Nepal REDD+ Strategy

Part I: Operational Summary

Government of Nepal
Ministry of Forests and Soil Conservation
REDD Implementation Centre
Babarmahal, Kathmandu

August 2015

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Produced by	Face the Future, The Netherlands In association with Arbonaut, Finland; Practical Solution Consultancy Nepal (PSPL) and Nepal Environmental and Scientific Services (NESS)
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Acronyms

ADB	Asian Development Bank
CBD	Convention on Biodiversity
CBS	Central Bureau of Statistics
CHAL	Chitwan-Annapurna Landscape
CIAA	Commission for the Investigation of Abuse of Authority
CF	Community Forests
CFCC	Community Forest. Co-ordination Committee
CFM	Collaborative Forest Management
CFUG	Community Forest User Group
CIFOR	Centre for International Forest Research
COP	Conference of Parties
CSO	Civil Society Organization
DANAR	Dalit Alliance for Natural Resources
DD	Deforestation and forest Degradation
DFID	Department for International Development (UK)
DFO	District Forest Office
DFRS	Department of Forest Research and Survey
DFSCC	District Forestry Sector Coordination Committee
DMRVS	District REDD+ MRV Section
DoF	Department of Forests
DRPMU	District/ Protected Area REDD+ Program Management Unit
DRWG	District REDD Working Group
ER-PIN	Emission Reductions Program Idea Note
ESAMU	Environmental and Social Assessment and Monitoring Unit
ESFM	Environmental and Social Management Framework
ESMP	Environment and Social Management Plan
FCPF	Forest Carbon Partnership Facility
FCTF	Forest Carbon Trust Fund
FECOFUN	Federation of Community Forest Users, Nepal
FPIC	Free, Prior and Informed Consent
FRA	Forest Resource Assessment Project
GESI	Gender Equality and Social Inclusion
GIS	Geographic Information System

GoN	Government of Nepal
GRM	Grievances Redress Mechanism
Ha	Hectare
ICIMOD	International Centre for Integrated Mountain Development
ILO	International Labor Organization
INC	Initial National Communication
IP	Indigenous Peoples
IPO	Indigenous Peoples Organization
LFUG	Leasehold Forest User Groups
LULUCF	Land use, Land-use Change, and Forestry
MFSC	Ministry of Forests and Soil Conservation
MRV	Measurements, Reporting and Verification
MPFS	Master Plan for the Forestry Sector
NEFIN	Nepal Federation of Indigenous Nationalities
NFD	National Forest Database
NFIS	National Forest Information System
NFMS	National Forest Monitoring System
NGO	Non-Governmental Organization
NITC	National Information and Technology Centre
NLFS	National Labour Field Survey
NR	Nepalese Rupee
NRM	National Resource Management
OSFIS	Open Source Forest Information System
PA	Protected Area
RDO	Regional Directorate Office
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD IC	REDD Implementation Centre (formally REDD Cell)
REL	Reference Emission Level
RFD	Regional Forest Director
RL	Reference Level
R-PIN	Readiness Plan Idea Note
R-PP	Readiness Preparation Proposal
RRFO	Regional REDD+ Focal Office
RRMU	Regional REDD+ MRV Unit

RWG	REDD Working Group
SES	Social and Environmental Safeguards
SESA	Strategic Environmental and Social Assessment
SIS	Safeguard Information System
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
USAID	United States Agency for International Development
VDC	Village Development Committee
WB	World Bank
WECS	Water and Energy Commission Secretariat

Nepal REDD+ Strategy

REDD+ is a dynamic, iterative and learning process. Therefore, the present REDD+ Strategy has to be considered as a living document that is updated periodically as needed, as more information becomes available, and new developments and insights emerge. In addition, REDD+ in Nepal has to progress by considering geographical diversity which prevails in the country.

More information can be found in Part II of this Strategy, which is provided under separate cover. Cross-references to Part II are provided throughout this Part I {*in italics and in brackets*} at the end of each section.

1. Introduction

1.1 REDD+ in Nepal's Context

Nepal's landscape reflects its topographic, physiographic and cultural diversity, which results in a complex mosaic of agriculture and forest land (MFSC, 2010). The area of the country is 14.78 million hectares, of which 5.8 million hectares (39.6%) is covered by forests and shrublands. Over the last 50 years, a significant area of forests is either converted into agricultural land or degraded into shrub land. The area of natural forests was lost by 1.6 percent per annum and shrub land was increased by 8.4 percent per annum during the period between 1978/79 and 1994. However, the rate of deforestation and forest degradation over the past 20 years, since 1994, has remained relatively low. This is due to the development and promotion of community-based forest management such as community forestry, leasehold forestry, collaborative forestry, buffer zones and conservation areas. Nevertheless, the rate of deforestation and forest degradation varies considerably at sub-national level and across forest management regimes and ecological zones. This is partially due to the migration pattern and the influx of people in the urban centers. With the increasing political stability this may change again in the decades to come.

With a growing population and increasing demand for forest products and land, forests can be expected to be under increasing pressure again. This could affect the livelihoods of a large number of people, particularly forest dependent poor, local and indigenous communities affecting Nepal's environmental sustainability.

Participation in the international REDD+ mechanism has potential for Nepal, to generate carbon revenues as well as non-carbon benefits for the country and its people. Preliminary estimates show that REDD+ may bring between $20-86 million per year to Nepal (UN-REDD, 2014). Nepal further envisions that REDD+ implementation will assist in advancing sustainable forest management, the integration of various sectoral policies that optimize cross-sectoral synergies, and will lead ultimately to an improvement of forest law enforcement and governance at large, with necessary amendment of act and regulations by accommodating the concerns of all the stakeholders. A sound REDD+ architecture will also contribute to global low carbon emission development pathways and the global sustainable development agenda.

1.2 Nepal's Journey towards REDD+

Nepal is a signatory to the UNFCCC (since 1992) and the Kyoto Protocol (since 1997). Soon after the 13th COP in Bali, in 2007, various REDD+ related activities were initiated by Nepal. The Ministry of Forest and Soil Conservation submitted a REDD Readiness Plan Idea Note (R-PIN) to the FCPF of the World Bank in March 2008. Subsequently, the REDD Forestry and Climate Change Cell, currently called the REDD Implementing Center, was established under the Ministry of Forests and Soil Conservation. The government then prepared the Readiness Preparation Proposal (R-PP), which was assessed by FCPF in July 2010. A revised of the R-PP was finally submitted in October 2010. Currently, Nepal is conducting studies and developing policy initiatives towards REDD+ readiness through financial support of FCPF as well as complementary program support through a number of other conservation and development partners. In parallel, several NGOs and CSOs, active on REDD+ issues, are involved in REDD+ pilot and demonstration activities. Nepal joined the United Nations collaborative initiative on REDD in developing countries (UN-REDD) in 2009. In 2012 and additionally in 2014, Nepal received targeted support from the UN-REDD Program in order to complement and continue its REDD+ readiness preparation.

To oversee and implement REDD+, the Ministry of Forests and Soil Conservation has established a three-tiered institutional mechanism. They include: 1) a REDD+ multi-sectoral and multi-stakeholder coordinating and monitoring committee known as the apex body, 2) the REDD Working Group at the operational level and 3) the REDD Implementation Center as the coordinating entity. In addition, a stakeholder forum has been established to engage a wide range of stakeholders in the entire REDD+ process.

Participation in REDD+ will help Nepal to access external finance for forest management and conservation activities. Additionally, this is a step towards the decentralization of forest management, strengthening of community-based forestry and resource use, sustainable resource use, recognition of customary practices, hence, a step towards reversing deforestation and forest degradation.

1.3 Nepal REDD+ Strategy Formulation Process

In the development of the R-PP, critical issues such as tenure rights, access to traditional forest resources, carbon rights, forest governance, benefit distribution and safeguards were identified and brought forward, by interest groups such as FECOFUN, NEFIN and the Dalit Alliance for Natural Resources, (CIFOR, 2013). These topics have subsequently been discussed between institutions and stakeholder groups, and were taken into account in the various assessments and REDD+ strategy development. In addition outcomes of other studies that have been undertaken since the elaboration of the R-PP were taken into account as well.

Nepal is implementing a series of activities as stipulated in the R-PP to prepare itself for a REDD+ mechanism to harness potential benefits of REDD+ implementation in future. Before and since the R-PP was revised in 2010, and subsequently approved, many studies have been carried out on the various key subjects such as MRV, RL/REL, SESA and analytical studies on drivers of deforestation, the political economy of land use and the value of Nepal's forests. This has resulted in a vast amount of valuable reports. These studies form the basis for an effective design and implementation of a national REDD+ policy framework. Various REDD Readiness studies that have been carried out over the past years (or that are currently being elaborated) all provide key information necessary for the development of a sound REDD+ implementation plan that is suited to the specific national, regional and local conditions and requirements of Nepal, and therefore, form the foundation for the development of this REDD+ Strategy report. Also research and studies conducted by ongoing projects and pilot studies (e.g. the UN-REDD TS work) and associated non-forestry sectors are incorporated in this process of strategy formulation.

In December 2013, Nepal became the third REDD Country to present a Mid-Term Report (MTR) to the FCPF. The MTR reflected progress in several areas (national arrangements and management; assessment of land use and drivers; forest law and governance; and National Forest Monitoring Systems) but recognized that several other areas require additional focus nationally. They include further consultations; REDD+ Strategy options; social and environmental impacts; and information systems for multiple benefits and safeguards.

The formulation of the first draft REDD+ Strategy took place in 2014, after which series of consultations were held throughout the country, resulting in a 2nd draft REDD+ Strategy. This was subsequently reviewed by a Technical Committee, and laid the foundation for this REDD+ Strategy document bearing in mind that it is a living document that should change with emerging information and insights. The **purpose of the REDD+ Strategy is to guide the development of a set of policies and programs for addressing the drivers of deforestation and forest degradation and improving the carbon sink capacity of the forests.** The Strategy Report is developed in line with the principle of the sustainable development objectives of Nepal in general and with the national forestry sector vision - forests for people's prosperity- in particular.

1.4 Report Structure

This report is the *Operational Summary of the Nepal REDD+ Strategy*, *Part I* of the *Nepal REDD+ Strategy*. It excludes all explanatory and background information that is highly relevant to understand the process of preparing the Strategy: Part II contains all background and explanatory / supporting information underlying the operational summary of the REDD+ Strategy and is therefore, labelled: "*Nepal REDD+ Strategy Part II: Nepal REDD+ Strategy with background and Supporting Information"*.

Cross-references to Part II are provided throughout this Part I *{in italics and in brackets}* at the end of each section.

References to reports, documents and literature used in this operational summary are listed in the References of Part II.

2. Guiding Features of the REDD+ Strategy

The Vision is to optimize carbon and non-carbon benefits of forest ecosystems for the prosperity of the people of Nepal. *{2.1.1}*

The Mission is to strengthen the integrity and resilience of forest ecosystems, and improve socio-economic and environmental values of forests for emission reductions and increased community benefits through improved policy and legal measures[1], improved institutional functioning, and with enhanced stakeholders' capacity, capability and inclusiveness. *{2.1.2}*

Objectives therefore, include the following: *{2.1.3}*

1. To reduce carbon emission, enhance carbon sequestration and enhance climate resilience through both mitigation and adaptation approaches by minimizing the causes and effects of drivers of deforestation and forest degradation, and intensifying sustainable management of forest resources and across the ecological regions. (S # 1,2,3,4)[2]
2. To ensure fair and equitable sharing of carbon and non-carbon benefits of forests among right holders with effective implementation of safeguard measures. (S # 5)
3. To increase livelihood assets and diversify employment opportunities of forest dependent communities, particularly poor, women, IPs and *Dalits*. (S # 6,7,8)
4. To improve and harmonize policy and legal framework to harness carbon and non-carbon benefits; strengthen institutional capability and improve governance of forest agencies and sector (S # 5,9,10,11)
5. To establish and maintain a robust National Forest Monitoring System with strong monitoring, reporting and verification mechanisms (S # 12)

Guiding Principles are composed of the following values: *{2.1.4}*

1. Synergetic alignment with overall national development strategies
2. Building on the successful community-based approaches and practices
3. Enhanced coordination and harmony among different sectors and agencies
4. Utilizing and building on the existing capacity and capabilities
5. Fully capturing the wide range of ecosystem benefits
6. People-centric, gender and socially inclusive practices and approaches, as well as equitable benefit sharing and social justice
7. Social, and environmental safeguards
8. Participatory, effective and efficient monitoring and information system
9. Enhancing governance including transparency and accountability

The **scope** of the strategy is confined to the categories of forests and forests under protected areas as identified by the Forest Act (1993), the National Parks and Wildlife Conservation Act (1973) and the Forest Policy (2015). The categories include Government Managed Forests; Community Forests; Collaborative Forests; Protection Forests; National Parks; Wildlife Reserves; Hunting Reserves;

[1] Improved policy and legal measures implies that these measures are based on ground reality, address different issues of DD and REDD, and are implementable, inclusive and gender sensitive.

[2] The S# numbers correspond to the Strategic Objectives that are introduced later in the Strategy.

Conservation Areas; and, Buffer zones. The possibility of including Leasehold forests; Religious forests; Public land forests; and, Private forests will be explored at a later stage when country capacity in REDD+ increases. *{2.1.5}*

Initially the accounting for carbon, that will take place to account for changes in carbon stocks in the forest categories mentioned above, will include above- and belowground biomass. The inclusion of other **carbon pools** (dead wood, litter and soil carbon) can be considered at a later stage. *{2.1.5}*

Accounting will follow a **nested approach** with the national and subnational **scales** complementing each other. Monitoring and Measuring, Reporting and Verification (M&MRV) systems will be designed and established by the government at the national level, whilst benefit sharing, financing and monitoring activities will mainly be based at the sub-national level. REDD+ activities and regular/periodic carbon monitoring at the subnational level will, as much as possible, be conducted by the local communities that have the delegated authority for forest management whilst receiving technical support from local forest authority. All international (financial) incentives will be received at the national level. The national government will then incentivize REDD+ actions at subnational levels with an agreed benefit sharing mechanisms. *{2.1.6}*

The **financing mechanism** that Nepal intends to use will be a hybrid of compliance and voluntary funding, from both public and private sources. *{2.1.8}* The detailed design of the financial mechanism and finance architecture will be identified upon completion of studies commissioned by RIC.

A number of instruments and tools need to be designed and put in place before a national REDD+ mechanism can be operationalized. One of them is the determination of a Forest Reference Level (FRL/FREL) against which performance can be measured; whilst another is the design and functioning of an appropriate **Forest Carbon Trust Fund** (FCTF). *{2.1.7}*

The development and implementation of a robust REDD+ strategy requires the design of a suitable legal and institutional framework to remove policy bottlenecks. The Forest Act of 1993, the Forest Regulations of 1995, and the Forestry Policy of 2015 are the major legal and policy foundations of forestry management in Nepal. *{2.2}*

A brief review of forest and other related sector **laws, regulations, policies** and adaptation plans, indicate that their coverage is quite comprehensive in the context of REDD+. Issues associated with alternative land use, forest conservation and utilization, irrigation and water resource use, environment and climate change, which are broadly linked to overall sustainable development, are covered by these laws, regulations and policies. Strong enforcement in a coordinated and effective way will further minimize deforestation and forest degradation. Factors constraining this process, largely emanating from sector-specific functional approaches pursued by different institutions, will, under this REDD+ strategy be addressed to optimize the effect of the Strategy. This will further reduce possible ambiguities on absolute or collective responsibility that may affect enforcement and accountability, both horizontally as well as vertically. *{2.2}*

Nepal is committed to enforce UNFCCC's REDD+ **social and environmental safeguards.** Potential environmental and social risks, either perceived or real, associated with the implementation of the REDD+ Strategy will be avoided or mitigated, and the opportunity to promote multiple benefits is operationalized. Potential benefits include the promotion of biodiversity conservation and securing the provision of ecosystem services including water regulation, timber production, erosion control and the supply of non-timber forest products. Social benefits include improvements in governance and livelihoods, and the clarification of land tenure; whilst potential risks include, amongst others, appropriation of local communities and indigenous peoples' lands, and the depletion of biodiversity posing threats to the livelihoods for forest dependent communities. *{2.2.2}*

In principle, Nepal has an established policy framework to implement and include **environmental and social safeguards** in development activities. The policies and regulations related to safeguards in the context of implementation of REDD+ strategy are categorized broadly in four groups: *{2.2.3}*

1. Policies and regulations related to land acquisition, compensation and resettlement
2. Safeguard of Indigenous Peoples (IPs) and other Vulnerable Communities (VCs)
3. Good governance, social accountability and public consultation
4. International Safeguard Instruments applicable for Nepal's REDD+ initiatives

Further formulation and devolution of policy, if any, will guarantee meaningful participation of all stakeholders. While participation of particular members of civil society has improved governance, the continuing challenge is to understand how women and marginalized members of civil society can equally participate in the process as, in many situations, particular (democratic) norms and values have to be further institutionalized among the forestry sector stakeholders and service providers. Even when the right to manage forests has been transferred to local communities, they are facing a number of issues related to governance and GESI insensitivity. These issues will be addressed categorically through policy reform, awareness raising and increased investments at the local levels. Such efforts would be instrumental to enhance the capacities of service providers and forest user groups to ensure equal participation of all stakeholders irrespective of caste, ethnicity, gender, economic status and remoteness in forest governance. *{2.2.3}*

Any initiations to implement this REDD+ strategy requires full and inclusive community and stakeholder consultation in line with **Free, Prior and Informed Consent** (FPIC) requirements as prescribed by the GoN, REDD+ decisions under the UNFCCC, ILO 169 and other relevant and applicable international agencies. Hence, a FPIC implementation plan shall be implemented in conjunction with the implementing of REDD+ strategies. The plan will describe mechanisms to engage with communities, groups, or individuals affected by REDD+ activities and projects, and with civil society and other stakeholder, through information disclosure, consultation, and informed participation so that meaningful input can be provided in support of project design and mitigation measures. *{2.2.3}*

3. Historic context and current state of land-use in Nepal

Availability of accurate and reliable information has a high priority in support of the further analysis of forest cover and land-use change in Nepal. Large volumes of literature discussing forest cover and land-use change are relatively old, scanty, and sometimes inconsistent or contradictory. This continues to challenge land use and land cover change analysis and sometimes results in outcomes that are coarse and not sufficiently precise. Analysis is further challenged by erratic data per physiographic region (e.g. some official documents use five physiographic regions while others use three geographical regions). This issue is important as the forest types, resource pattern and extent of drivers of deforestation and forest degradation varies across these physiographic and/or geographic regions. The Master Plan for the Forestry Sector (MPFS) 1988 remains the most comprehensive official document that provides detailed information on land use and land cover change information by physiographic regions, aside from the currently ongoing Forest Resource Assessment (FRA) project. This document also uses five physiographic regions as adopted by the MPFS and discusses land use and land cover changes over the various periods of time to the extent possible. *{3.1.1}*

3.1 Assessment of Forest Cover Change,

3.1.1 Forest cover and forest loss

In 30 years between 1964 and 1994, Nepal lost 2.134 million hectare of forests, which were either converted into shrub land or into other land uses (Table 1). During this period, the area of forest has decreased from 45.5% to 29% losing 16.5%. The analysis of data generated from ICIMOD land cover map of 1990, data generated for 2000 by Reference Study team and ICIMOD land cover map of 2010 shows the annual loss of forest by 0.53% in between 1990 and 2000 and an increase in forest cover in between 2000 and 2010 with an annual rate of 0.8%. However, the variation within and between subnational regions can be quite significant, as shown by some sub-national studies. The recent National Forest Inventory report of Tarai and Chure published by the Department of Forest Research and Survey has also reported annual deforestation rate of 0.18 % in Chure and 0.44 % in Tarai in between 1991 and 2010. Reports of other physiographic regions are yet to be published. *{3.1.1.5}*

Table 1. Forest Cover Status during seven different time period rounded off to full numbers

Cover Type	Unit	Years						
		1964 (FSRO)	1978/79 (LRMP)	1985/86 (MPFS)	1994 (NFI)	1990 ICIMOD land cover map*	2000 RL Study Team*	2010 ICIMOD land cover map*
Forest	Area (000ha)	6402	5617	5518	4268	5622.2	5325.8	5755.8
	Percentage	46	38	37	29			
Shrub	Area (000ha)		690	706	1560			
	Percentage		5	5	11			
Total	Area (000ha)	**6402**	**6307**	**6224**	**5828**	**5622.2**	**5325.8**	**5755.8**
	Percentage	**45.5**	**43**	**42**	**40**	**38.2**	**36.19**	**39.11**

Source: MPFS, 1988; DFRS, 1999; WECS, 2010; *these data are cited from REDD Cell/MFSC, 2014c[3]

Table 2 presents the forest cover change in different time series, expressed as hectares lost or gained, in absolute terms as well as relative over time. The rate of change of forest cover and shrub land varies between the different time series. The highest rate of change in forest area was during 1985/86-1994 (@ 2.83%/year) and was the lowest during 1978/79-1985/86 (@ 0.22% /year). Similarly, the rate of shrub land increase is also the highest during 1985/86-1994 (@ 15.12%/year) and the lowest during 1978/79-1985/86 (@ 0.3% /year). As per the available data, the rate of loss of forests and shrub land together has declined from 7.57%/year between 1978/79 and 1994 to 5.27%/year in between 1990 and 2000. Between 2000 and 2010, however, there in an increase in forest and shrub land cover change by 8.07% /year. This positive change can be attributed to the expansion of community forestry. *{3.1.1.6}*

Table 2. Forest cover change data in different time series (Area in 000 ha)

Period	Forests			Shrub lands			Forest and Shrub together		
	+/- '000' ha	% change	% change /year	+/- '000' ha	% change	% change /year	Total change '000' ha	% change	% change /year
1964-1978/79	-786	-12.28	-0.88	0			-786	-12.28	-0.88
1978/79-1985/86	-98	-1.75	-0.22	+17	+2.46	+0.3	-81	-1.28	-0.09
1985/86-1994	-1250	-22.63	-2.83	+854	+120.96	+15.12	-396	-6.36	-0.80
1978/79-1994	-1348	-24	-1.5	+871	+126.41	+7.9	-477	-7.57	-0.47
1990-2000							-296.4	-5.27	-0.53
2000-2010							+430	+8.07	+0.80

Source: After MPFS, 1988; DFRS, 1999, REDD Cell/MFSC, 2014c

3 REDD Cell/MFSC, (2015) has used ICIMOD land cover map of 1990 and 2010 to generate data for 1990 and 2010 time points, while for 2000 time point, raw Landsat-based imagery data was processed. These data sets are indicative, as they are not ground verified and formally accepted. (REDD Cell/MFSC, 2014c).

3.1.2 Forest cover change in different physiographic regions *{3.1.1.7}*

The only existing complete set of forest cover change data covering all the five physiographic regions of the country is from between 1978/79 and 1985/86. Between those years, the rate of deforestation in was the highest in the Tarai, followed by Chure and the Mid Mountains. In contrast, the High Himal and High Mountains slightly gained in forest area. By 1994 the rate of deforestation increased in all physiographic regions with the highest increase in the Mid Mountains.

Tarai and Chure

The deforestation rate in the Tarai has been consistently higher over the past decades. During 1978/79 to 1985/86 the annual deforestation rate was the highest with an annual loss of 3.44%, which is eight and a half times higher than the national average of that period. The recent forest inventory conducted by FRA/DFRS has also shown an increasing trend of deforestation. Between 1991 and 2010, the forest area in the Tarai decreased with an annual rate of 0.40%. This further increased to 0.44% in the period between 2001 and 2010.

The Chure region also shows continuous deforestation over the past decades. Between 1964-1978/79 forest loss was estimated at 1.1% per year. The period between 1978/79 and 1985/86 shows a drop in deforestation rate to 0.11% per year. However, the recent national inventory between 2010 and 2014 again shows an increase in deforestation rate of 0.18%/year in the period between 1995 and 2010.

Mid Mountains, High Mountains and High Himal

Between 1978/79 and 1985/86, a slight annual increase in forest cover in the High Mountains (+0.08%) and High Himal (+0.05%), and a slight decrease in Middle Mountains was observed (0.08%). Between 1978/79 and 1994, however, more prominent deforestation occurred in the High Himal, the High Mountains and the Mid Mountains with annual rates of 1.9 %, 1.4% and 2.5%, respectively. The national inventory data of 2010-2014 is not yet available for these regions. However, more recent site specific studies have reported an increase in forest cover in the Mid Mountains and a decrease in the High Mountains above 2,000 m. A study commissioned by REDD IC about the drivers if deforestation and forest degradation in the High Mountain regions reported a decline in forest and grass land of 18.74% and 32.48% respectively, and an increase in shrub land and bare land (including non-cultivated land) of 37.4% and 25.7% respectively in the period between 1985/86 to 2001/02.

In most parts of the Mid Mountains, there are reports of forest improvement, although there is some variation in results between the studies. A study of 10 VDCs in Dolakha district by Niraula and Maharjan (2011), that analyzed Landsat TM imageries of 1990 and 2010 concluded that the rate of conversion of sparse forest into dense forest was found to be between 1.13 - 3.39 % per year, and the rate of conversion of non-forest area into forest was found to be in between 1.11 - 1.96 % per year.

3.2 Efforts to date to address deforestation and forest degradation

Efforts to date to address deforestation and forest degradation, and to maintain and improve forest land use have been manifold and include: *{3.1.2}*

a) Evolution of the progressive forest policy and legal instruments
b) Significant development of community forestry and community participation
c) Development of different management regimes, such as community forestry, Collaborative Forest Management, a Pro-poor leasehold Forestry Program, Protection Forests, Religious Forests and Public Land Management.
d) Significant increase in protected areas and in-situ conservation of ecosystem and biodiversity and better connectivity.
e) Community-based conservation with expansion of buffer zone areas and conservation areas.

f) Expansion of soil conservation and watershed management services and conservation efforts of Chure hills.
g) Forest research, survey and inventory on the basis of which information and knowledge is acquired that can help to reduce deforestation and forest degradation.
h) Institutional restructuring of the forestry sector and increasing number of active and vocal civil society.
i) Expansion of forestry education, human resource development and a large scale reorientation and re-training of forestry staff triggered by MPFS.

3.3 Forest Land Tenure; resource, carbon- and customary rights; gender and social inclusion *{3.1.3, 3.1.4}*

3.3.1 Land tenure and property rights

Clarity of land tenure and usage rights is vital for REDD+. Land tenure and forest property rights are the key issues shaping the social and environmental impacts of REDD+ and related programs; in particular, attention to the usage rights of local forest-dependent communities and to the rights of indigenous peoples to ownership, use and customary management of their forests are of fundamental importance.

In Nepal the ownership of forest land either lies with the government or with the private land owners. The Forest Act 1993 has made it clear that all the community-based forests including community forests, collaborative forests, leasehold forests and religious forests are owned by the government, which are handed over to communities for the conservation, management and sustainable use of forest and its products. So is the case with other forest management regimes that are managed under the National Parks and Wildlife Conservation Act 1971. Among all the community-based forest management regimes, the forest act has provided clarity of tenure rights of community forestry regime. Securing these rights however, during its implementation can be challenging, particularly in case of harvesting or forest product sales. This indicates that CFUGs need secured forest tenure rights and the users of other community based forest management regimes needs clarity on their tenure rights in sync with the UNFCCC's safeguard principles. In addition, clear and secured tenure rights are equally important for investment in all kinds of forestry projects including REDD+ initiatives, as it represents a potential risk to the successful project implementation, and the costs of resolving related conflicts can be high.

Since Nepali society is highly differentiated and hierarchically structured along the lines of economic status, gender, caste and ethnicity, internal inequities in access to benefits and decision making persist within many Forest Users Groups. In order to ensure equal access of all user members, the Forest Act and Regulation need to be revised to prescribe for all User Group Committees to include proportionate representation of poor, women, IPs, and *Dalits* community members; and, equally so for trainings, sensitization, workshops and other activities at all levels of meetings, discussions and interaction. *{3.1.3}*

Not only in the area of land tenure, but also in the area of natural resource rights and associated governance issues and issues of customary rights needs to be addressed. *{3.1.4}*

3.3.2 Carbon rights

With respect to carbon rights, there is no standalone single legal reference for clarifying carbon ownership and associated benefit sharing, and thus this remains to be resolved. Forest Act 1993, National Parks and Wildlife Conservation Act 1971 and other related legal provisions do not include any provision regarding forest carbon rights. Forest Act has provisioned CFUGs to develop, conserve, manage and use the forests handed over to them. However, such rights are less clear in the context

of CFM. CFM in Nepal is based primarily on a forest policy promulgated by the MFSC in 2001. It is not as well defined in terms of governance as CFUG under the Forest Act 1993. Under the existing land and forest tenure regimes, substantive measures should be taken to secure carbon rights of the right holders. Resolution of the issues of carbon ownership and tenure rights for all types of forest management regimes remains a key priority of the REDD+ strategy. The carbon ownership rights must be considered as usufruct right and integrated into forest tenure rights, which in turn must be clarified, strengthened and effectively enforced. For this, forest policies and legislation should clearly define carbon ownership right and benefits sharing. Legislation should unambiguously stipulate that the usufruct right of the communities includes the right over the forest carbon and the associated benefits to be accrued. Forest carbon ownership right should not be divided on the basis of carbon pools and the communities' usufruct right should include carbon ownership right over carbon sequestrated by all the five carbon pools. The alternative option is to define forest carbon as forest products (in the form of biomass) and then design carbon benefit sharing mechanism similar to existing benefit sharing arrangement. In any case, however, carbon rights must be harmonized with existing laws governing all form of natural resources right. *{3.1.4}*

3.3.3 Gender

In terms of gender, in both community and leasehold forestry, women are mandated to hold at least one-third of forest committee positions. However, in the majority of the cases, forest related decisions and resources are still controlled by male elites, hindering the poor, *Dalits* and women from exercising their leadership skills and reaping the benefits from forest management. The poor understanding and capacities of the service providers and institutions on gender issues and the low leadership capacities and skills of poor and rural women have further made it difficult for women to lead and influence decisions. However, there is no gender-equity mechanism for government-managed forests. If the tenure rights consider gender as an integral part and prescribe specific guidelines of mainstreaming, gender equity can be consolidated. For law and policy to influence gender relations in forest tenure, a more nuanced framework and targeted investments are required to deconstruct, reconstruct, and re-conceptualized authority in both the rules and the laws that govern use and benefits, as well as the institutions that make and enforce such rules and laws and to develop the leadership and technical skills of particularly poor and marginalized women. *{3.1.4}*

In terms of forest management, women have managed only a little over 5% CFUGs of total 18,324 community forestry user groups (CFUGs) which comprises approximately 40 percent of the households in the country (CBS, 2011; MOF/GON, 2014). Women's leadership other than the community forest management regime is invisible. However, despite this fact woman members make up a significant portion of the overall membership of the CFUGs. In terms of forest administration, women represent only 3.25 % of the total 6835 civil personal in the forestry and NRM sectors. Women comprise 6% of the 448 staff at the gazette level while they represent 3.6 % among the 2679 staff in non-gazette positions. In addition, 3709 staff have no grade, of whom 2.7% are women (ADB/DFID/WB, 2012).

3.3.4 Governance *{3.1.4}*

The institutional mechanism at different levels has to ensure that the laws, rules and regulations are robust for ensuring their enforcement and implementation. This, among others, will require amendments in Forest, and National Parks and Wildlife Conservation related Acts and Regulations to ensure carbon and customary user rights. Amendment will also require legal clarity on sharing and delivering of benefits among conservation areas, buffer zone community forestry and other forms of community-based forestry outside protected area. More broadly, possibility of a unified act related to natural resource management has to be explored for clarity on responsibilities, addressing the gaps in different acts, removing the overlaps and contradictory provisions in the acts, enhancing intra and inter-sectoral coordination and ensuring compliance at all institutional levels.

For improved governance and implementation effectiveness, from the implementation perspectives, there is a need of making state forestry sector institutions competitive, decentralized, people-centric and downwardly accountable. For making all departments and district level organizations more service oriented, responsive, accountable and people-centered, ample devolution and delegation of authority will be required. In the reform process, due attention has to be given to enhancing the participation, competency and leadership of women, indigenous peoples, *Dalits*, poor and socially excluded groups and individuals. New arrangements will have to ensure that an interaction among stakeholders and government agencies at different levels takes place for shared benefits and increased service delivery. One of the key ingredients of this should be the enhancement of transparency, accountability and rule of law in all community-based forestry and other management regimes. In the changed context, there is also a need to redefine the role of the private sector in order to encourage its involvement in the REDD+ transactions for enhancing carbon stocks and ensuring benefits. Web based protocols will have to be devised to share the provisions of each management plan to be implemented in the field. This will also enhance the transparency and will compel officials to follow the provision as approved by themselves.

3.3.5 Social Inclusion *{3.1.4}*

The issues of social inclusion are very pertinent in the forestry sector because nearly 80 % of the Nepali rural households derive some or their entire livelihood from the forestry sector. For some households, their livelihoods are totally dependent on the access to forest products; for others forests provide important household products, inputs to agriculture, income and environmental services. The community forestry and participatory protected area management system are globally recognized as best practice models to ensure social inclusion. The CF Guidelines (2009) outlined provisions for social inclusion and established explicit mechanisms, tools and techniques to address the existing exclusion in the governance structure, programs and activities. Despite these, there are multiple forms of exclusion in operation in the forestry sectors. Apart from economic factors, social ones such as gender, caste, ethnicity and location greatly influence who accesses forest resources and decision-making processes and who receives benefits. The distance of forests from settlement (particularly the southern belt of Tarai), the forms of tenure regimes (state, community, common property, private, open access etc.) and law enforcement all dictate the degree to which households gain or are prevented from access to forest resources.

The loss of access of forests through either degradation or changed management regimes often will have the greatest impact on the communities who depend on the forest resources. Thus the REDD+ strategy has been framed with due respect of the existing Gender and Social Inclusion Strategy (2009) of MFSC and other best practice model of social inclusion. The GESI Strategy of MFSC focuses mainly on four areas: a) GESI sensitive policy and guidelines, b) Good governance and GESI sensitive organizational development, c) GESI sensitive budget, program and monitoring, and d) Equitable access in resources, decisions and benefits.

All the actors in forestry sectors such as various government departments and offices and project implementers, including CFUGs and other community institution shall be made responsible to ensure REDD+ benefits and decision-making opportunities for women and other marginalized people in line with the GESI strategy. It is further confirmed by judicious implementation of the GESI provisions ensuring access of poor, women, IPs and Dalits to forest resources, carbon funds, and decision-making roles in order to minimize or break the historically rooted unequal relations. Throughout all these efforts, active participation of poor, women, IPs and Dalits will be considered a crucial factor for success in REDD+ initiatives ensuring sustainable natural resource management for better livelihood and environment.

3.4 Land-Use Change Drivers

The REDD Readiness Preparation Proposal (RPP), in 2010, has identified nine major drivers of deforestation and forest degradation. However, a number of studies commenced after 2010 identified a set of other drivers too. Through a synthesis and analysis of all the drivers identified by RPP, and by different studies, and verification and prioritization through stakeholder consultations in a number of districts, regional and local level workshops a total of 9 direct drivers and 10 underlying causes have been identified. Table 3 below lists the direct drivers that have been identified, their priority, where they occur mainly, their impact in terms of magnitude and their corresponding underlying causes. *{3.2} and {Annex 5}*

Table 3. Direct drivers, priority, their nature, affecting regions and corresponding underlying causes

SN	Drivers	Priority[§]	Drivers for/affecting region	Corresponding underlying causes
1.	Unsustainable harvesting and illegal harvesting	1	Degradation **Affecting regions:** HM (2); MH (3); S (1); T (1)	▪ **Policy gaps and poor implementation** ▪ **High dependency in forest products and gap in demand-supply** ▪ **Poverty and limited livelihood opportunities** ▪ **Poor governance and weak political support**
2.	Forest fire	2	Degradation **Affecting regions:** HM (1)*; MH (3); S (1); T (2)	▪ **Policy gaps and poor implementation** ▪ **Poor governance and weak political support** ▪ **Land use policy and insecure forest tenure**
3.	Infrastructure development (includes manmade disasters)	3	Deforestation **Affecting regions:** HM (2); MH (1); S (2) T (4)	▪ **Policy gaps and poor implementation** ▪ **Weak coordination and cooperation among stakeholders** ▪ **Poor governance and weak political support**
4.	Over grazing/uncontrolled grazing	4	Degradation **Affecting regions:** HM (1)*; MH (4); S (1); T (1)	▪ **Policy gaps and poor implementation** ▪ **Poor governance and weak political support** ▪ **Weak coordination and cooperation among stakeholders** ▪ **Land use policy and insecure forest tenure**
5.	Weak Forest Management practices (unmanaged/under-managed)	5	Degradation **Affecting regions:** HM (1); MH (3); S (1); T (1)	▪ **Policy gaps and poor implementation** ▪ **Inadequate human resource development and management** ▪ **Poor governance and weak political support**
6.	Urbanization and resettlement	6	Deforestation **Affecting regions:** HM (5); MH (5); S (1) T (1)	▪ **Disproportionate population distribution and migration pattern** ▪ **Policy gaps and poor implementation** ▪ **Weak coordination and cooperation among stakeholders**
7.	Encroachment	7	Deforestation **Affecting regions:** HM (5); MH (5); S (1); T (1)	▪ **Policy gaps and poor implementation** ▪ **Poor governance and weak political support** ▪ **Poverty and limited livelihood opportunities** ▪ **Weak coordination and cooperation among stakeholders**

SN	Drivers	Priority[§]	Drivers for/affecting region	Corresponding underlying causes
8.	Mining /excavation (sand, boulders, stones).	8	Deforestation and degradation **Affecting regions:** HM (5); MH (3); S (1); T (1)	▪ **Policy gaps and poor implementation** ▪ **Poor governance and weak political support** ▪ **Weak coordination and cooperation among stakeholders** ▪ **Poor coping strategy to natural disasters and climate change**
9.	Expansion of invasive species	9	Degradation **Affecting regions:** HM (5); MH (4); S (1); T (1)	▪ **Policy gaps and poor implementation** ▪ **Low priority to research and development**

HM-High Mountain; MH- Middle Hills; S- Chure/Siwaliks; T- Tarai and inner Tarai
1- Very high effect; 2- High effect; 3- Medium effect; 4- Low effect; 5-Very low effect
**Effect of forest fire and grazing in terms of exposure, sensitivity and capacity to address*
[§] *Priority in terms of impact on the forests as identified by* REDD Cell/MFSC, 2014c, consultations and expert judgments

The underlying causes that are identified through consultations and expert judgment, are as follows: *{3.2.2}*

1. Disproportionate population distribution and migration pattern
2. Policy gaps and poor implementation, as well as policy contradictions among different sectors or jurisdiction
3. Poverty and limited livelihood opportunities
4. High dependency in forest products and gap in demand-supply
5. Land use policy and insecure forest tenure
6. Poor governance and weak political support
7. Weak coordination and cooperation among stakeholders
8. Inadequate human resource development and management
9. Low priority to research and development
10. Poor coping strategy to natural disasters and climate change

3.5 Gaps in Forest Laws and Policies in the context of REDD+ and Remedial actions *{3.3}*

3.5.1 Gaps in Forest Laws and Policies in the context of REDD+

A number of strengths and weaknesses have been identified in forest laws and policies in the context of REDD+. These include the following: *{3.3.1}*

Carbon and carbon rights: a forest product or a by-product of ecosystem services

- The Forests Act 1993 and Forest Regulation 1995 are framed under the premise that the ownership of all forests land rests with the government. The right to manage and use forest resources has been given to forest users, but the right to carbon is missing.
- Existing policies talk about forest ecosystem services but the subsequent legislations (Acts and Regulations) are silent about the services generated by forest ecosystems such as water and carbon. It is unclear whether they are forest products or simply the ecosystem services.

Allocation of forest land for other uses and compensation for development in forest area

- Due to less clear forest land allocation policy there is arbitrariness in allocation of forests for other uses, such as for the resettlement of Ex-Kamiayas, landless poor, victims of

natural disaster, and for infrastructures for public services such as schools, colleges, hospital, hydropower, roads, etc.

- The Forests Act 1993 includes strict provisions regarding the use of forests areas for development activities. However, it has no compensatory measures to discourage development projects in forested areas.

Inconsistencies amongst acts and (by-) laws governing community-based forestry

- The Conservation Areas are governed by different acts and by-laws, as are the institutional and benefit sharing modalities creating inconsistencies in governance, management and benefit sharing mechanism among Conservation areas, Buffer Zone Community Forestry and other forms of community-based forestry outside the Protected Areas System. Consistency needs to be introduced at a broader and conceptual level.
- A number of operational guidelines must be updated/amended (and continue to be updated regularly) to address emerging socio-economic and ecological issues of forest resource management in general and community-based forestry in particular. Guidelines need to be developed for the operation of conservation areas and the management of public land forestry.
- The Collaborative Forest Management was started in Tarai in 2002 based on a Cabinet decision. The Directives of Collaborative Forest have also been formulated in 2011, however the provisions in forest legislation is yet to be made.

Customary use rights and management practices

- The existing legal framework of the forestry sector does not recognize the customary use rights and management practices of indigenous communities.
- One of the major gaps in existing laws relates to sustainable utilization of biological resources and equitable sharing of the benefits accrued from conservation of genetic resources. The 'access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their utilization' bill is still awaiting parliamentary approval.
- National Parks and Wildlife Conservation related Acts and Regulations have limited reference to the rights of indigenous people, particularly the customary rights of use and management practices.

Tenure arrangements and the role of the Private Sector

- Relevancy of the old classification related to national and private ownership of forests amidst diverse forests management regimes and tenure rights could benefit from enhanced clarity.
- Role of private sector including private forestry in NRM development and alternative energy technology is vital. However, the existing policies and legal framework do not sufficiently define their roles and incentive mechanism.

Conflicts with Sectoral Acts and Regulations

- There are conflicts between Forest Act 1993 and Regulations 1995 and Local Self Governance Act 1996 over use of resources.
- Rights and authorities conflict with the provisions of the Forest Act, and process, procedures and mitigation measures provisioned by the Environmental Acts and regulations.
- Conflicts exist in jurisdiction and authority between the Ministry of Water Resources, and the Ministry of Forests and Soil Conservation affecting the conservation of forests.

Benefit sharing, transparency and accountability

- Tendency of manipulation of policy or excessive intervention motivated by personal and political interests.
- Manipulation in the pricing and auction system in Timber Marketing.

- There are lapses in tenure rights and benefit sharing arrangements under community-managed forestry regimes amidst higher opportunity cost of, among others, forest dependent people's livelihood.
- Discretionary power is deployed amidst quasi-judicial system and CFUG-induced conflicts.
- Accountability and transparency under different tenure arrangements is weak and consequently causing problems.

3.5.2 Policy and measures

A number of activities at the policy and institutional level have been undertaken to remedy some of the above weaknesses. Apart from major forest related policies like the climate change policy (2011), the land use policy (2012), and the rangeland policy (2012), a new forest policy (2015) has been recently approved and a new forest development strategy has been drafted. In addition, the revised National Biodiversity Strategy Action Plan (2013) and the Forest Encroachment Control Strategy (2012) have been introduced: all important steps in the REDD+ readiness preparation process. *{3.3}*

Furthermore, some of the elements contained in the R-PP have been expedited including the development of a (sub-national) reference scenario, design of a monitoring system, and the design of a monitoring and evaluation framework. However, the lack of timely donor funding, administrative, procedural and other delays, the problem of inter-sectoral ministerial coordination, issues related to policy clarity and responsibility dilemma's amongst concerned ministries, and the political transition affecting timely formulation or revision of acts, rules and regulations are some of the constraining factors for the timely preparation of some of the above. *{3.3}*

3.6 Governance issues and Remedial actions *{3.4}*

3.6.1 Governance issues

As per the forestry legislations, the Department of Forests and Department of National Parks and Wildlife Conservation has the full authority to control and manage national and protected area forests. The Department of Forest is also responsible to regulate private forests. Local communities, mainly community forest user groups, now manage more than one third of the forest area under their own forest management plans, approved by the concerned District Forest Office (DFO) or protected area warden. Today the majority of the hill forests are under such a community management program. In contrast, most of the Tarai and mountain forests are under government control and management. By rule, all forests should be managed based on the approved management plans. However, not all management plans have been updated or prepared. *{3.4}*

In order to address deforestations and forest degradations, governance is one of the major challenges as it consists of rules of law and their robustness, enforcement mechanisms, transparency and accountability at different institutional levels. A closer review indicates that apart from a mismatch between causes and measures, poor implementation has been a major problem. In many instances, poor law enforcement has created difficulties toward addressing drivers of deforestation and forest degradation and the corresponding underlying causes. At the same time, the governance measures have often been limited to the forestry sector despite challenges emanating from other related sectors. For instance, encroachment, road construction and fuel wood collection - having close link with agriculture, infrastructure and energy sectors - is poorly coordinated from an overall governance perspective. Such a problem has manifested despite the new land use policy direction on the use of land as per five classified categories. Poor transparency and accountability at political, bureaucratic and community levels have aggravated such problems. The experience to date indicates that a drastic reform in the governance of government managed forest especially in the

Tarai and mountains will be required in which alternative tenure arrangements may need to be explored. Equally so, in community forestry better alternatives to address emerging governance problems are required. *{3.4}*

3.6.2 Policy and measures

Many recent initiatives indicate that with the beginning of REDD+ readiness processes, Nepal is developing or revising many required policies, acts and institutional frameworks which are aimed at improving the governance system to a greater extent. Design of institutional structures and mechanisms have been driven by the aim of ensuring law enforcement, strengthening coordination among concerned agencies and monitoring of activities and implementing anti-corruption measures through the Commission for Investigation of Abuse of Authority (CIAA) and National Vigilance Centre (NVC). There are also attempts to expedite court cases for early decisions. In addition, governance is one of the cornerstones in new forest policy (2015) and newly drafted forestry sector strategy. *{3.4}*

In parallel, the government has formed a high level committee-President Chure-Tarai Madhesh Conservation Development Board- to address the deepening deforestation and forest degradation problem in Chure area. For facilitating the implementation of forest management activities, sustainable forest management indicators for government managed forests have been endorsed. Similarly, the principle of scientific management of forest has been adopted and its piloting has started in some places. In addition to preparing community forestry guidelines, initiatives are underway to develop SFM indicators for community forests. *{3.4}*

Looking towards the future, a number of issues will be critically important to address the governance issues. These include: *{3.4}*

a. A result based governance system to ensure full compliance to the rules, regulations and policy measures
b. Strengthening of weak state institutions and dismantling of patronage and clientelism-type systems driven by vested political or economic interest
c. A national REDD+ strategy that incentivizes reforms in policy, governance and forest tenure arrangements in an integrated manner
d. An intra- and inter-sectoral integrated approach which requires effective internal, as well as inter-ministerial coordination driven compliance mechanism, for ensuring the implementation of policies and acts
e. Full accountability and transparency at various institutional levels including an effective and time bound, result-oriented review and monitoring system at both the national and local level with independent oversight bodies from the center to the district level
f. A system that contains reliable and up-to-date information on forest resources, harvesting operations, deforestation and forest degradation, trade of forest products, and overall progress in enforcing law, policies and programs with easy access.
g. An inclusive institutional arrangement representing different stakeholders for review and monitoring system at both local and national levels.

3.6.3 Benefit Sharing

Benefit sharing, often referred to as the transfer of incentives in the form of direct and indirect financial and other benefits, is one of the key ingredients for the successful REDD+ implementation. Such incentives, in turn, contribute to the enhancement of governance, securing tenure rights, improving environmental services, and raising income from REDD+ related activities. Therefore, the design of a system or mechanism that ensures equitable benefit sharing is vital for making REDD+ successful toward its mission of lasting net emissions reductions, realization of benefits to forest communities, and improved livelihoods of vulnerable and poor people.

The benefit sharing mechanisms require schemes that address the issues of equity, exclusivity, and conditionality. Equity includes fair benefit sharing with and within the poorest communities and avoidance of elite capture of the benefits. Exclusivity requires addressing issues related to national land governance regimes. Conditionality is linked to benefits with performance which again needs tailoring to local realities, including the timing and frequency with which payments are made.

Participatory forest management is the most promising potential model for decentralized management of forest resources. Such an approach allows inclusion of small landholders for delivering REDD+ objectives. In this approach, the risk of deforestation due to increased market access and elite captured practices are often regarded to be some constraining factors.

A multi-stakeholders approach must be followed at central, sub-national and local community level as a benefit sharing and fund mobilization mechanism for ensuring that it helps to enhance sustainable forest conservation and improved forest governance. Similarly, the need for improved organizational structures through adequate representation of poor, women, IPs, *Dalits* and marginalized communities in decision-making and benefit sharing is equally important. Another important factor to be considered is that an effective monitoring and evaluation system becomes an integral part of any benefit sharing mechanism at any levels to ensure that benefits reach the appropriate and functional stakeholders and right holders. Based on such considerations, robust benefit sharing principles must be linked and a benefit sharing plan will have to be developed and implemented. {3.1.4.4}

4. Strategy options

4.1 Objectives and associated Strategies *{3.5}*

4.1.1 Identification of objectives, formulation of desired outcomes, and selection of strategies and associated actions

This section presents the strategies and major strategic actions that will address the drivers of deforestation and forest degradation (discussed in section 3.4), address land tenure issues, forest governance issues, gender considerations and the safeguards as illustrated in the para 72 of Cancun agreement and lead to achieve the vision, mission and objectives (discussed in section 2). In addition, they contribute to reduce carbon emission and establish national forest monitoring and reporting system. These strategies are also consistent with the proposed post-2015 sustainable development agenda, which is under discussion globally. The objectives, outcomes, strategies and strategic actions are listed in the boxes below. The strategic actions will be prioritized during the preparation of implementation plan using criteria of effectiveness (capacity of the government, degree of social and political complexity, and acceptability of the intervention) and efficiency (cost-effectiveness). Each strategy has a number of activities that need to be undertaken to operationalize the strategies, and those are listed in box 4.2.

The strategies have been formulated in support of **5 overall objectives**, being:

1. To reduce carbon emission, enhance carbon sequestration and enhance climate resilience by intensifying sustainable management of forest resources and minimizing the causes and effects of drivers of deforestation and forest degradation across the ecological regions;
2. To ensure fair and equitable sharing of carbon and non-carbon benefits of forests among right holders with effective implementation of safeguard measures;
3. To increase livelihood assets and diversify employment opportunities of forest dependent communities, particularly for the poor, women, IPs and Dalits;
4. To improve and harmonize policy and legal framework to harness carbon and non-carbon benefits; strengthen institutional capability and improve governance of forest agencies and sector; and,
5. To establish and maintain a robust Forest Monitoring Information System with strong measurement, and monitoring, reporting and verification mechanisms.

For each objective a number of **desired outcomes** have been defined that require particular strategies to be deployed in order for the outcomes to actually be achieved. Below the objectives, the outcomes and the strategies that are formulated to achieve the outcomes - and thus the objectives - are presented.

Box 4.1: desired outcomes per objective, and listing of applicable strategies

Obj.	Desired Outcomes	Applicable strategies
1	1.1 Forest productivity increased and integrity of ecological system maintained through sustainable forest management and conservation practices. 1.2 Policy and measures to develop forestry, to address drivers of deforestation and forest degradation coherent, complementing REDD+ and conducive to ecological regions are in place to reduce carbon emission from forestry sector.	S# 1, 2, 3, and 4
2	2.1 Policy and institutional arrangement securing tenure, carbon rights and fair and equitable benefit sharing in place 2.2 Forest dependent communities including poor, women, IPs, Dalit, and marginalized groups benefited from increased access to forests and decision-making	S# 5
3	3.1 Income and employment of forest dependent communities, particularly poor, women, IPs and Dalits improved through enterprise development. 3.2 Climate smart technologies[4] mainstreamed into forest and farmland management practices of subsistence and near landless farmers[5] and agricultural productivity increased. 3.3 Forest-dependent poor, women and marginalized people friendly alternative energy and alternative wood technology developed and promoted.	S# 6, 7, and 8
4	4.1 Sectoral policies and legal frameworks improved, harmonized and collective efforts attained for climate change mitigation and adaptation. 4.2 Service delivery system and pro-poor and GESI responsive governance improved through institutional reform and capacity enhancement of concerned stakeholders. 4.3 Climate smart and GESI responsive infrastructure planning, construction and maintenance tools and techniques with appropriate safeguard measures in place and direct/indirect impacts on forests minimized.	S# 5, 9, 10 and 11
5	5.1 A national credible monitoring, measurement, reporting and verification system established with well functional Forest Management Information and Knowledge Management System	S# 12

[4] Climate smart technologies refers to draught and disease resistant varieties, water harvesting, organic farming, off-season vegetables, improve cook stoves, information technologies etc

[5] Subsistence farmers are those with land holding of 0.5 -1.0 ha and near landless are those with less than 0.5 ha as defined by Agricultural Development Strategy, 2013.

The strategies are the following:

S1. Enhancing carbon stocks, increasing supply of forest products and reducing carbon emission from the existing forest and shrub land area

S2. Increase non-carbon benefits by promoting climate resilience, ecological integrity, ecosystem-based adaptation and integrated watershed management.

S3. Promoting private and public land forestry

S4. Promote optimal land use through improved land use planning and implementation

S5. Clarify forest tenure, ensure carbon rights and fair and equitable benefit sharing among various right holders

S6. Promoting enterprise, livelihoods and employment opportunities to forest dependent poor, women, IPs and *Dalits*

S7. Increasing agricultural productivity of forest dependent subsistence and near landless farmers

S8. Increasing access to affordable and gender-friendly technologies of alternative wood and energy to poor and marginalized

S9. Improving collaboration, cooperation and synergy among various stakeholders, sectors, sectoral policies.

S10. Strengthening capacity, institutional performance and service delivery

S11. Promoting forest and climate-friendly infrastructure planning, construction and maintenance

S12. Establishing and maintaining a well-equipped national forest information monitoring system

The strategies cover a wide range of policy measures, management practices, governance and institutional strengthening, capacity enhancement, and policy and sectoral synergy development in order to achieve REDD+ outcome of *a) Reducing emissions from deforestation; (b) Reducing emissions from forest degradation; (c) Conservation of forest carbon stocks; (d) Sustainable management of forest; and, (e) Enhancement of forest carbon stocks.*

In order to operationalize the strategies, each strategy requires a particular set of activities to be undertaken, reflected in box 4.2.

Box: 4.2 Strategies and Strategic actions

Strategies	**Major Strategic actions:**
S1: Enhance carbon stocks and/or climate resilience, increase supply of forest products, and reduce carbon emission through sustainable management of forests, land rehabilitation, shrubland management, and by	1.3 Identify and delineate forest for different management modalities and promote appropriate community-based management models 1.4 Intensify sustainable management of forest (SMF) to enhance the function of forest ecosystem and increase carbon sequestration in all community based management models. 1.5 Update and improve management plans (district forest management plans, and Protected Areas management plans, and operational plans of CBFM) with provisions of carbon stock measurements, carbon monitoring methods, fire management, grazing control, and invasive species control. 1.6 Recognize customary forest and pasture management practices and

Strategies	Major Strategic actions:
addressing DD in all management regimes.	related indigenous knowledge systems and skills by forest and pasture policies and management plans. 1.7 Enhance community participation and support for the control and management of forest fire, grazing, encroachment and resettlements in forest areas. 1.8 Strengthen fire control capabilities at district and local level with fire management plans, fire-fighting capacity building, fire monitoring, firefighting equipment and insurance mechanisms. 1.9 Rehabilitate degraded land and shrub lands through appropriate land rehabilitation and shrub land management measures. 1.10 Increase the supply of harvested wood products for building materials and furniture to substitute high-energy intensive metal products and reduce emission.
S2: Increase non-carbon benefits by promoting climate resilience, ecological integrity, ecosystem-based adaptation and integrated watershed management.	2.1 Improve the management of Protected Areas by promoting Integrated Conservations, participatory models and ecotourism 2.2 Assess the status of invasive alien species in PAs and community-based forests and identify and implement appropriate remedial and preventive measures. 2.3 Promote biodiversity conservation in managed ecosystems for sustaining livelihoods [including through local land use planning; and complementary implementation of CBD and UNFCCC (REDD+ co-benefits)] and increase the value of biodiversity. 2.4 Promote the landscape conservation and ecosystem-based adaptation measures and provide sufficiently resilient ecosystems to mitigate climate change impact on people and ecosystems. 2.5 Develop and promote Payment for Environmental Services (PES) for reduced emissions, watershed management, biodiversity conservation and for sustainable agriculture interventions.
S3: Promote private and public land forestry with appropriate financial incentives, simplified legal and regulatory provisions and technical support mechanisms to create new forests.	3.1 Promote private forestry by simplifying administrative and procedural process, and reforming fiscal policies including taxes and other incentives. 3.2 Support and facilitate the nursery and plantation of indigenous, fast growing and high-valued tree species with seed, seedling, research technologies and information (on growth and yield). 3.3 Establish financial schemes accessible to private tree growers and forestry entrepreneurs, particularly to those creating jobs and other benefits to forest dependent poor, women, IPs and *Dalits*. 3.4 Promote forestry on community and abandoned land including flood plains, river banks within and outside forest areas with plantation, natural regeneration and other appropriate interventions with people's participation particularly, poor, women, and marginalized households (Tarai)
S4: Promote optimal land use through improved land use	4.1 Establish spatially explicit information systems on land use potential, allocations and potential conflicts/complementarity with REDD+ strategies.

Strategies	Major Strategic actions:
planning and implementation across the physiographic regions (Tarai, Siwalik, Mid-Hills and Mountains)	4.2 Develop and implement economic and market-based incentives packages to promote optimal land use across the physiographic regions. 4.3 Carry out forest zoning in each district through participatory processes and implement phased transfer into different management modalities. 4.4 Develop community-based forestry approaches in High Mountain areas and Chure areas (apart from existing community-based forestry) considering the specific context of High Mountain and Chure areas. 4.5 Carryout Climate Change Vulnerability Assessment of forests in each district and mainstream it into District Forest Management Plan, Watershed Management Plan, National Park or Wild Life reserve Management plan, and Forest operation plans of community based forestry; 4.6 Promote increased use of GIS and remote-sensing/spatial planning applications and expand or update hazard mapping of delineated zones, based on climate change. 4.7 Improve public awareness and education concerning climate change risks, uncertainties vulnerability and benefits of land use planning. 4.8 Control haphazard mining and excavation (of soil, stone, pebbles, boulders, sand) through effective planning, implementation and enforcement.
S5: Clarify forest tenure, ensure carbon rights and fair and equitable benefit sharing among various right holders	5.1 Safeguard tenure security of forest user groups, particularly forest dependent poor, women, IPs and *Dalits* to access, manage, sustainably harvest, use and sell forest goods and services in all community-based forest management regimes 5.2 Define, clarify and accommodate carbon rights in relation to land and forests within existing policies and legal instruments. 5.3 Increase and ensure access to forests, decision-making and benefits to women, *Dalit*, Indigenous People, vulnerable groups, forest dependent people, distant users, and other marginalized people. 5.4 Establish inclusive clear and legally defined mechanism for the sharing of carbon, non-carbon benefits and payment of environmental services among right holders. 5.5 Establish transparent and participatory mechanism for marketing and selling of carbon credits arising from future REDD+ activities. 5.6 Formulate and implement project specific environment and social management plan to protect environment and biodiversity while ensuring that local forest dependents poor, women, IPs and *Dalits* receive culturally appropriate social and economic benefits and they do not suffer adverse impacts as a result of implementation of the project.
S6: Promote forestry and non- forestry enterprise development and enhance local	6.1 Develop policies and capacity to encourage private investment in efficient and alternative wood technologies (e.g. bamboo housing, timber drying, wood treatment, wood processing etc). 6.2 Invest in sustainable forest-based enterprises to create more employment

Strategies	Major Strategic actions:
livelihoods and employment opportunities for forest dependent poor, women, IPs and Dalits.	opportunities in the forestry sector (for both timber and NTFPs, including ecotourism) producing finished forest products for domestic and export markets. 6.3 Develop mechanisms to engage the private sector in forestry in the entire value chain of forest products from planting to end-product development. 6.4 Scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural and urban (poor) areas with specific considerations to poor, women, IPs, *Dalits* to reduce forest dependency and demand for forest products. 6.5 Promote vocational education and skill-based training opportunities for enterprise development and forest operations (harvesting, logging, saw-milling, carpentry etc.) for forest dependent poor, women, IPs, and *Dalits*. 6.6 Improve access to alternative technologies (e.g. small sawmills carpentry, food processing, efficient stoves, kilns, briquettes, power looms, bio-gas etc.) by providing information, knowledge and loan services for forest dependent poor, women, IPs and Dalits. 6.7 Incentivize and support Forest User Groups in all community-based forest management regimes, also linking with local government resources (e.g. matching funds, and resource leverage) to create incomes, livelihood options and job opportunities for forest dependent poor, women, IPs and Dalits.
S7: Increase agricultural productivity of forest dependent subsistence and near landless farmers through increased supply of inputs, technologies, and incentives for agricultural intensification.	7.1 Intensify agricultural practices with identification of climate smart species and technology for agroforestry, organic farming, and use of alternative sources of fertilizer. 7.2 Promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies) 7.3 Support in the application of Sloping Agriculture Land Technologies (contours with fodder trees/grasses in bare lands) 7.4 Increase fodder and forage production in community based forestry and support to develop fodder and forage resource center. 7.5 Promote multi-purpose fodder management, stall feeding and scaling up of fodder reserve systems, especially silage and hay, for use during slack periods 7.6 Support to increase access to crop & livestock breeding and husbandry improvement programs 7.7 Conserve water sources and promote improved water harvesting and management technology.
S8: Increase access to affordable and gender-friendly technologies of alternative wood and energy to poor and marginalized.	8.1 Increase investment and promote gender-friendly fuel wood efficient and alternative energy technologies (including improved kilns and cooking stoves) to reduce fuelwood demand. 8.2 Promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. Biogas, Access to electricity, Solar power) linking the energy end-use to enterprise development/income generation.

