

Country Forest Note: Nepal

Forests for Prosperity at a Time of Transformation



February 1, 2018

Environment and Natural Resources Global Practice

© 2018 The World Bank
1818 H Street NW, Washington DC 20433
Telephone: 202-473-1000; Internet: www.worldbank.org

Some rights reserved.

This work is a product of the staff of The World Bank. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Attribution—Please cite the work as follows: “World Bank. 2018. Country Forest Note: Nepal. © World Bank.”

All queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Table of Contents

Abbreviations.....	iv
Executive Summary	v
Preface.....	1
Role of Forests in the National Economy.....	3
Policy and Institutional Context.....	6
National Level	6
International Level.....	8
Institutions.....	9
National Forest Challenges	11
Drivers of Deforestation and Forest Degradation.....	11
Vulnerability to Climate Change and Natural Disasters.....	12
Public and Private Investments in the Forest Sector	13
Policy and Institutional Environment.....	14
Opportunities to Improve Forests’ Contribution to Nepal’s Economy	15
Dynamics between Economic Sectors and Forests.....	15
Forest Sector Economic and Employment Potential	18
Current World Bank and Partner Engagement in Forests.....	19
World Bank Engagement in Forests.....	19
Development Partners Engagement in Forests and Forest-Relevant Sectors	21
World Bank Group Response: A Multisectoral, Programmatic Approach in Support of Nepal’s Forests..	22
Annex 1. Nepal World Bank Project Portfolio.....	26
Annex 2. Nepal World Bank Project Pipeline.....	27
Annex 3. Forest Opportunities, Threats, Gaps, and Potential Instruments.....	28
References	32

ABBREVIATIONS

Bank	World Bank
CBD	Convention on Biological Diversity
CBFM	community-based forest management
CFUG	community forest user group
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
CSO	civil society organization
DFID	U.K. Department for International Development
DFO	District Forest Office
DOF	Department of Forests
ERP	Emission Reduction Program
FAO	Food and Agriculture Organization (of the UN)
FAP	Forest Action Plan FY16–20
FCPF	Forest Carbon Partnership Facility
FIP	Forest Investment Program
FY	fiscal year
GDP	gross domestic product
GHG	greenhouse gas
GNI	gross national income
IFC	International Finance Corporation (of the World Bank Group)
IHA	International Hydropower Association
IIED	International Institute for Environment and Development
KGGTF	Korea Green Growth Trust Fund
LHF	leasehold forestry
MFSC	Ministry of Forests and Soil Conservation
MSFP	Multi-Stakeholder Forest Program
NDC	Nationally Determined Contribution
NGO	nongovernmental organization
NPR	Nepalese rupees
NTFP	non-timber forest product
PA	protected area
PES	payment for environmental services
REDD+	Reduced Emissions from Deforestation and Forest Degradation, Sustainable Forest Management and Enhanced Forest Carbon Stocks
SCD	Strategic Country Diagnostic
SFM	sustainable forest management
UNFCCC	United Nations Framework Convention on Climate Change

All dollars are U.S. dollars unless otherwise indicated.

EXECUTIVE SUMMARY

This note articulates a proposed programmatic forest landscape approach (“forest engagement”) for the World Bank Group (the “Bank”) to support Nepal in better tackling its forest and associated land use challenges with a view to contribute to the country’s development aspirations and enhancing resilience in the context of climate change and natural disasters. The note has informed the Strategic Country Diagnostic (SCD) (World Bank 2017a), which forms the basis for the future Country Partnership Framework (CPF) FY19–22. The proposed forest engagement is consistent with the Bank’s Forest Action Plan 2016–2020 and Climate Action Plan 2016–2020.

The proposed forest engagement will support the goals of Nepal’s 14th periodic plan, specifically the objectives for the forest sector, the Forestry Sector Strategy, and the REDD+ Strategy, by supporting sustainable forest management and addressing the drivers of deforestation and forest degradation that are often associated with other economic sectors. The engagement will also support Nepal in achieving its commitment to the Paris Agreement under the UNFCCC and other international agreements.

Nepal’s forests cover 6.4 million hectares, or 44.7 percent of the land (DFRS 2015), yet the forest sector contributes only 3.5 percent to the national gross domestic product (GDP) (MSFP 2016a). The forest resources, while extremely rich, do not contribute to economic growth at full potential and are often perceived as a less important asset that can be disposed of in favor of supporting other economic activities. However, a well-managed forest sector presents promising potential to further contribute to economic growth and employment in Nepal.

Nepal’s ongoing transition to federalism provides opportunities and poses risks for the Bank’s engagement in forests, which will require flexibility and options to adapt to the evolving devolution and institutional changes. Opportunities include the planning and management of natural resources in a sustainable manner and equally sharing benefits from the expected revenue streams. Potential risks include the lack of capacity, particularly at the local and provincial levels, for natural resources management and other development opportunities that do not come at the cost of forests.

The main challenges to sustainably manage Nepal’s forests and develop their full economic potential reside in (a) the drivers of deforestation and forest degradation, (b) the country’s vulnerability to natural disasters, (c) the low level of public and private investments in the sector, and (d) the weak policy and institutional environment.

Although no current Bank lending portfolio focuses exclusively on the forest sector,¹ several trust-funded initiatives support activities related to REDD+ (Forest Carbon Partnership Facility – FCPF, Forest Investment Program – FIP), combatting the illegal wildlife trade (Global Environment Facility – GEF), and integrated catchment area management (Korea Green Growth Trust Fund – KGGTF).

The current Bank lending portfolio in Nepal covers the energy sector (hydropower and energy access, power sector reform), agriculture (livestock, irrigation, food security, commercialization, and trade), and transport (roads). These sectors indirectly benefit from forests but have also been identified as drivers of deforestation and forest degradation.

Considering the challenges and opportunities associated with Nepal’s forests and the ongoing transition to federalism, the proposed programmatic engagement is to support the government of Nepal with

¹ The last Bank-supported forest project in Nepal, “Hill Community Forestry Project,” closed in June 1999.

exploring the untapped potential of Nepal's forests for economic growth, job creation, social stability, and addressing climate change. This engagement is envisaged to be implemented through a set of forestry and "forest smart = climate smart" operations in several sectors that address barriers and promote opportunities to further enhance the economic and climate contribution of Nepal's forests and forest landscapes.

Unleashing the potential of Nepal's forests will require investments, technical assistance, and capacity development to sustain growth not only in the forest sector but also in other sectors that affect and depend on forests, including tourism, agriculture, hydropower, and transport. Through an integrated landscape approach, competing land uses/sectors/interests can be addressed and trade-offs minimized if they are supported by a program or a series of projects (programmatic approach) consistent with the objective of the proposed forest engagement.

Such a programmatic engagement would enable the Bank to better use a menu of financial instruments to address the identified barriers and opportunities and take advantage of synergies across the Bank's portfolio.

PREFACE

This note articulates a proposed programmatic forest landscape approach to help Nepal¹ better tackle its forests and the associated land use challenges that impact the country’s development aspirations and ability to better respond or prepare for vulnerabilities such as climate change and natural disasters. It presents a forward-looking business case for the World Bank to invest in managing Nepal’s forest landscapes. It is based on identified gaps and opportunities for engagement across sectors and available financial instruments the Bank offers. This note is a “living document” intended to serve as a basis for discussions with key partners and the government to work together on achieving the program objectives.

The Bank’s engagement in support of Nepal’s forests will be consistent with the current Country Partnership Strategy (CPS) and the future Country Partnership Framework FY19–22. The CPS states that the “WBG will support Nepal’s aspirations for increasing economic growth through increased investments in key sectors while providing support to make growth more inclusive and to help equalize opportunities across groups and communities.” While the forest sector is not listed in the CPS as a priority sector for Bank engagement, managing forests and other land uses in a sustainable manner is essential for other sectors, such as energy and transport, to sustain their assets and ability to operate. This note has informed the Strategic Country Diagnostic (World Bank 2017a), which forms the basis of the future CPF. The Bank’s engagement will seek to enhance the contribution of the forest sector to economic growth, livelihoods, job creation, and prosperity; to create a better basis for environment-, climate-, and disaster-smart infrastructure; and to improve the regulatory framework as well as system capacity (particularly at municipal and provincial levels) for managing the environment and natural resources, including forests.

The proposed forest engagement will fully support the goals of the government of Nepal presented in the 14th periodic plan. The plan focuses on reducing absolute poverty, sharing economic prosperity, post-earthquake reconstruction and rehabilitation, development of physical infrastructure, and good governance. The plan envisages an economic growth rate of 6.5 percent in the current fiscal year, 7.2 percent in 2017–18, and 7.9 percent in 2018–19. Much of this money will be used to increase domestic production by transforming the agriculture sector² and expanding tourism, industry, and small and medium enterprises. For the forest sector, the plan foresees the following:

- An increase in forest productivity and production of forest products through participatory sustainable forest management
- Self-dependency on forest products and an increase in forest-based entrepreneurship and employment
- An increase in forest cover through plantation in public and the private lands
- Mainstreaming ecosystem-based adaptation and mitigation
- Completion of REDD+ Readiness activities and start of implementation

The plan also makes reference to fire management, promotion of ecotourism, integrated watershed management, marketing of high-value non-timber forest products (NTFPs), and forest-based livelihood opportunities (NPC 2017).

¹ Nepal is identified as a priority country in the WBG Forest Action Plan.

² The forest sector is usually covered under the agriculture sector.

The new constitution of Nepal represents a major transformation in the way the country is governed. The transformation process is still under way, and elections have recently been concluded. The reorganization into seven new states and 753 local governments has started. The three-level federal structure has major implications for forest sector governance. States and local governments will develop their own policies, laws, and regulations, and raise taxes. Forest management responsibility will be devolved to the local level. It is expected that forest sector institutions and processes will go through a major transformation.

The ongoing transition to federalism provides opportunities and poses risks for the Bank's engagement in forests. The engagement will need to be flexible and adapted to the evolving devolution and institutional changes. It will need a good coordination between the forest sector and other sectors that have an impact on or are benefiting from forests. Opportunities include the planning and management of natural resources in a sustainable manner and sharing benefits from the expected revenue streams. Potential risks include conflict among federal, provincial, and local government agencies regarding mandates and use of natural resources, and lack of capacity, particularly at local and provincial levels, for natural resources management that does not come at the cost of forests.

ROLE OF FORESTS IN THE NATIONAL ECONOMY

Addressing rural poverty and unemployment is a key priority for Nepal, a low-income country of 29 million people with a gross national income (GNI) per capita of \$730 in 2016. The most recent poverty survey data for Nepal's Multidimensional Poverty Index estimation dates to 2011.³ Although the proportion of Nepalese households living in poverty, as measured by the international extreme poverty line, fell from 46 percent in 1996 to 15 percent in 2011,⁴ 18.1 percent of the population still lives near poverty, 18.6 percent in severe poverty, and 23.7 percent below the income poverty line. In 2016, the annual GDP growth was 0.6 percent; it is expected to increase to 5 percent in 2017 and decrease to 4.7 percent in 2019 (World Bank 2018). Poverty is significantly higher in rural areas than in urban areas (27.4 percent vs. 15.5 percent) and highest in the far western regions (45.6 percent) and mountainous ecological regions (42.3 percent). Nearly 90 percent of the poor live in rural areas, but poverty prevalence and share in the total are otherwise inversely related, with most of Nepal's poor found in the central regions (with relatively low prevalence), the Terai plains and mid-hills (World Bank 2014). Nepal aspires to emerge as an inclusive, equitable, and prosperous middle-income country by 2030. The government is committed to reduce poverty and promote human development with low vulnerability and higher human security through economic growth and job creation. The federalization process envisions an inclusive society and economy, and a prosperous welfare state (NPC 2015b).

