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Report No: PAD4875

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON

A PROPOSED CREDIT
IN THE AMOUNT OF SDR 104.20 MILLION
(US\$140 MILLION EQUIVALENT)

TO

NEPAL

FOR A

DIGITAL NEPAL ACCELERATION (DNA) PROJECT

MAY 22, 2022

Digital Development Global Practice
South Asia Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2022)

Currency Unit = Nepalese Rupee (NPR)

NPR 122.29 = US\$1

US\$1.3443 = SDR 1

FISCAL YEAR
July 16 to July 15

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ABBREVIATIONS AND ACRONYMS

AWPB	Annual Work Plan and Budget	MoCIT	Ministry of Communication and Information Technology
CPSD	Country Private Sector Diagnostic	M&E	Monitoring & Evaluation
CS	Cybersecurity	MW	Megawatt
DC	Data Center	NCSC	National Cyber Security Center
DFIL	Disbursement and Financial Information Letter	NITC	National Information Technology Center
DoIT	Department of Information Technology	NOC	Network Operations Center
DNA	Digital Nepal Acceleration (Project)	NTA	National Telecommunications Authority
DNF	Digital Nepal Framework	OCC	Office of Controller of Certification
DTCO	District Treasury Controller Office	OAG	Office of the Auditor General
E&S	Environment & Social	PCM	Private Capital Mobilized
e-GP	electronic Government Procurement	PIE	Project Implementing Entity
ESMF	E&S Management Framework	PLR	Performance and Learning Review
ESMPs	E&S Management Plans	PMU	Project Management Unit
ESRS	E&S Review Summary	POM	Project Operations Manual
ESSs	E&S Standards	P-RAMS	Procurement Risk Assessment Management System
FA	Financing Agreement	PSC	Project Steering Committee
FCGO	Financial Comptroller General Office	RPF	Resettlement Policy Framework
FM	Financial Management	RTDF	Rural Telecommunication Development Fund
FO	Finance/Accounts Officer	SC	Subcomponent
FTTx	Fiber Optic Cable-based Networks	SEA/SH	Sexual Exploitation and Abuse/Sexual Harassment
FY	Fiscal Year	SEP	Stakeholder Engagement Plan
Gbps	Gigabytes Per Second	SMEs	Small and Medium Enterprises
GoN	Government of Nepal	SOE	Statement of Expenditures
GRID	Green, Resilient, and Inclusive Development	SP	Service Provider
GRS	Grievance Redressal Service	STEP	Systematic Tracking of Exchanges in Procurement
IA	Implementing Agency	Tbps	Terabytes Per Second
ICT	Information and Communications Technology	US\$	United States Dollar
IT	Information Technology	VLS	Virtual Landing Station
IXP	Internet Exchange Point	WB	World Bank
LMP	Labor Management Procedure	WBG	World Bank Group
Mbps	Megabits per second		



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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Nepal	Digital Nepal Acceleration (DNA) Project	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P176543	Investment Project Financing	Moderate

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
16-Jun-2022	15-Jul-2027

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To expand access to broadband in Project areas, to improve the capacity of individuals to engage in the digital economy, and to enhance the foundations for digital government.

Components

Component Name	Cost (US\$, millions)
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Expanding access to broadband	111.00
Improving the capacity of individuals to engage in the digital economy	6.00
Enhancing the foundations of digital government	62.00
Project management and coordination	1.00

Organizations

Borrower: Nepal

Implementing Agency: Ministry of Communications and IT
 Department of Information Technology
 Nepal Telecommunications Authority
 National Information Technology Center

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	180.00
Total Financing	180.00
of which IBRD/IDA	140.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	140.00
IDA Credit	140.00

Non-World Bank Group Financing

Commercial Financing	40.00
Unguaranteed Commercial Financing	40.00

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
Nepal	140.00	0.00	0.00	140.00



National PBA	140.00	0.00	0.00	140.00
Total	140.00	0.00	0.00	140.00

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2022	2023	2024	2025	2026	2027	2028
Annual	0.00	3.00	17.00	25.00	35.00	35.00	25.00
Cumulative	0.00	3.00	20.00	45.00	80.00	115.00	140.00

INSTITUTIONAL DATA

Practice Area (Lead)

Contributing Practice Areas

Education

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Substantial
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Moderate
8. Stakeholders	● Substantial
9. Other	
10. Overall	● Substantial



COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

(Section I.A.3 of Schedule 2 to the LA) The Recipient shall establish, no later than one (1) month after the Effective



Date, and thereafter maintain, throughout the implementation of the Project, the Project Steering Committee, with membership, functions and terms of reference satisfactory to the Association, as set forth in the Project Operations Manual.

Sections and Description

(Section I.A.4 of Schedule 2 to the LA) The Recipient shall establish no later than one (1) month after the Effective Date and thereafter maintain at all times during the period of implementation of the Project, a PMU within MoCIT, headed by the Joint Secretary(IT) and with functions and resources satisfactory to the Association, and with competent staff in adequate numbers and with qualifications, experience and terms of reference satisfactory to the Association as further set forth in the Project Operations Manual.

Sections and Description

(Section I.A.5 of Schedule 2 to the LA) The Recipient shall ensure that each Implementing Agency establishes within one (1) month from the Effective Date a Project Implementation Team to be headed by a focal point officer, to oversee and manage the activities under its Respective Parts of the Project.