Strategies	Major Strategic actions:
	8.3 Develop mechanisms to increase access to alternative energy technologies for forest-dependent poor and marginalized people. 8.4 Promote cost effective wood technologies (e.g. particle board, pressed board, timber treatment, timber processing, bamboo housing etc.) and increase access for forest-dependent poor and marginalized communities.
S9: Improve collaboration, cooperation and synergy among various stakeholders, sectors and sectoral policies for climate change mitigation and adaptation.	9.1 Improve policy coordination among Forest, Soil and water conservation, Land Reform, Agriculture, Local development, Energy, and Physical planning for effective integrated planning, monitoring and evaluations of development projects. 9.2 Identify and amend legal frameworks in line with international commitments and harmonize contradictory issues between cross-sectoral policies and legal frameworks (e.g., among Forest Act 1993, National Parks and Wildlife Conservation Act 1973, and other acts). 9.3 Strengthen multi-stakeholder and integrated planning approach at regional/landscape and national levels, in order to seek consensus-building, validation and clarify sector and extra-sectoral commitments. 9.4 Develop fiscal policies for investment to climate change mitigation including performance-based payment mechanisms. 9.5 Develop functional collaboration and cooperation with security forces, media, and civil society to control illegal forest activities. 9.6 Sensitize various actors on issues of forestry sector governance, DD, climate change mitigation and adaptation. 9.7 Recognize the traditional and customary practices of forest management and incorporate appropriately in community-based forest management with due consideration to their socio-cultural values. 9.8 Incorporate forest carbon and conservation elements in school curriculum. 9.9 Control cross-border illegal trade of forest products through inter-country cooperation with Indian and Chinese (Tibetan) authorities.
S10: Improve capacity, institutional performance and service delivery of the forestry sector through better public relations programs, institutional reform, capacity development, good governance and GESI responsive practices.	10.1 Improve management and leadership competency, GESI responsiveness, commitment and morale of forestry personnel through coaching, counseling, motivation and capacity development programs. 10.2 Increase awareness and capacities of all stakeholders, political leaders, and parliamentarians including poor, women, *Dalits*, and IPs in different aspects of REDD+. 10.3 Re-structure and reform forestry institutions to improve forestry governance, public relations, service delivery, accountability and transparency. 10.4 Review and update judiciary and judicial processes and strengthen forest law enforcement to control illegal harvest, trade of forest products, encroachment and other forest offences. 10.5 Institutionalize and strengthen functioning of Apex body, REDD Working Group and REDD Stakeholder Forums at center, and DFSCC

Strategies	Major Strategic actions:
	and DRWG at districts. 10.6 Adopt approach of Free, Prior, and Informed Consent (FPIC) in consultations with stakeholders and right holders particularly, IPs. 10.7 Ensure adequate representation and leadership competency of women, poor, IPs and *Dalits* in key forestry decision-making bodies and processes. 10.8 Establish and strengthen grievance-addressing mechanisms that are gender-sensitive and respond to people's grievances and concerns. 10.9 Link M& E - promoting public hearing and public audits, especially at local level - as a mechanism to improve governance and performace 10.10 Develop incentive and penalty system for both government and Forest User Groups to address illegal harvesting, and illegal trade with confidential system for whistle-blowers to report illegal practices.
S11: Promote forest and climate-friendly infrastructure planning, construction and maintenance - ensuring that location and applied technologies to minimize impacts on forests.	11.1 Ensure environmental, social and economic measures in infrastructure development and maintenance (Hydropower, transmission lines, highways, rural roads, irrigation canals, railways etc.) 11.2 Implement climate smart infrastructure planning, implementation and monitoring ensuring social and environmental safeguards. 11.3 Avoid forest area for infrastructure development, resettlement and make compulsory provision of tree planting to substitute forest cleared if any. 11.4 Ensure effective implementation and compliances of IEE and EIA for all types of forest land use conversions including tourism ventures, settlements, road construction, hydropower and transmission lines, expansion of conservation areas.
S12: Establish and maintain a well-equipped national forest monitoring system for monitoring and reporting and that is capable to deal with the verification mechanisms.	12.1 Enhance the national capability to conduct forest resource survey and inventory periodically and make data available for specific physiographic and administrative regions. 12.2 Develop the capacity for data collection, analysis, storage, management and dissemination for the national/local planning, and policy development. 12.3 Establish and make functional a database and Forest Management Information System at different levels 12.4 Establish cost effective mechanisms for monitoring, measurement, reporting and verification of land use changes (and their impacts on commitments to achieving emissions reduction and enhancement at sub- regional/jurisdictional and national level) 12.5 Identify monitoring indicators and establish community-monitoring systems in all community based management regimes and include them in their operational/management plans.

4.1.2 Feasibility assessment and the risk mitigation measures

A feasibility assessment of all strategy options is carried out and mitigation measures have been identified for undesirable outcomes. This section presents the summary of that assessment; a more detailed analysis is provided in *{2.5}* in part II.

Strengths

Formulation of new strategy, act and policy for the forestry sector by the Ministry of Forests and Soil Conservation (MFSC) are the major steps that will strengthen the conservation and management of forest. Parallel initiatives to introduce new acts, policies, rules and regulations in related areas will additionally help to implement mitigation and adaptation measures effectively. The functional highest apex body at the Ministry of Forests and Soil Conservation, formation of higher level body to the Chure area and thrust on community forestry are added strengths. Robust benefit sharing arrangements among community forestry user groups and forest dependent people is expected to enhance sustainable management of forest. Attempts to link conservation with development and redistribute park revenue to local communities, and transfer more rights and responsibilities to the institutions of local people through buffer zone program and conservation areas approach will enhance that process. Government is also encouraging leasehold forestry to attract and promote private sector in the forestry. With the REDD+ providing incentives to carbon trading, private land forestry is expected to receive higher priority. The new agriculture sector development strategy gives highest priority for the best alternative use of land based on landscape and ecological diversity. Added efforts are also underway to implement new land use planning policy more effectively.

There are also new initiatives to correct acts and policies that could remove ambiguity or clarify tenure system and ensure fair benefit sharing among various stakeholders. Promotion to the forestry and non-forestry enterprise development and enhancement of livelihood options including promotion to the employment opportunities is the major ingredient of inclusive growth and development strategy that Nepal is pursuing today. The new agriculture development strategy gives high priority to productivity enhancement in the small and marginal farms. Food sovereignty is recognized as one of the fundamental rights of the people. The energy is a high priority of the government with focus on both water resources and other alternative energies development.

The formation of highest apex body at the center and similar institutional arrangements at sub-national and district level is expected to improve and develop synergy among various actors. Coming up of numerous forest organizations from the grass roots, a vibrant media and governance and awareness campaigns at different levels added by continued institutional reforms by the government is expected to improve delivery and governance system.

With the REDD+ preparation process, there is a priority to enhance technical, managerial and leadership capacity of forestry staff and stakeholders associated with forest development and uses. Both technical and leadership capacity in community managed forest is also continuing.

There is also growing realization on the need of promoting forest and climate friendly infrastructure development through reforms in rules, policies and programs. More stringent clauses are being pushed to prevent adverse environmental and climatic effect from construction works.
Establishment of proposed National Forest Information Management System (NAFIMS) grounded on a new integrated GIS based Forest Information System will be a big step to strengthen fact based decisions in various stages of REDD+ implementation in different fronts and areas.

Major Weaknesses/Risks

Ongoing massive investment program in energy and other development related areas and higher share of forest dependent people, rapid urbanization, continued land encroachment, more liberal resettlement policy and open border remain a challenging task. Assessment on the potential of carbon sequestration by different forest types, ambiguity in the tenure system under different forest

types, problem of predicting REDD market and high implementation costs may add problems further. Proper coordination and effective implementation added by the problem of highly qualified and competent manpower is also a major problem. The ecosystem services are still undervalued or less prioritized. Less possibility of changes in ownership structure to promote private forest is another problem. There are also problems to smoothly handover of government managed forest to community forestry. The existing royalty and price-setting mechanisms is equally defective. Resource management and regulatory inefficiencies as well as poor technical capability are providing disincentives to expand new forests.

Poor compliance of ongoing policies and programs in different related areas is also a major problem. With stiff competition faced by local enterprises from the imported cheap goods, vulnerability of the poor and marginalized people has increased. In such circumstances, any strict measures to displace forest dependent people from the adjoining forest area without alternative employment opportunities could augment rather than ease their livelihood problem. Moreover, the fragmentation of land, suboptimal extension services in time bound manner, lack of year round irrigation facility and absence of reliable market to the small and poor farmers is the biggest problem faced by the poor and small farmers. Still the uncertainty to meet energy supply and demand gap is persisting. At the same time, the alternative energy program is in the slow speed with little scope of reducing the use of firewood drastically in near future.

Mitigating Measures/Options

There is a need of linking of forest and ecosystem services conservation as well as environmental protection related policies and programs more candidly grounded on sustainable development agenda. The deep rooted reforms are essential from the project and program preparation levels. Importantly, either a unified natural resource management act or removal of contradictory provisions in various laws is essential. Likewise, either an autonomous body to deal with carbon registration, fixation of reference level and measurement of carbon stock enhancement, financial mechanism and use of carbon funds is required or granting of more autonomy to the REDD Implementation Center will be required to deal with such various complicated and challenging issues. The five major interventions identified in the ER-Program will need implementation effectively. In parallel, expansion of community forestry program and bringing the regime under the REDD mechanism will also be needed.

There is a need of gradual changes in forest ownership structure with additional incentives to the private sector. Simplifying in administrative and procedural process added by tax incentives will be required to promote private forestry. Strict compliance to the new land use policy and abolishing of conflicting clauses prevalent in different other sectoral policies and acts will be essential. Further reclassification of land in terms of such as productivity and climate change vulnerability will also be necessary.

It is also essential to legally define the tenure security of forest users and clarifying their carbon rights. There is also a need of legally defined mechanism for the sharing of carbon, non-carbon benefits and payment of environmental services among right holders.

A separate and more distinct policy targeting to the forest dependent people with separate institutional support system will be essential for promoting forest and non-forest enterprises in their vicinity based on the viability in the particular location. There is also a need of sincere implementation of new agriculture development strategy ensuring effectiveness through mechanisms that enhance compliance which will also need better coordination. Intensification of climate smart species and technology for agro-forestry, organic farming, and use of alternative sources of fertilizer needs priority. Energy projects have to be implemented in a fast track basis besides augmenting alternative development program with focus on fuel efficiency.

There is a need of identification and addressing of contradictory issues inherent in cross-sectoral policies and legal frameworks. Improved coordination in key sectors like forest, soil and water conservation, land reform, agriculture, local development, energy, and physical planning and water resources development is also essential.

A transparent and accountable system at different levels is essential. Reward and punishment system has to be implemented effectively in the bureaucratic structure. The users groups and forestry organizations should be encouraged to work as whistle-blowers to check illegal practices. Review and updating of judiciary and judicial processes to strengthen forest law enforcement system for controlling illegal harvest and helping to promote trading of forest products in a fair and transparent is necessary. Adequate representation of women, poor, indigenous people and socially marginalized groups in key forestry decision-making bodies and processes and recognition to the traditional and customary practices of forest management will also be required for enhancing governance and accountability based results and delivery.

A system of conducting forest resource survey and inventory periodically as per ecological region and administrative units has to be an integral part of strengthening data base system. The institutional capacity enhancement at all forest tenure regimes will be essential and pre-requisite.

4.2 Potential Social and Environmental Impacts of the Strategies *{3.10}*

The implementation of REDD+ strategies is not free from social and environmental risks. Different stakeholder groups may experience different benefits and costs, i.e., some may benefit from REDD+ activities whereas others have to bear increased costs. The increased costs will for instance, occur due to intensified inventory work, or the actual implementation of benefit sharing mechanisms leading to higher costs for some stakeholders. Some outcomes will be positive in line with the aims of the objectives of the strategies and others may not. Similarly, REDD+ can bring multiple benefits, which can be much more than emissions reductions. Depending on the location and type of REDD+ activities, these benefits potentially include poverty alleviation, recognition and enhancement of rights of IPs and forest dependent communities, improved community livelihoods, technology transfer, sustainable use of forest resources and biodiversity conservation through community mobilization. It also calls for reconfiguration of forest authority and enhance good governance. However, equitable and efficient distribution of payments of REDD+ credits among the forest dependent peoples, IPs, *Dalits*, women and other marginalized groups is the key challenge.

Implementation of REDD+ strategies can have both positive as well as negative environmental implications. These impacts have been identified by analyzing the findings of SESA[6], interpreting the key findings of the consultations held with stakeholders at different layers and experts' own judgment. Possible positive and negative social and environmental impacts as a result of implementation of REDD+ strategies are considered. The details of positive and negative, social and environmental impacts likely to occur as result of implementation of each REDD+ strategy is presented in Table 14, section *{3.10}* of Nepal REDD+ Strategy Part II.

[6] SESA has been conducted to identify the likely outcomes, opportunities and adverse impacts and to recommend appropriate measures to mitigate environmental and socioeconomic risks during under the implementation of a REDD+ mechanism in Nepal. The findings of SESA have been integrated in the REDD+ strategy.

4.3 Social and Environment Safeguards *{3.11}*

The social and environmental risks associated with REDD+ can be addressed or minimized applying a set of social and environmental safeguards prescribed by the UNFCCC Cancun Agreements. The UNFCCC REDD+ safeguards cover a range of issues including the need for consistency with national objectives and priorities, transparent forest governance structures, respect for indigenous peoples and local communities, effective participation of relevant stakeholders, conservation of natural forests and biodiversity, permanence, and leakage.

In response, the Government of Nepal has conducted strategic environmental and social assessments (SESA) and also prepared an Environmental and Social Management Framework (ESMF) following both national and international safeguard standards and requirements. The ESMF serves as a framework for managing and mitigating the environmental and social risks and impacts for future investments (projects, activities, and/or policies and regulations) associated with implementing the REDD+ strategy. REDD+ project specific environment and social management plan (ESMP) will be required to prepare and implement to ensure that risks are mitigated as part of the implementation process, through periodic monitoring, reporting and evaluation. The ESMP will be prepared in line with the safeguard requirements of GoN and the UNFCCC Cancun Agreements. The details of the procedures and processes for applying safeguard measures while implementing any REDD+ activities have been presented in *Nepal REDD+ Strategy* Part II, Section *{3.11}*.

4.4 REDD+ Implementation and institutional framework

4.4.1 REDD+ Implementation framework

The implementation of REDD+ will take place in three overlapping phases of *'readiness'*, *'more advanced readiness'* and *'compliance'*. The first phase is being completed soon by finalising strategy preparation, studies, capacity development, demonstration, and consultations. Then the second phase will begin by implementing policies and measures to reduce emissions, further capacity building, and review of institutions and processes. The third phase of full UNFCCC *'compliance'* will begin after completing the second phase, where compensation for reduced emissions and enhanced carbon stocks will be made. The second and third phase will be five years each, in general, however the REDD+ process will proceed more quickly in some priority areas.

4.4.2 REDD+ Institutional framework

The institutional structure for the implementation of REDD+ strategies and programs will be based on existing government institution using already approved institutions where possible. The key elements of these structures will include a coordination and steering entity, a MRV system entity and a benefit sharing mechanism entity. All these will be operational from central to sub-national and district levels for the '3Is': *incentives*, *information* and *institutions*[7]and will be guided by the following policy provisions:

- *incentives* for the performance-based payments and policy improvement;

[7] Institutions are conventions, norms and/or legal rules that form the actors and regulate the relationships between them (Scott 1995; Vatn 2005).

- reliable *information* regarding changes in forest carbon stocks to qualify for international funds; and,
- effective *institutions* to manage information and incentives. *{3.6.1}*

The responsibilities of the proposed REDD+ institutions will be to: *{3.6.1}*

1) set policy direction, coordinate and steer/manage REDD+ programs
2) manage the flow of information among different entities and stakeholders including information on changes in forest carbon stocks and ensure that the poor, women, *Dalit*, IPs and marginalized groups are consulted and informed
3) manage the flow of incentives to carbon rights holders including poor, women, *Dalit*, IPs and marginalized groups

Based on experiences with current REDD+ preparation, various consultancies /studies and consultations with various stakeholders, the REDD+ strategy proposes the institutional structure as presented in Figure 1. The structure and function of the institutional structure will be reviewed and updated on a periodic basis during the implementation of the strategy. *{3.6.1}*

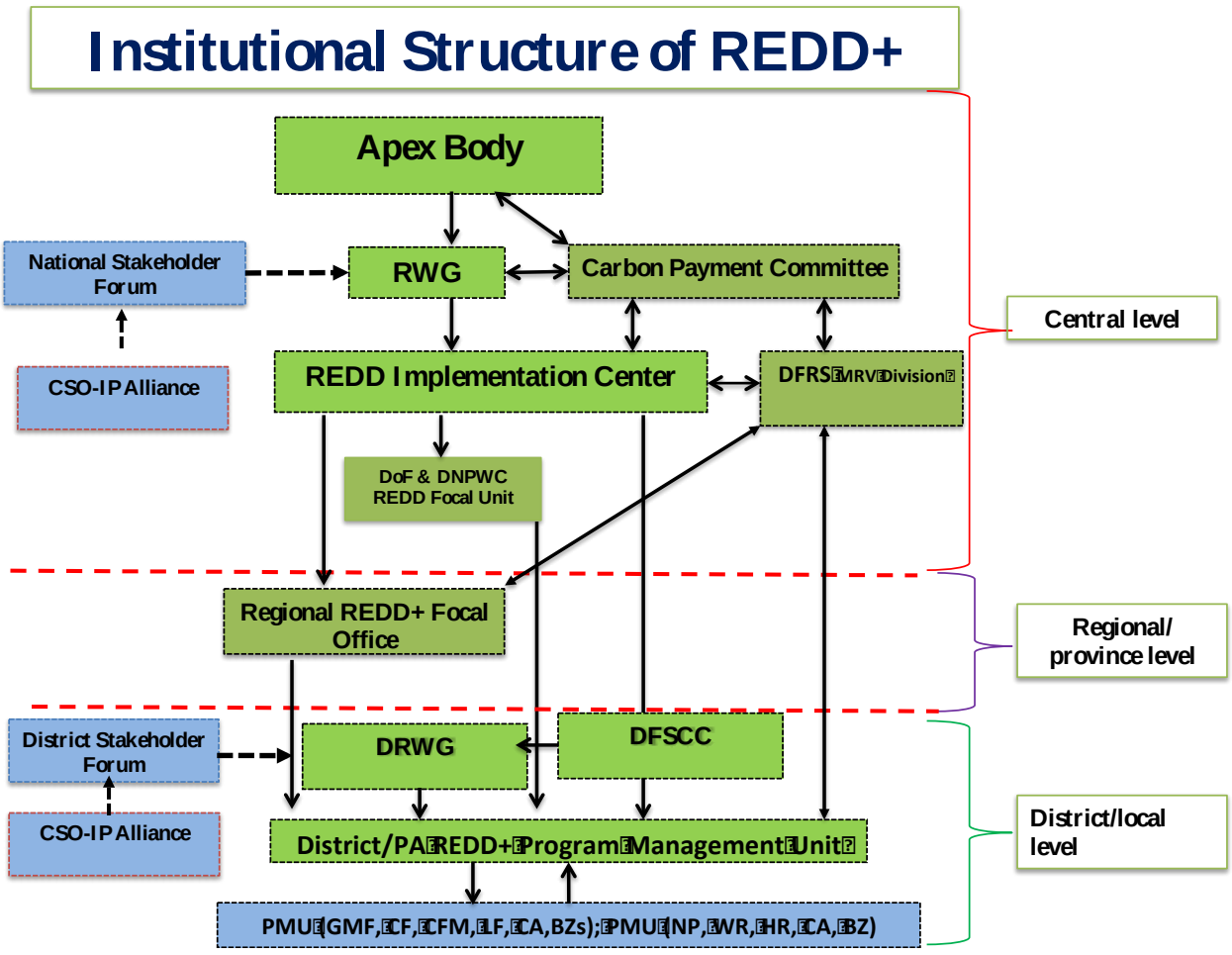

Figure 1. REDD+ Institutional Structure from national to local level *{3.6.1}*

4.4.3 The national level *{3.6.1}*

The REDD+ **Apex body** as an inter-ministerial high level policy steering and coordination entity chaired by the Minister of the Ministry of Forests and Soil Conservation is already established during REDD+ preparation and is operation. The Apex body will meet two times a year and will promote collaboration and cooperation among different sectors and stakeholders and harmonize REDD+ related policies and programs. The apex body will be linked with the Climate Change Council chaired by the Right Honorable Prime Minister to bring synergy for the integration of climate change related aspects in the policies, plans, and programs. Its 49 members represent important Ministries, the private sector, civil society and government organizations. The Apex body will be made functional and effective with appropriate ToR and operational guidelines. Its structure and function will be reviewed at a periodic level.

The **REDD Working Group** (RWG) is chaired by the Secretary of MFSC. Currently it comprises of 12 members (9 government and 3 non-government sectors). It will be made further inclusive making it 15 members adding 3 more members representing non-government organizations, academia, GESI related organizations, and private tree growers associations etc. The RWG will meet at least once every two months and will provide a strategic leadership to REDD+ Implementation Centre.

The **REDD+ Implementation Center** (REDD IC, MFSC, headed by Joint Secretary level staff of the ministry) will provide national leadership on REDD+ with responsibility for policy and program development, monitoring, reporting and verification, coordination among different stakeholders and agencies, disseminating information, extension and capacity-building and ensuring benefit sharing to right holders. The REDD IC has four sections: Climate Management Section, Remote Sensing and Land Information System Section, Budget and program section, and Admin-finance section. The REDD IC will also carry out the function of Environmental and Social Assessment and Monitoring, and Grievance Redress Mechanism. The function, effectiveness, and autonomy of the center will be reviewed periodically. The possibility of making it as an autonomous body similar to Alternative Energy Promotion Centre or Poverty Alleviation Fund will be further explored.

REDD IC will also act as a Central Carbon Registry in the beginning, which will be a repository of REDD+ related information. It will allow for enforcement of standards and engage in carbon transaction by maintaining broad-based participation of stakeholders in the management of the registry. The function of Carbon Registry will be reviewed during the implementation of this strategy and appropriate reforms will be made.

The **REDD+ Multi-Stakeholder Forum** will function as the principal outreach and communication platform. The forum includes representatives from the private sector, civil society, media, government organizations, community based organizations, indigenous peoples organizations, local and international NGOs, donors, academia, research, GESI related organizations and other stakeholders interested in REDD+. The forum will meet at least twice a year.

REDD+ CSOs & IPOs Alliance is meant to discuss and develop a common understanding on REDD+ on behalf of wide spectrum of Indigenous Peoples Organizations, Women, *Dalit* and Civil Society Organizations. . The alliance will meet at least twice a year.

A **Carbon Payment Committee:** A committee will be formed representing multi-stakeholders including the Ministry of Finance to make decisions for the payment of incentives to right holders. A ToR and the operational guidelines will guide the committee for its smooth functioning, and tracking carbon benefit transactions according to the volume, location and type of emission reductions.

DFRS-NFMS (MRV Division): the Department of Forest Research and Survey will be the national MRV implementing agency. Accordingly, its capacity and capability will be further enhanced.

A **REDD+ Focal Unit** will be established at the Department of Forests and the Department of National Parks and Wildlife Conservation. These units will liaise with the REDD IC, Regional REDD+ Focal Office and with DRPMU.

A **MRV System Technical Support/Advisory Committee** will be formed to support research, technology and capacity development and institutional strengthening of M and MRV.

Expert Working Groups will be formed to provide technical backstopping to the RWG such as expert working groups for REL/MRV, SESA/ESMF, and Nepal REDD+ Strategy. These groups will be formed as per requirement.

4.4.4 The regional level *{3.6.1}*

At each Regional Directorate Office (RDO) a Regional REDD+ Focal Office (RRFO) will be created with another unit of Regional REDD+ MRV Unit (RRMU) for MRV.

4.4.5 The district level *{3.6.1}*

At the district level four distinct institutions are foreseen:

1. **District Forestry Sector Coordination Committee (DFSCC):** based on a MFSC guideline – a multi-stakeholder committee is already functional in many districts. Apart from its main role of strategic direction and forestry coordination, it will monitor the implementation of REDD+, give policy feedback and strategic guidance to DRWG.

2. **District REDD Working Group (DRWG):** A 15- member DRWG representing district level government agencies, community based organizations, IPs, women, and *Dalit* is proposed. The DRWG will be chaired by coordinator of agriculture, forestry and environment committee of the DDC. The DRWG will assist in the implementation of REDD+ program in the district, monitor program activities, and advocate and lobby to support for the emission reduction programs.

3. **REDD+ Multi-stakeholder Forum and REDD+ CSO and IPO Alliance** functioning as the principal outreach and communication platform; advocate for implementing justifiable REDD+ program; and support to empower and build capacity of CSOs, IPOs, poor, women ,IPs, and *Dalits* in the district.
4. **District/ Protected Area REDD+ Program Management Unit (DRPMU)** established at the DFO and Protected Areas where appropriate, which will be the lead institution to implement REDD+ activities in the district/PAs. It will also convene a DRWG meeting every two months; have a MRV section; and an Environment and Social Section (ESC) to ascertain that the REDD+ Safeguards are taken into consideration during REDD+ implementation.

4.5 Institutional Framework for Monitoring and MRV System *{3.6.1.2}*

A three-tiered MRV institutional structure of central, regional/sub-national and district/program levels is proposed. At the central level, the Monitoring and MRV function will be included in the current survey division of the DFRS. At sub-national/regional level a Regional REDD+ MRV Unit (RRMU) will be established. At district/program level a District REDD+ MRV Section (DMRVS) will be established at DFO and/or Protected Area. The central MRV section supervises and provides all technical/technological support, builds capacities and logistic support to sub-national/regional MRV unit. Similarly, sub-national/regional MRV unit provide the technical oversight, guidance and capacity support to the district/program level MRV section.

At **the national level** the Survey Division of DFRS will be renamed to 'Forest Survey and NFMS & MRV System Management Division' (this will be referred to as the MRV Division) to ensure effective, efficient and transparent governance of measurement, monitoring and management of data under the MRV system. The proposed position of the DFRS/NFMS/MRV division is illustrated in Figure 2 below.

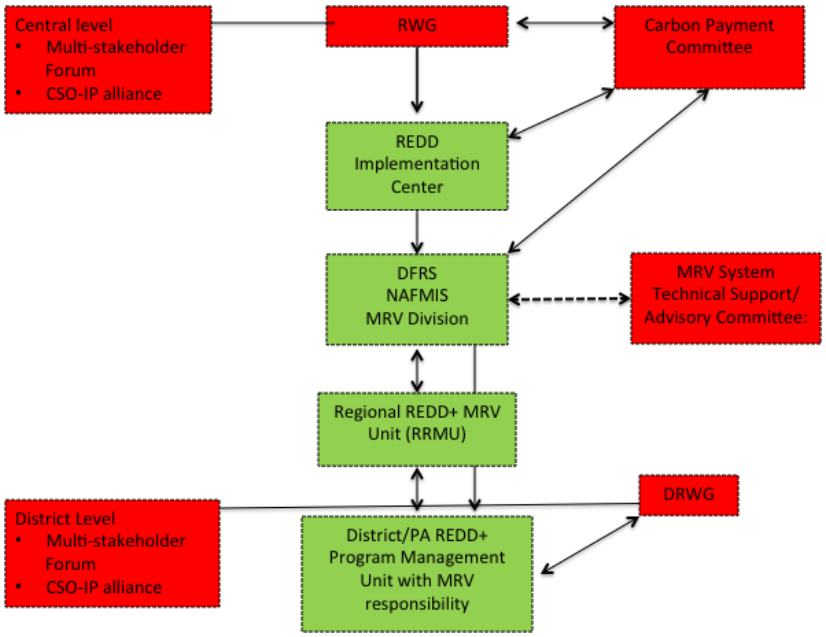

Figure 2. Proposed position of DFRS/NFMS/MRV Division

Within the MRV Division there will be four interconnected units: a Database/IT/Metadata Unit; a Remote Sensing/GIS Unit; a Forestry Inventory Unit; and, a Reporting Unit.

At the **sub-national level** a Regional REDD+ MRV Unit (RRMU) will be established under Regional REDD+ Focal Office (RRFO) at the regional forest office, which will coordinate with and guide the district /local level forestry institutions and also supervise and monitor the MRV related activities.

At the **district/local level** a District/PA MRV section (DMRVS) will be established under the District/PA REDD+ Program Management Unit of DFO with computer and internet-based database management arrangements. Forest carbon measurement data from all CBFM units and other FMUs participating in REDD+ will have to be validated by the DFO/PA authority, refined and entered in the database maintained at the district/PA level.

4.6 Institutional Structure for Implementing the Safeguards *{3.6.1.3}*

The implementation of the various safeguard measures - such as REDD+ project specific Environment & Social Management Plan (ESMPs') needs to be harmonized and integrated in the overall REDD+ implementation arrangements. The safeguard implementation arrangements consist of institutional structures and responsibilities to minimize and mitigate social and environmental risks related to REDD+ strategy implementation.

At **central level**, an Environmental and Social Assessment and Monitoring Unit (ESAMU) will be established within the REDD+ Implementation Center (REDD IC), which will serve as the coordinating and implementing agency for REDD+ safeguards. The ESAMU will be responsible for the overall

coordination, planning, implementation and monitoring of REDD+ safeguards activities, particularly the activities proposed under the REDD+ project specific ESMPs.

Regional REDD+ Focal Office (RRFO) at the regional forest office will have oversight and monitoring responsibilities over the respective District Forest Offices / or PA Offices/ or Protection Area (PA) offices and line agencies that will be implementing the REDD+ safeguard activities.

At **district** level, an Environment and Social Section (ESC) will be established in each District/PA REDD+ Program Management Unit (DRPMU) to handle environmental and social concerns. The DRPMU will execute all the safeguard related activities through its regional forest offices (*ilaka ban karyalaya*) of each district.

4.7 Feedbacks and Grievances Redress Mechanisms *{3.7}*

The Feedbacks and Grievances Redress Mechanisms (GRM) at national, regional, district and local levels are required to address the concerns of REDD+ project affected communities in a timely manner. For this purpose, the project specific ESMP should explicitly provide a feedback and grievance mechanism, process or procedure to receive and facilitate resolution of stakeholders' concerns and grievances regarding the environmental and social performance of the REDD+ projects or initiatives.

A recent study report of REDD IC (2015) has proposed GRM for REDD+ project activities at three levels. The GRM will be built into the existing structure of the MFSC which operates at the national, regional and district level. Grievance Director (GD) in national, Regional Forest Director (RFD) in regional and District Forest Officer (DFO) will be the focal person of the GRM. Besides, informal mechanisms such as CFUG, LFUG, VDC, CFCC, and other forest networks and federation of CFUGs will be utilized to resolve the disputes and conflict related to REDD+ at the local level. The function of informal dispute resolution mechanism is to solve value - and interest based conflict on the basis of traditional/customary practices of dispute management, with the ultimate goal of finding a win-win resolution.

Any grievances and objections while implementing this REDD+ strategy and corresponding activities will be referred to accessible level of the GRM which allows all interested parties including REDD+ project affected peoples to appeal any disagreeable decisions, practices and activities.

A grievance record file will be maintained at each level of GRM where all written and oral grievances, complaints will be filed and recorded. Grievances can be submitted by email, website, written letter, telephone, SMS and a suggestion/complaint box. The general public as well as affected persons can register their grievances at the respective community level GRM. All cases will be registered, categorized and prioritized by the designated member at each GRM. GRM will review periodically (as and when required) the merit of each case and fix a date for hearing and notify the complaints to submit necessary documents in proof of her/his claim/case; resolve grievances within 4 weeks of receipt of complaint. The details the feedbacks and GRM have been discussed in section {3.7} of Nepal REDD+ Strategy Part II.

5. Reference Level

5.1 Available data sets

Table 1 in chapter 3 above already mentions that the availability of accurate and reliable information remains a major problem for the analysis of forest cover and land-use change in Nepal. The most comprehensive yet non-compatible data sets are the data from the Land Resource Mapping Project 1976-1984 (LRMP 1986) and the data from the Forest Resource Assessment (FRA) project (2010-2014) of the DFRS. The FRA has published reports for the Tarai (FRA/DFRS 2014) and Chure Forests (DFRS 2014) with species-wise growing stock, biomass and carbon stock (above ground and below ground) by forest type, and development regions. FRA also applied LiDAR technology by using the so-called LiDAR-Assisted Multi-source Program (LAMP) method {4.2} to generate forest biomass maps and activity data in order to create a RL for the period 1999-2011 for the 12 districts of TAL area. A subnational RL for TAL has been estimated using field plots, LiDAR and satellite imageries. This subnational RL was developed following the FCPF's Methodological Framework and is consistent with UNFCCC/IPCC Guidance and Guidelines. The RL accounts for the activities included in the Emissions Reductions program, including deforestation, degradation, regeneration, and enhancement

National RL for the year 1990-2000-2010 has been estimated with simple projections based on historical satellite imageries. The RL report recommends progressively updating the RL based on more robust national datasets for country-appropriate extrapolations and adjustments, and updating the RL based on more spatially explicit activity data and driver specific information. But the national RL lacks field verification which is an important prerequisite for reliable RL estimation. Thus, it is very important for Nepal to improve this analysis and make it in consistent with the subnational RL.

The UNFCCC decision (Decision 12/CP.17) allow for a phased approach and improvement over time whereby countries can develop a RL based on available data and update and refine the RL with better data, improved methodologies, and estimates for additional pools becoming available overtime (Decision 12/CP.17). At this stage, the procedure to determine the RL has been described (see below) but the actual quantification has not been done yet.

5.2 Method for the construction of the RL

UNFCCC Decision 12/CP.17 provided guidance on the phased approach to construct a Reference Level (RL): RL establishment with simple projections, based on historical data (Step 1), progressively updating the RL based on more robust national datasets for country-appropriate extrapolations and adjustments (Step 2) and ultimately basing the RL on more spatially explicit activity data and driver-specific information support (Step 3). A first exercise for step 1 was conducted for the Tarai Arc Landscape (TAL) using the LAMP method. {4.2}

Further adjustments of RLs will be made by repeating the same analysis but using the latest satellite data from the recent years, especially where there appears to be a deviation in the rate of deforestation and forest degradation. New data will be collected and applied to generate RLs either at Tier2 or Tier3 spatial levels. Tools have been developed for RL calculation at national and sub-national level {4.3} as paragraph 11 of decision 12/CP.17 allows for the elaboration of subnational forest reference levels as an interim measure, while transitioning to a national forest reference level. Hence, forest reference emission level and/or forest reference level will be updated periodically as appropriate, taking into account new data, knowledge, new trends and any modification of scope and methodologies.

6. National Forest Monitoring System (NFMS)

6.1 Design of a National Forest Monitoring System

The national forest monitoring system will be designed in line with Decision 11/CP.19 to provide data and information that are transparent, consistent over time, suitable for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest-area changes. The system will support decision making related to REDD+ strategy options and provide information to governmental organizations, NGOs, research institutions, other relevant institutions and general public.

The design of a monitoring system will be closely linked with the technical approach for assessing emissions and removals since the system will be designed to monitor carbon stock changes over time. The development and capacity-building efforts of a forest monitoring system will rely on the activities conducted under the FRA project and the sub-national REDD+ projects (such as ER-PIN in TAL).

Nepal will proceed towards spatially explicit activity data and forest strata level emission factors. Emission factors quality can be further improved after any identified capacity gaps have been addressed through proper training, and over time. The TAL LAMP method in its current form will be considered for application to provide both Tier 2 and Tier 3 data and to provide data on changes in carbon stock at 1 hectare resolution.

In order to ensure effective, efficient and transparent governance of measurement, monitoring and management of data under the MRV system, DFRS, the national MRV Implementing agency, under the overall guidance of the Apex Body, will be responsible for:

1. Periodic execution of forest assessments for deforestation and degradation, and carbon enhancement monitoring;
2. Designing, maintaining and operating the National Forest Monitoring System (NFMS);
3. Coordinating the collection of sub-national level information; so that double counting of emissions is eliminated by allocating each district to a single sub-national level area only;
4. Disseminating NFMS deliverables through a web portal;
5. Providing technical guidance and institutional/capacity support to the parallel institutional setups at sub-national/district/local community levels

The details are described in Part II *{5.1}*.

6.2 The National Forest Database and National Forest Information System (NFD and NFIS)

The UNFCCC/COP Decision 11/CP.19 outlines the modalities for national forest monitoring systems to be built upon existing systems (as appropriate), to enable the assessment of different types of forests, to be flexible and allow for improvement, and to reflect the phased approach. The FRA Nepal project has developed an Open Source Forest Information System (OSFIS) consistent with this guidance that supports managing the inventory data, spatial data sets and also has a standard platform for data dissemination but this is primarily designed for the inventory management purposes only. It will be upgraded to enable continuous monitoring of the permanent sample plots with an advance user interface, modules and database structure.

The NFD/NFIS system provides a foundation to integrate data from the existing databases and to provide tools for monitoring forest resources, forest management, carbon stocks, forest users and

REDD+ activities. The data will need to originate from various governmental and non-governmental sources operating at national, sub-national, and district, forest management unit and stand levels. Key modules that will be included are forest resources, forest carbon, working plan and programs, users and beneficiaries, remote sensing, Land use, Land-use Change, and Forestry (LULUCF), REDD+ activity and social and environmental safeguards (SES) indicators.

The NFIS will be based on a user-friendly interface so that its use does not require extensive expertise in Information technology. The system will be accessible for the general public through internet. A web-based information system will enable easy access and updating and sharing of data and information with the relevant stakeholders.

The NFIS will be designed as an overarching information management system that includes tools and protocols for system managers and interfaces for accessing data, information and maps from the NFD and other relevant databases, links to and between these databases, analysis, synthesis, tabulation and other thematic tools. The NFIS will include tools for decision support modules and user friendly graphical user interfaces for data query and reporting, GIS analysis and mapping. The GIS module will include standard web mapping interfaces and tools.

The NFIS will be deployed through hosting in a dedicated web application server to be based in GIDC which has facilities for space, continuous power supply, high speed internet connectivity, security and technical support. A backup server will be set up at the National Information and Technology Centre (NITC), Singh Durbar, Kathmandu.

The NFD and NFIS study has developed guidelines for institutional coordination and standard operating procedures of NFMS. Recommendations will be prepared for the institutional management of the system including manpower, computer hardware and software to ensure system sustainability and use. Relevant government staff will be trained to operate, maintain and administer the NFIS. After operationalization continued support for system operation will be secured through procurement of maintenance services.

As the underlying information system architecture can be quite complex, a technical training program will be delivered at both national and sub-national levels. The focus at district level will be on system operation, tabular data entry and validation forms, spatial data (maps and or GPS) entry or uploading. At national level a higher level training and capacity building will be provided to include system architecture, functionalities and system maintenance modules.

6.2.1 Safeguard Information System (SIS) *{5.3.2}*

Arrangements will be made for REDD+ national safeguards including the safeguard information systems (SIS). A summary of SIS based on the guidelines agreed in SB 42 in June 2015 will be submitted to that effect. The (SIS) will provide a systematic approach for collecting and providing information on how REDD+ safeguards are being addressed and respected throughout REDD+ implementation.

7. Action Plan for the implementation of the strategy

This plan of action is developed as a way forward to implement the REDD+ strategy during the more advanced readiness phase as discussed in section *{3.5.3}*

Table 4. Proposed plan of action

SN	Actions	Year 1-2015	Year 2 2016	Year 3 2017	Year 4 2018	Year 5 2019
1.	Approval of the strategy document					
2.	Develop Monitoring and Evaluation framework of REDD+ Strategy					
3.	Develop implementation plan of strategy with detailed budget, action plans/programs with priority.					
4.	Update of SESA and ESMF according to the REDD+ strategy					
5.	Development of projects at sub-national levels					
6.	Policy and legal framework update and harmonization					
7.	Researches, studies and knowledge generations					
8.	Awareness raising and capacity development on REDD+ of all stakeholders					
9.	Institutional set up for REDD+ implementation, safeguards, GRM and provision of human resources					
10.	Establishment and management of functional MRV and NFMS including SIS					
11.	Coordination, collaboration and communication with different sectors and stakeholders					
12.	Review and evaluation					

Nepal REDD+ Strategy

Part II

Government of Nepal
Ministry of Forests and Soil Conservation
REDD Implementation Centre
Babarmahal, Kathmandu

August, 2015

Nepal REDD+ Strategy

Part II: Nepal REDD+ Strategy with Background and Supporting Information

Ministry of Forests and Soil Conservation
REDD Implementation Centre
Babar Mahal, Kathmandu, Nepal

August 2015

Produced by	Face the Future, The Netherlands In association with Arbonaut, Finland; Practical Solution Consultancy Nepal (PSPL) and Nepal Environmental and Scientific Services (NESS)
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Disclaimer	Although the REDD Implementation Centre, Ministry of Forests and Soil Conservation, Nepal, commissioned this study, neither the REDD IC nor the government assumes any responsibility for the accuracy, completeness, or usefulness of any information in the report.

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Acronyms

ADB	Asian Development Bank
CBD	Convention on Biodiversity
CBS	Central Bureau of Statistics
CHAL	Chitwan-Annapurna Landscape
CIAA	Commission for the Investigation of Abuse of Authority
CF	Community Forests
CFCC	Community Forest. Co-ordination Committee
CFM	Collaborative Forest Management
CFUG	Community Forest User Group
CIFOR	Centre for International Forest Research
COP	Conference of Parties
CSO	Civil Society Organization
DANAR	Dalit Alliance for Natural Resources
DD	Deforestation and forest Degradation
DFID	(UK) Department For International Development
DFO	District Forest Office
DFRS	Department of Forest Research and Survey
DFSCC	District Forestry Sector Coordination Committee
DMRVS	District REDD+ MRV Section
DoF	Department of Forests
DRPMU	District/ Protected Area REDD+ Program Management Unit
DRWG	District REDD Working Group
ER-PIN	Emission Reductions Program Idea Note
ESAMU	Environmental and Social Assessment and Monitoring Unit
ESFM	Environmental and Social Management Framework
ESMP	Environment and Social Management Plan
FCPF	Forest Carbon Partnership Facility
FCTF	Forest Carbon Trust Fund
FECOFUN	Federation of Community Forest Users, Nepal
FPIC	Free, Prior and Informed Consent
FRA	Forest Resource Assessment Project
GESI	Gender Equality and Social Inclusion
GIS	Geographic Information System
GoN	Government of Nepal

GRM	Grievances Redress Mechanism
Ha	Hectare
ICIMOD	International Centre for Integrated Mountain Development
ILO	International Labor Organization
INC	Initial National Communication
IP	Indigenous Peoples
IPO	Indigenous Peoples Organization
LFUG	Leasehold Forest User Groups
LULUCF	Land use, Land-use Change, and Forestry
MFSC	Ministry of Forests and Soil Conservation
MRV	Measurements, Reporting and Verification
MPFS	Master Plan for the Forestry Sector
NEFIN	Nepal Federation of Indigenous Nationalities
NFD	National Forest Database
NFIS	National Forest Information System
NFMS	National Forest Monitoring System
NGO	Non-Governmental Organization
NITC	National Information and Technology Centre
NLFS	National Labour Field Survey
NR	Nepalese Rupee
NRM	National Resource Management
OSFIS	Open Source Forest Information System
PA	Protected Area
RDO	Regional Directorate Office
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD IC	REDD Implementation Centre (formally REDD Cell)
REL	Reference Emission Level
RFD	Regional Forest Director
RL	Reference Level
R-PIN	Readiness Plan Idea Note
R-PP	Readiness Preparation Proposal
RRFO	Regional REDD+ Focal Office
RRMU	Regional REDD+ MRV Unit
RWG	REDD Working Group

SES	Social and Environmental Safeguards
SESA	Strategic Environmental and Social Assessment
SIS	Safeguard Information System
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
USAID	United States Agency for International Development
VDC	Village Development Committee
WB	World Bank
WECS	Water and Energy Commission Secretariat

1. Introduction

1.1 Relationship between this report and the REDD+ Strategy

The REDD+ Strategy, presented in more detail in this report (Part II), is the outcome of a process of analyzing many different sources of information: written reports commissioned by the Government of Nepal and/or REDD IC; published reports by other organizations (e.g. UNDP, FRA); reports that are still in draft form by the GoN, the REDD IC, and/or other organizations; historic data and information from various sources; feedback notes on earlier drafts of the strategy supplied by many different stakeholders; and a wide range of consultations. Due to the sheer volume of information collected in the process of formulating the Strategy, this separate report has been prepared to accommodate a more detailed reflection of information, analysis and synthesis. This report, therefore, presents not only the information used in the Strategy, but also reflects the analysis of the material that took place, before formulating the Strategy.

The REDD+ strategy (Part 1) refers to the background information contained in this report. However, both reports are self-contained, and thus can be read in isolation from each other.

1.2 Background

1.2.1 REDD+ in Nepal's Context

Nepal's landscape reflects its topographic, physiographic and cultural diversity, which results in a complex mosaic of agriculture and forest land (MFSC, 2010). The area of the country is 14.78 million hectares, of which 5.8 million hectares (39.6%) is covered by forests and shrub lands. Over the last 50 years, a significant area of forests has been either converted into agricultural land or degraded into shrub land. The area of natural forests was lost by 1.6 percent per year and the area of shrub land increased by 8.4 percent annually during the period between 1978/79 and 1994. However, the rate of deforestation and forest degradation over the past 20 years, since 1994, has remained relatively low. This is due to the development and promotion of community-based forest management practices such as community forestry, leasehold forestry, collaborative forestry and the creation of buffer zones and conservation areas. Nevertheless, the rate of deforestation and forest degradation varies considerably at sub-national level and across forest management regimes and ecological zones. This is partially due to the migration of people towards the urban areas. With the increasing political stability this may change again in the decades to come.

With a growing population and an increasing demand for forest resources and land, the pressure on forests will likely increase as well. This could potentially affect the livelihoods of many people, particularly the forest dependent poor, local and indigenous communities. In turn this will affect Nepal's environmental sustainability.

Participation in the international REDD+ mechanism has potential to generate carbon revenues as well as non-carbon benefits for Nepal and its inhabitants. Preliminary estimates show that REDD+ may bring Nepal benefits of between $20-86 million per year (UN-REDD, 2014). Nepal further envisions that REDD+ implementation will assist in advancing sustainable forest management, the integration of various sectoral policies that optimize cross-sectoral synergies. This will ultimately lead to improvements in forest law enforcement and governance at large, through necessary amendments of act and regulations that accommodate the concerns of all the stakeholders. A sound REDD+ architecture will also contribute to global low carbon emission development pathways and the global sustainable development agenda.

1.2.2 Nepal's Journey towards REDD+

Nepal is a signatory to the UNFCCC (since 1992) and the Kyoto Protocol (since 1997). Soon after the 13th COP in Bali, in 2007, various REDD+ related activities were initiated by Nepal. The Ministry of Forest and Soil Conservation submitted a REDD Readiness Plan Idea Note (R-PIN) to FCPF of the World Bank in March 2008 and the REDD Forestry and Climate Change Cell, currently called REDD Implementation Center was established under the Ministry of Forests and Soil Conservation. The government then prepared the Readiness Preparation Proposal (R-PP), which was assessed by FCPF in July 2010. A revised version of the R-PP was finally submitted in October 2010. Currently, Nepal is conducting studies and developing policy initiatives towards REDD+ readiness through financial support of FCPF as well as complementary program support through a number of other conservation and development partners. In parallel, several NGOs and CSOs, active on REDD+ issues, are involved in REDD+ pilot and demonstration activities. Nepal joined the United Nations collaborative initiative on REDD in developing countries (UN-REDD) in 2009. In 2012 and additionally in 2014, Nepal received targeted support from the UN-REDD Program in order to complement and continue its REDD+ readiness preparation.

To oversee and implement REDD+, the Ministry of Forests and Soil Conservation has established a three-tiered institutional mechanism. They include: 1) a REDD+ multi-sectoral and multi-stakeholder coordinating and monitoring committee known as the apex body, 2) the REDD Working Group at the operational level and, 3) the REDD Implementation Center as the coordinating entity. In addition, a stakeholder forum has been established to engage a wide range of stakeholders in the entire REDD+ process.

Participation in REDD+ will help Nepal to access external finance for forest management and conservation activities. Additionally, this is a step towards the decentralization of forest management, strengthening of community-based forestry and resource use, sustainable resource use, recognition of customary practices, hence, a step towards reversing deforestation and forest degradation.

1.3 Report Structure

This report is Part II of the Nepal REDD+ Strategy which contains background and explanatory / supporting information underlying the Strategy document. For the operational summary of the Nepal REDD+ Strategy, please refer to *Part I: Operational Summary of the Nepal REDD+ Strategy*.

The outline for Part II is a result of a multi-stakeholder consultation process dating back to 2012 involving officials from Regional and District based Government Line Agencies, representatives from the Federation of Community Forestry Users Nepal, other civil society organizations, representatives from different international and national NGOs, donors and independent REDD+ experts. They have all provided inputs for the development of the framework for this strategy. Inputs for the draft strategy framework were collected during district/local level consultations in 15 district Level Consultation Workshops held in Pokhara, Biratnagar, Hetauda, Dhangadi and Surkhet and a central level stakeholder consultation workshop in Kathmandu. These workshops were held in collaboration with and with technical support from the World Wildlife Fund/Hariyo Ban Program, funded by the US Agency for International Development (USAID).

The logical buildup of the strategy is based on the consolidated framework structure for National REDD-plus Strategy of Nepal, provided by the REDD IC. Due to some changes and additions, as a result of what is described above, the structure of the strategy deviates from the structure provided by the REDD IC, but mainly in the numbering of the (sub-) chapters.

2. GUIDING FEATURES OF REDD+ STRATEGY

2.1 Strategic Directions

2.1.1 Vision

Optimize carbon and non-carbon benefits of forest ecosystems for the prosperity of the people of Nepal.

2.1.2 Mission

To strengthen the integrity and resilience of forest ecosystems, and improve socio-economic and environmental values of forests for emission reductions and increased community benefits through improved[1] policy and legal measures, improved institutional functioning, and enhanced stakeholders' capacity, capability and inclusiveness.

2.1.3 Objectives

1. To reduce carbon emission, enhance carbon sequestration and enhance climate resilience through both mitigation and adaptation approaches by intensifying sustainable management of forest resources and minimizing the causes and effects of drivers of deforestation and forest degradation across the ecological regions. (S # 1,2,3,4)[2]
2. To ensure fair and equitable sharing of carbon and non-carbon benefits of forests among rights holders with effective implementation of safeguard measures. (S # 5)
3. To increase livelihood assets and diversify employment opportunities of forest dependent communities, particularly poor, women, IPs and *Dalits*. (S # 6,7,8)
4. To improve and harmonize policy and legal framework to harness carbon and non-carbon benefits; strengthen institutional capability and improve governance of forest agencies and the forest sector (S # 5,9,10,11)
5. To establish and maintain a robust National Forest Monitoring System with strong monitoring, reporting and verification mechanisms (S # 12)

2.1.4 Guiding Principles

The National REDD+ Strategy and its implementation will be guided by the following values and guiding principles:

1. Synergetic alignment with overall development goals and strategies

The National REDD+ Strategy and its implementation will align with overall development goals such as poverty reduction, livelihood improvement and equitable and inclusive development of the country to produce synergetic outcomes. More specifically, it will align with the Forestry Sector's vision of 'contributing to local and national prosperity through sustainable management of forests, biodiversity and watersheds'. It will also be in full compliance with the upcoming constitutional

[1] Improved policy and legal measures implies they are based on ground reality, addresses different issues of DD and REDD+, and are implementable, inclusive and gender sensitive.

[2] The S# corresponds to the Strategic Objectives that are introduced in Chapter 3 of the Strategy.

provisions of institutional, governance, and federal arrangements with regards to the management of natural resources. Furthermore, the REDD+ institutions will be linked appropriately with the National Forest Entity which is being pursued by the GoN.

2. Building on the successful community-based approaches and practices

The REDD + Strategy and its options will build on the successful experience and achievements of participatory initiatives aimed at reducing deforestation and forest degradation, forest conservation, restoration and enhancement. The interaction between the different stakeholders on the complex issues of forest conservation, management, decision-making and benefit sharing, will be facilitated by following a 'complex adaptive approach'[3].

3. *Enhanced coordination and harmony among different sectors and agencies*

Coordination among different stakeholders and government agencies is essential for an effective implementation of the REDD+ strategy and to ensure long-term sustainability. Therefore, participatory and consultation methods will be applied that ascertain enhanced commitment and ownership, mutual cooperation and GESI considerations. These multi-stakeholder engagement methods will be deployed in planning, decision-making, implementation and monitoring at different levels. These efforts will also avoid the introduction of new conflicts and contradictions between sectoral policies and programs in the areas: forestry, biodiversity, environment, agriculture, local development, energy, and infrastructure development.

4. Utilizing and building on the existing capacity and capabilities

In the implementation of the REDD+ strategy and sharing the benefits from REDD+, the existing capacity of human resources and capability of multi-stakeholder institutions at national and sub-national level will be utilized. In order to actively engage and contribute to the REDD+ mechanism, capacity building of all relevant stakeholders and institutions will be emphasized. Capacity will be built on the general concept of REDD+, Strategy and mechanism, Monitoring, Reporting and Verification, Forest carbon trade, benefit sharing and GESI in REDD+.

5. Fully capturing the wide range of ecosystem benefits

The REDD+ mechanism aims to capture the optimum value of the wide range of ecosystem benefits coming from the forests. This includes the promotion of biological diversity, integrated watershed management, and balancing between sustainable development and economic prosperity of people, with forest dependent communities in particular. The ecological integrity[4] will be maintained in the management and decision making processes.

7. People-centric, gender and socially inclusive practices and approaches as well as equitable benefit sharing and social justice

People will be at the heart of every REDD+ mechanism, and the issues regarding and concerns of poor, women, IPs, Dalits and marginalized groups will be considered. People centric practices and approaches with GESI sensitivity will be considered in all REDD+ related policy formulation, implementation, monitoring and evaluation process. Similarly, fairness, gender equity and social justice will be the basis for sharing the benefits of REDD+. Equitable access to information, decision-

[3] The complex adaptive approach is a process of interaction among different agents, where each agent learns, adapts and generates collaborative actions for better outcomes and for mutual benefits.

[4] Ecological integrity is defined as the 'integrated management of land, water and living resources and the practice of ecosystem adaptive approaches to promote conservation and sustainable use'.

making, justice, and benefit sharing of poor, women, Dalits, Indigenous Peoples and other marginalized people for their social and economic uplift will be ensured.

8. Social and environmental safeguards

Effective safeguards for gender-integrated social, environmental, cultural, and economic rights will be ensured with grievance redress mechanisms in the REDD+ implementation. Customary rights and practices of indigenous people and their rights to free, prior and informed consent will be duly recognized.

9. Participatory, effective and efficient monitoring and information system

A robust national forest information and monitoring system will be developed, with a GESI disaggregated data collection and analysis system. Measures will be taken to avoid double counting of carbon credits. In addition, a well-functioning, credible national measuring, reporting and verification (MRV) system will be promoted.

10. Enhancing governance including transparency and accountability

REDD+ implementation will promote good forest governance of government forest agencies and related stakeholders ensuring transparency, accountability and integrity of actions.

2.1.5 Scope

The following categories of forests and protected areas, as identified by the Forest Act (1993), the National Parks and Wildlife Conservation Act (1973) and the Forest Policy (2015) will be included under the REDD+ mechanism, where the definition of forests by the FRA/DFRS (2014a)[5] will be applied.

a) Government Managed Forests

b) Community Forests

c) Collaborative Forests

d) Protection Forests

e) National Parks

f) Wildlife Reserves

g) Hunting Reserves

h) Conservation Areas

i) Buffer zones

The possibility of Leasehold forests, Religious forests, Public land forests and Private forest will be explored and included at a later stage when country capacity in REDD+ increases.

[5] The recent Forest Resource Assessment, carried out by the Department of Forest Research and Survey, has defined forest as "an area of land at least 0.5 ha and a minimum width/length of 20 m with a tree crown cover of more than 10% and tree height of 5 m at maturity".

Among the five-carbon pools, only above ground and below ground biomass will be included in the first stage of development and implementation. Other carbon pools (dead wood, litter and soil carbon) may be included at a later stage as Nepal improves its capacity, Reference Emission Level and technology to monitor, measure, verify and report on emissions and removals associated with REDD+ activities.

2.1.6 Scale

A so-called "nested approach" will be pursued where the national and sub-national level will complement each other. On the national level the government will implement policy reforms, make institutional arrangements, set up Monitoring and Measuring, Reporting and Verification (M&MRV) systems, and collaborate with the international community through multi-national or international arrangements through which Nepal receives assistance, incentives and financial resources. At the same time the GoN will operationalize benefit sharing mechanisms, as well as financing and monitoring activities at the sub-national level. REDD+ activities and regular/periodic carbon monitoring will be undertaken at the subnational level as much as possible in conjunction with the provision of technical support from local forest authorities to the communities. All international incentives (including financial resources) will be dealt with and received at the national level and the national government will incentivize REDD+ actions at subnational levels with agreed benefit sharing mechanisms.

2.1.7 Implementation approach

Nepal's approach to the implementation of REDD+ will take place in three overlapping phases[6]: 'readiness', 'more advanced readiness' and 'compliance'. Nepal is completing the first phase of *'readiness'* by accomplishing a number of activities such as the preparation of the strategy, execution of studies, capacity development, demonstration of activities, and organizing consultations. The second phase of *'more advanced readiness'* will begin soon thereafter, when policies and measures to reduce emissions and increase carbon uptake will be implemented and further capacity building and review of institutions and processes will be undertaken. The third phase of full UNFCCC *'compliance'* will begin after completing the second phase, when compensation for reduced emissions and enhanced uptake by carbon stocks will be realized. The second and third phase will, generally, cover at least a period of five years. However, the REDD+ process will proceed more quickly in some priority areas.

2.1.8 Financing Mechanism, Forest Reference Level (RL) and Forest Carbon Trust Fund

The Warsaw decision on REDD finance states that adequate and predictable payments should go to the Global South to stop deforestation and forest degradation. The decision focuses on results, and is qualified as a performance, or results-based financing mechanism. However, there is still debate on the exact details of the ultimate financing mechanism which should be agreed at the Conference of the Parties in Paris in November/December 2015.

Generally, REDD+ activities in developing countries like Nepal can be financed through three main options:

(i) a voluntary fund operating at the national (i.e. uni- or multilateral) or international level raising funds from Official Development Assistance (ODA) and other public and private sources;

(ii) a direct market mechanism where verified REDD+ credits can be traded alongside existing certified (or verified) emissions reductions (CERs). Such REDD+ credits can then be used by

[6] These phases are discussed in more detail by Wertz-Kanounnikoff and Angelsen (2009).

governments with emission reduction targets or companies in such countries to meet their emission reduction targets, possibly through a national cap-and-trade systems;

(iii) a hybrid, market-linked mechanism that generates finances through either an auction process or by establishing a trade market with two trading floors where REDD+ credits are linked to, but are not fungible with existing CERs. This would require two emission reduction targets for industrialized countries: one for REDD+ and one general target excluding REDD+.

Recent developments based on the weaknesses and strengths of each option suggest that a combination of these approaches may be needed to address the specific forest and socioeconomic conditions of Nepal, and other developing countries. But a common yardstick is that a good governance system is in place to make contractual and performance-based REDD+ financing effective and reliable. Broadly, Nepal intends to follow a hybrid approach but it is essential that better options are explored after examining more intensively the strengths and weaknesses of each option.

