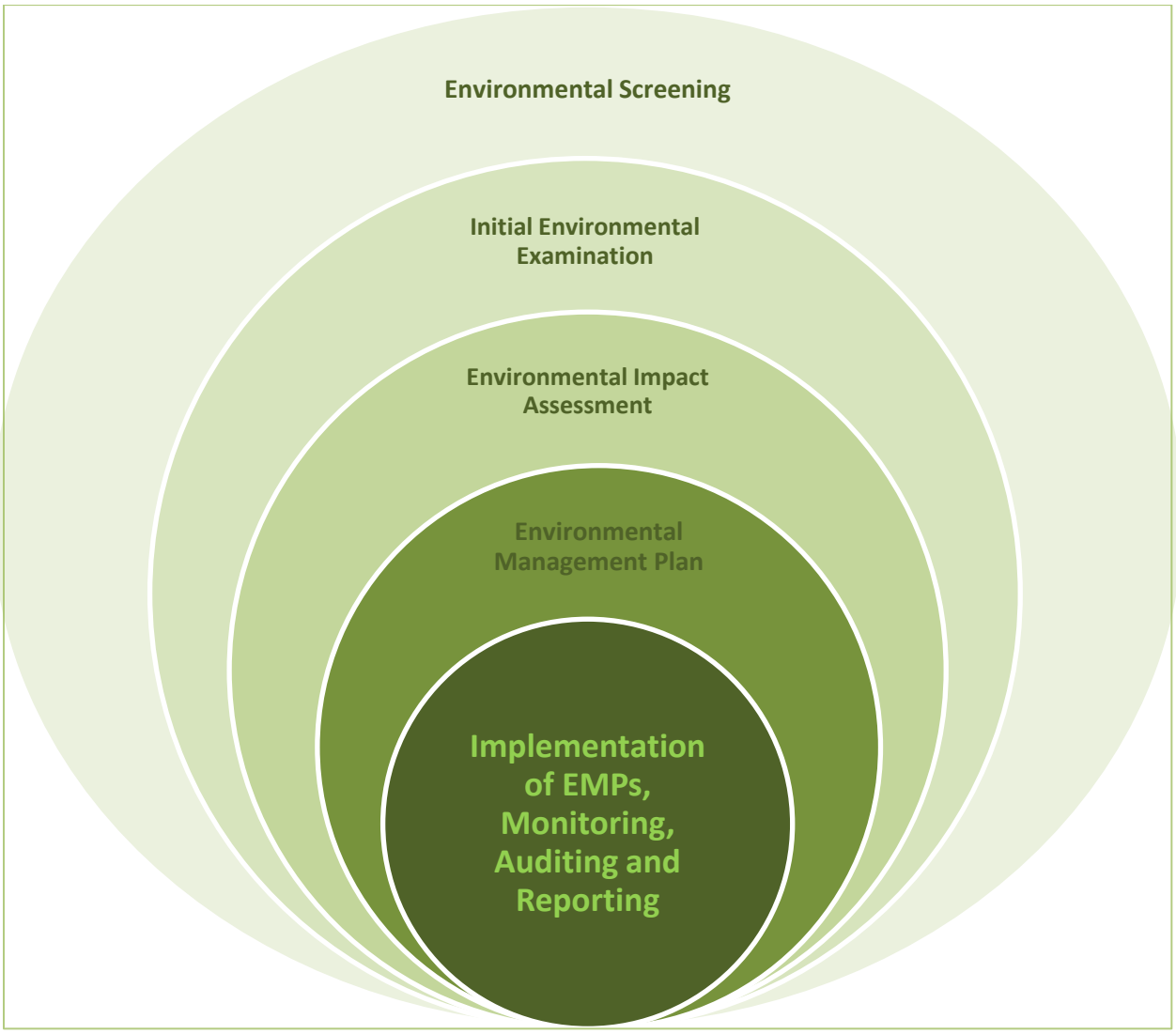
The following lists the sub-project activities that cannot be supported under the NITTFP:

- Any sub-project activity inside the core zone of a protected area.
- Any construction/rehabilitation of sub-project inside a critical natural habitat not under the 'protected area category', if the proposed activity has not undergone IEE or EIA level studies.
- Any construction activity inside a Government Managed Forest without obtaining written permit or authorization from the Department of Forest (DOF) in accordance with the requirements of prevailing legislations
- Any sub-project activity that involves use of explosives and blasting without obtaining written authorization from all concerned agencies and technical guidelines for best and safe practices of blasting.
- Any sub-project activity that involves the procurement and/or use of pesticides categorized as Class Ia, Ib and II as per WHO classification
- Any sub-project activity that involves the procurement and/or use of pesticides that has not been authorized in accordance with the Pesticides Act of the Government of Nepal.
- Any sub-project activity that may adversely impact a cultural resource, including construction within 50 m distance of any physical cultural resource, without written authorization from the concerning authorities.
- Any sub-project activity that requires relocation of households, acquisition of land and property without the preparation of Resettlement Action Plan.
- Any sub-project activity that is likely to make adverse impact on indigenous communities, women and vulnerable groups, without the preparation of Indigenous and Vulnerable Communities Action Plan

Environmental Screening

Every sub-project proposal to be funded under the NITTFP is subject to environmental screening process before it is selected for inclusion in the project. The screening process establishes the level of environmental assessment required and application of exclusion criteria given above. The screening process intends to:

Figure 5.1: Flow/Sequence Environmental Management Tools



1. Determine potential impacts of selected sub-components as to whether they are likely to cause negative environmental and social impacts
2. Determine the scope or focus of detailed assessment
3. Helps in making appropriate decision about inclusion or exclusion of the site/location under consideration.

Purpose/Objectives of Environment Screening

Primarily, the environmental screening exercise will be undertaken to determine the key environmental issues/concerns and the nature and magnitude of the potential environmental impacts that are likely to arise on account of proposed project/sub-project interventions. The major or key environmental issues to be identified will be

determined by the type, location, sensitivity and scale of the project/sub-project. The results/findings from this exercise are/will be used to determine:

- the need for detailed assessment
- extent and type of Environmental (Impact) Assessment requirement

The screening result will also be an important input for analyzing the 'feasibility' of the project/sub-project along with engineering/economics and social criteria.

Sub-project screening will be done against the prevailing legal to determine whether the sub-projects are subject to GoN's IEE, EIA or No-EA (or for that matter to determine the need for conducting SIA or RAP for social issues) process or whether the sub-project should not be included at all for funding under NITTFP if they are found to fall under the 'negative' list or 'exclusion' criteria set forth in this ESMF.

Initial Environmental Examination (IEE)

After identifying issues, the applicability of the Bank's environment and social safeguard policies will be established. Based on these, boundaries and scoping/focus areas for further assessment (IEE/EA) along with the use of specific instruments would be determined.

After the screening exercise is accomplished and the findings point out to the requirement of a detailed assessment, an IEE or EA will be conducted in accordance with the prevailing legislations/criteria and the requirements set forth in the ESMF. In this process, PCO, MoCS will facilitate the approval, initiation and co-ordination for such a study.

Table 5.2: Criteria for Conducting IEE and EIA

S.No.	Threshold Criteria for IEE	Threshold Criteria for EIA
1	Clear felling or rehabilitation of national forests with an area of not more than 5 hectares.	Clear felling or rehabilitation of forests with an area more than 5 hectares.
2	Relocation of 25 to 100 people due to project activities	Relocation of over 100 people due to the project activities
3	-	Sub-project location in Sensitive Area/s such as: • Historical, cultural, and archeological sites. • Environmentally weak and wet areas.

S.No.	Threshold Criteria for IEE	Threshold Criteria for EIA
		• National Parks, Wildlife Sanctuaries, and Conservation Areas. • Semi-Arid, Mountainous, and Himalayan regions. • Flood prone and other dangerous areas. • Residential, school, and hospital areas. • Areas with main sources of public water supply

Source: Environment Protection Rules 1997 (revised 1999)

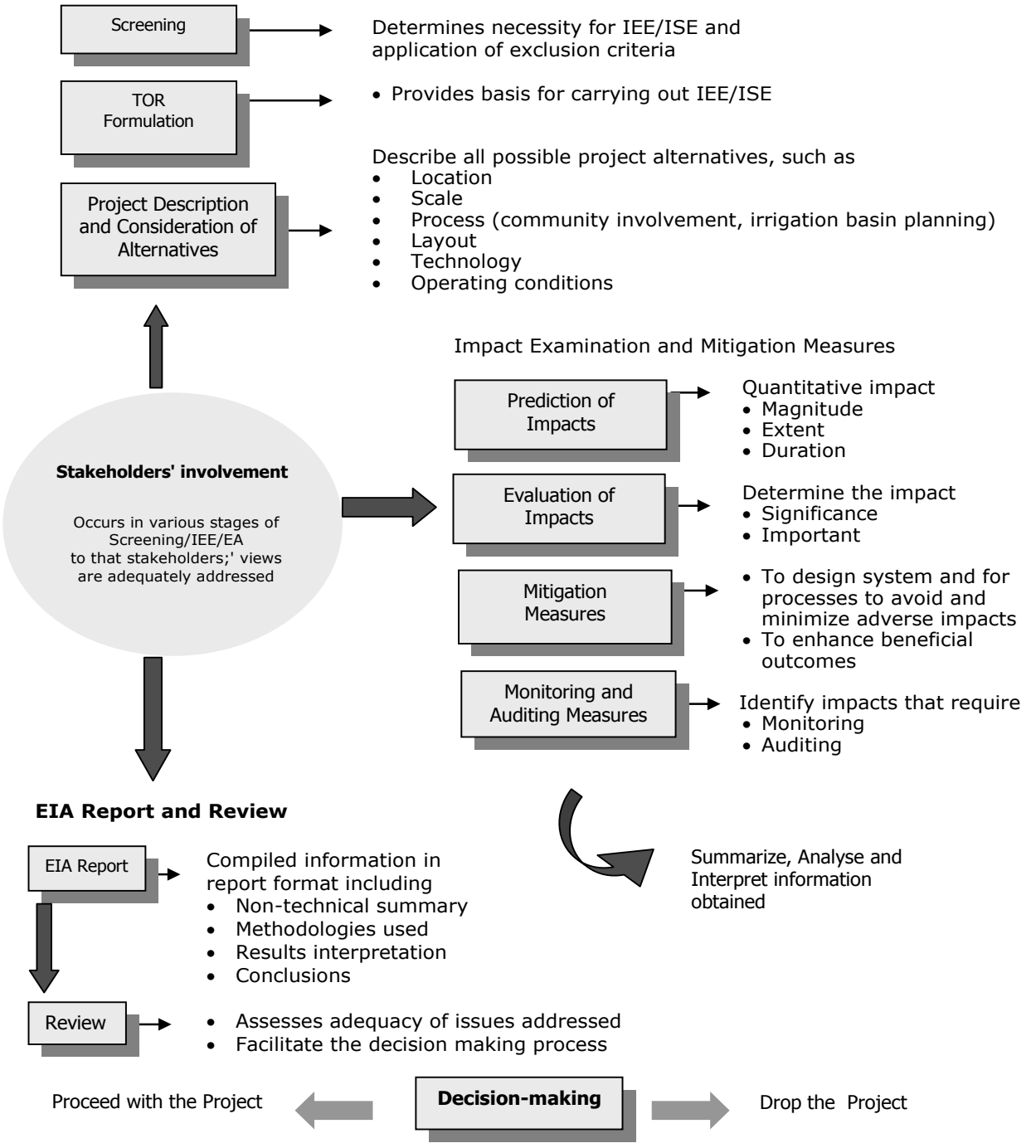
Environmental Impact Assessment (EIA/EA)

An EA/EIA consists of a comprehensive study that involves thorough documentation of existing conditions, and identification of impacts with a comparison of alternative project design options, including without the project option. EA has three objectives: assist decision makers in getting a clear picture of the potential impact on the overall environmental quality; provision of impact prevention and enhancement of benefits and minimization of impacts in the long term; and provide a forum that allows direct input from stakeholders in the managements of the project.

Ideally, an EA/EIA will have:

- ✓ General information on the sub-project and a gist of the sub-project activities
- ✓ Location for the proposed interventions (including map and topographical sheets)
- ✓ Potential benefits and need for the project
- ✓ Characterize the relevant features of the current ("baseline") state of the environment - biological, physical and socio-economic description of the sub-project area
- ✓ Requisite environmental clearance process
- ✓ Description of design options, implementation schedule and the projected costs for the project
- ✓

Figure 5.2: Key Steps in the EA process



✓ Description of the potential interactions between the intervention and the baseline environment – assessment of impacts building on findings from the screening/scoping exercise

- ✓ Assess the risks and implications of improper operation, failures, disasters and other (lower probability) events
- ✓ Identify key environmental issues and assess range and potential impacts on the existing environment (adverse and beneficial; direct and indirect; long and short term; temporary and permanent)
- ✓ Establish an effective stakeholder participation program and consult key stakeholders
- ✓ Any additional /specific studies to supplement EA
- ✓ Analysis of alternatives with particular reference to selected location for sub-project and the applicable engineering options and technologies - consider the implication of sub-project alternatives with and without the interventions with respect to both location and technologies.
- ✓ Summarize significant concerns and recommend needed actions to address each concern - management measures to avoid, mitigate and compensate any potentially significant adverse impacts
- ✓ Assess the residual impacts remaining after implementation of EMP measures
- ✓ Conclusion.

As per the Government of Nepal EPR rules, an EIA would be conducted for any sub-project for which an EIA is recommended by the IEE report. The EPA and EPR recommends that for the EIA, only one unified report should be prepared. This unified report would incorporate both environmental and social assessment covering physical, chemical, biological, social, cultural and economic impacts from the sub-project's development.