Map 1. Nepal Land Use and Poverty, 2015



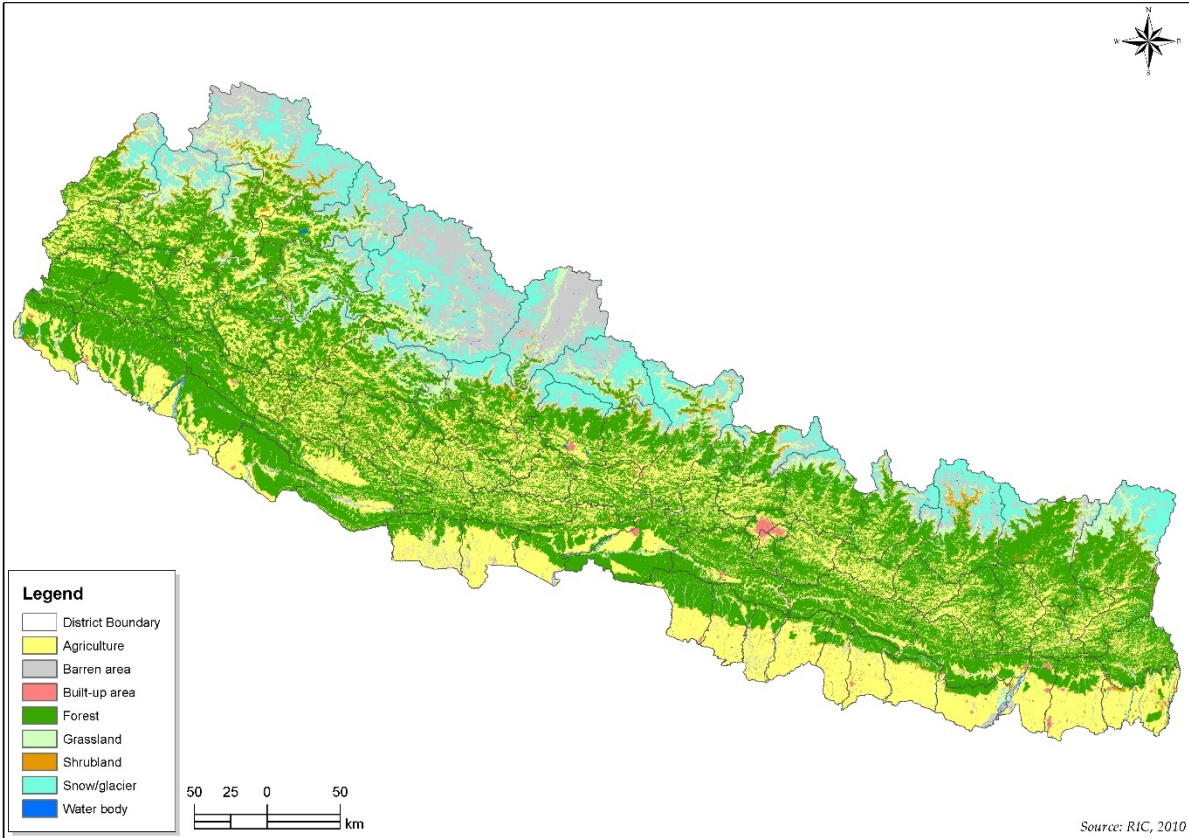
³ The index identifies multiple deprivations in the same households in education, health, and living standards.

⁴ Poverty data for Nepal are from Open Data (database), World Bank, Washington, DC (accessed 2017). <http://data.worldbank.org/country/nepal?=#chart>.

The government’s ambition with regards to the forest sector is articulated in the 2015 Forestry Sector Policy, which supports an enhanced contribution of the forest sector to Nepal’s economy and job creation. This note assesses the challenges and opportunities for developing forests and forest landscapes in an integrated and inclusive manner to meet these goals. The proposed programmatic approach will focus on job creation, livelihood enhancements, and good governance through interventions in the forest, agriculture, energy, tourism, and transport sectors, taking into account the changing political economy in Nepal.

Nepal’s total forest area is 6.4 million hectares, or 44.7 percent of all land (including shrubland). The estimated growing stock of the forests is 982.3 million m³, or an average stocking of 164.8 m³/ha (High Mountains, 225.2 m³/ha; Middle Mountains, 124.26 m³/ha; and Terai and Chure, 161.66 m³/ha). The mean carbon stock of the forests (including above- and belowground biomass and soil carbon) is 176.9 t/ha, with 61.5 percent in the tree component and 37.8 percent in forest soils (DFRS 2015).

Map 2. Nepal Land Cover



Over the past three decades, the government has gradually transferred government-owned forests to community-based forest management (CBFM) groups under various models developed in response to different geographic and socioeconomic contexts. These groups now manage about 2 million hectares, or about 34 percent of Nepal’s forest. For example, in the Terai, 28 CBFM groups protect and manage about 70,000 hectares of forest; in the Middle Hills, about 40,000 hectares of forest have been transferred to about 7,000 leasehold forestry (LHF) groups. CBFM is a longstanding national priority and

remains a priority development program under the 14th National Development Plan, although the pace of the handover has been reduced in recent years, partly due to a reduction in externally funded programs in Nepal's forest sector, but also because in many districts, a large proportion of the accessible forest has already been handed over. In the Terai, the handover of forests to various CBFM groups has been limited in recent years due to a lack of clear policy direction and political will, although this has been resolved since Nepal's 2015 Forest Policy and there is now a backlog of applications by communities for transfer (MFSC 2017a).

Forests contribute directly and indirectly to Nepal's economy by providing ecosystem goods and services. While most forest goods can be valued because they are traded on the market (for example, timber, firewood, and NTFPs), **services such as habitat provisioning, sediment retention, and water and climate regulation are currently not valued and hence are underestimated in terms of their contribution to the economy.**

The forest sector directly accounts for over 9 percent of total national employment (2011) and on average 3.5 percent (2.2–5 percent) of the national GDP (2000) (MSFP 2016a). In addition, the potential value of environmental services, which presently are not included in GDP calculations or allocated to sectors other than forestry, was estimated at 17.3 percent (MSFP 2016a). The total trade in NTFPs is estimated at \$60–\$100 million (Heinen and Shrestha-Acharya 2011). However, other studies show that the true volume of NTFPs is not recorded due to illegal trade, and that estimate varies widely.

Forests also contribute directly and indirectly to the national economy by supporting the energy agriculture, tourism, and transport sectors. Forests currently supply roughly 86 percent of household energy needs. Forested watersheds provide sediment retention and water regulation services that in turn improve the efficiency of hydropower facilities. More than 70 percent of the population depends on agriculture for sustaining their livelihoods. Agriculture contributes to over 50 percent of household income and provides employment for about 80 percent of the population (MFSC 2009). Forests play a critical role in supporting agriculture: it is estimated that between 3.5 and 6 hectares of forestlands are required to support each hectare of cropland in Nepal by providing nutrient-rich animal fodder (MFSC 2009). The application of efficient and sustainable practices and use of natural resources (land, water, soils, and forests) are seen as factors to increase agricultural productivity (MAD 2015).

Nepal's tourist statistics show that almost half of tourists visiting Nepal trek in the protected areas (PAs), generating considerable economic opportunities in rural areas and contributing to poverty alleviation. Significant potential exists for nature-based tourism outside the PAs, including areas where forests are present. Tourism creates business for skilled human resources and investors, and employment for both skilled and unskilled labor. It also generates much of the PA revenue. An estimated 50 percent of the PA revenue is channeled back to local communities for biodiversity conservation, livelihood improvement, and sustainable development activities (MSFP 2016a). The direct contribution of travel and tourism to Nepal's GDP was 3.6 percent in 2016, while the total contribution of this sector accounted for 7.5 percent of GDP.⁵ The report estimates that the sector supported nearly 1 million (945,000) direct and indirect jobs in 2016, or roughly 6.4 percent of total employment (WTTC 2017).

⁵ "Direct contribution" includes total spending within a country on travel and tourism by residents and nonresidents for business and leisure and spending by government on travel and tourism services directly linked to visitors such as museums. "Total contribution of tourism includes direct contributions and wider impacts on the economy such as travel and tourism investments spending, government spending that helps travel and tourism sector such as tourism marketing and promotion, and domestic supply chain purchases by sectors directly dealing with tourists" (MSFP 2016a).

Eighty percent of Nepal's population lives in the mountains. While efforts to improve access are advancing, over the past 15 years there has been an **increase in landslide deaths because of poorly planned roads built on fragile and deforested lands without slope stabilization measures in place**. A study by Bhattarai, Tsunaki, and Mishra (2002) points out that about 12,000 small- and large-scale landslides occur in Nepal every year. When cutting into slopes, supporting land and land cover is removed and landslides become a greater risk, especially during the monsoon season (June–October). Bioengineering, including afforestation and reforestation of slopes bordering roads, is a proven concept for slope stabilization in Nepal, but its application is still limited (Dhital, Kayastha, and Shi 2012). Nepal's Water Resources Strategy states that “environmentally acceptable water resources development should justify and minimize destruction of productive ecosystems, including forests and wetlands” (WECS 2002).

While the forest resources of Nepal are extremely rich, they currently do not contribute to economic growth at full potential and are perceived as a less important asset that can be disposed of in favor of short-term economic benefit. They have a significant untapped potential for contributing to Nepal's economy, creating employment and alleviating rural poverty through sustainable forest management and conservation (MSFP 2014). The country has had some of the best performing joint forest management programs, yet forest-dependent communities are falling behind on socioeconomic indicators. Recognizing this, the government has put in place strategies and policies to increase the contribution of forests to achieving and greening Nepal's ambitious development goals.

POLICY AND INSTITUTIONAL CONTEXT

National Level

The proposed programmatic engagement to enhance the role of forests and landscapes in Nepal's economy will support the goals the government of Nepal presented in the 14th periodic plan. The plan aims to transform Nepal into a middle-income economy by 2030 by achieving an annual economic growth of 7.2 percent. The plan focuses on reducing absolute poverty, sharing economic prosperity, post-earthquake reconstruction and rehabilitation, development of physical infrastructure, and good governance (NPC 2017).

The plan provides for multisectoral approaches, with priority given to hydropower and energy, agriculture, basic education, health, drinking water, physical infrastructure, good governance, tourism, trade, and environment, among other sectors, and to increasing the contributions of the private, government, and cooperative sectors in these efforts (NPC 2017). The plan is consistent with several other government strategies, including the Forestry Sector Strategy, programs and plans that prioritize resilient landscapes and the role of natural resources, including forests.

The plan envisages making the forest sector a significant contributor to the plan's aim and gives priority to several programs for the forest sector (Table 1).