In parallel, the development of an internal, effective and fair payment mechanism is one of the most important and challenging aspects of REDD+. In this respect, ICIMOD and its partners have created the Forest Carbon Trust Fund (FCTF). With such a fund, a pilot project in three watersheds of Gorkha, Chitwan and Dolakha districts has been completed. Under the project, a performance-based financial support (incentive) was provided to the local communities in return for the conservation of forest and prevention of deforestation (ICIMOD, 2013). The pilot project has provided valuable lessons for the development of a financial mechanism and a properly operating trust fund.

Closely linked to the financing mechanism is the Forest Reference Level (FRL). This is essential for quantifying the reduction of net emissions and removals from deforestation and forest degradation, conservation of forest carbon stocks, sustainable management of forests and enhancement of forest carbon stocks. Generally, FRLs depict a business-as-usual (BAU) emission scenario that can either be a reflection of historic trends, or anticipated trends in the future. But mostly it is a combination of the two; looking at historic trends and model future trends based on that, taking developments that are expected in the country into consideration. The FRL provides a benchmark against which real net emission reductions and removals due to the implementation of REDD+ activities can be quantified. A FRL is also required to determine eligibility for international, results-based support for REDD+, and to qualify for the entitlement based on the emission reductions that can be measured and verified.

As stated, a FRL generally takes historic emissions and removals into account, and is adjusted as required and appropriate for national circumstances. Nepal is in the process of determining its FRL by exploring the most robust methodological options.

In view of close links between financing mechanisms, forest reference levels and the forest carbon trust fund, an autonomous organization may be needed to deal will the FRL, carbon payment and associated responsibilities and activities. In Nepal comparable organizations already exist. For instance, autonomous organizations like the Alternative Energy Promotion Centre (AEPC) are working successfully with little interference by the government, although the chief executive officer is appointed by the government; whilst for instance the Poverty Alleviation Fund (PAF) is more autonomous as it is governed by a separate act. As common denominator, despite their resources being made available through government budgetary processes, the funds are allocated or utilized by these organizations based on their own criteria enshrined in their regulations. Similar organizational arrangement may be warranted to operationalize REDD+, and will be the key for reaping benefits from REDD+ by various stakeholder groups, forest dependent communities and the country as a whole.

2.2 Existing Policy and Institutional Context for REDD+

The development and implementation of a robust REDD+ strategy requires the design of a suitable legal and institutional framework which removes policy bottlenecks. In this context, a brief review of relevant policies, rules and regulations is presented below.

2.2.1 Forest Policy, Acts and Regulations

The Forest Act of 1993, the Forest Regulations of 1995, and the Forestry Sector Policy of 2000/2015 are the major legal and policy foundations of forest management in Nepal. The Forest Act of 1993 broadly divides forests into two ownership categories: national and private. The basis for this categorization is the ownership of land on which trees or biomass stand. National forest is further classified based on the management rights assigned to different entities. The forests categorized or classified by the Act are as follows:

1) **National Forests:** All forests other than private forest, regardless of the demarcation of their boundaries and including cultivated or uncultivated land, roads, ponds, lakes, rivers, streams and land that is surrounded by or in the vicinity of a forest.
2) **Government Managed Forests**:National forests managed by the government.
3) **Protection Forests:** National forests that the government has declared as protected in consideration of their environmental, scientific and cultural importance.
4) **Community Forests:** National forests that have been entrusted to user groups (as defined in clause 25 of the act) for development, conservation and utilization in the interest of the community.
5) **Leasehold Forests**: National forests that have been leased (according to clause 32 of the act) for specified purpose(s) to a legally defined institution, forest-based industry or community.
6) **Religious Forests**: National forests that have been entrusted to any religious entity, group or community as specified in clause 35 of the act.
7) **Private Forests**: The planted or protected forest on land that belongs to an individual as per the prevailing law.

The Forest Regulation 1995 provides a detailed description of the forms and modalities of separate regulatory arrangements for the management and use of the above forest categories. For each category of forest separate provisions are set concerning institutional responsibility, authority at different levels and procedures to obtain licenses for marketing and sale of forest products are explicitly prescribed.

Forestry Sector Policy of 2015: The GoN has recently prepared and approved a new forestry policy in February 2015 with the overall aim to contribute to local and national prosperity through sustainable management of forests, biodiversity and watersheds. The policy sets an objective to maintain at least 40% of the total land area covered with forest and has identified the goal of maintaining balance between ecosystems and livelihood improvement of the poor by increasing income and employment through appropriate conservation, development and utilization of forests, biodiversity, protected areas, and watersheds. The policy has paved a way forward for Nepal to join the REDD+ process and obtain financial resources through the global carbon market regulated by international institutional mechanisms.

The MFSC is also in the process of preparing a forestry sector strategy. The forest policy and strategy will be the key instruments to guide the implementation of REDD+ in Nepal. Section 2.3.1 reviews the specific strengths and shortcoming of the Forest Laws and Policies in the context of REDD+.

Other relevant policies are elaborated in Annex 1 and include:

- Land Use Policy 2012:

- Climate Change Policy 2011:
- Rangeland Policy 2012:
- National Parks and Wildlife Conservation Acts and Regulations:
- National Biodiversity Strategy and Action Plan:
- National Wetlands Policy:
- National Water Policy/Strategy:
- National Irrigation Policy:
- National Hydro-power Policy:
- Environment Act and Regulations (EIA guidelines for sectors):
- National Adaptation Plan of Action (NAPA) and Local Adaptation Plan of Action (LAPA):
- National Framework on Local Adaptation Plan for Action (LAPA) in 2011

A quick review of the forest and other related sector laws, regulations, policies and plans indicates that their coverage is quite comprehensive in the context of REDD+. Sustainable development issues associated with alternative land use, forest conservation and utilization, irrigation and water resource use, environment and climate change, are covered in these documents. Strong enforcement of these policies, plans and strategies in a coordinated and effective way would have minimized the problem of deforestation and forest degradation to a greater extent. However, different institutions often have a scope limited to their specific sector whilst formulating laws and policies, resulting in policies, strategies and plans that are less effective or can sometimes even have an adverse effect on areas outside their own focus. This has further added complexity to the pervasive forest governance challenges in Nepal. The ambiguities related to absolute or collective responsibility has made the enforcement and accountability a serious issue, both horizontally and vertically.

2.2.2 Forest, Biodiversity, Environment and Climate Change: the legal framework in Nepal

This section reviews the existing policies and legal frameworks on forest, biodiversity, environment and climate change.

Forest, biodiversity and watershed:

The forestry sector in Nepal has undergone several changes. During the pre-unification times, the unification period, the Rana rule and post-Rana rule, the allocation of forest ownership, management and rights to forest resources has been subject to constant changes. In the post-Rana rule period (after 1950), the government started to reclaim forest ownership from the limited number of ruling elites and Rana clan members by nationalizing the forests with the enforcement of Nationalization of Private Forests Act 1957. To facilitate the implementation of nationalization, two stringent acts - the Forest Act in 1961 and the Forest Preservation (Special Arrangement) act in 1967 - were introduced and the department of forests was given a strong authority to enforce the law. These two acts were unified and a more liberal forestry act (1993) and forest regulation (1995) were enacted to promote community forestry in the country. Since then, a number of directives, manuals and operational guidelines have been developed and/or amended to address the emerging socioeconomic, political and biophysical factors affecting the forests of Nepal.

A number of legal and policy measures were prepared and implemented for the conservation of biodiversity and ecosystems. These include the National Parks and Wildlife Conservation (NPWC) Act 1973 as well as regulations under the National Biodiversity Strategy and Implementation Plan (2014)

and many strategies, plans and guidelines related to buffer zone, landscape and wildlife farming. (See Annex 1 for the complete list). The conservation policies have taken a paradigm shift from 'people exclusionary' and 'species focused' to ' people-centered community based' with an 'ecosystem/landscape approach' in the past two decades (Sharma *et al*., 2010; Sharma, 2012). A number of regulations were made to help implement the provisions of the act (Annex 1). The amendments of the NPWC Act 1973 and related regulations have attempted to respond to the changing socio-ecological contexts and to international conservation policies and discourses (Paudel *et al*., 2011). They have tried to link conservation with development, to redistribute park revenue to local communities, and to transfer more rights and responsibilities to the institutions of local people through buffer zone programs and conservation area approaches.

As a national CBD focal point, the MFSC has been pursuing policies and strategies to implement its commitments. After expiration of the Nepal Biodiversity Strategy (2002) and the Nepal Biodiversity Strategy Implementation Plan (2006-2010), the Ministry has approved the National Biodiversity Strategy and Action Plan (NBSAP) in 2014. This strategy and action plan aims to address the emerging second and third generation issues of equity, social inclusion and climate change with eight principles and fifteen broad strategic approaches. The NBSAP has proposed two major strategic goals, eight sub goals and twenty-four priority actions on climate change affecting biodiversity in Nepal.

The National Wetland Policy was developed in 2012 aiming at the sustainable management of **wetlands**. A number of strategic plans have been prepared and implemented for conservation, livelihood development and ecological integrity at a landscape level. The Soil Conservation and Watershed Conservation Act 1982 was enacted with provisions that enable the allocation of 'protected watershed' and land management status in line with the land suitability. However, the implementation of this act is limited.

Environment and climate change: Nepal is a signatory to more than 20 Multilateral Environmental Agreements (MEAs), including the UN Convention on Biological Diversity (CBD) (1992), the UN Framework Convention on Climate Change (UNFCCC) (1992) and the Kyoto Protocol (1997). To fulfill the commitments of these MEAs, a number of policies and laws have been formulated. After signing the CBD in 1992, Nepal enacted the Environment Protection Act (1996) and the Environment Protection Regulations (1997), which made the Environmental Impact Assessment of development activities mandatory. The regulation delineates the scope and procedures for impact assessment. As pointed out above, a Climate Change Policy was adopted in 2011, covering a wide range of climate change issues, with the goal to improve livelihoods through mitigation and adaptation to the adverse impacts of climate change. The act aims to adopt low-carbon emission-based socio-economic development and proper utilization, promotion, and conservation of forest resources as a means of alternative livelihoods. It has encouraged carbon sequestration by controlling forest fire and conserving forests and has identified sustainable management of forests, agro-forestry, and soil conservation as strategies to address the impacts of climate change.

Nepal has also prepared the National Adaptation Programme of Action (NAPA) as well as the National Framework on Local Adaptation Plans of Action (LAPAs) to respond to the requirements of UNFCCC. NAPA provides strategic tools of adaptation to assess climate vulnerability issues. It has proposed watershed and landscape level planning and provides strategic guidance and actions in nine high priority areas to increase communities' adaptive capacity through livelihoods support, improved resource governance, collective responses, improved service delivery mechanisms, and access to green technology and finance. Major programs identified by NAPA in forestry are: community based forest fire control; control of invasive species; integrated forest management for water; integrated watershed management; wildlife management in relation to climate stress; vulnerable species conservation; high altitude rangeland conservation; management of wetlands; conservation of riverine forest; trees outside forest or agroforestry in communal and private lands;

private land conservation forestry; collection and maintenance of a biodiversity database and; Payment for Environmental Services.

In order to integrate and implement climate adaptation and resilience into local level planning, the National Framework on Local Adaptation Plan for Action (LAPA) was prepared in 2011. The framework has identified seven steps in the formulation and implementation of LAPA in order to ensure integration and implementation of climate adaptation and resilience actions into sectoral plans, program and projects, and make people, communities and their resources adaptive to climate change.

2.2.3 Social & Environmental Safeguards Policies in the Context of REDD+

Nepal is committed to develop and enforce measures in line with UNFCCC's REDD+ social and environmental safeguards during the further refinement and implementation of this strategy. It has been recognized that implementation of REDD+ can pose significant environmental and social risks, as well as provide an opportunity to promote multiple benefits. Potential benefits include the promotion of biodiversity conservation and securing the provision of ecosystem services including water regulation, timber production, erosion control and the supply of non-timber forest products. In addition, REDD+ can result in social benefits such as improvements in governance and livelihoods, gender equity and the clarification of land tenure. The potential risks could entrench social exclusion, gender inequalities, and depletion of biodiversity causing depletion of livelihood resources for forest dependent communities.

In principle, Nepal has an established policy framework to implement and include environmental and social safeguards in its development activities. This section (as well as Annex 1) provides an overview of policy and legislative provisions that are relevant to minimize adverse impact on peoples and environments and enhance beneficial impacts while implementing the REDD+ strategy.

2.2.3.1 Relevant Policies and Regulations related to Social & Environmental Safeguards

The GoN has executed sectoral policies, enacted acts and regulations, developed guidelines and manuals and has signed international treaties and conventions, some of which have provisions for social development and safeguards. The coming sections provide an overview of key outcomes of a review of prevailing acts, policies, regulations, conventions and guidelines related to social development and safeguards of Indigenous Peoples (IPs) and vulnerable communities including Dalits in compliance with the requirements of UNFCCC REDD+ safeguards.

Likewise, the ILO Convention No.169 on Indigenous and Tribal Peoples enacted in 1989 and the United Nations Declaration on the Rights of Indigenous Peoples (2007) are both ratified by Nepal. However the harmonization of domestic laws and policies with the international commitments that Nepal has made, demand for robust social and environmental safeguards.

In addition, international agencies that are already financing REDD+ projects and that may continue to do so in future, have requirements in place to ensure that their social and environmental safeguard policies are adopted while planning and implementing the projects. In this context, the UNFCCC REDD+ Safeguards agreed on the 16th United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP16) in Cancun (2010) and other international safeguard measures applicable to REDD+ initiations in Nepal have been reviewed. Similarly, the World Bank's social safeguard policies have been reviewed. The objective of these policies is to prevent and mitigate undue harm to the people as a result of the projects financed under the World Bank. These policies provide guidelines for the identification, preparation and implementation of programs and projects. Details of the reviews of relevant national and international acts, regulation, policies and guidelines are further discussed in Annex 2.

The policies and regulations related to safeguards in the context of the REDD+ strategy implementation can be broadly categorized into the following four groups:

1) Policies and regulations related to land acquisition, compensation and resettlement
2) Safeguard of Indigenous Peoples (IPs) and other Vulnerable Communities (VCs)
3) Good governance, social accountability and public consultation
4) International Safeguard Instruments applicable for Nepal's REDD+ initiatives

2.2.3.2 Land Acquisition, Compensation and Resettlement

The REDD+ strategy implementation in Nepal has not envisioned any involuntary resettlement or involuntary land acquisition. An assessment of regulatory provisions and policy regime related to land acquisition and associated impacts has been carried out as a precautionary measure. The Constitution of Nepal 2072 (2015), Article 25, guarantees the right to property and the right to compensation for property acquired under the law and, there are numbers of legislations covering land acquisition/appropriation, in Nepal. Similarly, Article 30, Right Regarding Clean Environment of the Constitution has following provisions:

- Each person shall have the right to live in a healthy and clean environment.
- The victim of environmental pollution and degradation shall have the right to be compensated by the pollutant as provided for by law.
- Provided that this Article shall not be deemed to obstruct the making of required legal provisions to strike a balance between environment and development for the use of national development works.

The review of the prevailing Acts and Regulations related to land acquisition, compensation and resettlement (see Annex 2 for detailed findings) in Nepal indicates a progressive development towards a legal framework related to involuntary resettlement of the people affected by the development projects. However, Nepal does not have specific legislation that addresses involuntary resettlement. The only act related to land acquisition is the Land Acquisition Act 1977 (LAA, 1977), which does not adequately cover the issues related to involuntary resettlement. Nevertheless, resettlement has been addressed on a project specific basis following the guidelines of donors such as the World Bank and ADB. Therefore, formulation of a project specific resettlement policy and a Resettlement Action Plan may be required, based on the findings of screening and ESIA while implementing REDD+ projects.

2.2.3.3 Safeguard of Indigenous Peoples (IPs) and other Vulnerable Communities[7]

Nepal does not have a standalone policy on Indigenous Peoples and other vulnerable communities. The Interim Constitution of Nepal 2063 (2007), the NFDIN Act (2002), the Local Self-Governance Act (1999), the Forest Act (1993), the Forest Regulation (1995) and periodic five and three year plans have placed significant emphasis on social development and delivering basic services to the disadvantaged and indigenous people, Dalits, women, disabled and other vulnerable groups while implementing development programs and projects.

[7] The women, *Dalits* and Adivasi/Janajati as group have been identified as more vulnerable than others in the context of Nepal. 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.

The Constitution of Nepal 2072 (2015), Article 18, Right to Equality, states that all citizens shall be equal before law. No person shall be denied equal protection of law. However, the article also mentions that nothing shall be deemed to bar the making of special provisions by law for the protection, empowerment or advancement of the women, Dalits, Adibasi, Madhesi, Tharus, Muslims, oppressed classes, backward communities, minorities, marginalized groups, peasants, laborers, youths, children, senior citizens, sexual minorities, persons with disability, pregnant, incapacitated and the helpless persons, and of the citizens who belong to backward regions and financially deprived citizens including the Khas Arya, lagging behind socially and culturally.

The constitution ensures rights of women and Dalits in Articles 38 and 40 respectively as fundamental rights which guarantee the participation of women and Dalits in all agencies of state on the basis of the principle of proportional inclusion.

Similarly sub article (J) Policies Regarding Social Justice and Inclusion, under the Article 51, Policies of the State mentions the following provisions of social justice and inclusion applicable for IPs and VCs:

- Making appropriate arrangements of livelihoods by prioritizing employment for single women who are in helpless conditions on the basis of skill, capability and merit
- Rehabilitation of kamaiya (bonded laborers), kamlari, haruwa, charuwa, haliya, the landless and the squatters by identifying them and making arrangements of housing, or providing small plot of land or house, employment, or arable land for their livelihoods
- Making special arrangements to ensure the rights of Adivasi Janajatis (indigenous ethnic groups); to lead a dignified life with their respective identities; stimulate them to participate in decision making processes that concern them and; preserving and maintaining the traditional knowledge, skill, experience, culture and social practices of Adivasi Janajatis and local communities.
- Making special arrangements for minority communities to exercise their social and cultural rights by maintaining their identity.

Similarly, the Forest Act 1993 and Rules (1995) define a number of rights to Nepalese citizens who depend on forest and who are willing to be the members of a CFUG: a) right to get organized with perpetual succession, b) entitlement over forest growing stock, c) right to use 100% benefits resulting from the sustainable yields, c) unalienable citizen rights even if a community forest is withdrawn by the government in case a particular CFUG executive committee does not meet sustainability standards in forest management. These rights provide significant incentives and motivation for the local forest dependent communities to participate in community forestry.

The above described legal provisions are supplemented by the provisions under the United Nations Declaration on the Rights of Indigenous Peoples (2007) and International Labor Organization (ILO) Convention (169), 1989. The ILO Convention 169 is the most comprehensive legally binding treaty on the rights of indigenous peoples. The Convention includes provisions on cultural integrity, land and resource rights and non-discrimination, and instructs states to consult indigenous peoples in all decisions affecting them. Articles 1-4 of the United Nations Declaration on the Rights of Indigenous Peoples (2007) ensures the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, education and other issues while implementing development activities in the traditional territory of the IP. The details of the legal provisions to safeguard IPs and other vulnerable communities are presented in Annex 1.

Despite Nepal's commitment to implement national and international policies on women and IPs, in practice, effective implementation of these provisions is rather weak. Therefore, REDD+ projects need to pay due attention to these national and international policy provisions. Furthermore, they need to enhance opportunities for Indigenous Peoples and other vulnerable communities including

women and *Dalits* to participate in, and benefit from, the REDD + activities in ways that do not threaten their dependence on forest and their unique cultural identities and well-being.

2.2.3.4 Good Governance, Social Accountability and Public Consultation

Good governance and social accountability measures are meant to make public officials answerable for the services they provide to the beneficiaries and the general public. For this reason REDD+ project/activities implementing agencies should have in place policies for community consultation and participation and pro-poor development activities through active and meaningful involvement of stakeholders, particularly women, IPs and *Dalits*. There are numbers of GoN acts and international binding provisions to ensure good governance, accountability and meaningful public consultations (see Annex 1 for details). For example, clause 30 of the Good Governance (Management and Operation) Act, 2064 (2008) has a provision concerning public hearing. The Chief office-holder at regional, zonal, district and local level involved in delivery of service, shall conduct Public Hearing as prescribed, with the purpose of making the activities of the office fair, transparent, and objective and addressing the lawful concerns of general people and stakeholders. The act also mentions that subject matter experts, stakeholders, representatives of civil society and officials of the local bodies shall be the participants of the public hearing. Similarly, the clause 31 of the act describes the grievance redress mechanism and process.

The Forest Act (1993) and Forest Regulation (1995) emphasizes in the participation of all community members irrespective of caste, ethnicity, gender, economic status and remoteness. But in practice, the challenges exist for the meaningful participation of women, IPs, *Dalits* and other marginalized people.

The above discussions show that there are some legal provisions in line with the FPIC requirements as prescribed by the REDD decisions under the UNFCCC and applied by financing institutions and donor organizations (e.g. WB and UN) active in the field of REDD+. But in practice, the procedures and processes are not followed as per FPIC standards. Therefore, REDD+ projects should have mechanisms to engage communities, groups, or individuals affected by REDD+ projects, and with civil society and other stakeholder, through information disclosure, consultation, and informed participation so that they can provide meaningful input to the project design and development of mitigation measures.

2.2.3.5 International Safeguard Instruments applicable for Nepal's REDD+ initiatives

The UNFCCC REDD+ Safeguards

The UNFCCC REDD+ safeguards cover a range of issues including the need for consistency with national objectives and priorities, transparent forest governance structures, respect for indigenous peoples and local communities, effective participation of relevant stakeholders, conservation of natural forests and biodiversity, permanence and leakage. The Cancun Agreements also include the importance of addressing land tenure, gender rights, drivers of deforestation and forest degradation and forest governance issues in national strategies.

The UNFCCC REDD+ Safeguards encompass environmental, social, carbon and governance standards to be applied to all types of REDD+ financing. These safeguards are the core minimum performance requirements for REDD+ projects. They ensure that REDD+ will be implemented in an inclusive, transparent manner, with respect for the rights of indigenous peoples and local communities, with consideration for the protection of biodiversity.

UN-REDD safeguards – the Social and Environmental Principles and Criteria

The UN-REDD safeguards also known as the Social and Environmental Principles and Criteria, cover the readiness activities for which it has provided countries with finance. The UN-REDD Program's Social and Environmental Principles and Criteria (SEPC) framework, combined with other tools and

arrangements, enables countries to align their respective national approaches and strategies with the Cancun Agreements.

The SEPC addresses the need to secure land tenure, empower women and vulnerable groups and establish a grievance mechanism. Guidelines in stakeholder engagement and strengthening of national-level grievance mechanisms - tools that were jointly developed with the Forest Carbon Partnership Facility – help countries optimize the application of SEPC. The SEPC also aims to guarantee that REDD+ projects bring multiple benefits. Aside from monetary rewards, REDD+ programs must improve the overall state of communities and environmental resources.

The REDD+ Social and Environmental Standards (SES)

The REDD+ SES guide the government in preparing and building their frameworks and mechanisms for the implementation of the UNFCCC REDD+ safeguards. It can be used by governments, NGOs, financing agencies and other stakeholders to support the design and implementation of REDD+ programs that respect the rights of Indigenous Peoples and local communities and generate significant social and environmental benefits. These standards are particularly designed for government-led programs, policies and measures implemented at national or state, provincial, or other level and are relevant for all forms of fund-based or market-based financing. It must be distinguished from project specific safeguards (ESMF and ESMPs) as they are binding conditionalities that must be met as part of the regulatory regime or in order to qualify for financing for a project or program whereas the REDD+ SES are additional qualitative characteristics of a project that are reported in exchange for obtaining certification.

WB Policy on Indigenous People (OP 4.10) & Involuntary Resettlement (OP 4.12)

The WB Policy on Indigenous People (OP 4.10) emphasizes to avoid potentially adverse effects on the Indigenous Peoples' communities as a result of development process under the Bank's finance or when avoidance is not feasible, the proponent of the projects must minimize, mitigate, or compensate for such effects.

Similarly, the OP 4.12 recognizes that involuntary expropriation of land resulting in loss of shelter, assets or access and income or sources of income should be addressed by the project. Absence of legal title to land should not be a bar for compensation, resettlement, and rehabilitation assistance.

2.2.3.6 Assessment of adequacy of GoN's policies related to safeguards and recommendations to fulfill gaps of the requirement of FCPF and UN-REDD Safeguards

A thorough assessment of these regulatory provisions related to IPs and other vulnerable communities (VC) shows that the existing policies do treat the subjects of safeguards or protection of IPs and VCs from project-related impacts and corresponding planning for impact mitigation. Similarly there are no explicit provisions of need for consultation with affected IP and VC groups and formulation of culturally appropriate mitigation packages, the FCPF[8], UN- REDD Safeguards and UNFCCC REDD+ safeguards on the other hand, place more emphasis on the assessment of differential impacts and vulnerability, conducting meaningful consultation, obtaining consent of IPs,

[8] The Forest Carbon Partnership Facility (FCPF) is a World Bank program and consists of a Readiness Fund and a Carbon Fund. The FCPF was created to assist developing countries to reduce emissions from deforestation and forest degradation, enhance and conserve forest carbon stocks, and sustainably manage forests (REDD+).The FCPF seeks to ensure consistency with the UNFCCC Cancun safeguards and promotes their implementation in countries it supports financially. However, countries supported by the FCPF are also expected to comply with the World Bank's safeguard policies when implementing REDD+.

and formulation of culturally appropriate responses. Particularly safeguards related to REDD+ within the UNFCCC COP decisions aim to prevent REDD+ activities[9] from causing harm to biodiversity and people, and also help REDD+ realize multiple benefits, beyond simple emission reductions. This appears to follow a 'rights-based' approach to safeguards, prioritizing the protection of the individual rights of those potentially affected by a REDD+ initiative.

Therefore, a development plan is required to ensure that a project provides opportunities for indigenous peoples and other vulnerable communities, including Dalits, to participate in, and benefit from, the project activities in ways that do not threaten their unique cultural identities and well-being. The Indigenous Peoples and Vulnerable Community (IPVC) Development Plans shall be prepare exploring possible options to avoid or mitigate adverse impacts to IPs and VCs. Possible measures need to be explored for protection of IPs and VCs and their inclusion in project benefit distribution, both direct and indirect. Similarly, all possible options to address impacts to IPs and VCs need to be explored through a meaningful consultative process, that is consent-seeking (broad community support) and culturally sensitive.

[9] Those activities referred to in UNFCCC decision 1/CP.16 paragraph 70, i.e. Reducing emissions from deforestation; Reducing emissions from forest degradation; Conservation of forest carbon stocks; Sustainable management of forests; Enhancement of forest carbon stocks

3. REDD+ Strategy Preparation

3.1 Assessment of Land Use, Land Use Change, Forest Law, Policy, and Governance

3.1.1 Assessment of land use

This section presents the physiography, bio-climate and vegetation types of Nepal. It, then, discusses a brief history of land use and land cover change surveys. Finally, the trends of land use and land cover in different time series and in different physiographic regions will be analyzed. These trends function as the foundation around which the REDD+ Strategy has been developed.

3.1.1.1 Physiography, bio-climate and vegetation types

The physiography of Nepal ranges from tropical alluvial plains ascending from 60 m.a.s.l. to the snow and ice covered Himalayan range including, the highest peak, the Mount Everest (8848 m.a.s.l.). The country is divided into five physiographic regions namely, High Himal, High Mountain, Mid-Mountain, *Chure* and Tarai characterized by unique socio-economic and biophysical features. The High Himal occupies about 23 percent of Nepal lying above 5,000 m between the upper limit of vegetation and the crest of the Himalayas. It is devoid of permanent human settlement. The High Mountain occupies 19 percent of land with altitude between 3,000 m to 5,000 m; however its lower altitudinal boundary can reach as low as 1,000 m in valleys. This region is rich in endemic flora and fauna and settlements are scattered and isolated. The Middle Mountains comprises about 29 percent and is situated generally in between 1,000 m to 2,000 m. It is composed of a network of ridges and valleys extending to river bottoms ranging from 200 to 3,000 m altitude. It is characterized by a land use system with an intricate and extensive mosaic of terraces and clusters of densely populated villages surrounded by small patches of forests. The Chure also known as Siwaliks, comprises about 15 percent of land with a series of low, hogback ridges that run through the length of Nepal towards the south lying generally between 500 m to 1,000 m. The Chure is highly fragile and sensitive to soil erosion and encloses a number of cultivated valleys known as *Inner Tarai* or *Duns*. The Tarai covers about 14 percent of land below 500 m extending from the east to west in between the Chure and southern border to India. This land is highly productive agriculturally and is densely populated.

Table 1. Physiographic and Bioclimatic Zones, and Vegetation Types of Nepal

Physiographic Zone	Area (%)	Elevation (m)	Bioclimatic Zone	Vegetation Types
High Himal	23	Above 5,000	Nival (Tundra and Arctic)	Montane grassland and shrublands
High Mountains	19	4,000-5,000	Alpine	Montane grassland and shrublands
		3,000-4,000	Sub-alpine	Sub-alpine conifer forest
Middle Mountains	29	2,000-3,000	Montane (Temperate)	Temperate broadleaved forest
		1,000-2,000	Subtropical	Tropical forest/sub-tropical conifer forest
Siwalik	15	500-1,000	Tropical	Sub-tropical broadleaved forest
Tarai	14	Below 500	Tropical	Sub-tropical broadleaved forest Grasslands, savannahs and shrublands

Source: Dobremez (1976); Biodiversity Profile Project (1995); MFSC, 2014; TISC, 2002

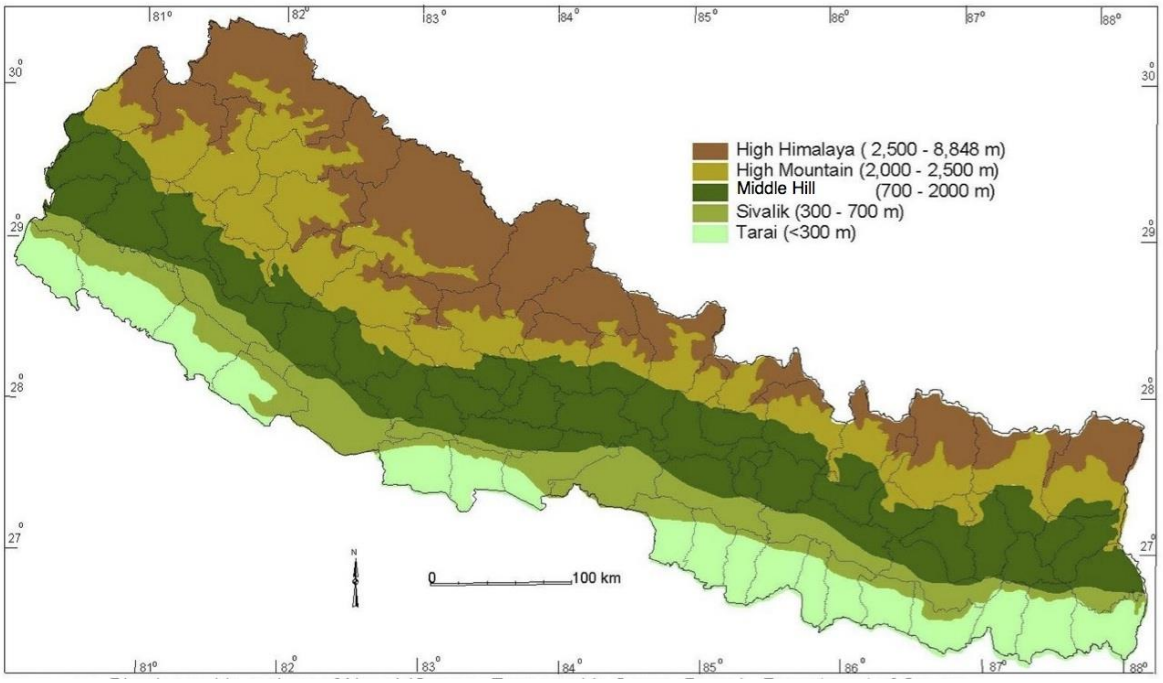

Figure 1. Map of Nepal showing major physiographic regions (Source: Topographic Survey Branch, Department of Survey)

The vegetation classification in Nepal is complex and cannot be strictly categorized due to high biological diversity. Schweinfurtch (1957) provided a general framework to classify Himalayan vegetation types, which was followed by Dobremez (1976). Stainton (1972) and Dobremez (1976) provide a comprehensive vegetation classification. Dobremez with his Nepali colleagues totalled 198 categories of vegetation types distributed in six bio-climatic zones (TISC, 2002). These were further synthesized down to 118 by Biodiversity Profiles Project in 1995, which was further revised down to 59 by IUCN in 1998/1999 (ibid). TISC (2002) further bundled these 59 types into 36 and gave a more simplified ecological picture of Nepal's vegetation.

3.1.1.2 History of land use and land cover change survey and inventory

The history of land use survey in Nepal started in 1960s with the forest resources survey of 1963-1967. The survey covered the Tarai, Inner Tarai, Chure hills and Southern faces of Mahabharat range by classifying forests into accessible (commercial) and inaccessible (non-commercial) forests. The focus of this survey was on commercial forests, estimating timber stock and domestic consumption of wood products (DFRS, 2014). Another comprehensive and extensive national level land use survey was carried out by the Land Resource Mapping Project from 1977 to 1979 to map land cover and land use, produce forest cover maps and assess the type, size and crown cover of forests. The survey provided maps and figures on various land use (agriculture, forest, shrub, pasture/grassland and others) with detailed information of forest type, size and crown cover and species dominance of forests.

The second National Forest Inventory (NFI) was carried out between 1987 and 1998 to assess the forest resources and forest cover change. Forest cover and change were updated for all accessible forests excluding Protected Areas using 1991 Landsat TM Satellite images for the Tarai. Additional aerial photographs were taken in 1989-1992 for the hills (DFRS, 1999).

The third National Forest Inventory was carried out from 2010 to 2012, and is providing data/information on the distribution, extent of species composition, soils and biodiversity, forest cover change information, including timber volume, biomass and carbon stock of Nepal forests by

physiographic and development regions. It has also established a national network of permanent forest sample plots for a continuous forest inventory in the future (DFRS, 2014). So far the survey reports for two physiographic regions (Tarai and Chure) have been published and the reports for other regions are expected to be published soon. Apart from the above mentioned national level surveys, several surveys and inventories at sub-national and local levels were also conducted.

3.1.1.3 Land use trends

Availability of accurate and reliable information has always remained a major problem for the analysis of forest cover and land-use change in Nepal. Volumes of literature exist that discuss forest cover and land-use change. However, the information required for analysis is old, scarce, inconsistent and even frequently contradictory. This makes land use and land cover change analysis extremely complex and difficult. The analysis further hampered as the available data per physiographic region is very irregular. Amongst others, this is due to inconsistent use of either five physiographic regions or three ecological zones in various official documents. This issue is important as the forest types, resource pattern and extent of drivers of deforestation and forest degradation varies across these physiographic regions. The Master Plan for the Forestry Sector (MPFS) 1988 is the only comprehensive official document that provides detailed information on land use and land cover change information by physiographic regions. This strategy document also uses five physiographic regions and discusses land use and land cover changes over the various periods of time to the extent possible.

3.1.1.4 Land use and land cover change

According to the National Forest Inventory (1987-1998), 29% of Nepal's surface (around 4.27 million hectares) is covered by forest and an additional 10.6 % (about 1.6 million ha) is covered by shrubs and degraded forest. The other major land uses consist of 3.1 million hectares (21%) of cultivated land, 1.77 million hectares (12%) of grassland, about 1.0 million hectares (7%) of uncultivated lands. A remaining 3.0 million hectares (20%) is classified under 'other land use' consisting of rocks, water bodies, and permanent snow (MFSC/BDSAP 2014). Thus, forests together with shrub land cover 39.6% of total land area of Nepal. The Forest Act (1991) and Forest Regulation (1993) include waste or uncultivated lands or unregistered lands surrounded by the forest or situated near the adjoining forest as well as paths, ponds, lakes, rivers or streams and riverine lands within the definition of forest area. Therefore, according to this legal definition, more than fifty percent of the total land area of Nepal falls under the jurisdiction of the forestry sector.

Table 2. Distribution of natural forests by physiographic and development regions

Regions	Total Area '000' ha	1986 MPFS (1988)				1994 DFRS (1999)			
		Forest '000' ha	Shrubs '000' ha	Forest and shrub total %	% of total forests	Forest '000' ha	Shrubs '000' ha	Forest and shrub total %	% of total forests
High Himal	3350	155	67	7	4				
High Mountain	2960	1639	176	61	29				
Mid Mountain	4442	1811	404	50	36	2900.2	1483.8*	36.2	66.7
Chure/Siwaliks	1886	1438	29	78	24	1319.3	75.4**	74.0	23.5
Tarai	2110	475	30	24	8	545.9***	N/A	N/A	9.4
EDR	2854	923	198	39.3	18.0	736.1	362.6	38.6	18.9
CDR	2734	1063	238	47.6	20.9	918.4	233.8	42.0	19.8
WDR	2935	900	142	35.5	16.7	734.3	256.9	33.7	17.0
MWDR	4281	1641	76	40.1	27.6	1192.4	442	38.6	28.0
FWDR	1944	991	52	53.7	16.8	687.4	263.9	48.7	16.3

Regions	Total Area '000' ha	1986 MPFS (1988)				1994 DFRS (1999)			
		Forest '000' ha	Shrubs '000' ha	Forest and shrub total %	% of total forests	Forest '000' ha	Shrubs '000' ha	Forest and shrub total %	% of total forests
Total	**14748**	**5518**	**706**	**42.2**	**100.0**	**4268.6**	**1559.2**	**39.6**	**100.0**
% Nepal		**37.4**	**4.8**	**42.2**		**29.0**	**10.6**	**39.6**	

Source: MPFS, 1988; FSD/FRSC, 1993; DFRS, 1999

*Note: * The figure is derived from DFRS (1999) data of shrub area deducting the shrub area figure of Bhuju (2010)*

*** According to Bhuju (2010).*

**** Figures are based on FSD/FRSC, 1993, which includes two inner Tarai district of Dang and Chitwan.*

The distribution of natural forests by development and physiographic region, according to available sources, is presented above in Table 2. According to the MPFS (1988), the High Mountain and Chure/Siwaliks contained a considerable area under forest cover (61% in the High Mountains and 78% in the Chure/Siwaliks) compared to other regions. However, in terms of total percentage of forest among the various physiographic regions, the Mid Mountain contained the highest percentage of total forest area of Nepal (36%) followed by the High Mountains (29%), and Chure/Siwaliks (26%). The Tarai region that inhabits about half of population of the country contained merely a quarter of land under forests and about 8% of the total forest of Nepal, while the share of the High Himal, devoid of permanent settlement contained 4% of Nepal's forests.

According to DFRS (1999), the MWDR is the richest regions in forests comprising 28% of total forest area of Nepal's forests followed by CDR (about 19.8%), EDR (18.9%), WDR (17%) and FWDR (16.3%). Comparing these figures with those of MPFS (1988), there is an increasing trend of forest area in the EDR, WDR and the MWDR, while in the other regions forest area seems to be decreasing.

3.1.1.5 Trends of land use and land cover change

Land use and land cover change in Nepal between 1978/79 to 1994[10] is presented in Table 3. The forest cover status in four time period of 1964, 1978/79, 1985/86 and 1994 is presented in Table 4. Between 1978/79 and 1994, there is a significant change in forest area (shrub land and forest). During this period (1978/79 to 1994), there was a decrease of 24% in the area of natural forest, with an annual decrease of 1.6%, from 5,612 million hectare to 4,268 million hectare. The area of shrub land on the other hand was shown to increase with 125%, with an annual increase of 8.4%, from 694 thousand hectares to 1.56 million hectare. The data shows no significant changes in the area of non-forest land use classes, which seems to indicate that the forest predominantly endured degradation. Note that between 1978/79 and 1985/86, the overall forest area appears to have increased slightly. However, between 1985/86 and 1994 the rate of forest loss increased with an average annual loss of 3.3%.

[10] The reference year of the National Forest Inventory carried out between 1987 and 1998 is identified as 1994 calculated as area-weighted mean for the reference years of different methods (DFRS, 1999).

Table 3. Land use and land cover change between 1978/79 to 1985/86 and 1994.

Category	1978/79 (LRMP)		1985/86 (MPFS)		1994** (NFI)		% Change 1978/79-1994		% Change 1985/86-1994	
	Area	%	Area	%	Area	%	Total	Annual	Total	Annual
Cultivated	2,969	20	3,052	21	3,091	21	4	0.3	1.3	0.2
Non-cultivated	987	7	998	7	1,030	7	4	0.3	3.2	0.4
Forests	5,612	38	5818*	37	4,268	29	-24	-1.6	-26.6	-3.3
Shrubland	694	5	706	5	1,560	11	125	8.4	121.0	15.1
Grassland	1,756	12	1,745	12	1,766	12	1	0	1.2	0.2
Water	N/A	N/A	N/A		383	3	N/A	N/A		
Other	2,730	19	2,729	19	2,620	18	-4	-0.3	-4.0	-0.5
Total	**14,748**	**100**	**14,748**		**14,718**	**100**				

Source: MPFS, 1988; DFRS, 1999;
** Includes plantation and enriched plantation areas*
*** The reference NFI (1994) data is cited from MFSC (2014)*

In 30 years, between 1964 and 1994, Nepal lost 2.134 million hectares of forest, which were either converted into shrub land or into other land uses. During this period, the area of forest has decreased from 45.5% to 29% losing 16.5%. Analysis of the data extracted from the ICIMOD land cover map of 1990, data generated for 2000 by the Forest Reference Level Study team together with the ICIMOD land cover map of 2010, shows an annual loss of forest by 0.53% between 1990 and 2000 and an increase in forest cover between 2000 and 2010 with an annual rate of 0.8%. However, the variation within and between subnational regions can be quite significant, as shown by some sub-national level reports such as FRA reports of the Tarai and Chure. They have reported that the annual deforestation rate is 0.18 % in Chure and 0.44 % in Tarai between 1991 and 2010.

Table 4. Forest Cover Status during seven different time period rounded off to full numbers

Cover Type	Unit	Years						
		1964 (FSRO)	1978/79 (LRMP)	1985/86 (MPFS)	1994 (NFI)	1990 ICIMOD land cover map*	2000 RL Study Team*	2010 ICIMOD land cover map*
Forest	Area (000ha)	6402	5617	5518	4268	5622.2	5325.8	5755.8
	Percentage	46	38	37	29			
Shrub	Area (000ha)		690	706	1560			
	Percentage		5	5	11			
Total	Area (000ha)	**6402**	**6307**	**6224**	**5828**	**5622.2**	**5325.8**	**5755.8**
	Percentage	**45.5**	**43**	**42**	**40**	**38.2**	**36.19**	**39.11**

*Source: MPFS, 1988; DFRS, 1999; WECS, 2010; *these data are cited from REDD Cell/MFSC, 2014c*[11]

3.1.1.6 Rate of forest cover change during different time series

The rate of forest cover change and shrub land change varies between the different time series. The highest rate of change in forest area was observed between 1985/86 and 1994 (@2.83%/year) while

[11] REDD Cell/MFSC, (2015) has used ICIMOD land cover map of 1990 and 2010 to generate data for 1990 and 2010, while for 2000, raw Landsat-based imagery data was processed. These data sets are indicative, as they are not ground verified and formally accepted. (REDD Cell/MFSC, 2014c).

the lowest rate was observed between 1978/79 and 1985/86 (@ 0.22% /year). Similarly, the rate of shrub land increase is also the highest between 1985/86 and 1994 (@ 15.12%/year) and the lowest between 1978/79 and 1985/86 (@ 0.3% /year). This indicates that the forest of Nepal is degrading at a fast rate and that the majority of the forests are being converted into shrub lands. However, if the total area of forests and shrub lands is considered together, the overall rate of loss is the highest between 1964 and 1978/79 and the lowest between 1978/79 and 1985/86 (Table 5).

Table 5. Forest cover change data in different time series (Area in 000 ha)

Period	Forests			Shrub lands			Forest and Shrub together		
	+/- '000' ha	% change	% change /year	+/- '000' ha	% change	% change /year	Total change '000' ha	% change	% change /year
1964-1978/79	-786	-12.28	-0.88	0			-786	-12.28	-0.88
1978/79-1985/86	-98	-1.75	-0.22	+17	+2.46	+0.3	-81	-1.28	-0.09
1985/86-1994	-1250	-22.63	-2.83	+854	+120.96	+15.12	-396	-6.36	-0.80
1978/79-1994	-1348	-24	-1.5	+871	+126.41	+7.9	-477	-7.57	-0.47
1990-2000							-296.4	-5.27	-0.53
2000-2010							+430	+8.07	+0.80

Source: After MPFS, 1988; DFRS, 1999, REDD Cell/MFSC, 2014c

3.1.1.7 Rate of forest cover change in different physiographic regions

The forest cover change data across all the five physiographic regions of the country is available only for 1978/79 and 1985/86. This is because the forest survey of 1994 did not produce data categorized by physiographic region. Between 1978/79 and 1985/86, the High Himal and the High Mountains slightly increased in forest area, whereas the Mid Mountains, Chure and Tarai decreased in forest area (Table 6). However, specific studies carried out at different moments in time at landscape level show different trends. The trend of increase in the High Himal and High Mountains was not observed between 1878/79 and 1994 (Table 6). A recent study carried out in the Chitwan Annapurna Conservation Landscape (CHAL) showed no significant changes in the total area under forest cover between 1990 and 2010, although variations exist across the physiographic regions (Table 7). The report shows an increase of area under forest cover in the High Himal, High Mountains and Chure with an annual increase of approximately 0.1% per year and a decrease in the Mid Mountains of approximately 0.09 % per year between 1990 and 2010. The decrease in forest area in the Mid Mountains is against popular belief that the forests are recovering due to the successful implementation of Community Forestry in this physiographic region. Nervertheless, several micro-level studies have also demonstrated improvements in forest area in parts of this region. An increase in forest area of 794 ha over 25 year in the mountain watershed of 153 square km was observed (Gautam *et al*, 2003). Similarly, in 10 Village Development Committees of the Dholakha district, conversion of sparse forest into dense forest was observed, with a rate of 1.13-3.39% per year between 1990 and 2010 (Niraula and Maharjan, 2011). Moreover, conversion of non-forest land into forest was observed, with a rate of 1.11-1.96% per year.

Table 6. Annual deforestation rate in various periods by physiographic regions

Physiographic region	1964-1978/79 (MPFS, 1988)	1978/79-1985/86 (MPFS, 1988)*	1978/79-1994 (NFI)***	1991-2001 (DoF, 2005)	1991-2010 (FRA 2014)
High Himal	N/A	+0.08	-1.9		
High Mountain	N/A	+0.05	-1.4		
Mid Mountains	N/A	-0.08	-2.5		
Chure	-1.1	-0.11	N/A	+0.06**	-0.18
Tarai	-1.8	-3.44	-1.3	-0.27	-0.44
Nepal	-0.4	-0.4	-1.7		

Source: MPFS, 1988; DFRS, 1999; DoF, 2005, DFRS, 2014a; FRA/DFRS, 2014b; Acharya (2004).
** The data set was recalculated from the MPFS (1988:30) figure.*
*** Includes only the hilly areas of Tarai districts but excludes protected areas.*
**** As cited by Acharya (2004) for High Himal, High Mountains and Mid Mountains.*

Table 7. Change in Forest Area by physiographic region between 1990-2010 in CHAL

Physiographic Region	1990	2000	2010	% change			Annual Change (%)		
	Area '000'	Area '000'	Area '000'	1990-2000	2000-2010	1990-2010	1990-2000	2000-2010	1990-2010
High Himal	48.8	50.6	49.8	3.7	-1.6	2.1	0.37	-0.16	0.10
High Mountains	349.4	352.8	357.4	1.0	1.3	2.3	0.10	0.13	0.11
Midhills	526.3	524.0	516.9	-0.4	-1.4	-1.8	-0.04	-0.14	-0.09
Chure	209.1	210.3	212.6	0.6	1.1	1.7	0.06	0.11	0.08
Total	**1133.6**	**1137.7**	**1136.7**	**0.4**	**-0.1**	**0.3**			

Source: KAFCOL 2013

Tarai and Chure

The deforestation rate in the Tarai has been consistently higher over the past decades. Between 1978/79 and 1985/86, the highest annual deforestation rate was observed with an annual rate of 3.44%. This is eight and a half times higher than the observed national average of 0.4% per year, and almost two times higher compared to the rate between 1964 and 1978/79 (Table 6).

The recent forest inventory conducted by FRA/DFRS also indicates this increasing trend of deforestation. Between 1991 and 2010, the forest area in the Tarai decreased with 32,000 ha with an annual rate of 0.40%. However, the rate between 2001 and 2010 was even higher with an annual loss of 0.44% (FRA/DFRS, 2014a).

Data on forest cover change in the Chure shows similar deforestation trends over the past several decades. Between 1964 and 1978/79 the Chure lost 1.1% of its forest area per year. This significantly reduced to 0.11% in the period between 1978/79 and 1985/86. The recent national inventory has again indicated an increase in deforestation rate to 0.18% per year between 1995 and 2010 (FRA/DFRS, 2014b). Data from the DoF (2005), from between 1991 and 2001, on the other hand showed a slight increase in forest area in the Chure with a rate of 0.06% (Table 7).

Several other site-specific studies have also shown varying scenarios of deforestation and forest degradation in the Chure and the Tarai. Part of the Chure that is covered by the CHAL was found to gain increase in forest area (1.7% annually) between 1990 and 2010 (KAFCOL, 2013), while Bhuju (2010) found a significant loss of forest area (7.06%; 0.44% annually) and an increase in shrub land (154%; +9.6% annually) between 1978 and 1994 (Table 8). Similarly, the Chure Area Programme

Strategy (2008)[12] reported a decrease in forest area (of 3.1%) and an increase in area of cultivated land (of 52.3%) in the Siwalik hills and the narrow river valleys between 1975 and 2001. This trend of forest conversion to shrub and farm lands in the Chure appears to be increasing (CAPS 2008).

Table 8. Forest and shrub cover change in Chure between 1978 and 1994

Landuse class	1978	1994	Differences	% of change	
	Area (ha)	Area (ha)	1978-1994	1978-1994	Annual
Forest	1,419,556	1,319,354	-100,202	-7.06	-0.44
Shrubs	29,737	75,402	45,665	153.56	9.60

Source: Bhuju, 2010

Several site-specific studies in the Tarai also support the trend of forest loss in the region. In three VDCs of Ghodaghodi Tal of the Kailali district, forest cover decreased from 75% in 1977, 70% in 1990 and 64% in 2008. Forest loss was found to be the highest between 1990 and 1999 (Khanal, 2008). In Laljhadi Forest (15,000 ha) of the Kanchanpur district, forest cover shrank at an annual rate of 4.90% from 1996 to 2002 and of 3.5% from 2002 to 2010. This loss was balanced out by the associated increase in shrub land area, which increased from 1.37% in 1996 to 25% in 2002 up to 29% in 2010 (Pandit, 2011). Similarly, in several forest rich VDCs in and around Simara of the Bara district, the rate of forest loss of 0.72% per year and an increase of non-forest land of 0.46% per year was observed between 1989 to 2005 (Kandel *et al.*, 2010).

Middle Mountains, High Mountains and High Himal

There was a slight increase in forest cover in the High Mountains and the High Himal, and a slight decrease in the Middle Mountains between 1978/79 and 1985/86 (Table 7). However, the rate forest increased in all three regions between 1978/79 and 1994 according to the NFI data. During this time series, the High Himal lost 1.9% of its forest annually. The High Mountains and Middle Mountains annually lost 1.4% and 2.5% respectively. Several other local studies show mixed results. The Panchase Protected Forest area was reported to have decreased in forest area from 76.4% 1990 to 67.4% in 2014 with an annual loss of 0.59% (Acharya *et al.*, 2014). Similarly, the mixed and broad leaved forests in the high altitude areas of 12 VDCs of the Kabhre Palanchok district were found to have decreased by 59% and 6% respectively between 1978 and 1992 (Jackson *et al.* 1998). During this time, the area covered with grassland in the districts of Kabhre Palanchok and Sindhu Palchok increased with 85% and 214% respectively (Acharya, 2004). The area of forest and grassland in the high altitude areas (above 2000 m) was reported to have declined with 18.74% in 1985/86 and 32.48% 2001/02, while shrub land and barren land (non-cultivated included) increased with 37.4% and 25.7% respectively (Baral *et al.*, 2012). FRA/DFRS has not yet published the results of recent forest inventory of the Middle Mountains. However, a number of smaller scale studies, as discussed above, reported an increase in forest cover in Middle Mountains as a result of successful community forestry practices.

[12] CAPS has divided the Chure area into five distinct landscapes or land units namely Chure hills, Narrow River Valleys, Dun, Bhabar and Tarai.

3.1.2 Efforts to date to address deforestation and forest degradation and to maintain and improve forest land use

a) Evolution of the progressive forest policy and legal instruments:

Forest development of Nepal has evolved from a conventional command and control mode, to a decentralized and devolved community-based forestry setup over the last six decades. Since the unification of Nepal in 1769 AD, the Shah kings and Rana rulers, between 1846 and 1951, adopted policies and strategies focused at forest conversion to farm land to increase the tax base. A large area of forests was distributed to rulers' family members and the political supporters as *birta*[13] and *jagir*[14]. The government nationalized the forests and abolished *birta* tenure with the adoption of the Forest Nationalization Act in 1957, and Birta Abolition Act in 1959. The Department of Forests was strengthened with the key role of policing the forests and issuing licenses to harvest forest products. In order to enforce forest protection measures, stringent legal provisions were made with introduction of Forest Act 1961 and Forest Preservation Act 1967. All these centralized control system alienated people from forests and led to enormous depletion and degradation of forests. A national forestry conference in 1975 paved the way to formulate a National Forestry Plan in 1976, which became a basis for the revision of the Forest Act of 1961 in 1978. The revised Forest Act made a provision of people participating in forest management by handing over government forests as Community Forests[15] to be managed by local people.

Global concern on the popularized theory of Himalayan degradation, the debate on the fuelwood crisis and its associated "gap analysis"; and the national and global context of forestry issues led to formulate a Master Plan for Forestry Sector (MPFS) in 1988 (Kanel and Acharya, 2007). The MPFS laid the foundation to implement and institutionalize the community based forestry policy. The Forest Act (1991) and Forest Regulations (1993) provided the legal framework, and CF guidelines provided an implementation guideline.

The implementation of MPFS with its progressive policy provisions of recognizing forest users rights, entrusting them for protecting and managing forests, changing roles of forestry staff, and retraining of the entire staff of the Ministry of Forests and Soil Conservation caused a paradigm shift in the way forests and biodiversity are protected, managed and utilized. All forestry sector policies, legislations, strategies and programs, at present, are built on the foundation of MPFS. All these provisions aim to enhance participation of local people including women, Dalits, and indigenous people in planning, decision-making, implementing and benefit sharing. Similarly, the National Park and Wildlife Conservation Act 1973 was amended in 1989 and in 1992 to encourage community participation and engagement in conservation with incorporation of conservation area management and buffer zone management. A number of policies, plans, strategies and guidelines have been developed to enhance the conservation of biodiversity and ecosystems.

b) Significant development of community forestry and community participation:

The community forestry program has contributed to significant progress to halt deforestation and forest degradation and even to reverse the process in many areas, particularly in the Middle

[13] Land grants formerly made by the state to individuals, usually on a tax free and heritable basis.

[14] Forests allocated to compensate servants of the state for the period of that service.st reverted to the state.

[15] Plantation areas handed over to local Panchayat (lowest administrative unit) were termed as Panchayat Forests (PF), and existing government forests handed over them were termed as Panchayat Protected Forests (PPF) until 1990. After 1990, both types of forests were termed 'Community Forests' by the government formed after the democratic movement.

Mountains (MFSC, 2013; MFSC, 2014; Gautam, 2006; Niraula *et al*., 2013). However, the pace of improvement in the Tarai is slow compared to the Hills and the Mountains (MFSC, 2013). Currently, as of June 2014, 18,133 Community Forest User Groups, involving 2.24 million households, are managing 1.7 million hectares of forest entrusted to them as community forests (DoF database). The program is widely recognized as one of the successful development initiatives in Nepal and lessons from its success have influenced the design and implementation of other development programs in Nepal as well as forestry programs in other countries. The program has restored degraded forest and greenery, increased biodiversity, increased supply of forest products, promoted income generation and community development, improved livelihood and empowered women, poor and disadvantaged groups[16].

Despite the above far-reaching successes, a number of issues and challenges remain. Community forests are reported to be under-utilized and the issues of governance prevailed, particularly in resource-rich areas. Similarly, community forestry's contribution in the rural employment and in the local economy is questioned.

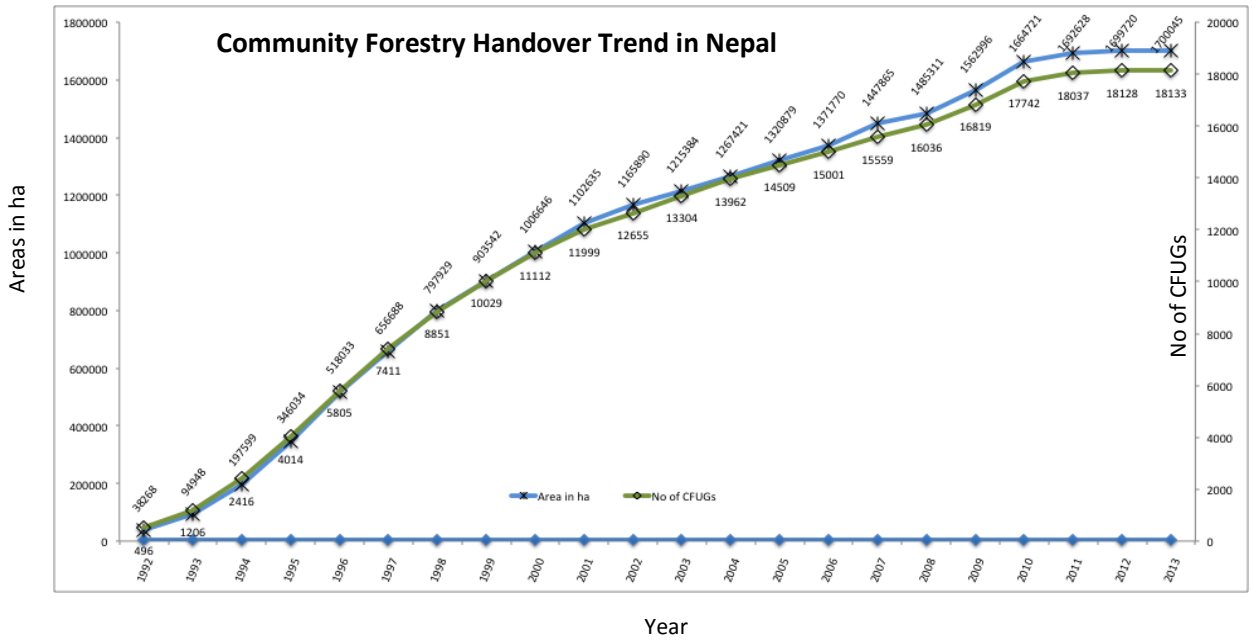

Figure 2. Community Forestry establishment in the last two decades

c) Development of different management regimes:

Out of the total 5.8 million ha of national forests (including shrub land) 4.8 million ha (82.4%) is national forests under the jurisdiction of the Department of Forests and about 1 million ha (17.6%) is under the protected area system under the jurisdiction of the Department of National Parks and Wildlife Reserve (Table 9). About 49.3 % of national forests under the DoF's jurisdiction are government managed and 33.1% is handed over as community based managed forest. Apart from community forestry regimes, other forest management regimes developed and implemented are collaborative forest management, pro-poor leasehold forests, religious forests, and protection forests (Table 9). Public forest land management is also being promoted in southern parts of several Tarai districts.