Suggested Structure of the Report

The following is the recommended table of contents of EIA:

- Executive Summary
- Introduction / Project Background
- Project description
- Policy, Legal and Regulatory Framework
- Status of the Environment (baseline data/information)
- Potential Environmental Impacts
- Project Benefits
- Analysis of Alternatives

- Additional studies (if applicable)
- Stakeholder consultations
- Environmental Management Plan
- Summary and Recommendations
- Annexes

The model outline does not explicitly provide section/sub-section headings for many of EIA activities. Therefore, the consultants will create their own customized outline from this model that provides the key heads/topics.

Analysis of Alternatives

For all project interventions other than the road sub-component, the requirement for analyzing alternatives has been detailed out in the ESMF. The ESMF prepared for effective safeguards management in the project, especially for selecting sites for the trade related facilities, requires analysis of various alternatives as part of the environment and social screening process. The screening results and analysis of alternatives, as needed on a case-to-case basis, will be reviewed and cleared by the Bank prior to approving the sub-project/s for implementation.

Environment Management Plan (EMP)

The preparation of an EMP is the next step and a main step in the EIA process after identifying potential impacts. It involves the identification and development of measures aimed at avoiding, mitigating, off-setting and/or reducing impacts to levels that are environmentally acceptable during planning, implementation and operation of a sub-project/project in question.

Certain activities/interventions will have an impact on the natural environment, the scale of which would depend on the existing baseline conditions in the sub-project area and thus would require a specific plan to institute and monitor mitigation measures and take desired actions in a timely manner.

For sub-projects that require a detailed assessment, EMPs will be derived from the impacts predicted and suggested mitigation measures.

For all other sub-projects, an EMP will be prepared using the environment codes of practice provided in the ESMF. These include guidance on: (a) site selection; (b) construction stage impact management (including health and safety aspects, disposal of wastes, camp site management, pollution abatement, appropriate sourcing of materials, site clean-up and rehabilitation), (c) consultations; and (d) monitoring and reporting.

An EMP would be sub-project specific, with the extent, magnitude and temporal scale of the sub-project activities determining the contents/coverage of the plan. Depending on extent of issues that are to be avoided, minimized and/or mitigated, the EMP will have concrete/specific mitigation actions, timelines and responsible persons.

For developing an EMP, the project will consider findings from the stakeholder/ public consultation process, including suggestions from domain experts and Project Affected People (PAPs).

Below are the proposed elements of an EMP:

- *Identified Impacts and Description of Mitigation Measures*: Under this sub-heading, the EMP will describe the identified impacts that may result from the project interventions. With reference to each impact, it will describe feasible and cost effective measures to minimize impacts to acceptable levels. More specifically, it will include:
  - Mitigation, enhancement, protection and compensation measures for each phase - design, pre-construction, construction and operation
  - Disaster management contingency plan where applicable especially in areas with potential flooding, earthquake zones
- *Enhancement Plans:* Positive impacts or opportunities arising out of the project will be identified during the EA process. Some of these opportunities can be further developed to draw environmental benefits to local communities within the project area/sub-project area. The EMP will try to identify such opportunities and develop a plan to systematically harness any such possible benefit.
- *Monitoring Plan*: In order to ensure that the proposed mitigation measures have the intended results and comply with GoN and World Bank requirements, an environmental performance monitoring program will be included in the EMP with the following suggested details:
  - Monitoring indicators to be measured for evaluating the performance of mitigation measure/s. Indicators should include principles in line with applicable GoN engineering and civil works standards.
  - Monitoring mechanisms and methodologies
  - Monitoring frequency
  - Monitoring locations
  - Expected cost of monitoring
  - Responsibility

- *Institutional Arrangements for implementation, monitoring and reporting:* Institutions/agencies responsible for implementing mitigation measures and for monitoring their performances will be clearly identified along with instruments that define their obligations. Where necessary, mechanisms for institutional co-ordination will be identified as often monitoring tends to involve more than one institution, which may be applicable in the case of the proposed sub-projects for the NITTFP.
- *Implementation Schedules:* Timing, frequency and duration of mitigation measures with links to over-all implementation schedule of the project will be specified.
- *Reporting Procedures:* Feedback mechanisms to inform the relevant parties on the progress and effectiveness of the mitigation measures and monitoring itself will be specified. Guidelines on the type of information wanted and the presentation of feedback information will also be highlighted.

✓ *Cost Estimates:* Implementation of mitigation measures mentioned in the EMP will involve an initial investment cost as well as recurrent costs. The EMP should include costs estimates for each suggested measure and also identify sources of funding.

✓ Standard construction environmental safeguards clauses for engineering and civil works

For NITTFP, EMP prepared for each sub-project activity would be integrated in the design and bidding documents.

Sub-Project Approval

In the event that a sub-project involves forest land diversion or requires tree cutting or requires detailed assessment (IEE/EIA), the project shall:

a) not go ahead with Bidding and/or Construction until a satisfactory EA and EMP has been prepared and shared with the affected community/stakeholders; and

b) not allow works to start until the regulatory permissions/consents are obtained in accordance with the framework.

The entire process and outputs, including its proper and timely application will be managed/ facilitated by the Project Co-ordination Office for NITTFP at the MoCS. All outputs (such as screening reports, IEE, EA, EMPs) would be shared with Bank for review and clearance during the preparation stage of sub-projects itself. Sub-projects need to have safeguards clearance prior to initiation of the bidding process for construction.

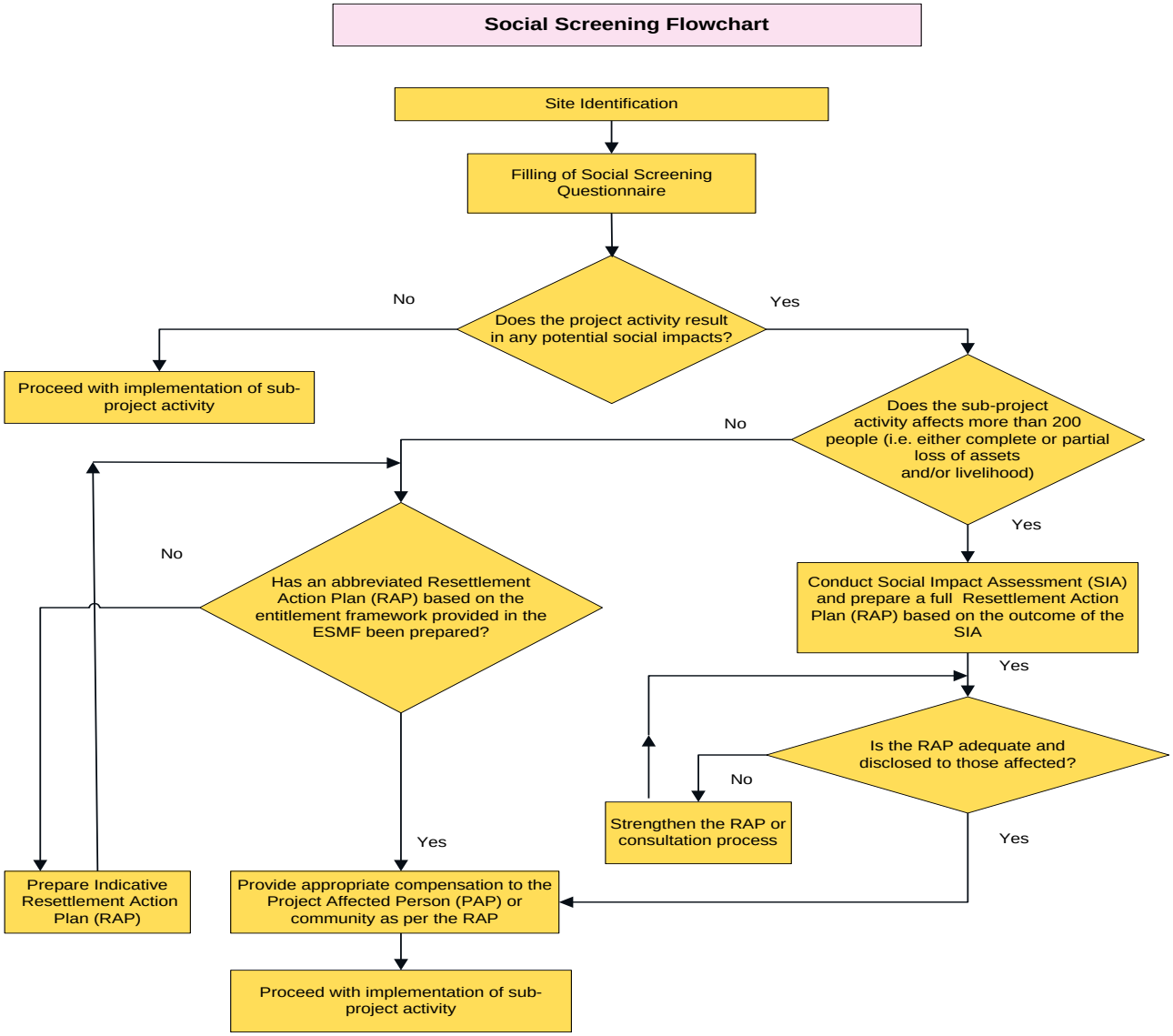
5.2 Process for Managing Over-all Social Impacts/Issues

The key steps are essentially the same as for dealing with the environmental issues – screening, assessment and preparation of mitigation plan. All of these steps and outputs will be managed/ facilitated by the Project Co-ordination Office for NITTFP at the MoCS.

Social Screening

Every sub-project proposal to be funded under the NITTFP is subject to social screening process before it is selected for inclusion in the project.

Figure 5.3: Social Screening - Flow Chart showing Key Steps



The screening process establishes the level of social assessment required and application of exclusion criteria given in the environment section of this chapter.

The screening process intends to:

a) Determine potential impacts of selected sub-components as to whether they are likely to cause negative social impacts

b) Determine the scope and focus of detailed social assessment

c) Helps in making appropriate decision about inclusion or exclusion of the site/ location under consideration.

A flow chart below explains how the screening process is to be applied in NITTFP.

Social Impact Assessment (SIA)

The project will undertake a survey for identification of the persons and their families likely to be affected by the project. Every survey shall contain the following municipality or ward / village-wise information of, the project affected families:

1. Members of families who are residing, practicing any trade, occupation or vocation in the project affected area;
2. Project affected families who are likely to lose their house, commercial establishment, agricultural land, employment or are alienated wholly or substantially from the main source of their trade occupation or vocation or losing any other immovable property.
3. Agricultural labourers and non-agriculture labourers.
4. Losing access to private property or common property resources

The project on completion of the survey will disseminate the survey results among the affected community.

Resettlement Action Plan

Based on the social impact assessment survey, project will prepare an action plan to mitigate or minimize the adverse impacts as identified during the survey. The draft mitigation plan in form of resettlement action plan (RAP) will be again disseminated among the affected individuals / community. The feedback received from the affected groups will be incorporated to the extent possible before finalization of the RAP.

Every-draft Resettlement Action Plan (RAP) prepared shall contain the following particulars namely:

a) The extent of area to be acquired for the project, the name(s) of the corresponding village(s) / municipality area and the method employed for acquiring land with the relevant documentation.

b) Village wise or municipality wise list of project affected families and likely number of displaced persons by impact category

c) Family-wise and the extent and nature of land and immovable property in their possession indicating the survey numbers thereof held by such persons in the affected zone;

d) Socio-economic survey of affected people including income/asset survey of PAPs.

e) A list of agricultural labourers in such area and the names of such persons whose livelihood depend on agricultural activities;

f) A list of persons who have lost or are likely to lose their employment or livelihood or who have been alienated wholly and substantially from their main sources of occupation or vocation consequent to the acquisition of land and / or structure for the project;

g) Information on vulnerable groups or persons for whom special provisions may have to be made;

h) A list of occupiers, if any

i) A list of public utilities and government buildings which are likely to be affected

j) A comprehensive list of benefits and packages which are to be provided to project affected families by impact category;

k) Details of the extent of land available which may be acquired in settlement area for resettling and allotting of land to the project affected families;

l) Details of the basic amenities and infrastructure facilities which are-to be provided for resettlement;

m) Entitlement matrix

n) Time schedule for shifting and resettling the displaced families in resettlement zones

o) Grievance redressal mechanism

p) Institutional mechanism for rap implementation;

q) Monitoring and evaluation indicators and mechanism; and

r) Budget

Preparation of Resettlement Action Plan (RAP)

Having identified the potential impacts of the relevant sub-projects, the next step is to develop action plan to mitigate the impacts. The RAPs provides a link between the impacts identified and proposed mitigation measures to realize the objectives of involuntary resettlement. The RAPs will take into account magnitude of impacts and accordingly prepare a resettlement plan that is consistent with this framework for Bank approval before the sub-project is accepted for Bank financing.

a) Sub-projects that will affect more than 200 people due to land acquisition and/or physical relocation and where a full Resettlement Action Plan (RAP) must be produced.

b) Sub-projects that will affect less than 200 people will require an abbreviated RP.

c) The above plans will be prepared as soon as subproject is finalized, prior to Bank's approval of corresponding civil works bid document.

d) Projects that are not expected to have any land acquisition or any other significant adverse social impacts; on the contrary, significant positive social impact and improved livelihoods are exempted from such interventions.

Sub-Project Approval

In the event that a sub-project involves land acquisition against compensation or loss of livelihood or shelter, the project shall:

c) not approve the subproject until a satisfactory RAP has been prepared and shared with the affected person and the local community; and

d) not allow works to start until the compensation and assistance has been made available in accordance with the framework.