Table 1. Objectives and Priority Programs for the Forest Sector in Nepal’s 14th Periodic Plan

Overall objectives	
<ul style="list-style-type: none"> • Increased forest productivity through sustainable forest management • Biodiversity and forest resource conservation and payment for environmental services • Climate change mitigation and adaptation and climate vulnerability mitigation through watershed management and land and water management 	
Priority programs	
a. National forest development and management	b. Community forestry and leasehold forestry-based forest development
c. Biodiversity and wildlife conservation and management	d. Collaborative forest management
e. Public land agroforestry development	f. Religious forest management
g. Plantation and tree seed improvement and private forest development	h. Green forest enterprise development
i. Soil conservation, watershed management, and climate change hazard mitigation	j. Plant resource survey and research
k. Forest survey and capacity building	

In 2015, the government of Nepal endorsed a new Forestry Sector Policy to further develop the potential contribution of forests to the national economy and society. The vision described in the policy is that “[p]otentials of forest ecosystems, biodiversity and watersheds [are] fully optimized for peoples’ prosperity.” The goal provides that “[f]orest ecosystems and watersheds [are] sustainably managed and climate resilient through a decentralized, competitive and well-governed forest sector providing inclusive and equitable incomes, employment and development opportunities.”⁶ The policy has highlighted the need of sustainable forest management (SFM) to increase forests productivity and production to fulfil national demand. SFM is mentioned as a tool for achieving the ministry’s vision, “Forests for Prosperity” (MFSC 2015a).

The policy identifies seven key areas of implementation:

1. Increase the productivity of forest sector and production of forest products through sustainable forest management.
2. Increase the benefits from environmental services, including biodiversity and resource conservation, and ensure their justifiable and equitable benefit distribution.
3. Integrate conservation and management of watershed areas to increase land productivity through water and land conservation.
4. Make community-managed forests—including community, leasehold, collaborative, buffer zone community, protection, and religious forests—environmentally, economically, and socially capable, with justifiable and equitable sharing of the benefits.
5. Create green employment and value addition by involving the private sector in forest development and expansion through forest enterprise promotion, product diversification, and marketing.
6. Implement the mitigation and adaptation approaches for the negative impacts of climate change.

⁶ Linked to the new Forestry Sector Policy, the Ministry of Forests and Soil Conservation has prepared a [forestry project bank](#) by prioritizing the potential projects based on felt needs and priorities. Twenty-five major forestry projects have been identified through an extensive review of the forestry documents and consultations with the respective organizations. The indicative cost of these projects (prioritized) is estimated to be \$227 million for a period of five years.

7. Capacitate the management for good governance, inclusion, and social justice promotion in the forest sector.

Nepal's Forestry Sector Strategy (2016) further details the policy and underscores the need for sustainable forest management to harness potential productivity and their contribution to local livelihoods and national socioeconomic development. The strategy has set some ambitious targets on economic contributions of forests. By 2025, the forest sector will contribute at least 7.5 percent to the GDP, generate at least six times more jobs, reduce annual timber imports by 50 percent, and increase commercial timber supply to the domestic market annually by six times (MOF 2016a).

The strategy identifies seven thematic areas for the interventions required to achieve the Forestry Sector Policy:

1. Managing Nepal's forests
2. Managing ecosystems and conserving biodiversity
3. Responding to climate change
4. Managing watersheds
5. Promoting enterprise and economic development
6. Enhancing capacities, institutions, and partnerships
7. Managing and using forest sector information

Nepal's REDD+ Strategy (2018) supports the Forestry Sector Strategy and lists the following objectives:

- Reduce carbon emissions, enhance forest carbon stocks, and improve supply of forest products.
- Increase non-carbon benefits of forests ecosystems.
- Promote private and public land forestry.
- Promote optimum land use across all the physiographic regions.
- Improve forest tenure and ensure carbon rights and fair and equitable benefit sharing among right holders, women, indigenous peoples, Madhesis, Dalits, and forest-dependent local communities.
- Promote forest-based enterprises for livelihood and economic development with strong role of the private sector.
- Increase agricultural productivity of forest-dependent and other smallholders.
- Increase access to sustainable, affordable, and reliable alternative energy.
- Improve collaboration, cooperation, and synergy among sectoral policies, sectors, and actors.
- Improve capacity, institutional performance, and service delivery of the forest sector institutions, right holders, and relevant stakeholders.
- Ensure social and environmental safeguards, including environment-friendly development.
- Establish and maintain a robust and well-functioning national forest monitoring system.

Other sector strategies mention the positive role of forests, such as Nepal's Water Resources Strategy (WECS 2002).

International Level

Nepal is committed to the Paris Agreement under the UNFCCC. At 0.2 tCO₂e/year, Nepal's per capita greenhouse gas (GHG) emissions are among the lowest in the world. Together, land use changes resulting in conversion of forest and forest degradation account for the single largest source of Nepal's GHG emissions (MPE 2014). Nepal's 2016 Nationally Determined Contribution (NDC) (MPE 2016) points

out that Nepal aims to enhance its forest carbon stock by at least 5 percent by 2025 compared to the 2015 level and to decrease the mean annual deforestation rate by 0.05 percent from about 0.44 percent and 0.18 percent in the Terai and Siwalik Hills, respectively. Nepal pledged 40 percent of its area will remain under forest cover, compared to the 44 percent of forest cover confirmed in 2015 (DFRS 2015). Forest productivity and products will be increased through sustainable management of forests. Emphasis will equally be given to enhance carbon sequestration and forest carbon storage and improve forest governance. Nepal is active in REDD+ and aims to put in place a forest carbon trade and payment mechanism by 2025. **Mainstreaming community-/ecosystem-based adaptation complements the work on forest-based mitigation activities.**

The government of Nepal is also committed to managing the country's rich biological diversity as per the national need, and in the spirit of the United Nations Convention on Biological Diversity (CBD) and other relevant multilateral environmental agreements to which Nepal is a party. In 2014, Nepal presented its National Biodiversity Strategy and Action Plan 2014–2020 to the Conference of the Parties of the CBD (CBD 2014).

Institutions

The Ministry of Forests and Soil Conservation (MFSC) has the mandate for promoting the sustainable management of forests and watersheds. The ministry delivers its function through five departments: Department of Forests, Department of Forest Research and Survey, Department of Soil Conservation and Watershed Management, Department of Plant Resources, and Department of National Parks and Wildlife Conservation. Besides the departments at the national level, there are regional as well as district offices.

The Department of Forests (DOF) is responsible for local-level implementation and extends its services through four administrative levels: headquarters, District Forest Office, Sector Forest Office, and Ilaka Forest Office. The DOF headquarters has the following functional divisions: planning and monitoring, community forest, national forest and national silviculture. The 74 District Forest Offices (DFOs) are responsible for the field-level implementation of all forest development programs, operations, and administration.

The MFSC leads the forest clearance process for obtaining tree felling permits, which provides an important base for development activities such as building infrastructure. Large infrastructure developers have cited the process as cumbersome, time-consuming, and highly bureaucratic, involving DFOs, the DOF, the MFSC, and the Council of Ministers (Cabinet). For example, the MFSC requested that developers buy an equivalent area of forestland in a similar ecosystem, create a similar forest, and hand it over to the government in order to acquire the forestland needed for their projects. In May 2017, the government issued new guidelines on forest clearance, making it easier for developers of large infrastructure projects to acquire wooded areas at their proposed construction sites. The new guidelines offer two ways to acquire forest land for development projects: (a) a developer can buy an equivalent area of forestland in a similar ecosystem elsewhere, create a similar forest on it, and hand it over to the government, or (b) a developer can pay a fee determined by the MFSC, which will be used to create a similar forest elsewhere. The new guidelines on forest clearance will go into effect after the MFSC fixes the rates for different ecosystems. The new rules will make it easier for infrastructure project developers, including developers of hydropower projects, to receive permission for necessary forest clearance.

Table 2 presents an overview of the current distribution of powers in the forest sector.

Table 2. Distribution of Powers in the Forest Sector

Federal power	State power	Concurrent power of federation and state	Local power	Concurrent power of federation, state, and local
National and international environmental management, national parks, wildlife reserves, wetlands, national forest policies, carbon services	Exploration and use of mines	State boundary river, waterways, environment protection, biodiversity	Environment protection, biodiversity	Forest, wildlife, birds, water uses, environment, ecology, biodiversity
Environment adaptation, commission of national importance	Use of forests and waters and management of environment within the state	Use of forests, mountains, forest conservation areas, and waters stretching in interstate form	Protection of watersheds, wildlife, mines and minerals	Royalties from natural resources

With Nepal’s transition to a federal system, institutional changes, including in the MFSC, are imminent. The new constitution provides for a three-tiered governance structure: federal, state, and local, and all have different roles, powers, and mandates.

Civil society organizations (CSOs) have institutional capacity to expand community-based forest management in Nepal, but their current capacity is insufficient to also achieve improved livelihoods and income for forest-dependent communities. Recent changes in Nepal build on earlier political changes, starting with the movement toward democracy in 1990 that liberalized the economy and increased the involvement and clarified the roles of communities, civil society, nongovernmental organizations (NGOs), and the private sector as implementers, service providers, and investors. In the forest sector, the Forest Act (1993) and subsequent Forest Regulations (1995) with later amendments established the foundations for community forest governance and made significant tenure reforms that led to the expansion of CBFM to a level that has received worldwide recognition.

CSOs organize and represent a significant portion of forest-dependent communities, and provide important support to the community forest user groups through their networks. Over the past three decades, government forest has gradually been transferred to CBFM under various models developed in response to different geographical and socioeconomic contexts. CBFM groups now manage about 2 million hectares, or about 34 percent of Nepal’s forest. CBFM is a longstanding national priority and remains a priority development program under the 14th periodic plan, although the pace of handover has been reduced in recent years, partly due to a reduction in externally funded programs in Nepal’s forest sector, but also because in many districts, a large proportion of the accessible forest has already been handed over. Overall, major capacity gaps remain for sustainable forest management, which are related to designing the process to strengthen forest tenure, address conflict and grievances, and to promote sustainable investments in the forest sector.

Private sector participation and investment in forest-based industries is focused mainly on processing, manufacturing, and trade, with limited participation in the production of forest products and services.

The MSFP (2014) estimates 41,062 forest-based enterprises, including forest producer groups, formally operate in Nepal, of which 27,342 (over 66 percent) are involved in the primary production of goods and services. The remaining 13,720 enterprises work in processing, manufacturing, and trade, with the majority in timber (9,869 enterprises), followed by NTFPs (2,140), ecosystem services (1,676), and forest bioenergy (35) (MSFP 2014b).

The total estimated investment by private entrepreneurs was about NPR 32 billion in 2013 (excluding direct foreign investment in ecotourism), of which the highest investment came from the timber processors and manufacturers, with 59 percent of the total investment. The investment made in NTFP enterprises, ecosystem services (mainly ecotourism), and forest bioenergy is estimated to be about NPR 5.48 billion, NPR 6.56 billion, and NPR 42.9 million, respectively. There is a growing interest among international organizations in purchasing voluntary carbon credits from Nepal as the country provides a unique story of social and environmental benefits, but the transaction of forest carbon is not well developed and is limited to only a few voluntary transactions in fund-based markets (MSFP 2014b).

NATIONAL FOREST CHALLENGES

The main challenges to sustainably manage Nepal's forests reside in (a) the drivers of deforestation and forest degradation, (b) the country's vulnerability to natural disasters, (c) the low level of public and private investments in the sector; and (d) the weak policy and institutional environment.

Drivers of Deforestation and Forest Degradation

Nepal is a forest-rich country, but although forest cover has increased nationally, there is considerable regional variation in deforestation and forest degradation rates across the country. The rate of deforestation and forest degradation has dropped in recent years and the overall state of forests is improving (ICIMOD 2015). The mean annual rate of loss of forest and shrubland (combined) was 0.47 percent during the period 1978/79–1994 and 0.53 percent over the period 1990–2000. However, this negative trend has been reversed more recently. The period 2000–2010 saw an annual increase in forest and shrubland cover of about 0.8 percent, largely due to the development and promotion of CBFM of various types (MFSC 2018) and as a result of the abandonment of agricultural land and its gradual reversion to forest. An estimated 18–38 percent of agricultural land has been abandoned or is underutilized in some Middle Hills districts (FAO, n.d.[c]).