[16] According to DoF's website http://dof.gov.np/dof_community_forest_division/community_forestry_dof

Table 9. Forest area under different arrangement

Category	Sub Category	Unit	Area	% of total
Nepal (National Forest)	**Forests and shrubland**	**'000'ha**	**5830**	**100**
Forests under Protected Areas Systems	National Parks/WRs/HR	'000'ha	452.3	**7.8**
	Conservation Areas	'000'ha	469.8	**8.1**
	NP Buffer Zone (CF only)	'000'ha	101.4	**1.7**
	Forests and shrubland	**'000'ha**	**1023.5**	**17.6**
National Forest under different management regimes	Government-managed forests (Residual National Forests)	'000'ha	**2875.3**	**49.3**
	Community Forests	'000'ha	1700	**29.2**
	Leasehold Forests	'000'ha	42.8	**0.7**
	Religious Forests	'000'ha	0.5	**0.0**
	Collaborative Forests	'000'ha	54.1	**0.9**
	Protection Forests	'000'ha	133.8	**2.3**
	Forests and shrubland	**'000'ha**	**4806.5**	**82.4**

Source: DFRS, 1999; DoF database 2013; DoF, 2014, DNPWC, 2012

i) Collaborative Forest Management

The government has initiated Collaborative Forest Management (CFM) since 2003 in order to manage the block forests of the Tarai in collaboration with local communities and local governments. A Collaborative Forest Management Directive was made in 2003 under the clause 67 of the Forest Act 1993. As of June 2014, Nineteen Collaborative Forests were established covering a total forest area of 54,072 ha. All these forests are managed as per approved management plans. The activities comprise the felling of mature and over-mature trees, retaining the mother tree for seeds, promoting natural regeneration (mainly of Sal), construction of fire-lines and forest roads.

ii) Pro-poor Leasehold Forestry Program

The Forest Act of 1993 has made special provisions to lease degraded forest land to groups of households living below the poverty line. As per this provision, the government of Nepal has been implementing pro-poor leasehold forestry program as one of the priority programs. The program aims to reduce poverty and rehabilitate the degraded forests. The program began as a small pilot project in 1989, which is now extended to 40 districts covering Tarai to High Mountains regions. As of June 2014, a total of 42,835 ha of forest is handed over to 7,419 leasehold forest groups across the country (DoF, 2014)

iii) Protection Forests

The government has taken a new initiative since 2002 to manage some natural forests as protection forests in Tarai, Hills and High mountain areas. So far, eight forests covering a total area of 133,754.8 ha have been declared as protection forests (Table 10). Eight other forests, covering a total area of 223,107 ha are in the process of being declared as Protection Forest (MFSC, 2014).

Table 10. Protection Forests in Nepal

Forest	Year Established	Size (ha)	Location	Significance
Kankre Bihar	2002	175.5	Surkhet	Historical; archeological and biodiversity
Madhane	2010	13,761	Gulmi	Biodiversity; eco-tourism
Barandabhar	2011	10,466	Chitwan	Corridor; wetland; habitat for several endangered animal and bird species.
Panchase	2011	5,775.7	Kaski, Parbat, Syangja	Biodiversity; eco-tourism; religious
Laljhadi-Mohana	2011	29,641.7	Kailai, Kanchanpur	Biological corridor; wetland
Basanta	2011	69,001.2	Kailai	Wildlife habitat and corridor
Khata	2011	4503.7	Bardia	Wildlife habitat and corridor
Dhanushadham	2012	430	Dhanusha	Historical; religious; biodiversity

Source; MFSC, 2014

iv) Religious Forests

The forest act 1993 has a provision of handing over National forest as religious forest. Any forest remained as religious forest on a traditional or since ancient times can be handed over to religious body, group or community and registered as religious forest. In pursuant to this provision, about 5,000 ha of forest is handed over to different religious groups across the country.

v) Public Forest Land Management

The Public lands under the jurisdiction of local bodies are now being used for tree cropping mostly in the southern part of the Tarai. Southern parts of Tarai consist of large areas of public barren land, which can be developed into forests or agro-forests. Several of these areas are being planted and handed over to poor household groups. The objective is to involve poor households who do not have land to plant trees on their private land and to increase their supply of forest products.

d) Conservation of Ecosystems & Genetic Resources

There has been a significant increase in protected areas (PAs) and in-situ conservation of ecosystem and biodiversity in the country. The coverage of PAs has increased from 10,798 km^2 in 1988 to 34,185.52 km^2 at present, representing 23.23 % of the land area of the country with ten national parks, three wildlife reserves, one hunting reserve, six conservation areas and twelve buffer zones. (MPFS, 1988; DNPWC, 2012). A shift in policy from 'people exclusionary' and 'species focused' towards 'people-centered and community based' approaches together with a number of conservation efforts have resulted in the increase in the population of protected animals (Sharma, 2012; MFSC, 2014). Similarly, 11 botanical gardens are established to conserve, educate, and demonstrate a variety of tree species, medicinal plants, climbers, orchids, cactus, and many other plant species.

i) Landscape approach of conservation

The landscape approach of biodiversity conservation has been adopted in four landscapes namely, the Tarai Arc Landscape, the Sacred Himalayan Landscape, Kailash Sacred landscape and Chitwan-Annapurna Landscape. The aim of the landscape approach is to provide better connectivity to several protected areas and enhance ecological processes and conservation.

ii) Community-based conservations

The concept of buffer zone and conservation area establishment has been extensively practiced as a community based conservation approach for the conservation of ecosystems and biodiversity across the country. At present, there are 12 buffer zones around nine national parks and three wildlife reserves covering an area of 5,602.67 sq. km. The Buffer Zone initiative enhances people's involvement in conservation and also provides conservation benefits to local communities (DNPWC, 2012). In these buffer zone areas 125,475 ha of forests have been handed over as buffer zone community forests to 393 buffer zone CF Groups (DPNWC, 2012). The concept of community-based conservation is practiced in six conservation areas of the country. These are: Annapurna, Kanchanjunga, Manaslu, Gaurishankar, Api Nampa and Krishnasar, comprising a total area of 132,500 ha. The communities have been linked to these areas to benefit from protected areas.

e) Soil conservation and watershed management and Conservation of Chure Hills:

The Department of Soil Conservation and Watershed Management (DSCWM) has been established and has been given the mandate for the watershed management, soil conservation and integrated management of renewable natural resources. The department was functioning as a project modality until 1990. Currently, its services have been extended to 56 priority districts and it has rehabilitated over 10,000 ha of degraded land, 1,600 gullies and 1,000 landslides of various scales and implemented many preventive and supporting measures over the last two decades (FSS team, 2014). However these achievements are insignificant compared to the actual requirements of the soil and watershed conservation services in the country.

The Chure hills also known as Siwaliks range is a largely forested, geographically fragile and rugged landscape extending from east to west of the country. The Rastrapati Chure Conservation Program is being implemented in 26 Chure districts. More recently the government of Nepal has initiated the Rastrapati Chure Tarai Madhes Conservation Program and declared 12.78 % area of 36 Chure districts as Environmental Conservation Area to implement integrated environment conservation programs.

f) Research, survey and inventory

The Department of Forest Research and Survey is engaged in the development and demonstration of appropriate technologies related to forest management, forest growth, suitability of tree species and nursery and silvicultural technologies. Other areas of research include agroforestry, fodder production, tree improvement, utilization of forest products and preparation of volume and biomass tables for different forest species. The department also generates statistics and information necessary to plan overall forestry development through national forest survey and inventory. Two of the national forest surveys were carried out in the 1960s and 1990s, and the third is currently being conducted since 2010.

g) Institutional Development

Several times, the forestry sector has undergone institutional restructuring over the last decades. The MPFS had even identified institutional development as one of the supportive programs. However, the proposed reform by MSFP was over shadowed by the wider administrative reform of the government such as the High Level Administrative Improvement Commission. The MFSC is organized with five departments: the Department of Forest (DoF), the Department of National Parks and Wildlife Conservation (DNPWC), the Department for Forest Research and Survey (DFRS), the Department Soil Conservation and Watershed Management (DSCWM) and the Department of Plant Resources (DPR). Also five regional directorates at regional level exist. Forestry services at district

and local level are provided by 74 District Forest Offices, 56 District Soil Conservation Offices, 7 District Plant Resources Offices, 10 national parks, 3 wildlife reserves and 1 hunting reserve. Recently there have been many changes in Nepal's institutional landscape with an increased number of active and vocal civil society, decentralized government at district and VDC levels and expansion of community based organizations demanding governance improvement in terms of efficiency, transparency, rule of law and accountability.

h) Human Resource Development

The government forestry institutions are employing 9,586 staff at different capacities and levels. Out of these employees, only 320 are women (FSS team, 2014). Many employees, including professional foresters, are also employed outside the government as there is, at present, a rise in numbers of civil society organizations and private organization in the forestry sector. Forestry education has also expanded as several different institutions are offering forestry related courses from certificate level to PhD. This has resulted in an increase in the level of qualifications held by forestry professionals. A massive reorientation and re-training of forestry staff was emphasized by MPFS, with the establishment and institutionalization of training centers at regional level. A comprehensive government-led training programs complemented by non-government and project supported trainings on a wide range of topics have contributed significantly towards attitudinal and capacity shifts among the forestry staff in the government. Despite these efforts, capacity, cultural and attitudinal issues, understaffing are still important constraints for forestry sector institutions.

i) Monitoring and evaluation

In the forestry sector, monitoring and evaluation has not been effective due to a large information gap, poor record keeping, and a weak reporting system. A Concept, Approach and Strategy of M&E in the forestry sector was prepared in 2002. However, it was not effectively implemented. Currently the Result Based Monitoring and Evaluation (RBME) is emphasized and an M & E plan has been prepared on the basis of guideline provided by the National Planning Commission. The plan includes output indicators, impact and outcome indicators using base line data of July 2012 and target values of July 2015 as per the Three Year Approach Paper (2067/68-69/70) of the National Planning Commission. For the M & E function, MFSC has the Monitoring and Evaluation Division and each department has its own M & E Sections. However appropriate human and financial resources are yet to be allocated.

3.1.3 Assessment of land tenure and associated governance issues

3.1.3.1 Assessment of Land Tenure and Resource Rights

Land tenure and forest property rights are critical issues which directly determine who is eligible to receive incentives from REDD+ and related programs. Thus, clear and secure land tenure is conditional to ensure both an efficient REDD+ program and an equitable distribution of benefits (Bruce *et al*. 2010). Poorly defined land tenure can reduce the incentives for local or national forest protection and facilitate the over-exploitation of forest resources. For this reason, land tenure and forest property rights are the key issues shaping the social and environmental impacts of REDD+ and related programs. Particularly, attention should be given to ensure the rights of local forest-dependent communities including indigenous peoples and Dalits to ownership, use and customary management of their forests. Unclear and disputed land tenure might result disincentive for investment in all forms of forestry projects, as it represents a high risk to successful project implementation, and the costs of resolving related conflicts are high.

3.1.3.2 Forest Land Tenure

Land tenure can be defined as the 'bundle of rights' that determine the conditions for access, use, management, exclusion and alienation (the right to sell or transfer ownership rights) of land and resources (Schlager and Ostrom, 1992). Similarly, forest tenure can be regarded as 'a bundle of rights' over a piece of forest, a tree or a group of trees. The "bundle of rights" includes rights and specific benefits derived from these rights (access, withdrawal and benefits), management (overall decision-making including rights of exclusion) and alienation (ownership, right to compensation, right to sale). Furthermore, these rights could have been given by law (de jure) or just by practice based on understanding or tradition (de facto) (Bruce, 1989, cited in Acharya *et al.*, 2008). Thus, forest tenure, for the purpose of this REDD+ Strategy, is defined as authority enforcing claims to a 'bundle of rights', obtainable from forest and its resources. Forest tenure, thus, shapes the definition of who can use which resources, for how long, under what conditions, for whose benefits and on what basis.

Clarity of land tenure and usage rights is vital for REDD+ as it determines who should be compensated for reducing their deforestation (who gets the rewards) and who should be held accountable if deforestation does occur (who holds the risks). If the goal of forest tenure is to enhance communities' control over the forest resources and the benefits therein, as well as delivering sustained forest conservation, then forest management institutions and policies need to cater to the needs and decisions of all key stakeholders, including forest dependent communities, women, indigenous peoples and *Dalits*.

3.1.3.3 Assessment of Tenure Modality and associate Governance

According to the Forest Act of 1993, Nepal's forests are legally categorized as either national or private, with ownership and control under the state or individual owners respectively. The state owned national forest includes all forests other than private forest, regardless of the demarcation of their boundaries and including cultivated or uncultivated land, roads, ponds, lakes, rivers, streams and the shingly land that is surrounded by or in the vicinity of a forest. Under state-owned national forests there are various management regimes such as community-based forests, which includes collaborative, leasehold, religious, and community forests and; state-managed forests, which include government-managed national forest, protected forest areas and conservation area. The private forests are the planted or protected forests on land that belongs to an individual in accordance with the Land Act 1964, but are regulated by the Department of Forests in accordance with the Forest Act 1993.[17]

The Government of Nepal (GoN) is the land owner of all forests (Section 67 of the Forest Act, 1993) including community forests, leasehold forests and religious forests which are provided to communities or people for the conservation, management and sustainable use of the forest and its products. A more or less similar condition applies with other forest management regimes that are managed under the National Parks and Wildlife Conservation Act 1971. The Forest Act, 1993 which ostensibly support forest user groups and their autonomy is considered as the prime factor of

[17] It makes a provision for registering a private forest with the District Forest Office (DFO) to the avail of government support and incentives. On the contrary, restrictions are imposed, viz. the Gazette notification of December 31, 2001; the government banned harvest, transport and export of six timber species (*Champ (Michelia champaka m. kisopa), Khair (Acacia catechu), Sal (Shorea robusta), Simal (Bombax ceiba), Satisal (Dalberia latifolia)* and *Vijaya sal (Pterocarpus marsupium).* Furthermore, it banned the collection, sale, transportation and export of two NTFPs, viz. *Panchaule (Dactylorhiza hatagiera)* and *Okhar* (*Juglans regia*). Similarly, eight other species are prohibited for export in unprocessed form without permission of the Department of Forest (DoF). It can be argued that the act is not fully favorable for private forestry because it still retains some of the legacy of the Private Forest Nationalization Act 1957 (Acharya and *et.al*., 2008)

proliferation of the CFUGs throughout the country. There is strong evidence of ecological restoration in many community-managed forests including an expansion in social capacity through regular decision-making and management activities. In some instances, CFUGs are able to make investments in local development such as potable water, trail and road improvements, and the setup of a rural electricity grid (Pandit *et al*., 2011).

The Forest Act (1993) has provided a clearer picture on property rights for community forestry compared to all the community-based forest management regimes. In many stakeholder consultations it has been unanimously expressed however that securing these rights can be challenging in practice, particularly in case of harvesting or forest product sales. This indicates that CFUGs need secured forest tenure rights and the users of other community based forest management regimes needs clarity on their tenure rights in sync with the UNFCCC's safeguard principles. In addition, clear and secured tenure rights are equally important for investment in all kinds of forestry projects including REDD+ initiatives, as it represents a potential risk to successful project implementation, and the costs of resolving related conflicts can be high.

In addition, there are equally pressing issues regarding intra-community equity in benefit-sharing in community based forest management regimes. Nepali society is highly differentiated and hierarchically structured along the lines of caste and ethnicity, gender and economic status. Internal inequities in access to benefits and decision making persisted within many CFUGs due to such social hierarchy. Usually, upper-caste men from wealthier families dominate the CFUGs and influence decisions that usually end up in unfair benefits flowing to a few elite families. Consequently, there are persistent problems of elite favoritism in decision making and benefit-sharing even in community based forestry including CF (Anderson, 2011; Thoms 2008). In order to avoid the trend of elite control, the rules need to be revised and it should be made mandatory for all User Group Committees to include proportionate representation of poor, women, IPs, Dalits and other underrepresented community members. The same provisions should be applied in trainings, sensitization, workshops and other activities at all levels of meetings, discussions and interaction. (REDD Cell/MFSC, 2014)

Similarly Nepal's forest governance needs capacity enhancement in terms of efficient implementation and enforcement of regulations, resolve overlapping and inconsistent legal provisions, and control of mishandling.[18] The ongoing political transition and associated uncertainty have hampered law enforcement. As a result large areas of forest have been used by security forces, were handed over to development projects such as road construction and electricity installation or were occupied by encroachers. The forest lands are largely owned by the state and therefore are prone to be targeted for public infrastructure development such as roads, canals, hospitals and schools. Also these areas are targeted by landless poor people (sukumbasi) and ill intended encroachers. Thus, reform of the laws and policies surrounding forest land tenure is essential to ensure that REDD+ projects that will both reduce emissions from deforestation and degradation, and positively impact the livelihoods of forest communities by maximizing the flow of REDD+ benefits to these groups.

3.1.4 Assessment of natural resource rights and the associated governance issues

3.1.4.1 Natural Resource Rights and Associated Governance Issues

In Nepal, forest use rights of citizens have historically been recognized both legally and customarily. However, before the forest nationalization, only *mukiyas* and *jimuwals* exercised forest control rights as state functionaries. The forest tenure reforms in the 1980s attempted to reverse this trend through participatory forest governance that sought to reconnect forest communities with local user rights, stewardship responsibilities, and the long-term benefits of sustainable forest use. The Master

[18] Findings of stakeholders consultation

Plan for the Forestry Sector (MPFS), approved in 1989, particularly marked a new era when it officially prioritized the devolution of key forest tenure rights to local communities, as long as these communities were willing and able to manage them. The Forest Act (1993) established different forest tenure categories and management arrangements between the state and the forest users.

Despite these positive efforts, the land tenure of all the existing forest management modalities officially rests with the government except for private forests, whereas forest use right and product benefit-sharing varies amongst the different management modalities (Table 11). The executive committees of different community based forestry regimes also exercise control rights to a certain extent, transfer rights have often remained exclusively with the government. However, the *de-jure* forest control rights holders (the forest departments) are frequently criticized for transferring the forest lands for other uses including settlements, infrastructure development, educational enterprises, high tension lines, irrigation canals, and hydropower plants, indiscriminately, and against the prevailing forest policy. It is also often blamed that the governments fail to exercise their control rights to arrest deforestation and forest degradation due to a variety of reasons, including lack of resources and capacity[19]. There are many instances of conflicting sectoral policies that have created conflicting claims over forest products and land use and control rights, eventually resulting in weak governance. For example, there is some overlap of rights on natural resources between the Forest Act (1993) and the Local Self-Governance Act (1999). This overlap in rights means that, under the Local Self-Governance Act (1999), local political units can overrule the management plan and decisions of CFUGs. These local political units have also been given rights over all natural resources within their jurisdiction and they can also charge taxes.

The mechanism of benefit-sharing among the various right holders as illustrated in Table 11 shows that private forest products are discriminated against in comparison to other products (e.g. VAT is not applicable for agriculture products) from the same piece of land. The table also indicates that collective management such as CF is enjoying greater benefits compared to other forms of management. Even in private land, the poor and marginalized people are reluctant to plant trees on the land they cultivate as tenants due to ambiguities related to the tenure security over the trees.

3.1.4.2 The Issues of Customary Rights

Some forms of traditional or customary practices related to land and forest management are still alive in the remote areas, particularly in the High Mountain areas, where the access of the Government in implementing the rules and regulation of land and forest is weak. In fact these customary systems have evolved, taking into consideration both conservation of resources and people's livelihood, since time immemorial. However, the forest management regimes listed in Table 11 have not explicitly recognized the customary forest usages. Many Indigenous Peoples (IPs) representatives complained during consultation meetings that after promulgation of the Land Act, Forest Acts and National Parks and Wildlife Conservation Acts customary rights have been categorically denied. IPs in Nepal particularly claimed that these acts did not recognize any basis for the customary system of management of resources, though Nepal has ratified numbers of international treaties (ILO 169, UNDRIP, 2007), which guarantee categorically customary rights of IPs.

Although one of the preambles of the Forest Act (1993) and Forest Regulations (1995) was on the social and economic development along with environmental conservation and fulfillment of the basic needs, the recognition of traditional collective forest and land management has not been the priority in the management regime of the forest regulation. The customary systems are considered better in terms of reducing the vulnerability of individuals. There is a social network and safety-net

[19] Findings of Consultations

in traditional systems that look after the people suffering from contingencies and the like (Acharya *et al.*, 2008).

Community Forest Guidelines (2008) have some flavors to respect customary rights and indigenous knowledge in forest management. The guidelines speak of the protection of customary practices and traditional knowledge. The recent Forest Policy (2015) has also provisioned the use of indigenous knowledge and customary practices in the management of the forests. However, the provisions envisioned in the policy and guidelines for the empowerment of women, and inclusion in leadership and grass root democracy, representation of indigenous peoples and indigenous women in the decision making level, are yet to be implemented meaningfully. Similarly, the recognition of traditional customary practices of land and forest management is yet to be recognized (NEFIN, 2014).

Table 11. Tenure arrangements, bundle of rights and right holders in different forest management system in Nepal

Management System	Type of Forestry	Bundle of Rights	Right Holders			
			State/government	Community/User Group	Households/Individual	IPs and other forest dependent ppl
Collective Management	Community Forest (CF)	Access & benefit (Use Right)	Approve Operational Plan (OP) & handover. Tenure period guaranteeing access (but not ownership) not defined by law, normally for 5-10 years with extension.	Entry through user membership, (some has started to issue entry fee nowadays). 100% benefits to community. Access to forest resources. Recognizes traditional use rights and access.	Membership entails access to forest products and other benefits. Compliance with associated responsibilities required.	No explicit legal recognition and specific provisions for IPs and other groups
		Management (Control Right)	Approval of OP, allowable cut, sets targets for expenses in particular fields, pose taxes, monitoring.	Rights to make management rules and revise management plans. Executive Committee (EC) and hamlet committees guide decisions for CFUG related to protection, plantation, silvicultural practices, benefit-sharing, fund management, and monitoring/evaluation.	Representation in decision-making bodies. Participation in tole meetings, general assembly, monitoring/evaluation committees	CF guideline (2008) speaks for protection of customary practices and traditional knowledge
		Alienation (Transfer Right)	Revoke rights, can change land use (Giri, 2012).	x	X	x
	Leasehold Forest (LF)	Access & benefit (Use Right)	Lease forests for a period of 40 years extendable to 40 years. System of inheritance not defined.	Access to group through membership. 100% benefits to community. Access to forest resources. Involves poor households only.	Membership entails access to individual forest plots for households. Compliance with associated responsibilities is required.	IPs and other groups are not explicitly recognized
		Management (Control Right)	Approves operational plan. Restricts forest type and	Operational plan provides the basis for forest protection, management,	Representation in planning, livelihood improvement activities, monitoring, decision-	IPs and other groups are not explicitly

Management System	Type of Forestry	Bundle of Rights	Right Holders			
			State/government	**Community/User Group**	**Households/Individual**	**IPs and other forest dependent ppl**
Collective Management			tree use.	access and distribution of products among the leasehold group members.	making etc. Benefits to individual households.	recognized
		Alienation (Transfer Right)	Revoke rights, can change land use (Giri, 2012).	x	Right to transfer or sell their rights to others after successfully completed one-third of the lease period.	x
	Collaborative Forest	Access & benefit (Use Right)	Tenure is unlimited, 50 % benefits from the forest go to state.	The communities are granted access and withdrawal rights. Local government and communities get 50% of the income from the sale of firewood and timber.	Little space for individual and household members to determine benefit sharing modality	IPs and other groups are not explicitly recognized
		Management (Control Right)	Approve management plan and it is managed through an annual scheme or 5-year plan	Involvement of both nearby and distant forest users, and is coordinated through a District Forest Coordination Committee dominated by the local forestry department.	Individual and household members involved in planning but they have little voice in how CFM areas are to be managed	IPs and other groups are not explicitly recognized
		Alienation (Transfer Right)	Revoke rights, can change land use	x	X	x
	Religious Forest	Access & benefit (Use Right)	Tenure is unlimited. Sale of forest products for commercial purpose is Restricted	100 % benefits go to local religious group for only religious purpose	There is no specified rights for individual/households	IPs and other groups are not explicitly recognized
		Management (Control Right)	Management is defined usually through an annual scheme or 5- year plan	Management plan prescribes protection and management responsibilities	There is no rights for individual/households	IPs and other groups are not explicitly recognized
		Alienation (Transfer	Revoke rights, can change land use	x	x	x

Management System	Type of Forestry	Bundle of Rights	Right Holders			
			State/government	Community/User Group	Households/Individual	IPs and other forest dependent ppl
		Right)				
	Buffer zone (BZ) CF	Access & benefit (Use Right)	Tenure is unlimited but government approve Management plan and get 50-70% benefits	Allocate 30-50 percent revenue generated from protected areas to local communities for community development	Membership entails access to forest products and other benefits. Compliance with associated responsibilities required.	IPs and other groups are not explicitly recognized
		Management (Control Right)	Management is defined usually through an annual scheme or 5-year plan	CF is required to work based on the management plan of the buffer zone approved by government CF has no authority to sell timber to outsiders	There is little space for meaningful participation of local communities - the direct stakeholders- in preparation of management plans of national parks as well as buffer zones	IPs and other groups are not explicitly recognized
		Alienation (Transfer Right)	Revoke rights, can change land use	x	X	x
	Conservation Area	Access & benefit (Use Right)	Tenure is unlimited but government approve Management plan	Entry through membership.	Membership entails access to forest products and other benefits	IPs and other groups are not explicitly recognized
		Management (Control Right)	Management is defined usually through an annual scheme or 5-year plan	CF is required to work based on the management plan approved by government CF has no authority to sell timber to outsiders	There is little space for meaningful participation of local communities	IPs and other groups are not explicitly recognized
		Alienation (Transfer Right)	Revoke rights, can change land use	x	x	x
State Management	Government forest; Protected forest and National	Access & benefit (Use Right)	Tenure is unlimited. All benefits go to the state.	GMF: Only licensee would have rights to get access pursuant to forest rules; Free access for religious purpose. Protected forests: Only	Limited or non-recognition of people's rights over forest. Access to collect grasses, dead branches and certain NTFPs household consumption or	IPs and other groups are not explicitly recognized

Management System	Type of Forestry	Bundle of Rights	Right Holders			
			State/government	Community/User Group	Households/Individual	IPs and other forest dependent ppl
	Parks and Wildlife reserves			licensee would have rights to get access; National Parks/WR: Access restricted but can be opened for grasses.	commercial use, for example Yarsagumba but access dependent upon the decisions of forest authority	
		Management (Control Right)	Management is defined usually through an annual scheme or 5-year plan and protected through guards (army and armed policy).	GFM/NP/WR: No direct engagement. Protected forests: Protected Forest Counsel is made but the management right is not yet defined.	No specific role in GFM/NP/WR; Limited role in the protected forests.	IPs and other groups are not explicitly recognized
		Alienation (Transfer Right)	Full ownership	x	X	
Private Management	Private forest (registered or nonregistered	Access & benefit (Use Right)	Provide written permission to sell forest products in the market		Tenure is not fixed (dependent on owner's wish). All the benefits go to individual owner	IPs and other groups are not explicitly recognized
		Management (Control Right)	Restriction on growing certain species and also imposed VAT unlike on agricultural products grown on private lands and necessary to pay land revenue		Owner is solely responsible	IPs and other groups are not explicitly recognized
		Alienation (Transfer Right)	X	x	Full ownership	

Source, Bastakoti & Davidsen, 2014; Giri, 2012 & Acharya et al., 2008

3.1.4.3 The Issues of Carbon Rights

Among the different forest management modalities presented in Table 11, user groups in Community Forest (CF) enjoy the highest management and use rights to successfully receive an array of benefits compared with other management modalities. Users in CF are entitled to receive forest products (both timber and non-timber) from forests handed over to them. The Forest Act (1993) defines forest products as 'all the products available in the forests including timber, leaf, branches, stone, sand, soil, minerals, wild animals and water'. This definition does not include forest carbon as forest product and there is no single legal reference for clarifying carbon ownership, and thus this remains unclear. The forest carbon exists in the plants above ground, below ground and within the soil; thus ownership rights to forest carbon need clarification in community forests and also in other community-based forestry provisions, where rights to ownership of the forest and the underlying land are separated. Carbon could be treated as a 'forest product (or service), in which case existing benefit-sharing mechanisms based on currently prevailing practices would apply (at least for above-ground carbon) but the rights to belowground carbon stores found in the soil still remain with the government for now (RPP Nepal, 2010). This needs a resolution for future benefit sharing of REDD+ activities.

With respect to carbon rights, there is no standalone single legal reference for the clarification of carbon ownership and the associated sharing of benefits and thus this remains to be resolved. The Forest Act (1993), the National Parks and Wildlife Conservation Act (1971) and other related legal provisions do not include any provision regarding forest carbon rights. The concept of "carbon rights" in Nepal is relatively new and is not well understood yet. Therefore, it is open to multiple interpretations. Delineation of carbon rights is a key issue for effective REDD+ implementation and carbon trading. Moreover, this is of importance for Nepal, where communities' customary rights to use and manage forest resources are recognized by law. The existing tenure regimes have no clear provisions to answer who has the right to benefit from carbon stored in the landscape where the state owns all the forest land, but communities and groups have statutory (in some cases customary as well) tenure over the forests. It is observed that there is some apparent overlap of government's policies and acts over forest resources, for example in terms of property rights of forest land and authorities of government officials over the local peoples' usufruct rights. The Forest Act 1993 guarantees non-interference from the government forest office in operation of the community forestry user group (CFUG), and the management of the community forest as long as the CFUG complies with Forest Act and the Regulation and follows the CFUG's operational plan (MFSC, 2000). Thus, there is a need to address the forest acts and the CFUG Operational Plan to include REDD+ carbon credits and their ownerships as the usufruct rights of CFUGs.

While the government should receive some benefits from carbon trading, if it monopolizes the carbon rights there is a risk that communities do not receive adequate financial rewards and incentives for their efforts. It is usually argued that carbon rights should be linked to land and forest tenure rights to minimize complexities and there will be a less direct link between forest management responsibility and the potential benefits from carbon trading. However, given the absence of secure community land tenure, there is no legal precedence for communities to obtain carbon rights. For example, carbon rights are less clear in the context of CFM as it is not clearly legally defined like CFUG under the Forest Act (1993). Under the existing land and forest tenure regimes, substantive measures should be taken to secure carbon rights of rights holders. This means that issues of ownership and tenure rights for all types of forest management need clarification. One option could be to define forest carbon as forest products (in the form of biomass) and then design a carbon benefit sharing mechanism similar to the existing benefit sharing arrangements. In any case, carbon rights must be harmonized with existing laws governing all forms of natural resources rights.

3.1.4.4 Benefit Sharing: Principles and Approaches

Benefit sharing, often referred to as the transfer of incentives in the form of direct and indirect financial and other benefits, is one of the key ingredients of a successful REDD+ implementation. Such incentives, contribute to the enhancement of governance, securing tenure rights, improving environmental services, and raising income from REDD+ related activities. Therefore, the design of a system or mechanism that ensures

equitable benefit sharing is vital for making REDD+ successful toward its mission of lasting net emissions reductions, realization of benefits to forest communities and improved livelihoods of vulnerable and poor people. For instance, the likely additional cost from restriction of access to land and resources and improvement in policy and governance system as a part of REDD+ process and enforcement, also implies the need for higher net benefits and more equitable sharing of the benefits to make REDD+ acceptable, effective and sustainable.

Payment for environmental services is a benefit sharing model that is considered to be appropriate in applying performance-based payments under REDD+. This approach requires schemes that address the issues of equity, exclusivity, and conditionality. Equity includes fair benefit sharing with and within the poorest communities and avoidance of elite capture of the benefits. Exclusivity requires addressing issues related to national land governance regimes. Conditionality is linked to performance benefits which again needs tailoring to local realities, including the timing and frequency with which payments are made. Participatory forest management is the most promising potential model for decentralized management of forest resources. Such an approach allows inclusion of small landholders for delivering REDD+ objectives. This approach, however, is often constrained by the risk of deforestation due to increased market access and elite captured practices. Concession benefits, on the other hand, require equitable sharing among affected parties. The concession benefits are associated with concession arrangements between a private entity and the community in which a concessionaire has to establish a social agreement with the affected communities.

In Nepal benefit sharing is most common and popular in community forestry and buffer zone forestry with varied practices and results due to differences in governance and management regimes. The buffer zone development program indicates that biodiversity conservation and community development can go together with the participation of local communities. Under this scheme, about 30 to 50% of the generated revenue is used for the well-being of communities and forest users. The rest is spent on protected area conservation. In the community managed forestry, community groups determine the rate or prices of all forest products and sell their products following rules set by users. Of the total income, the user groups have to allocate 35% for poverty reduction and 25% for forest conservation. In case of timbers like sal and khair, community groups are obliged to pay 15% of the total income from timber sales (outside the group) to the government.

Based on various country experiences, including those in Nepal, all three approaches viz. performance, participatory and concession benefit, could be appropriately applied to the alternative forest regimes. The pilot projects implemented in three districts through carbon funds, indicate that the performance based funding from the center could be equally useful from the point of view of forest conservation and other uses, including more equitable benefit sharing. Depending on the situation, the concession benefit approach could also be followed more judiciously. At the practical level, a multi-stakeholders approach should be followed at central, sub-national and local community level as a benefit sharing and fund mobilization mechanism helps to enhance sustainable forest conservation and improved forest governance. Experiences also indicate the need for improved organizational structures through adequate representation of poor, women, IPs, *Dalits* and marginalized communities in decision making and benefit sharing. At the same time, a regular review of mandates and responsibilities of each stakeholder will also be required to avoid possible conflicts. Another important factor to be considered is that an effective monitoring and evaluation system becomes an integral part of any benefit sharing mechanism at any level to ensure that benefits reach the appropriate and functional stakeholders and right holders. Based on such considerations, robust benefit sharing principles must be developed and linked with alternative forest management regimes appropriate to the Nepalese context. Considering all these elements, a benefit sharing plan will have to be developed and implemented.

3.1.4.5 Forest Use Right: Issues of Gender and Social Inclusion

Gender equity in relation to forest tenure can be measured by the existence of gender-equity mechanisms, their use in practice, and gender equity impacts of forest tenure and rights on the forest carbon balance, conservation and livelihoods. While community and leasehold forests apply different approaches to gender mainstreaming, there is no mechanism for government-managed forests. In both community and leasehold forestry, women are mandated to hold at least one-third of the forest committee positions. Likewise, the

1993 Forest Act identifies women as 'primary users' of the forest, outlines their dependence on the forest and underpins their rights in forestry programs. However, the act and related policy documents neither adequately appreciate women's contribution in forestry nor identify them as primary actors and agents of change. Despite the fact that women make up a significant proportion of the overall members of the CFUGs, only a little over 5% of CFUGs are led or managed by women out of the total 18,133 community forestry user groups (CFUGs). The CFUGs comprise approximately 40 % of the households in the country (CBS, 2011; MOF/GON, 2014). In terms of forest administration, women represent only 3.25 % of the total 6,835 civil personal in the forestry and NRM sectors. Women comprise 6% of the 448 staff at the gazette level while they represent 3.6 % among the 2,679 staff in non-gazette positions. In addition, 3,709 staff have no grade, of whom 2.7% are women (ADB/DFID/WB, 2012).

In addition, an institutional weakness within the CFUG could deprive women and other marginalized section of communities of the opportunity to benefit from forests. The guidelines for community forestry state that women should comprise 50% of the CFUG committee but this often does not occur. If women are present in the CFUG committee, they are not able to influence decision making processes due to many socioeconomic constraints including patriarchic characteristics of Nepali society.

Compared to government-management forestry, the community and leasehold forestry regime indicates that secure tenure rights to communities are essential to meet the multifaceted objectives of conservation, and livelihoods. Additionally, if the tenure rights consider gender as an integral part and prescribe specific guidelines of mainstreaming, gender equity can be consolidated. For tenure to be considered an important means to achieve social justice, it needs to explicitly address unequal gender and power relations. In doing so, it has to expand the current focus of ensuring women's leadership, access to and benefits from forest resources through legislative frameworks. For law and policy to influence gender relations in forest tenure, a more nuanced framework is required to deconstruct, reconstruct, and re-conceptualize authority in both the rules and the laws that govern use and benefits, as well as the institutions that make and enforce such rules and laws (Giri, 2012).

The issues of social inclusion are very pertinent in the forestry sector because nearly 80 % of Nepali' rural households derive some or their entire livelihood from the forestry sector. For some, their livelihoods are totally dependent on access to forest resources; for others, forests provide important household products, inputs to agriculture, income and environmental services. The community forestry and participatory protected area management system are globally recognized as best practice models for insuring social inclusion. The CF Guidelines (2009) outlined provisions for social inclusion and established explicit mechanisms, tools and techniques to address the existing exclusion in the governance structure, programs and activities. Despite these provisions, there are multiple forms of exclusion in operation in the forestry sectors. Apart from economic factors, social factors such as gender, caste, ethnicity and location, greatly influence who accesses forest resources, who is involved in decision-making processes and who receives the benefits. The distance of the forests from the settlements (particularly the southern belt of Tarai), the forms of property regimes (state, community, common property, private, open access etc.) and enforcement of the rule all dictate the degree to which households gain or are prevented from access to forest resources.

The loss of access to forests through either degradation or changed management regimes often will have the greatest impact on the communities who depend on the forest resources. Thus the REDD+ strategy has been formulated with due respect to the existing Gender and Social Inclusion Strategy (2009) of MoFSC and other best practice model of social inclusion. The GESI Strategy of MoFSC focuses mainly on four areas: a) GESI sensitive policy and guidelines, b) Good governance and GESI sensitive organizational development, c) GESI sensitive budget, program and monitoring, and d) Equitable access in resources, decisions and benefits.

All the actors in the forestry sector, such as various government departments and offices and project implementers, including CFUGs and other community institutions shall be made responsible to ensure that REDD+ benefits and decision-making opportunities for women and other marginalized people are in line with the GESI strategy. It is further confirmed by judicious implementation of the GESI provisions ensuring access of poor, women, IPs and *Dalits* to forest resources, carbon funds, and decision-making roles in order to

minimize or break the historically rooted unequal relations. Throughout all these efforts, active participation of poor, women, IPs and *Dalits* will be considered a crucial factor for success in REDD+ initiatives to ensure sustainable natural resource management for improved livelihood and environment.

3.1.4.6 Statutory Conflict and Contradiction on Forest Tenure Right

In Nepal several laws and regulations have conflicting provisions and overlapping authorities over the use of forest and control the forest area. Laws governing land, forest and mining all contain substantial areas of overlap that cast serious uncertainty on entitlements to receive benefits, including REDD+ benefits. There are overlaps of activities/rights in the Forest Act (1993) and the Local Self Governance Act (1998), which sometimes invite conflict in forest resource management and use. The LSGA has specified the rights of use of forest resources and their duties to protect the environment and forest to the local bodies e.g. VDCs, Municipalities and DDCs in their respective areas, which are inconsistent and conflicting with the community forest provisions of the Forest Act 1993.The most prominent being the use of stones, sand and gravel within and outside the forest areas. The local bodies, as per LSGA (1998), want to use the stones, sand and gravel for development purposes whereas the Forest Act prohibits extraction of stone, sand and land under the forests which have to be used or conserved. The perceived dual ownership of these products by the DDC and DFO has created ownership, management, utilization and monitoring problems in forest areas which have plenty of stones, gravel and sand.

Similarly, the Nepal Mines Act (1966), the Mines and Minerals Act (1985), which give the authority of extracting and licensing of minerals underneath the land including forest to the Department of Mines and Geology. The operation of mining and extraction of minerals in any forest lands is strictly prohibited in the Forest Act. The Public Roads Act (1974) gives the Department of Roads (DoR) the authority to build roads in the forests. The act also gives the department the authority to excavate and utilize the soil, stones or sand lying nearby roads for construction and maintenance of roads. Likewise the Water Resources Act (1992) empowers the state to use water without affecting the environment. However, the forest act defines forest products as anything including water that lies within the jurisdiction of forest area. These rights and authorities all conflict with the provisions of the Forest Act. This conflict in jurisdiction and authority between these state departments, and the Ministry of Forests and Soil Conservation has affected the conservation of forest.

These contradictions, conflicts and overlapping claims indicate the need for coherence between the forest acts and other legislation affecting forests. Conflicting claims on ownership, use and protection of forest have directly or indirectly accelerated the depletion of forests in Nepal. For instance, there is massive program of village road construction throughout the country, where all forests that are alienated for road surveying are subject to clear felling. Also a number of hydropower projects licensed under Water Resource and Electricity Acts are being constructed on forest lands clearing significant forest areas.

3.2 Assessment of Land Use Change Drivers

Many human activities and processes exert pressure on the forest leading to deforestation and/or forest degradation (DD). 'Deforestation' and 'forest degradation' are two distinctly different phenomena. Deforestation refers to the conversion of forest land to another land use or the long-term reduction of tree canopy cover below the 10% threshold through a continued human-induced or natural perturbation, whereas forest degradation is the change within the forest which negatively affects the structure or function of the stand or site, thereby lowering the capacity to supply products and/or services (FAO, 2001). The drivers of DD are diverse, complex and interconnected, so all studies carried out during REDD+ preparation have been synthesized and analyzed (WWF/TAL, 2003; ANSAB, 2010; PSPL/FECOFUN, 2010; MFSC, 2010; WWF Nepal/ Hariyo Ban Program, 2012; Baral, *et al*., 2012; WWF Nepal/ Hariyo Ban Program, 2013; UN-REDD/REDD Cell, 2014; REDD Cell/MFSC, 2014c). The R-PP has identified nine major drivers of deforestation and forest degradation, while other studies have identified their own set of drivers (see Annex 3). Some of these drivers are common across the physiographic regions, however some also vary considerably due to the diverse socio-economic condition of people and bio-physical conditions and ecological characteristics of the different

physiographic regions. Through a synthesis and analysis of all the drivers identified by these studies; and verification and prioritization through stakeholder consultations in a number districts, regional and local level workshops a total of 9 direct drivers[20] and 10 underlying causes[21] are identified.

Identified nine drivers are: (i) Unsustainable harvesting and illegal harvesting; (ii) Forest fire; (iii) Infrastructure development (includes manmade disasters); (iv) Over grazing/uncontrolled grazing; (v) Weak Forest Management practices (unmanaged/under-managed); (vi) Urbanization and resettlement; (vii) Encroachment; (viii) Mining /excavation (sand, boulders, stones); and (ix) Expansion of invasive species. The drivers, their corresponding underlying causes, priority, magnitude of impact in different physiographic regions are presented in Annex 5.

3.2.1 Direct drivers of DD

1. Unsustainable harvesting and illegal harvesing

Increased demands for timber, fuel, fodder and other forest products have triggered the excessive extraction of forest products from many forest areas. The Tarai and Chure are the main sources of timber for construction in the urban centers across the country. However, very few forests in these areas are brought under proper management plans and, therefore, are subject to unregulated and illegal harvesting. Similarly, a substantial amount of forest products, including timber, firewood, shingles for roofing, leaf fodder, bedding materials, nigalo (Drepanostachyam sp.), Malingo (Thamnocalmus sp.), MAPs and other NTFPs are harvested in the High Mountain areas for domestic and commercial purposes. Excessive use of timber for construction, illegal cross-border smuggling of forest products to the Tibet Autonomous Region and repeated lopping of fodder trees are the main contributing factors for degradation of forests in the High Mountain areas (WWF Nepal/ Hariyo Ban Program, 2013). The Middle Mountains are less affected by unsustainable harvesting due to the successful expansion of community forestry. However, operational plans of many community forests have either not been renewed or have failed to consider sustainable harvesting plans.

The applied harvesting methods also cause substantial damage to the forests particularly in the High Mountain areas. Specific species and living trees are selected for fuelwood, despite available dead and fallen trees. Selective cutting of specific and optimal sized trees are selected for timber. Extraction of pine splits is common in remote and inaccessible areas for lighting purposes. A large number of growing young trees are cut to make few usable roof singles leaving behind rest of the harvested wood to rot (Baral, 2005). Other unsustainable and wasteful harvesting includes lopping of fodder trees, collection of forest products without considering the natural flowering and seed producing cycles and regeneration cycles.

2. Forest fire

Forest fire is an important driver of forest degradation across all the physiographic regions. Every year in the dry season, from April to June, forest fires are a regular phenomenon in the country. However, there is no conclusive data nor is the extent of damage known. For the last few years, ICIMOD has established a system of forest fire detection and monitoring on the Moderate Resolution Imaging Spectroradiometer (MODIS) sensors on board NASA's Terra and Aqua satellites for Nepal. The system provides basic information on forest fire events with number of fire incidences, their sizes and types along with satellite images. However, the extent of loss and area damaged are not assessed or reported by the system nor are they reported by the forest agencies. The system recorded around 1,500 fire incidents in April and May of 2008, which continuously increased and reached around 6,000 in April and May of 2012 (Figure 3). This demonstrates the extent and increasing trend of forest fire incidences during the dry months of April and May in the country.

[20] Direct drivers are human activities originated from human choice of land use and livelihood options, which directly impacts upon forest cover (Ojima et al, 1994; Turner et al, 1994; WWF Nepal/ Hariyo Ban Program, 2012).

[21] Underlying causes are structural in nature, which are complex of social, political, economic, technological and cultural variables (Geist and Lambin, 2002; WWF Nepal/ Hariyo Ban Program, 2012).

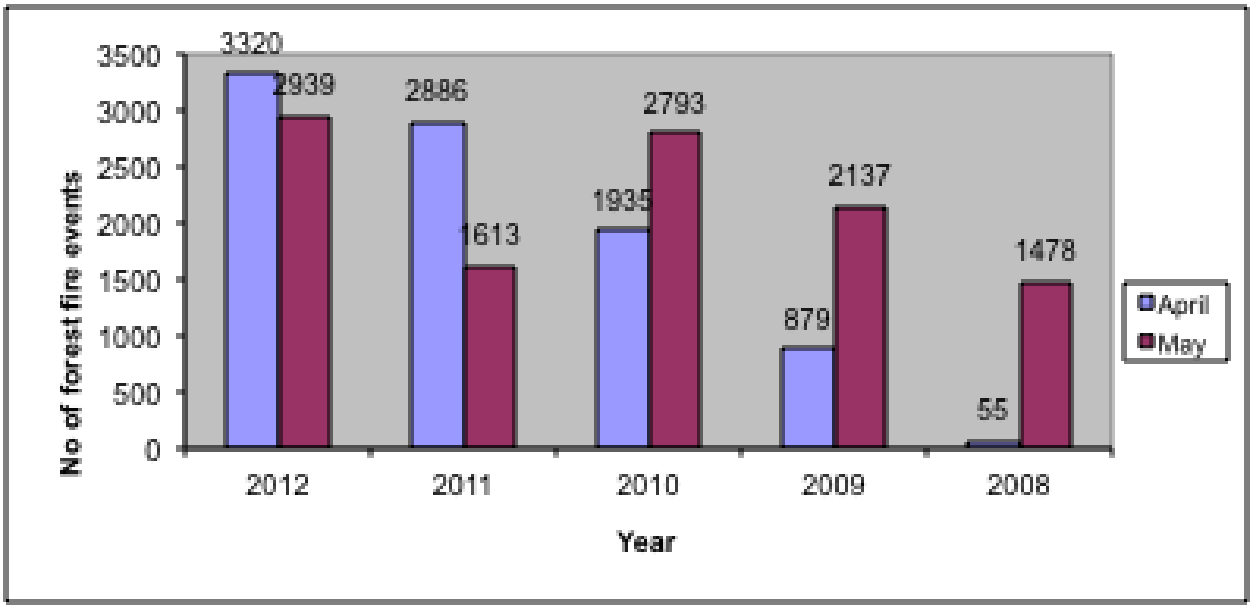

Figure 3. Forest fire incidents in Nepal in two-peak fire season of April and May (2008-2012)
(Source: Baral et al., 2012)

Forest fires damage the regeneration and obstruct the growth of seedlings and saplings, destroy undergrowth and even encourage invasive species in some cases (WWF Nepal/ Hariyo Ban Program, 2013). As forest fire damages natural vegetation and biodiversity, it further causes the forest floor to become vulnerable for soil erosion, floods and gully formation which thus causes forest degradation. The quantitative information regarding forest degradation due to forest fire is, however, not available.

Among the physiographic regions the Tarai, inner Tarai and Chure are more fire prone due to excessive heat and highly flammable dry materials available in the forests during the dry season. In the Middle Hills, successful implementation of community-based forestry has made people to engage in fire control, thus reducing the damage. The forests in the High Mountain areas are also sensitive and vulnerable to fire due the presence of conifer trees with stems cut for torches, thick layer of lichens and mosses covering all parts of trees (Baral *et al.*, 2012). Furthermore, the topography, climatic condition, remoteness, and sparse population hamper the control of forest fire in the High Mountain region. The main causes of forest fires have an anthropogenic nature and are due to negligence and occasionally due to intentional burning to induce succulent grass growth (REDD Cell/MFSC, 2014c). Unintentional fires are mostly caused by runaway fires from adjoining settlements, farmlands and pasture lands.

3. Infrastructure development (includes manmade disasters)

Infrastructure development is one of the most important drivers of deforestation and forest degradation. Construction of road networks, transmission lines, drinking water projects and irrigation canals, schools, colleges, hospitals, army barracks, police camps, temples and recreational facilities is a common practice particularly in the Tarai and the low land of Chure. Construction of road networks, hydropower projects, transmission lines, trekking trails, and monasteries is more common in the High Mountain and Middle Mountain forests.

Infrastructure development does not only use forested land for the construction sites but also increases the forest product demand, exerting tremendous pressure on the nearby forests. The ecological footprint of infrastructure development is immensely high. The hydropower projects, road networks and irrigation canals are major activities that promote deforestation and forest degradation. Hydropower constructions are built on forested lands. Furthermore these projects also establish transmission lines, access roads, increasing access to natural resources, and market development. Currently, only 733 MW of electricity is generated from

hydropower but a number of hydropower projects with a total capacity of 1,044 MW are under construction and another capacity of 808 MW is planned to be developed (NEA, 2014). Similarly, thousands of kilometers of transmission lines will be constructed to distribute the electricity generated from these projects, much of which will likely go through forest areas. Furthermore, a number of irrigation projects are being implemented, which will also have a significant effect on the forests.

Another important construction development that causes deforestation and forest degradation is the road network. Until 2012, Nepal had 11,635 km of road networks[22]. The 20-year road policy of GoN aims to connect all district headquarters, construct a Mid Hill East West Highway and upgrade the postal roads in Tarai to a highway. The impact of these roads will have significant effect on the forests of all physiographic regions. For the last several years, unplanned and haphazard constructions of rural roads have been a common practice in most districts particularly in the Middle Mountains. Such roads are the priority activities of District Development Committees and Village Development Committees and they prefer to construct the road through public forests than private land. The practice of planning, construction and post construction maintenance of such roads are haphazard and destructive, causing severe gully formations, landslides, soil erosion and thus forest degradation (Baral *et al.*, 2012).

4. Overgrazing/uncontrolled grazing

Overgrazing and uncontrolled grazing are widespread practices in the forests of Tarai, Siwalik, and High mountain areas. However, the grazing pressure in the Mid-hill forests has been drastically reduced due the grazing ban imposed by the Community Forest User Groups. Grazing in Chure is mostly practiced by sedentary small farmers and in High Mountain by nomadic herders (WWF Nepal/ Hariyo Ban Program, 2013). Among the management regimes, the government-managed forests are affected most, as there is no grazing control. Community forests, leasehold forests and the forests in the protected area system are least affected, as there are strict grazing restrictions.

A large number of livestock population of the country get their feed from the forage and fodder from the nearby forests. In the year 2011/12 the total population of cattle, buffaloes, sheep and goats were estimated at 7.2, 5.1, 0.8, and 9.5 million respectively (MoAD, 2012). The percentage of these animals that graze in the forest is not available. Nevertheless, they derive a considerable amount of feed from the forests, in many cases beyond the carrying capacity of the forests. Excessive grazing does not only affect the regeneration and growth of plants but also degrades the forest land through trampling and promoting soil to erode and thus causes forest degradation. Increases in livestock and expansion of herds in the High Mountain areas affect the forests in three ways: firstly, by cutting more trees for constructing sheds and fences and for firewood; secondly, over grazing and over lopping reduces the reproductive capacity of vegetation and increases soil erosion and; thirdly, clearing more forests area for pasture to meet the growing demands of forage (Baral *et al.*, 2012).

5. Weak Forest Management practices (unmanaged/under-managed)

Efforts have been made in the last six decades to intensively manage the forests of Nepal, particularly the productive forests in the Tarai and inner Tarai by preparing forest management plans. However, none of these management plans were fully implemented. Most of the forests are either un-managed or under-managed leading to the loss of growing stock and decline in forest productivity. Thus, weak forest management has been one of the reasons for deforestation and degradation. For the last two decades, emphasis has been given to the intensive and sustainable management in the community forests and collaborative forests. However, weak implementation of management plans and conservative management and silvicultural prescriptions has made these forests also far less able to realize their full potential.

[22] Road network data from Department of Roads from http://www.dor.gov.np/

In the Tarai forests, a number of practical studies were carried out on stocking, yield and growth, for the implementation of Operational Forest Management Plans (OFMPs) in the 1990s. These studies showed that the Tarai forests could yield as much as 12 to 15 cubic meter of wood per hectare per year if these forests are managed more intensively (Joshi *et al.*, 1995). However, the forests of Tarai are currently hardly reaching this potential productivity. There will be a continuous gradual depletion and degradation of forest if the scenario of passive forest management is continued (Kanel, 1994). This gradual depletion is supported by Kandel *et al.* (2010) who carried out a modelling study in the forests of the Bara District and reported that the forest area will shrink with 8.5 % during 2005-2021 with an annual rate of deforestation of 0.53 %, if the government policy remains the same.

6. Urbanization and resettlement

The urban population in Nepal has increased almost thirteen times from 336 thousand (3.57%) in 1961 to 4,523 thousand (17%) in 2011 (CBS, 2012; Basyal and Khanal, 2001). A number of towns were developed and expanded in forestland under town development and resettlement programs. The urbanization process is continued as market centers and economic frontiers are being developed across the country particularly in tourist destinations and along roads and highways.

The GoN sponsored a massive resettlement programs in the 1960s in the Tarai and inner Tarai, which is still continued in different forms (UN-REDD/REDD Cell, 2014) but at a smaller scale. The Government has formed a number of commissions to distribute land to landless people over the past 40 years and distributed over 140 thousand hectares of forestland (ibid). More recently, in 2009, the government freed bonded-laborers and settled them in forested lands. A total of 6,472 ha of land has been allocated to 11,768 bonded laborers households in Dang, Banke, Bardia, Kailali, and the Kanchanpur district (PSPL/FECOFUN, 2010). Similarly, forest land has remained the focus for refugees, disaster victims and landless rehabilitation. Such rehabilitations are putting further pressure on the forests of Nepal as people are resettled in the vicinity of the forests and they gradually encroach and expand the land by clearing the forest.

7. Encroachment

Encroachment of forestland for agriculture, settlement, and for market development is an important driver of deforestation and forest degradation particularly in the Tarai, inner Tarai and the Chure. Encroachment along roadsides for market development and around the boundary of farmyards is also common practice in the Mid Hills and the High Mountain areas. Data of total encroached forestland is not available, but a study report of the Committee on Natural Resource and Means under parliament in 2010, reported that 83,452 ha of forestland was encroached in 24 districts, including all districts of the Tarai, inner Tarai and the Chure. Encroachment of the Tarai forests has been in practice since 1960s when malaria was eradicated. Since then, it has been a tough task for the department of forest to stop the encroachment. This is because the inflow of people from the hills and the mountains to the Tarai, in search of fertile land and comfortable life, remains continually high. Until now the pressure of encroachment is still strong and almost all encroachments are falsely linked with landless squatters. The challenges remain due to strong and illicit support of political parties to land seekers, the lack of alternative livelihoods, weak capacity of forest authorities and high cost of law enforcement (UN-REDD/REDD Cell, 2014).

8. Mining /excavation (sand, boulders, stones).

Stone quarrying for construction materials is a widespread practice in the Middle hills and High Mountains. Stone, boulder, pebble and sand collection from rivers is a widespread practice in all the physiographic regions. In recent years, this has happened haphazardly, improper and unregulated in the Chure as well as in the Inner Tarai, which seriously threatens the local environment. Such haphazard and improper excavations are especially causing local degradation of land and forests through increased soil erosion and sedimentation. To control such an indiscriminate collection and to conserve the vulnerable landscape of the Chure, the GoN

has recently declared 12.78 % of the Chure area, overlapping 36 districts, as Environmental Conservation Area.

9. Expansion of invasive species

Expansion of invasive alien species[23] (IAS) is seen as one of the drivers posing threat to forest degradation in different parts of the country. A species is defined as alien if it is non-native, non-indigenous, exotic, and foreign and/or introduced to an ecosystem other than its natural home, which is capable of altering the habitats with likelihood to cause economic and/or environmental loss (Tiwari *et al.*, 2005). Invasive Alien Species are more common in tropical and subtropical regions and are "the 'passengers' of deforestation and forest degradation at their early stage of colonization, which later change into 'drivers' by disrupting regeneration process". Among the number of IAS, *Mikenia micrantha* has begun covering grassland, wetlands, riverbank and other prime Rhino habitat in Chitwan National Park adversely affecting growth of native plant species.

3.2.2 Underlying causes of DD

1. Disproportion population distribution and migration pattern

The population census carried out in 2011 report the population of Nepal at 26.6 million. Although the average growth has decreased from 2.25% in 2001 to 1.40% in 2011, there is substantial change in migration and distribution pattern among the physiographic regions. About 50% of the population lives in the Tarai region, 43% in the Mountain/Mid-hills areas, and 7% in the High Mountain areas. Over the 45 years, since 1971 the High Mountains and the Mountains/Mid-hill region have experienced continuous negative net migration, whereas the Tarai has a positive net migration (Table 12). Similarly, the migration from the rural areas to urban areas is very high. Presently, about 17% (4,523 thousand) of the population live in urban areas, which was still 13.9% in 2011 and 3.57% in 1961 (CBS, 2012; Basyal and Khanal, 2001). Such movement of people is affecting and will affect the consumption and production of forest and agricultural commodities and subsequently on the extent and condition of forests.

Table 12. Net migration of population in three physiographic regions

Place of enumeration	Net Migration			
	1971	1981	1991	2001
High Mountain	-39,959	-261,467	-161,655	-225,103
Mountain/Mid-hills	-359,966	-424,711	-753,923	-830,759
Tarai	+399,925	+686,178	+915,578	+1,085,862

CBS, (2002); Kanel et al., (2014)

The demographic changes, in particular population growth and migration, have close links with changes in land use, social developments and environmental quality (Ives and Messerli, 1989) increasing or decreasing deforestation and forest degradation. The livelihoods of the majority of the population in the Tarai is based on agriculture farming while in the High Mountains, communities rely on silvo-pastoral transhumance. Hilly and mountain communities use tree fodder mostly in winter and dry seasons while the Tarai people use grasses from private and public lands. All such land use patterns and lifestyles together with a heterogeneous spatial distribution of the population across the country have varying effects on the area and condition of the

[23] Tiwari et al, 2005 identified twenty-one invasive plant species as problematic. Out of these, six species - Ageratina adenophora, Chromolaena odorata, Eichhornia crassipes, Ipomoea carnea ssp. fistulosa, Lantana camara and Mikania micrantha are highly invasive posing high level of threats. Three species - Alternanthera philoxeroides, Myriophyllum aquaticum and Parthenium hysterophorus- are of medium threats; Seven species-Ageratum conyzoides, Amaranthus spinosus, Argemone mexicana, Cassia tora, Hyptis suaveolens, Leersia hexandra and Pistia stratiotes - are of low threats; and five species -Bidens pilosa, Cassia occidentalis, Mimosa pudica, Xanthium strumarium and Oxalis latifolia- are of non-significant threats.

forests. There has been a remarkable growth in per capita consumption from NRs 6,802 in 1995/96 to NRs 34,829 in 2010/11 across all population groups over the last 15 years (Kanel *et al.*, 2014). Though the per capita consumption of firewood is reduced, the demand for timber increased by many folds in urban and semi-urban areas. Such an increase in demand causes increased pressure on and overharvesting of forest resources in the Tarai and Inner Tarai regions and nearby accessible forests of semi-urban areas and newly emerged economic frontiers (ibid).

The movement of people outside the country, particularly youths travelling overseas for work has substantially increased over the last decade. The effect of such out migration on the forests of Nepal is less well understood. On the one hand, out-migration might have positive impacts on the conservation of forests, but in other hand the higher earnings could also further increase the consumption of resources.

2. Policy gaps and poor implementation, as well as policy contradictions among different sectors or jurisdiction

Forest resources having multiple functions and actors/stakeholders in an agrarian economy are naturally complex and governed by numerous contextual factors (external and internal), externalities and uncertainties. The conservation and management of such resources demands a well-crafted, context specific and flexible policy instrument that is least conflicting with other sectoral policies and is supported by an enabling working environment. Moreover, effective implementation of these policy instruments and the corresponding working environment depends largely on the status and extent of governance qualities.

There are a number of policy gaps (see section 3.3) and policy implementation has remained poor in many instances. The poor implementation of policies, plans and programs and weak enforcement of legal instruments have adversely affected forests in all regions. The government has made a commitment to maintain at least 40% of the land under forest cover, however it has not allocated necessary financial and human resources to fulfil this commitment. The forestry sector is less prominent among the other sectors as it only accounts for less than a 4% share of the total national annual development budget. Moreover about 90% of this budget is spent on operational cost, thus leaving less than 10% for forest development and management (Kanel *et al.*, 2009). The existing blanket policy does not fit the varied biophysical features and nature of forest resources across the physiographic regions very well. As a result the highly commercial forests of the Tarai are under managed, the integrity of Chure ecosystem is threatened and the value of the High Mountain forests is degrading at an alarming rate.