Chapter 6

RESETTLEMENT POLICY FRAMEWORK

(including Framework for Vulnerable Community Development and Gender Development)

It is essential that the potential social concerns of the proposed sub projects are thoroughly assessed in planning phase and design phases during which appropriate measures can be considered for the project implementation. Resettlement Policy Framework has been developed as a decision making tool to ensure that the activities selected and implemented under project are socially responsive and sustainable. This framework will serve as a tool to guide the project implementers to select the optimal project intervention required to address social concerns, prepare mitigation plan, and to ensure complete integration of social concerns and mitigation measure in the design of the project activities.

6.1 Resettlement Policy Framework

Resettlement Policy Framework guidelines are prepared for addressing the issues limited to this project for resettlement and rehabilitation of the PAPs. The framework is based on the GON's legal frameworks and the World Bank OPs 4.12 on involuntary resettlement.

Broad Principles

The RPF aims to resettle and rehabilitate the affected persons on account of its sub projects in a manner that they do not suffer from adverse impacts and shall improve or at the minimum retain their previous standard of living, earning capacity and production levels. It is also the endeavor of the project that the resettlement shall minimize dependency and be sustainable socially, economically and institutionally. Special attention will be paid for the improvement of living standards of marginalized and vulnerable groups. The broad principles of the policy are as below:

- The adverse impacts on persons affected by the project would be **avoided** to the extent possible.
- Where the adverse impacts are unavoidable, the project-affected persons will be assisted in improving or regaining their standard of living. Vulnerable groups will be identified and assisted to improve their standard of living.
- All information related to resettlement preparation and implementation will be disclosed to all concerned, and community participation will be ensured in planning and implementation.

- Private negotiations will also be used for land acquisition as required.
- The persons affected by the project who does not own land or other properties but who have economic interest or lose their livelihoods will be assisted as per the broad principles brought out in this policy.
- Before taking possession of the acquired lands and properties, compensation and R&R assistance will be made to those who are available and willing to receive the entitlements in accordance with this policy.
- There would be no/or minimum adverse social, economic and environmental effects of displacement on the host communities but if needed specific measures would be provided.
- Broad entitlement framework of different categories of project-affected people has been assessed and is given in the entitlement matrix. Provision will be kept in the budget. However, anyone moving into the project area after the cut-off date will not be entitled to assistance.
- Three tier appropriate grievance redress mechanism has been established at project level to ensure speedy resolution of disputes.
- All activities related to resettlement planning, implementation, and monitoring would ensure involvement of women. Efforts will also be made to ensure that vulnerable groups are included.
- All consultations with PAPs shall be documented. Consultations will continue during the implementation of resettlement and rehabilitation works.
- As required, a Resettlement Action Plan will be prepared including a fully itemized budget and an implementation schedule.

Definitions

The following definitions are used in the documents:

Cut-off date: In the cases of land acquisition affecting legal titleholders, the cut-off date would be the date of issuing the preliminary notice under the Land Acquisition Act 2034. In cases where people lack title, the cut-off-date shall be the date of start of the Census survey undertaken by the project authority.

Project Affected Person: Affected persons are those who stand to lose all or part of their physical and non-physical assets including homes, productive land, community resources, commercial properties; livelihood; and socio-cultural network.

Project Displaced person: A displaced person is a person who is compelled to change his/her place of residence and/or work place or place of business, due to the project.

Affected family means: A family whose primary place of residence or other property or source of livelihood is adversely affected by the acquisition of land for a project or involuntary displacement for any other reason

Wage Earner: A person who is working with a commercial establishment or working as a labour in an agriculture land, which is being affected by the project.

Encroacher: A person, who has trespassed Government land, adjacent to his/her own land or asset, to which he/she is not entitled, and deriving his/her livelihood prior to the cut-off date.

Squatter: Squatter is a person who is land less and has settled on publicly owned land without permission and has been occupying publicly owned building without authority prior to the cut-off date.

Vulnerable Person: The vulnerable person includes both socially as well as economically disadvantaged persons such as janjatis, dalits, disabled/handicapped, woman headed households, destitute, orphans, widows, unmarried girls, abandoned women ,or persons above sixty years of age; who are not provided or cannot immediately be provided with alternative livelihood, small and marginal farmers, and landless wage earners.

Entitled Person: person adversely impacted by the project and is entitled to some kind of assistance as per the project entitlement framework

Titleholders (THs): Persons who possess legal documents in support of claims made towards ownership of structure or land are titleholder.

R&R Benefits for Project Affected Families

The resettlement and rehabilitation (R&R) benefits shall be extended to all the Project Affected Families (PAF). The details are provided in the entitlement matrix.

Table 6.1 : Entitlement Matrix

Loss Category	Entitlement Unit	Description of Entitlement
Loss of Trees and Crop	Landowner	• At least three months advance notice for crop harvest • In absence of advance notice, cash compensation based on annual value of the produce and calculated according to the Department of Agriculture norms (crop compensation)

Loss Category	Entitlement Unit	Description of Entitlement
		• Cash compensation based on annual value of the produce and calculated according to the Department of Forestry (for trees compensation)
Loss of agriculture land, if any	Registered owner	• Cash compensation at replacement cost • Any transfer costs, registration fees or charges • Compensation for crops and trees if any • Subsistence allowance equivalent to one year of minimum agriculture wages
Loss of agriculture land, if any	Non- titleholder	• Compensation for crops and trees if any • Subsistence allowance equivalent to six months of minimum agriculture wages for loss of livelihood
Loss of House or other property	Property owner (title holder)	• Compensation at replacement cost or as settled by users' organization and PAP or committee under District Administration Office. • Shifting allowance of NPR 5000 as one time grant. • Resettlement assistance of NPR 50000
Loss of house or other property	Encroachers / squatters	• Compensation for the structure build on government land at replacement value • One time grant of NPR 5000 as shifting allowance. • Resettlement assistance of NPR 50000
Loss of Income or source of income	Eligible household	• Subsistence allowance equivalent to one year of minimum agriculture wages
Loss of Common Property Resources	Community	• Any CPR impacted will be replaced by the project

6.2 Vulnerable Community Development Framework (VCDF)

In Nepal, there are several factors that could determine a group's vulnerability. Even though gender, caste and ethnicity have been officially acknowledged as primary factors that determine a group's backwardness; other factors such as region, economic status and patronage network play an equally important role. The Tenth National Plan (2002–2007) have identified three major groups as more vulnerable than others in the context of Nepal—women, *Dalits* and *Adivasi/Janajati*. These three groups are disadvantaged in terms of (i) access to livelihood, assets and services; (ii) social inclusion and empowerment; (iii) legal inclusion and representation in Government; and (iv) economic marginalization.

Adibasi/Janajati Groups

The *Adibasi/janajati* groups in Nepal are defined as social groups with a social and cultural identity distinct from the dominant society. National Foundation for Upliftment of Adivasi/Janjati Act, 2058 (2002) defines those ethnic groups and communities who have their own mother language and traditional rites and customs, distinct cultural identity, distinct social structure and written or unwritten history. The act has recognized 59 indigenous communities in Nepal. These indigenous communities are known as Adivasi/Janjati in Nepali and Indigenous Nationalities in English as per the act. These groups as whole are generally considered to be the marginalized segment of the population who engage in economic activities ranging from hunting/gathering and shifting agriculture in or near forests to wage laborers or even small-scale market oriented activities. However, *Adibasi/janajati* among themselves are diverse groups who do not all come under one economic system. There are disparities among different *Adivasi Janajati* groups in Nepal. While *Adivasi Janajati* groups such as *Rautes* are still engaged in hunting and collecting food, *Chepangs* and *Kusundas* are practiced slash and burn, shifting cultivation and depend mainly on natural resources. On the other hands, *Newars, Thakalis* and *Gurungs* are more exposed to modernity and are involved in foreign employment, government and nongovernment services, industry and commerce. Considering their diverse socioeconomic status, Nepal Federation of Indigenous Nationalities (*Adivasi Janajati)* (NEFIN) 2004, an umbrella organization of *Adivasi Janajati* groups has classified *Adivasi Janajati* groups into five categories (Table 1). Of the total 59 *Adivasi Janajati* groups, 10 groups are categorized as "endangered", 12 groups as "highly marginalized", 20 groups as "marginalized", 15 groups as "disadvantaged" and 2 groups as "advanced" or better off on the basis of a composite index consisting of literacy, housing, land holdings, occupation, language, education, and population size. The first and second category of the *Adivasi Janajati* groups seems more delicate from the involuntary resettlement point of views in Nepal.

Table 6.2: Classification of Adivasi Janajatis in Nepal

Region	Classification of *Adivasi Janajatis*				
	Endangered (10)	**Highly Marginalized (12)**	**Marginalized (20)**	**Disadvantaged (15)**	**Advantaged (2)**
Mountain (18)		*Shiyar, Shingsawa (Lhomi),* and *Thudam*	*Bote, Dolpo, Larke, Lhopa, Mugali, Tokpegola,* and *Walung*	*Bara Gaule, Byansi (Sauka), Chhairotan, Maparphali Thakali, Sherpa, Tangbe,* and *Tingaunle Thakali*	*Thakali*
Hill (24)	*Bankariya, Hayu, Kusbadiya, Kusunda, Lepcha,* and *Surel*	*Baramu, Thami (Thangmi),* and *Chepang*	*Bhujel, Dura, Pahari, Phree, Sunuwar,* and *Tamang*	*Chhantyal, Gurung (Tamu), Jirel, Limbu (Yakthumba), Magar, Rai, Yakkha,* & *Hyolmo*	*Newar*
Inner Terai (7)	*Raji,* and *Raute*	*Bote, Danuwar,* and *Majhi*	*Darai,* and *Kumal*		
Terai (10)	*Kisan,* and *Meche (Bodo)*	*Dhanuk (Rajbansi), Jhangad,* and *Santhal (Satar)*	*Dhimal, Gangai, Rajbansi (Koch), Tajpuriya,* and *Tharu*		

Source: NEFIN, 2004

Dalits

Dalits are defined as those castes of people of Nepal who were categorized as 'untouchables' in the Old Civil Code of 1853 that prevailed until the promulgation of

the New Civil Code of 1962. In the context of Nepal, however, the word *Dalit* has generally come to mean a 'community or a person who suffers from the illness of caste discrimination and belongs to the bottom of the caste hierarchy'. *Dalits*, who have been placed at the very bottom of Hindu caste hierarchy by the discriminatory caste based system, comprise 13 percent of the total population of the Nepal (CBS, 2001). They do not have any geographical centre or 'traditional homeland' where they are numerically predominant, but are instead, scattered throughout Nepal. The *Dalit* community in Nepal is not homogenous. *Dalits* can be divided in three broad regional groups: i) *Dalits* in the hill areas; ii) *Dalits* in the *Newari* community; and iii) *Dalits* in the *Terai* areas. The practice of untouchability is more severe amongst the *Madhesi* community in the *Terai* and in the hills of the Mid-Western and Far-Western Development Regions of Nepal. National Dalit Commission (2003) has identified 27 *Dalit* castes in Nepal (Table 3.2)

Table 6.3: Scheduled Castes of Dalit Community in Nepal

Region	**Scheduled Dalit Castes**
Hill Dalit	1. Gandharba (Gaine) 2. Pariyar (Damai, Dargee, Suchikar, Nagarchee, Dholee, Hudke) 3. Badi 4. Bishwokarma (Kami, Lohar, Sunar, Od, Chunanra, Parki, Tamata) 5. Sarki (Mijar, Charmakar, Bhool) 6.Pode (Deula,Pujari,Jalari) 7.Chyame (Kuchikar,Chyamk
Terai Dalit	8. Kalar 9. Kakaihiya 10. Kori 11. Khatik 12. Khatwe (Mandal, Khang) 13. Chamar (Ram, Mochi, Harijan, Ravidas) 14. Chidimar 15. Dom (Marik) 16. Tatma (Tanti, Das) 17. Dushadh (Paswan, Hajara) 18. Dhobi (Rajak) Hindu 19. Pattharkatta 20. Pasi 21. Bantar 22. Mushar 23. Mestar (Halkhor) 24. Sarbhang (Sarbariya) 25. Natuwa 26. Dhandi 27. Dharikar/ Dhanka

Source: National Dalit Commission, 2003

As the *Dalit* communities remain marginalized from the State's economic and social services and political opportunities, the living conditions and human development indicators of *Dalits* are far below the national average. Poverty is rampant among *Dalits* and are far more vulnerable to the prevailing economic, social, political and educational conditions in comparison to other excluded communities. The poverty index for *dalits* is 47% compared to the national average of 31%. In total, 44 percent of *dalits* in the *Terai* are landless (Table 9.3) and 44.6 percent of the *dalits* of the hills are marginalized farmers (owning 0.18 to 0.40 ha. of land). On most socio-economic indicators, the *Tarai Dalits* fare worse than the hill *Dalits*. Altogether, *dalits*

own just one percent of Nepal's arable land, while only three percent of *dalits* own more than a hectare of land (TIYP, 2008).

Table 6.4: Situation of Dalit in Comparison to National Average

Indicators	National Average	Dalit
Below five years child mortality rate	1000/104	1000/171.2
Infant mortality rate	1000/75.2	1000/116.5
Fertility rate	4.0	4.07
Literacy rate	54	33
Average years of schooling	3.62	2.1
High school graduate and above (%)	17.6	3.8
Graduates and above	34	0.4
Poverty	31	47
Landless	-	44% Tarai Dalit 15% Hill Dalit

Source: Three Year Interim Plan (2008/09 to 2010/11), NPC, GoN

Women and Others as Vulnerable Group

Though women comprise half of the total population, gender discrimination still prevails in the society. Status of women in Nepal with regards to their access to knowledge, economic resources, political power, and personal autonomy in decision making is quite low. Despite the high average work burden of women, which at 16 hours a day is much higher than the global average (Nepal Human Development Report, 2004), women still lack access to and control over productive resources. Only 19.71 percent of women have land ownership while a meager 5.5 percent own a house of their own. Women in all social groups and regions have been proven as more disadvantaged than their male counterpart and even among women widows, separated, divorced and women headed households are particularly vulnerable. Similarly, women in all groups due to their limited access to economic resources and livelihood options can equally be classified as vulnerable who are at permanent risk for facing severe poverty in Nepal. Elderly people, children and the individuals less

able to care themselves within the communities are also persons who are any time prone to vulnerability.