The Terai, which has the lowest percentage of forest cover of Nepal's regions (20.8 percent), experienced an annual deforestation rate of 0.44 percent over the period 1999–2010. The Chure region, with a forest cover of 73.6 percent, had an annual deforestation rate of 0.18 percent over the same period. The Middle Mountains' 53.7 percent forest cover is now reportedly increasing (but the rate is not specified in the data); the High Mountains and High Himal together have a forest cover of 37.8 percent, which also reportedly increased over the period 1994–2010 (DFRS 2015).

Nepal's REDD+ Strategy (MFSC 2018) identifies nine drivers of deforestation and forest degradation: (1) unsustainable and illegal harvesting, (2) forest fires, (3) infrastructure development, (4) overgrazing/uncontrolled grazing, (5) weak forest management practices, (6) urbanization and resettlement, (7) encroachment, (8) mining and excavation, and (9) invasive species. The factors underlying these dynamics include a lack of clarity over land and resource tenure, poor forest

governance and cross-sectoral collaboration, demographic and cultural complexity, limited access to markets and related livelihood opportunities, and high opportunity costs for agricultural land use compared to forestry.

In addition to the importance of improved forest management to the economy and livelihoods, **Nepal will need to better manage forests to increase its forest carbon stock as per its NDC commitments.** Per 2012 FAO data, 15.1 percent of Nepal's 2011 GHG emissions resulted from land use change and forestry. Moving forward, the role of the forest sector in meeting the immediate needs of the population (for example, firewood, NTFPs, timber) and in providing jobs and income in the long term needs to be discussed.

VULNERABILITY TO CLIMATE CHANGE AND NATURAL DISASTERS

Climate change is a serious development challenge facing Nepal. The country's natural resources, economy, and population are vulnerable to the negative impacts of climate change, including glacier retreats, avalanches, landslides, flooding, droughts, and changing weather patterns. Potential impacts include threats to agricultural productivity and food security; damage to forest ecosystems through fire, disease, and insect infestations; threats to fauna and flora; water availability; and vector-borne diseases.

Nepal is also prone to earthquakes, attributable to its geographic location and geological formation. About 8,800 people died and more than 20,000 were injured in a major 2015 earthquake. The earthquake affected over 31 districts and instigated heavy damage and loss to the forests, forestry ecosystems, protected areas, ecotourism, government and community infrastructures, and the livelihoods of forest-dependent communities.

A recent post-disaster needs assessment of the forestry sector reported large damages to the forests. Total damages and losses to forest-related infrastructure (for example, industries, offices), forests, biodiversity, and NTFPs were estimated at NPR 31.49 billion (\$295 million) and NPR 34.86 billion (\$326 million), respectively (NPC 2015a). A total of NPR 17.7 billion (\$166 million) was estimated for reconstruction and recovery for the next five years (NPC 2015a).

Improved management of forests and landscapes will help to increase Nepal's resilience to climate changes and other natural disasters. For example, the latest earthquake highlighted the importance of a sustainable source of timber and wood products for reconstruction, in addition to meeting the basic cooking and heating needs of the country (MSTE 2015b).

Soil bioengineering has been used in Nepal for nearly 30 years to deal with erosion problems on slopes, in highway construction, and in riverbank stabilization (Dhital, Kayastha, and Shi 2013). In recent years, soil bioengineering techniques have been increasingly implemented due to their cost-effectiveness—they use locally available materials and low-cost labor—in comparison to more elaborate civil engineering works. The main techniques used are brush layering, palisades, live check dams, fascines, and vegetative stone pitching. Forests can also play a positive role in slope stabilization, reducing the risks of landslides or excessive sedimentation. Using forests, trees, and shrubs in support of soil bioengineering on slopes and stream banks can contribute to their stabilization, resulting in securing infrastructure such as roads and hydropower infrastructure. Furthermore, community participation and responsibility for the successful application of vegetation-based techniques is essential for sustainability and is consistent with the concept of CBFM.

Public and Private Investments in the Forest Sector

Public Sector

The Ministry of Finance's allocation of funds to the forest sector has been low over the past years compared to other sectors, although the budget allocation for fiscal year 2017/18 was increased to NPR 15.3 trillion (Table 3) (MOF 2017a). However, the MFSC has continuously underspent the allocated budget, an indicator for low institutional capacity and governance challenges. During the period 2014/15, the MFSC spent \$8.56 million in the forest sector, only 87 percent of its allocation (MOF 2016a, 2017b).

Currently, commercial banks are unwilling to lend for forestry investments. Banks have no policies to recognize forestry as a productive sector and there are no mandatory policy provisions for banks and financial institutions to spend at least 2–3 percent of their total loan portfolio in forestry as there are for spending in the agriculture sector. In addition, the capacity and skill set of bank staff as well as the provision of market linkage services for micro and small forest-based enterprises in rural communities need to be improved, as does the support of subsidized insurance premiums (MFSC 2017).

Private Sector

Forest-based enterprises in Nepal have limited awareness of the market and follow business scenarios that negatively affect product demand (IIED 2016). Smallholders are poorly integrated in the market and have no access to modern technology that could contribute to value addition of their products (for example, timber processing, NTFPs). Small and medium forest-based enterprises could generate more than \$8.7 billion and 1.38 million work days through 400,000 sustainable full-time equivalent green jobs. With limited business capacity, the ability to participate in a competitive process is compromised. Some development partners provide direct cash incentives or financial grants to establish enterprises, but capacity development on sustainable business practices is not available, including the ability to develop plans for sustainable business management. Buyers usually determine the price of products, at times far below the cost of production.

Despite many constraints, the private sector is a source of investments and supply of forest products.

The share of private forestlands is less than 0.01 percent (2,361 hectares) of Nepal's forests (MSFP 2014). Still, private forests and tree growers have emerged as the leading suppliers of timber, accounting for about 48 percent of total sales during the past five years. The total supply from the government and the communities are 17 percent and 35 percent, respectively. A recent study estimates that with the sustainable management of forests and plantations, Nepal's forests could supply as much as 9.18 million m³ of timber annually, of which 1.6 million m³ could be supplied from private forests (MSFP 2014b).

Table 3. Ministry of Finance Budget Allocation to Sectors in Fiscal Year 2017/18

Ministries	Estimated allocated budget (NPR, thousands)
Ministry of Forests and Soil Conservation	15,344,394
Ministry of Energy	19,299,405
Ministry of Physical Infrastructure and Transport	96,557,264
Ministry of Agriculture	24,261,937
Ministry of Irrigation	27,405,840
Ministry of Education	66,124,416
Ministry of Health	31,781,099

There are several constraints to increased private sector investments:

- Complexity and confusion in the process and steps of business registration
- Lack of support in business registration and operation, including market information and business promotion services for the investors in forestry
- Complex procedures and high transaction costs in harvesting and utilization of forest products from private land and contradictory provisions that arise from multiple agencies and procedures
- Irrational system of fixing and collecting royalties, prices, and taxes on forest products, especially charging royalties on NTFPs and value added tax (VAT) on timber grown on private land
- Tariff and non-tariff barriers in trade, especially the hurdles in transportation
- Tenure issue on non-forested public land, privately occupied non-registered land, and ecosystem services, such as carbon and ecotourism
- Unavailability of quality planting materials, especially for the preferred fast-growing species suitable for private plantation forestry
- Issues related to access to finance, especially due to the long moratorium period of plantation, which causes banks to be hesitant for investment in plantation
- Inadequate coordination between wood-based industries and producers, and low exchange of information and services among them
- Lack of clear policy on the process for private sector engagement

Policy and Institutional Environment

While the current policy and regulatory framework broadly supports the implementation of Nepal's Forestry Sector Policy, the Forestry Sector Strategy, and the REDD+ Strategy, important regulatory gaps and governance challenges still need to be addressed to achieve the full potential contribution of the forest sector to Nepal's socioeconomic development. These challenges can be grouped into four areas:

- a. New challenges arising from Nepal's ongoing state restructuring process under the new constitution, particularly regarding capacities and awareness gaps (especially at the local level) and unclear responsibilities or weakly developed links between the three levels and/or between different stakeholder institutions—for example, between communities and municipalities.
- b. Mismatch between forest policy and practice where potentially supportive and enabling policies may be undermined by their variable interpretation by different individuals or at different levels or where policies are contradicted by actions taking place on the ground. Poorly supported law enforcement, overfrequent regulation changes, and overregulation of some areas—for example, forest product sales, utilization, transport, and enterprise establishment—often without proper consultation or evidence-base, exacerbates this mismatch between policy and practice.
- c. Contradictions, lack of harmonization, and jurisdictional overlap between enabling forest sector policies and the policies and practices of other sectors—including local governance, infrastructure development, energy, mining, tourism, agriculture, livestock, and resettlement—create contradictory influences and unclear lines of responsibility and control (for example, between forestry and agriculture or between forestry and infrastructure development).
- d. The lack of effective systems for land use planning at all levels (central, state, and local). The new constitution gives powers and responsibilities to local government for the formulation of local land use plans, although there are likely to be capacity challenges in doing this. Without a clear national land use policy and with a National Land Use Plan (2015) that is generic and lacks an effective enforcement and monitoring mechanism, there is little to prevent continued loss of forestland through its conversion to other land uses without effective offsets being made.

Nepal has long experience with implementing multilateral- and bilateral-funded projects and programs that have helped build sufficient technical capacity for forest protection and SFM. However, with the transition toward federalism and the reorganization required to build new institutional structures at different levels, it is expected that there will be significant institutional capacity deficiencies for implementation, especially at the local level.

Institutional collaboration inside and between forest institutions needs to be improved (MFSC 2018). The MFSC and its regional, district, and local offices need to improve their communication on policy needs and emerging issues. Wider consultations with field-level implementers, researchers, and cross-sectoral experts are necessary to ensure conformity of forestry policies with other policies or to identify areas where trade-offs can be minimized. A mechanism for linking district development committees, village development committees, NGOs, community-based organizations, and civil society through various political parties and community forest user groups (CFUGs) needs to be developed. These issues need to be addressed or resolved during the ongoing decentralization process.