Policy contradictions among different sectors and issues of jurisdiction are also indirectly contributing to deforestation and forest degradation. A number of legalizations and regulations such as the Local Governances Act (1998) and its regulations, the Nepal Mines Act (1966), the Mines and Mineral Acts (1985), the Public Road Acts, the Water Resource Act (1992) have conflicting jurisdiction and authority over the use of forest resources and the use of forest area. These kinds of conflicts are often discussed but never resolved.

3. Poverty and limited livelihood opportunities

Poverty and limited livelihood opportunities are other underlying causes of deforestation and forest degradation. Agriculture is the mainstay of the economy, employing over 65% of the total population, of which a large percentage of people are small landholders (owning <0.5 ha of agricultural land). A total of 1.15 million people (about 4%) are landless (CBS, 2012), and among landholders also 53% are small farmers who hold only 18% of the agricultural land (NLSS, 2010/11). About 25% of the total population are reported to be living below poverty the threshold (less than $1.25/day) and the poverty gap between urban and rural population is -28%, varying across the ecological and development regions (CBS, 2013).

Rural livelihoods are mostly based on a subsistence farming system[24], relying on livestock and the nearby forests. Forest is considered a major component of Nepal's agricultural system and an ultimate means of livelihoods for the rural poor and landless people. The livelihood needs of small farmers are supplemented with forest resources, as the agricultural productivity is low. In the Mountain districts of Nepal people, mostly from the mid and the far western regions, often face acute food shortage and are suffering from hunger and malnutrition. Poverty is rife and the severity of hunger is alarming with about 28% of household in rural areas and 12% in urban areas are considered to be food poor[25] (FAO, 2011). Poverty is one of the main underlying causes of forest encroachment in the Chure, Tarai and inner-Tarai.

Economic growth is around 3 - 4% over the last three years. Remittance is significantly contributing to reduce poverty levels from 42% in 1996 to 30.8% in 2003 and 25.4% in 2009 (CBS, 2009). However, the landless poor, the indigenous tribes, particularly *Chepangs, Raute, Rajis* with low social and human capital as well as small farmers are least benefitted from remittance. These people have limited land assets and opportunities of off-farm employment and are thus heavily dependent on forest resources for their subsistence. Collection and trade of non-timber forest products contribute a sizable amount of total annual household income and is therefore contributing significantly to food security and livelihood support. Income through the trade of NTFPs varies across the development regions and districts, on average, accounting for 10% of income in Jumla, to 50% in Koshi hills (Larsen, 2000 cited in Acharya, 2004). People who seek out a better within Nepal life often migrate to the low land Tarai and inner Tarai and engage in encroachment and cultivation of forested land.

4. High dependency in forest products and gap in demand-supply

People across the physiographic regions heavily rely on forest products for a number of their direct and indirect needs. However, the existing supply system is not supplying enough products to meet these needs. About 86% of Nepal's population uses fuelwood as a source of household energy with total amount of 10.5 million tons in 2011, which would increase to 11.7 million tons in 2020 and to 13 million tons by 2030 (Kanel *et al.*, 2012). Similarly, the total demand of timber is estimated to be 3.37 million cubic meter in 2011, 3.75 million cubic meter in 2020 and 4.80 million cubic meter in 2030 (Figure 4). Kanel *et al.* (2012) using simulation model estimated a demand supply gap of fuelwood and timber in the country. The overall supply gap of fuelwood will remain until 2020, but the gap will continue in High Mountain and Tarai up till 2030. Similarly, the overall timber supply gap will remain till 2015 but the gap will continue in the High Mountain and the Tarai till 2030. (Figure 4). These gaps will continually lead to deforestation and forest degradation if not addressed through gap reduction measures.

[24] A subsistence farming system comprises a farm household, a crop field and a small number of livestock supported by grazing land and forest and they obtain fodder, forage, bedding materials, fuel-wood and timber from nearby forests.

[25] Food poor is insufficiency of the value of food consumption to meet the requirement of a basic diet.

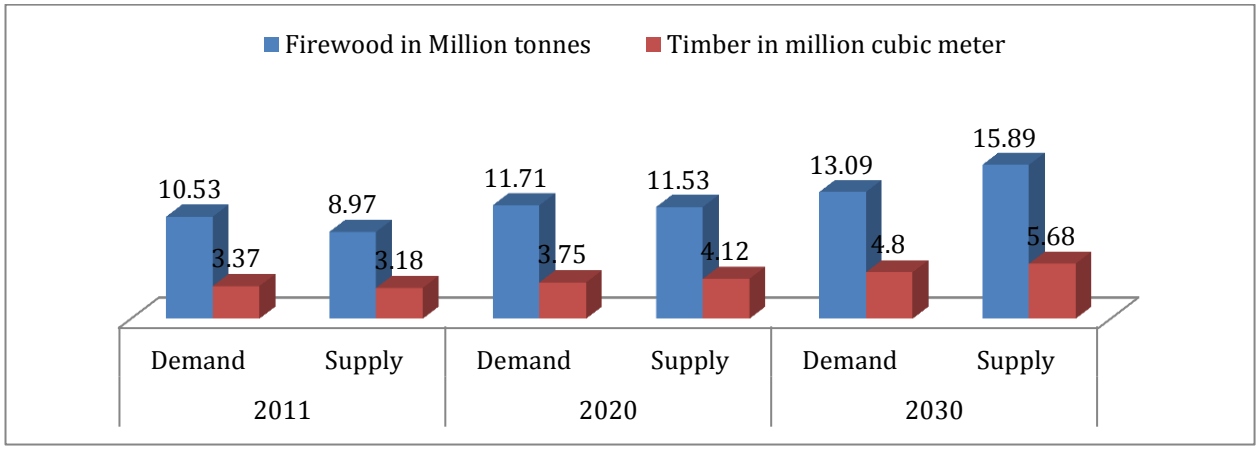

Figure 4. Demand and supply of wood from 2011 to 2030 (Source: Kanel *et al.*, 2012)

Forests do not only supply fuelwood and timber but also fodder, bamboo/nigalo, leaf-litter, thatching grass etc. The demand and supply figures of these products do not exist at national level. However, ANSAB (2010) estimated average annual consumption of 1.67 MT of leaf litter /HH in the three watersheds and Baral *et al.* (2012) estimated the consumption of 9 t of leaf litter/year and about 80-125 kg of green nigalo/year for dryland farmers in the High mountain region. Similarly, about 36% of Total Digestible Nutrients (TDN) requirement is met from forest land that includes forest, shrub and open grazing (MPFS, 1988). All such dependency on forest products and demand-supply gap is a major underlying cause for the deforestation and forest degradation.

5. Land use policy and forest tenure security

Land use policy and forest tenure security are two fundamental tools of conserving and managing forest resources in a more efficient, productive and sustainable manner. Land use policy provides a broad framework for land use objectives and systems in terms of land capabilities, socio-cultural norms and values, biophysical features and sensitivity to environmental hazard, while tenure security guarantees certain rights as per the given tenure system. Thus, in absence of adequate land use policy and well defined resource tenure and tenure security, forests, as a common pool resource, is bound to become an open access and degradation is inevitable.

The Ministry of Land Reform and Management has lately prepared a land use policy in 2012. However, it is too general for forestry and moreover, its enforcement mechanism has not yet been devised. Though the MPFS provided a broad framework of forest land use classification in terms of management regimes, it is practiced using a blanket approach, irrespective of the productivity, accessibility and sensitivity to environmental hazards and socio-cultural values, and norms. Such a blanket approach is resulting to degradation particularly in the Tarai, Chure and High Mountain areas.

The absence of well-defined resource tenure and tenure security[26] creates the problem of free riders in the access and use of forest resources (Schalger and Ostrom, 1992), which then becomes the major drivers of deforestation and forest degradation. Many forests, particularly in the hills and mountain regions, are still being managed under various customary practices with defined bundles of rights and right holders. Such customary practices that existed for centuries are not well recognized by the different forest resource management regimes. The forest act (1993) and National Park and Wildlife Conservation Act (1973) also do

[26] Forest tenure is 'the combination of legally or customarily defined forest ownership rights and arrangements for the management and use of forest resources' (FAO 2006). It determines who can use what resource, for how long and under what conditions (Folke and Berkes, 1995, Schalger and Ostrom,1992). Tenure security refers to the expectation of the individual user with regard to tenure rights and the norms governing the bundle of rights that constitutes tenure will be enforced by the concerned authority (Robinson et al 2011)

not recognize such traditional and customary tenure systems, resulting into conflict with local system and thus driving towards open access and degradation. The various tenure arrangements under different community-based management regimes are also perceived to be insecured due to frequent changes in the regulatory instruments.

6. Poor governance and weak political support

Weak law enforcement and regulatory mechanisms, and poor governance are major underlying factors of deforestation and forest degradation in Nepal (WWF Nepal/ Hariyo Ban Program, 2013). Governance, institutions, and sustainable forest management are three closely inter-related elements for the successful and sustainable socio-ecological and economic system. In this regard, forest governance does not only refers to government regulation and law enforcement but also involves the political, organizational, and cultural frameworks through which diverse interests of multiple stakeholders and actors are coordinated and controlled (Tucker, 2010).

Nepal is showing weak performance on each of the internationally recognized indicators of governance of (legitimacy and effectiveness, transparency, freedom and doing in business) and falling in the lowest category on these ratings (Kanel *et al.*, 2009). The governance is also an issue in community organizations such as community forestry user groups.

Another aspect that has been largely contributing to deforestation and forest degradation in the past several years has been the political interference. Many of the conservation efforts have been weakened due to the inability to provide strong political support.

7. Weak coordination and cooperation among different agencies

Coordination refers to harmonious functioning through each other's support, and cooperation includes partnering with others in terms of resources, capabilities, and competences in pursuit of mutual interests (McEntire, 1998). The forestry sector involves a host of actors (mangers, staff, users, and stakeholders) with diverse needs, interests and objectives. The performance of these actors is neither aligned to a common purpose nor is the interdependency of such actions understood or internalized in the forestry sector. The efforts of government, users, federations and civil society can often be experienced as counterproductive to each other. Hampered cooperation from district administration and political entities is occurring frequently while controlling illegal forest activities, particularly encroachment control.

Furthermore, a number of informal institutions[27]with diverse objectives and functions coexist with existing formal organizations/institutions in the forestry sector. The cooperation of these institutions in the conservation and management of forests and pastureland, particularly in High Mountain areas is not recognized, thus encouraging further depletion of forests. Such non-recognition has not only caused degradation of forests but also the loss of indigenous knowledge of forest management and loss of livelihood means of many transhumance grazers (Baral *et al.*, 2012).

[27] An informal institution is an institution, which is subject to an evolutionary development and a high binding force also without formal sanctioning unfolded and associated with a specified place, position, or function. They operate wholly or partly outside formal structures of the state. In some cases they may even actively substitute for the state by providing services (most obviously the resolution of disputes) that the state is not providing, or providing ineffectively (Acharya, 1992)

8. Inadequate human resource development and management

Human resource development[28] (HRD) and HR management[29] are important aspects of an institution in planning, implementation, monitoring of forest plan and programs and enforcement of policy and legal instruments. However, these important components are poorly developed and managed. Despite a wide-range of training and educational opportunities to forestry staff, there are widespread weaknesses in managerial and communication aspects of forestry and also the competencies in regulation, monitoring and facilitation (MPFS review 2013). Despite of having highly competent technical human resources in government forestry institutions, management is often weak and less organized within a poorly managed HR System. The MPFS's emphasis on re-orientation, re-training and education, and institutionalization thereafter has developed a number of competent human resources. But neither their potential is capitalized, nor are they motivated to remain in government service. This is mainly due to shortcomings of a comprehensive HR system such as appropriate guidelines and transparency in recruitment, terms and conditions, codes of conduct, transfer, performance appraisal, career-path, counseling, training, promotion and grievance handling (MPFS Review, 2013). Many areas in the forestry sector even lack appropriate specialists and leaders. Entrenched cultural and attitudinal issues accompanied by gender equality and social inclusion issues have also contributed to inefficiency and ineffectiveness in the forestry sector (ibid). These issues with HRD and HRM underlie weak governance and law enforcement in forestry sector resulting into deforestation and forest degradation.

9. Low priority to research and development

Research and development has remained one of the least prioritized functions in the forestry sector, characterized with a lack of research policy and priority areas, poor funding, unmotivated research staff and poor communication and research coordination (MPFS Review, 2014). Research and development on the management, development, protection and silvicultural aspects of forestry is very scarce. Also research on cultivation of climate smart trees or non-timber forest species with high economic, environmental and social values across the ecological regions, harvesting and processing technology is limited. Similarly, little is known about the impacts of different socio-economic factors including migration on the forests and on the drivers of deforestation and forest degradation across the physiographic regions. Furthermore, very little is known about forest management in the High Mountain areas, although it comprises about 33% of total forest area and about 50 % of total growing stock of the country (Baral, *et al.*, 2012). All such issues have made policy decisions and program formulations less evidence based for appropriate measures to address the drivers of deforestation and forest degradation.

10. Poor coping strategy to natural disasters and climate change

Nepal is susceptible to a number of recurring natural disasters such as floods, landslides, snow avalanches, Glacial Lake Outburst Floods (GLOF), hailstorms, thunderstorms, cold and hot waves, drought, epidemics and earthquakes. According to the Ministry of Home Affairs, 64 districts out of 75 are vulnerable to disasters of some type, out of which 49 districts are prone to floods and/or landslides and 23 are prone to wildfire. The effect of natural disaster is ever increasing. In the year 2012, natural disasters caused the deaths of 419 people, property loss of Rs 1294 million and completely damaged 4,247 houses (MoHA, 2013). The damage was much higher in the last six months of 2014 with the deaths of 443 people, property loss of NPR 16177

[28] Human resource development (HRD) is planned effort to facilitate employee's learning of job-related behavior, skills, knowledge, and attitude in order to enhance employee's performance and satisfaction and improve organizational efficiency and effectiveness.

[29] Human resource management (HRM) is a function to maximize employee performance primarily concerned with how people are managed within organizations, focusing on policies and systems.

million and complete damage of 9,383 houses.[30] The effects of natural disasters and climate change will not only impact directly on forests but also indirectly, as the disaster victims' immediate construction needs are met from the nearby forests. Historically, the nearby forest resources have been absorbing the immediate relief of disaster victims across the country, which is still often a reality. Nepal still runs short of an appropriate coping strategy to reduce the effect of disasters. Such weaknesses ultimately increase the pressure on forests causing further deforestation and degradation. The government attempted to cope with the effects of climate change, with the NAPA and LAPA framework; however they are not yet properly mainstreamed into the annual, periodic planning and management planning of sectoral agencies.

3.3 Assessment of Forest Law and Policy in the Context of REDD+

The Forest Act 1993 and Forest Regulation 1995 are driven by the aim of promoting a healthy environment, ensuring development and conservation of forests and utilization of forest products judiciously. They do not only have tough clauses to prevent encroachment and deforestation but also strong enforcement-related provisions. The policy envisaged, on the other hand, follows a more holistic and integrated approach addressing the issues associated with land use planning, conservation of biodiversity, ecosystem and genetic resources, balancing of production and utilization of forestry products, livelihood of poor and private sector development. More broadly, they are relatable to the context of the REDD+ strategy.

However, a closer review of the act, regulation and policy, in the light of various studies identifying the major drivers of deforestation and forest degradation and distinguishing direct and underlying causes, indicates that they appear to embody weaknesses, especially in the context of REDD+. In particular, the old acts and policies have been less effective to address many emerging issues and challenges. Many new acts and policies in other related areas as briefly pointed out in previous sections reveal that there are overlaps and compatibility problems from the standpoint of mutual inclusiveness and coordination in an effective way. Clarity over property rights could be enhanced if contradictions and inconsistencies, between forestry legislation and other laws (such as the Local Self-Governance Act) that have historically emerged, are removed with the ongoing policy reform.

3.3.1 Weaknesses of Forest Law and Policy in the context of REDD+

A closer review based on various studies indicates that forest law and policy have both strengths and weaknesses.

In terms of implementation the experience shows that community-based forestry model popularized in the Mid-Hills has been very successful and hence is cited as one of the best practices. The community forestry program, indeed, has reversed a tendency of fast deforestation and forest degradation in the hills. The protected forest model also seems to be relatively successful as studies indicate. Hence these are vital in the REDD+ context.

But other models introduced through the act and policy, seem to be less effective or problematic to some extent. This is corroborated by a number of studies including those that have attempted to identify the drivers of deforestation and forest degradation in Nepal (MFSC, 2010, Baral, Acharya and Rana, 2012 and MFSC, 2014).

On the other hand, both the Forest Act (1993) and the National Park and Wildlife Conservation Act (1973), including associated rules and regulations, do not deal with carbon tenure (Joshi and Sharma, 2010). Clear provisions on carbon tenure will not only clarify forest carbon financing but also alleviate potential problems to the community forestry as well; at this stage all residual rights under current law are with the state and prohibit communities to articulate their rights. More broadly, lack of clarity over carbon tenure may undermine the parallel initiatives if markets add value of carbon considerably.

[30] National Emergency Operation Center bulletin accessed from http://www.neoc.gov.np/uploads/news/file/Bulletin%202071_20141209010130.pdf

Some of the important shortcoming of the act and policy as corroborated by the findings of the consultation workshop at regional and district level from the stand point of REDD+ include:

Carbon and carbon rights: a forest product or a by-product of ecosystem services

- The Forests Act (1993) and Forest Regulation (1995) were framed under the premise that the ownership of all forests land rests with the government. The right to manage and use forest resources has been given to forest users, but the right to carbon is missing.
- Existing policies talk about forest ecosystem services but the subsequent legislations (Acts and Regulations) are silent about the services generated by forest ecosystems. It is unclear whether they are forest products or simply the ecosystem services.

Allocation of forest land for other uses and compensation for development in forest area

- Due to less clear forest land allocation policy there is arbitrariness in allocation of forests for other uses, such as for the resettlement of Ex-Kamiayas, landless poor, victims of natural disaster, and for infrastructures for public services such as schools, colleges, hospital, hydropower, roads, etc.
- The Forests Act (1993) includes strict provisions regarding the use of forests areas for development activities. However, it has no compensatory measures to discourage development projects in forested areas.

Inconsistencies amongst acts and (by-) laws governing community-based forestry

- The Conservation Areas are governed by different acts and by-laws, as are the institutional and benefit sharing modalities creating inconsistencies in governance, management and benefit sharing mechanism among Conservation areas, Buffer Zone Community Forestry and other forms of community-based forestry outside the Protected Areas System. Consistency needs to be introduced at a broader and conceptual level.
- A number of operational guidelines must be updated/amended (and continue to be updated regularly) to address emerging socio-economic and ecological issues of forest resource management in general and community-based forestry in particular. Guidelines need to develop for the operation of conservation areas and the management of public land forestry.
- The Collaborative Forest Management started in the Tarai in 2002 based on a Cabinet decision. The Directives of Collaborative Forest have also been formulated in 2011, however the provisions in forest legislation is yet to be made.

Customary use rights and management practices

- The existing legal framework of the forestry sector does not recognize the customary use rights and management practices of indigenous communities.
- One of the major gaps in existing laws relates to sustainable utilization of biological resources and equitable sharing of the benefits accrued from conservation of genetic resources. The 'access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their utilization' bill is still awaiting parliamentary approval.
- National Parks and Wildlife Conservation related Acts and Regulations have limited reference to the rights of indigenous people, particularly the customary rights of use and management practices.

Tenure arrangements and the role of the Private Sector

- Relevancy of the old classification related to national and private ownership of forests amidst diverse forests management regimes and tenure rights could benefit from enhanced clarity.
- Role of private sector including private forestry in NRM development and alternative energy technology is vital. However, the existing policies and legal framework do not sufficiently define their roles and incentive mechanism.

Conflicts with Sectoral Acts and Regulations

- There are conflicts between the Forest Act (1993) and the Regulations (1995) and the Local Self Governance Act (1996) over use of resources.

- Rights and authorities conflict with the provisions of the Forest Act, and process, procedures and mitigation measures provisioned by the Environmental Acts and regulations.
- Conflicts exist in jurisdiction and authority between the Ministry of Water Resources, and the Ministry of Forests and Soil Conservation affecting the conservation of forests.

Benefit sharing, transparency and accountability

- Tendency of manipulation of policy or excessive intervention motivated by personal and political interests.
- Manipulation in the pricing and auction system in Timber Marketing.
- There are lapses in tenure rights and benefit sharing arrangements under community-managed forestry regimes amidst higher opportunity cost of, among others, forest dependent people's livelihood.
- Discretionary power is deployed amidst quasi-judicial system and CFUG-induced conflicts.
- Accountability and transparency under different tenure arrangements is weak and consequently causing problems.

3.3.2 Policy and/or programmatic measures taken to overcome the existing shortcomings and their outcomes

Nepal regards REDD+ as a potential opportunity and a viable source of sustainable finance for investment in forest management, forest conservation, and forest restoration to boost multiple benefits including biodiversity conservation, watershed management, enhanced capacity and poverty reduction, among others. REDD+ is one of the highest priority projects (categorized as P1) of the government as evident from the budgetary documents. Furthermore, the current Three Years Plan (2013-2016) incorporates a working policy for taking necessary action to develop institutional infrastructure to capture potential benefits of REDD+ implementation.

A midterm progress review on the implementation of the R-PP showed that in some areas progresses have been satisfactory and in some others progress has been either been slow or insignificant (MFSC, 2013). In national REDD arrangement and management, assessment of land use, land use change drivers, forest law, policy and governance, and national forest monitoring systems, the progress has been satisfactory. The progresses in consultation, participation, outreach, REDD+ strategy options, social and environmental impacts, information system for multiple benefits, governance, and safeguards related activities have been slow.

Apart from major forest related policies such as the climate change policy (2011), the land use policy (2012), and the rangeland policy (2012), a new forest policy (2015) has been recently approved and a new forest development strategy has been drafted. In addition, the revised National Biodiversity Strategy Action Plan (2013) and the Forest Encroachment Control Strategy (2012) have been introduced. Furthermore, the Forest Products Sales Authority (2013) has been established. These are all important steps in the REDD+ readiness preparation process.

Some of the elements contained by the R-PP have been expedited including the development of a reference scenario, design of a monitoring system, and the design of a monitoring and evaluation framework. However, there are still some constraining factors for the timely preparation of the above activities, such as: lack of timely donor funding, administrative, procedural and other delays, problem of inter-sectoral ministerial coordination, policy clarity and responsibility dilemma's amongst concerned ministries, and the political transition affecting timely formulation or revision of rules and regulations.

3.3.3 Way forward to address the key drivers of deforestation and forest degradation through refinement in policy, law and implementation approaches

Notwithstanding the positive contribution of many new initiatives as a part of the R-PP, still many gaps in existing policy, law and implementation approaches are apparent. Less clarity or some ambiguities on the

scope of REDD+ strategy is adding more complexities. Nepal's heavy reliance on land-based resources makes it hard to justify protection of any land or forest solely for mitigating emissions. Overdependence of people on land and forests has a strong effect on sustainable land use. For instance, in most of the Tarai forest land the opportunity cost of protecting forest land is high because of the high fertility of those lands. Therefore, in order to discourage substitutability, forest and land policy has to be mutually reinforcing to cope with people's livelihood and the deforestation problem simultaneously.

A closer review indicates that reforms and improvements in three fronts following a more forward looking approach will be essential. Such an approach is relatable to the changed political environment in which state restructuring and federal system of governance forms the basis for the New Constitution. The devolution of power and authority at the lower tiers of state, coupled with inclusive and participatory democracy from the grass roots, are the key ingredients of the new system. Experience also shows that too many policies with corresponding division of responsibility among numerous agencies without fully revised or extended legal bases complicates the implementation problems. This becomes more problematic in a situation where both coordination and accountability are major challenges.

A Unified Act, covering both mitigation and adaptation related policies, while at the same time, stipulating the power, authority and responsibilities to related institutions, could be a better alternative for coherency in policies, coordination in implementation and strengthening of accountability in each responsible institution. In addition to the highest priority of improving law enforcement and overall forestry sector governance, attention should be given to the promotion of science based forest management, introducing efficient forest product utilization technologies, reclaiming and restoring encroached forestlands and controlling further encroachment and strengthening and expanding community based forest management. Focus should be given to alternative energy, agro-based private forestry and poverty and livelihood related issues.

Other related areas that require equal focus include capacity enhancement of user groups and government forestry staff, controlling and managing invasive alien plant species, design and implementation of effective forest fire control systems, controlling overgrazing and introducing participatory land use evaluation and land use planning system. As a part of such an improved rule, policy and implementation approach, it is necessary to recognize local livelihoods as a driving force for conservation of community forests. The existing rule granting tenure rights and benefit sharing in the community forestry also requires improvement with more explicit provisions for incentive and better enforcement.

3.4 Assessment of governance situation in the context of REDD+

3.4.1 Existing governance structures and mechanisms – the extent to which they are conducive to REDD+

As per the forestry legislations, the Department of Forests and Department of National Parks and Wildlife Conservation has the full authority to control and manage national and protected area forests. The Department of Forest is also responsible to regulate private forests. Local communities, mainly community forest user groups, now manage more than one third of the forest area under their own forest management plans, approved by the concerned District Forest Office (DFO) or protected area warden. Today, the majority of the hill forests are under such a community management program. In contrast, most of the Tarai and Mountain forests are under government control and management. By rule, all forests should be managed based on the approved management plans.

In Nepal considerable loss of forest has occurred in the last 30 years. Poor governance has been one of the important factors underlying deforestation. The governance problem has been more serious and challenging in the Tarai forests. Weak law enforcement and absence of robust local institutions have provided abundant grounds for timber smuggling, particularly in the Tarai. The institutional capacity of the government forestry authority is below standards due to insufficient technical forest expertise. There is also a lack of weapons for the armed forest guards to ensure effective patrolling and protection (CNRM, 2010). The migration and resettlement of people from the Middle Hills has persistently added to the governance problems. At the same time, coordination and cooperation among different government agencies, such as the Ministry of Home

Affairs and the Ministry of Land Reform, has remained a challenge (GoN, 2008). As stated before, the forest is primarily state owned and forest land is commonly targeted for the construction of roads, canals, hospitals and schools etc. There is also a continuous pressure to release forest lands for non-forestry purposes. The distribution of land has often been guided by potential political gain rather than by resolving the landless problem of most deprived people leading to continuous threat to the forest areas (Upreti *et al.*, 2011).

From the governance point of view, community-based forest management has been the most successful. Today about one-third of the forest area is under the control of local forestry groups covering about 40% of the country's population. Once critically degraded, the Nepalese hills have now turned into green landscapes, resulting in increased supply of forest products and a substantial increase in ecosystem services. The deforestation rate is found to be lower in community-managed forests (Kandel and Neupane 2007). Tenure security over land and forest resources is the key inducing factor. Today, under various decentralized and community based management schemes, parts of national forests are handed over to local communities based on approved operational plans. Use and management rights are transferred to the identified groups which are subject to periodic inspection from the state forest authority. This community forestry system is part of a wider agro-ecological landscape that provides multiple livelihood benefits to local communities. Despite such successes, there are some emerging governance problems within the community managed forests as well, due to elite dominance and private agreements between local political leaders, forest officials and timber traders (Iversen *et al.*, 2006 and CNRM, 2010).

From the point of view of addressing deforestations and forest degradations problems, governance is a major challenge. Both mismatches between causes and measures, and poor implementation play a significant role. In many instances, law enforcement has been hardly successful to address underlying causes of deforestations and forest degradation more effectively. The governance measures have often been limited to the forestry sector despite challenges emanating from other related sectors. For instance, encroachment, road construction and fuel wood collection - having close link with agriculture, infrastructure and energy sectors - is poorly coordinated from an overall governance perspective. Poor transparency and accountability at political, bureaucratic and community levels have aggravated these problems. The experience so far indicates that a drastic reform in the governance of government managed, forest especially in the Tarai and the Mountains will be required in which alternative tenure arrangements have to be explored. In the community forestry also, improved alternatives to address emerging governance problems will be needed.

3.4.2 Measures taken in the past to overcome the identified shortcomings and their outcome

Many recent initiatives indicate that with the beginning of REDD+ readiness processes, Nepal is developing or revising many required policies, acts and institutional frameworks which are aimed at improving the governance system. Design of institutional structures and mechanisms have been driven by the aim of ensuring law enforcement, strengthening coordination among concerned agencies, monitoring of activities and implementing anti-corruption measures through the Commission for Investigation of Abuse of Authority (CIAA) and National Vigilance Centre (NVC). There are also new initiatives to expedite court cases for early decisions. More importantly, governance is one of the cornerstones in the new forest policy (2015) and newly drafted forestry sector strategy: a new national forestry sector strategy has been drafted in which governance forms one of the cornerstones.

In parallel, the government has formed a high level committee the 'President Chure-Tarai Madhesh Conservation Development Board' to address the deforestation and forest degradation problems in the Chure area. In order to facilitate the implementation of forest management activities, sustainable forest management indicators for government managed forests have been endorsed. Similarly, the principle of sustainable management of forest has been adopted and its piloting has been started in some areas. In addition to preparing community forestry guidelines, initiatives have also been taken to develop SFM indicators for community forests.

3.4.3 Way forward to address the deforestation and forest degradation through improvement in governance situation

Notwithstanding many new initiatives, there are still critical gaps in the governance system in the context of REDD+. It requires a result-focused governance system to ensure full compliance with the rules, regulations and policy measures. Strengthening of weak state institutions will be a key issue in the reform process.

It should be recognized that governance related issues are much larger than economic, incentive-driven deforestation and forest degradation. This means that the national REDD+ strategy must incentivize reforms in policy, governance and forest tenure arrangements in an integrated manner. In such a governance framework, both intra-sectoral and inter-sectoral integrated approaches will be essential. This requires effective internal as well as inter-ministerial coordination-driven compliance mechanism for ensuring the implementation of policies and acts. The reforms in intra-sectoral governance system require that enhancement of forest conservation and ecosystem services become an integral part of forest utilization and management. Also from a larger sustainable development perspective, such a governance approach will be essential.

The national REDD+ coverage requires a much more coordinated inter-sectoral governance system in view of two way causation among multiple institutions. For instance, provisions in REDD+ impacts other sectors like agriculture, energy and infrastructure as well as the other way around. Isolated policies in these sectors could have adverse effects on emissions reductions as the drivers of deforestation and forest degradation. As studies indicate, Nepal's deforestation dynamics are diverse, complex, and location specific. Illegal logging, timber smuggling and encroachment are the most common factors in the Tarai. Fuel wood collection and road construction have considerably affected the Hills and logging and fuel wood collection are the key factors in the Mountain region. Similarly, problems with government-managed forests are different from those in community forests and other community-based forests. The current open access situation has additionally induced deforestation and forest degradation in some parts of Tarai. Weak governance in community forestry has resulted in over-harvesting in many instances. These drivers stem from sectors like agriculture, energy and infrastructure closely associated with not only economic and technological factors but also political and governance related factors. Regarding the need of enhancement of governance in a more coordinated way for the successful implementation of REDD+ in Nepal, this may require a unified law covering natural resources-related areas more broadly and holistically.

More precisely, robustness of laws and their enforcement, including accountability and transparency at various institutional levels, is the key for enhancing the governance system. To help streamline the governance system, the formation of result-oriented review and monitoring systems at both national and local level, as well as independent oversight bodies from the center to the district level are required. In terms of transparency; there is a need for a system in which reliable and up-to-date information on forest resources, harvesting operations, deforestation and forest degradation, trade of forest products, and overall progress in enforcing law, policies and programs is stored, and that summaries are regularly disseminated with easy access to the underlying information for the general public.

3.5 Strategic Options

3.5.1 Identification of objectives, formulation of desired outcomes, and selection of strategies and associated actions

This section presents the strategies and major strategic actions that will address the drivers of deforestation and forest degradation (discussed in section 3.2), address land tenure issues, forest governance issues, gender considerations and the safeguards as illustrated in the para 72 of Cancun agreement and lead to achieve the vision, mission and objectives (discussed in section 2.1). In addition, they contribute to reduce carbon emission and establish national forest monitoring and reporting system. The strategies are derived, primarily, by reviewing and analyzing the strategic options presented by RPP (MFSC, 2010), SESA (REDD Cell/MFSC,

2014a) complemented by a number of other studies[31], consultations carried out in the process of strategy formulation, and best professional judgment and expert opinions from the consortium members. A total of 12 strategies were identified and presented in priority order, and for each strategy several strategic actions are provided. The strategies are also consistent with the proposed post-2015 sustainable development agenda, which is under discussion globally. The objectives, outcomes, strategies and strategic actions are listed in the boxes below. The strategic actions will be prioritized during the preparation of implementation plan using criteria of effectiveness (capacity of the government, degree of social and political complexity, and acceptability of the intervention) and efficiency (cost- effectiveness). Each strategy has a number of activities that need to be undertaken to operationalize the strategies, and those are listed in box 3.2.

The strategies have been formulated in support of **5 overall objectives**, being:

1. To reduce carbon emission, enhance carbon sequestration and enhance climate resilience by intensifying sustainable management of forest resources and minimizing the causes and effects of drivers of deforestation and forest degradation across the ecological regions;
2. To ensure fair and equitable sharing of carbon and non-carbon benefits of forests among right holders with effective implementation of safeguard measures;
3. To increase livelihood assets and diversify employment opportunities of forest dependent communities, particularly for the poor, women, IPs and Dalits;
4. To improve and harmonize policy and legal framework to harness carbon and non-carbon benefits; strengthen institutional capability and improve governance of forest agencies and sector; and,
5. To establish and maintain a robust Forest Monitoring Information System with strong measurement, and monitoring, reporting and verification mechanisms.

For each objective a number of **desired outcomes** have been defined that require particular strategies to be deployed in order for the outcomes to actually be achieved. Below the objectives, the outcomes and the strategies that are formulated to achieve the outcomes - and thus the objectives - are presented.

Box 3.1: desired outcomes per objective, and listing of applicable strategies

Obj.	Desired Outcomes	Applicable strategies
1	1.1 Forest productivity increased and integrity of ecological system maintained through sustainable forest management and conservation practices. 1.2 Policy and measures to develop forestry, to address drivers of deforestation and forest degradation coherent, complementing REDD+ and conducive to ecological regions are in place to reduce carbon emission from forestry sector.	S# 1, 2, 3, and 4
2	2.1 Policy and institutional arrangement securing tenure, carbon rights and fair and equitable benefit sharing in place 2.2 Forest dependent communities including poor, women, IPs, Dalit, and marginalized groups benefited from increased access to forests and decision-making	S# 5

[31] These studies include: ANSAB, (2010); CNRM (2010); Baral et al, (2012); REDD Cell/MFSC, (2014c); PSPL/FECOFUN, (2010); REDD Cell (2012); UN-REDD/REDD Cell, (2014); WWF Nepal/ Hariyo Ban Program, (2013); WWF/TAL (2003); A draft Forestry Sector Strategy, 2014 prepared by MFSC; and a draft Low Carbon Development Strategy 2014 prepared by MoEST.

Obj.	Desired Outcomes	Applicable strategies
3	3.1 Income and employment of forest dependent communities, particularly poor, women, IPs and Dalits improved through enterprise development. 3.2 Climate smart technologies[32] mainstreamed into forest and farmland management practices of subsistence and near landless farmers[33] and agricultural productivity increased. 3.3 Forest-dependent poor, women and marginalized people friendly alternative energy and alternative wood technology developed and promoted.	S# 6, 7, and 8
4	4.1 Sectoral policies and legal frameworks improved, harmonized and collective efforts attained for climate change mitigation and adaptation. 4.2 Service delivery system and pro-poor and GESI responsive governance improved through institutional reform and capacity enhancement of concerned stakeholders. 4.3 Climate smart and GESI responsive infrastructure planning, construction and maintenance tools and techniques with appropriate safeguard measures in place and direct/indirect impacts on forests minimized.	S# 5, 9, 10 and 11
5	5.1 A national credible monitoring, measurement, reporting and verification system established with well functional Forest Management Information and Knowledge Management System	S# 12

The strategies are as follows:

S1. Enhancing carbon stocks, increasing supply of forest products and reducing carbon emission from the existing forest and shrub land area

S2. Increase non-carbon benefits by promoting climate resilience, ecological integrity, ecosystem-based adaptation and integrated watershed management.

S3. Promoting private and public land forestry

S4. Promote optimal land use through improved land use planning and implementation

S5. Clarify forest tenure, ensure carbon rights and fair and equitable benefit sharing among various right holders

S6. Promoting enterprise, livelihoods and employment opportunities to forest dependent poor, women, IPs and *Dalits*

S7. Increasing agricultural productivity of forest dependent subsistence and near landless farmers

S8. Increasing access to affordable and gender-friendly technologies of alternative wood and energy to poor and marginalized

S9. Improving collaboration, cooperation and synergy among various stakeholders, sectors, sectoral policies.

S10. Strengthening capacity, institutional performance and service delivery

[32] Climate smart technologies refers to draught and disease resistant varieties, water harvesting, organic farming, off-season vegetables, improve cook stoves, information technologies etc

[33] Subsistence farmers are those with land holding of 0.5 -1.0 ha and near landless are those with less than 0.5 ha as defined by Agricultural Development Strategy, 2013.

S11. Promoting forest and climate-friendly infrastructure planning, construction and maintenance

S12. Establishing and maintaining a well-equipped national forest information monitoring system

The strategies cover a wide range of policy measures, management practices, governance and institutional strengthening, capacity enhancement, and policy and sectoral synergy development in order to achieve REDD+ outcome of *a) Reducing emissions from deforestation; (b) Reducing emissions from forest degradation; (c) Conservation of forest carbon stocks; (d) Sustainable management of forest; and, (e) Enhancement of forest carbon stocks.*

In order to operationalize the strategies, each strategy requires a particular set of activities to be undertaken, reflected in box 3.2.

Box: 3.2 Strategies and Strategic actions

Strategies	Major Strategic actions
S1: Enhance carbon stocks and/or climate resilience, increase supply of forest products, and reduce carbon emission through sustainable management of forests, land rehabilitation, shrub land management, and by addressing DD in all management regimes.	1.1 Identify and delineate forest for different management modalities and promote appropriate community-based management models 1.2 Intensify sustainable management of forest (SMF) to enhance the function of forest ecosystem and increase carbon sequestration in all community based management models. 1.3 Update and improve management plans (district forest management plans, and Protected Areas management plans, and operational plans of CBFM) with provisions of carbon stock measurements, carbon monitoring methods, fire management, grazing control, and invasive species control. 1.4 Recognize customary forest and pasture management practices and related indigenous knowledge systems and skills by forest and pasture policies and management plans. 1.5 Enhance community participation and support for the control and management of forest fire, grazing, encroachment and resettlements in forest areas. 1.6 Strengthen fire control capabilities at district and local level with fire management plans, fire-fighting capacity building, fire monitoring, firefighting equipment and insurance mechanisms. 1.7 Rehabilitate degraded land and shrub lands through appropriate land rehabilitation and shrub land management measures. 1.8 Increase the supply of harvested wood products for building materials and furniture to substitute high-energy intensive metal products and reduce emission.
S2: Increase non-carbon benefits by promoting climate resilience, ecological integrity, ecosystem-based adaptation and integrated watershed management.	2.1 Improve the management of Protected Areas by promoting Integrated Conservations, participatory models and ecotourism 2.2 Assess the status of invasive alien species in PAs and community-based forests and identify and implement appropriate remedial and preventive measures. 2.3 Promote biodiversity conservation in managed ecosystems for sustaining livelihoods [including through local land use planning; and complementary implementation of CBD and UNFCCC (REDD+ co-

Strategies	Major Strategic actions
	benefits)] and increase the value of biodiversity. 2.4 Promote the landscape conservation and ecosystem-based adaptation measures and provide sufficiently resilient ecosystems to mitigate climate change impact on people and ecosystems. 2.5 Develop and promote Payment for Environmental Services (PES) for reduced emissions, watershed management, biodiversity conservation and for sustainable agriculture interventions.
S3: Promote private and public land forestry with appropriate financial incentives, simplified legal and regulatory provisions and technical support mechanisms to create new forests.	3.1 Promote private forestry by simplifying administrative and procedural process, and reforming fiscal policies including taxes and other incentives. 3.2 Support and facilitate the nursery and plantation of indigenous, fast growing and high-valued tree species with seed, seedling, research technologies and information (on growth and yield). 3.3 Establish financial schemes accessible to private tree growers and forestry entrepreneurs, particularly to those creating jobs and other benefits to forest dependent poor, women, IPs and *Dalits*. 3.4 Promote forestry on community and abandoned land including flood plains, river banks within and outside forest areas with plantation, natural regeneration and other appropriate interventions with people's participation particularly, poor, women, and marginalized households (Tarai)
S4: Promote optimal land use through improved land use planning and implementation across the physiographic regions (Tarai, Siwalik, Mid-Hills and Mountains)	4.1 Establish spatially explicit information systems on land use potential, allocations and potential conflicts/complementarity with REDD+ strategies. 4.2 Develop and implement economic and market-based incentives packages to promote optimal land use across the physiographic regions. 4.3 Carry out forest zoning in each district through participatory processes and implement phased transfer into different management modalities. 4.4 Develop community-based forestry approaches in High Mountain areas and Chure areas (apart from existing community-based forestry) considering the specific context of High Mountain and Chure areas. 4.5 Carryout Climate Change Vulnerability Assessment of forests in each district and mainstream it into District Forest Management Plan, Watershed Management Plan, National Park or Wild Life reserve Management plan, and Forest operation plans of community based forestry; 4.6 Promote increased use of GIS and remote-sensing/spatial planning applications and expand or update hazard mapping of delineated zones, based on climate change. 4.7 Improve public awareness and education concerning climate change risks, uncertainties vulnerability and benefits of land use planning. 4.8 Control haphazard mining and excavation (of soil, stone, pebbles, boulders, sand) through effective planning, implementation and enforcement.

Strategies	Major Strategic actions
S5: Clarify forest tenure, ensure carbon rights and fair and equitable benefit sharing among various right holders	5.1 Safeguard tenure security of forest user groups, particularly forest dependent poor, women, IPs and *Dalits* to access, manage, sustainably harvest, use and sell forest goods and services in all community-based forest management regimes 5.2 Define, clarify and accommodate carbon rights in relation to land and forests within existing policies and legal instruments. 5.3 Increase and ensure access to forests, decision-making and benefits to women, *Dalit*, Indigenous People, vulnerable groups, forest dependent people, distant users, and other marginalized people. 5.4 Establish inclusive clear and legally defined mechanism for the sharing of carbon, non-carbon benefits and payment of environmental services among right holders. 5.5 Establish transparent and participatory mechanism for marketing and selling of carbon credits arising from future REDD+ activities. 5.6 Formulate and implement project specific environment and social management plan to protect environment and biodiversity while ensuring that local forest dependents poor, women, IPs and *Dalits* receive culturally appropriate social and economic benefits and they do not suffer adverse impacts as a result of implementation of the project.
S6: Promote forestry and non- forestry enterprise development and enhance local livelihoods and employment opportunities for forest dependent poor, women, IPs and Dalits.	6.1 Develop policies and capacity to encourage private investment in efficient and alternative wood technologies (e.g. bamboo housing, timber drying, wood treatment, wood processing etc). 6.2 Invest in sustainable forest-based enterprises to create more employment opportunities in the forestry sector (for both timber and NTFPs, including ecotourism) producing finished forest products for domestic and export markets. 6.3 Develop mechanisms to engage the private sector in forestry in the entire value chain of forest products from planting to end-product development. 6.4 Scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural and urban (poor) areas with specific considerations to poor, women, IPs, *Dalits* to reduce forest dependency and demand for forest products. 6.5 Promote vocational education and skill-based training opportunities for enterprise development and forest operations (harvesting, logging, saw-milling, carpentry etc.) for forest dependent poor, women, IPs, and *Dalits*. 6.6 Improve access to alternative technologies (e.g. small sawmills carpentry, food processing, efficient stoves, kilns, briquettes, power looms, bio-gas etc.) by providing information, knowledge and loan services for forest dependent poor, women, IPs and Dalits. 6.7 Incentivize and support Forest User Groups in all community-based forest management regimes, also linking with local government resources (e.g. matching funds, and resource leverage) to create

Strategies	Major Strategic actions
	incomes, livelihood options and job opportunities for forest dependent poor, women, IPs and Dalits.
S7: Increase agricultural productivity of forest dependent subsistence and near landless farmers through increased supply of inputs, technologies, and incentives for agricultural intensification.	7.1 Intensify agricultural practices with identification of climate smart species and technology for agroforestry, organic farming, and use of alternative sources of fertilizer. 7.2 Promote development of policies supportive of small-scale sustainable agriculture (e.g. relating to agricultural tariffs, subsidies) 7.3 Support in the application of Sloping Agriculture Land Technologies (contours with fodder trees/grasses in bare lands) 7.4 Increase fodder and forage production in community based forestry and support to develop fodder and forage resource center. 7.5 Promote multi-purpose fodder management, stall feeding and scaling up of fodder reserve systems, especially silage and hay, for use during slack periods 7.6 Support to increase access to crop & livestock breeding and husbandry improvement programs 7.7 Conserve water sources and promote improved water harvesting and management technology.
S8: Increase access to affordable and gender-friendly technologies of alternative wood and energy to poor and marginalized.	8.1 Increase investment and promote gender-friendly fuel wood efficient and alternative energy technologies (including improved kilns and cooking stoves) to reduce fuelwood demand. 8.2 Promote sustainable, cost-effective (and increase availability and affordability of) renewable energy sources (e.g. Biogas, Access to electricity, Solar power) linking the energy end-use to enterprise development/income generation. 8.3 Develop mechanisms to increase access to alternative energy technologies for forest-dependent poor and marginalized people. 8.4 Promote cost effective wood technologies (e.g. particle board, pressed board, timber treatment, timber processing, bamboo housing etc.) and increase access for forest-dependent poor and marginalized communities.
S9: Improve collaboration, cooperation and synergy among various stakeholders, sectors and sectoral policies for climate change mitigation and adaptation.	9.1 Improve policy coordination among Forest, Soil and water conservation, Land Reform, Agriculture, Local development, Energy, and Physical planning for effective integrated planning, monitoring and evaluations of development projects. 9.2 Identify and amend legal frameworks in line with international commitments and harmonize contradictory issues between cross-sectoral policies and legal frameworks (e.g., among Forest Act 1993, National Parks and Wildlife Conservation Act 1973, and other acts). 9.3 Strengthen multi-stakeholder and integrated planning approach at regional/landscape and national levels, in order to seek consensus-building, validation and clarify sector and extra-sectoral commitments.

Strategies	Major Strategic actions
	9.4 Develop fiscal policies for investment to climate change mitigation including performance-based payment mechanisms. 9.5 Develop functional collaboration and cooperation with security forces, media, and civil society to control illegal forest activities. 9.6 Sensitize various actors on issues of forestry sector governance, DD, climate change mitigation and adaptation. 9.7 Recognize the traditional and customary practices of forest management and incorporate appropriately in community-based forest management with due consideration to their socio-cultural values. 9.8 Incorporate forest carbon and conservation elements in school curriculum. 9.9 Control cross-border illegal trade of forest products through inter-country cooperation with Indian and Chinese (Tibetan) authorities.
S10: Improve capacity, institutional performance and service delivery of the forestry sector through better public relations programs, institutional reform, capacity development, good governance and GESI responsive practices.	10.1 Improve management and leadership competency, GESI responsiveness, commitment and morale of forestry personnel through coaching, counseling, motivation and capacity development programs. 10.2 Increase awareness and capacities of all stakeholders, political leaders, and parliamentarians including poor, women, *Dalits*, and IPs in different aspects of REDD+. 10.3 Re-structure and reform forestry institutions to improve forestry governance, public relations, service delivery, accountability and transparency. 10.4 Review and update judiciary and judicial processes and strengthen forest law enforcement to control illegal harvest, trade of forest products, encroachment and other forest offences. 10.5 Institutionalize and strengthen functioning of Apex body, REDD Working Group and REDD Stakeholder Forums at center, and DFSCC and DRWG at districts. 10.6 Adopt approach of Free, Prior, and Informed Consent (FPIC) in consultations with stakeholders and right holders particularly, IPs. 10.7 Ensure adequate representation and leadership competency of women, poor, IPs and *Dalits* in key forestry decision-making bodies and processes. 10.8 Establish and strengthen grievance-addressing mechanisms that are gender-sensitive and respond to people's grievances and concerns. 10.9 Link M& E - promoting public hearing and public audits, especially at local level - as a mechanism to improve governance and performance 10.10 Develop incentive and penalty system for both government and Forest User Groups to address illegal harvesting, and illegal trade with confidential system for whistle-blowers to report illegal practices.

Strategies	Major Strategic actions
S11: Promote forest and climate-friendly infrastructure planning, construction and maintenance - ensuring that location and applied technologies to minimize impacts on forests.	11.1 Ensure environmental, social and economic measures in infrastructure development and maintenance (Hydropower, transmission lines, highways, rural roads, irrigation canals, railways etc.) 11.2 Implement climate smart infrastructure planning, implementation and monitoring ensuring social and environmental safeguards. 11.3 Avoid forest area for infrastructure development, resettlement and make compulsory provision of tree planting to substitute forest cleared if any. 11.4 Ensure effective implementation and compliances of IEE and EIA for all types of forest land use conversions including tourism ventures, settlements, road construction, hydropower and transmission lines, expansion of conservation areas.
S12: Establish and maintain a well-equipped national forest monitoring system for monitoring and reporting and that is capable to deal with the verification mechanisms.	12.1 Enhance the national capability to conduct forest resource survey and inventory periodically and make data available for specific physiographic and administrative regions. 12.2 Develop the capacity for data collection, analysis, storage, management and dissemination for the national/local planning, and policy development. 12.3 Establish and make functional a database and Forest Management Information System at different levels 12.4 Establish cost effective mechanisms for monitoring, measurement, reporting and verification of land use changes (and their impacts on commitments to achieving emissions reduction and enhancement at sub- regional/jurisdictional and national level) 12.5 Identify monitoring indicators and establish community-monitoring systems in all community based management regimes and include them in their operational/management plans.

3.5.2 Feasibility assessment of selected strategy options and the risk mitigation measures

For each of the Strategies a review is made of the strengths, weaknesses/risks and the mitigation measures and/or options to reduce the weaknesses and/or risks. In section 3.10 a review is made of the specific social and environmental impacts of the strategies.

Strategy # 1

Enhance carbon stocks and/or climate resilience, increase supply of forest products, and reduce carbon emission through sustainable management of forests, land rehabilitation, shrubland management, and by addressing DD in all management regimes.

1.1 Strengths

Many new initiatives in the Ministry of Forests and Soil Conservation (MFSC) including the formulation of the new strategy for the forestry sector and new forestry act can be regarded as major strengths that are aimed at meeting the gaps experienced in the areas of forest conservation, utilization, carbon sequestration and better management. The implementation of new acts, policies, rules and regulations in related sectors since the last few years (in areas such as land use planning, energy and water resources development, climate change and environmental protection, among others) will lead to an effective implementation of aligned

mitigation and adaptation measures. These are at the same time consistent with the development priority and direction of the government which is focused on inclusive growth and sustainable development. As an offshoot, the current plan gives highest priority to forest development, conservation and environmental programs. The REDD+ Apex Body at the MFSC with due representation from different related ministries and other stakeholders and similar institutional arrangements at the sub-regional and district level strengthen participatory process in decision making and enhance the scope of improved coordination. The formation of a higher level body explicitly to address the deforestation problem in the Chure area exemplifies the commitment at the highest political level. Gradual overcoming from long political transition will also enhance enforcement capability of the government for the implementation of REDD+ successfully. The involvement of stakeholders and right holders at various levels, both vertically and horizontally, together with a focus on community forestry, is expected to contribute to forest conservation and more regulated utilization. Robust benefit sharing arrangements among community forestry user groups and forest dependent people, together with incentives based on performance criteria is expected to enhance the implementation of REDD+ strategy.

1.2 Major Weaknesses/Risks

A closer assessment of the weaknesses and risks indicates that the downside risks are still high. A country that aims to transition from least to developing country by 2022, with ambition of accomplishing an annual growth rate of about 9%, requires significant investments in infrastructure and in the services and key production sectors, such as agriculture and industry. A large investment program in energy development is being implemented with many hydropower projects in prospect. On the other hand, the ratio of forest dependent people is still very high and hence if net gains are expected, few people may resist the enforcement of a forest conservation program. However, insufficient involvement of forest-dwelling communities in the REDD contract negotiations will create tensions at local level with added implementation problems. In general, people may continue to clear the forest illegally for agriculture purposes when opportunity costs are taken into consideration. Rapid urbanization, land encroachment and the resettlement policy may add to the risk. Control of illegal clearing of forests and illicit felling of timber that is smuggled across the border will continuously remain a challenging task. Different pricing systems for different timbers, poor transparency and compliance practices continue to add to the risk.

Also many technical risks are perceived. Assessment of the carbon sequestration potential by different forest types and management systems is a difficult task. Also, there are still ambiguities related to tenure under different forest types. Needless to say that both aboveground tree biomass and belowground root biomass requires a robust assessment to understand forest carbon dynamics. Moreover, prediction of the REDD market is difficult. Technical complexities and high implementation costs may create insecurity of tenure for the forest-dependent communities, which could lead to inequality in benefit-sharing.

Above all, political uncertainty and prolonged transition create high risk, as this may continuously pose problems of enforcing rules and regulations and effective program implementation by the ministries at different levels. Policies related to land use planning which classify land more scientifically, that could contribute to controlling deforestation and forest degradation, are yet to be implemented effectively. Necessary steps to streamline the contradictory provisions in various acts with those of forestry are yet to be taken. Therefore, problem regarding overlap, coordination among ministries and enhancement of compliance through more transparent and accountable systems may remain a big challenge. Issues regarding highly qualified and competent manpower amidst a tendency of over politicization of bureaucracy may pose added problems in an unstable political environment.

1.3 Mitigating Measures/Options

First of all, there is a need to improve linkage between forest and ecosystem services conservation, as well as environmental protection related policies and programs, with the sustainable development agenda. Reforms are necessary at the project and program preparation level in which major related elements need to be incorporated more explicitly in order to improve the effectiveness of the review and monitoring system and increase accountability.

Similarly, in place of the numerous acts there is a need for a unified act related to natural resource management that provides clarity on institutional responsibility, fills policy gaps, removes contradictory provisions, enhances coordination and ensures compliance of government institutions at all levels. Alternatively, removal of contradictory provisions in various laws, filling of gaps in existing acts and policy and bringing effectiveness in intra and inter-sectoral coordination will be essential. A system that enhances transparency and accountability at different levels has to be ensured in the reform process.

Similarly, an autonomous body to deal with carbon registration, fixation of reference level and measurement of carbon stock enhancement, financial mechanism and use of carbon funds may be required. As carbon trading is a long term program associated with income, revenue, benefit sharing, incentives and de-incentives, such a body may be more effective. Alternatively, more autonomy to the REDD Implementation Center will be essential to deal with various complicated and challenging issues. For prompt actions and effectiveness the institutional and human resource capability will require considerable improvement.

Various stake- and rights holders are still unaware about REDD+ or do not fully understand the concept. Therefore, as a coping and risk mitigating strategy, more effective awareness campaigns have to be set up at the grass root level. Successful participation of stake- and rights holders can bring ecological and economic benefits to the community as well as to the country.

As studies indicate, there is a high potential for Nepal to benefit from the REDD mechanism by expanding the community forestry program and setting up the REDD mechanism to Nepal. For this, however, elite favoritism and mismanagement practices at the community level have to be addressed with priority.

The ER-PIN Program identified five major intervention strategies:

1. Increasing supply of forest products, conserving forests and enhancing carbon stocks through sustainable management of forests (SMF), improvement in forest law enforcement and governance (FLEG), and maintenance of conservation in protected areas.
2. Reducing demand of fuelwood with expansion of alternative energy e.g. biogas plants and cooking stoves.
3. Integrated land use planning to reduce forest conversion while advancing needed infrastructure.
4. Increasing supply by engaging the private sector in sustainable production and value chain of forest products to bring new forest production to degraded lands.
5. Enhancing alternative livelihood opportunities to address underlying drivers

These strategies will require effective implementation, focusing on the most pressing issues to address underlying drivers of deforestation and forest degradation.

As an integral part, programs that re-establish and recover encroached forestlands and that control further encroachment, optimal and sustainable financing for forestry research and development, capacity enhancement of user groups and government forestry staff, controlling overgrazing, and introducing participatory land use evaluation and land use planning system should be addressed in a much more coordinated manner.

Strategy # 2

Increase non-carbon benefits by promoting climate resilience, ecological integrity, ecosystem-based adaptation and integrated watershed management.

2.1 Strengths

For the conservation of biodiversity and ecosystem a number of legal and policy measures have been prepared and implemented. The conservation policies have taken a paradigm shift from 'people exclusionary' and 'species focused' to ' people-centered community based' and 'ecosystem/landscape approach' in the past

two decades. The National and Local Adaptation Program of Actions have recognized the need for immediate actions to minimize climate risks to society, economy and ecosystems. Attempts are there to link conservation with development and redistribute park revenue from forest and park recreation to local communities, and transfer more rights and responsibilities to the institutions of local people through buffer zone program and conservation areas approach. All these add both political and institutional strengths.

2.2 Weaknesses/ Risks

The ecosystem services are still undervalued or less prioritized. For instance, despite existing policies highlighting forest ecosystem services, the subsequent legislations (Acts and regulations) are silent about the services generated from forest ecosystems such as water and carbon whether they are forest products or simply ecosystem services. This limits the scope of promoting adaptive ecosystem services approaches and integrating watershed management to conserve biodiversity.

2.3 Mitigating Measures/Options

There is a need to reform existing legislation to meet the above gaps. At the same time, a better understanding at both the political and bureaucratic level is required of the need to enhance ecosystem services for effective conservation, resilient livelihoods and speedy poverty reduction. Awareness campaigns at grass root level through local level organizations will also increase understanding and improve results. Development and promotion of Payment for Environmental Services (PES) for reduced emissions, watershed management, biodiversity conservation and sustainable agriculture interventions is equally necessary.

Strategy # 3

Promote private and public land forestry with appropriate financial incentives, simplified legal and regulatory provisions and technical support mechanisms to create new forests.

3.1 Strengths

Nepal is now in the process of reforming many old acts and developing new ones to remove various legal and institutional constraints that are hindering the enabling environment towards the private sector. Dozens of acts are now in the legislative parliament for review and enactment. In this process, the government is encouraging leasehold forestry. Also there is growing understanding of the benefits to promote forestry in the private sector. With REDD+ providing incentives to carbon trading, promotion of private land forestry through various incentive schemes (such as more friendly regulatory provisions, financial incentives and technical support) is expected to increase with gradual changes in forest ownership structure, allocation of land for different tenure regimes and changes in management system. This will encourage the creation of new forests based on the scarcity value of products leading to improved efficiency in the forest management as well.

3.2 Weaknesses/ Risks

No major ownership structure is expected in the near future that could help divesting state forest to the private sector. Also there are problems with the handover of government managed forest to communities. The existing royalty and price-setting mechanisms have some weaknesses and the incentives facing forest resource users often poorly reflect to real economic scarcities. The undervaluation of resources often encourages illegal trade the possibilities of excessive use of existing stocks excessively. This poses a problem for the enhancement resource management practices. Regulatory issues, little incentive structures as well as little priority to technical capability enhancement, increase financial (as well as other) burdens to the government forests as well as community forests. This has an adverse effect on the development of new forest. Financial support through the banking and financial institutions also poses a problem.

3.3 Mitigating Measures/Options

There is a need for gradual change in forest ownership structure with additional incentives to the private sector. This will require preparedness at the highest political level. Apart from pricing reforms that could reflect the scarcity value of products, other direct incentives include taxing and specific banking credit support

policies as well as policies granting technical support will be required to create a level playing field for different tenure regimes encouraging development of new forests. Simplifying administrative and procedural processes, complemented with tax incentives will be required to further promote private forestry. Support to the nursery and plantation of indigenous and fast growing tree species and setting up research- and technical facilities will contribute to the promotion of private forest. Specific financial support schemes to private tree growers and forestry entrepreneurs will be required. Due attention is required to promote forestry on community abandoned land (including flood plains, river banks within and outside forest areas) with plantations, natural regeneration and other appropriate interventions ensuring participation of (particularly) poor and marginalized households (Tarai).

Strategy # 4

Promote optimal land use through improved land use planning and implementation across the physiographic regions (Tarai, Siwalik, Mid-Hills and Mountains)

4.1 Strength

There is strong commitment of the government to effectively implement new land use planning policy that categorizes land based on the use criteria in which the ecological, landscape and possible best alternative uses have been given due consideration. The new agriculture sector development strategy also gives the highest priority to the best alternative land use, based on landscape and ecological diversity and maintains the policy of preserving at least 40% of land under forest cover.