Relevant Policies on Indigenous Peoples and other Vulnerable Communities

Nepal does not have a standalone policy on Indigenous Peoples, however in the Tenth Plan significant emphasis has been placed on delivering basic services to the disadvantaged people such as indigenous community, *Dalits*, women, disabled and other vulnerable groups. One of the main thrusts of the Tenth Plan is the implementation of targeted programs for the uplift, employment and basic security of *Dalits*, indigenous people and disabled peoples. The policy provision also outlines that the government should pilot strong and separate package of program of basic security for vulnerable sections of society. Policies and action for their protection and development have also been developed in the plan. The plan states that targeted and empowerment programs shall be promoted to enhance the wellbeing of the vulnerable, disadvantaged and exploited groups.

Three-Year Plan (2009/10 - 2012/13) adopts inclusive and equitable development strategy to uplift the living standard of the excluded groups, *Dalit, Madhesi, Adibasi/Janajati*, women, people with disability and remote geographical areas and poor people of the various regions of the country from the prevailing discriminatory practices in the society. One of the strategies of its Social Development Policy is to increase the accessibility of socially, economically and geographically deprived class, region and community in the available resources by empowering them through the principles of equity and inclusion. The plan emphasized to increase investment to support development by promoting inclusion of excluded communities, region and gender in all structure, sector and processes of the nation. The plan has given emphasis in implementing different types of income generation supportive program targeting the poor and vulnerable people

Similarly, the National Foundation for Upliftment of *Adivasi/Janjati* Act, 2058 (2002), the National Human Rights Action Plan 2005, the Environmental Act 1997, and the Forest Act 1993 have emphasized protection and promotion of vulnerable groups in general, indigenous peoples' knowledge, and cultural heritage in particular. In 1999, the Local Self-Governance Act was amended to give more power to the local political bodies, including authority to promote, preserve, and protect the IP's language, religion, culture, and their welfare.

In 2007 the UN Declaration on the Rights of Indigenous Peoples was adopted by the General Assembly. Nepal ratified ILO Convention No. 169 on September 14, 2007 (BS 2064/05/28). Article 1 of the convention provides a definition of tribal and indigenous peoples. Article 6 requires consultation with the peoples concerned through appropriate procedures and, in particular, through their representative institutions,

whenever consideration is being given to legislative or administrative measures which may affect them directly.

In Article 15, it states that indigenous and tribal peoples shall, wherever possible, participate in the benefits of natural resource utilization activities and shall receive fair compensation for any damages which they may sustain as a result of such activities. Article 16(2) clearly mentions that where the relocation of these peoples is considered necessary, such exceptional measures and such relocation shall take place only with their free and informed consent. Where their consent cannot be obtained, such relocation shall take place only following appropriate procedures established by national laws and regulations, including public inquiries where appropriate, which provide the opportunity for effective representation of the peoples concerned. Article 16(3) mentions that, whenever possible, these peoples shall have the right to return to their traditional land as soon as the grounds for relocation cease to exist. Article 16(5) specifies the persons thus relocated shall be fully compensated for any resulting loss or injury

The World Bank Policy on indigenous peoples, OP/BP 4.10 underscores the need for borrowers and Bank staff to identify indigenous peoples, consult with them, ensure that they participate in, and benefit from Bank-funded operations in a culturally appropriate way - and that adverse impacts on them are avoided, or where not feasible, minimized or mitigated

Objectives of VCDF

The principal objectives of the framework are to:

(i) ensure that project engages in free, prior, and informed consultation with the vulnerable community wherever they are affected.

(ii) ensure that project benefits are accessible to the vulnerable community living in the project area

(iii) avoid any kind of adverse impact on the vulnerable community to the extent possible and if unavoidable ensure that adverse impacts are minimized and mitigated

(iv) ensure vulnerable people's participation in the entire process of preparation; implementation and monitoring of the sub project activities

(v) minimize further social and economic imbalances within communities; and

(vi) develop appropriate training / income generation activities in accordance to their own defined needs and priorities.

Steps for VCDP

The steps to be followed for VCDP are as follows:

1. Screening to identify whether Indigenous / vulnerable peoples are present or have collective attachment to, the project area
2. Social assessment and analysis to be carried out to address the social concerns of the subcomponent area
3. Identifying views of the affected communities by following a process of free, prior, and informed consultation at each stage of the project, and particularly during project preparation
4. Institutional arrangements (including capacity building wherever necessary) for screening project-supported activities, evaluating their effects on vulnerable community, preparing VCDPs (if required), and addressing grievances
5. The preparation of Plan
6. Monitoring and reporting including the establishment of mechanisms and benchmarks appropriate to the project and
7. Disclosure of the draft Plan

Screening

During the planning and design phase of the sub project, screening survey will be carried out based on group discussion with the communities in the sub project area in order to identify presence of any vulnerable group or any such group that have collective attachment to the project area. Apart from the consultation with the community members, consultations / in depth interviews will also be carried out with the NGOs working in the area and representative of local self-government. The screening will look into the details of tribal households, assessing the number of such households along the zone of influence of the proposed sub project. If the result shows that there are tribal households, the issues related to the community will be included in the social impact assessment (SIA) survey.

Social Impact Assessment

The project will be responsible for conducting SIA and the development of an action plan with the help of vulnerable community and organizations working for them. The SIA will gather relevant information on demographic, social, cultural; economic and networking aspects of each household and needs of the community as a whole. The information on individual household will be collected through household survey

whereas community based needs would be assessed through group discussions with the community as a whole as well as in discussion with the community leaders and other stakeholders. The discussion will focus on both positive and negative impacts of the sub project. The suggestion and feedback of the community on the design and planning of the sub project will also be documented.

Suggested format for VCDP

The suggested format for the VCDP is as follows

- Description of sub projects and implications for the vulnerable community
- Gender disaggregated data on number of vulnerable households by impact category
- Social, cultural and economic profile of the households
- Land tenure information
- Documentation of consultations with the community to ascertain their views about the project design and mitigation measures
- Findings of need assessment of the community
- Community development plan based on the results of need assessment
- Modalities to ensure regular and meaningful consultation with the community
- Institutional arrangement and linkage with other national or state level programmes
- Institutional mechanism for monitoring and evaluation of VCDP implementation and grievance redress
- Implementation Schedule and cost estimate for implementation

Specific Measures

Specific measures for vulnerable groups including indigenous peoples, Dalits, minor ethnic communities, women, and powerless communities are outlined in table below. Source of funding and the agencies responsible to implement the proposed strategies are included in the table.

Table 6.5: Specific Measures for Vulnerable People

Proposed Strategies	Sources of Funding	Agencies Responsible
A. Inclusion		
• Ensure awareness raising, active participation and capacity building of the vulnerable communities • Ensure of participation in awareness campaign, project implementation and monitoring • Ensure equal wages for similar work during implementation • Launch project information campaign to inform the target groups about the key features of the project and sub project.	GON	PCO
B. Programme Planning		
• Asses and analyze the presence of indigenous and Dalits in subcomponent sites • Treat and support indigenous people, dalits and other vulnerable communities preferentially • Involve indigenous people and dalits in beneficiary groups to increase their participation. • Define training/income generation activities based on the identified needs and priorities of vulnerable people in the subproject area.	GON	PCO
C. Capacity Building		
• Conduct project related meetings in indigenous and vulnerable community areas to encourage their participation. Ensure a quorum which includes representation from IP groups. • Provide targeted assistance/training aimed at vulnerable groups to enhance livelihoods and participation in the subcomponents • Built in awareness campaign about the project in the subproject	GON	PCO

Proposed Strategies	Sources of Funding	Agencies Responsible
• Build capacity of indigenous peoples, Dalits and other vulnerable communities promoting necessary knowledge and skills to participate in subcomponent activities • Develop capacity through trainings on application of Agriculture Information system to small farmers		

6.3 Framework for Developing Gender Action Plan

The GDP framework outlines the specific issues linking with corresponding strategies and activities which will be given due consideration in the project. This will ensure women's participation in the value-chain in order to benefit from project activities. The major tools are used to identify and deal with gender issues in the project cycle: gender analysis, project design, and policy dialogue.

Gender analysis should be an integral part of the initial social assessment at the screening stage itself. The issues identified can be scaled up during the feasibility and detailed analysis can be carried out during the DPR stage.

The project designs should be gender responsive based on the gender analysis, and should be included in the DPR The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action. Listed below are the key action points:

General Checklist

- ✓ Identify key gender and women's participation issues.
- ✓ Identify the role of gender in the project objectives.
- ✓ Prepare terms of reference (TOR) for the gender specialist or social development specialist of the client
- ✓ Conduct gender analysis as part of overall Social Assessment.
- ✓ Draw up a socioeconomic profile of key stakeholder groups in the target population and disaggregate data by gender.

- ✓ Examine gender differences in knowledge, attitudes, practices, roles, status, wellbeing, constraints, needs, and priorities, and the factors that affect those differences.
- ✓ Assess men's and women's capacity to participate and the factors affecting that capacity.
- ✓ Assess the potential gender-differentiated impact of the project and options to maximize benefits and minimize adverse effects.
- ✓ Identify government agencies and nongovernmental organizations (NGOs), community-based organizations (CBOs), and women's groups that can be used during project implementation. Assess their capacity.
- ✓ Review the gender related policies and laws, as necessary.
- ✓ Identify information gaps related to the above issues.
- ✓ Involve men and women in project design.
- ✓ Incorporate gender findings in the project design.
- ✓ Ensure that gender concerns are addressed in the relevant sections (including project objectives, scope, poverty and social measures, cost estimates, institutional arrangements, social appendix, and consultant's TOR for implementation and M & E support).
- ✓ List out major gender actions.
- ✓ Develop gender-disaggregated indicators and monitoring plan.

Specific Checklists to be covered during various stages of project cycle

Methodology

Desk review

- ✓ Review available information (e.g., statistics, gender analysis, documents of previous projects) in the project area and the socioeconomic profile of the target population.
- ✓ Review the relevant legal (e.g., inheritance law), policy (e.g., R&R policy), and institutional framework (e.g., current administrative system for land acquisition, compensation disbursement) and their gender implications.

Household surveys

- ✓ Draw up gender-disaggregated socioeconomic and cultural profiles and identify the constraints, and needs of the target population.
- ✓ Collect quantitative information.

Participatory methodologies (e.g., participatory rapid appraisal, focus group discussions, random interviews, walking tours)

- ✓ Collect qualitative information which cannot be collected through surveys.
- ✓ Define ways in which men and women beneficiaries and other stakeholders, especially poor women can participate in the project.
- ✓ Map out the target areas. Which are the most disadvantaged areas in terms of access to services and poverty level?
- ✓ Identify major stakeholder groups and their stake.

Staffing

- ✓ Ensure adequate gender balance in field teams.
- ✓ Select field team members with gender awareness, local knowledge, cultural understanding, and willingness to listen.

Primary Data to Be Collected

Macro institutional framework

- ✓ Gender impact of sector policy; legal and institutional framework.
- ✓ Executing agency's capacity and commitment to participatory approaches and gender focus.

Socioeconomic profile

Demographic

- ✓ Composition by gender, ethnicity/caste, age, etc.
- ✓ In and out migration trend (male and female)
- ✓ Percentage of households headed by females
- ✓ Household size
- ✓ Age at marriage, by gender

Economic

- ✓ Income level and sources, by gender
- ✓ Expenditure patterns and decision making, by gender
- ✓ Land tenure and use, by gender

Health

- ✓ Population growth rate

- ✓ Infant and maternal mortality rates
- ✓ Service availability
- ✓ Fertility level and decision making
- ✓ Food allocation and nutrition level within households, by gender
- ✓ Incidence of domestic violence

Education

- ✓ Literacy and school enrollment ratios, by gender
- ✓ School dropout ratio, by gender
- ✓ Child labor, by gender

Status of women

- ✓ Political representation and awareness
- ✓ Socio - cultural perceptions and practices of men and women
- ✓ Gender-discriminatory policies and laws
- ✓ Gender roles and responsibilities
- ✓ Broad gender division of labor in productive (e.g., agriculture, income-generating activities) and reproductive (e.g., household chores, child care) responsibilities, and time allocation for each responsibility

Fuel, Fodder and Sanitation

- ✓ Availability, quantity, and quality of fuel and fodder
- ✓ Time spent on collection of these resources
- ✓ Are there seasonal differences in availability, quantity, or quality?
- ✓ Is there sanitation service available
- ✓ Are the services available 24 hours a day?
- ✓ Is there a fee for water or sanitation services?
- ✓ Who pays to whom (e.g., user committee, local government, private company)?
- ✓ How much is the fee?

Water

Drinking water

- ✓ What sources (e.g., public streams, rivers, tanks, lakes, communal wells or tanks, ponds, privately owned wells or tanks, water pipes) are used?

- ✓ How far away are the water sources?
- ✓ Water collection and storage
- ✓ Who collects and stores water? How?
- ✓ How much time is spent in water collection and storage?
- ✓ Who carries water and how?
- ✓ How much time is spent transporting water?
- ✓ Are there any health hazards resulting from the transport of water?
- ✓ How is the collected water used differently by men and women (e.g., for cooking, sanitation, home gardens, livestock)?
- ✓ Who decides the allocation?
- ✓ Is water available in the dry season?
- ✓ How is water use managed during the water-scarce season? By whom?