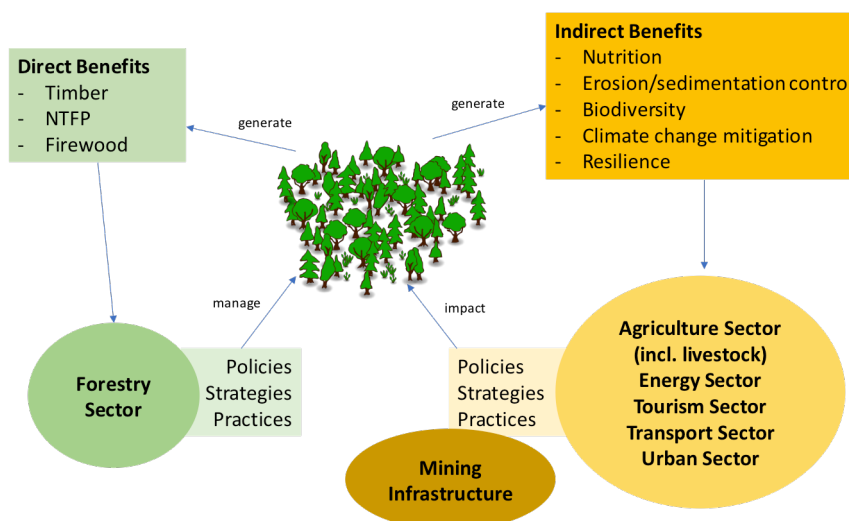
OPPORTUNITIES TO IMPROVE FORESTS' CONTRIBUTION TO NEPAL'S ECONOMY

Dynamics between Economic Sectors and Forests

As discussed, the forest sector generates direct and indirect benefits to Nepal's economy. Direct benefits include the provision of goods such as timber, NTFPs, or firewood with opportunities for jobs and income generation from harvesting and value chain addition. Sustainable forest management and conservation provide indirect benefits to economic sectors such as agriculture (that is, nutrition), the energy sector (that is, sedimentation control), tourism (that is, flora and fauna), and transport (that is, erosion control).

While forests provide such indirect benefits to other sectors of the economy, policies and practices of these and other sectors (including infrastructure development and mining) are often developed either without taking into account their impact on forests or accepting negative impacts as an unavoidable or acceptable trade-off (Figure 1).

Figure 1. Dynamics between Economic Sector and Forests



Increasing agricultural productivity for small and marginal farmers through agricultural intensification would help reduce encroachment and uncontrolled grazing in forest areas. Effective implementation of REDD+ needs a progressive increase in agricultural productivity (crop and livestock) to contribute to food security and reduce encroachment into forests. However, it is necessary to identify means to increase productivity while reducing the adverse environmental impacts, including GHG emissions. In this context, responding to the needs, interests, and rights of small and marginal farmers is particularly important.

Hydropower has the potential to launch Nepal into a higher growth trajectory, but its impacts on forests must be carefully considered in planning new energy investments and related infrastructure. Identified as a national development priority (IHA 2017), hydropower has the potential to catalyze economic growth, reduce poverty, and substantially increase access to electricity. More than 98 percent of feasible generation has not been realized yet. Since 1990, the private sector has emerged as a key player in the development of the sector, but the increasing energy demand still can't be met. Hydropower plants have high maintenance costs due to sedimentation of water reservoirs as well as frequent turbine outages because of damage from inflowing minerals. If land use in catchments of these hydropower facilities were managed sustainably—for example, by exploring opportunities for reforestation and afforestation—it could help improve the efficiency of the plants by reducing sediment inflow and improving water regulation (Rawat 2011).

Improving access to non-wood-based energy will, over time, reduce dependency on fuelwood and hence contribute to reducing forest degradation. A 2015 study found that in Nepal, the mean reduction in household firewood collection associated with use of a biogas plant for cooking is about 1,100 kilograms per year from a mean of about 2,400 kilograms per year (Somanathan and Bluffstone 2015). While access to alternative energy gradually improves, remaining fuelwood needs should be met by operating community woodlots or fuelwood plantations.

Nepal's tourism sector is primarily nature-based, with mountaineering, trekking, white-water rafting, and safari tours into the forests the main activities. The importance of nature-based tourism is seen by the number of visitors who visit protected areas. During 2014, 514,277 tourists visited PAs, or about 65 percent of the total number of visitors to the country that year. Though the number of visitors to PAs declined to 387,383 in 2015 because of the earthquake, the share of foreign visitors to PAs remained stable at around 70 percent (DNPWC 2014).

Several factors affect the tourism industry in Nepal and limit its growth trajectory: (a) the lack of sustainable infrastructure development in different tourist destinations and access to it, (b) the uneven redistribution of benefits to key stakeholders, (c) the lack of capacity building and job opportunities, (d) lack of human capacity, (e) the limited resources for conservation efforts and PA management, (f) a weak service industry, and (g) weak policy and regulatory frameworks.

Nepal's transport sector is highly vulnerable to the impact of climate change and natural disasters. The cost of building and maintaining road infrastructure in Nepal is high compared to other countries in the region. High rainfall and flooding can cause significant damage to the road drainage structures, breaching of road embankments, scouring of bridge foundations, washouts, and so on. In addition, natural disasters such as earthquakes and landslides make road building and maintenance a challenge in terms of technical design and providing adequate resources for appropriate design and maintenance. The transport sector consumes a considerable portion of the overall infrastructure investment in Nepal,

with a major share of the transport sector budget expended on improvement and maintenance of roads (MPIT 2015).

Bioengineering, including the use of trees or shrubs, is a proven concept to decrease erosion and the occurrence of landslides and related negative impact on roads (World Bank 2015). To date, there are no design specifications for building climate-proof roads in Nepal. The government needs to develop a framework to (a) identify locations for extreme climate conditions, (b) carry out risk analysis and impact assessments, (c) plan an appropriate response to the risks, (d) calculate the life cycle costs of building roads, (e) design the infrastructure accordingly, (f) implement the plan, and (g) carry out continuous monitoring and evaluation. Although this will not prevent extreme climate conditions, it will help reduce the life cycle costs of the roads (MPIT 2015).

While the above-mentioned sectors indirectly benefit from forests, their practices are also identified in the REDD+ Strategy (MFSC 2018) as drivers of deforestation and forest degradation. In response, the strategy lists proposed strategies on land use that do not come at the costs of forests, including actions needed in sectors impacting forests and the need for improved coordination and collaboration (Table 4).

Table 4. REDD+ Strategy: Strategies and Actions Related to Land Use

<p>Promote optimum land use across all the physiographic regions</p>	<p>4.1 Promote implementation of the Land Use Policy 2015, particularly provisions related to the forest sector. Update zoning and mapping of forestland use regularly.</p> <p>4.2 Develop and implement economic and market-based incentives to promote optimal land use.</p> <p>4.3 Develop extension materials on linking climate change and benefits of land use planning and disseminate through mass media and other methods.</p> <p>4.4 Ensure social and environmental safeguards during the formulation and implementation of land use plan.</p> <p>4.5 Strengthen enforcement and monitoring capacity of district-level land encroachment control committees and law enforcement agencies to reclaim illegally occupied forestlands.</p>
<p>Increase agricultural productivity of forest-dependent and other smallholders</p>	<p>7.1 Support climate-smart agriculture such as agroforestry, ecological farming, Sloping Agriculture Land Technologies, minimum tillage, direct seeding technologies, and use of farmyard manure.</p> <p>7.2 Support to revisit and revise policies for small-scale sustainable agriculture.</p> <p>7.3 Promote fodder and forage management in CF, CFM, and other CBFM, and private land with increased access to seed/seedling, cultivation, management, and feeding and processing technology.</p> <p>7.4 Conserve and increase water sources and promote efficient water management technologies.</p> <p>7.5 Support forest-dependent and smallholders with information, technology, and incentives to increase their access for the crop and livestock breeding and husbandry improvement.</p>
<p>Increase access to sustainable, affordable, and reliable alternative energy</p>	<p>8.1 Promote sustainable, cost-effective alternative energy and energy-saving technologies such as bio-briquettes, biogas, solar, wind, and improved cookstoves through educational, financial, and technological interventions.</p> <p>8.2 Simplify the registration process, provide input on technology, and subsidies on equipment for energy production that encourages use of available energy in operating</p>

	<p>forest-based enterprises.</p> <p>8.3 Develop mechanisms to increase access of forest-dependent poor and marginalized people to alternative energy and energy-saving technologies.</p>
<p>Improve collaboration, cooperation, and synergy among sectoral policies, sectors, and actors</p>	<p>9.1 Establish strong coordination mechanism among relevant sectors for integrated planning, implementation, monitoring, and evaluation of sectoral policies, plans, and programs.</p> <p>9.2 Identify and align legal frameworks in line with international commitments and harmonize between cross-sectoral policies and legal frameworks.</p> <p>9.3 Strengthen multi-stakeholder and integrated planning approach at all levels involving key government and nongovernment agencies on land, forest, water, agriculture, energy, and infrastructure, and increase consensus and commitments.</p> <p>9.4 Develop policies, legal frameworks, and institutions for investment in climate change mitigation, including performance-based payment mechanisms.</p> <p>9.5 Sensitize security agencies, media, and civil society on climate change, REDD+, and forest conservation.</p> <p>9.6 Incorporate climate change, roles of forest on climate change mitigation and importance of forest conservation in formal education.</p> <p>9.7 Control cross-border illegal trade of forest products through intercountry cooperation with Indian and Chinese authorities.</p>

Forest Sector Economic and Employment Potential

The forest sector presents promising potential to contribute further to economic growth and employment in Nepal. A study by the MSFP (2014a) estimates that in a conservative scenario, the forest sector can provide up to 420,000 jobs (Table 5). Presently, the private sector provides nearly 99,000 formal full-time jobs in the forest sector, per year, and community-based organizations, including CFUGs, provide about 31,000 jobs, for a total of 130,000 jobs. Thus, even in a conservative scenario, the potential exists for creating three times more jobs in Nepal’s forest sector than at the present level; in an optimistic scenario, even 10 times more. The transition of an informal workforce to formal employees could be achieved by involving workers in enterprise-oriented forest management and production of goods and services as well as in other functions of the value chains.

SFM and development of forest plantations on degraded and barren lands could help meet energy needs without degrading natural forests and reduce dependence on timber imports. The potential sustainable supply of timber and firewood from Nepal’s

Table 5. Scenarios for Potential Economic Value and Employment Opportunities of Forest Subsectors

Subsector	Economic value (NPR, millions)		Number of sustainable, full-time jobs	
	Conservative scenario	Optimistic scenario	Conservative scenario	Optimistic scenario
Timber	55,127	270,697	206,725	812,090
NTFPs	11,635	58,173	87,259	290,865
Forest carbon	4,235	13,572	37,054	118,755
Ecotourism	14,572	21,567	72,860	107,833
Forest bioenergy	2,126	9,107	15,633	53,571
	87,695	373,116	419,531	1,383,114

Source: MSFP 2014.

forests is estimated to be 21.7 million m³/year, but very little of this potential productivity is currently harvested or utilized. As a result, the country imports about 8,500 m³ timber annually. In fact, it is estimated that Nepal's forest sector—if managed for sustainable production rather than strict protection—could sustainably generate \$180 million a year from timber harvests alone (DFRS 2015).

CURRENT WORLD BANK AND PARTNER ENGAGEMENT IN FORESTS

The World Bank engagement in Nepal's forests is consistent with the current Country Partnership Strategy and the future Country Partnership Framework. The CPS states that the “WBG will support Nepal's aspirations for increasing economic growth through increased investments in key sectors while providing support to make growth more inclusive and to help equalize opportunities across groups and communities.” While the forest sector is not listed in the CPS as a priority sector, managing forests and other land uses in a sustainable manner is essential for other sectors, such as energy and transport, to sustain their assets and ability to operate. The proposed forest engagement will build on the existing World Bank portfolio for Nepal, design new operations based on identified needs, and explore opportunities for increasing Bank funding and leveraging additional finance from development partners in Nepal.

The recently concluded Strategic Country Diagnostic cites “natural resources” as one of six priorities (World Bank 2017a). Key development gaps identified for this priority include the following:

- Poor management of natural resources
- Weak forestry and environmental management
- Low private investment
- Weak/constrained regulatory environment
- Low and volatile agricultural productivity
- Weak public institutions and capacity

The Country Partnership Framework FY19–22, currently in development, will build on the SCD and focus on (a) public institutions, (b) growth and employment, and (c) inclusion and resilience. Indicative activities for these focus areas provide an excellent opportunity to address Nepal's forest challenge by closing the above-mentioned key development gaps.