4.2 Weaknesses/ Risks

A major issue is that land use planning policy is yet to be implemented effectively. Encroachment of fertile land and forest area is an ongoing reality. Poor urban planning and haphazard expansion of urban and semi-urban areas, stagnation in agricultural productivity, encouragement of farm expansion through encroachment as well as the lack of alternatives to land dependent people pose real problems. Moreover, frequent announcement of resettlement programs amidst prolonged political transition also hampers proper land use. Contradiction and incoherence between the land use policy and other policies and acts further hinder the process of improved land use. The absence of forest land use classification in terms of productivity, sensitivity, accessibility, disaster hazard, and climate change vulnerability is also a problem, particularly in the Tarai, Chure and High Mountain areas.

4.3 Mitigating Measures/Options

Strict follow and compliance to the new land use policy and abolishing of conflicting clauses prevalent in different other policies and acts will be essential which, in turn, demand sincerity and commitments at the highest political level. Further reclassification of land in terms of such as productivity and climate change vulnerability will also be necessary. Various initiatives like establishment of spatially explicit information systems on land use pattern, zoning of forest, community based approach in High Mountain and Chure areas and Climate Change Vulnerability Assessment of forests, adaptation of GIS and remote-sensing/spatial planning system and controlling of haphazard mining and excavation have to be taken with priority.

Strategy # 5

Clarify forest tenure, ensure carbon rights and fair and equitable benefit sharing among various right holders

5.1 Strengths

One of the positive developments during the ongoing preparation for REDD+ is that the ambiguity or absence of clarity on tenure, conflict of interest and problems associated with fair benefit sharing among various

holders have been clearly identified. This was followed by new initiatives or proposals to address such problems through modification of acts, policies and programs.

5.2 Weaknesses/ Risks

The biggest threat or risk with respect to tenure clarity is that the process is very slow and time consuming to get tenure clarified and properly registered. At the same time, due to conflicts of interest at different stakeholder levels, in conjunction with effective multi-sector coordination and the need to obtain a common understanding about tenure, prompt action may be a problem: these processes do take a lot of time, if conducted properly.

5.3 Mitigating Measures/Options

Time-bound implementation of suggested measures or steps need to be assured. As clarity and fair benefit sharing are prerequisites for the successful implementation of the REDD+, it is essential to legally define tenure security of forest users and to clarify their carbon rights. There is also a need for a legally defined mechanism that enables sharing of carbon and non-carbon benefits and payment of environmental services among rights holders.

Strategy # 6

Promote forestry and non- forestry enterprise development and enhance local livelihoods and employment opportunities for forest dependent poor, women, IPs and Dalits.

6.1 Strengths

Promotion of forestry and non-forestry enterprise development, enhancement of livelihood options and the promotion of employment opportunities are major ingredients of an inclusive growth and development strategy that Nepal is pursuing today. The agriculture and forestry development policies reinforce such a strategy. The micro and small enterprise development policy provides various tax rebates and facilities. The monetary policy also gives special priority to such enterprises through a priority sector lending policy in which concession loan facilities and interest rate rebates are offered. Priority on REDD+ will give additional impulse toward that direction.

6.2 Weaknesses/ Risks

The major problem with ongoing policies and programs is that they are too diverse, while the different institutions implement these policies at their own discretion. Also, the current compliance mechanism that could contribute to address these problems is poor. The added problem is that with a more open and liberal policy environment that encourages stiff competition from businesses that import cheap goods, a discouraging environment is created for the existing forest and non-forestry enterprises, with added survival problems. Consequently, employment and livelihood is negatively affected, especially impacting the poor and marginalized people. In such circumstances, measures to displace forest dependent people from the adjoining forest area without alternative employment opportunities could augment rather than ease their livelihood problems. This could contradict the expected benefits from the REDD+ implementation, adding problems toward gaining political support at the grass root level.

6.3 Mitigating Measures/Options

A separate and more distinct policy targeting forest dependent people with a separate institutional support system will be essential for the promotion of forest and non-forest enterprises in the vicinity of forest. In the areas where such people or communities reside, encouragement to establish and run production organizations has to be given with adequate incentive structures. Modules should be developed and implemented which could operate under a value chain framework in which both input and output marketing responsibility is performed by community based production organizations. This should also counteract increased exploitation by middlemen and brokers. Capacity enhancement such as the maintenance of a detailed resource inventory, knowledge and skills about modern technology and product quality, mobilization

of funds, collecting market related information and regular dissemination should be an integral part of such a new policy and institutional development approach.

Strategy # 7

Increase agricultural productivity of subsistence and near landless farmers through increased supply of inputs, technologies, and incentives for agricultural intensification.

7.1 Strengths

One of the positive aspects of the new agriculture development strategy is that it gives highest priority to enhance productivity of the small and marginal sized farms. Crop diversification and commercialization through improved extension services including access to market are prioritized as means of increasing productivity and encouraging cropping intensity for improved food security. In recent years, the government has given urgency and priority to the development of the agriculture sector, with considerable increases in budgetary allocations. Food sovereignty is recognized as one of the fundamental rights of the people in the Constitution. These provisions provide additional support to the REDD+ strategy development.

7.2 Weaknesses/Risks

Fragmentation of land, suboptimal extension services, absence of an appropriate and reliable market are the main problems that poor and small farmers face. But also, lack of year round access to irrigation and improved production techniques, subsidy measures in neighboring countries and continued very low or declining productivity are particularly serious challenges. While emphasizing productivity, there is also risk of increased agricultural greenhouse gas emissions.

7.3 Mitigating Measures/Options

There is a need of proper implementation of a new agriculture development strategy that ensures effectiveness through mechanisms that enhance compliance. Intensification of climate smart species and technology for agro-forestry, organic farming, and the use of alternative sources of fertilizer requires priority. Support to the application of Sloping Agriculture Land Technologies (contours with fodder trees/grasses in bari lands), water source protection and support for water harvesting technology, as well as priority to increase fodder and forage production in community based forestry and increased access to crop & livestock breeding and husbandry improvement programs will be necessary.

Strategy # 8

Increase access to affordable and gender-friendly technologies of alternative wood and energy to poor and marginalized people.

8.1 Strengths

Energy is a high priority of the government, with a focus on both water resources and other alternative energies development. Approval of the mega electricity projects in a fast track basis and encouragement to the domestic investors to harness micro and small scale water resources projects in parallel is expected to augment energy supply to overcome the demand gap in the foreseeable future. The government is also expanding alternative energy development programs in the rural areas through subsidies to biogas plants in addition to the promotion of different fuel wood efficiency programs. These are expected to gradually ease the pressure on excessive use of forests for firewood.

8.2 Weaknesses/ Risks

Still the uncertainty to meet the energy demand is persistent. At the same time, the alternative energy program is progressing slowly, with limited extension each year. Drastic reduction in the use of firewood will not be possible and will also be affected by the extent of alternative income and employment opportunities to the forest dependent people. There is added risk of leakage and poor regulatory system in both government and community managed forests.

8.3 Mitigating Measures/Options

There is a need of timely implementation of energy projects which are under construction or have obtained approval in a fast track basis. There is also need for augmentation of alternative development program in the rural areas, taking affordability into special consideration. This demands a more targeted approach among forest dependent poor people that use firewood excessively for multiple purposes. Fuel efficiency programs also need more focus and extension. Better coordination among different agencies should be a high priority for all new or extended initiatives.

Strategy # 9

Improve collaboration, cooperation and synergy among various stakeholders, sectors and sectoral policies for climate change mitigation and adaptation.

9.1 Strengths

As a part of REDD+ preparation, there is growing realization on the need for synergies among various sectors as well as for coherency among various policies and legal frameworks. The highest REDD+ apex body representing various ministries and, similarly, institutional arrangements at sub-national and district level have been established to fulfil these needs. Understanding to pursue mitigation and adaptation measures simultaneously is also expected to enhance synergies and better coordination among sectors. .

9.2 Weaknesses/ Risks

The conflicting acts and policies followed by lack of coordination is a major concern. Unless commitments are made to resolve cross-sectoral conflicts at central, regional and district levels through the mechanism envisaged under REDD+ and other coordinating mechanism, working in parallel, this risk of policy conflict will persist.

9.3 Mitigation Measures/Options

There is a need to identify and address contradictory issues inherent in cross-sectoral policies and legal frameworks. This has to be accompanied by improved coordination among sectors like forestry, soil and water conservation, land reform, agriculture, local development, energy, physical planning and water resources development. An integrated approach in planning, policy making, project design, implementation, monitoring and evaluations of projects and programs will be required as a part of consensus-building process for synergies, harmonization and coordination at various layers of different sectors.

Strategy # 10

Improve capacity, institutional performance and service delivery of the forestry sector through better public relations programs, institutional reform, capacity development, good governance and GESI responsive practices.

10.1 Strengths

Along with increased focus of addressing the issues of deprived, improved democracy, with an increased focus on participatory and inclusive systems, civil society and community organizations have expanded phenomenally.

Numerous forest organizations have been established at the grass root level. A vibrant media has emerged and has been steadily expanded. Many governance and awareness campaigning organizations are working at different levels. Through ongoing various institutional reforms, the government is engaged in enhancing institutional capacity and improving the delivery and governance system with special attention to enhanced public relations. At present, various reform initiatives are underway at the Ministry of Forest and Soil Conservation as part of REDD+ preparations.

Similarly, the development of human resources has been a part of ongoing initiatives at the Ministry which consists of technical and managerial capacity enhancement through long and short term training. Also technical and leadership capacity building in community managed forest is ongoing. With the REDD+ preparation process, there is a priority to enhance technical, managerial and leadership capacity of forestry staff and stakeholders associated with forest development and resource use.

10.2 Weaknesses/ Risks

The governance system is still very weak in the forest sector which is partly affected by conflicting clauses of laws and weak enforcement leading to many distortions, inefficiencies, and leakages. This has resulted in distrust among stake- and right holders. The over politicization of bureaucracy and a culture of mismanagement practices pose challenges for improved governance and delivery, a prerequisite for successful REDD+ implementation.

Likewise, weak technical, managerial and leadership capability is one of the biggest challenges for the successful implementation of REDD+. It demands high skills in certain technical fields. For instance measurement of reference level, stock enhancement, pricing trends and system of trading requires in-depth up-to-date understanding in the related areas. Also, with regards to community forests, capacity enhancement at the grass root level will be a major challenge. Furthermore political intervention bureaucratic rules may also add problems at different levels.

10.3 Mitigation Measures/Options

A transparent and accountable system at different levels is a must. This again calls for full commitment at the highest political level. There is a need for assurance to the stakeholders and right holders that a fair, legitimate, and predictable system is promoted as a part of REDD+ implementation to enhance trust, confidence, participation, and equity. The reward and punishment system has to be implemented effectively in the bureaucratic structure. The users groups and forestry organizations should be encouraged to work as whistle-blowers to check illegal practices. They themselves should also be accountable to their constituency. Review and updating of judiciary and judicial processes to strengthen the forest law enforcement system to control illegal harvest and help promote fair and transparent trading of forest products is necessary. There is also a need for promoting and establishing decentralized and accountable multi-stakeholder forest governance structures along with strengthening the role and involvement of multi-stakeholder forums (such as DFSCC) at different levels. Similarly, adaptation of REDD+ international standards on participation, inclusion and Free, Prior, Informed Consent (FPIC) is required. Adequate representation of women, poor, indigenous people and socially marginalized groups in key forestry decision-making bodies and processes will be required, as well as recognition to the traditional and customary practices of forest management to enhance governance and accountability.

Comprehensive but robust policies and programs to enhance bureaucratic technical and management capacities are needed. Based on prior assessment of the need for various types of technical and managerial personnel, an overall human resources development program has to be launched in the near future. Capacity enhancement of concerned stakeholders and community user groups is essential for a comprehensive policy program. Specialized human resources should be in a position to work on long term contract basis without frequent transfers from one place to another. This will, among others, require more autonomy of the institutions managing forests and working on REDD+ implementation, which will require absence of unnecessary political interference.

Strategy # 11

Promote forest and climate-friendly infrastructure planning, construction and maintenance - ensuring that location and applied technologies to minimize impacts on forests.

11.1 Strengths

With increased soil erosion, damming of rivers on a massive scale and the manifestation of natural disasters across different parts of the country, there is a growing realization on the need for promoting forest and climate friendly infrastructure development. The concerned ministries, departments and various stakeholders are expediting initiatives and measures through reforms of rules, policies and programs. More stringent clauses are being pushed to prevent adverse environmental and climatic effect from construction works. The REDD+ preparation process has additionally contributed to that process.

11.2 Weaknesses/ Risks

Despite many initiatives, infrastructure development, energy development, irrigation related construction and other construction developments give little attention to forest and climate. Generally, forest land is used for establishment and expansion of local roads. Ambiguity and conflict in various sectoral policies and laws are aggravating such problems.

11.3 Mitigation Measures/Options

First of all there is need for coherency in acts and policies to ensure that forest and climate friendly infrastructure development or construction programs will be implemented. Policies encouraging forest friendly technologies will be required. At the same time, effective coordination between the forestry sector and other development sectors will be required, at different levels. Ensuring sustainability of infrastructure (hydropower, transmission lines, highways, rural roads, irrigation canals, railways etc.) development and maintenance by considering environmental, social and economic aspects is particularly essential. Implementation of IEE and EIA is a must. Likewise, new infrastructure development projects should avoid forest land and a compulsory provision to substitute cleared forest with planting of new trees is required.

Strategy # 12

Establish and maintain a well-equipped national forest monitoring system for monitoring and reporting and that is capable to deal with the verification mechanisms.

12.1 Strengths

Establishment of proposed National Forest Monitoring System (NFMS) grounded on a new integrated GIS based Forest Information System will be instrumental to strengthen fact based decisions in various stages of REDD+ implementation on different levels and areas. This will help to gauge the contribution of the forestry sector to the national economy, which currently is underreported. The NFMS will be an important means of cost effective, robust, and transparent national monitoring. The MRV system will enable credible measurement, reporting and verification, which is a prerequisite to derive benefits from REDD+ initiatives. This, in turn, will further enhance transparency that will strengthen the accountability system.

12.2 Weaknesses/Risks

In its early stages, the initiatives will require serious ground work in all forest regimes to develop techniques that allow collection of reliable information. Existing technical capacity and an incentive structure are less helpful in this regard. Unless there is a clear understanding of what data is used for what purpose, incorrect or under reporting could be a major problem. Illegal logging, existing timber pricing system and poor reporting on pre and post-harvest inventory etc. may complicate the strengthening of the data collection and information management system.

12.3 Mitigation Measures/Options

There is a need for certain benchmarks to identify the key areas in which daily collection of data will be essential. Clear methodologies to carry out periodical forest resource surveys and inventory, based on ecological region and administrative units, have to be designed and implemented. The institutional capacity enhancement at all forest tenure regimes will be essential and pre-requisite for such survey and monitoring. This will require commitment and initiatives at the highest political level as it gradually contributes to replace the prevailing adhoc system.

3.5.3 Action Plan for the implementation of strategies

As discussed in section 2.1.7 the REDD+ implementation will take place in three phases of 1) readiness, 2) more advanced readiness, 3) and compliance. The implementation of the REDD+ strategy will begin in the more advanced readiness phase probably starting in 2015. This plan of action is developed as a way forward to implement the REDD+ strategy during the more advanced readiness phase (Table 13).

Table 13. Proposed plan of action

SN	Actions	Year 1-2015	Year 2 2016	Year 3 2017	Year 4 2018	Year 5 2019
1.	Approval of the strategy document					
2.	Develop Monitoring and Evaluation framework of REDD+ Strategy					
3.	Develop implementation plan of strategy with detailed budget, action plans/programs with priority.					
4.	Update of SESA and ESMF according to the REDD+ strategy					
5.	Development of projects at sub-national levels					
6.	Policy and legal framework update and harmonization					
7.	Researches, studies and knowledge generations					
8.	Awareness raising and capacity development on REDD+ of all stakeholders					
9.	Institutional set up for REDD+ implementation, safeguards, GRM and provision of human resources					
10.	Establishment and management of functional MRV and NFMS including SIS					
11.	Coordination, collaboration and communication with different sectors and stakeholders					
12.	Review and evaluation					

3.6 REDD+ Implementation framework

3.6.1 Institutional, Economic and Governance Arrangements

3.6.1.1 Institutional Structure (for the implementation of REDD+ strategy/program)

The institutional structure for the implementation of REDD+ strategies and programs will be based on existing government institutions. These institutions will be used where appropriate. The key elements of the structure will cover policy, a coordination and steering entity, an MRV system entity and a benefit sharing mechanism entity. Implementation will take place at central to sub-national and district levels for the 3Is: *incentives*,

information and *institutions*[34] and will be guided by the following policy provisions:

- *Incentives* for the performance-based payments and policy improvement;
- reliable *information* about the changes in forest carbon stocks to qualify for international funds; and,
- effective *institution* to manage information and incentives.

The responsibilities of the proposed REDD+ institutions will be to:

i) set policy directions, coordinate and steer/manage REDD+ programs.

ii) manage the flow of information among different entities and stakeholders, including information on changes in forest carbon stocks and to ensure that the poor, women, Dalit, IPs and marginalized groups are consulted and informed.

iii) manage the flow of incentives to carbon rights holders including poor, women, Dalit, IPs and marginalized groups.

For the effective, efficient and transparent functioning of the REDD+ institutions, the R-PP, the ER-PIN of Nepal's TAL and the institutional assessment by REDD Cell (2014) have emphasized the following:

- Using the existing forest institutional structures and arrangements as far as possible.
- Ensuring and involving multi-stakeholders at different level, particularly women, Dalits, IPs and marginalized groups so that they can effectively participate in, contribute to and benefit from program activities.
- Enhancing capacity and ensuring equitable representation of local forest user groups, civil society groups, relevant government departments, forest dependent people, indigenous people, local communities, women, and *Dalits* at appropriate levels.
- Ensuring that the REDD+ information on measurement and reporting is readily available at all levels and to all actors, and relevant data is generated through periodic monitoring of forests, through a tested and institutionalized internal verification system by MRV implementing agency.
- Ensuring that local stakeholders and forest managers in all forest management regimes (CF, CoFM, government managed forests, protection forests, and PAs) participate and engage in field based monitoring.
- Ensuring that REDD relevant data is generated through periodic monitoring of forests, through a tested and institutionalized internal verification system by the MRV implementing agency (the DFRS).

Based on the above prerequisites, existing practices of REDD+ preparation, various consulting works/studies and consultations with various stakeholders, the REDD+ strategy proposes the institutional structure as depicted in Figure 5. It comprises of a three-tiered structure of national level, regional level and district/local level. The structure and function of these institutions will be reviewed and updated on a periodic basis during the implementation of the strategy.

[34] Institutions are conventions, norms and/or legal rules that form the actors and regulate the relationships between them (Scott 1995; Vatn 2005).

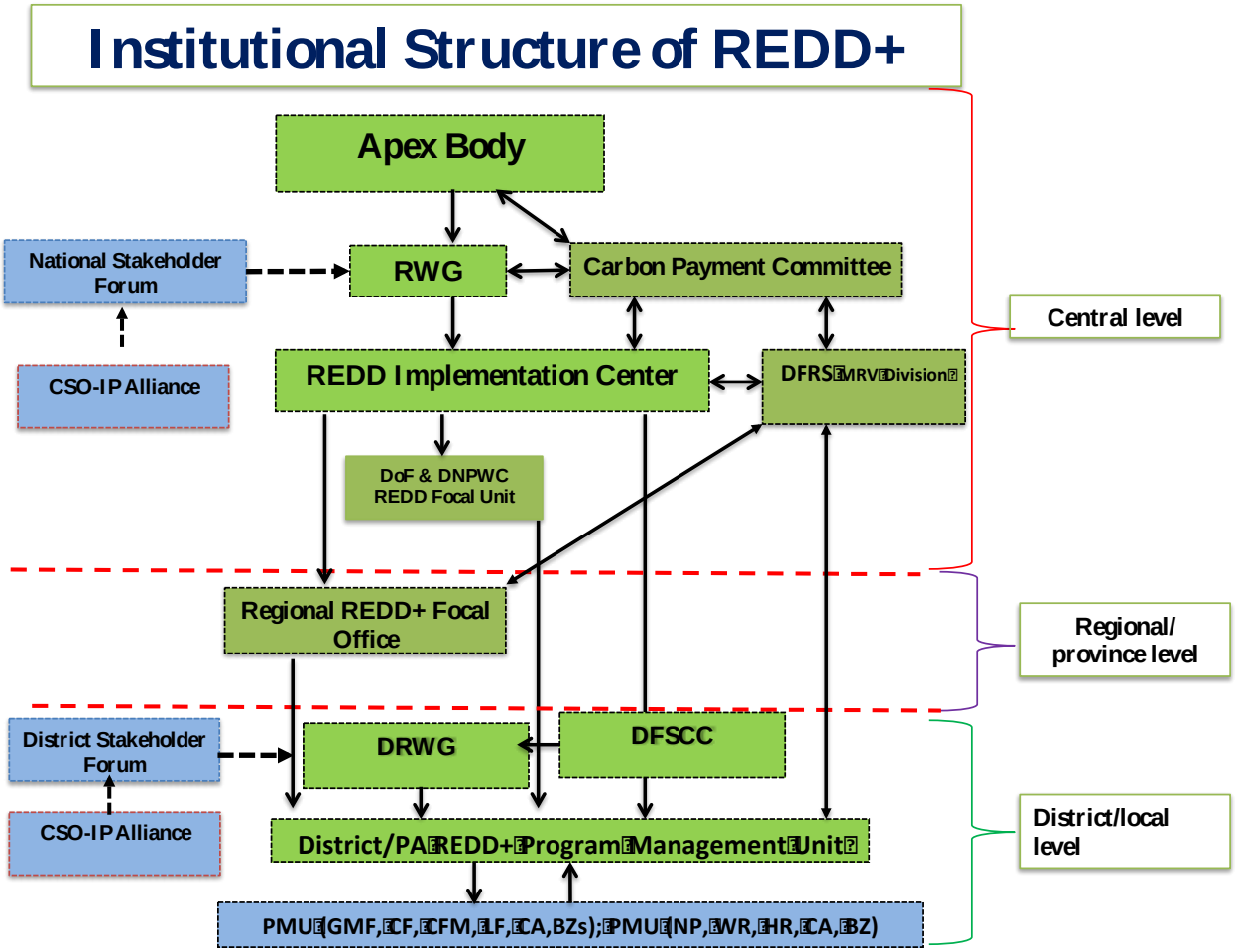

Figure 5. REDD+ Institutional structure from central to local level

(Based on REDD Cell, 2014 and consultations)

National REDD+ Institutional structure

a) REDD+ Apex body:

The REDD+ Apex body will function as an inter-ministerial high level policy steering and coordination entity chaired by the Minister of the Ministry of Forests and Soil Conservation. It has already been established during the REDD+ preparation phase and is operational. The Apex body will meet two times a year and will promote collaboration and cooperation among different sectors and stakeholders and harmonize REDD+ related policies and programs. The entity has 49 members and also consists of members from the Ministry of Finance, Ministry of Science, Technology and Environment, Ministry of Tourism and Civil Aviation, Ministry of Energy, Ministry of Agriculture Development, Ministry of Land Reform and Management, Ministry of Industry, Ministry of Federal Affairs and Local Development, Ministry of Physical Planning and Transport, and representatives from the private sector, civil society and government organizations. The Apex body will be made functional and will be responsible for preparing ToR and operational guidelines. Its structure and function will be reviewed and improved periodically.

b) REDD+ Working Group (RWG):

The RWG was formed from within the REDD+ Multi-stakeholder forum chaired by the Secretary of MFSC. Currently, the RWG comprises 12 members, represented by nine government and three non-government sectors. The RWG will be made further inclusive by the addition of 3 more members representing non-government organizations, academia, GESI related organizations and private tree growers associations etc. The RWG will provide strategic leadership to the REDD+ Implementation Center by delivering technical and

institutional support, reviewing the progress, monitoring of program activities, integrating program priorities, and helping to create an operational environment for smooth implementation of REDD+ strategy. RWG will meet at least once every two months.

c) REDD+ Implementation Center (REDD IC):

The Government of Nepal has recently approved the formation of the REDD+ Implementation Center under the Ministry of Forests and Soil Conservation headed by Joint Secretary of the ministry. The center will provide national leadership on REDD+, with responsibility for policy and program development, monitoring, reporting and verification, coordinating among different stakeholders and agencies, disseminating information, extension and capacity-building and ensuring benefit sharing to right holders. The REDD IC works under the strategic direction of the REDD+ Working Group and policy direction of the Apex body. The government has also approved formation of four sections under REDD IC as: the Climate Management Section, the Remote Sensing and Land Information System Section, the Budget and program section and the Admin-finance section. The REDD IC will also be responsible for the implementation of the Environmental and Social Assessment and Monitoring, and Grievance Redress Mechanism. The function, effectiveness, and autonomy of the center will be reviewed periodically. The possibility of making the REDD IC an autonomous body similar to Alternative Energy Promotion Centre or Poverty Alleviation Fund, will be further explored.

REDD IC will also act as the Central Carbon Registry in the beginning, which will be a repository of REDD+ related information. It will allow for enforcement of standards and engage in carbon transaction by maintaining broad-based participation of stakeholders in the management of the registry. The function of Carbon Registry will be reviewed during the implementation of this strategy and appropriate reforms will be made.

d) REDD+ Multi-stakeholder Forum:

The REDD+ Multi-Stakeholder Forum will function as the principal outreach and communication platform. The forum includes representatives from the private sector, civil society, media, government organizations, community based organizations, indigenous peoples organizations, local and international NGOs, donors, academia, research, GESI related organizations and other stakeholders interested in REDD+. The forum will meet at least twice a year.

e) REDD+ CSO and IPO Alliance:

A platform of CSOs and IPOs working in forestry and REDD+ have formed a platform, called the 'REDD+ CSOs & IPOs Alliance, Nepal', to discuss and develop a common understanding on REDD+ on behalf of a broad spectrum of Indigenous Peoples Organizations, Women, Dalit and Civil Society Organizations. The main objective of the alliance is to advocate for the development of a justifiable REDD+ framework and mechanism in Nepal and to empower and build capacity of CSOs and IPOs in the contemporary issues of REDD+. The alliance will meet at least twice a year.

f) Carbon Payment Committee:

A carbon payment entity is one of the important elements of the REDD+ architecture for the payment of incentives from central government to sub-national and district/local levels. This function needs to be linked with the MRV section and central carbon registry, responsible for tracking carbon benefit transactions from international to sub- national and local level, according to the volume, location and type of emission reductions (REDD Cell, 2014, institutional assessment for MRV, WP# 3). A committee will be formed representing multi-stakeholders including the Ministry of Finance, to make decisions on the payment of incentives to beneficiaries. A ToR and operational guidelines will guide the committee for its smooth functioning, tracking carbon benefit transactions according to the volume, location and type of emission reductions.

h) DFRS-NAFMIS (MRV Division):

The Department of Forest Research and Survey will be the national MRV implementing agency as envisioned by the R-PP (further discussed in section 3.6.1.2 Institutional Framework for Measurement and MRV System).

Accordingly, its capacity and capability will be further enhanced to fulfil this role effectively.

i) REDD+ Focal Unit:

A REDD+ Focal Unit will be established at the Department of Forest and the Department of National Parks and Wildlife Conservation. These units will liaise with the REDD IC, the Regional REDD+ Focal Office and the DRPMU.

j) MRV System Technical Support/Advisory Committee:

A MRV System Technical Support/Advisory Committee will be formed that will support research, technology and capacity development as well as institutional strengthening of M and MRV. The objective is to maintain transparency in the functioning of M and MRV and ensure relevant MRV stakeholders' and forest managers' perspectives in the management, maintenance and strengthening of the MRV system on a regular and continuous basis.

k) Experts Working Groups:

During the REDD+ preparation phase several expert working groups were formed to provide technical backstopping to the RWG, such as expert working groups for REL/MRV, SESA/ESMF, and Nepal REDD+ Strategy. These groups will be formed according to necessity.

Apart from the above institutions, the Government of Nepal has constituted the Climate Change Council chaired by the Right Honorable Prime minister, in July 2009. The chair of the REDD + Apex Body is one of the members of the council. The council has the mandate to provide guidance for the integration of climate change related aspects in the policies, plans and programs. The Apex body will be linked with this council to bring synergy and help address issues and challenges of conflicting policies and legal frameworks.

Regional level REDD+ Institutional structure

a) Regional REDD+ Focal Office (RRFO)

At each Regional Directorate Office (RDO) a Regional REDD+ Focal Office (RRFO) will be created. The RRFO will establish another unit (Regional REDD+ MRV Unit; RRMU) for MRV. The RRFO's main functions will be: 1) Coordinating the district REDD+ program implementation; 2) Providing advice and guidance to the District REDD+ Program Management Unit; 3) Function as liaison with the REDD IC and RFU at DoF and DNPWC for technical guidance and advice; 4) Monitoring of REDD+ implementation in the districts; 5) Reporting to the REDD IC and DoF/DNPWC; and, 6) Ensuring the functioning of MRV at regional/provincial level.

District level REDD+ Institutional structure

a) District Forestry Sector Coordination Committee (DFSCC):
The MFSC has issued a guideline to form the DFSCC and it is functional in many districts. The committee is chaired by the DDC chair with representation of government line agencies; DDC, municipality and VDC associations; civil society (NGOs, Community Based Organizations and user groups); nationally recognized political parties at the district level; and the private sector (business federations and forest based industries). Apart from its main role of strategic direction and forestry coordination, it will monitor the implementation of REDD+, give policy feedback and strategic guidance to DRWG.

b) District REDD Working Group (DRWG):

A DRWG, with 15 members, representing district level government agencies, community based organizations, IP, women, and Dalit, is proposed. The DRWG will be chaired by the coordinator of agriculture, forestry and environment committee of the DDC. The DRWG will assist in the implementation of the REDD+ program in the district, monitor program activities and will advocate and lobby in support of the emission reduction programs.

c) REDD+ Multi-stakeholder Forum and REDD+ CSO and IPO Alliance in district:

In each district, the REDD+ Multi-Stakeholder Forum and REDD+ CSO and IPO Alliance will be formed. They will function as the principal outreach and communication platform; advocate for implementing justifiable REDD+ program and support to empower and build capacity of CSOs and IPOs, women, Dalits, IPs, poor and marginalized groups in the district.

d) District/ Protected Area REDD+ Program Management Unit (DRPMU):

A District/PA REDD+ Program Management Unit will be established at the District Forest Office and Protected Areas where appropriate, which will be the lead institution to implement REDD+ activities in the district/PAs. The unit is responsible for coordinating REDD+ implementation at the district/local level among diverse stakeholders and other ongoing programs, and will hold a DRWG meeting every two months. The unit will have a MRV section for the execution of the MRV functions at the district/local level; and an Environment and Social Section (ESC) to ascertain that the REDD+ Safeguards are taken into consideration during REDD+ implementation.

3.6.1.2 Institutional Framework for Monitoring and MRV System[35]:

A three-tiered MRV institutional structure of central, regional/sub-national and district/program levels is proposed. At the central level, the Monitoring and MRV function will be included in the current survey division of the DFRS. At sub-national/regional level a Regional REDD+ MRV Unit (RRMU) will be established. At district/program level a District REDD+ MRV Section (DMRVS) will be established at the DFO and/or Protected Area. The central MRV section supervises and provides all technical support, builds capacities and provides logistic support to the sub-national/regional MRV unit. Similarly, the sub-national/regional MRV unit will provide the technical oversight, guidance and capacity support to the district/program level MRV section.

At Central level:

The Survey Division of DFRS will be reformed to 'Forest Survey and NAFMIS & MRV System Management Division' (will be referred to as MRV Division) to ensure effective, efficient and transparent governance of measurement, monitoring and management of data under the MRV system. An institutional structure for NAFMIS also needs to be elaborated. With regard to Monitoring and MRV, the MRV Division of DFRS will be responsible for:

- Periodic execution of forest assessments for the monitoring of deforestation and forest degradation;
- Design, maintenance, and operation of the National Forest information System (NFMS) and dissemination through a web portal;
- Providing technical guidance and institutional/capacity support to the parallel institutional setups at sub-national/district/local community levels.

[35] *Adapted from* working paper no 8- Nepal's MRV System Management Architecture: Structure, Functions Human Resources and Capacities; Emission Reductions Program Idea Note for Nepal's TAL; and RPP

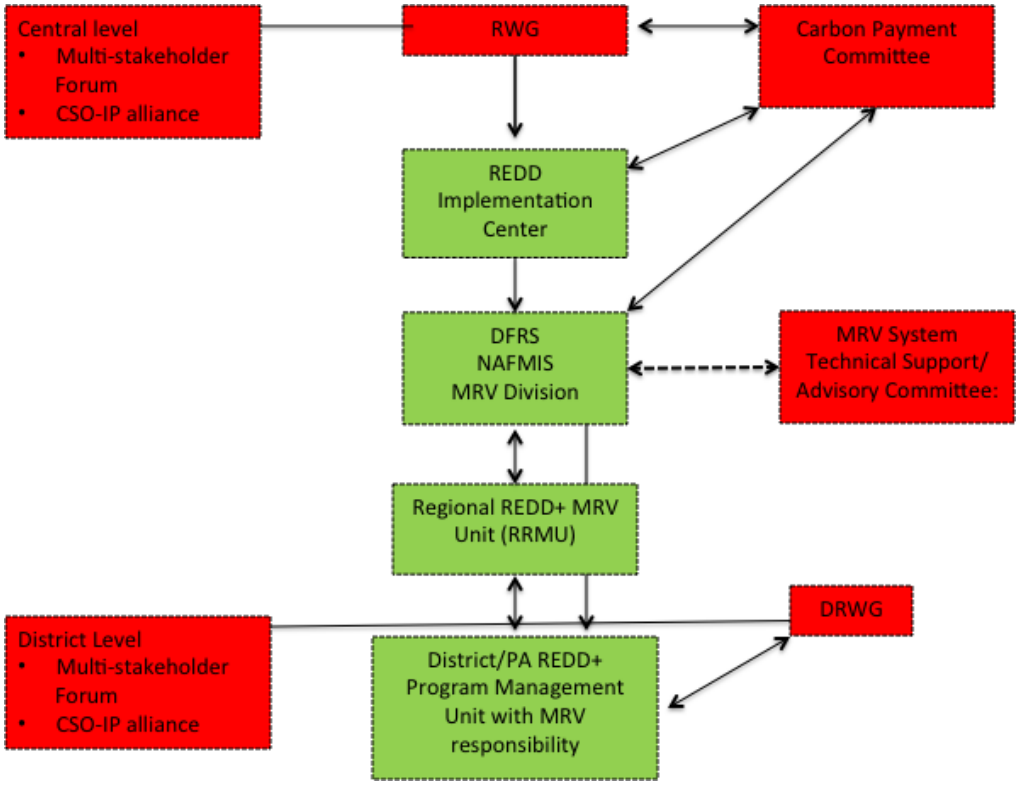

Figure 6. Proposed position of DFRS/NFMS/MRV Division

The National Forest Monitoring System (NFMS) will have MRV as one cabinet of a larger box. The proposed position of the MRV Division is presented in Figure 6. This MRV Division will have dual reporting responsibility to DFRS and the REDD Implementation Center and will receive technical advice and assistance from an MRV System Advisory Committee. At the national level the MRV Division will be linked with the National Carbon Registry and the Carbon Payment Authority. Within the MRV Division, apart from other sections, there will be four interconnected units as depicted in Figure 7. The verification and reporting unit will verify and report the periodic carbon change and will report to the Carbon Registry. The independent verification will also be linked to the registry and the MRV division. The REDD and MRV sections at sub-national/provincial and district/local level will work to support the MRV system and function under the guidance of their respective RWGs and multi-stakeholder forums.

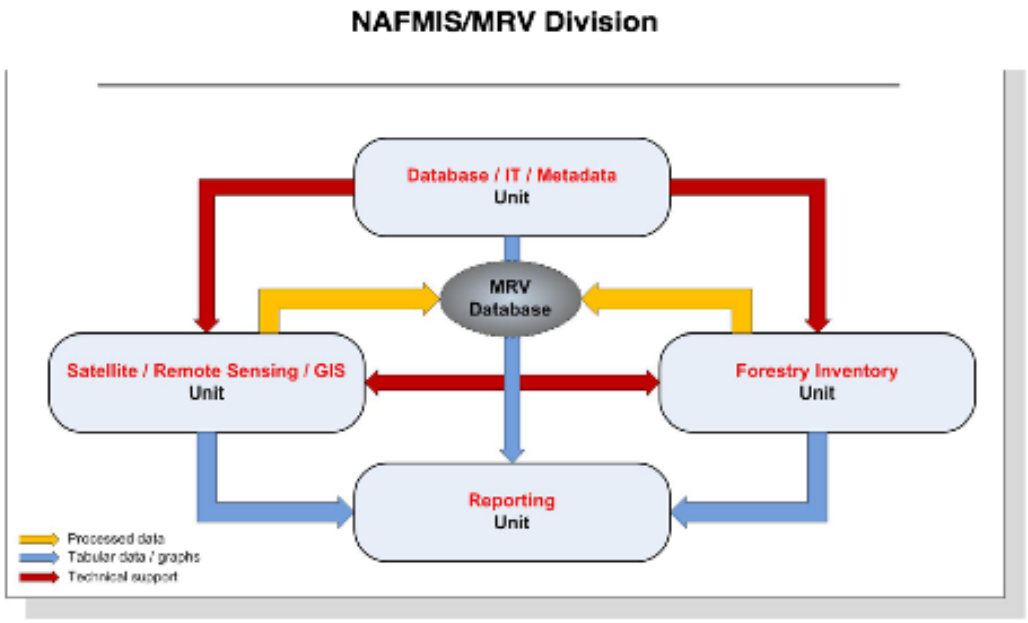

Figure 7. Units and their interaction within MRV Division
(Source: REDD Cell, 2014, institutional assessment for MRV, WP# 3)

As stated the NFMS/MRV division will have four units, namely:

i) Database/IT/Metadata Unit

ii) Remote Sensing/GIS Unit

iii) Forestry Inventory Unit

iv) Reporting Unit

i) Database/IT/Metadata Unit (DBIT): This is technically the core unit with a System Administrator and a Database Administrator. The DB Administrator will be responsible for managing and maintaining the MRV database structure (tables, relationships, keys) and assigning privileges and roles to different kinds of users (public, editor, stakeholder, etc.). The System Administrator will manage and maintain the IT web platform interface, server system, OS, firewalls, web services, connections, software update and Web Content Management.

ii) The Remote Sensing / GIS Unit (RSGIS): The RSGIS Unit will be responsible for image processing and analysis to produce Land Use/Land Cover classification layers and perform GIS editing and analysis to ensure data integrity in the MRV database. It will undertake change detection in different forestry classes and categories using Multi-temporal satellite images, DEM and other ancillary data. Once LU/LC layers have been produced and validated, they will be uploaded into the MRV database. The Unit is also responsible for REL and WISDOM data entry and spatial data integration in the MRV system. The Unit will need six GIS/remote sensing experts and could also take technical support from DBIT and FORINV unit for specific tasks. The unit should also provide tabular data graph to the Reporting Unit periodically upon on request.

iii) The Forest Inventory Unit (FORINV): The FORINV Unit will be responsible for the national forest inventories and will coordinate the inventories at sub-national and district/local level (also integrated by FRA Nepal data, if applicable) to estimate GHG emissions using specific algorithms and models applied to local data collected by the District/local unit. Once GHG estimates have been produced and validated, they will be loaded into the MRV database. The unit will require two forestry experts for the management of the unit and could get technical support from RSGIS and DBIT units.

iv) The Reporting Unit (REP): Reporting is a key element of MRV because it provides the means by which the performance of the country will be assessed compared to its commitments or reference scenarios in a future REDD+ mechanism. Hence, it provides the basis for assigning incentives. This REP Unit is the unit for reporting, which provides periodic standard MRV reports (consistent with the reporting requirements outlined in the UNFCCC guidelines) for dissemination of aggregated data and information, collecting the necessary info by the other three units. The unit will require one REDD-MRV expert.

At Sub-National Level:

At sub-national level, a Regional REDD+ MRV Unit (RRMU) will be established under Regional REDD+ Focal Office (RRFO) at the regional forest office, which will coordinate with and guide the district /local level forestry institutions and also supervise and monitor the MRV related activities. The RRMU will be managed by an MRV coordinator (forestry expert) assisted by an IT/monitoring expert skilled at operationalizing the MRV related database, as well as a capacity building expert. The unit will remain integrated with the national MRV system and provide policy and operational guidance for the implementation of MRV at district/local level. Its major technical functions will be; 1) the coordination and implementation of forest inventories and field verifications of GIS based forest maps produced by the central MRV; ii) processing of data and reporting to the central MRV; ii) technical/capacity and other defined support to district/local levels.

At district/local level:

To set up a functional MRV system at district/PA level, a District/PA MRV section (DMRVS) will be established under the District/PA REDD+ Program Management Unit of the DFO, with computer and internet-based database management arrangements. Forest carbon measurement data from all CBFM units and other FMUs participating in REDD+ will have to be validated by the DFO/PA authority, refined and entered in the database maintained at the district/PA level. In this section, two forestry technicians with additional knowledge and skills of IT and database maintenance/management and a computer operator skilled at data entry, maintenance/management is needed.

3.6.1.3 Institutional Structure for Implementing Social and Environmental Safeguards:

The proposed institutional structures and mechanisms for safeguard implementation are based on the REDD+ ESMF (REDD Cell/MFSC, 2014b) and suggestions received from consultations with different stakeholders during the preparation of this strategy.

The implementation of the various safeguard measures - such as REDD+ project specific Environment and Social Management Plan (EMPs,) needs to be harmonized and integrated in the overall REDD + implementation arrangements. Safeguard implementation arrangements consist of institutional structures and responsibilities to minimize and mitigate social and environmental risks related to REDD+ strategy implementation.

At central level, an Environmental and Social Assessment and Monitoring Unit (ESAMU) will be established within the REDD IC, which will serve as the coordinating and implementing agency for REDD+ safeguards. The ESAMU will be responsible for the overall coordination, planning, implementation and monitoring of REDD+ safeguards activities proposed under project specific ESMP. Specifically ESAMU will have the following responsibilities:

- Screening of REDD+ project proposal at national level
- Liaison with MOSTE for ESIA procedure
- Liaison with other relevant ministries and institutions for implementation of ESMP
- Monitoring and evaluation of the implementation of safeguard measures as per ESMP
- Act as Member Secretary to a Grievance Redressal Mechanism for national/regional REDD+ projects/activities and facilitate the tabling of grievances by affected parties
- Collection and storage (database preparation) of safeguard related information,

- Disclosure and dissemination of safeguard related information through appropriate means of communication
- Preparation of status reports on safeguard implementation and monitoring periodically and submit to MFSC and donors through the REDD IC

As a newly established structure, the REDD IC only has limited experience of managing social and environmental safeguard issues and would also benefit from appropriate human resources required for the REDD+ safeguard implementation. The ESAMU will be staffed with two key experts (a senior social safeguard specialist and a senior environment specialist) having adequate experiences of safeguard planning, implementation and monitoring. Other supporting staff to assist the key experts will be deputed as and when required. The REDD IC/ESAMU will also require capacity support for enhancing social and environment management skills.

The regional REDD+ Focal Office (RRFO) at the regional forest office will have oversight and monitoring responsibilities over the respective District Forest Offices / or PA Offices/ or Protection Area (PA) offices and line agencies that will be implementing the REDD+ safeguard activities.

At district level, an Environment and Social Section (ESS) will be established in each District/PA REDD+ Program Management Unit (DRPMU) to handle environmental and social concerns. The ESC need to be strengthened with two key staff: one with environmental and another with social technical expertise to undertake environmental and social screening of proposals, implementation and monitoring of safeguard measures at district and protected area levels. Other key responsibilities of ESC in the districts or protected areas are:

- Screening of sub-projects at district and local level
- Capacity building of local stakeholders
- Support/facilitate stakeholders
- Monitoring and evaluation
- Act as Member Secretary to a Grievance Redressal Mechanism for district and local REDD+ projects/activities, and facilitate the tabling of grievances by affected parties.
- Prepare status report on safeguard implementation and monitoring periodically and reporting to ESAMU
- Liaison with District REDD+ Working Group (DRWG)

The DRPMU will execute all the safeguard related activities through its regional forest offices (*ilaka ban karyalaya*) under the guidance and supervision of its safeguard experts.

3.7 Feedbacks and Grievances Redress Mechanisms

The Feedbacks and Grievances Redress Mechanisms (GRMs) are usually defined as organizational systems and resources established by national or local government agencies to receive and address concerns about the impact of their policies, programs and operations on external stakeholders. GRMs are intended to complement formal legal channels for managing grievances (e.g. the court system, organizational audit mechanisms, etc.). Stakeholders always have the option to use other, more formal and potentially more complex, costly and time-consuming alternatives, including legal remedies.

The Feedbacks and Grievances Redress Mechanisms (GRM) are required at national, regional, district and local levels to address the concerns of REDD+ project affected communities in a timely manner. For this purpose, the project specific ESMP ESMF should explicitly provide a feedback and grievance mechanism, process or procedure to receive and facilitate resolution of stakeholders' concerns and grievances regarding the environmental and social performance of REDD+ projects or initiatives.

A recent study report by REDD IC (2015) has proposed GRM for REDD+ project activities at three levels. The GRM will be built into the existing structure of the MoFSC which operates at the national, regional and district level.

Furthermore, an informal mechanism can be utilized to resolve the disputes and conflict related to REDD+ at the local level.

National Level: The MoFSC is responsible for managing the grievances coming from the REDD program implementation at national level. The MoFSC, Department of Forest assigns a Grievance Director (GD) who has overall responsibility for the GRM. This person has a background in forestry, law, sociology, and anthropology or conflict resolution. It is imperative that this person has received training in conflict resolution, for example, the GD can be a senior forest officer who has received training in conflict resolution or related field. The GD is responsible for central registration of all grievances coming from field offices and monitoring and evaluating the functionality of the GRM

Regional Level: The Regional Forest Director (RFD) will act as the focal point for receiving, registering and resolving grievances from the REDD+ program districts under its jurisdiction. The RFD will receive the complaints from affected parties directly and through the respective DFOs and assigns the cases to forest officers who will serve as case officers for REDD+ related issues.

District Level: The District Forest Office (DFO) will be responsible for coordinating three important tasks for grievance handling: uptake, fact-finding (research) and decision-making. Forest officers will be assigned to help forest users in preparing grievances for uptake and registration. In addition, another forest officer is assigned to the case and will initiate a fact-finding mission with independent experts. Together they form an independent assessment team (IAT). These experts are carefully selected from different entities, such as communities, interest groups, NGOs, and private sector. The primary purpose of the IAT is to make an independent decision. After the decision has been made by the IAT, the DFO will ensure the decision is implemented within the laws and regulations of forest management in Nepal.

Community Level: Informal dispute resolution mechanisms such as CFUG, LFUG, VDC, CFCC, and other forest networks and federation of CFUGs existing in the community will be utilized to resolve some specific complaints related to REDD+ program activities. The function of an informal dispute resolution mechanism is to solve value - and interest based conflict on the basis of traditional/customary practices of dispute management, with the ultimate goal of finding a win-win resolution.

Any grievances and objections, while implementing this REDD+ strategy and corresponding activities, will be treated at an accessible level of the GRM which allows all interested parties, including REDD+ project affected peoples to appeal to any disagreeable decision, practice and activity.

A grievance record file will be maintained at each level of GRM where all written and oral grievances, complaints will be filed and recorded. The general public, as well as affected persons, can register their grievances at the respective community level GRM. All cases will be registered, categorized and prioritized by the designated member at each GRM. GRM will periodically review (as and when required) the merit of each case and fix a date for hearing and notify the plaintiff to submit necessary documents in proof of her/his claim/case. The proposed mechanism for grievance resolution is as follows:

Stage 1:

All the complaints related to REDD+ project activities shall in first instance be attempted to be settled at the community level GRM through informal discussion and meeting and hearing with the concerned personal and affected parties. When all the grievances will be examined, decision will be made and the complaining party will be informed in writing within two weeks of receipt of the complaint.

Stage 2:

If the complaining party is not satisfied with the response from the Community Level GRM, the complaining party can appeal to the District Level GRM. While lodging the complaint, the complaining party must produce documents to support his/her claim. All the grievances will be reviewed and a decision will be announced to the concerned party or parties within four weeks of the receipt of complaint.

Stage 3:

If the complaining party is not satisfied with the response from district level GRM, the complaining party can appeal to the Regional Level GRM. While lodging the complaint, the complaining party must produce documents to support his/her claim. All the grievances will be reviewed and a decision will be announced to the concerned party within two weeks of the receipt of complaint.

Stage 4:

If the complaining party is not satisfied with the response from Regional Level GRM, the complaining party can appeal to the National level GRM. While lodging the complaint, the complaining party must produce documents to support his/her claim. All the grievances will be reviewed and a decision will be announced to the concerned party within two weeks of the receipt of complaint.

Stage 5:

Any complaining party can exercise its constitutional right to approach the court of law at any time if he/she chooses to do so.

3.8 Legal / Institutional arrangements (for the implementation of the REDD+ strategy)

There is a need to redefine the role of the government through amendments to the Forests Act 1993 and Forest Regulation 1995. Both assume that the ownership of all forest land rests with the government and do not recognize or overlook the right of the forest users related to carbon. Similarly, under the existing legal arrangements it is unclear whether carbon is a forest product or simply a byproduct of ecosystem services. For any carbon transaction to take place, and/or the sharing and delivering of benefits, legal clarity will be essential.

Due to different acts and by-laws, including institutional and benefit sharing modalities for diverse conservation areas, the benefit sharing mechanisms among conservation areas, buffer zone community forestry and other forms of community-based forestry outside protected area are different. However specific legal provisions and accompanying institutional arrangements on benefit sharing arrangement will be essential in future.

There is also a need for legal provisions that ensure the customary use rights of the management practices of indigenous communities, particularly in the high mountain areas. From the point of view of sustainable utilization of biological resources as well equitable sharing of the benefits, an unambiguous legal arrangement is required. In addition, a revisit of the National Parks and Wildlife Conservation related Acts and Regulations is also necessary to clarify the rights of indigenous people, particularly concerning customary use rights and practices.

From the institutional perspective, there is a need to create a more enabling legal and institutional environment through review and amendment of forest and conservation related acts and regulations that will make state the forestry sector institutions competitive, decentralized, people-centric and downwardly accountable. To ensure that all departments and district level organizations become more service oriented, responsive, accountable and people-centered, ample devolution and delegation of authority will be required.

In this reform process, due attention has to be given to increasing involvement, participation, competency and leadership of women, indigenous and (other) poor and socially excluded groups/individuals in the forestry sector institutions. New arrangements will have to ensure that an interaction between stakeholders and government agencies at different levels takes place to enable benefit sharing and increasing service delivery. A key ingredient is enhancing transparency, accountability and rule of law of all community-based forestry operations and management regimes. In the changing context, there is also a need to redefine the role the private sector in order to involve the private sector in the REDD+ transactions to enhance carbon stocks and ensure benefits.

3.9 Gaps remaining in the implementation framework

The implementation framework is broadly based on the assumption that the existing acts, regulations and policies will work more effectively under the REDD+ regime. As numerous related policy issues indicate, this may however not be the case. In the process of unifying existing acts, regulations and policies, it would be sensible to focus on clarifying various institutional responsibilities, filling the gaps in acts, removing the contradicting provisions in various acts, enhancing intra and inter-sectoral coordination and ensuring compliance at all institutional levels. As a short-term solution, amendment efforts could be made to existing acts, policies and regulations, focusing on contradicting provisions in various laws, filling the gaps in the acts or policies and targeting the effectiveness of intra and inter-sectoral coordination.

Past experience indicates that the inter-ministerial coordination at the highest political level may not be up to standards yet, unless such a higher body is chaired by the Prime Minister. There are also other gaps in the proposed structure. For one, the representation of Dalits, women and the private sector is limited. Also at the district level, there are complaints of poor representation of right holders. This may create problems in the implementation. Similarly, the representation of the private sector seems to be overlooked despite its crucial role, from the inter-sectoral policy coordination and future carbon trading point of view. There are also complaints that the structure and working areas of DFSCC and the institutional structure of REDD+ that is being proposed to represent stakeholders gives little attention to the needs for strengthening harmonized relations between the two.

Noticeable is that no REDD+ fund management-related proposal has been made in the REDD+ institutional framework. Likewise, there is no clarity on how the coordination between the national Carbon Registry and the Carbon Payment Authority will be shaped.

The establishment of reference levels and measurement of carbon stock enhancement, development of the financial mechanism and use of carbon funds are highly interrelated. Therefore, an integrated institutional framework for carbon sequestration may be required. It seems however that the proposed structure has given little attention to this. The REDD Implementation Center, being a division of the MFSC and/or a part of the government body, may not be able to perform various complicated and challenging institutional responsibilities unless they are given full autonomy.

In relation to MRV, it is not entirely clear why different national and regional institutional frameworks have been proposed. It also seems that while proposing a Carbon Payment Authority, the R-PP proposed a Forest Carbon Trust Fund-related concept. Such a fund or other proposed institutional structures do not seem to have been adequately considered.

Above all, a hybrid approach has been proposed for REDD+ implementation in Nepal, which is challenging and difficult to implement.

3.10 Social and Environmental Impacts

This section discusses the possible social and environmental impacts of each REDD+ strategy proposed in section 3.5 of this document.

The implementation of REDD+ strategies will not be free from social and environmental risks. Some will be positive in line with the aims of the objectives of the strategies while other may not. A properly designed REDD+ mechanism is expected to contribute not only to emission reductions but also to multiple benefits. Depending on the location and type of REDD+ activity, these benefits potentially include poverty alleviation, recognition and enhancement of right of IPs and forest dependent communities, improved community livelihoods, technology transfer, sustainable use of forest resources and biodiversity conservation.

With particular reference to social impacts, and albeit that the potential benefits of REDD+ are numerous, there are serious concerns regarding how the REDD+ programs and projects will impact people and communities. Different stakeholder groups may experience different benefits and costs, i.e., some may benefit from REDD+ activities whereas others may have to bear increased costs. These impacts have been

identified by analyzing the findings of SESA (REDD Cell/MFSC, 2014), interpreting the key findings of the consultations held with stakeholders at different layers and experts' own judgment. Possible social and environmental impacts both positive and negative as a result of implementation of REDD+ strategies are considered.

Considering the significant dependence of local communities, indigenous people, women and other marginalized groups on the forest resources for their livelihoods and other daily needs, equitable and efficient distribution of payments from REDD+ credits among these groups and communities is the key challenge associated with REDD+ strategies implementation.

A summary of positive and negative, social and environmental impacts likely to occur as result of implementation of each REDD+ strategy is presented in Table 14 below. All of the impacts can be cumulative and many of these may occur simultaneously from activities proposed in several strategies.