Roles in agricultural water

- ✓ Who collects, transports, and manages water for agricultural use and how?
- ✓ Is there any conflict between agricultural and domestic water allocation? How can these needs be prioritized?
- ✓ Are there conflicts in water distribution in general, based on gender, income level, ethnicity/castes, etc.? How can these be solved?
- ✓ Who is responsible for the upkeep of the community water infrastructure?
- ✓ Who could be key informants?
- ✓ Are there significant differences in responsibilities based on gender, income level, or ethnicity/caste?

Access, control, constraints

- ✓ How do men and women differ in their access to and control of land, agricultural inputs, extension, markets, employment opportunities, and credit?
- ✓ Is external assistance provided to improve access/control? By whom?

Participation

- ✓ What factors affect the level of men's and women's participation?
- ✓ What are the incentives and constraints?

- ✓ During which season is the demand for labor highest?
- ✓ Which modes of participation do men and women favor (e.g., decision making in planning, cash contribution, labor contribution for construction, training, financial management, organizational management)?

Project Impact

- ✓ Do men and women perceive positive and negative impacts of the project differently?
- ✓ Are the benefits likely to be distributed equitably?
- ✓ How can negative effects be mitigated?
- ✓ Are there any disadvantaged or vulnerable groups?
- ✓ Who are they? Where do they live? What are their socioeconomic characteristics?
- ✓ How will the project affect these groups?
- ✓ Land acquisition/Resettlement: Extent of land to be acquired
- ✓ What are the gender-specific implications?

Organization

- ✓ What is the current level of women's representation in other community decision- making bodies?
- ✓ Are there local organizations (e.g., local governments, national NGOs, CBOs, mass organizations) that address women's constraints and needs? How can the project link up with them?
- ✓ What mechanisms can be used to ensure women's active participation in project activities?
- ✓ What organizations can be used to mobilize and train women in the project activities and livelihood options?
- ✓ Incorporate the preferences of community men and women on issues such as: number and location of assets and sharing vs. individual arrangement of assets;
- ✓ Highlight women's strengths in mobilizing savings and resources.
- ✓ Incorporate the preferences of men and women in the community on:
  - o financing arrangement
  - o possible preferential treatment for very poor, female-headed and other disadvantaged families

- credit or community-based revolving funds for women SHGs

Community Participation Mechanism

- ✓ Develop a participation strategy for men and women during project implementation and M & E.
- ✓ Avoid overly high expectation of women's participation and develop a practical schedule, as women often have time and financial constraints. The strategy should incorporate the following:
- ✓ Planning: Conduct women specific consultation to take their views and suggestions on the design. Any mechanism established during the project design such as grievance mechanisms should have adequate representation from women.
- ✓ Construction: Ensure work conditions that are conducive to women's participation (e.g., gender-equal wage rates, construction season, toilet and child-care facilities).

Monitoring and evaluation (M & E): Develop a feedback mechanism in which both male and female have a voice. Identify organizations that could facilitate women's participation during implementation and M & E.

Training Options

- ✓ Identify ways to link up with income-generation, literacy, and other activities to support an integrated approach to poverty reduction and women empowerment
- ✓ Support a decentralized structure to allow linkages between the village and local government.
- ✓ Include financial and technical capacity building for relevant local government bodies to enable them to effectively support women SHGs.

Staffing, Scheduling, Procurement and Budgeting

- ✓ Hire female project staff.
- ✓ Consider seasonal labor demand in scheduling civil works.
- ✓ If appropriate, set a minimum percentage of female laborers and prohibit the use of child laborers in the civil works contract.
- ✓ Ensure adequate and flexible budgeting to allow a "learning" approach (e.g., training budget, consulting service budget for women's organizations).

Monitoring and Evaluation

- ✓ Develop M & E arrangements: (i) internal M & E by project staff; (ii) external M & E by NGOs or consultants, as necessary; and (iii) participatory monitoring by beneficiary men and women.
- ✓ Disaggregate all relevant indicators by gender such as number of women gaining access to credit, increase in women's income, and career prospects for project trained women.

Documentation

Document the gender-responsive design features in the DPR and include covenants in the loan agreement to ensure gender-sensitive project design mechanisms to be complied by the executing agency

Suggested Gender Development Plan

The suggested Gender Development Plan for the project is presented below:

Issues	Strategy	Proposed Activities
Lack of awareness	• Awareness campaign about the project for the community focusing on the vulnerable group including women.	• Formation of women groups around specific project areas. • Share information about the project benefits in Nepali language.
Low Level of literacy	• Support functional literacy campaign and develop extension programmes to take the benefits from the project as per the needs of illiterates.	• Undertake literacy programs as built-in activities coordinated with literacy programmes. • Develop the implementing strategies to communicate real time information specifically for EWS. • Develop audio-visual aids and documentary for training programs about the project for illiterate women groups.

Issues	Strategy	Proposed Activities
Excluded from Opportunities and because of social boundaries as a result low level of participation in decision making process	• Rapport building with Women Development Office at District or local level involving them in Programmes • Gender sensitization to all stakeholders including project entities. • Ensure Women's participation during meetings, project implementation And monitoring .	• Carry out meetings and interaction programme with and orientation to women in the community. • Conduct leadership training for women members of commodity groups. • Provide opportunities of exposure or study visit to women's group to develop their leadership capacity
Lack of knowledge on and access to technical knowhow	• Promote need based technical awareness and support services.	• Organize training on newly lunched technologies (metrological/hydrological)
Disparity in Wages	• Accord Priority Employment to women in project generated construction activities. • Promote equal wages for equal work	• Inform women groups regarding proposed construction works. Identify women interested to work; assess their skills and involve them as per their capabilities. • Monitor women wage rate and do the needful to ensure wage equality for similar type of construction works. • Inclusion of the above elements in the contractors' document.

Chapter 7

ENVIRONMENT MANAGEMENT FRAMEWORK

(including Generic EMP/Codes of Practice)

This chapter of the ESMF serves as a comprehensive and a systematic guide covering policies, procedures and provisions, which are being/will be integrated with the over-all project cycle to ensure that the environmental aspects are systematically identified and addressed at the sub-project level. The use and integration of provisions/requirements given here into the project's operational cycle will help in avoiding and mitigating adverse environmental impacts. It will also help in enhancing positive impacts and facilitate in achieving compliance with the Bank's Safeguard Policies and regulatory requirements of Govt. of Nepal.

The Generic Environmental Management Plan (EMP)/Codes of Practice provided in this chapter will apply mainly to the:

a) Distribution/warehousing/logistics center or Inland Clearance Depot (ICD) in Kathmandu
b) the rehabilitation of the infrastructure at Birgunj ICD which will include extension warehouse shed and removal of unused rail tracks
c) Multi-Functional Joint Analysis Laboratories

The Generic EMP/codes are provided as a set of recommendations and do not replace the guidelines specified in the Nepal Environmental Policies and Regulations applicable to the project, Nepal Construction Code, Nepal Planning Commission and other applicable rules.

7.1 Environmental Codes of Practice (ECoPs)

The ECoPs provides technically specified solutions illustrating the general principles of environmentally sound and sustainable planning, design and construction of infrastructure/facilities. Appropriate guidance has been developed to enhance positive impacts and to avoid, minimize and mitigate adverse impacts through 'environmental codes of practice'. These activity-specific codes address planning/design, construction and operation-stage issues associated with: (a) site preparation; (b) construction camps and plant sites; (c) borrow and quarry areas; (d) water management; (e) slope stability and erosion control (including introduction of bio-engineering practices); (f) waste management; (g) drainage; (h) public and worker's health and safety; (i) cultural properties (including handling of 'chance-find'); and (j) tree plantation. In addition, specific codes are being developed to provide guidance on environmental audit (covering pre-construction, construction and operation stages).

7.2 Generic EMP for Managing Planning/Design Related Impacts

This section details the factors to be considered during sub-project preparation to avoid/address environmental concerns through minor modification in the design:

Aspect	Enhancement/ Mitigation Measures	Responsibility
Recommendations of EIA/IEE studies	Implementation of recommendations in project planning (location selection).	Proponent and PCO, MoCS
	Inclusion of mitigation measures in project cost and bidding documents	Proponent and PCO, MoCS
Participation of beneficiary groups in project process	• Maximize the effectiveness of communication methods. • Maximize the participation of local communities in project location selection. • Disseminate information timely and adequately. • Create awareness about the sub- project and related activities.	Proponent and PCO, MoCS
Acquisition/ Impact on Land and Natural Resources	• Avoid or minimize the area of acquisition. • Avoid sites close to wetlands, wildlife areas and forests • Avoid filling-up of water bodies.	Proponent and PCO, MoCS

Key environmental concerns to be kept in mind...
• Land, including loss of productive topsoil • Drainage • Land use and livelihood • Vegetation, cutting of trees • Forests, wild life, fisheries and aquatic habitat • Water bodies and water quality • Slope stability • Wetlands • Common property resources • Disposal of excess material from cut sections

(such as the Warehouse and Laboratories)

The building and related infrastructure engineering designs should take into consideration the following:

(i) the connection of the building or infrastructure to the potable water system and the capacity of the existing water distribution network or the need to establish a water supply system for the building. This is very critical for the laboratories (well, storage tank, pumping station, etc.).

(ii) The connection to the domestic sewerage network and the need for capacity expansion for receiving collectors.

(iii) On-site wastewater treatment system (septic tank, infiltration ditch)

(iv) Treatment of sewerage before being discharged to the sewerage networks or the wastewater treatment system

(iv) Adequate management of runoff and the facilities for its recollection and evacuation, having in mind the existing downstream systems

(v) Separation of domestic sewerage systems from that generated from chemical analysis in the laboratories

(vi) Systems of recollection, storage and transportation of solid and/or hazardous waste generated from the laboratory facility, incorporating the structures for separation and recycling

(viii) Appropriate and safe handling of contaminated/hazardous products on site, easy access to and transportation arrangements for disposing off contaminated/hazardous wastes to the sanitary landfills and/or incinerators

(ix) Integrate building design with architectonic characteristics of the surrounding neighborhood

(x) Provision of onsite remedial measures in case of occurrence of emergencies as spillages of chemicals, oil, or other laboratory testing reagents; and

(xi) Avoiding the use of materials such as wood from tropical forests, lead-based paints, asbestos, for exam.

Environmental Enhancement

The architectural design of sub-projects could bring many opportunities to incorporate and reinforce the criteria of environmentally friendly buildings. The feasibility of incorporating these aspects into the design should be analyzed during

the conceptualization phase of the architectural designs and during the engineering designs. This analysis could include:

(i) Solar panels to satisfy totally or partially the electricity needs especially when reliable access to energy for lighting, heating and cooling is not guaranteed from the national grid

(ii) Rain water storage for the irrigation of gardens and green zones

(iii) Recycling of wastewater for irrigation

(iv) Separation of the potable water systems from irrigation systems

(v) Maximizing natural light in order to minimize artificial light needs

(vi) Planting of native species in gardens and green areas; (vii) using windmills for groundwater exploitation for irrigation water; (viii) natural ventilation systems, minimizing the necessities of air conditioning; and (ix) the stabilization of slopes using vegetative measures.

7.3 Generic EMP for Managing Construction Stage Impacts

The following information is intended solely as broad guidance to be used in conjunction with local and national regulations.

Prohibitions

The following activities are prohibited on or near the project site:

1. Cutting of trees for any reason outside the approved construction area
2. Hunting, fishing, wildlife capture, or plant collection
3. Use of unapproved toxic materials, including lead-based paints, asbestos, etc
4. Disturbance to anything with architectural or historical value
5. Building of fires
6. Use of firearms (except authorized security guards)
7. Use of alcohol by workers.

Pre-construction / Works Planning Stage

Before initiation of construction activities, the Contractor shall present the Project Engineer with a Construction Plan which explicitly states how he plans to abide by these specifications. Only after approval of such a plan by the Project Engineer/ Environmental Officer, construction activities can proceed.

Construction

The Contractor and his employees shall adhere to the mitigation measures set down in these specifications to prevent harm and nuisances on local communities, and to minimize the impacts in construction and operation on the environment.

Transport

- The Contractor shall use selected routes to the project site, as agreed with the Project Engineer, and appropriately sized vehicles suitable to the class of roads in the area, and shall restrict loads to prevent damage to local roads and bridges used for transportation purposes. The Contractor shall be held responsible for any damage caused to local roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the satisfaction of the Project Engineer.
- The Contractor shall not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor.
- Adequate traffic control measures shall be maintained by the Contractor throughout the duration of the Contract and such measures shall be subject to prior approval of the Project Engineer.

Workforce and Camps

- The Contractor should whenever possible locally recruit the majority of the workforce and shall provide appropriate training as necessary.
- The Contractor shall provide adequate lavatory facilities (toilets and washing areas) should be provided for the number of people expected to work in the work site. Toilet facilities should also be provided with adequate supplies of hot and cold running water, soap, and hand drying devices.
- The Contractor shall install and maintain a temporary septic tank system for any residential labor camp and without causing pollution of nearby watercourses.
- The Contractor shall establish a method and system for storing and disposing of all solid wastes generated by the labor camp and/or base camp.
- The Contractor shall not allow the use of fuel wood for cooking or heating in any labor camp or base camp and provide alternate facilities using other fuels.
- The Contractor shall ensure that site offices, depots, asphalt plants and workshops are located in appropriate areas as approved by the Project Engineer

and not within 500 meters of existing residential settlements and not within 1,000 meters for asphalt plants.

- The Contractor shall ensure that site offices, depots and particularly storage areas for diesel fuel and bitumen and asphalt plants are not located within 500 meters of water courses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. This will require lubricants to be recycled and a ditch to be constructed around the area with an approved settling pond/oil trap at the outlet.
- The contractor shall not use fuel wood as a means of heating during the processing or preparation of any materials forming part of the Works.