World Bank Engagement in Forests

The current Bank lending portfolio in Nepal covers the energy sector (hydropower and energy access, power sector reform), **agriculture** (livestock, irrigation, food security, commercialization, and trade), and **transport** (roads).⁷ The recently closed regional wildlife project contributed to better **protected area management** and exploring **ecotourism opportunities**.

Although no current lending portfolio focuses exclusively on the forest sector, **several trust-funded initiatives, implemented by the World Bank**, provide up-front finance for activities related to combatting the illegal wildlife trade (GEF), REDD+ (FCPF, FIP), and integrated catchment area management (KGGTF).

⁷ See Annex 1 for the active World Bank portfolio, Annex 2 for the current World Bank pipeline, and Annex 3 for a more detailed description of forest opportunities and threats, World Bank projects addressing these issues, and remaining gaps.

The FCPF Carbon Fund is supporting the development of an Emission Reduction Program (ERP) for 12 districts in the Terai region that will eventually provide performance-based payments for verified GHG emission reductions to be distributed through a benefit-sharing mechanism. The ERP has identified six program activities that have the potential to generate the GHG emission reductions and non-carbon benefits:

1. Improving the management practices under CBFM models, building on traditional and customary practices
2. Transfer of national forests to community and collaborative forest user groups
3. Engagement of private sector forestry through improved access to finance and inputs
4. Expanding alternative energy with biogas and improved cookstoves
5. Scaling up pro-poor leasehold forestry
6. Supporting integrated land use planning to reduce forest conversion

However, **several barriers need to be lifted to achieve these emission reductions**, such as the lack of interagency collaboration, the fragmentation of forest-related external and internal funding streams, and the limited institutional capacity to absorb resources and provide appropriate guidance and advice to local-level entities. Moreover, no dedicated up-front finance has been committed yet to implement these activities, highlighting the need for a partnership approach to help Nepal implement the agreed actions that will result in emission reductions and non-carbon environmental, economic, and social benefits.

In 2015, the government of Nepal expressed interest in participating in the Forest Investment Program as part of the Climate Investment Funds, a partnership of several multilateral development banks hosted by the World Bank. The FIP Sub-Committee endorsed the FIP investment plan for Nepal in December 2017, which unlocked \$24 million in FIP resources to cofinance activities that may initiate transformational changes in the forest and forest-related sectors. Allocated FIP resources will provide a good vehicle for supporting and leveraging other resources for Nepal's Forests for Prosperity agenda, including IDA-18.

The FIP investment plan identifies five areas of investments:

1. Sustainable forest management through CBFM
2. Forest management for a forest-based economy
3. Private land forest development
4. Enhanced environmental services through nature-based tourism
5. Watershed management through innovative technologies

In addition, \$4.5 million were allocated to the FIP Dedicated Grant Mechanism for Indigenous Peoples and Local Communities (DGM), which will complement the investments and ensure the full and transparent participation of indigenous peoples and local community groups in Nepal's forest agenda.

The FIP investment plan was developed through extensive consultations with all key stakeholders and development partners: the government of Nepal (Ministry of Forests and Soil Conservation and its different departments, Ministry of Environment and Population, Ministry of Livestock Development, Ministry of Finance, and National Planning Commission); representatives from the private sector, including entrepreneurs in the forest sector; trade and industry federations, banks and financial institutions; community-based organizations, including CBFM groups in different parts of the country;

civil society, including NGOs, federations, and associations and their members; development partners; and elected representatives at the local level.

Development Partners Engagement in Forests and Forest-Relevant Sectors

Development partners have provided significant support to the Nepal forest sector and remain engaged, although financial assistance in more recent years has shifted to support earthquake emergency and recovery activities as well as peace building, governance, and energy security. In 2015, the top seven development partners (DFID, GEF, government of Finland, Swiss Development Cooperation, United Nations, USAID, and the World Bank) committed a total of \$148.1 million to ongoing forestry and environmental projects (MFSC 2015b). The remaining forest-related efforts are small and uncoordinated, calling for a revitalized approach to addressing the sector challenges and economic potential, and supporting government commitment to modernize its forest institutions and management.

One of the most known and influential donor-supported forest programs in Nepal was the **Multi-Stakeholder Forest Program (MSFP), supported by DFID, the government of Finland, and the Swiss Development Cooperation.** The MSFP was terminated prematurely because of structural and institutional challenges—namely, the program’s focus more on targets than quality of delivery, too-short time frame for implementation, blanket approach to private sector engagement, and chronic shortage of key service providers; weak NGO capacity; lack of interagency communication and collaboration; lack of clarity on authority for local communities to manage forests; and inadequate human resources provided from the donor and recipient side. In addition, the MSFP struggled with a large budget but small workforce, and insufficient fiduciary oversight and supervision. Lessons learned from the MSFP are presented in Box 1.

One key success of the MSFP was its multi-stakeholder approach, which allowed key stakeholders to participate meaningfully, confidently, and equally in all the processes of policy deliberation as well as program planning, implementation, and monitoring. These stakeholders included government of Nepal staff members, civil society members, communities, and private sector representatives. The multi-stakeholder approach has now been extended to the subnational and local levels, and the MFSC has adopted and institutionalized it in policy and planning procedures at all levels due to its effectiveness in increasing stakeholder ownership. As a result of the MSFP efforts to institutionalize the multi-stakeholder approach in forest management, the collaboration between the government and private sector has noticeably improved. The MFSC has amended the Forest Regulations (1995; 5th Amendment in 2015), which are considered a policy breakthrough in relation to private sector involvement. The amended regulations have created a more enabling environment for private foresters to harvest, transport, and sell their forest products. Similarly, the government of Nepal has revised the *distance from forests* rule for enterprise establishment in 2014, creating a more favorable environment for the establishment of forest-based enterprises in rural areas.

Moving forward, the Bank will continue its dialogue with development partners to explore opportunities for coordinated support to Nepal’s renewed forest agenda. These opportunities include reevaluating activities for their potential to be forest-relevant (that is, the role of forest ecosystems for building climate resilience, capacity development in the context of the federalization process) and exploring the potential for supporting new activities to address barriers for making the forest sector a valuable contributor to Nepal’s economy, job market, peoples’ livelihoods, and environmental sustainability.

Box 1. Selected Lessons Learned and Good Practices from the MSFP

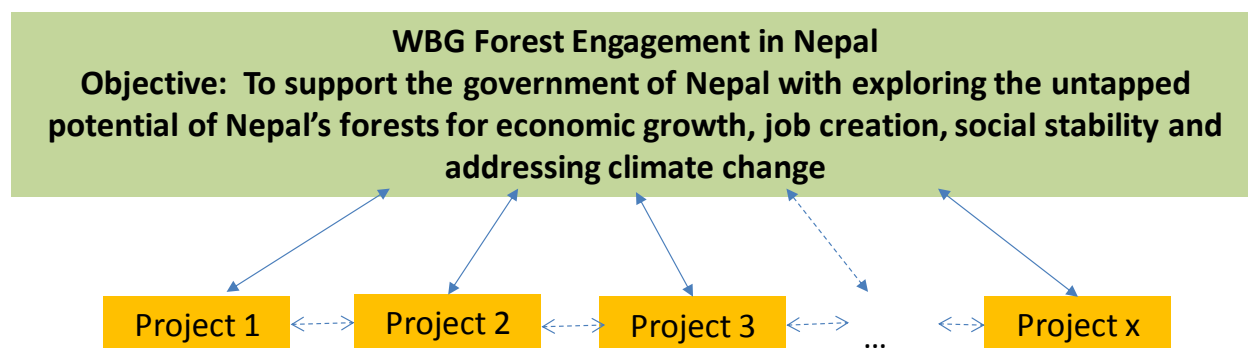
- The multi-stakeholder approach is effective for increasing ownership but time-consuming to implement.
- The value chain approach and the Value Chain Development Fund (VCDF) appear to be promising for enterprise promotion.
- Addressing needs and interests of the households and individuals increases the commitment and likelihood of success and impact.
- Support through the livelihood improvement plan has been a means of economic and social empowerment, and worked as a safety net for women, the poor, and the disadvantaged.
- Programs designed and implemented by local institutions, such as the LHF groups, are more effective in improving the livelihoods of beneficiaries than programs designed from the center due to an increase in the level of ownership, responsibility, and appropriateness.
- Offering multiple and customized livelihood options, and matching these with the specific needs and interests of the households and individuals, increase the commitment and likelihood of success and impact.
- Multi-stakeholder engagement in the livelihood improvement programs has increased the awareness of, and accountability toward women, the poor, and the disadvantaged.
- SFM has significant potential to contribute to the local economy, and it is a good option to improve both the quality and productivity of diminishing over-mature forests.
- SFM provides much opportunity for local employment, small enterprise establishment, and provision of fuelwood, poles, and timber for group members.
- There is a need for mutual collaboration between government bodies, local communities, and other relevant stakeholders for effective implementation—further support for the multi-stakeholder approach.
- A common understanding and collaborative milieu among stakeholders is important for effective implementation and increased ownership to ensure the sustainability of SFM.
- Clear provisions are needed in policy and guidelines to expand SFM to different ecological zones, forest types, and with different management modalities; current policies and guidelines need amending to encourage this expansion rather than imposing a blanket approach across the country.
- Considering the economic potential of SFM, both political and bureaucratic commitment is crucial at all levels to achieve the anticipated results from SFM.

Source: MSFP 2016.

WORLD BANK GROUP RESPONSE: A MULTISECTORAL, PROGRAMMATIC APPROACH IN SUPPORT OF NEPAL'S FORESTS

The objective of the proposed programmatic engagement is to support the government of Nepal with exploring the untapped potential of Nepal's forests for economic growth, job creation, social stability, and addressing climate change. This engagement is envisaged to be implemented through a set of “forest smart = climate smart” operations in several sectors that address barriers and promote opportunities to further enhance the economic and climate contribution of Nepal's forests and forest landscapes (Figure 2).

Figure 2. World Bank Group Forest Engagement in Nepal



Example of potential projects and programs (to be prioritized through consultative process):

- forest law enforcement and governance, including simplification of regulations for wood harvesting
- Integrated land use planning
- land and tree tenure
- scale-up of community-based forest management
- plantation forestry, especially in degraded lands
- wood processing
- forest-smart roads
- catchment area management linked with hydropower infrastructure
- improved access to renewable energy
- nature-based Tourism
- climate-smart agriculture

Financial and technical resources are deployed in support of public and private sector operations implemented by the government authorities, local stakeholders and the private sector

An illustrative list of core results from this programmatic engagement could include the following (*indicators to be determined*):

- Values of forest goods and ecosystem services (for example, habitat services, sediment retention, water regulation, carbon sequestration) are increased .
- People have secure employment and benefit from forest-dependent jobs (including from nature-based tourism).
- Institutional and human capacity at all levels (national, provincial, and municipal) is increased.
- Increased wood production.
- Emissions from deforestation and forest degradation are avoided and reduced.
- Forest ecosystems are resilient to disturbances and provide essential ecosystem services.
- People have access to alternative energy resources and energy needs are met.