Table 14. Summary of social and environmental impacts of implementing REDD+ strategies

<table>
<tr><td colspan="2">Strategy # 1: Enhance carbon stocks and/or climate resilience, increase supply of forest products, and reduce carbon emission through sustainable management of forests, land rehabilitation, shrub land management, and by addressing DD in all management regimes.</td></tr>
<tr><td colspan="2">Social impacts</td></tr>
<tr><td>Positive</td><td>Negative</td></tr>
<tr><td>▪ Enhanced quality of life through multiple benefits
▪ Increased use of indigenous knowledge & ownership
▪ Increased supply of, access to, and value of forest products
▪ Reduced workload/drudgery in general and women in particular
▪ Enhanced capability of local communities, particularly of the poor, women, Dalit. IPs and marginalized groups;
▪ Increased leadership and decision making of women, poor and socially excluded groups</td><td>▪ Possibility of eviction of people from unregistered land
▪ Liability risk if something goes wrong such as fire, storm, drought or other climate related or human related events and community might end up with more costs than benefits
▪ Violation of cultural rights of indigenous peoples when evicted or involuntarily relocated from their ancestral territories, with which they have religious ties since ages.
▪ Risks of exposing local communities and indigenous peoples to international commodity markets under the influence of market-based mechanisms and threat to traditional biodiversity-related knowledge and customary knowledge of forest management.
▪ Further risks of exclusion and weakening of women’s and marginalized groups leadership and empowerment process</td></tr>
<tr><td colspan="2">Environmental impacts</td></tr>
<tr><td>▪ Decreased carbon emissions / increased carbon sequestration/maintained carbon stocks
▪ Reduced deforestation and forest degradation and improved forest condition.
▪ Reduced effects of grazing and reduced lopping of fodder trees
▪ Reduced forest fire damage and reduced GHG emission
▪ Reduced forest fire damage and reduced GHG emission</td><td>▪ Control of grazing might result negative impacts on existing forest ecosystem where grazing have/had a positive role in maintaining their integrity.
▪ Reduced beneficial effect of fire such as improvement in soil and management of grassland
▪ Habitat and biodiversity loss due to forest management practices
▪ More carbon stock in fire prone forest poses more risk of fire damage and increase in carbon emissions.</td></tr>
<tr><td colspan="2">Strategy # 2: Increase non-carbon benefits by promoting climate resilience, ecological integrity, ecosystem-based adaptation and integrated watershed management.</td></tr>
</table>

Social impacts	
▪ Enhanced livelihood through improved biodiversity and environment services ▪ Increased environmental & social awareness ▪ Stakeholder engagement and participation leading to strengthening public institutions, transparency and promoting democratic processes ▪ Increased participation and leadership of women and socially excluded groups in natural resource management	▪ Loss of traditional rights of access to and benefits from forest resources particularly forest dependent people including IPs & Dalits ▪ Further marginalization and loss of livelihoods, income, economic opportunities to the women, IPs, Dalits, poor and marginalized groups if participatory models not effective and elites capture the access and benefits
Environmental impacts	
▪ Improved ecosystem services ▪ Improved conservation of biodiversity & fragile ecosystems ▪ Enhanced biodiversity ▪ Removal of alien/invasive species ▪ Improved soil fertility / productivity / water retention ▪ Reduced land degradation / restored degraded lands ▪ Reduced soil erosion, landslides, flooding ▪ Maintenance of watersheds / aquifers ▪ Enhanced scenic value / sense of place	▪ Risk of promoting monoculture. ▪ Risk of increased invasive/ alien species threatening the local flora and associated biodiversity.
Strategy # 3: *Promote private and public land forestry with appropriate financial incentives, simplified legal and regulatory provisions and technical support mechanisms to create new forests.*	
Social impacts	
▪ Create alternative livelihood opportunities ▪ Removal of threats to livelihoods from forest degradation and secure access to forest resources ▪ Increased supplies of forest products, creating the potential to develop community-based cooperative enterprises ▪ Increased flow of forest products could lead to entrepreneurial development and generate revenue for the state	▪ Reduced food production due to expansion of private forestry in agricultural lands ▪ Risks of eviction for forest dependent marginalized communities including IPs, Dalits and Women ▪ Loss of grasslands, abandoned lands, riverbanks that can be of significant importance to especially mobile Indigenous Peoples ▪ Expansion of private forestry may lead to land grabbing resulting in the demolition of traditional spiritual and holy places, and temples in and around forest areas ▪ Destruction of traditional knowledge, skills and management practices of indigenous peoples ▪ Public land forestry particularly risks encroachment of ancestral territories of indigenous peoples
Environmental impacts	
▪ Promotion of appropriate agro-forestry/forestry in marginal, abandoned and drought prone lands ▪ Reduced deforestation / illegal logging ▪ Increased supply of forest products ▪ Increased tree planting ▪ Increased energy sources ▪ Enhanced scenic value / sense of place ▪ Improved soil fertility / productivity / water retention	▪ Risk of conversion of productive agricultural land to forest
Strategy # 4: *Promote optimal land use through improved land use planning and implementation across the physiographic regions (Tarai, Siwalik, Mid-Hills and Mountains)*	

Social impacts	
▪ Employment generation through economic and market-based incentives packages to promote optimal land use ▪ Opportunities for new and innovative economic opportunities for women, poor and excluded groups	▪ Restriction of access to forest resources particularly the women, poor and marginalized forest dependent people. Loss of indigenous knowledge, skills and management practices that have sustained the community for ages.
Environmental impacts	
▪ Improved soil fertility / productivity / water retention ▪ Reduced land degradation / restored degraded lands ▪ Reduced soil erosion, landslides, flooding ▪ Maintenance of watersheds / aquifers ▪ Enhanced scenic value / sense of place	▪ No particular adverse environmental impacts
Strategy # 5: *Clarify forest tenure, ensure carbon rights and fair and equitable benefit sharing among various right holders*	
Social impacts	
▪ Improved rights and access to land and forests ▪ Improved in benefit-sharing mechanism ▪ Increased participation and ownership ▪ Increased trust among community members and government staff. ▪ Smooth running of REDD+ related set-up systems in the communities. ▪ Better prospects of marketing carbon credits from REDD+	▪ Risk of unequal distribution of benefits and escalation of social conflict ▪ No or less benefit due to unclear land and resource use right ▪ Exclusion and harm to the local communities, IPs, women, and vulnerable groups ▪ Perverse incentives payment mechanism of a REDD+ initiatives may reward wealthier 'deforestation agents'
Environmental impacts	
▪ Reduced deforestation / illegal logging ▪ Increased supply of forest products	▪ Forest loss/degradation from improved access to forest
Strategy # 6: *Promote forestry and non- forestry enterprise development and enhance local livelihoods and employment opportunities for forest dependent poor, women, IPs and Dalits.*	
Social impacts	
▪ Enhanced livelihoods and/or creation of employment opportunities ▪ Promotion of community-based enterprise development with value addition to locally available biological resources, ▪ Alternative income opportunities for the forest-dependent poor and marginalized people ▪ Improved market access / surplus products for markets ▪ Increased supply of, access to forest products	▪ Stakeholder conflicts, including between participants and non-participants ▪ Poor and marginalized groups can be un-informed and thus may not get access to new employment opportunities. ▪ Women and marginalized losing free access to NTFPs due to elite capture of markets ▪ Market forces and economic interests most likely to hurt spiritual, cultural and religious belief/ values, and traditional livelihood practices of indigenous peoples
Environmental impacts	
▪ Reduced deforestation / illegal logging ▪ Reduced grazing pressure ▪ Reduced fire incidence and fire damage	▪ Forest loss/degradation from improved access to forest ▪
Strategy # 7: *Increase agricultural productivity of subsistence and near landless farmers through increased supply of inputs, technologies, and incentives for agricultural intensification.*	

Social impacts	
▪ Improved food security and poverty reduction through enhance agricultural productivity and sustainability ▪ Increased supply and production of fodder and forage ▪ Reduced forest encroachment through more equitable access to productive land, and by increasing agricultural productivity	▪ Dependency on external inputs (fertilizer, seed, pesticides etc.) resulting in further exclusion and marginalization ▪ Poor IPs and the marginalized groups with small land holding not getting much benefits ▪ Landless not getting any benefit ▪ Health concerns due to excessive use of pesticides and chemicals intended for increased productivity ▪ Increased use of fertilizer, seed, pesticide may affect the traditional indigenous farming system
Environmental impacts	
▪ Improved soil fertility / productivity / water retention ▪ Reduced land degradation / restored degraded lands ▪ Enhanced scenic value / sense of place	▪ Forest loss and degradation from agricultural intensification ▪ Chemical pollution from agricultural intensification ▪ Soil erosion due to agricultural intensification
Strategy # 8: *Increase access to affordable and gender-friendly technologies of alternative wood and energy to poor and marginalized.*	
Social impacts	
▪ Positive health impacts due to reduced workloads and drudgery for local people in general and women in particular and saving their time for other productive purposes. ▪ Improved access to reliable and sustainable sources of energy reducing dependency on forest	▪ Women, poor and the marginalized groups may not afford fuel wood-efficient, alternative or renewable energy technologies ▪ Poor and marginalized people may not be able to access
Environmental impacts	
▪ Decreased carbon emissions / increased carbon sequestration/maintain carbon stocks ▪ Increased energy sources ▪ Reduced pressure in forests	▪ Possibility of forest loss/degradation at high rate , if uncontrolled access to forest is granted ▪ Environmental pollution due to increased solid waste
Strategy # 9: *Improve collaboration, cooperation and synergy among various stakeholders, sectors and sectoral policies for climate change mitigation and adaptation.*	
Social impacts	
▪ Improved inter sectoral coordination and cooperation for forest development ▪ Increased access to forest products and level of ownership of the stakeholders ▪ Increased stakeholder engagement and participation promoting transparency and governance ▪ Enhanced collaboration and cooperation among the stakeholders for uninterrupted use rights and equitable benefit sharing in communities	▪ No-decisions due to continuation of inter-sectoral conflict
Environmental impacts	
▪ Collective efforts leading to address deforestation and forest degradation ▪ Better management of forests and biodiversity	▪ Further deterioration if collective understanding is not developed
Strategy # 10: *Improve capacity, institutional performance and service delivery of the forestry sector through better public relations programs, institutional reform, capacity development, good governance and GESI responsive practices.*	

Social impacts	
▪ Increased community participation in decision making ▪ Improved Transparency and Governance ▪ Promotion of gender equality and social inclusion with Free, Prior, Informed, Consent (FPIC) ▪ Empowerment of forest dependent communities and recognition of their traditional usufruct rights ▪ Reduced forestry-related illegal activities thus reducing leakage. ▪ Increased employment and income generation opportunities within the country for local communities.	▪ Inadequate and superficial consultation can further exaggerate social exclusion ▪ Politicization of community decisions resulting in elite capture ▪ Token participation of women, *Dalits*, IPs and other marginalized groups if not sensitive to existing gender discrimination and social exclusion. ▪
Environmental impacts	
▪ Indirect environmental benefits through improved performance and service delivery ▪ Increased capacity to manage forests and biodiversity ▪ Improved skills and knowledge on environmental aspects	▪ No particular adverse environmental impacts
Strategy # 11: *Promote forest and climate-friendly infrastructure planning, construction and maintenance - ensuring that location and applied technologies to minimize impacts on forests.*	
Social impacts	
▪ Increased participation / ownership, employment opportunities and better access to market ▪ Local ownership and sustainability of development projects. ▪ Increased environmental & social awareness	▪ Loss of access to forest and sources of livelihood if IEE and EIA recommendation not strictly implemented. ▪ Possibility of further marginalization of landless, women, poor and marginalized people ▪ Destruction of spiritual, religious sites/places of reverence that form indispensable part of indigenous peoples' cultural life.
Environmental impacts	
▪ Reduced environmental risks/ hazards / disasters ▪ Enhanced scenic value / sense of place ▪ Reduced pressure on forests	▪ Decline of biodiversity in compensatory plantation ▪ Habitat fragmentation by infrastructure development ▪
Strategy # 12: *Establish and maintain a well-equipped national forest monitoring system for monitoring and reporting and that is capable to deal with the verification mechanisms.*	
Social impacts	
▪ Increased easy access to information on forests, plan, plan programs including safeguard measures ▪ Increased public engagement in forestry plan, policy and programs ▪ Improved involvement of communities and stakeholders in SIS, and MRV	▪ Manipulation in reporting for higher incentive leading to false information ▪ Extra-burden to few members of communities increasing their work load ▪ Infiltration to ancestral properties and loss of control over own resources if local representation and inclusiveness not ensured in the information, monitoring, reporting and verification mechanisms.
Environmental impacts	
▪ Increased capacity of local people to manage local environment by increasing levels of awareness and knowledge ▪ Improvement in land use and management of forests and biodiversity conservation through improved information	▪ Manipulated or false information can lead to further deforestation and forest degradation. ▪ Miss-interpretation of data and information can lead to wrong land and management practices

3.11 The Social and Environmental Safeguards

In general terms, safeguards provide a set of principles and criteria to ensure that a program, project or activity does not harm local communities and the environment, applies specific rules of engagement for affected parties, and engages in a transparent consultation and participation process in the project planning and implementation process (WWF, 2013). Safeguards can be broadly understood as policies and measures that aim to address both direct and indirect impacts on communities and ecosystems, by identifying, analyzing, and ultimately working to manage risks and opportunities (Murphy, 2011).

Safeguards for REDD+ are included after the Sixteenth Conference of the Parties (COP 16) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Cancun in December 2010. The Cancun Agreements agreed to a set of seven safeguards to support REDD+ implementation to ensure that REDD+ actions do not cause negative social or environmental impacts and affirm that the implementation of REDD+ activities should be carried out in accordance with the safeguards.

The UNFCCC REDD+ Safeguards outline a global framework of social, environmental and governance principles according to which REDD+ actions and activities must be implemented. The UNFCCC REDD+ Safeguards aim not only to mitigate the risk of adverse social and environmental impacts of REDD+ activities, but also to actively promote benefits beyond carbon emission reductions, such as increased land tenure security, enhancing biodiversity, improving forest governance and empowering relevant stakeholders by ensuring their full and effective participation. Thus REDD+ safeguards are intended to protect non-carbon forest values. For countries having any REDD+ initiatives, projects and/or programs to qualify for the anticipated results-based financing under the UNFCCC, they should comply with the social and environmental issues outlined by the Cancun Safeguards as well as the procedures stipulated by the UNFCCC Conference of the Parties (COP) decisions.

Accordingly, the Government of Nepal (GoN) has agreed to adopt this framework to minimize risks posed by REDD+ activities, and maximize REDD+ benefits—both carbon and non-carbon, after Cancun Agreements (2010). In line with adoption of UNFCCC safeguard framework, the Government of Nepal has conducted strategic environmental and social assessments (SESA) and prepared an Environmental and Social Management Framework (ESMF) following both national and international safeguard standards and requirements (REDD Cell/MFSC, 2014a and 2014b). The ESMF serves as a framework for managing and mitigating the environmental and social risks and impacts for future investments (projects, activities, and/or policies and regulations) associated with implementing the REDD+ strategy. All actors who want to implement REDD+ activities will be required to prepare and implement REDD+ project specific Environment and Social Management Plan (ESMP) to ensure that risks are mitigated as part of the implementation process, through periodic monitoring, reporting and evaluation. The ESMP should be based on the safeguard policy framework of GoN and UNFCCC.

Besides, Nepal has also developed country specific REDD+ social and environmental standards (SES) in 2013. The REDD+ SES can be used by governments, NGOs, financing agencies and other stakeholders to support the design and implementation of REDD+ programs that respect the rights of Indigenous Peoples and local communities and generate significant social and environmental benefits. These standards are particularly designed for government-led programs of policies and measures implemented at national, provincial/regional, or other level. They are relevant for all forms of fund-based or market-based financing (REDD Cell/MFSC, 2013) which must be distinguished from project specific safeguards (ESMF and ESMPs). The ESMF and ESMPs are binding conditionalities that must be met as part of the regulatory regime or in order to qualify for financing for a project or programs, whereas the SES are additional qualitative characteristics of a project that are reported in exchange for obtaining a certification.

More detailed and focused safeguard management requirements arising from the implementation of REDD+ project activities required to be addressed through the specific Environmental and Social Management Plans (ESMPs). The ESMPs would be prepared through Environmental and Social Impact Assessments (ESIAs) of those activities/projects, which are triggered by screening processes and procedures prescribed in the ESMF.

Requirement of Revision/Modification of the REDD+ SESA and ESMF

The REDD+ SESA and ESMF were prepared before formulating this REDD+ strategy where there was nothing concrete in place to provide a clear focus for SESA, nor was there any agreed institutional structures and mechanisms for implementing the REDD+ strategy - against which an ESMF could be structured or framed. Therefore, the SESA need to be reviewed and revised once the REDD+ Strategy is finalized, when its areas of focus are known. Thus, it becomes feasible to gauge social and environmental risks and implications of the range of actions that are likely to follow to implement the strategy's actions and objectives. Because the ESMF was prepared based on the Strategic Options proposed by SESA (2014) and institutional structures proposed in an ER-PIN developed by the REDD Cell (January 2014) prior to the development of this REDD+ strategy, it contains a number of inherent limitations which need to be updated and revised on the basis of the final REDD+ Strategy. Particularly the following aspects of the ESMF need to be updated and included explicitly:

1. The institutional structure and mechanism for implementation of safeguard measures, the safeguard monitoring mechanism and its indicators and the safeguard information system need to be embedded and harmonized with the overall implementation arrangements, monitoring processes and procedures and forest information system acknowledged by the REDD+ strategy.
2. The Grievances Redress Mechanisms (GRM) at national, regional, district and local levels require review and updating to harmonize with the requirements of the final REDD+ Strategy. The GRM should respond to concerns of project-affected communities related to the REDD+ project in a timely manner. For this purpose, the ESMF should explicitly provide a grievance mechanism, process or procedure to receive and facilitate resolution of stakeholders' concerns and grievances regarding the environmental and social performance of the REDD+ projects or initiatives.
3. The framework for meaningful consultation with stakeholders, including forest dependent IPs, Dalits and other vulnerable communities, following the principles of Free, Prior and Informed Consent (FPIC) requires to be included in the ESMF. Also, the approaches of meaningful consultation based on the FPIC require to be adopted and an engagement process with affected stakeholders including IPs and other vulnerable communities should be included. This engagement process includes stakeholder analysis and engagement planning, disclosure of information[36], and meaningful consultation, in a culturally appropriate and gender and inter-generationally inclusive manner. It is expected that this consultation approach, if followed effectively will be instrumental to promote effective REDD+ project design, to build local project support or ownership, and to reduce the risk of project-related delays or controversies.

Revision and Modification of the REDD+ Safeguards

The safeguards proposed for the REDD + Strategy should be considered as a 'live document' enabling revision, when and where necessary. Unexpected situations and/or changes in the REDD+ projects design would therefore be assessed and appropriate safeguard 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.

[36] The information will need to be disclosed in local language(s) and in such a way that is accessible and culturally appropriate Any specific needs of groups that may be differentially or disproportionately affected by the REDD+ projects, either because of their socioeconomic status or groups with specific information needs (such as, literacy, gender, differences in language or accessibility of technical information), should be taken into account.

4. Reference Level (RL)

Nepal is developing reference level at two scales. At the subnational scale, Nepal developed a reference level in the Tarai Arc Landscape (TAL) that includes 12 districts in the Tarai and Chure physiographic regions of Nepal using the combination of LiDAR (Light Detection and Ranging) data, field vegetation plots and satellite data. The subnational RL was included in the ER-PIN that was submitted to the FCPF in 2014. The FCPF Carbon Fund accepted Nepal's ER-PIN into its pipeline for result-based payments. Nepal is in the process of drafting an Emission Reduction Program Document (ERPD) for the ER Program in TAL.

At the national scale, Nepal generated historic forest change map for the entire country to develop an RL. The analysis used all available national data sets and Landsat satellite imageries to generate forest change maps by comparing snapshot of data from 1990, 2000 and 2010. The forest cover and forest change data provide critical information on the state of forest every 10-year period. However, UN-REDD program guidelines for developing Forest Reference Levels require activity data from multiple points in time (preferably biennial) within the reference level time period, i.e. 2000-2010 (UN-REDD, 2015). Therefore the available national RL will be improved by carrying out a time-series analysis of satellite data for four time periods between 2000 and 2011 to build upon the sub-national TAL RL. The results will be verified in the field, using a network of field plots throughout the country. The field data and forest cover maps generated from the Forest Resource Assessment (FRA) project (2010-2014) will be extensively used to validate the results.

4.1 Forest assessment data sets to date

The Forest Resource Assessment (FRA) project (2010-2014) constitutes the most comprehensive forest assessment of recent years in Nepal. It conducts an assessment for the whole country and provides national-level baseline data. The project applies a combined method using remote sensing data and periodic ground measurements throughout all major forest types of Nepal. The ground inventories are based on a network of around 1,500 permanent sample plots in the forested area. FRA Nepal is producing new data on forest cover and forest cover change. In 2014, the FRA has published a report on the Tarai (FRA/DFRS 2014) and the Chure Forests (DFRS 2014) with species-specific growing stocks, biomass and carbon stock (above ground and below ground) by forest type, and development region. Similar reports for remaining physiographic regions are expected to be published soon.

In addition, FRA has applied LiDAR technology in the Tarai Arc Landscape area (TAL). The so-called LAMP method (LiDAR-Assisted Multi-source Programme) has been used to generate forest biomass maps and activity data to create a RL for the period 1999-2011 for the 12 districts of TAL area.

The most comprehensive historic forest assessment available for Nepal is from the Land Resource Mapping Project 1976-1984 (LRMP 1986). It is a wall-to-wall assessment using a consistent methodology. Mapped classes comprise forest (divided into forest type zones and three different canopy density classes) and shrubs. The data was mapped at scales of 1:25.000 and 1:50.000 and have been digitized. However, the data are not easily compatible with the new FRA data. But they can possibly be integrated with other existing data (see below) and field samples to create a provisional historic reference map of forest cover for Nepal. In addition, reclassification of historic remote sensing data will be necessary to allow the calculation of reference levels.

Other existing historic datasets for the whole of Nepal:

- 1994 National Forest Inventory. This dataset is incompatible with the LRMP data because it has a lower resolution (minimum forest cover >1ha) and does not distinguish between different forest density classes.
- 2000 Japan Forest Technical Association Information System Development Project. Indian Remote Sensing (IRS) data from 1999-2000.

- 2009 FAO Global Land Cover Network (GLCN) LCCS for Nepal. The dataset is not easily compatible with the LRMP data because it focuses on land use and land use change. It provides only very limited information on forest degradation.
- ICIMOD Land Cover Data, 1990 and 2010

4.2 Methodology and Approach for setting up the RL

Constructing a RL will follow the step-wise approach (Herold *et al*. 2012) as suggested by the UNFCCC Decision 12/CP.17 "Guidance on systems for providing information on how safeguards are addressed and respected and modalities related to forest reference emission levels and forest reference levels as referred to in decision 1/CP.16". This allows the use of available data (even if uncertain) to provide a starting point for RL establishment with simple projections, based on historical data (Step 1), progressively updating the RL based on more robust national datasets for country-appropriate extrapolations and adjustments (Step 2) and ultimately basing the RL on more spatially explicit activity data and driver-specific information support (Step 3).

The national RL is developed by analyzing historical satellite imageries to prepare wall-to-wall land cover map of five physiographic regions (Tarai, Siwaliks, Hills, Middle Mountain and High Mountain) for the defined time periods, 2000-2010. The land cover map for the period between 1990 and 2000 was prepared as essential ancillary data to inform and corroborate data from the period 2000-2010. The national RL will be further improved using outputs from the following steps;

1. Generate activity data (deforestation, forest degradation, regeneration) for 4 time periods 2000-2003, 2003-2006, 2006-2009, 2009-2011:
2. Development of emissions factors based on field plot data, allometric equations, and classifications of forest type and structure:
3. Assessment of accuracy and uncertainty of carbon estimates.

The subnational RL was developed using LiDAR-Assisted Multi-Source Program (LAMP) (Joshi *et al*. 2014, REDD-cell, 2014)). It incorporates the following data sets: airborne-collected LiDAR data covering 5% of the of the TAL area; available Landsat or other satellite data; the 1998 GoN Topographic Base Maps; the 1984 GoN Land Resource Mapping Project (LRMP) data; field data collected for biomass model calibration (12.6m radius); field data for verification (30m radius) and MDA Information Systems LLC's Persistent Change Monitoring global dataset. Activity Data (AD, for the five activities defined by IPCC) was compiled from Landsat image analysis for a period of over ten years. The approach involves the classification of the TAL's forest into four different forest types (sal, sal mixed, other mixed and riverine) for the time periods 1999-2002, 2002-2006, 2006-2009, and 2009-2011 based on Landsat imagery. Change between forest structure classes is calculated for each time period to generate Activity Data in hectares for the five activities defined by IPCC. The forest types were defined in the LRMP maps, updated and verified (Joshi, et. al., 2003).

Activity data are obtained by using a model built on spectral mixtures such as PV (Photosynthetic vegetation), NPV (Non-Photosynthetic Vegetation), Soil and NDFI (Non-Dimensional Fractional Index). This approach allows carbon credits to be assigned essentially on a stratum-wise basis, resulting in a Tier 2 level spatial resolution. Every stratum of forest is divided into two classes: intact and degraded. Areal units can gain or lose credit on the basis of changing their class between these two classes and non-forest. The forest area map of GoN's Topographic Base Maps has been applied. For future time steps, the updated FRA data will be applied.

The further adjustment of RLs will be conducted by repeating the same analysis over a more recent set of satellite data, especially where there appears to be an increase in the rate of deforestation and forest degradation.

The first one is the use of other satellite images in addition or instead of Landsat. The reference level will be adjusted when species-specific emission factors and allometric equations will be available for Nepal.

4.3 Functioning of the Preliminary RL at National and Sub-National Level

The described RL uses a clearly documented methodology that has been published by Joshi *et al*. (2014) in the Banko Janakari Journal (A Journal for Forest Information of Nepal) and described in the ER-PIN. The methodology as proposed here is the outcome of intense collaboration between the involved Nepalese and international experts. The methodology was also discussed with stakeholders from the REDD Cell (now REDD IC) and has been endorsed by the Forest Carbon Partnership Facility (FCPF) of the World Bank.

While the national RL and MRV frameworks for Nepal are still under development, the developers of the TAL RL have consulted with parallel efforts underway to develop the national frameworks in order to facilitate the eventual integration and conciliation of the sub-national effort with the national frameworks. The parameters for the development of the RL are consistent with the FCPF Carbon Fund Methodological Framework, and the RL accounts for all of the activities included in the Emission Reductions program (i.e. deforestation, forest degradation, and regeneration).

The proposed approach can be applied to generate RLs either at Tier2 or Tier3 level. It has therefore the potential to be upgraded to higher spatial resolution. Most parts of the method are based on an automated process that can be integrated into an operational system. Necessary tools have been developed and are available for RL calculation at national or sub-national level.

5. Measurement, Reporting and Verification (MRV) System

5.1 Nepal's National Forest Monitoring System (NFMS)

5.1.1 Design and Operational Mechanism of Nepal's MRV System

General

MRV systems allow the measurement, reporting and verification of changes in carbon stocks and in emissions and removals of greenhouse gases. The system will integrate national, sub-national/district and management unit level to account for contributions to carbon emissions and removals at all levels. The information produced by the MRV system will be integrated into the National Forest Database (NFD) and National Forest Information System (NFIS) and will be shared with relevant stakeholders.

The national forest monitoring system is designed in line with Decision 11/CP.19 to provide data and information that are transparent, consistent over time, suitable for measuring, reporting and verifying anthropogenic forest-related emissions by sources and removals by sinks, forest carbon stocks, and forest carbon stock and forest-area changes. The system will support decision making related to REDD+ strategy options and provide information to governmental organizations, NGOs, research institutions, other relevant institutions and general public. The MRV system includes remote sensing and ground-based forest carbon inventory data.

The design of the monitoring system of carbon is built on the activities conducted under the FRA project, and the work already carried out for Tarai Arc Landscape (TAL) and Nepal's NFD and NFIS. The design of a monitoring system is closely linked with the technical approach for assessing emissions and removals, since the system will be designed to monitor carbon stock changes over time. It is based on an integrated method using remote sensing data and periodic ground measurements throughout all major forest types in Nepal. Local communities will be involved as much as possible in the monitoring activities, especially in collecting socio-environmental baseline data for national safeguard information. The development and capacity-building efforts of a forest monitoring system will rely on the activities conducted under the FRA project and the sub-national REDD+ projects (such as ER-PIN in TAL). The system will support decision making related to REDD strategy options. It will provide information to governmental organizations, NGOs, research institutions, the public and other relevant institutions.

Activity data and Emission factors

It is envisaged that Nepal will use spatially explicit activity data and forest strata level emission factors within the present context. Activity data will rely on the reference forest map used as a benchmark and the periodical assessment of land cover changes and changes in carbon stock in forest areas that remain forests. The approach in Nepal will provide spatially explicit data on land-cover and conversion between land cover classes. The main parameters to be measured for activity data will be deforestation, forest degradation and forest enhancement/regeneration. It may be found that processes leading to deforestation, forest degradation and enhancement may actually be the best livelihood options of some groups (e.g. firewood seekers). Therefore, it is critically important to engage local communities, both women and men, from all sections of socio-economic background, to identify and prioritize locally viable livelihood options that also lead to sustainability and net emissions reductions. As such, criteria and procedures to be used for the determination of the parameters for activity data will take into account the local realities of livelihood options from forest-based activities, rather than making a precedent decision with only satellite imagery.

The land cover baseline will contain the land cover categories defined in the existing frameworks for the Land Use, Land Use Change and Forestry (LULUCF) sector under the UNFCCC: forest land, cropland, grassland, wetlands, settlements, and other land. Forest land will be further subdivided by forest type and forest

density: closed, medium stocked and open. The threshold generally adopted for density classes are 10%, 40% and 70%.

By using multi-temporal analysis of remote sensing data in combination with field verification, that will involve local communities, activity data on forest area changes and forest degradation will be estimated. Changes in carbon content within forested areas will be accurately monitored, using a combination of satellite imagery, field plots and airborne laser scanning data (wherever possible). This method was successfully applied in TAL (Joshi *et al*. 2014) and proved to be a robust methodology for long-term forest monitoring that provides activity data and emission factors of above- and below-ground biomass. When applied at national-level the method has the capacity to assess leakage effects within the country. The MRV system proposed is also independent of forest ownership structure and will uniformly applied to private and community forests. Trees outside forests (TOF) will require specific attention but the total amount of carbon stored in TOF is likely to be very small and of little financial significance in the context of REDD+.

Ancillary information on forest degradation such as decrease in species diversity, soil depletion etc., will be monitored through permanent sample plots established by the FRA project. For the continuous forest inventory in the context of MRV biennial reporting is necessary (UNFCCC, 2013), although some flexibility is given to least developed countries, such Nepal.

5.1.2 Action Plan to Institutionalize a Fully Operational MRV system

In order to ensure effective, efficient and transparent governance of measurement, monitoring and management of data under MRV system, DFRS, the national MRV Implementing agency, under the overall guidance of the Apex Body will be responsible for:

a) Periodic execution of forest assessments for deforestation and forest degradation monitoring;

b) Designing, maintaining and operating the National Forest Monitoring System (NFMS);

c) Coordinating the collection of sub-national level information so that double counting of emissions is eliminated by allocating each district to a single sub-national level area only;

d) Disseminating NFMS deliverables through web portal;

e) Providing technical guidance and institutional/capacity support to the parallel institutional setups at sub-national/district/local community levels

The sub-national/regional, district and/or local government level MRV institutional frameworks will act as the implementing entities, implementing the decisions taken by respective sub-national/regional/District Forest Coordination Committees (DFCCs). These sub-national/regional/district and/or local level entities will have a REDD Unit (as a new section) within the Regional Directorate and DFO structure.

Under the Survey Division (which is most likely to have NFIS and MRV operationalization, maintenance and management responsibilities) of DFRS, an MRV section will be responsible for organizing all MRV related functions needed for conducting MRV from national to sub-national/regional and to district/local levels and managing the MRV professionals. This section will be coordinated by a MRV coordinator who will have dual reporting responsibility – reporting to the divisional head in DFRS and to the REDD division in the MFSC. The MRV section will manage and maintain the MRV system and promote data dissemination about the project(s).

MRV implementation will be carried out by the Central MRV Section. The MRV section will require one Coordination unit and four independent but closely connected units (see also section 2.6).

Continuous Forest Inventory

The FRA Nepal project has developed a modern technique of forest inventory, using appropriate scientific methods and a statistically sound approach. This facilitates the implementation of Continuous Forest Inventory based on the same approach and methods used by FRA Nepal. Particularly, the sample plot design to be implemented should follow the same methodology and criteria. Homogeneity in field measurements is essential in order to assure comparability of the results, which is an essential pre-requisite for MRV. One

criterion for selecting Permanent Sample Plots for the continuous forest inventory could be deforestation rates, i.e. sampling with greater intensity in areas that are more subject to deforestation and anthropic pressure for fuel wood demand.

5.2 Stakeholder Participation over the course of MRV system development

The developed MRV system has recognized the roles and responsibilities of stakeholder at different levels. It has also recognized that coordination between and among these stakeholders and their involvement is essential for development and effective implementation of MRV. It is particularly emphasized that, in all forest management regimes (e.g. CF, CoFM, government managed forests and PAs), the participation and engagement of local stakeholders, women, Dalits, IPs and forest officers participate and are engaged in field monitoring. An MRV system technical support/advisory committee is proposed in the National REDD+ architecture (in line with the proposed RPP), with the objective to fulfill its research, technology and capacity needs including institutional strengthening in future. An associated objective is to maintain transparency in functioning of M and MRV at national level that ensures that the perspectives of relevant MRV stakeholders and forest managers are captured in the course of management, maintenance and strengthening of the MRV system on a regular and continued basis.

The MRV Working Paper 3 (2014) has identified five categories of key stakeholders of Nepal's M and MRV system. The stakeholders include from different sectors of the government, bi-and multilateral development agencies, beneficiary groups of different management regimes including customary forest management practices, non-government and civil society organizations at different levels and academic and research organizations. The paper also analyzes what their stakes are, by means of a matrix (table 15). The matrix provides an overview of how stakeholders could potentially influence and/or be influenced by the inputs and outputs of the M and MRV system. It also shows what kind of interest the various categories of stakeholders have in the M and MRV outcomes.

Table 15. Stakeholders' Stake, Influence and Interest in M and MRV System

Category of Stakeholders	Stakeholders	Stake	Influence	Interests
Government agencies	MFSC: DFRS, DoF Other MFSC departments Relevant Line Ministries- Land Reform, Agriculture and Cooperative, Water Resources, Physical Infrastructure and Transportation, Local Development, Energy, Science, Technology and Environment, Finance and National Planning Commission (NPC), local government bodies- DDCs and VDCs	Forest/Carbon enhancement, Updating/management of forest information system Carbon emission/removal accounts of their respective sectors	Influences projects/carbon buyers, payment mechanism and reports to UNFCCC Policy measures having implications on carbon emissions and removals	Retain control over MRV system, share carbon benefits In contributing towards green economic development

Category of Stakeholders	Stakeholders	Stake	Influence	Interests
Beneficiary groups	Community based forest managers e.g. CFUGs, CFM groups, LhFGs, IPs and Dalits etc.	Ensure carbon measurement is carried out through participatory, transparent and locally governed process and procedure	Local forest protection and enhancement	Get maximum possible benefits from Forest carbon payment
NGOs/CSOs	FECOFUN, NEFUG, ACOFUN, NEFIN, NAFAN, HIMAWANTI and others	Ensure good governance in the system in favor of IPs local forest managers and marginalized forest dependent groups	Capable of advocating and mobilizing the people and CBOs on M and MRV system related issues	Retain peoples' CBO's trust and confidence with respect to REDD+ related issues of public Interest.
International development agencies	ICIMOD, WWF, DFID, SDC, USAID funded forestry projects	Ensure SFM, livelihoods security and poverty alleviation; Promote science and technology, and democratic governance mechanisms	Influences policy processes and outcomes, including development financing	Maintain the public policy influencing capacity
Academia/Research Institutions	Tribhuvan University, Institute forestry. Kathmandu University, NAST, National Information Center of GoN	Technology transfer, Maintenance and updating of technology and synchronization of systems	Influences the technology transfer and system harmonization	Remain at the center of science and technological development

Source: GoN (2014), MRV Working Paper 3

5.3 Forest Information Management System for multiple benefits, other impacts, governance and safeguards

5.3.1 The National Forest Information System (NFIS)

The NFIS will be based on a reliable and efficient platform that does not require extensive expertise in Information Technology in its maintenance. The system will be accessible for the general public through internet.

The NFIS will be designed as an overarching information management system that includes tools and protocols for system managers; interfaces for accessing data; information and maps from the NFD and other relevant databases; links to and between these databases; analyses, synthesis and tabulation as well as other thematic tools. The NFIS will include tools for decision support modules as well as user friendly graphical user interfaces for data query and reporting, GIS analysis and mapping. The GIS module will include standard web mapping interfaces and tools.

The information system will be developed using open source application platforms. Standard operating protocols will be developed for data and information access through NFIS. Key modules to be included will cover the following topics: forest resources, forest carbon, working plan and programs, users and beneficiaries, remote sensing, Land use, Land-use Change, and Forestry (LULUCF), REDD activities and social and environmental safeguards (SES) indicators.

The NFIS will be deployed through hosting in a dedicated web application server to be based in GIDC which has facilities for space, continuous power supply, high speed internet connectivity, security and technical support. A backup server will be set up at the National Information and Technology Centre (NITC), Singh Durbar, Kathmandu.

The study on NFD and NFIS has developed guidelines for institutional coordination and standard operating procedures of NFMS. Recommendations will be prepared for the institutional management of the system including manpower, computer hardware and software to ensure system sustainability and use. Relevant government staff will be trained to operate, maintain and administer the NFIS. After operationalization continued support for system operation will be secured through procurement of maintenance services.

5.3.2 Safeguard Information System (SIS)

Arrangements will be formulated for REDD+ national safeguards, including the safeguard information systems (SIS). A summary of SIS based on the guidelines agreed in SB 42 in June 2015 will be submitted to that effect. The (SIS) will provide a systematic approach for the collection and dissemination of information on how REDD+ safeguards are being addressed and respected throughout REDD+ implementation and should have the following components:

- **Indicators**: These help determine, in this case, whether a particular policy, law or regulation or REDD+ safeguard activity is being effectively implemented. The indicators provide the parameters to determine what information needs to be collected.
- **Methodologies for collection of information:** These outline the types of information to be collected for each indicator and how the information collection should be carried out (e.g. sample size, frequency, etc.)
- **Framework for provision of information**: This defines how information is stored and shared. Summary information will need to be provided to the UNFCCC and other donors and among key stakeholders including REDD+ project affected communities in various formats and languages and be disseminated and communicated at varying frequencies, depending on national and local circumstances. Information should be made publicly available in an accessible manner (which also contributes to transparency). Availability in local languages can help increase accessibility.
- **Country-driven processes**: The SIS should have a general framework that is consistent with the National Forest Information System (NFIS), with flexibility to develop national, regional, district or particular management regime unit specific details, indicators, reporting and monitoring processes

It is expected that an effective REDD+ SIS will be an important element of compliance and accountability, helping to promote transparency, guard against unintended negative social and environmental impacts, and provide information on the impact of REDD+ actions. In addition, effective systems can help promote comparability of effort, incentivize quality greenhouse gas emissions reductions, and ensure that social, economic and environmental integrity is achieved.

References

Acharya, H. (1989). Jirel Property Arrangement and its Management of Forest and Pasture Resources in Highland Nepal, Development Anthropology Network: 16-125

Acharya *et al*. (2008) 'Forest Tenure Regimes and Their Impact on Livelihoods in Nepal', in Journal of Forest and Livelihood, December: 7(1).

ADB/DFID/WB (2012) Forestry Sectoral Perspective on Gender and Social Inclusion, Kathmandu: A Co-publication of Asian Development Bank, Department for International Development , UK and the World bank

Acharya, M.P., Yadav. S.K., Baral, N.R., and Chapagain, N., (2014). An Assessment of Panchase Forests from Climate Change Perspective: Approaches to Build Resilience of Forest Ecosystem, A Consultancy Report submitted to Ecosystem based Adaptation (EbA) Project for Mountain Ecosystem in Nepal, DoF/UNDP, Babar Mahal.

Andersen, K. 2011. Communal tenure and the governance of common property resources in Asia: Lessons from Experiences in Selected Countries. Land Tenure Working Paper 20. Rome: Food and Agriculture Organization of the United Nations.

ANSAB, (2010). Analyzing Drivers of Deforestation and Leakages under NORAD-REDD Project, Asia Network for Sustainable Agriculture and Bioresources (ANSAB), Kathmandu.

ANSAB, (2011). Nepal: Baseline Report on "Forest Carbon Stock in Community Forests in three watersheds" REDD + Pilot Project, Asia Network for Sustainable Agriculture and Bioresources (ANSAB), International Centre for Integrated Mountain Development (ICIMOD), and Federation of Community Forestry Users' Nepal (FECOFUN) and NORAD; http://www.ansab.org

Baral, N. R., Acharya, D.P., and Rana, C. J. (2012). Study on Drivers of Deforestation and Degradation of Forests in High Mountain Regions of Nepal, A Study for REDD-Forestry and Climate Change Cell of the Ministry of Forest and Soil Conservation, Singh Durbar, Kathmandu.

Baral, N.R. (2014). Sustaining the Environmental Attributes of Pro-poor Leasehold Forestry of Nepal. A Paper presented in the Regional Workshop on Leasehold Forestry held at Kathmandu August-13-14, 2014 Organized by FAO Nepal and LFLP/DoF Kathmandu.

Basyal, G.K., and Khanal, N.R. (2001). Process and Characteristics of Urbanization in Nepal. CNAS Journal; 28 (2).

Bhattari, K., and Conway, D. (2008). Evaluating Land Use Dynamics and Forest Cover Change in Nepal's Bara District (1973–2003), Human Ecology 36(1): 81-95

Bhoju, D.R., (2010). The Chure Hills of Nepal: Landuse Change and Biodiversity, In Paudel, P.P., Dutta, L.C., and Popular Gentle (eds) in Proceedings of the National Seminar on Chure Region Environment Study, July 15, 2010, Department of Soil Conservation and watershed Management.

Bhoju, D.R., Shrestha, B.B., Niraula, R.R. (2012). Study on Invasive Alien Species (IAS) as Drivers to Deforestation and Degradation of Forests in Different Physiographic Regions of Nepal, BS JV API/REDD Cell, Climate Change Unit MFSC

Biodiversity Profile Project, (1995). Biodiversity Profile of the Midhills Physiographic Zone. Technical Publication No. 13, Government of Nepal, Ministry of Forest and Soil Conservation and Government of the Netherlands, Ministry of Foreign Affairs.

Bruce, J., K. Wendland, *et al*. (2010) "Whom to pay? Key Concepts and Terms regarding Tenure and Property Rights in Payment-based Forest Ecosystem Conservation." Land Tenure Center Policy Brief 15. http://www.nelson.wisc.edu/ltc/

Bushely & Khanal (2012) 'Selling the Carbon Commons: Decentralization, Commercialization, Forest Tenure and Carbon Trading in Nepal's Community Forestry', in Naughton-Treves, L. and C. Day. eds. Lessons about Land Tenure, Forest Governance and REDD+: Case Studies from Africa, Asia and Latin America. Madison, Wisconsin: UW-Madison Land Tenure Center. Also Available at: USAID www.rmportal.net/landtenureforestsworkshop.

CBS, (2002). Population Census 2001 National Report. Central Bureau of Statistics, Kathmandu, Nepal.

CBS, (2008). Environment Statistics of Nepal, Central Bureau of Statistics, Nepal.

CBS, (2010). Statistical Pocket Book of Nepal 2010, Central Bureau of Statistics, Thapathali, Kathmandu.

CBS (2011) Nepal Living Standard Survey (2010/11). Central Bureau of Statistics. National Planning commission Secretariat, GON.

CBS, (2012). National Population and Housing Census 2011 (National Report), Central Bureau of Statistics, Thapathali, Kathmandu.

CBS, (2013). National Sample Census of Agriculture, Nepal. 2011/12. National Report. Kathmandu, Nepal.

CNRM. (2010). Forest Conservation Issues- A Study Report 2067 (2010). Committee on Natural Resources and Means, Legislative Parliament of Nepal, Kathmandu.

DFRS, (1999). Forest Resources of Nepal (1987-1998). Ministry of Forests and Soil Conservation, Department of Forest Research and Survey, Babarmahal.

DFRS (2014). Chure Forests of Nepal. Forest Resource Assessment Nepal Project/Department of Forest Research and Survey. Babarmahal, Kathmandu, Nepal.

DNPWC (2010/2011). Annual Report: Fiscal Year (2010/2011). Ministry of Forest and Soil Conservation, Department of National Parks and Wildlife Conservation.

DNPWC, (2012). Annual Report: Fiscal Year 16th July 2011-15th July 2012. Ministry of Forest and Soil Conservation, Department of National Parks and Wildlife Conservation.

Dobremez, J.F. (1976). Le Nepal Ecologie et Biogeography. Editions du Centre National de la Recherche Scientifique, Paris, France.

DoF, (2005). Forest Cover Change Analysis of the Tarai Districts, Department of Forests, Babar Mahal

DoF (2014). Department of Forest in the Sixth National Community Forestry Workshop, 16-18 June, 2014. Kathmandu.

DoF, (2014). "Leasehold Forestry: A New Dimension on Livelihoods", Proceedings of the 'Regional Workshop on Pro-poor Leasehold Forestry, 11-13 June, 2014, Kathmandu, Nepal.

Edwards, D. M., (1996). Non-timber forest products from Nepal: Aspects of the trade in medicinal and aromatic plants. FORSEC Monograph 1/96. Forest Research and Survey Centre, Ministry of Forests and Soil Conservation, Babar Mahal, Kathmandu.

ER-PIN (2014). Emission Reductions Program Idea Note (ER-PIN) submitted by GoN to the FCPF.

FAO, (2001). Global Forest Resource Assessment 2000. Food and Agriculture Organisation of the United Nations, Rome, Italy. Accessed from ftp://ftp.fao.org/docrep/fao/003/y1997E/frA%202000%20Main%20report.pdf

FAO, (2006). Global Forest Resource Assessment 2005. Food and Agriculture Organisation of the United Nations, Rome, Italy. Accessed from ftp://ftp.fao.org/docrep/fao/008/A0400E/A0400E00.pdf

FAO, (2010). Global Forest Resource Assessment 2010, Main Report. Food and Agriculture Organisation of the United Nations, Rome, Italy. Accessed from http://www.fao.org/docrep/013/i1757e/i1757e.pdf

FAO, (2010). Asia-Pacific Forests and Forestry to 2020, Better Governance and Better Forestry, Policy Brief 06, FAO, ADHB. ITTO, UK Aid, AFP Net, Bangkok. Accessed from http://www.fao.org/fileadmin/templates/rap/files/NRE/Forestry_Group/6_Governance.pdf

FAO (2011). "Reforming forest tenure: issues, principles and processes". Forestry Paper 165. Rome: Food and Agriculture Organization of the United Nations.

FAO, (2011). Integrating the Right to Adequate Food and Good Governance in National Policies, Legislation and Institutions- A Concept note, FAO accessed from http://www.fao.org/fileadmin/templates/righttofood/documents/project_b/Nepal-GCPGLO324NOR-ConceptNote.pdf

Folke, C. and Berkes, F. (1995). Mechanism that Link Property Rights to Ecological Systems. In Hanna, S., and Munasinghe, M.,(eds) Property Rights in a social and Ecological Context Case Studies and Design applications, The Beijer International Institute of Ecological Economics and the World Bank.

FORWARD, (2001). Formulation of a Comprehensive Praja Development Programme, Part II, Program Development. Prepared for Ministry of Local Development, Kathmandu, and SNV-Nepal. Chitwan, Nepal: Forum for Rural Welfare and Agricultural Reform for Development (FORWARD).

FRA/DFRS, (2014a). Tarai Forests of Nepal. Forest Resource Assessment Nepal Project, Kathmandu. Department of Forest Research and Survey.

FRA/DFRS, (2014b). Chure Forests of Nepal (2011-2013). Forest Resource Assessment Nepal Project, Kathmandu. Department of Forest Research and Survey.

FSD/FRSC, (1993). Forest Resources of the Tarai Districts (1990/1991). Forest Survey Division, Forest Research and Survey Centre, Ministry of Forests and Soil Conservation, Babarmahal, Kathmandu.

FSS team, (2014). Review Report of MPFS-Soil Conservation and Watershed Management Plan, Master Plan for Forestry Sector, 1988 by the Forestry Sector Strategy Formulation team (unpublished)

Geist, H.J., Lambin, E.F., (2002). Proximate Causes and Underlying Driving Forces of Tropical Deforestation. Bioscience 52:143–150.

Giri, Kalpana (2012) 'Gender in Forest Tenure: Prerequisite for Sustainable Forest Management in Nepal'. The Rights and Resources Initiative (RRI) Brief #1 of 4, www.rightsandresources.org

GoN (2011). National Framework on Local Adaptation Plans for Action. Government of Nepal, Ministry of Environment, Singhdurbar.

Gautam, A.P., Webb, E.J., Shivakoti, G.P., and Zoebisch, M.A., (2003). Landuse Dynamics and Landscape Change in a Mountain Watershed in Nepal, Agrocuture Ecosystems and Environment 99: 83-96.

Gautam, A. P. (2006). Combining geometrics and conventional methods for monitoring forest conditions under different governance arrangements. Journal of Mountain Science,3(4): 325-333.

Gautam, C. M. and Watanabe, T. (2004). Reliability of Land Use/Land Cover Assessment in Montane Nepal, A Case Study in the Kangchenjunga Conservation Area (KCA), Mountain Research and Development 24(1): 35–43

Herold, M., Verschot, L., Angelsen, A., Maniatis, D. and Bauch, S. (2012). A Step-wise Framework for Setting REDD+ Forest Reference Emission Levels and Forest Reference Levels. CIFOR Infobrief, no. 52.

HLSLRC. (2010). Report of high level scientific land reform commission (HLSLRC), Kathmandu, Nepal.

Ives, J.D., and Messerli, B., (1989). The Himalyan dilemma: Reconciling development and conservation, London, Routledge.

Jackson, W. J., Tamrakar, R., Hunt, S., and Shephard, K. N., (1998). A Comparative Studies of Landuse in two Middle hills Districts of Nepal, Mountain Research and Development, 18(3)193-21

Joshi, S.P., Rautiainen, O., and Suoheimo, J. (1995). Silvicultural Guidelines for the Implementation of Operational Forest Management Plans in the Tarai, Nepal. FMUDP Technical Report No. 15. Forest Management and Utilization Development Project. HMGN/FINNIDA. Kathmandu, Nepal.

Joshi, A. R., Shrestha, M., Smith, J. L. D. and Ahearn, S. (2003). Forest classification of Tarai Arc Landscape (TAL) based on Landsat7 satellite data. A Final Report submitted WWF-US.

Joshi, A. R., Tegel, K., Manandhar, U., Aguilar-Amuchastegui, N., Dinerstein, E., Eivazi, A., Gamble, L., Gautam, B., Gunia, K. Gunia, M., Hall, D., Hämäläinen, J., M. Hawkes, V. Junttila, S. K. Gautam, Y. Kandel, P. Kandel, T. Kauranne, A. Kolesnikov, P. Latva-Käyrä, S. Lohani, S. M. Nepal, J. Niles, J. Peuhkurinen, G. Powell, P. Rana, T. Suihkonen and G. J. Thapa. (2014). An accurate REDD+ reference level for Tarai Arc Landscape, Nepal using LiDAR assisted Multi-source Programme (LAMP). Banko Janakari 24(1):23-33.

KAFCOL, (2013). Chitwan Annapurna Landscape: Drivers of Deforestation and Forest Degradation, A consultancy study report submitted by Kathmandu Forestry College (KAFCOL), Koteshore to Hariyo Ban Program, WWF Nepal

Kandel, C.M., Caetanzo, M., and Cabrala, P. (2010). Forest cover monitoring of Bara district (Nepal) using remote sensing and geographic information systems Banko Janakari: A Journal of Forestry Information for Nepal 20 (1): 30-36

Kanel, K. (1994). Market Opportunities and Constraints. FMUDP Working Paper No. 13. Forest Management and Utilization Development Project. HMGN/FINNIDA. Kathmandu. Nepal.

Kanel, K. R., and D. Acharya. 2008. Re-inventing forestry agencies: Institutional innovation to support community forestry in Nepal. In Reinventing forestry agencies: Experiences of institutional restructuring in Asia and the Pacific, ed. P. Durst, C. Brown, J. Broadhead, R. Suzuki, R. Leslie, and A. Inoguchi. Bangkok: Food and Agriculture Organization of the United Nations (FAO).

Kanel, K., Shah, S.B, Poudel, K., Regmi, N.P. (2009). Quick Assessment of Land Use, Forest Policy and Governance. A study for REDD Cell, Ministry of Forests and Soil Conservation, Singh Durbar, Kathmandu.

Kanel, K., Shrestha, K., Tuladhar, A., & Regmi, M. (2012). A study on the demand and supply of wood products in different regions of Nepal. Kathmandu: REDD—Forestry Climate Change Cell Babarmahal

Kanel, K.R., Trines, E. P., van Goor, W. (2015). Political Economy of Land Use in Nepal. Part of the Analytical Study on Assessing the Value of Forests, the Political Economy of Land Use and the Carbon Emissions from the Drivers of DD for REDD Implementation Center, Ministry of Forests and Soil Conservation, Singh Durbar, Kathmandu.

Lambin. E.F. and P. Meyfroidt. (2011). Global land use change, economic globalization, and the looming land scarcity. Proceeding of the national academy of science. 108 (9).

Larsen H.O (2000). Considerations on medicinal and aromatic plant collection in Nepal: myth and facts. Paper presented for the 3rd Regional SEANN Workshop on Community Based NRFP Conservation and Management.

LRMP (1986). Land System Report, Land Resource Mapping Project: Kenting Earth Science, Canada.

McEntire, D.A, (1998). Towards a Theory of Coordination: Umbrella Organization and Disaster Relief in the 1997-98. Peruvian El Nino the Natural Hazards Research and Applications Center at the University of Colorado - Boulder, and the National Science Foundation, Quick Response Report #105

MFSC (2000) Revised Forest Sector Policy. Ministry of Forest and Soil Conservation, His Majesty's Government of Nepal, Singh Durbar, Kathmandu.

MFSC, (2009). The Future of Nepal's Forests Outlook for 2020, A National Report submitted to FAO Thailand.

MFSC. (2010). Nepal's Readiness Preparation Proposal: REDD 2010-2013. Ministry of Forests and Soil Conservation (MFSC), Kathmandu, Nepal

MFSC, (2013). Persistence and change: Review of 30 years of Community Forestry in Nepal, Ministry of Forests and Soil Conservation, Kathmandu.

MFSC, (2014). Nepal National Biodiversity Strategy and Action Plan (2014-2020), Ministry of Forests and Soil Conservation, Singhdurbar, Kathmandu.

MFSC, (2014). Nepal's ER-PIN to FCPF Carbon Fund, People and Forests- An SMF-Based Emission Reduction Program in Nepal's Tarai Arc Landscape.

MoAD, (2012). Statistical Information on Nepalese Agriculture 2011/2012, Ministry of Agriculture Development, Singh Durbar, Kathmandu. Accessed on November 26, 2014 from http://www.moad.gov.np/downloadfile/yearbook2012_1363677455.pdf

MoE, (2010). National Adaptation Programme of Action to Climate Change. Ministry of Environment, Singha Durbar, Kathmandu.

MoHA (2013). Nepal Disaster Report 2013, Ministry of Home Affairs (MoHA), Disaster Preparedness Network (DIPNet-Nepal), Singh Durbar, Kathmandu.

MOF/GON (2009). Economic Survey. Ministry of Finance, Government of Nepal, Kathmandu, Nepal

MOF/GON (2014) Economic Survey: Fiscal year 2013/14. Ministry of Finance/ Government of Nepal

MPFS (1988). Master Plan for Forestry Sector-Main Report, Ministry of Forests and Soil Conservation, Singadurbar, Kathmandu.

MPFS (2014). Review of Implementation of the Master Plan for the Forestry Sector: Achievements and Lessons - A Synthesis Report. A report of Ministry of Forest and Soil Conservation (Unpublished).

Murphy, D. (2011) Safeguards and Multiple Benefits in a REDD+ Mechanism. Manitoba: Institute of International Sustainable Development, Canada.

NAPA (2010). National Adaptation Programme of Action (NAPA) to Climate Change. Ministry of Environment, Singh Durbar, Kathmandu.

NEA, (2014). A Year in Review- Fiscal Year 2013/14, Nepal Electricity Authority.

Nepal's community forestry, International Journal of Sustainable Development & World Ecology, 21:2, 168-180

Niraula, R.R., and Maharjan, S.K. (2011). Forest Cover Change Analysis in Dolakha District (1990-2010). Nepal Swiss Community Forestry Project, SDC, Intercooperation Nepal.

Niraula, R. R., Gilani, H., Pokharel, B. K. and Qamer, F. M., (2013). Measuring impacts of community forestry program through repeat photography and satellite remote sensing in the Dolakha district of Nepal. Journal of Environmental Management, 126:20-29.

NLSS, (2010/11). Nepal Living Standard Survey (2010/11). Central Bureau of Statistics, Government of Nepal.

NPC (2011). Nepal Status Paper – United Nations Conference on Sustainable Development 2012 (Rio+20) Synopsis. Kathmandu, Nepal: National Planning Commission

Ojha, HR, B. Subedi, H. Dhuna, & D. Paudel. Citizen Participation in Forest Governance: Insights from Community Forestry in Nepal, http://envirocenter.yale.edu/envdem/docs, accessed at 5 August 2014.

Ojima, D.S., Galvin, K.A. & B.L. Turner II (1994): The Global Impact of Land-use Change. BioScience, 44(5): 300-304.

Pandit, S., (2011). Forest Cover and Landuse Change. A study of Laljhadi Forest (Corridor) Far western Development Region in Nepal, A Dissertation submitted to Central Department of Environmental Science TU, Kirtipur for the partial fulfilment of Master Degree in Environmental

Pandit, R. and E. Bevilacqua (2011) Forest users and environmental impacts of community forests in the hills of Nepal. Forest Policy and Economics 13:345-352.

Paudel, N.S., Jana, S., & Rai, J.K. (2011). Contested law: Slow response to demands for reformulating protected area legal framework in Nepal. Discussion paper no 11.5, Forest Action Nepal.

Piya, L., Maharjan, P., and Joshi, N.P. (2011). Forest and food security of indigenous people: A case of Chepangs in Nepal. Journal of International Development and Cooperation, 17(1), pp.113-135.

Pokhrel, B.K., (2014). A Review of Nepal's community Forestry, a paper presented in the sixth CF National Workshop held at Kathmandu on 4-7 Ashad 2071

PSPL/FECOFUN, (2010). REDD Strategy Options in Nepal Final Report, A study carried out for REDD-Forestry and Climate Change Cell

REDD Cell (2012). Study on Invasive Alien Species (IAS) as Drivers to Deforestation and Degradation of Forests in Different Physiographic Regions of Nepal. Ministry of Forests and Soil Conservation, REDD-Forests and Climate Change Cell. Accessed from http://MFSC-redd.gov.np/?page_id=63

REDD Cell/MFSC (2013) Nepal Specific REDD+ Social and Environmental Standards Nepal version December, 2013 based on Version 2 (10th September 2012). Kathmandu: Government of Nepal, Ministry of Forest and Social Conservation (MoFSC), REDD Forestry and Climate Change Cell

REDD Cell/MFSC (2014a) Strategic Environmental and Social Assessment (SESA) Report. Kathmandu: Government of Nepal (GoN), Ministry of Forest and Social Conservation (MoFSC), REDD Forestry and Climate Change Cell.

REDD Cell/MFSC (2014b) Indicative Environmental and Social Management Framework (ESMF) for implementing Nepal's REDD+ Strategy. Kathmandu: Government of Nepal, Ministry of Forest and Social Conservation (MoFSC), REDD Forestry and Climate Change Cell.

REDD Cell/MFSC, (2014c). An Assessment of Drivers of Deforestation and Forest Degradation in Nepal. A REDD cell commissioned study carried out by Face the future and consortium.

REDD Cell/MFSC (2015) Developing a System of Feedback and Grievance Redress Mechanism (GRM), A Study Report Submitted to Government of Nepal, Ministry of Forest and Social Conservation (MoFSC), REDD Implementation Centre

Rishi R. Bastakoti & Conny Davidsen (2014) REDD+ and forest tenure security: concerns in Nepal's community forestry, International Journal of Sustainable Development & World Ecology, 21:2, 168-180

Robinson, B.E., Holland, M.B., Naughton-Treves, L. (2011). Does secure land tenure save forests? A review of the relationship between land tenure and tropical deforestation. CCAFS Working Paper no. 7. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark. Available online at: www.ccafs.cgiar.org

Schlager, E., and Ostrom, E. (1992) "Property rights regimes and natural resources: A conceptual analysis", Land Economics, Vol. 68 (3), pp. 249-262.

Sciencefurtch, U. (1957). Die Horizontale und Vertikale der Vegetation im Himalya. Bonn.

Sharma, BP (2011). The Welfare Impacts of Leasehold Forestry in Nepal, SANDEE Working Paper, No 61 – 11. Kathmandu: the South Asian Network for Development and Environmental Economics (SANDEE)

Sharma, E., N. Chettri & K. P. Oli. (2010). Mountain biodiversity conservation and management: a paradigm shift in policies and practices in the Hindu Kush-Himalayas. Ecological Research 25: 905-923.

Sharma, U.R. (2012). Policy Advances in Biodiversity Conservation in Nepal. In K. P. Acharya and M. Dhakal (Eds) Biodiversity Conservation in Nepal: A Success Story, Department of National Parks and Wildlife Conservation, Babarmahal, 2012.

Sunam, R.K., M. Banjade, N.S. Paudel, and D.B. Khatri. 2010. Can bureaucratic control improve community forestry governance? An analysis of proposed Forest Act amendment. Forestry Nepal. Discussion Paper Series 10.2. Available at: ttp://www.forestrynepal.org/publications/article/4995

Singh, B.K and Chapagain, D.P (2006) 'Trends in forest ownership, forest resources tenure and institutional arrangements: are they contributing to better forest management and poverty reduction? Community and leasehold forestry for the poor: Nepal case study', in Understanding forest tenure in South and Southeast Asia. Forestry Policy and Institutions Working Paper 14, www.fao.org/docrep/009/j8167e/j8167e00.htm

Stainton, J.D.A (1972). Forests of Nepal, John Murray, London.

Subedi, B. P. (2006). Linking Plant based enterprises and local communities to biodiversity conservation in Nepal Himalaya. New Delhi: Adroit Publishers.

Thapa, H.B., and Kharal, D. (2011). Invasive Alien Species in Nepal, A presentation presented on APFISN Workshop on Forest Health Technology and Phytosanitary Standards held in Bejing on November 2011, Retrieved on 11 October, 2014 from http://apfisn.net/sites/default/files/Nepal.pdf

Thoms, C.A. (2008) Community control of resources and the challenge of improving local livelihoods: a critical examination of community forestry in Nepal. Geo Forum 39(3): 1452-65.

Tiwari, S., Siwakoti, M., Adhikari, B. & Subedi, K. (2005). An Inventory and Assessment of Invasive Alien Plant Species of Nepal, IUCN - The World Conservation Union, Nepal. viii+114 pp.

TISC, (2002). Forest and Vegetation Types of Nepal, Tree Improvement and Silviculture Project, Department of Forests, Kathmandu.

Tucker, C. M. (2010). Learning on governance in forest ecosystems: Lessons from recent research. International Journal of the Commons. 4(2): 687-70

Turner, B.L. II & W.B. Meyer (1994): Global Land-Use and Land-Cover Change: An Overview. In: Meyer, W.B. & B.L. Turner II (eds): Changes in Land Use and Land Cover: a Global Perspective. University of Cambridge

UNFCCC, (2001). Report of the conference of the parties on its seventh session, held at Marrakesh from 29 October to 10 November 2001.

UN-REDD/REDD Cell, (2014). Understanding drivers and causes of deforestation and forest degradation in Nepal: potential policies and measures for REDD+. Discussion paper. Web link: www.tinyurl.com/nepal-drivers-redd

UN-REDD (2015). Technical considerations for Forest Reference Emission Level construction for REDD+ under the UNFCCC.

UNDP, (2012). World Development Indicators (WDI). Accessed at: http://databank.worldbank.org

WECS, (2010). Energy Sector Synopsis Report 2010. Water and Energy Commission Secretariat, Kathmandu, Nepal

WWF/TAL (2003). The Root Causes of Biodiversity Loss in the Tarai Arc Landscape: An exploration of factors affecting biodiversity loss and the relationship to livelihoods. (Ed) Dawn Montanye, accessed on November 19, 2014 from http://www.wwfnepal.org/?55980/Tarai-Arc-Landscape-Project-TAL

WWF Nepal/ Hariyo Ban Program, (2012). Biological and socioeconomic study in corridors of Tarai Arc landscape, WWF Nepal/ Hariyo Ban Program.

WWF Nepal/ Hariyo Ban Program, (2013). Chitwan-Annapurna Landscape: Drivers of Deforestation and Forest Degradation.

WWF (2013). WWF Guide to Building REDD+ Strategies: A Toolkit for REDD+ Practitioners around the Globe, WWF Forest and Climate Change Program

UNFCCC (2011). Decision 12/CP.17 on guidance on systems for providing information on how safeguards are addressed and respected and modalities relating to forest reference emission levels and forest reference levels as referred to in decision 1/CP.16: appendix I COP 17 decisions. http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_safeguards.pdf

UN-REDD/REDD Cell, (2014). Understanding drivers and causes of deforestation and forest degradation in Nepal: potential policies and measures for REDD+. Discussion paper. Web link: www.tinyurl.com/nepal-drivers-redd

Annex 1. Review of Relevant National Policies relevant to REDD+

Land Use Policy 2012: The Government of Nepal has introduced new Land Use Policy in 2012. The major salient feature of it is that it classifies land into different categories and proposes policies accordingly. The policy anticipates that the land use for all purposes including development purposes will be used as per the land use plan. The land classified in the policy is agricultural, residential, commercial, industrial, forests, public, industrial, and others. It has also provisioned land pooling system for acquiring land for development projects. It also proposes Land Use Management Department for the effective implementation of the land policy. The policy aims to check rapid unplanned use or encroachments of forest land amidst rapid migration induced urbanization and enhance forest cover, very pertinent in the context of REDD+ strategy.