Erosion Control

- Disturb as little ground area as possible, stabilize that area as quickly as possible, control drainage through the area, and trap sediment onsite. Erect erosion control barriers around perimeter of cuts, disposal pits, and roadways
- Conserve topsoil with its leaf litter and organic matter, and reapply this material to local disturbed areas to promote the growth of local native vegetation.
- Apply local, native grass seed and mulch to barren erosive soil areas or closed construction surfaces.
- Apply erosion control measures before the rainy season begins preferably immediately following construction. Install erosion control measures as each construction site is completed.
- In all construction sites, install sediment control structures where needed to slow or redirect runoff and trap sediment until vegetation is established. Sediment control structures include windrows of logging slash, rock berms, sediment catchment basins, straw bales, brush fences, and silt
- Control water flow through construction sites or disturbed areas with ditches, berms, check structures, live grass barriers, and rock
- Maintain and reapply erosion control measures until vegetation is successfully established.
- Spray water on dirt roads, cuts, fill material and stockpiled soil to reduce wind-induced erosion, as needed

Earthworks, Cut and Fill Slopes

- All earthworks shall be properly controlled, especially during the rainy season.

- The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the works.
- The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.
- In order to protect any cut or fill slopes from erosion, in accordance with the drawings, cut off drains and toe-drains shall be provided at the top and bottom of slopes and be planted with grass or other plant cover. Cut off drains should be provided above high cuts to minimize water runoff and slope erosion.
- Any excavated cut or unsuitable material shall be disposed of in designated disposal areas as agreed to by the Project Engineer.
- Disposal sites should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause soil from the dump to be washed into any watercourse. Drains may need to be dug within and around the tips, as directed by the Engineer

Stockpiles and Borrow Pits

- Operation of a new borrowing area, on land, in a river, or in an existing area, shall be subject to prior approval of the Project Engineer, and the operation shall cease if so instructed by the Project Engineer. Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns. River locations shall be prohibited if they might undermine or damage the river banks, or carry too much fine material downstream.
- The Contractor shall ensure that all borrow pits used are left in a trim and tidy condition with stable side slopes, and are drained ensuring that no stagnant water bodies are created which could breed mosquitoes.
- Rock or gravel taken from a river shall be far enough removed to limit the depth of material removed to one-tenth of the width of the river at any one location, and not to disrupt the river flow, or damage or undermine the river banks.
- The location of crushing plants shall be subject to the approval of the Engineer, and not be close to environmentally sensitive areas or to existing residential settlements, and shall be operated with approved fitted dust control devices.
- In any borrow pit and disposal site, the Contractor shall:

    1. Identify and demarcate locations for stockpiles and borrow pits, ensuring that they are at least 50 meters away from critical areas such as steep slopes, erosion-prone soils, and areas that drain directly into sensitive water bodies

2. Limit extraction of material to approved and demarcated borrow pits.
3. Stockpile topsoil when first opening the borrow pit. After all usable borrow has been removed, the previously stockpiled topsoil should be spread back over the borrow area and graded to a smooth, uniform surface, sloped to drain. On steep slopes, benches or terraces may have to be specified to help control erosion.
4. Excess overburden should be stabilized and re-vegetated. Where appropriate, organic debris and overburden should be spread over the disturbed site to promote re-vegetation. Natural re-vegetation is preferred to the extent practicable.
5. Existing drainage channels in areas affected by the operation should be kept free of overburden.
6. Once the job is completed, all construction -generated debris should be removed from the site.

Safety during Construction

- The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

1. Carefully and clearly mark pedestrian-safe access routes
2. If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours
3. Maintain supply of supplies for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction
4. Conduct safety training for construction workers prior to beginning work
5. Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed and –shanked boots, etc.) for construction workers and enforce their use
6. Post Material Safety Data Sheets for each chemical present on the worksite
7. Require that all workers read, or are read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family. Encourage workers to share the information with their physicians, when relevant

8. Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers
9. During heavy rains or emergencies of any kind, suspend all work
10. Brace electrical and mechanical equipment to withstand seismic events during the construction period

Nuisance and Dust Control

- To control nuisance and dust the Contractor should:

1. Maintain all construction-related traffic at or below 15 mph on streets within 200 m of the site
2. Maintain all on-site vehicle speeds at or below 10 mph.
3. To the extent possible, maintain noise levels associated with all machinery and equipment at or below 90 db.
4. In sensitive areas (including residential neighborhoods, hospitals, rest homes, etc.) more strict measures may need to be implemented to prevent undesirable noise levels.
5. Minimize production of dust and particulate materials at all times, to avoid impacts on surrounding families and businesses, and especially to vulnerable people (children, elders).
6. Phase removal of vegetation to prevent large areas from becoming exposed to wind.
7. Place dust screens around construction areas, paying particular attention to areas close to housing, commercial areas, and recreational areas.
8. Spray water as needed on dirt roads, cut areas and soil stockpiles or fill material.
9. Apply proper measures to minimize disruptions from vibration or noise coming from construction activities.

Demolition of Existing Infrastructure

- The Contractor shall implement adequate measures during demolition of existing infrastructure to protect workers and public from falling debris and flying objects. Among these measures, the Contractor shall:
  - Set aside a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels
  - Conduct sawing, cutting, grinding, sanding, chipping or

- chiseling with proper guards and anchoring as applicable
- Maintain clear traffic ways to avoid driving of heavy equipment over loose scrap
- Use of temporary fall protection measures in scaffolds and out edges of elevated work surfaces, such as hand rails and toe boards to prevent materials from being dislodged
- Where blasting is required, evacuate all work areas during blasting operations, and use blast mats or other means of deflection to minimize fly rock or ejection of demolition debris if work is conducted in proximity to people or structures
- Provide all workers with safety glasses with side shields, face shields, hard hats, and safety shoes
- The construction waste would require appropriate environmental handling. The identification of suitable sites for waste disposal, the environmental management necessary (compacting, re-soiling and re-vegetation, drainage control), and the associated transportation costs should be included in project design and cost estimates.
- The engineering design will then consider: (i) the preparation of environmental specifications that the contractor should follow during the construction; and (ii) the constructive design and activity programming having in mind the minimization of impacts and nuisances to the population

(This code will be specifically relevant for the proposed demolition and extension of the warehouse shed and rail tracks at the Birgunj Inland Check Post)

Disposal of Construction Waste

- The Contractor shall establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for construction debris
- Debris generated due to the dismantling of the existing structures shall be suitably reused, to the extent feasible, in the proposed construction (e.g. as fill materials for embankments). The disposal of remaining debris shall be carried out only at sites identified and approved by the Project Engineer. The contractor should ensure that these sites (a) are not located within designated forest areas; (b) do not impact natural drainage courses; and (c) do not impact endangered/rare flora. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas.

- In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of the Project Engineer.
- All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary, will be considered incidental to the work and should be planned and implemented by the contractor as approved and directed by the Engineer.

Community Relations

- To enhance adequate community relations the Contractor shall:

1. Inform the population about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate.
2. Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures.
3. At least five days in advance of any service interruption (including water, electricity, telephone, bus routes) the community must be advised through postings at the project site, at bus stops, and in affected homes/businesses.

Waste Management

- Solid, sanitation, and, hazardous wastes must be properly controlled, through the implementation of the following measures:

1. Minimize the production of waste that must be treated or eliminated.
2. Identify and classify the type of waste generated. If hazardous wastes are generated, proper procedures must be taken regarding their storage, collection, transportation and disposal.
3. Identify and demarcate disposal areas clearly indicating the specific materials that can be deposited in each.
4. Control placement of all construction waste (including earth cuts) to approved disposal sites (>300 m from rivers, streams, lakes, or wetlands).Dispose in authorized areas all of garbage, metals, used oils, and excess material generated during construction, incorporating recycling systems and the separation of materials.

Maintenance

- Identify and demarcate equipment maintenance areas (>300m from rivers, streams, lakes or wetlands). Fuel storage shall be located in proper areas and approved by the Project Engineer.
- Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems.
- All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 300m from all cross drainage structures and important water bodies or as directed by the Engineer.
- Some sub-projects may generate substantial amounts of construction waste that requires appropriate environmental handling. The identification of suitable sites for waste disposal, the environmental management necessary (compacting, re-soiling and re-vegetation, drainage control), and the associated transportation costs should be included in project design and cost estimates.

Physical Cultural Property Chance-finds Procedures

- If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

  (a) Stop the construction activities in the area of the chance find;

  (b) Delineate the discovered site or area;

  (c) Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the National Culture Administration take over;

  (d) Notify the supervisory Engineer who in turn will notify the responsible local authorities and the National Culture Administration immediately (within 24 hours or less);

  (e) Responsible local authorities and the National Culture Administration would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists of National Culture Administration. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural

heritage; those include the aesthetic, historic, scientific or research, social and economic values;

(f) Decisions on how to handle the finding shall be taken by the responsible authorities and National Culture Administration. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;

(g) Implementation for the authority decision concerning management of the finding shall be communicated in writing by relevant local authorities; and

(h) Construction work could resume only after permission is given from the responsible local authorities or National Culture Administration concerning safeguard of the heritage.

Hazardous Materials

- If the construction site is expected to have or suspected of having hazardous materials (asbestos containing materials in debris from demolished buildings, or chemicals stored on site for track maintenance; or pest control) the Contractor will be required to prepare a Hazardous Waste Management Plan. To be approved by the Project Engineer. The plan should be made available to all persons involved in operations and transport activities. Removal and disposal of existing hazardous wastes in project sites should only be performed by specially trained personnel following national or provincial requirements, or internationally recognized procedures.

First-Aid and Emergency Response

- The Contractor shall provide basic first aid services to the workers as well as emergency facilities for emergencies for work related accidents including as medical equipment suitable for the personnel, type of operation, and the degree of treatment likely to be required prior to transportation to hospital.

HIV/AIDS Education

- The Contractor shall be responsible for implementing a program for the detection screening of sexually transmitted diseases, especially with regard to HIV/AIDS, amongst laborers is actually carried out.
- The Contractor shall include in his proposal the outline of a Health Plan. The Project Engineer will issue a certificate of compliance to the Contractor prior to the initiation of Construction.

7.4 Requirements for Managing Post-Construction Stage Impacts

- Remedial actions which cannot be effectively carried out during construction should be carried out on completion of the works and before issuance of the 'completion of works' certificate. No final bills or invoices should be cleared or approved without site verification and written certification of the Environmental Officer on issues pertaining to site clean-up and rehabilitation:

  (a) All affected areas should be rehabilitated/landscaped and any necessary remedial works should be undertaken without delay, including grassing and reforestation;

  (b) Water courses should be cleared of debris and drains and culverts checked for clear flow paths

  (c) All sites should be cleaned of debris and all excess materials properly disposed

  (d) Borrow pits and all other material sources should be fully restored.

  (e) Any remaining waste should be disposed at pre-identified/approved locations.

7.5 Supervision to Over-see ESMF/EMP Compliance

The Project Engineer through the Environmental Officer on the his/her team will supervise compliance with these specifications. Major non-compliance by the Contractor will be cause for suspension of works and other penalties until the non-compliance has been resolved to the satisfaction of the Project Engineer. Contractors are also required to comply with national and municipal regulations governing the environment, public health and safety.

Chapter 8

STAKEHOLDER CONSULTATION AND INFORMATION DISSEMINATION FRAMEWORK

Stakeholder consultations form a very crucial part of all development projects, including infrastructure and are usually carried out as a continuous process through the project cycle. Public and stakeholder consultations and workshops during the design and project planning stages provide the medium for sharing information about the project objectives and scope, alternative design options, and stakeholder perceptions regarding proposed investment plans. Ensuring an open and transparent information exchange about the project at this stage, lays a good foundation for an inclusive and participatory implementation process. This stakeholder consultation and information dissemination framework will apply to management of both environmental and social aspects for NITTFP.

8.1 Consultation Framework

To facilitate effective consultative process, a community consultation methodology needs to be designed which may include an opinion survey and a consultation program encompassing broad and specific areas of influence of the sub-projects. The methodology could include specifically designed questionnaires and strategies for (i) public and community organizations; and (ii) the community in general.

The public and community organizations to be consulted include (i) local professional associations (including engineering and architectural associations); (ii) local chambers of commerce and industries; (iii) community organizations (neighborhood organizations) and local NGOs. The public and community in general could further be divided into two groups (i) public at large in the area of influence; and (ii) affected community in the immediate area of the proposed sub-project works. The consultation program may involve both formal and informal presentations and meetings with the target groups, information dissemination campaigns through fliers, posters, and radio announcements; and an opinion survey.

Public consultations would be conducted prior to and during project implementation in compliance with Nepali laws on NGOs and Media and World Bank Policy on Disclosure of Information.

According to Environmental Protection Regulation 1997, consultations with the affected persons, project's beneficiaries including local population and NGOs must be conducted ensuring their participation at all stages of project implementation. These consultations are important particularly when sub-project activities start directly affecting these communities. Changes in social environment must be made

conditional to the prior consent of the affected communities. Representatives of local communities affected by the project and NGOs should be involved in consultations.

The project's information such as sites, scale of impacts- adverse and beneficial social benefits, sustainability, monitoring system and the outcome of the project need to be compiled. Table below presents potential stakeholders for consultation, mode of consultation and ways of dissemination at various stages of consultation. The Project Coordination Office will have the responsibility to organize, facilitate and document consultations.