Unleashing the potential of Nepal's forests requires investment, technical assistance, and capacity development to sustain growth not only in the forest sector but also in other sectors that affect and depend on forests, including tourism, agriculture, hydropower, and transport. Through an integrated landscape approach, competing land uses/sectors/interests can be addressed and the trade-offs minimized if they are supported by a program or a series of projects (programmatic approach) consistent with the objective of the proposed forest engagement.

The Bank's Forest Action Plan FY16–20 (FAP) underlines how “forests generate essential services to sustain key sectors (agricultural, energy, water, mining, transport and urban sectors), by helping to maintain the fertility of the soil, protect watersheds, provide habitat for forest biodiversity, and reduce the risk of natural disasters, including floods and landslides.” Building on the FAP, the proposed approach would encompass selective interventions under two pillars: (1) supporting the Forests for Prosperity program led by the MFSC, and (2) promoting forest-smart interventions in other relevant sectors.

Support to the Forests for Prosperity program could include the following:

- Strengthening institutions at the national and local levels for sustainable forest management, including improved coordination, information and knowledge management, planning, monitoring, and enforcement
- Increasing productivity through, for example, stand rotation, re- and afforestation using productive species, forest plantations, the introduction of new technology, and fire management
- Community forestry: community-based forest management, management of timber and NTFPs, and promotion of sustainable forest-based micro enterprises (for example, community woodlots, community-owned saw mills and wood processing facilities, tree nurseries, furniture enterprises)
- Plantation forestry in degraded lands and rehabilitation of degraded forests
- Catchment treatment for sustainable hydropower: sedimentation control measures (for example, terracing, bioengineered sediment traps)
- Improved management of PAs and buffer areas for ecotourism development
- Alternative livelihoods in buffer zone communities (for example, agroforestry, artisanal activities, employment opportunities in nurseries or plantations)

Bank projects in the following sectors provide good opportunities for forest-smart interventions as well as increased climate co-benefits:

- Tourism: destination planning and development, agrotourism, expanding mountain tourism (for example, shelters, hotels, service providers)
- Agriculture: climate-smart agriculture, agroforestry, and so on
- Hydropower and renewable energy sources: access to renewable energy sources such as solar, wind, or small hydropower
- Roads: using “green smart infrastructure” approaches, including bioengineering for slope stabilization, wildlife corridors, integrated roads and biodiversity land use plans
- Urban development: urban forestry and better land use planning

The programmatic engagement would enable the World Bank Group to better use a menu of financial instruments to address identified barriers or opportunities and take advantage of synergies.

Instruments include *grants* for technical assistance, including available under FIP and IFC advisory services for exploring private sector opportunities; *performance-based payments* for activities that generate emission reductions from REDD and, once verified, lead to performance-based payments; *loans* (FIP and IDA) for investments that have a financial or clear economic return from financed activities (for example, plantation forestry, supply chain improvements, risk reduction or increased resilience for infrastructure investments); and possibly *guarantees* to help re-risk private investment (for

example, in destination development). Annex 3 summarizes forest opportunities, threats, and gaps as well as potential Bank instruments to address them.

The proposed engagement will be fully consistent with the SCD and the emerging priorities considered for the CPF FY19–22. It is expected that the Country Management Unit will ensure that, moving forward, the pipeline will support the objective of this programmatic engagement.

The CPF FY19–22 will guide future Bank investments around three emerging priority areas: (1) institutions, (2) growth and employment, and (3) inclusion and resilience. The following list illustrates how the proposed forest engagement may contribute to the three themes:

1. ***Institutions***

- Training and capacity-building programs, especially for municipalities and state governments
- Modernizing monitoring (in situ and new sources of earth observation), information, and analytical tools, and knowledge products
- Scenario planning for key watersheds/basins; multisectoral institutional coordination frameworks (national to micro-watershed level)
- Supporting watershed/landscape/land use planning
- EIA process strengthening for infrastructure development
- Scaling up PES schemes

2. ***Growth and employment***

- Further exploring links between forests and growth and jobs
- Supporting forest plantations and forest-related SMEs, including value chains
- Exploring “cascade” options
- Developing eco-tourism opportunities outside protected areas
- Developing forest-smart codes of practice
- Developing credit lines for CFUGs for forest activities

3. ***Inclusion and resilience***

- Building awareness on role of forests and forest landscapes for resilience
- Developing forest fire and early warning systems
- Improving meaningful stakeholder inclusion and benefit-sharing plans
- Support community monitoring
- Improving resilience and sustainability of forest communities through integrated watershed approaches and comprehensive approaches to natural disaster, including fire risk reduction

ANNEX 1. NEPAL WORLD BANK PROJECT PORTFOLIO

Project ID	Project	Lead GP/CCSA	Contributing GP/CCSA	Approval FY	Closing FY	Lending instrument	Commitment amount (\$, millions)
P087140	Project for Agriculture Commercialization and Trade (PACT)	Agriculture		2009	2018	SIL	60.00
P099296	NP Irrigation & Water Resources Management Project	Agriculture		2008	2018	SIL	114.30
P128905	Nepal Agriculture and Food Security Project	Agriculture		2013	2018	SIL	46.50
P112893	Kabeli Transmission Project	Energy and Extractives		2011	2017	SIL	38.00
P122406	Kabeli-A Hydro Electric Project	Energy and Extractives		2015	2020	SIL	46.00
P131592	SREP-Supported Extended Biogas Project	Energy and Extractives		2015	2020	IPF	7.90
P132289	Kali Gandaki A Hydropower Plant Rehabilitation Project (KGAH)	Energy and Extractives		2013	2017	SIL	19.71
P146344	Nepal: Grid Solar and Energy Efficiency	Energy and Extractives		2015	2021	IPF	130.00
P150066	Nepal: Power Sector Reform and Sustainable Hydropower Development	Energy and Extractives		2016	2020	IPF	20.00
P127508	Building Resilience to Climate Related Hazards	Social, Urban, Rural, and Resilience		2013	2019	SIL	31.00
P155969	Earthquake Housing Reconstruction Project	Social, Urban, Rural, and Resilience	SPL	2015	2021	IPF	200.00
P095977	Road Sector Development Project	Transport and ICT		2008	2017	SIL	110.62
P132750	Project for Strengthening the National Rural Transport Program	Transport and ICT		2014	2020	SIL	100.00
P125198	Additional Finance: REDD Readiness	Climate Change CCSA	Environment and Natural Resources	2017	2019	CF	5.6
P160523	FIP Investment Plan Preparation Grant	Environment and Natural Resources	Climate Change CCSA	2017	2018	IPF	0.25 (24)

ANNEX 2. NEPAL WORLD BANK PROJECT PIPELINE

Project ID	Project	Lead GP/CCSA	Contributing GP/CCSA	Cross-cutting area	Approval FY	Lending instrument	Commitments (\$, millions)	
							Total	Source
P125198	Nepal Emission Reduction Program	Environment and Natural Resources	CC CCSA		2021	CF	0.00	TBD
P156797	Nepal Livestock Sector Innovation Project	Agriculture	FAM, TAC	JOB, GEN, CLC	2017	IPF	80.00	IDA
P158364	NP Modernization of Rani Jamara Kulariya Irrigation Scheme	Water	AGR		2018	IPF	43.48	IDA
P160593	Resilience and Risk Mitigation Project	Social, Urban, Rural, and Resilience	CLC, ENV	CLC	2017	IPF	5.00	TF
P154693	Nepal Energy Sector Development Policy Credit	Energy and Extractives	AGR, ENV, MFM, WAT	FCV, GEN, PPP, CLC	2017	DPL	150.00	IDA
P154109	UT1 - Upper Trishuli Hydro Project	Energy and Extractives			2018	NA	100.00	IDA
P154323	Strategic Roads Development Project	Transport and ICT	ENV, MFM, URS		2017	IPF	150.00	IDA
P157607	Additional Finance to Road Sector Development Project	Transport and ICT	URS	CLC	2017	IPF	55.00	IDA
TBD	FIP Dedicated Grant Mechanism for Indigenous Peoples and Local Communities	Environment and Natural Resources	GP SURR		2018	IPF	4.5	TF
TBD	Forest Accounts	Environment and Natural Resources				IPF		TF

ANNEX 3. FOREST OPPORTUNITIES, THREATS, GAPS, AND POTENTIAL INSTRUMENTS

This table outlines forest-related opportunities and the associated potential threats and future drivers that might affect their achievement, the existing or proposed Bank projects that contribute toward achievement of the opportunities and reduction in the threats, and the gaps requiring further work and support, including current knowledge, on-the-ground investments, institutional capacity, and policy and regulatory framework. Potential Bank instruments are suggested to address these opportunities, threats, and gaps.

Opportunities	Threats	Active Bank projects or projects in pipeline	Gaps	Bank instruments
Sustainable forest management to maintain remaining natural forests and woodlands	<ul style="list-style-type: none"> • High dependency on forests • Illegal harvesting • Unsustainable harvesting (firewood) • Forest fires • Forest encroachment • High opportunity costs for agriculture • Limited opportunities for CFUGS to pursue legal commercialization of forest products in Nepal 	<p><i>In pipeline:</i></p> <ul style="list-style-type: none"> • Nepal Emission Reduction Program <p><i>In implementation:</i></p> <ul style="list-style-type: none"> • AF – REDD Readiness Grant • FIP Investment Plan 	<ul style="list-style-type: none"> • Scale up community-based forest management (CBFM) • Improve forest governance • Fire management, and energy access • Alternative livelihood options for forest-dependent people 	<p>Investment Project Financing, including technical assistance</p> <p>Development Policy Financing to government or for a program of policy and institutional actions to improve land use policy and incentivize implementation</p>
Plantation forestry to reduce pressure on natural forests and increase timber supply	<ul style="list-style-type: none"> • Limited access to markets • Lack of private sector (PS) involvement • Tenure confusion • Limited access to finance • Lack of legal opportunities for community owners to pursue commercial logging 	<p><i>In pipeline:</i></p> <ul style="list-style-type: none"> • Nepal Emission Reduction Program • FIP Investment Plan <p><i>In implementation:</i></p> <ul style="list-style-type: none"> • Nepal: Grid Solar and Energy Efficiency • SREP-Supported Extended Biogas Project 	<ul style="list-style-type: none"> • Access to finance • Access to markets • Private sector capacity • Secure land tenure 	<p>Private sector options for financing, direct investment and guarantees provided by MIGA and IFC</p> <p>Development Policy Financing to government or for a program of policy and institutional actions to address land tenure issues</p>
Development of wood	<ul style="list-style-type: none"> • Limited access to markets 	<p><i>In pipeline:</i></p>	<ul style="list-style-type: none"> • Access to finance 	<p>Private sector options for</p>