Climate Change Policy 2011: The main goal of the climate change policy is to improve livelihoods of the people by mitigating and adapting to the adverse impacts of climate change. The policy promises to adopt a low-carbon emissions socio-economic development path in consistent with REDD+ strategy and reiterates the country's commitment to national and international agreements related to climate change. One of the unique features of the policy is that it quantifies the time bound policy targets in many relevant areas and commits to allocate 80 percent of total climate fund to the local community. Most important policy coverage include climate adaptation and disaster risk reduction, low carbon development and climate resilience, technology development, transfer and utilization and climate friendly resource management.

Rangeland Policy 2012: Rangelands of Nepal comprise of grasslands, pastures, shrub-lands and other grazing areas. These play an important role in the country's farming systems and are the major feed resource for livestock and the wild life. Nepal's high altitude rangelands contain biodiversity with exceptionally high number of endangered species. For conservation and regulation of rangeland, Ministry of Agriculture Development brought out Rangeland Policy, 2012. The policy focuses, among others, on the enhancement of rangeland productivity, conservation of biodiversity and improvement of livelihood of people dependent on it.

National Parks and Wildlife Conservation Acts and Regulations: National park and wildlife conservation is governed by the act of 1973. It was amended 3rd time in 1989 and 4th time in 1993. The "National Park" as defined in the act is an area set aside for the conservation, management and utilization of flora, fauna and scenery along with the natural environment. It also provisions a "Strict Nature Reserve" to qualify the area of ecological importance or important for scientific studies. The "Wildlife Reserve" is defined as an area set aside for the conservation and management of wildlife resources and their habitats. After the act, many regulations in the related areas have been enacted. Such regulations include National Park and Wildlife Conservation Regulation 1974, Chitwan National Park Regulation 1974, Wildlife Reserve regulation 1976, Himali National Park Regulation 1980, Khaptad National Park Regulation 1983, Buffer Zone Management Regulation 1996, Bardia National Park Regulation 1997, Conservation Area Management Regulation 1997 and Conservation Area Public Management Regulation 2000.

National Biodiversity Strategy and Action Plan: The national biodiversity strategy developed in 2002 follows a more cohesive and strategic approach to conservation at the landscape level. It focuses on the protection and wise use of the biologically diverse resources of the country, the protection of ecological processes and systems, and the equitable sharing of benefits on a sustainable basis. It proposes both cross sectoral and sector specific strategies with focus on protected areas, forest rehabilitation and sustainable harvesting, agro-biodiversity, preservation and sustainable use of non-timber products and mountain biodiversity. It also envisages the mechanism for action. The action plans along with identifying the drivers of biodiversity loss, set national targets, design capacity development and developing indicators and monitoring approach. The strategy which is under revision is said to be emphasizing on promoting and harmonizing Aichi targets for biodiversity conservation with REDD+ safeguards.

National Wetlands Policy: The national wetland policy 2003 aims to conserve and manage wetlands with local people's participation for their benefit at the same time maintaining environmental integrity according to the terms and spirit of the Ramsar Treaty. Wetlands are considered to be fertile lands for agriculture and rich from the point of view of biological diversity and hence provide habitat for several species of wildlife and lie within various ecosystems of High Mountain and lowland plains. The policy has important bearing on the REDD+ strategy.

National Water Policy/Strategy: A Water Resources was enacted in 1992 covering surface water, underground water or water in whatsoever form for arranging rational utilization, conservation, management and development of the water resources. It focuses on timely legal arrangements for determining beneficial uses of water resources, preventing environmental and other hazardous effects and also commits to keep water resources free from pollution. In 2002, water resources strategy was developed and implemented. More distinct strategies for disaster management and environment, water supply, irrigation, hydropower and other economic activities like industry, tourism, fisheries and navigation are proposed there.

National Irrigation Policy: A new national irrigation policy was introduced in 2013 with the purpose of raising agriculture productivity, ensuring reliable year round irrigation facility and utilizing surface and underground water in a coordinated way. The policy commits to address the climatic changes, climatic risk and disaster risk management problems to be confronted in the course of irrigation development or expansion programs. It also commits to follow both adaptation and mitigation policies in such programs.

National Hydro-power Policy: The hydro power policy brought out in 2001 aims to generate electricity at a low cost, extend reliable and qualitative electric service throughout the country at a reasonable price, tie-up electrification with the economic activities including rendering of support to the development of rural economy and developing hydropower as an exportable commodity. In addition to emphasizing on large storage type hydropower and multi-purpose projects, it commits to develop hydropower as an alternative to biomass and thermal energy for environmental protection. It also commits to pursue mitigation measures for controlling or minimizing the adverse environmental impacts of hydropower projects. Provisions are also there to resettle the displaced families in the course of implementing hydro projects. It emphasizes on consumer demand management for the conservation of energy. The approach paper of the current plan (2013-2016) proposes to develop a 'Sustainable Energy for All' action plan for easy access to energy including alternative energies and equally stresses on efficiency in energy uses.

Environment Act and Regulations (EIA guidelines for sectors): The Environment Act 1997 provides legal basis for the conservation of environment, prevention and control of pollution and also provides the legal authority to develop regulatory measures for the conservation of biodiversity, and sustainable and equitable benefit-sharing by using genetic resources. It makes environmental impact assessment mandatory for the approval of the projects both in government and private sector. Special clauses related to prevention and control of pollution, protection of national heritage and environment protection area are included in the act.

Some of the sectoral laws have made explicit provisions of environmental assessment. The Forest Act, 1993 calls for carrying out EIA of the development proposals if they are to be implemented in the forest areas and/or passes through the forest area. The National Parks and Wildlife Conservation Act, 1973 contains a number of environment-friendly provisions and prohibit activities that will have adverse impacts on the environment. The Water Resources Act 1993 contains provisions to minimize environmental impacts, including soil erosion, floods and landslides. This provision calls for carrying out EIA study prior to project implementation. The Water Resources Rules, 1993 oblige the promoter to analyze environmental impacts of a proposal and state that such study should contain environmental control and safety measures and other necessary arrangements to resettle people during hydro-electricity development. The Electricity Act, 1993 also contains provisions to minimize soil erosion, floods, air pollution and damage to the environment while producing and transmitting electricity. The Tourism Act, 1978 also contains provisions to minimize waste and environmental pollution in the trekking areas. Scattered regulatory measures are also provisioned in other sectoral laws despite no inclusion of clear-cut mandatory EIA clause. The Mines and Minerals Rules, 2000 obliges the proponent to adopt environmental protection measures and ensure environmental conservation.

Similarly, Explosive Material Act, 2018, Public Road Act, 2031, Road Board Act 2002, Land Acquisition Act 2034 and Land Acquisition Regulations 2026, Local Self-Governance Act (1999) and Rules (2000), Buffer Zone Management Regulation 1996, Himalayan National Park Regulations, 1979 also emphasize EIA provisions.

National Adaptation Plan of Action (NAPA) and Local Adaptation Plan of Action (LAPA): National Adaptation Program of Action (NAPA) was developed by Nepal in 2010. It was developed as a requirement under the UNFCCC to access funding for the most urgent and immediate adaptation needs from the Least Developed Countries Fund (LDCF). In the NAPA, nine integrated projects have been identified as the urgent and immediate national adaptation priority. They are:

1. Promoting community-based adaptation through integrated management of agriculture, water, forest and biodiversity sector,
2. Building and enhancing adaptive capacity of vulnerable communities through improved system and access to services related to agriculture development,
3. Community-based disaster management for facilitating climate adaptation,
4. GLOF monitoring and disaster risk reduction and forest and ecosystem management for supporting climate-led adaptation innovations,
5. Adapting to climate challenges in public health and ecosystem management for climate adaptation, and
6. Empowering vulnerable communities through sustainable management of water resource and clean energy support and promoting climate smart urban settlement.

This was followed by development of National Framework on Local Adaptation Plan for Action (LAPA) in 2011. The Framework envisages that climate adaptation and resilience are integrated into local and national planning. Bottom-up, inclusive, responsive and flexibility are the four guiding principles pursued by the LAPA. The LAPA framework promises to support the following activities from local to national level planning:

1. Identify the most climate vulnerable Village Development Committee (VDC), Municipality, wards and communities and their adaptation challenges and opportunities, including possible activities,
2. Identify and prioritize adaptation actions in easy ways whereby local communities make the prioritization decisions about their needs,
3. Prepare Local Adaptation Plans for Action and integrate it into local and national plans in accordance with the Local Self-Governance Act,
4. Identify and mobilize appropriate service delivery agents and necessary resources for the implementation of the Local Adaptation Plans for Action,
5. Adopt and/or implement adaptation actions sequentially by the service providers in a timely and resource efficient manner,
6. Conduct monitoring and evaluation by ensuring effective implementation of the plan for action; and
7. Identify cost-effective adaptation alternatives for scaling up into local and national planning.

It aims to identify local adaptation needs that focus on reducing local climate risks and vulnerabilities and increasing resilience. Rather than creating new one, it emphasizes on using existing mechanisms to develop community adaptation planning in support of the most vulnerable communities and people. The process was started by sensitizing local communities on climate change issues accompanied by enhancing the capacity of more than 500 local facilitators/community practitioners on vulnerability assessment and adaptation planning.

Annex 2. Review of Relevant National and International Policies and Regulations related to Social and Environmental Safeguards for Implementation of the REDD+ Strategy

1. Land Acquisition, Compensation and Resettlement

The Interim Constitution of Nepal 2063 (2007)

Article 19 of the Interim Constitution (2063 (2007)), Right to Property, states that (1) "Every citizen shall, subject to the laws in force, have the right to acquire, own, sell and otherwise dispose of the property. (2) The State shall not, except in the public interest, requisition, acquire, or create any encumbrance on the property of any person. Provided that this clause shall not be applicable on property acquired through illegal means. (3) 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 law."

Land Acquisition Act, 2034 (1977)

The Land Acquisition Act (LAA), 2034 (1977), first promulgated in 1961 (Land Acquisition Act, 2018) is the overarching policy governing 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. Like many countries, Nepal does not have an explicit national involuntary resettlement policy or Act. Nonetheless some of the key requirements of involuntary resettlement are addressed by LAA. The LAA stipulates the process, procedures and timeframe as well as administrative responsibilities in acquiring private properties (for example, land, house, crops and others) for public purpose. It does not, however, state any provisions for physical resettlement and livelihood restoration of the affected population. The compensation for the land and property is determined by a Compensation Fixation Committee (CFC) formed under the chairmanship CDO. The mode of compensation is in cash after deducting the depreciation of the property. This has been the law being followed in public capital investments since its issuance. However, Clause 27 of the Act provides provisions for land acquisition through the mutual agreement with the plot owners, where the process of land acquisition as per Act is not required. The Act grants the plot owner the right to choose between a mutual agreement and the formal process for land acquisition as per the Act.

Land Reform Act, 1964

Another key legislation in Nepal related to land acquisition is the Land Reform Act (LRA) 2021 (1964). This Act establishes the tiller's right on the land, which he/she is tilling. The LRA additionally specifies the compensation entitlements of registered tenants on land sold by the owner or acquired for the development purposes. The most recent Act Amendment (2001) established a rule that when the State acquires land under tenancy, the tenant and the landlord will each be entitled to 50 percent of the total compensation amount. Tenants are verified through a record of tenancy at the Land Revenue Office.

Guthi Corporation Act, 1976

Land acquisition must also comply with the provisions of the Guthi Corporation Act, 2033 (1976). 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.

Forest Act, 1993

The Forest Act, 1993 recognizes the importance of forests in maintaining a healthy environment. Section 49 of the Act prohibits reclaiming lands, setting fires, grazing, removing or damaging forest products, felling trees or plants, wildlife hunting and extracting boulders, sand and soil from the National forest without prior approval. 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.

Water Resources Act, 1993

The main objective of the Water Resources Act is to make legal arrangements for determining beneficial uses of water resources, preventing social, environmental and other hazardous effects thereof and also for keeping water resources free from pollution.

Section 16 has a provision for land acquisition from government or public for the construction of a water resource projects. If the project has been performed by Government of Nepal or a licensee, Government of Nepal may prohibit to use the premises of a house or land located in the area where such construction work is performed or the premises of a house or land located in the prescribed distance from such place of construction by any other person for any specified purpose. Government of Nepal or the licensee shall pay compensation, as prescribed under Land Acquisition Act, 2034(1977) to the concerned person for such damage or loss caused due to such prohibition.

Local Self-Governance Act, 1999

The Clause 258 in the Part – 5, General Provisions relating to Local Body Chapter – 3, Miscellaneous has provision of land acquisition. The Clause states that in case the Local body has to acquire land to carry out any development and construction works within its area, it may acquire the land required for that work by following the requirements of the prevailing law and providing compensation to the concerned land-owner for the land.

The LSGA gives local bodies called VDCs, Municipalities and DDCs the right to sell forest resources to generate income from within their boundary.

<u>WB Policy on Involuntary Resettlement (OP 4.12)</u>

The REDD+ project does not envisage any involuntary resettlement and involuntary land acquisition. However OP 4.12 will be applicable in case there is involuntary land taking resulting in displacement of people and / or loss of livelihood or source of livelihood. In such circumstances OP 4.12 will be triggered. 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.

Absence of legal title to land should not be a bar for compensation, resettlement, and rehabilitation assistance. Both physical and economic 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. 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.

WB Policy on 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.

2. Safeguard of Indigenous Peoples (IPs) and other Vulnerable Communities

The Interim Constitution of Nepal 2063 (2007)

The Interim Constitution of Nepal commits GoN for the protection and development of IPs and other marginalized communities. Article 21, Right to Social Justice guarantees the rights of the economically, socially or educationally backward women, Dalits, indigenous peoples, Madhesi communities, oppressed classes, poor farmers and labors to take part in the structures of the State on the basis of the principle of 'proportional inclusion'. Similarly, Article 35, Policies of the State (10) states that the State has compulsory obligation to pursue a policy of uplifting the economically and socially backward indigenous peoples, Madhesi, Dalit, marginalized communities, and workers and farmers living below the poverty line, by making a provision of reservation in education, health, housing, food sovereignty and employment, for a certain period of time.

The Tenth Five Year Plan (2002-2007) & Three Year Interim Plan (TYIP) (2007-2010)

Emphasis has been put on delivering basic services to the disadvantaged and indigenous people, Dalits, women, disabled and other vulnerable groups including the Adivasi / Janajati in the Tenth Plan. 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. GoN's five year periodic plan is the guiding policy document for any development project

Similarly, the Three Year Interim Plan (TYIP) (2007-2010) emphasized for inclusion of Adivasi/Janajatis and other vulnerable groups through creating an environment for social inclusion; ensuring participation of disadvantaged groups in policy and decision making; developing special programs for disadvantaged groups; positive discrimination or reservation in education, employment, etc.; protection of their culture, language, and knowledge; proportional representation in development; and making the country's entire economic framework socially inclusive.

Three-Year Plan (2009/10 - 2012/13)

The plan 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.

One of the priorities of the plan to increase investment to support development by promoting inclusion of excluded communities, region and gender in all structure, sector and processes of the nation.

National Foundation for the Development of Indigenous Nationalities (NFDIN) Act, 2058 (2002)

The GoN decreed the NFDIN Act in 2002 which was the basis to establish National Foundation for the Development of Indigenous Nationalities (NFDIN). The act defines indigenous groups or Adivasi Janajati in Nepali as "a group or community having its own territory, own mother tongue, traditional rites and customs, distinct cultural identity, distinct social structure and written or unwritten history". The government, through NFDIN, has identified and officially recognized 59 such indigenous communities. This list was updated in 2009 to include 81 groups for official recognition but yet to be approved by the GoN.

The indigenous people in Nepal are not homogenous and there is vast disparities existed in terms of socio-economic standing among them. Accordingly Nepal Federation of Indigenous Nationalities (Adivasi/ Janajati) (NEFIN) has grouped 10 of the 59 Adivasi/ Janajati as "endangered", 12 "highly marginalized", 20 "marginalized", 15 "disadvantaged" and 2 as "advanced" or better off on the basis of a composite index consisting of literacy, housing, landholdings, occupation, language, graduate and above education, and population size.

The NFDIN established the first comprehensive policy and institutional framework regarding indigenous peoples. It has been working for the preservation of the languages, cultures, and empowerment of the marginalized ethnic nationalities. More specifically, the NFDIN has been working to achieve the following objectives:

1. To make overall development of the *Adivasi/Janjati* by formulating and implementing the social, educational, economic and cultural programs.
2. To preserve and promote the language, script, culture, literature, arts, history of the *Adivasi/Janjati.*
3. To preserve and promote the traditional knowledge, skill, technology and special knowledge of the *Adivasi/Janjati* and to provide assistance in its vocational use.
4. To encourage the *Adivasi/Janjati* to be participated in the mainstream of overall national development of the country by maintaining a good relation, goodwill, and harmony between different *Adivasi/Janjati*, castes, tribes and communities.
5. To provide assistance in building an equitable society by making social, economic, religious and cultural development and uplifttment of *Adivasi/Janjati*.

Local Self-Governance Act, 1999

The Local Self-Governance Act, 1999 commits local bodies for the promotion, preservation, and protection of language, religion, culture of indigenous people and their welfare in their respective areas. The Act empowers local bodies to formulate and implement periodical and annual plans within their own jurisdiction. Periodic plans integrate different thematic plans according to social, economic, environment, physical, financial, and institutional aspects. The Act provides local bodies to follow planned development programs and prioritized programs that can increase productivity, contribute to upgrading living standards, and generate income and employment opportunities for indigenous people and other vulnerable groups. The Act also requires that local programs provide direct benefits to women and disadvantaged groups, and use community groups in the planning and execution of development programs.

The Forests Act (1993), Forest Regulation 1995 and CF Guidelines

The Forests Act (1993) and forest regulation 1995 are the main legislative instruments to regulate community forestry and envisages various types of community based forest management modalities such as Leasehold Forestry (LF), Collaborative Forest Management (CFM), user group based watershed management and buffer zone forest management. The Act and regulations define Community Forest Users Groups (CFUGs) as self-sustained and perpetual entities and have given absolute rights to CFUGs in managing their community forests. The regulatory provisions authorize CFUGs to formulate their own rules, enforce and sanction as appropriate. The constitution of a CFUG is a key regulatory document that defines decision making and benefit sharing mechanisms within the FUG as well as rights and responsibilities of different user members and forums. Within the legal framework defined by the rules, the CFUGs hold regular meeting, prepare and amend rules, allocate annual budget for overall forest development including different local development initiatives. Some social safeguard related provisions are as follows:

Forest Act 1993

- Land ownership remains with the state, while the land use rights belong to the CFUGs
- User groups are recognized as independent, self-governing, autonomous and corporate body with perpetual succession.
- All management decisions (land management and forest management) are taken by the CFUGs.
- Each household is recognized as a unit for the membership and every member has equal rights over the resources.
- There are mutually recognized use-rights.
- Equitable distribution of benefits.
- CFUGs can accumulate their fund from grant received by GoN and other local institutions, sale of CF products and amount received by other sources such as fine, etc. CFUGs can use their funds in any kind of community development works.

Forest Rules 1995

- User groups are allowed to plant short-term cash crops like NTFPs such as medicinal herbs.
- User groups can fix prices of forestry products for their own use.
- CFUGs can transport forest products under their jurisdiction anywhere in the county.
- In case of forest offences, CFUGs can punish their members according to their constitution and operational plan.

As per the provision of second revision of CF guidelines 2000, GoN has made the wellbeing ranking mandatory process while preparing CFUG constitution. As a result, the CFUGs need to identify the poorest households through wellbeing ranking based on the locally developed criteria and required to implement poverty reduction and marginalized group focused activities. These include – distribution of community lands to the landless or near-landless members, so that they can earn the living with cultivation of rewarding medicinal herbs or raising other crops. Several groups provide preference to poor members or women for placing them locally created jobs, such as for processing of handmade paper, working as nursery laborer, etc. (Subedi, 2006).

The National Dalit Commission (DNC) (2002)

The NDC was first constituted in 2002 by executive order of the Government of Nepal for the protection of their rights and inclusion in the mainstream of development. The main objectives of DNC are:

- To increase the active participation of socially, economically, politically, educationally most backward Dalit Community in the mainstream of national development by preserving and augmenting their fundamental rights provisioned in the prevalent law and constitution
- To create the environment favorable to Dalit community to enjoy the equal rights, self-esteem, services and privileges as equal as other social groups in the Nepal's human development Index.

However, it is yet to be made capable and powerful with efficient human resource and institutional empowerment by legally and financially to achieve the objectives entrusted by executive order for its formation.

Labor 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.

National Parks and Wildlife Conservation Act, 1973

The Act restricts entry in national park area without prior permission. Hunting of animals and birds, build or occupy any houses, shelter or structures, occupy, clear or plant or grow any part of land, cut, fell, remove overshadow any tree, remove any quarry or any other activities are banned.

This Act provides provision (4th amendment in 1993) for the government to declare national parks, reserves or conservation areas as well as declare peripheral areas of a national park or reserve as buffer zones. The Act and other Rules framed under this Act provide provision for benefit sharing. About 30 to 50 percent of the total benefits generated from national parks and wild life conservation should be provided for community development activities in the declared buffer zone areas. It also prioritizes people's participation for the management of protected areas to reduce park-people conflicts.

Buffer Zone Regulations, 1996

These provide park authority and local users to design programs for the buffer zone that are compatible with the national park management. It allows investing 30-50% of the park-generated revenues for community development activities in buffer zone. It promotes activities that meet the basic needs of local people for firewood, fodder, timber, and grazing. Following activities are prohibited:

- Occupying any land without legal ownership or cutting trees, clear forest or cultivate forestland
- Any activity damaging forest resources or setting fire in the forest
- Excavating stone, earth, sand or mine or removing minerals, earth or other such materials
- Using any harmful poison or explosive substances into the river, stream or source of water flowing in the buffer zone
- Hunting illegally and any act of damaging to the wildlife

Climate Change Policy (2010)

The main goal of this policy is to reduce adverse impact of climate change, develop adaptation and mitigation mechanism and reduce carbon greenhouse gas (GHG) emission. Objectives of the policy are implementation of climate change adaptation program and mitigation measures for adverse impacts and enhancement measures for beneficial impacts and promotion of renewable and alternative energy and green technology. It also advocates for strengthening capacity of local people for the climate change adaption to promote livelihood of vulnerable people by maximizing opportunities from international climate change related conventions.

Forestry Sector Policy (2000)

This policy is an updated version of the Forestry Sector Master Plan policy and subsequent amends to that document. It contains development imperatives, strategies, and programs and summarizes the investment required to develop the forestry sector. This policy highlights the implementation of community and private forestry development programs, national parks and conservation areas management programs, soil and

watershed conservation program, management and development of medicinal plants, and conservation of biological diversity and endangered species. Moreover, it emphasizes to avoid forest destruction or tree cutting while constructing infrastructures during implementation of project other than forestry sector

GoN Policies on Gender Mainstreaming

The Government of Nepal (GON), since the early 1990s, has been making significantly increasing commitments to gender equity, equality and the empowerment of women in its policies, plans and programs. The GON introduced a Gender Approach to Development (GAD) in 1990, to enable women and men to participate equally in public and private life and realize their full potential in development. The Tenth Plan (2002-2007) as a Poverty Reduction Strategy Paper (PRSP) identified gender and inclusion as its main strategies for reducing poverty. 'Social inclusion and targeted programs' was one of the four major pillars of the Tenth Plan/PRSP. The Plan, instead of relying only on targeted programs, tried to address gender and caste related issues by mainstreaming all of the four pillars of PRSP along with envisaged strategies to achieve gender equality and empowerment of women. The Three Year Interim Plan (TYIP) [2008-2010]), which emphasizes post conflict reconstruction, rehabilitation and reconciliation, continued the long-term goal of poverty reduction through gender mainstreaming and social inclusion.

Review Guidelines for EIA and IEE of Forestry Sector (2002) and IEE Manual for Forestry Sector (2005)

The Ministry of Forests and Soil Conservation (MFSC) prepared and used Review Guidelines for IEE and EIA of Forestry Sector, 2002 and IEE Manual for Forestry Sector, 2005. They provide procedures to prepare quality EA (includes physical, chemical, biological, social, economic and cultural aspects) reports, by identifying and predicting impacts and evaluating their significance, preparing practical environmental management plan, and process for conducting environmental monitoring and auditing as an integral part of EIA. These instruments have made a solid foundation to ensure environmental and social safeguards in forests and forest-related development programs and projects.

Buffer Zone Management Guidelines, 1999

These outline procedures for managing buffer zones including the formation of user groups, user committees, buffer zone management committee, disbursement of revenue, and settlement of compensation. Buffer zones have been developed in order to focus on the special needs of local communities that are likely affected by conservation measures. The main responsible body for overall conservation and development in the buffer zone include user group, user committees, and buffer zone management committee and council.

Wildlife Damage Relief Guideline, 2009

This is prepared to provide relief of human and livestock casualty, crop, house and shed damage to the victims due to the wildlife. Providing relief procedures are mentioned in this guideline. In definition, victim is eligible to get relief from the damage caused by Elephant, Rhinoceros, Tiger, Snow Leopard, Leopard, Arna and Bear. However, there is confusion about Wild Boar, Python and Crocodile as they are also mentioned in preamble. There is also provision of Relief Distribution Recommendation Committee in each district.

National Adaptation Program of Action, 2010

The National Adaptation Program of Action (NAPA) has been instrumental in mainstreaming climate change in development planning. Nepal has prepared the National Adaptation Program of Action (NAPA) which was endorsed by the government in September 2010. The NAPA has developed a framework for adaptation program and has identified key adaptation needs, existing adaptation practices and options for developed projects. It has following nine priorities:

(a) Promoting community-based adaptation through integrated management of agriculture, water, forest, and biodiversity;
(b) building and enhancing adaptive capacity of vulnerable communities through improved systems and access to service for agricultural development;
(c) community based disaster management for facilitating climate adaptation;
(d) GLOF monitoring and disaster risk reduction;

(e) forest and ecosystem management for supporting climate led adaptation innovations;
(f) adapting to climate change in public health;
(g) ecosystem management for climate adaptation;
(h) empowering vulnerable communities through sustainable management of water resources and clean energy supply; and
(i) promoting climate-smart urban settlements.

Policies on Gender Mainstreaming

A number of policies exist in Nepal which provides the policy and legal framework for gender equality and social inclusion. There is a strong national mandate addressing the rights of women and ethnic minorities through provisions in the Interim Constitution,[37] parliamentary declarations and national development plans.[38] Similarly, Nepal is signatory to many international human rights related conventions and declarations, which call for the elimination of all forms of gender based discrimination, including those in access to education, health and other services. The Convention on the Elimination of all forms of Discrimination against Women (CEDAW), signed by the GoN in 1991, commits Nepal to constitutional and legal equality, particularly in the fields of education, health, citizenship, property and employment. It also guarantees freedom from all kinds of violence and sexual exploitation.

Though there exist a number of policies for the forestry sector, a review of relevant policies and mandates such as the Forest Act (1993) and Regulation (1995), Forest Sector Policy (2000), Land Acquisition Act 1977 and Environment Protection Act, 1997, indicates that the policy mandates for forestry sector rather weak and more specific policies or rules are required in place in the sector to address issues of women, poor and the excluded.

International Labor Organization (ILO) Convention (169), 1989

Article 4.1 of the ILO Convention commits government of signatory countries to adopt special measures as appropriate for safeguarding the persons, institutions, property, labor, cultures and environment of the peoples concerned.

In applying the provisions of this Convention, the article 6.1 prescribes that governments shall consult 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.

The article 6.2 says about the process of consultation and states that the consultations carried out in

37 Interim Constitution: Section 3: Fundamental rights: Article 13 states: No one will be discriminated against on the basis of religion, caste, ethnicity, gender, language (pg. 4); for women, Dalit, Adivasi Janajati, Madhesi, and socially or culturally discriminated groups affirmative actions can be taken, (pg. 5).

38 Government of Nepal (GON)'s Three Year Interim Plan (TYIP) (2007-2010), Three Year Plan (2010-2013) and Approach to the Thirteenth Plan (2013-2015), establish the fundamental rights of women, Dalits, Madhesis, Muslims, Adivasi Janajatis (Indigenous Nationalities), sexual and gender minorities, and persons with disability. The Gender Equality Act (2006) has repealed and amended 56 discriminatory provisions of various Acts and has incorporated provisions to ensure women's rights. The 2007 amendment to the Civil Service Act has provided 45 percent seat reservation to excluded people and backward regions[38]. The Blended Block Grant Guideline (2010) of the Ministry of Federal Affairs and Local Development (MOFALD) allocates a 35% targeted fund for women (10%), children (10%), and disadvantaged communities (15%) in the District Development Committees (DDC), Village Development Committees (VDC) and municipalities. Caste-based Discrimination and Untouchability Act (May 2011) declared untouchability a legal offense. ILO Convention 169, ratified by Nepal in 2007, ensures rights of indigenous nationalities about their ownership and tenure right to land and water resources. Thus there exists a strong policy mandate for gender equality and social inclusion in Nepal.

application of this Convention shall be undertaken, in good faith and in a form appropriate to the circumstances, with the objective of achieving agreement or consent to the proposed measures.
As per the article 7.1 of the Convention, the peoples concerned shall have the right to decide their own priorities for the process of development as it affects their lives, beliefs, institutions and spiritual well-being and the lands they occupy or otherwise use, and to exercise control, to the extent possible, over their own economic, social and cultural development.

The article 7.3 mentions requirement to assess the likely impacts of any development interventions on indigenous people. It states that Governments shall ensure that, whenever appropriate, studies are carried out, in co-operation with the peoples concerned, to assess the social, spiritual, cultural and environmental impact on them of planned development activities. The results of these studies shall be considered as fundamental criteria for the implementation of these activities.

United Nations Declaration on the Rights of Indigenous Peoples, 2007

The goal of the Declaration is to encourage member countries to work alongside indigenous peoples to solve global issues, like development, multicultural democracy and decentralization. Articles 1-4 of the Declaration sets out the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, education and other issues. The Article 5 emphasizes the rights of indigenous peoples to maintain and strengthen their own institutions, cultures and traditions and Article 23 encourages them to pursue their development in keeping with their own needs and aspirations. The Article 21 prohibits discrimination against indigenous peoples. Articles 25-30 describe process and procedures to promote their full and effective participation in all matters that concern them and their right to remain distinct and to pursue their own visions of economic and social development.

WB Policy on 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.

3. Good Governance, Social Accountability and Public Consultation

Right to Information Act, 2064 (2007)

The aim of this act is to make the functions of the state open and transparent in accordance with the democratic system and to make responsible and accountable to the citizen. It intends to make the access of citizens simple and easy to the information of public importance held in public bodies and to protect sensitive information that could make adverse impact on the interest of the nation and citizen.
The clause 3 of the act ensures Right to Information. It says that every citizen shall, subject to this Act have the right to information and they shall have access to the information held in the public Bodies unless confidentiality has been maintained by laws.
The clause 4 of the act describes the Responsibility of a Public Body to disseminate information. It mentions that each Public Body has to respect and protect the right to information of citizen.
The clause 7 of the act prescribes the Procedures of Acquiring Information. It states that a Nepali Citizen, who is interested to obtain any information under this Act, shall submit an application before concerned Information Officer by stating reason to receive such information.

Good Governance (Management and Operation) Act, 2064 (2008)

This act intends to make legal provision in relation to good governance by making public administration of the country pro-people, accountable, transparent, inclusive and participatory.

The clause 30 of the act has a provision of public hearing. The Chief office-holder at regional, zonal, district and local level involved in delivery of service, shall conduct **Public Hearing** as prescribed, with the purpose of making the activities of the office fair, transparent, and objective and addressing the lawful concerns of general people and stakeholders. The act also mentions that subject matter expert, stakeholders, and representatives of civil society and officials of the local bodies shall be the participants of the public hearing. Similarly, the clause 31 of the act describes **Grievance Management Process**.

The Forests Act (1993) and Forest Regulation 1995

The community based forestry program (CBFP) is being implemented under the Forest Act (1993) and Forest Regulation (1995). Now CBFP is not taken as just a government program offering some services to people; it is owned and actively sustained by citizens – who are organized as Community Forest User Groups (CFUGs). The CFUG governance is defined by their Constitution and community forest management Operational Plan (OP). The constitution is registered in the District Forest Office (DFO). While there are certain standards, guidelines and norms for the group constitutions, each CFUG prepares its own constitution defining the social arrangement and the responsibilities and rights of the group (which may vary from group to group to adapt the local tradition, culture and practices) as well as an OP specifying how the forest is managed and utilized. OP also serves as an agreement between the DOF and the CFUG.

Similarly, the Community Forest Guidelines 2001 suggests for a thorough discussion at tole (hamlet) level in order to encompass the needs and interest of the poor, women and destitute sections of the community while preparing forest management plan or revising it.

Likewise, the Forestry Sector Gender and Social Inclusion Strategy (2006) has also aimed at guiding all the forestry sector stakeholders to promote the inclusion of poor and socially excluded group of people in CF. Furthermore, Ministry of Forests and Soil Conservation (MFSC) has declared its Gender, Poverty, Social Equity (GPSE) Vision for 2020 which clearly stated and committed that the ministry is a gender and social equity sensitive and socially inclusive organization, practicing good governance to ensure equitable access to, benefits from, and decision-making power over, forest resources and benefits of all Forestry sector stakeholders.

Environment Protection Rules, 2054 (1997)

The Environment Protection Rules (EPR), 1997 provides the detail provisions to conduct public consultation and feedback. The different sections of EPR, 1997 relevant to the public consultation and disclosure are described below.

Rule 4: Proposal requiring EIA will have to prepare a scoping document incorporating the public concerns and apply to MoEST through concerned agencies. In this process a 15 days public notice in the national newspaper requesting suggestions and comments on environmental and social issues arising due to the proposal implementation has to be published. The MoEST is empowered to review the document and give approval with or without needed amendments.

Rule 5: Proponent of both IEE and EIA proposals has to prepare Terms of Reference (ToR) of the proposal for approval incorporating the concerns and suggestions of the stakeholders.

Rule 7: Proponents of the EIA proposal has to organize a public hearing in the project affected area to collect public concerns and suggestions and address the concerns and suggestions in the EIA report.

Rule 11, Sub-rule 2, 3, and 4: Ministry of Environment, Science and Technology (MOEST) upon receipt of the EIA shall disclose the EIA report through public notice in any one of the daily newspaper, granting a time limit of thirty days, to the general public to make a copy of the report or to study it for offering their opinions and suggestions to the Ministry within 30 days of the notice publication.

Rules 45 to 48 elaborate the provision for compensation and addressing the grievances. In case anyone wishes to realize compensation from any individual, institution or proponent under section 17 of the Act, s/he

may submit an application to the concerned Chief District Officer (CDO) mentioning the type of loss and the amount of compensation sought. In such application, CDO shall conduct investigation, evaluate the actual loss and shall determine appropriate and reasonable amount of compensation accordingly. In case of difficulty in evaluating the compensation, CDO may seek guidance from the concerned body. The proponent shall pay the amount to the concerned individual or institution within 30 days from the date of determination of the amount. Failure to pay the amount of compensation within the prescribed time limit, CDO shall take action to pay from the property of the individual, institution or proponent in accordance with the existing laws.

Land Acquisition Act, 2034 (1977)

The Land Acquisition Act, 2034 (1977) has detail provisions for public notification and feedback. The different clauses of LAA, 1977 relevant to the public notification and disclosure are described below

Clause 9 of the LAA empowers the Chief District Officer (CDO) for public notification, with details of the affected property. The notification with required details is to be published in the notice boards of Project Site Office, District Development Office, Concerned Village Development Office or Municipality Office, Land Administration Office, Land Revenue Office, or any place close to the land and property acquisition sites. And, if the CDO feels that any concerned party might not be informed by the public notice, then he may inform him/her personally with other details. Land Revenue office is mandated to stop registration of the notified land and property till further notice by the CDO.

Clause 10 of the LAA describes the facts to be included in the public notice of Clause 9 such as: the documents required and the time to apply for the compensation; the time period within which the standing crops, structures etc. could be managed by the concerned party, etc.

As per Clause 11 of the Land Acquisition Act, 2034 (1977), any grievances and objections will be referred to the Grievances Redress Committee (GRC). The Act assigns the CDO as the sole responsibility to chair land acquisition activities and to address the grievances related to the land acquisition and compensation. According to Clause 11, any grievance to disable land and property acquisition could be reported to Home Ministry within 7 days of public notification by CDO. Home Ministry is required to decide on the grievances within 15 days of the receipt of the grievances. On deciding the grievances, Home Ministry is authorized in as much capacity as the district court to consult the local authority or, ask for necessary documents or, consult witnesses.

4. International Safeguard Instruments applicable for Nepal's REDD+ initiatives

The UNFCCC REDD+ Safeguards

The safeguards for REDD+ are included after the Sixteenth Conference of the Parties (COP 16) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Cancun in December 2010. The Cancun Agreements agreed to a set of seven safeguards to support REDD+ implementation to ensure that REDD+ actions do not cause negative social or environmental impacts and affirm that the implementation of REDD+ activities should be carried out in accordance with the safeguards. The Cancun Agreements outlined the following seven safeguards for REDD-plus initiatives:

1. Actions complement or are consistent with the objectives of national forest programs and relevant international conventions and agreements;
2. Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;
3. Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;
4. Full and effective participation of relevant stakeholders, including, in particular, indigenous peoples and local communities;
5. Actions that are consistent with the conservation of natural forests and biological diversity, ensuring that actions are not used for the conversion of natural forests, but are instead used to

incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;

6. Actions to address the risks of reversals;
7. Actions to reduce displacement of emissions;

Thus, the UNFCCC REDD+ safeguards cover a range of issues including the need for consistency with national objectives and priorities, transparent forest governance structures, respect for indigenous peoples and local communities, effective participation of relevant stakeholders, conservation of natural forests and biodiversity, permanence, and leakage. The Cancun Agreements also include the importance of addressing land tenure, gender rights, drivers of deforestation and forest degradation and forest governance issues in national strategies.

The UNFCCC REDD+ Safeguards encompass environmental, social, carbon and governance standards to be applied to all types of REDD-plus financing. These safeguards are the core minimum performance requirements for REDD-plus projects. They ensure that REDD-plus will be implemented in an inclusive, transparent manner, with respect for the rights of indigenous peoples and local communities and with consideration for the protection of biodiversity.

UN-REDD safeguards – the Social and Environmental Principles and Criteria

The UN-REDD safeguards called the Social and Environmental Principles and Criteria, cover the readiness activities for which it has provided countries with finance. The UN-REDD Program's Social and Environmental Principles and Criteria (SEPC) framework, combined with other tools and arrangements, enables countries to align their respective national approaches and strategies with the Cancun Agreements.

The SEPC has seven principles and 20 criteria which encompass the following:

- democratic governance and respect for stakeholder rights – complements the Cancun safeguards of 1) having transparent and effective national forest governance structures with respect to national legislation and sovereignty and 2) giving room for the participation of indigenous peoples and forest-dependent communities in the REDD-plus projects.
- promotion of sustainable livelihoods, protection of natural forests from degradation and conservation of biodiversity – reflects the Cancun mandate that actions should be consistent with the conservation of natural forests and biological diversity
- protection of natural forests from degradation and/or conversion – supports the objective of the Cancun agreements that reversals and risk emissions must be addressed. Reversals happen when a decrease in emissions is annulled due to deforestation or disasters like fire or pests.

UN-REDD has mechanisms that complement and enhance processes useful for the effective implementation of REDD-plus safeguards, such as free, prior and informed consent. SEPC Criterion 9 has operational guidelines for FPIC, which must be given by indigenous communities before REDD-plus programs can be developed and executed.

The criteria also address the need to secure land tenure, empower women and vulnerable groups and establish a grievance mechanism. Guidelines in stakeholder engagement and strengthening of national-level grievance mechanisms - tools that were jointly developed with the Forest Carbon Partnership Facility – help countries optimize the application of SEPC.

The SEPC also aims to guarantee that REDD-plus projects bring multiple benefits – aside from monetary rewards, REDD-plus programs must improve the overall state of communities and environmental resources

The REDD+ Social and Environmental Standards (SES)

The REDD+ SES guide governments in preparing and building their frameworks and mechanisms for implementing the UNFCCC REDD+ safeguards. It can be used by governments, NGOs, financing agencies and other stakeholders to support the design and implementation of REDD+ programs that respect the rights of Indigenous Peoples and local communities and generate significant social and environmental benefits. These standards are particularly designed for government-led programs, policies and measures implemented at

national or state, provincial, or other level and are relevant for all forms of fund-based or market-based financing entities which must be distinguished from safeguards (ESMF and ESMPs) as the latter are binding conditionalities that must be met as part of the regulatory regime or in order to qualify for financing for a project or programs whereas the former are additional qualitative characteristics of a project that are reported in exchange for obtaining a certification.

The REDD+ SES framework also has 8 principles and 34 criteria that encompass objectives ranging from biodiversity conservation to good governance.

- Principle 1 – The REDD+ program recognizes and respects rights to lands, territories and resources
- Principle 2 – The benefits of the REDD+ program are shared equitably among all relevant rights holders and stakeholders.
- Principle 3 – The REDD+ program improves long-term livelihood security and well-being of indigenous peoples and local communities with special attention to women and the most marginalized and/or vulnerable people
- Principle 4 – The REDD+ program contributes to good governance, to broader sustainable development and to social justice
- Principle 5 – The REDD+ program maintains and enhances biodiversity and ecosystem services
- Principle 6 – All relevant rights holders and stakeholders participate fully and effectively in the REDD+ program
- Principle 7 – The REDD+ program complies with applicable local and national laws and international treaties, conventions and other instruments
- Principle 8 – The REDD+ program complies with applicable local and national laws and international treaties, conventions and other instruments

Annex 3. List of policy and legal instruments[39] in the forestry sector

National Forest including community, leasehold and private forest management

Revised Forestry Sector Policy 2000
Leasehold Forest Policy 2002
Forest Act 1993
Forest Regulations 1995
Forest fire management strategy 2010
Forest Encroachment control strategy 2008
Community Forestry Directive 1995 (1st amendment 1999)
Guideline for Inventory of Community Forests 2004
Guidelines for Community Forestry Development Program 2008 (revised)
Forest Carbon Measurement Guideline 2011
Collaborative Forest Management Directives 2011
Formation and Operational Directives on DFSCC, 2011
Procedure for handing over Leasehold for commercial purpose and poor families 2011
Presidential Chure Conservation Program Directives 2011

Conservation of ecosystem, biodiversity and genetic resources

National Wetland policy 2012
National Park & Wild Life Reserve Act, 1973
National Park and Wildlife Conservation Regulation 1974
Chitwan National Park Regulation 1974
Wildlife Reserve Regulation 1977
Himalayan National Park Regulation 1979
Khaptad National Park Regulation 1987
Bardiya National Park Regulation 1996
Buffer Zone Management Regulation 1995
Conservation Area Management Regulation 1996
Conservation Area Government Management Regulation 2000
Kanchnajhangha Conservation area Management Regulation 2007.
National Biodiversity Strategy Action Plan 2014
Wildlife farming breeding and research procedure 2003
Procedures for handing over the management of Protected Areas to NGOs and other organizations 2003
Procedure for handing over the land of protected areas for infrastructure development 2008
Wildlife Compensation Directives, 2009
Tarai Arc Landscape (LAL) strategic plan (2004-2014)
Sacred Himalyan Landscpae (SHL) - Strategic Plan (2006-2016)
Species conservation action plans

Soil and watershed management
Soil and Watershed Conservation Act, 1982

[39] Legislative instruments refer the constitution, acts, regulations, directives and associated guidelines, however guidelines are only the good practices guidance and they have no legally binding status.

National Action Program on Combatting Desertification 2003
Chure Area Program Strategy 2008

NTFPs/MAPs and wood based industries
Herbs and NTFP Development Policy 2004
Guideline for NTFP Based Enterprise 2005
Resin Collection (Procedure) Directives 2007
NTFP Inventory Guideline 2012
Forest Product (Timber/firewood) Collection and Sales Directives, 2000
Forest Product Auction Procedure Directives, 2003

Annex 4. Drivers of deforestation and forest degradation identified in various studies

SN	Studies	Drivers identified	Summary of the underlying causes
1.	WWF/TAL (2003). (The Root Cause Analysis of Biodiversity loss at Tarai Arc Landscape)	1. Agricultural expansion 2. Forest fires 3. Unproductive cattle, overgrazing 4. Illegal timber trade 5. Collection of non-timber forest products 6. Fuel wood use	▪ Livelihood conditions ▪ Migration and natural population growth ▪ Common property resources ▪ Overlapping and contradictory legislation ▪ Liberalization policies ▪ Political instability/insecurity
2.	MFSC, 2010 (R-PP)	1. High dependency on forests and forest products (timber, firewood, and other NTFPs) 2. Illegal harvest of forest products 3. Unsustainable Harvesting Practices 4. Forest fire 5. Encroachment 6. Overgrazing 7. Infrastructure development 8. Resettlement 9. Expansion of invasive species	▪ Poverty and lack of livelihood alternatives; ▪ Weak governance mechanisms and weak law enforcement ▪ Inefficient distribution mechanism for timber and firewood ▪ High cross-border demand for forest products ▪ Inadequate budget for research and development ▪ Political interference ▪ Unclear land tenure, policy and planning
3.	WWF Nepal/ Hariyo Ban Program, 2012*	1. Land use alterations, 2. Forest encroachment, 3. Forest Fire, 4. Livestock grazing 5. Illegal logging and wildlife trade (poaching) 6. Human Wildlife Conflict 7. Invasive species 8. Infrastructure and 9. Climate induced threats	Not specifically identified
4.	UN-REDD/REDD Cell, (2014)	1. Illegal logging, 2. Encroachment, 3. Fuel-wood consumption, 4. Roads, 5. Mining, 6. Grazing	▪ Poverty and high dependency on forests; ▪ Increase demand for forest products; ▪ Weak low enforcement; ▪ Corruption ▪ Population growth ▪ Political instability ▪ Poor technology in forest management ▪ Low agriculture productivity

SN	Studies	Drivers identified	Summary of the underlying causes
5.	Multi stakeholder consultations conducted for ER-PIN development at national and sub-national level (2013) *	1. Encroachment 2. Open grazing 3. Firewood collection 4. Resettlement and Infrastructure development 5. Illegal cutting of trees 6. Forest fires	▪ Population growth and migration from hills ▪ Poverty ▪ Unemployment ▪ Political instability ▪ Weak law enforcement ▪ Suboptimal of coordination among the various government agencies ▪ Floods ▪ Lack of resources in DFOs to control illegal activities ▪ Inappropriate land use policy ▪ Corruption
6.	Baral *et al.* (2012) (High Mountain Areas)	1. Forest fire 2. Over grazing 3. Indiscriminate product extraction 4. Illegal trades 5. Infrastructure expansion 6. Development of new economic frontiers	▪ Demographic factors ▪ Policy and institutional factors ▪ Governance factors ▪ Economic factors ▪ Cultural factors ▪ Lack of research and development
7.	WWF Nepal/ Hariyo Ban Program, (2013) (Chitwan Annapurna Landscape)	**Chure:** 1. Over, and unsustainable harvesting 2. Encroachment of forestlands for agricultural expansion 3. Infrastructure development 4. Resettlement and urban expansion 5. Forest fire 6. Invasion by alien plant species 7. Overgrazing **Mid-Hills:** 1. Unplanned and unregulated opening of road tracks by local Village Development Committees 2. Forest fire 3. Invasion by alien plant species 4. Stone mining and landslides **High Mountain:** 1. Forest fire 2. Overgrazing	▪ High forest dependency ▪ Widespread poverty and very limited livelihood alternatives ▪ Weak law enforcement and overall poor forestry sector governance ▪ Lack of scientific forest management ▪ Financial and human resource constraints in district forest offices ▪ Poor coordination among different government and non-government agencies.

SN	Studies	Drivers identified	Summary of the underlying causes
8.	ANSAB (2010) (In three watersheds of Dolakha, Chitwan and Gorkha)	1. Forest encroachment 2. Firewood collection for domestic and local purposes 3. Illegal wood harvest 4. Forest fire 5. Grazing 6. Over harvest of grasses and litter 7. Lack of forest management operations. 8. Infrastructure Development 9. Agricultural Expansion	▪ Demographic Factors ▪ Economic Factors ▪ Forest Management ▪ Governance Factors ▪ Policy Factors ▪ Socio-cultural Factors
9.	PSPL/FECOFUN, (2010)	**Tarai**: Gaps in demand and supply; Illegal logging; Encroachment; Settlement of landless; Forest fire; Invasion of invasive species; Use of land for other purposes **Chure**: Gaps in demand and supply; Illegal logging; Encroachment; Settlement of landless; Forest fire; Use of land for other purposes **Mid-hills**: Gaps in demand and supply; Forest fire; Use of land for other purposes **High-mountain:** Gaps in demand and supply; Forest fire; Use of land for other purposes; Illegal logging;	▪ High dependency on forest products ▪ Ineffective policies and implementation mechanisms ▪ Open access and tenure issues ▪ Governance issues ▪ Insufficient institutional set-up ▪ Poverty and unemployment ▪ Subsistence farming ▪ Political issues ▪ Migration etc.

Annex 5. Direct drivers, priority, their underlying causes, drivers for, affecting regions and corresponding relevant strategic actions

SN	Drivers	Priority[§]	Underlying causes	Drivers for	Strategic Actions	Affecting regions

1.	Unsustainable harvesting and illegal harvesting	**1**	▪ **Policy gaps and poor implementation**
			  ▪ Poor implementation of policies
			  ▪ Very low priority to other alternative wood products such as composite wood and others
			▪ **High dependency in forest products and gap in demand-supply**
			  ▪ Forest management not demand driven (weak supply system)
			  ▪ High dependency on conventional forest products (firewood for energy and structural timber for construction)
			▪ **Poverty and limited livelihood opportunities**
			  ▪ Subsistence agriculture and livelihoods
			  ▪ Limited other livelihood opportunities
			▪ **Poor governance and weak political support**
			  ▪ Weak enforcement and poor coordination to control illegal harvesting
			  ▪ Poor decision making, corruption and weak accountability
				Forest degradation	▪ Intensify sustainable management of forest (SMF)
					▪ Invest in sustainable forest-based enterprises
					▪ Carry out forest zoning and phased transfer into different management modalities.
					▪ Recognize and respect customary forest and pasture management practices and indigenous knowledge systems.
					▪ Rehabilitate degraded land and shrublands
					▪ Increase the supply of harvested wood products
					▪ Increase awareness and capacities of all stakeholders
					▪ Promote private forestry
					▪ Develop efficient and alternative timber technologies
					▪ Increase investment and promote fuel wood efficient and alternative energy technologies.
					▪ Promote sustainable, cost-effective and affordable renewable energy sources
					▪ Increase access to alternative energy technologies for forest-dependent poor and marginalized people.
					▪ Promote and increase access to cost effective wood technologies for forest-dependent poor and marginalized communities.
					▪ Re-structure institution and improve forest governance
					▪ Develop functional collaboration and cooperation with security forces, media, and civil society to control illegal forest activities.
					▪ Control cross-border illegal trade of forest products
						HM (2)
						MH (3)
						S (1)
						T (1)

SN	Drivers	Priority[§]	Underlying causes	Drivers for	Strategic Actions	Affecting regions
					through inter-country cooperation ▪ Develop incentive and penalty system to address illegal harvesting and illegal trade ▪ Strengthen forest law enforcement to control illegal harvest and trade of forest products. ▪ Establish and strengthen grievance-addressing mechanisms that are gender-sensitive and respond to people's grievances and concerns	
2.	Forest fire	**2**	▪ **Policy gaps and poor implementation** ▪ Weak forest management practices ▪ No long-term forest fire protection and management strategy and plans; ▪ Forest fire not mainstreamed into forest resource management ▪ **Poor governance and weak political support** ▪ Inadequate resources (human, technology, equipment) for fire fighting and control ▪ Weak enforcement of legal instruments; **Land use policy and insecure forest tenure** ▪ Non recognition of traditional and customary practices of land and forest management	Forest degradation	▪ Promote community-based management models ▪ Intensify sustainable management of forest (SMF) ▪ Update and improve management plans with provisions fire management ▪ Enhance community participation and support for the control and management of forest fire. ▪ Strengthen fire control capabilities with fire management plans, fire-fighting capacity building, fire monitoring, firefighting equipment and insurance mechanisms. ▪ Promote Integrated Conservations and participatory models in PAs ▪ Carry out forest zoning and phased transfer into different management modalities. ▪ Improve public awareness and education	HM (1)* MH (3) S (1) T (2)
3.	Infrastructure development (includes manmade disasters)	**3**	▪ **Policy gaps and poor implementation** ▪ Non compliance of existing environment related policies ▪ Unplanned and short-vision infrastructure development ▪ Forest area given the priority for infrastructure development ▪ **Weak coordination and cooperation among stakeholders**	Deforestation	▪ Strengthen multi-stakeholder and integrated planning approach at various levels ▪ Harmonize contradictory cross-sectoral policies and legal frameworks issues ▪ Improve intra and inter policy coordination among different sectors ▪ Carryout planning with climate change vulnerability assessment	HM (2) MH (1) S (2) T (4)

SN	Drivers	Priority[§]	Underlying causes	Drivers for	Strategic Actions	Affecting regions
			▪ No integrated planning and working in isolation ▪ **Poor governance and weak political support** ▪ Weak enforcement of legal instruments ▪ Political interferences		▪ Ensure environmental, social and economic measures in infrastructure development and maintenance ▪ Implement climate smart infrastructure planning, implementation and monitoring ensuring social and environmental safeguards. ▪ Avoid forest area for infrastructure development ▪ Ensure effective implementation and compliances of IEE and EIA for all types of forest land use conversions ▪ Adopt REDD+ international standards on participation, inclusion and Free, Prior, Informed Consent (FPIC). ▪ Promote increased use of GIS and remote-sensing/spatial planning applications ▪ Improve forest law enforcement ▪ Establish spatially explicit information systems on land use	
4.	Over grazing/uncontrolled grazing	**4**	▪ **Policy gaps and poor implementation** ▪ Weak forest /grazing management practices ▪ Grazing regulation/management not mainstreamed into forest resource management ▪ Weak linkages between rangeland policy and forest policy ▪ **Poor governance and weak political support** ▪ Inadequate resources (human, technology, equipment) for fire fighting and control ▪ Weak enforcement of legal instruments ▪ **Weak coordination and cooperation among stakeholders** ▪ Weak coordination and cooperation among livestock, forestry and customary	Forest degradation	▪ Promote community-based management models ▪ Intensify sustainable management of forest (SMF) ▪ Update and improve management plans with provisions of grazing control ▪ Enhance community participation and support for the control and management of grazing. ▪ Promote Integrated Conservations and participatory models in PAs ▪ Carry out forest zoning and phased transfer into different management modalities. ▪ Recognize customary forest and pasture management practices by including good practices into forest and pasture management plans ▪ Improve public awareness and education ▪ Support to increase fodder and forage production ▪ Promote multi-purpose fodder management and stall	HM (1)* MH (4) S (1) T (1)

SN	Drivers	Priority[§]	Underlying causes	Drivers for	Strategic Actions	Affecting regions
			institutions ▪ **Land use policy and insecure forest tenure** ▪ Non recognition of traditional and customary practices of use and management		feeding	
5.	Weak Forest Management practices (unmanaged/under-managed)	**5**	▪ **Policy gaps and poor implementation** ▪ Poor implementation policies ▪ Absence of forest land use classification at operational level and blanket approach of forest management across the country ▪ Little efforts to bring productive and accessible forests under intensive management ▪ **Inadequate human resource development and management** ▪ Frequent transfers and poor human resource management ▪ No promotion and encouragement for specialization and champions of forest management ▪ **Poor governance and weak political support** ▪ No national priority given for forest management efforts ▪ Inadequate resources (human, technology, equipment) ▪ Inadequate political commitment and support for forest management	Forest degradation	▪ Intensify sustainable management of forest (SMF) ▪ Update and improve management plans with provisions of carbon stock measurements and carbon monitoring methods ▪ Promote the landscape conservation and climate resilient approaches ▪ Increase awareness and capacities of all stakeholders ▪ Safeguard tenure security of forest user groups ▪ Increase and ensure access to forests, decision-making and benefits to women, Dalit, Indigenous People, vulnerable groups, forest dependent people, and other marginalized people ▪ Recognize the traditional and customary practices of forest management and incorporate in community-based forest management ▪ Develop and implement participatory M & E mechanisms ▪ Re-structure institution and improve forest governance ▪ Improve mind-set, competency, commitment and morale of forestry personnels ▪ Promote and support partnership among government, community, and private sector to enhance the performance of government and Local Forest User Groups.	HM (1) MH (3) S (1) T (1)

SN	Drivers	Priority[§]	Underlying causes	Drivers for	Strategic Actions	Affecting regions
6.	Urbanization and resettlement	**6**	▪ **Disproportionate population distribution and migration pattern** ▪ No long-term population (migration and resettlement) policy ▪ **Policy gaps and poor implementation** ▪ Priority given to forest area for resettlement and rehabilitation of disaster victims ▪ **Weak coordination and cooperation among stakeholders** ▪ No integrated planning and working in isolation	Deforestation	▪ Develop and implement economic and market-based incentives packages to promote optimal land use ▪ Promote increased use of GIS and remote-sensing/spatial planning applications ▪ Avoid forest area for infrastructure development, resettlement ▪ Support in the application of Sloping Agriculture Land Technologies ▪ Increase access to crop & livestock breeding and husbandry improvement programs ▪ Promote intensive agricultural practices and technology ▪ Promote development of policies supportive of small-scale sustainable agriculture	HM (5) MH (5) S (1) T (1)
7.	Encroachment	**7**	▪ **Policy gaps and poor implementation** ▪ Weak forest management practices ▪ Priority given to forest area to settle land squatter problem ▪ **Poor governance and weak political support** ▪ Inadequate resources (human, equipment) ▪ Inadequate political commitment and support for encroachment control ▪ Weak enforcement of legislation ▪ **Poverty and limited livelihood opportunities** ▪ Geographical imbalances in development and livelihood opportunities ▪ **Weak coordination and cooperation among stakeholders**	Deforestation	▪ Enhance community participation and support for the control of encroachment. ▪ Promote increased use of GIS and remote-sensing/spatial planning applications ▪ Strengthen forest law enforcement to control encroachments ▪ Scale up investment in non-forestry sector employment programs and off-farm income generation activities targeting rural and urban (poor) ▪ Improve access to alternative technologies for forest dependent poor and marginalized communities. ▪ Design and implement off-farm income generation projects through vocational and skill training for forest-dependent poor and marginalized households ▪ Incentivize and support Forest User Groups to create incomes, livelihood options and job opportunities for forest dependent poor and marginalized communities.	HM (5) MH (5) S (1) T (1)

SN	Drivers	Priority[§]	Underlying causes	Drivers for	Strategic Actions	Affecting regions
8.	Mining /excavation (sand, boulders, stones).	**8**	▪ **Policy gaps and poor implementation** ▪ Non compliances of environmental legislations ▪ Lack of forest sector landuse policy ▪ Conflicting sectoral policy and legislations ▪ **Poor governance and weak political support** ▪ Weak enforcement of forest legislation ▪ **Weak coordination and cooperation among stakeholders** ▪ **Poor coping strategy to natural disasters and climate change** ▪ Poor enforcement and implementation of EIA/IEE provisions and their safeguards ▪ Lack of integrated disaster management	Deforestation and Forest degradation	▪ Enforce forest law to control haphazard mining and excavation Strengthen multi-stakeholder and integrated planning and implementation ▪ Harmonize contradictory cross-sectoral policies and legal frameworks ▪ Improve intra and inter policy coordination among different sectors ▪ Ensure effective implementation and compliances of IEE and EIA ▪ Ensure implementation of environmental, social and economic measures ▪ Adopt REDD+ international standards on participation, inclusion and Free, Prior, Informed Consent (FPIC). ▪ Establish cost effective mechanisms for monitoring, reporting and verification	HM (5) MH (3) S (1) T (1)
9.	Expansion of invasive species	**9**	▪ **Policy gaps and poor implementation** ▪ Invasive species control not mainstreamed into forest / PA management ▪ **Low priority to research and development**	Forest degradation	▪ Update and improve management plans with provisions of invasive species control ▪ Assess and implement remedial and preventive measures for the invasive alien species ▪ Incorporate in monitoring indicators and establish community-monitoring systems in all community based management regimes	HM (5) MH (4) S (1) T (1)

HM-High Mountain; MH- Middle Hills; S- Chure/Siwaliks; T- Tarai and inner Tarai

1- Very high effect; 2- High effect; 3- Medium effect; 4- Low effect; 5-Very low effect

**Effect of forest fire and grazing in terms of exposure, sensitivity and capacity to address*

[§] Priority in terms of impact on the forests as identified by *REDD Cell/MFSC, 2014c, consultations and expert judgments*