Table 8.1 : Key Elements - Consultation Framework

Stage/s	Strategic Works	Mode of Consultations	Ways of Dissemination
Screening	Site visits (if necessary) and desk work	Public Meetings, Interaction, FGDs and transect walk together with the local residents	Provide information about project's activities using local language/Nepali language
Project Formulation	Identification of interest parties, development of consultation methodology & Schedule, consultation with interest parties, and Consideration of necessary changes	Workshop, Meetings	Orientation in local language/Nepali language
Impact Assessment	Scoping, assessment and management process, alternative option, mitigation measures	Workshop, meetings, FGDs, site surveys	Orientation using local language/Nepali language
Implementation and monitoring	Consultation and collaboration on the basis of project activities	Workshop, meetings, group formation	Orientation using local language/Nepali language

Consultations with Project Affected Persons and their profiling are mandatory as per the requirements of SIA and preparation of RAP. This needs to be done as socio-economic and census surveys as part of the detailed designs. Consultations with respect to and cultural aspects are to be carried out as part of the Social and Environmental Impact Assessments for all alternatives and the selected alternative sub-project option.

8.2 Disclosure of Information

The following information needs to be displayed / disseminated, wherever applicable.

a) Project specific information need to be made available at each contract site through public information kiosk

b) Project Information brochures shall be made available at all the construction sites as well as the office of implementation agency and the office of Engineer in charge.

c) Reports and publications, as deemed fit, shall be expressly prepared for public dissemination e.g., English versions of the EIA/SIA and emp/RAP along with Executive Summary of EIA/SIA and EMP/RAP in local language.

d) Wherever civil work will be carried out a board will be put up for public information which will disclose all desired information to the public, for greater social accountability.

e) All information will be translated into local language and will be disclosed to the public

The Table below presents the requirement for document disclosure under NITTFP with regard to environment and social safeguard aspects:

Table 8.2 : Disclosure Requirements

Documents to be disclosed	Frequency	Where
Environment Management Aspects		
Environment and Social Management Framework	Once in the entire project cycle. But to remain on the website and other disclosure locations throughout the project period.	On the website of project proponent The client would make the ESMF available at a place accessible to affected persons and local NGOs, in a form, manner, and language that can be easily understood.
Environmental Assessment Reports	Once in the entire project cycle. But to remain on the website and other disclosure locations throughout the project period.	On the website of project proponent The client would make the EA available at a place accessible to affected persons and local NGOs, in a form, manner, and language that can be easily understood.
Environmental Management Plan/s	Once in the entire project cycle. But to remain on the website and other disclosure locations throughout the project period.	On the website of project proponent The client would make the EMP available at a place accessible to affected persons and local NGOs, in a form, manner, and language that can be easily understood.
EMP - Monthly Progress Report.	10th day of every month	Website of project proponent; Electronically circulated to Bank and other concerned officials.
EMP – Independent Review/Audit	At midterm and end of the ESMF/EMP implementation	Project proponent's website.
Minutes of Formal Public Consultation Meetings	Within two weeks of meeting	On the web site of the project proponent.

Documents to be disclosed	Frequency	Where
Resettlement, Rehabilitation and Land Acquisition		
Resettlement Action Plan (RAP).	Once in the entire project cycle. But to remain on the website and other disclosure locations throughout the project period.	On the website of project proponent The client would make the RAP available at a place accessible to affected persons and local NGOs, in a form, manner, and language that are understandable to the PAPs
Resettlement & Rehabilitation Policy translated in local language	Once in the entire project cycle.	Distributed among Project Affected Persons (PAP)
Information regarding impacts and their entitlements in local language	Once at the start of the project and as and when demanded by the PAP.	Through one-to-one contact with PAPs. Community consultation List of PAPs with impacts and entitlements to be pasted in the project office and website of project proponent
R&R monthly progress report.	10th day of every month	Website of project proponent Hard copy in the office of the executing agency, VDC and contractor in local language
RAP Impact Assessment Report	At midterm and end of the RAP implementation	Project proponent's website in local language.
Land Acquisition notifications, if required	As required under the national LA Act	Project proponent's website. Hard copy in the office of the executing agency, VDC and contractor in local language

Documents to be disclosed	Frequency	Where
Grievance redressal process.	Continuous process throughout the project cycle.	On the web sites of project proponent. Hard copies in local language in the office of executing agency, contractor, DDC and VDCs
Minutes of Formal Public Consultation Meetings	Within two weeks of meeting	On the web sites of project proponent. Hard copies in local language in the office of executing agency, VDC and contractor.

Chapter 9

INSTITUTIONAL ARRANGEMENTS

As agreed through consultation with all the implementation agencies and with the National Trade and Transport Facilitation Committee, the Project's activities will be implemented by different government ministries. The key players are:

a) The Department of Roads, MoPPWTM will oversee the implementation of the Narayanghat-Mugling road segment
b) Department of Transport Management, MoPPWTM will oversee the implementation transport management measures including for road safety and axle load control measures;
c) The Department of Customs, MoF, will manage the development of the Single Window System; and
d) MoCS will implement the Accredited Multi-Functional Joint Analysis Labs Development, the Trade Portal, and the ICDs (by NITDB within MoCS). NITDB will also be responsible for the overall Monitoring and Evaluation (M&E) of the project, including the Kolkata-Kathmandu Corridor monitoring system. NITDB is considered the most suitable for the M&E role as it currently monitors all logistics related infrastructure in Nepal.

9.1 Over-all Project Management and Coordination

The Ministry of Commerce and Supplies will be the coordinating ministry for this Project. As such, a Project Coordination Office (PCO) will be established within MoCS to serve as the coordinating implementation agency. The PCO, which will be headed by the Joint Secretary, MoCS, will be responsible for the day-to-day implementation of the Project and for coordinating the relevant implementing ministries/agencies. It is envisaged that Government will make the following appointments to staff the PCO: the Joint-Secretary of MoCS as Project Director, a full-time Project Coordinator at Under-Secretary level, and Finance Specialist. The PCO will also obtain skills in procurement, environmental and social safeguards.

In addition, the sub-projects will need to be assigned their own Project Coordinator. Project Coordinators need to be appointed for the respective implementation of: (i) Narayanghat-Mugling Road (DoR); (ii) DoTM capacity development, axle load control and transport management measures including for road safety (DoTM); (iii) Single Window system (DoC); (iv) Trade Portal (MoCS); (v) multi-functional laboratories (MoCS); and, (vi) ICDs (NITDB, MoCS).

It is expected that staff from the Trade and Export Promotion Center (TEPC, within MoCS) will be deputized to be the Project Coordinator for the Trade Portal. Successful

implementation of the Project will require strengthening of the implementation capacity of the PCO. The Project will therefore provide technical support to strengthen the core functions of the PCO, including but not limited to financial management, procurement, environmental and social safeguards, and technical areas of sub-projects. The M&E capacity of NITDB which will work closely with the PCO will also be strengthened.

Key multi-agency technical committees have also been established to oversee the implementation of the Single Window, Trade Portal and multi-functional labs.

9.2 Responsibility for Implementing and Monitoring the ESMF

The Project Coordination Office (PCO) has been established within the Ministry of Commerce and Supplies to serve as the coordinating implementing agency. The PCO will have oversight and monitoring responsibilities over the line agencies that will be implementing the respective project components and sub-components. The PCO will have responsibility for overseeing application and implementation of the ESMF in an appropriate and timely manner by the other ministries and departments mentioned above.

The most significant issues with regard to safeguards are associated with Component 3 of the proposed project, namely expansion and upgrade of the Narayanghat-Mugling road section. The Department of Roads (DoR), which will be the implementing agency for this component, is familiar with the Bank's safeguard requirements, through its involvement in two other Bank funded projects, namely Road Sector Development Project (RSDP) and Road Maintenance and Development Project (RMDP). On the social and environmental management aspects, the department has gained basic familiarity and experiences with regard to the Bank's safeguard requirements through the said on-going projects.

The staff in Department of Roads is generally aware of environmental issues and management requirements. Staff in the Geo Environment and Social Unit (GESU) of the DoR has basic knowledge and experience in environmental and social fields gained through other projects financed by the Bank and other donors. GESU's knowledge regarding environmental and social aspects has been enhanced by their role in preparing and implementing ESMFs, EMPs, RAPs and VCDPs.

There are some examples of effective implementation of RAP in Bank funded Road Sector Development Project. Similarly there are examples of good environmental practices such as bio-engineering and various guidance documents. However, the extent of their use is limited. Works of the GESU in the past have been hampered by frequent transfer of staff, lack of financial and logistical resources, and deficiency in coordination with other units/agencies.

Given the overall past experiences in preparing and implementing externally-funded projects, GESU has the potential to strengthen its knowledge base and capacity and put them together into practice in the proposed project.

Specific capacity strengthening support is necessary, as assessed during the Environmental Assessment studies, particularly on issues pertaining to biodiversity management. In this regard, early in project implementation, suitable orientation and training programs will be conducted for GESU and DoR staff. GESU in its business plan has indicated hiring of additional environmental staff. The Project will also hire full time environment staff working with Supervision Consultants.

For the other components/activities, MoCS/NITDB will be responsible for project co-ordination, including the required safeguards management. MoCS/NITDB does not have any experience of managing environmental and social safeguard issues. External experts from the market are being hired to assist the safeguards management and implementation of the Environmental and Social Management Framework (ESMF) in particular. The PCO will also get capacity support for enhancing environmental and social management skills.

9.3 Social Accountability and Grievance Redressal Mechanism

The social accountability mechanisms will be established for all sub-projects. The key approaches that would be adopted for ensuring social accountability would be any or a combination of participatory processes guiding social audit, citizen score card and report card to acquire feedback on performance of the sub projects and record citizens' recommendations for improvement. The social accountability mandate will be further strengthened through a strong grievance redress mechanism**.**

A Grievance Redress Cell (GRC) will be set up at the sub project level. The head of the cell will be a person of repute but not continuing in the government service. The GRC will have its own bye-laws.

The functions of the GRC will include: (i) to redress grievances of project affected persons (PAPs) in all respects; (ii) rehabilitation and resettlement assistance and related activities; (iii) GRC will only deal/hear the issues related to R&R and individual grievances; (iv) GRC will give its decision/verdict within 15 days after hearing the aggrieved PAPs; (v) final verdict of the GRC will be given by the Chairman/Head of GRC in consultation with other members of the GRC and will be binding to all other members. It shall be conveyed in writing to all concerned.

9.4 Impact Monitoring and Evaluation

Impacts of the proposed sub projects will be monitored on the basis of a scheduled plan. Frequency of monitoring will depend on size, location and magnitude of the

project parameters. The PCO is responsible to adhere with monitoring parameters, locations, schedule and responsibilities. Impact monitoring will be carried out through internal monitoring system. External evaluation will be carried out twice in the life cycle of the project implementation – once at the midterm of implementation and again at the end of implementation. PCPO will be responsible for both the evaluations.

ANNEXURES

Annexure 1

Key Data to be Collected and Assessed in an EA

The key data to be collected and analyzed would include but not limited to:

Aspect	Details
Geology and Geo-morphology	Geological zones, bed rock formation, geo-morphological features, stability, landslide, flood damages etc.
Topography	General and specific topography of sub-project area
Climate	Temperature, Rainfall, Wind, Humidity, Wind Direction
Soil	Soil mapping, type, salinity, soil properties, soil moisture
Ground water resources	Depth, nature of water bearing formation, extraction and recharge rate, sustainable safe yield, water quality
Water resources and Water bodies	Drainage basin and sub-basin, major and minor water bodies/water courses, classification of water bodies, current water use, water rights, water quality
Air	Air quality
Noise	Noise and Vibration Levels, Sensitive Receptors
Energy	Energy sources (electricity, diesel, fire wood, etc); Power availability
Flora and Fauna	Birds, mammals, fish, aquatic and terrestrial vegetation, protected areas, national parks, rare and endangered species, medicinal and non-timber forest products etc.
Demography	Population trend, trend of population growth, ethnicity, literacy level, caste and gender break-up, cultural norms/ values/traits etc.
Economic base	Employment level, occupation, labor market, pre-dominant economic activities (agriculture, industry, services etc).
Natural Disasters	Extreme Weather Events

Aspect	Details
Agriculture System	Cropping and live-stocks
Level of Services	Supply and demand of services, health, education, waste collection and other basic services
Community Infrastructure	Water supply, school, health, road, irrigation, access to energy for heating, lighting, cooking
Indigenous and Vulnerable Community	Population of indigenous and disadvantaged/vulnerable communities, including gender break-up and their socio-economic status
Historical and Cultural Heritage	Conservation area, built heritage, historic and archeological sites, cultural fairs/festivals etc.

Annexure 2

Structure of the Environment Screening Report

The suggested table of contents/presentation structure of the Environment Screening Report has been mentioned below:

- **Executive Summary**

Chapter 1: Introduction

- Project Description
- Project Proponent
- Description of the sub-project (including its location, proposed start and end points, regional setting, scale and size)
- Over-view of major key sub-project activities
- Need for the sub-project
- Expected benefits from the sub-project
- Various studies/reports being prepared for the project and how the environment screening study relates to/feeds into the over-all project preparation

Chapter 2: Methodology Adopted for Environment Screening Exercise

- Purpose/Objectives of the Environment Screening Exercise
- Methodology (step-by-step process) adopted for Environment Screening Exercise
  - Project Influence Area (mention the direct and indirect spatial zone considered for the environment screening study)
  - Types and sources of data collection
  - Data gaps/constraints, if any
- Structure of the Environment Screening Report

Chapter 3: Baseline Environmental Conditions

- Natural Environment
- Biological Environment
- Physical and Socio-economic Environment

Chapter 4: Stakeholder Consultation

- Definition of stakeholder
- Types/categories of stakeholders consulted for the Feasibility/Screening studies
- Details about the consultations carried out
  - Provide summary in the chapter and supporting details in the annex.
  - In the summary, kindly mention when, where, how many people attended, key topics discussed and information shared.
  - Clearly list out findings including areas/issues that are of concern to the stakeholders and need attention.