processing industry	<ul style="list-style-type: none"> Lack of PS involvement Limited access to finance 	<ul style="list-style-type: none"> FIP Investment Plan 	<ul style="list-style-type: none"> Access to markets PS capacity Secure land tenure 	financing , direct investment and guarantees provided by MIGA and IFC
Hydropower/catchment area management	<ul style="list-style-type: none"> Lack of planning and institutional collaboration Lack of sedimentation data Overgrazing Deforestation 	<p><i>In implementation:</i></p> <ul style="list-style-type: none"> Nepal Energy Sector Development Policy Credit UT1 - Upper Trishuli Hydro Project Kabeli-A Hydro Electric Project Nepal: Power Sector Reform and Sustainable Hydropower Development 	<ul style="list-style-type: none"> Catchment area planning Sustainable livestock management Agroforestry and/or sustainable silvo-pastoral systems 	<p>Investment Project Financing, including technical assistance to implement sustainable natural resources management options in watersheds</p> <p>Development Policy Financing to government or for a program of policy and institutional actions to improve land use policy and incentivize implementation; foster cross-sectoral collaboration</p>
Nature-based tourism	<ul style="list-style-type: none"> Lack of appropriate infrastructure, including access roads and facilities Invasive species 	None	<ul style="list-style-type: none"> Infrastructure Good practices to combat invasive species 	<p>Investment Project Financing, including technical assistance to implement sustainable natural resources management options in watersheds</p> <p>Private sector options for financing, direct investment and guarantees provided by MIGA and IFC</p>
Climate-smart agriculture	<ul style="list-style-type: none"> Demographic and cultural complexity Resettlement Limited security of tenure (most agricultural land in Nepal is rented under short-term sharecropping) 	<p><i>In pipeline:</i></p> <ul style="list-style-type: none"> Nepal Livestock Sector Innovation Project NP Modernization of Rani Jamara Kulariya Irrigation Scheme 	<ul style="list-style-type: none"> Enhanced agricultural productivity Climate-resilient crop species Greater tenure security 	Investment Project Financing , including technical assistance to promote sustainable and climate-smart agriculture; restore degraded lands for agricultural use

	arrangements)	<i>In implementation:</i> <ul style="list-style-type: none"> • Project for Agriculture Commercialization and Trade (PACT) • NP Irrigation & Water Resources Management Project • Nepal Agriculture and Food Security Project 		
Green roads and other infrastructure	<ul style="list-style-type: none"> • Lack of planning – both by individual sectors and across sectors • Lack of knowledge, experience, and ownership by infrastructure sectors • Inadequate existing regulatory framework for environment and forest clearances • Additional up-front infrastructure cost • Technical challenges of steep terrain • Inadequate biodiversity baseline knowledge 	<i>In pipeline:</i> <ul style="list-style-type: none"> • Strategic Roads Development Project • Additional Finance to Road Sector Development Project <i>In implementation:</i> <ul style="list-style-type: none"> • Road Sector Development Project • Project for Strengthening the National Rural Transport Program 	<ul style="list-style-type: none"> • Modeling of land use options that support the sustainability of the infrastructure/or avoid negative impacts on forests • Comprehensive planning of roads and other infrastructure at a landscape level, including management of adjacent forest areas • Biodiversity studies to improve baseline knowledge of sensitive areas and wildlife corridors • Improvements to regulatory framework for EIA / forest clearance • Innovative funding approaches for SGI • Awareness raising and capacity building within infrastructure agencies 	<p>Investment Project Financing, including technical assistance to implement sustainable natural resources management options in support of infrastructure</p> <p>Trust funds and grants for ASA; and pilot innovations that can later be mainstreamed into Bank operations</p>

<p>Disaster preparedness</p>	<ul style="list-style-type: none"> • Resettlement • Lack of tenure security • Poor governance • Lack of processed wood for reconstruction 	<p><i>In pipeline:</i></p> <ul style="list-style-type: none"> • Resilience and Risk Mitigation Project <p><i>In implementation:</i></p> <ul style="list-style-type: none"> • Earthquake Housing Reconstruction Project • Building Resilience to Climate Related Hazards 	<ul style="list-style-type: none"> • Clear tenure • Resettlement plan • Disaster management plan • Lack of processed wood for reconstruction 	<p>Trust funds and grants to allow scaling up of activities, provide immediate assistance in response to natural disasters and other emergencies; and pilot innovations that can later be mainstreamed into Bank operations</p> <p>Investment Project Financing, including technical assistance to implement sustainable natural resources management options, including bioengineering</p> <p>Development Policy Financing to government or for a program of policy and institutional actions to improve land use policy and incentivize implementation; foster cross-sectoral collaboration; improve regulatory framework for land tenure</p>
-------------------------------------	---	--	--	--

REFERENCES

- Bhattarai D., R. Tsunaki, and A. N. Mishra. 2002. "Water and Risk." *Proceedings of Asia High Summit, May 6–10, 2002*. ICIMOD, Kathmandu, Nepal.
- CBD (Convention on Biological Diversity). 2014. *Nepal National Biodiversity Strategy and Action Plan 2014–2020*. Kathmandu, Nepal.
- DFRS (Department of Forest Research and Survey). 2015. *State of Nepal's Forests*. Forest Resource Assessment (FRA) Nepal, Kathmandu, Nepal.
- Dhital, Y. P., R. B. Kayastha, and J. Shi. 2012. "Soil Bioengineering Application and Practices in Nepal." *Environmental Management* (2013) 51: 354–64.
- DNPWC (Department of National Parks and Wildlife Conservation). 2014. <http://www.dnpwc.gov.np/index.php/programs>.
- ERI (Environmental Resources Institute). 2011. *Forest Sector Employment Study in Nepal*. Kathmandu, Nepal.
- FAO (Food and Agriculture Organization). n.d.(a). *Asia Forestry Outlook 2020: Country Report Nepal*.
- . n.d.(b). *Catchment Approach to Managing Soil Erosion in Asia*.
- . n.d.(c). *Briefing Note of Project for Enhancing rural livelihoods in underutilized/abandoned agricultural land through agroforestry* (TCP\NEP\3602).
- . 2016. *Institutional Capacity on Forest Tenure in Nepal: Status, Gaps and Way Forward*. Bangkok, Thailand.
- Heinen, J., and R. Shrestha-Acharya. 2011. "The Non-Timber Forest Products Sector in Nepal: Emerging Policy Issues in Plant Conservation and Utilization for Sustainable Development." *Journal of Sustainable Forestry* 30 (6): 543–63.
- ICIMOD (International Centre for Integrated Mountain Development). 2015. "Assessment of Change in Forest Cover and Biomass Using Geospatial Techniques to Support REDD+ Activities in Nepal." Working Paper 2015/5, ICIMOD, Kathmandu, Nepal.
- IHA (International Hydropower Association). 2016. "Nepal." Last modified 2016. <https://www.hydropower.org/country-profiles/nepal>.
- IIED (International institute for Environment and Development). 2016. *Increasing Private Sector Involvement and Investment in Forestry in Nepal*. London, United Kingdom.
- Indufor Oy. 2013. *Increasing Private Sector Involvement and Investment in Forestry in Nepal*. Kathmandu, Nepal.
- IRIN. 2010. "Road-building Leads to Deadlier Landslides." October 7. <http://www.irinnews.org/news/2010/10/07/road-building-leads-deadlier-landslides>.

- Kathmandu Post. 2017. "Planning Commission Endorses 14th 3-yr Plan." January 10.
<http://kathmandupost.ekantipur.com/news/2017-01-10/planning-commission-endorses-14th-3-yr-plan.html>.
- MAD (Ministry of Agricultural Development). 2015. *Agriculture Development Strategy (ADS) 2015 to 2035*. Part 1. Kathmandu, Nepal.
- MFSC (Ministry of Forests and Soil Conservation). 2009. *Nepal Forestry Outlook Study*. Kathmandu, Nepal.
- . 2015a. *Nepal's Forest Policy*. Kathmandu, Nepal.
- . 2015b. *Project Bank in the Forestry Sector of Nepal*. Kathmandu, Nepal.
- . 2017a. Draft Emissions Reduction Program Document (Terai Arc Landscape).
- . 2017b. *Forest Investment Plan for Nepal – Investing in Forests for Prosperity at a Time of Transformation*. Kathmandu, Nepal.
- . 2018. *Nepal's REDD+ Strategy*. Kathmandu, Nepal.
- MOF (Ministry of Finance). 2015. Red Book Fiscal Years 2014/15.
http://www.mof.gov.np/uploads/document/file/Red%20Book%20FY%202014-15_20140917050612.pdf.
- . 2016a. *Forestry Sector Strategy for Nepal*. Kathmandu, Nepal.
- . 2016b. *Economic Survey – Fiscal Year 2015/16*. Unofficial Translation. Kathmandu, Nepal.
- . 2017a. *Budget Speech of Fiscal Year 2017/18*.
http://mof.gov.np/uploads/document/file/Budget_Speech_207475_20170530011441.pdf.
- . 2017b. Red Book Fiscal Years 2016/17.
http://www.mof.gov.np/uploads/document/file/Red_Book_English%20Fy2016-17_20160912045153.pdf.
- MPE (Ministry of Population and the Environment). 2014. *Second National Communication Report to UNFCCC*. Kathmandu, Nepal.
- . 2016. Government of Nepal: Nationally Determined Contributions. Kathmandu, Nepal.
- MPIT (Ministry of Physical Infrastructure and Transport). 2015. *Climate and Disaster Resilient Transport System and Infrastructure Development for Nepal*. Kathmandu, Nepal.
- MSFP (Multi Stakeholder Forestry Program). 2014a. *Potential of Forestry Sector in Economic Growth and Development: Short Concept Notes on five themes*. Kathmandu, Nepal.
- . 2014b. *Private Sector Involvement and Investment in Nepal's Forestry Sector*. Kathmandu, Nepal.
- . 2016a. *Sustainable Forest Management in Nepal*. Kathmandu, Nepal.
- . 2016b. Results, Good Practices and Lessons Learnt from the MSFP. Kathmandu, Nepal.

- MSTE (Ministry of Science, Technology and Environment). 2015a. *Nepal Earthquake 2015: Building Back Better, Safer and Greener for a More Resilient Nepal*. Kathmandu, Nepal.
- . 2015b. *Nepal Earthquake 2015: Rapid Environmental Assessment*. Kathmandu, Nepal.
- NPC (National Planning Commission). 2013. *An Approach Paper to the Thirteenth Plan (2013–2016)*. Kathmandu, Nepal.
- . 2015a. *Nepal Earthquake 2015: Post Disaster Needs Assessment*. Vol. A, Key Findings and Vol. B, Sector Reports. Kathmandu, Nepal.
- . 2015b. *Sustainable Development Goals 2016–2030: National (Preliminary) Report*. Kathmandu, Nepal.
- . 2017. *14th Plan (FY 2073/74-2075/76)* (in Nepalese). Kathmandu, Nepal.
- Nepal Economic Forum. 2011. *Nepport: Docking Nepal's Economic Analysis*. Issue 4.
- Rawat, M. S. 2011. *Environmental Geomorphology and Watershed Management: A Study from Central Himalaya*. New Delhi, India.
- Somanathan, E., and R. Bluffstone. 2015. "Biogas: Clean Energy Access with Low-Cost Mitigation of Climate Change." Policy Research Working Paper 7349, World Bank, Washington, DC.
- The REDD Desk. 2017. <http://theredddesk.org/countries/nepal/statistics>.
- WECS (Water and Energy Commission Secretariat). 2002. *Water Resources Strategy – Nepal*. Executive Summary. Kathmandu, Nepal.
- World Bank. 2013. *Nepal - Kabeli 'A' Hydroelectric Project: Environmental Impact Assessment*.
- . 2014. *Summary of Case Study – Nepal*. Washington, DC.
<https://www.profor.info/sites/profor.info/files/Poverty-Forests-NepalCaseStudy.pdf>.
- . 2015. *Moving Toward Climate-Resilient Transport: The World Bank's Experience*. Washington, DC.
- . 2017a. *Nepal - Strategic Country Diagnostic*. Washington, DC.
- . 2018. *Nepal Systematic Country Diagnostic (P163310)*. Washington, DC.
- WTTC (World Travel and Tourism Council). 2017. *Travel & Tourism Economic Impact 2017 Nepal*. London.