Chapter 5: Regulatory and Institutional Regime

- Environmental policies and their implications/application in the sub-project context
- Environmental acts and their implications/application in the sub-project context
  - Environmental categorization
- Inter-national/national conventions and their implications/application in the sub-project context
- Environmental permits/approvals that will be required for the sub-project (include specific local requirements, if any)
- Existing institutional arrangements/set-up (both in terms of environmental regulatory agencies and project proponent set-up)

Chapter 6: Assessment of Key Environmental Impacts

- Link-up existing environmental conditions with proposed project intervention/s and identify/assess the potential environmental issues/impacts on natural, biological and physical environmental attributes that may result in this process.
- Look at the key issues that may result purely on account of proposed project intervention/s (such as safety issues; drainage alterations)
- Analyze/propose alternative options that can avoid and/or reduce the identified potential impacts

Chapter 7: Findings and Recommendations

- Summary of results (weightage) from the environment screening exercise
- Key issues/concerns identified
- Summary of key benefits from the sub-project/project intervention
- Key recommendations from the stakeholder consultation exercise
- Summary - opportunities and constraints at the sub-project level
- Scoping (focus) of the EA

  (mention specific areas/aspects that need to be studied in detail)
- Recommendation(s)/conclusion

Annexure/s

- Names and contact details of key staff involved in the Feasibility (including Environment and Social Screening exercise)
- Stakeholder consultation details
- Details of the data collected

Annexure 3

Multi-functional Analysis Laboratories

Criteria for Setting Sanitary Land Fills and Incinerators for the Multifunctional Analysis Laboratories under the Nepal India Trade and Transport Facilitation Project

Nepal's exports have been increasing steadily over the last 10 years since 2001 and in June 2012, Nepali exports hit an all-time high. Nepal mainly exports iron and steel, knotted carpets, textiles, plastics, hollow tubes, beverages and fresh farm produce such as vegetables. In turn it imports fresh and processed agro-produce – grains, livestock, vegetables, fruits, meat; pharmaceuticals and cosmetics; building materials including cement; and fuel. The multifunctional joint laboratories will be constructed to carry out analysis to determine both for imports and exports

- toxic and harmful substances such as pesticide residues, formaldehyde, sodium formaldehyde, sulfoxylate, sulfur dioxide, nitrites, etc
- biotic and abiotic contaminants
- pest infestation in fresh or processed food.

To cater to safe disposal of contaminated and hazardous components import and export products, the multifunctional laboratories to be constructed would have to be equipped with sanitary landfills and incinerators. The following considerations are key to citing the sanitary land fill and incinerators:

- Adequate land area and volume to provide sanitary landfill capacity to meet projected needs for at least 10 years, so that costly investments in access roads, drainage, fencing, and weighing stations are justifiable.
- A gently sloped topography, preferably amenable to development of sanitary landfill by the Cell method, with slopes which minimize the need for earthmoving to obtain the correct leachate drainage slope of about 2%.
- Groundwater's seasonally high table level (i.e., 10 year high) is at least 1.5 meters below the proposed base of any excavation or site preparation to enable landfill cell development. A minimum depth of 1 meter of relatively impermeable soils above the groundwater's seasonable high level exists (preferably, less than 10-9 meters/second permeability when undisturbed). If these criteria is not met, use of impermeable clay and/or plastic liners may be required to protect groundwater quality.
- Availability on-site of suitable soil cover material to meet the needs for intermediate (minimum of 30 cm depth) and final cover (minimum of 60 cm

depth). Preferably, the site would have adequate soil to also meet daily cover needs (usually a minimum of 15 cm depth of soil).

- None of the areas within the landfill boundaries are part of the 10-year groundwater recharge area for existing or pending water supply development.
- No private or public drinking, irrigation, or livestock water supply wells within 500 meters down gradient of the landfill boundaries, unless alternative water supply sources are readily and economically available and the owner(s) gives written consent to the potential risk of well abandonment.
- No environmentally significant wetlands of important biodiversity or reproductive value are present within the potential area of the landfill cell development.
- No known environmentally rare or endangered species breeding areas or protected living areas are present within the site boundaries. If this criteria is not met, alternative habitats of comparable quality for relocation of the species would need to be available.
- No significant protected forests are within 500 meters of the landfill cell development area.
- No open areas of high winds, otherwise windblown litter will not be readily manageable.
- No major lines of electrical transmission or other infrastructure (i.e., gas, sewer, water lines) are crossing the landfill development area, unless the landfill operation would clearly cause no concern or rerouting is economically feasible.
- No underlying limestone, carbonate, fissured or other porous rock formations which would be incompetent as barriers to leachate and gas migration, where the formations are more than 1.5 meter in thickness and present as the uppermost geologic unit above sensitive ground water.
- No underlying underground mines which could be adversely affected by surface activities of land filling, or minable resources which could be rendered less accessible by land filling, unless the owner(s) gives explicit consent.
- No residential development **within 250 meters** from the perimeter of the proposed landfill cell development.
- No visibility of the proposed landfill cell development area from residential neighborhoods within 1 km. If residents live within 1 km of the site, landscaping and protective berms would need to be incorporated into the design to minimize visibility of operations. Curving of the access road is

recommended to avoid visibility of the active portions of the landfill from the main road.

- No perennial stream within 300 meters down gradient of the proposed landfill cell development, unless diversion, culverting or channeling is economically and environmentally feasible to protect the stream from potential contamination.

Guidelines for Installing an Incinerator

An incineration facility will typically be comprised of the following units and processes which are briefly described below.

- **Waste Registration and Control**: Facility should be equipped with system for declaring waste, weighing and registration after entry of incinerator site premises for monitoring and control purposes
- **Size reduction, sorting and inspection of waste (optional):** This will include reduction of size of bulky waste, sorting and inspection of the waste.
- **Waste unloading and storage system:** Waste is unloaded into bunker or hopper system from where it is fed into the furnace. The size of the hopper system should be adequate to allow for variations in waste quantities.
- **Feeding system**: The prepared waste is fed from the hopper into the furnace. Appropriate system of doing this in a safe and efficient manner should be employed.
- **Furnace:** The waste is burnt in a series of combustion zones. Flue gases are completely burned out in a post-combustion chamber.
- **Energy recovery system:** The flue gases carrying the energy released in the furnace must be cooled before entering the air pollution control system. Depending on the intentions of the facility owners and local energy market, energy is recovered as power, heat, or steam or a combination thereof.
- **Ash and clinker removal system:** This includes a system of conveying the ash to collect it for final disposal.
- **Air Pollution Control (APC) system**: Depending on the desired level of cleaning the APC may consist of devices for physical removal of particulate matter; additional flue gas scrubbing systems; and additional NO_x or dioxin removal.
- **Stack**: The treated flue gas is finally emitted via the stack. The stack height depends on local topography and prevailing site conditions.

The key issues for consideration of environmental impacts of incinerator facilities are described below and form the basis for the checklist that follows. **This checklist is intended for guidance only and is not exhaustive.**

Siting

- The facility should be located far from human dwellings or centers of human activity to protect against air pollution or odor nuisances, and noise from fans/ventilators used in cooling systems.
- The stack of the incinerator should be located at most remote area from area of human activity, and downstream of sites of human activity in the prevalent wind direction
  The facility should be sited.

Access

- The area where the facility is located should be fenced off/separated from areas of general use by a lockable physical barrier.
- Access to the area should be strictly controlled and limited to essential personnel e.g persons operating the facility, persons responsible for maintenance or repair activities.

Signage

- A sign stating the use of the site should be placed at a visible/conspicuous location e.g entry to the site and written in clear, legible letters. The information on the signboard should indicate the purpose of the facility, state access limitations, provide a contact details e.g phone number or contact name in case of emergencies or enquiries.
- At important locations throughout the site, signs should be adequately placed accordingly, such as 'danger', 'hazardous material', 'no entry', 'authorized personnel only' etc, consistent with the high level of caution that is required in such facilities.

Technical

Waste Identification and Segregation

- Wastes to be incinerated should be contained in easily identifiable, coded containers; ensuring appropriate procedures for pharmaceutical, cytotoxic, chemical and radioactive wastes.

Combustion

- The facility should be operated under conditions to achieve complete combustion or over 99.9% destruction to avoid generation of pollutants, especially NOx, and

persistent organics such as dioxins; by ensuring adequate retention time and temperatures, use of a mixing and agitation mechanism, optimal supply of combustion air etc.

- The facility should possess adequate system to maintain the required temperatures in the primary and secondary combustion chambers to avoid post-combustion recombination. Temperature and duration of retention should comply with available international standards for combustion of medical waste.

Energy Recovery

- The energy recovery system must be capable of cooling the flue gases from the furnace before flue gas treatment in the APC.
- Available international/national standards for operation of energy recovery systems should apply.

Air Pollution Control

- Monitoring system for flue gas quality (before entering the APC from the furnace) provided and monitoring should be mandatory.
- The facility should be adequately equipped with appropriate air pollution control devices including gas cooling and acid gas cleaning systems; and should be capable of controlling air pollution by precipitating, adsorbing, absorbing or transforming (or a combination of these) pollutants.
- The Air Pollution Control device should be capable of achieving national/international requirements for emission limits or standards.
- The height of the stack should comply with national/international standards for air pollution reduction.

Residues from the incineration process

There are two sources of residues from the incineration process, namely the APC system and the incineration furnace. In both cases, adequate provision should be made for storage of the ash to prevent generation of dust before final disposal e.g by spraying with water, and transportation in covered containers.

Residues from the APC system

- The APC system produces residues either directly or by the subsequent treatment of spent scrubbing liquids, depending on the method used to clean the flue gases.
- Appropriate methods should be in place for handling any solid or liquid waste streams from the APC process in an environmentally safe and sound manner and should comply with national standards e.g discharge of liquid streams should

comply with national wastewater standards; discharge of solid residues by a proven technology such as controlled landfill.

Residues from the incineration furnace

- A process for characterization of the ash from the furnace should be in place using international standard methods for ash characterization.
- Ash should be disposed by a proven technology such as controlled landfill.

Plant Operation and Maintenance

Staffing and Training

- The facility should be adequately staffed with suitably trained and skilled personnel to ensure effective/optimal operation and maintenance of the facility.
- Plant operators should be trained before start up of the facility and refresher courses given during operational life of facility.

Codes of Practice and Occupational Safety

- Codes of practice or documented work procedures should be prepared for all key activities in plant operation and maintenance to instruct staff how to operate the equipment.
- Contingency plans be developed in case of accidents or equipment failure
- The Equipment supplier should be required to submit work procedures as part of the contract.
- Staff be provided with appropriate safety and protective gear.

Incinerator Checklist

Parameter	Options
Institutional	
▪ Regulations	▪ Effective regulations exist with regard to collection and disposal of medical wastes and in particular to incineration
▪ Organization of waste treatment	▪ Incineration preceded by reduction at source, and adequate segregation procedures
▪ Incineration organizational position	▪ The medical waste incinerator is part of an integrated system of hospital waste management

Parameter	Options
▪ Incinerator ownership	▪ Owned by hospital/ Ministry of Health?
▪ Medical waste incinerator rights	▪ Incinerator is granted the right to receive combustible medical waste and obliged to ensure the necessary capacity
Siting	
▪ Air quality impact	▪ Facility located far from and downstream of dwellings or centers of human activity, in direction of prevalent wind
▪ Zoning of facility locality	▪ Incinerator stack located at most remote area, downstream of human activity, in direction of prevalent wind
▪ Distance to residential areas/zones	▪ Facility should be located in an area that is fenced off/separated from areas of general use by a lockable physical barrier
▪ Access to site of facility	▪ The site should be adequately posted with signs consistent with the high level of caution that is required in such facilities
Incineration Technology	
▪ Flue gas burnout	▪ Flue gas is completely burnt out resulting in emissions compliant with national/international emission standards or targets.
▪ Energy Recovery system	▪ Capable of achieving adequate temperature to allow for energy recovery and gas cleaning
Incineration Residues	
▪ Characterization	▪ System for characterization of residues according to international standard methods in place
▪ Storage	▪ Stored in covered containers, prevent dust by moistening

Parameter	Options
▪ Final disposal	▪ Solid residues disposed of in controlled landfill or similar proven technology. ▪ Liquid residues must be treated to comply with national/international standards for discharge of wastewater
Operation and Maintenance	
▪ Staff	▪ Adequate number of suitably qualified staff with provision for backup
▪ Operation and Maintenance Manuals, Training of staff, Plant monitoring	▪ Supplier should provide instruction manual for facility ▪ Staff training undertaken before operation of facility and provision of refresher training during operational life of facility
Environmental Issues	
▪ Environmental standards	▪ Emission standards for medical waste incineration exist and are available
▪ Environmental administration	▪ Responsibility person/entity for necessary environmental permits, supervision and enforcement clearly identified
▪ Flue gas treatment	▪ Flue gas treatment meets national emission standards/targets
▪ Flue gas emission	▪ Stack is sufficiently high to avoid exceeding national air ambient standards
▪ Odor emission	▪ The facility is constructed and operated so that odor nuisance does not arise
▪ Wastewater discharge	▪ Wastewater discharge meets national standards
▪ Noise emissions	▪ Noise emission is adequately mitigated to avoid nuisance

Parameter	Options
▪ Monitoring	▪ Monitoring system for all relevant environmental parameters is established
Occupational Health Issues	
▪ Site layout	▪ Separation between permanently staffed spaces/offices and operational areas ▪ Showers and changing rooms for staff ▪ Adequate emergency access/exits ▪ Adequate ventilation of work and non-work stations
▪ Manual of Operation and Safety	▪ Well-articulated manual developed and made available to operators, including procedures for operation and maintenance, contingency plans, plans for accidents and equipment failure
▪ Worker Safety	▪ All operators of facility provided with adequate safety and protective gear