Sections and Description

(Section I.B.1 of Schedule 2 to the LA; Section I.B of Schedule to the PA) To facilitate the carrying out of the Project Implementing Entity’s Respective Part of the Project, the Recipient shall make part of the proceeds of the Financing allocated from time to time to Category (1) and (3) of the table set forth in Section III.1 of this Schedule available to the Project Implementing Entity under a subsidiary agreement between the Recipient and the Project Implementing Entity, under terms and conditions approved by the Association, (“Subsidiary Agreement”) as further specified in the Financing Agreement.

Sections and Description

(Section IV of Schedule 2 to the LA) The Recipient shall, and shall cause the Implementing Agencies to ensure that the Project’s activities involving collection, storage, usage, and/or processing of Personal Data are carried out with due regard to the Borrower’s existing legal framework and appropriate international data protection and privacy standards and practices.

Conditions

Type	Financing source	Description
Effectiveness	IBRD/IDA	The Project Operations Manual, has been prepared and adopted by the Recipient and the Implementing Agencies in a form and substance satisfactory to the Association.
Disbursement	IBRD/IDA	(1) under Category (1) and (3) unless and until the Subsidiary Agreement has been executed on behalf of the Recipient and NTA and all conditions precedent to its effectiveness or to the right of NTA to make withdrawals under it have been fulfilled; or



Type	Financing source	Description
Disbursement	IBRD/IDA	(2) under Category (3) unless and until NTA has prepared and adopted a Grants Manual, satisfactory in form and substance to the Association, setting forth the procedures for selecting, appraising, and approving grant applications, and for supervising implementation of contracts financed under Part 1.1 (b) of the Project.



I. STRATEGIC CONTEXT

A. Country Context

1. **Nepal is a landlocked country of about 29 million people.** Most people (80 percent) live in rural areas, although the urbanization rate (about 6 percent) is higher than the regional average. The poverty headcount (at the international poverty line of US\$1.90 per day) was 17.4 percent in 2019, down from 30.1 percent in 2014.¹ The country's Human Development Index (HDI) is 0.602, which ranks 142 in the world for reporting countries. The inequality adjusted HDI is 0.446, and life expectancy is 70.8 years.²

2. **Despite various challenges, Nepal's economy demonstrated impressive growth and resilience over the past decade when faced with a wide variety of shocks.** During FY2012-19, Nepal's economy performed reasonably well despite being hit by three large exogenous shocks: the 2015 earthquake, 2016 trade disruptions, and 2017 floods. A fourth shock, the COVID-19 pandemic, derailed the strong growth trajectory established over the previous three years. Economic growth contracted by 2.1 percent in FY20, the first contraction since FY1983, as a nationwide lockdown from March to July 2020 imposed to curtail the spread of the virus significantly affected all sectors of the economy. The economy is estimated to have grown by 1.8 percent in FY21 even though renewed containment measures were imposed in the fourth quarter of the fiscal year. Agriculture, contributing over one-fifth of nominal gross domestic product (GDP), has been a bright spot, registering 2.2 and 2.7 percent growth in FY20 and FY21, respectively, on the back of favorable summer monsoons. After contracting during FY20, the industry and service sectors are estimated to have grown by only 0.9 and 1.6 percent in FY21, respectively. The World Bank (WB) 2020 South Asia Region COVID-19 phone monitoring survey shows that 45 percent of those who recovered from a job loss have switched sectors and taken jobs with lower earnings and skill requirements, indicating that many households have been pushed to marginally above or below the poverty line.

3. **The COVID-19 pandemic derailed the economy, but partial recovery is under way.** The fiscal deficit narrowed to 4.6 percent of GDP in FY21. Economic growth is projected to recover gradually to 4.1 percent by FY23. The baseline forecast projects a gradual medium-term recovery, with growth accelerating from 3.7 percent in FY22 to 5.8 percent by FY24. The baseline assumes (a) no new nationwide strict containment measures are imposed; (b) a near complete vaccination of the eligible population by the end of FY22 (81.7 percent of the population ages 18 and higher have received full doses of vaccine by March 25, 2022); and (c) a gradual increase in international migration and tourist arrivals, reaching pre-pandemic levels by FY24. Vaccination deployment is expected to unleash pent-up demand for most service subsectors. Industry sector growth is projected to be supported by increased hydropower production including from the recently completed Upper Tamakoshi plant. However, agricultural growth is projected to decelerate in FY22, reflecting a decline in paddy production and the rise of global fertilizer prices earlier in the fiscal year. Increasing fuel prices are also expected to weigh on aggregate demand.

4. **The war in Ukraine is expected to impact Nepal's economy through commodity prices.** Nepal's trade with Ukraine is limited to less than two percent of total imports—including mostly sunflower oil, dried peas, and colza seeds—but the share of fuel, agriculture, metals, and minerals in total imports is large. As such, Nepal is less likely to face an immediate negative supply shock because of the direct trade linkage. Instead, higher global

¹ Nepal Planning Commission. 2021. Multidimensional Poverty Index (MPI)-2021 Report. Kathmandu, Nepal.

² <http://www.hdr.undp.org/en/countries/profiles/NPL#>



commodity prices are expected to increase the import bill indirectly. Services exports are expected to be less affected given the relatively low share of tourist arrivals from Ukraine.

5. **A new government took office on July 13, 2021.** A new cabinet was then appointed in October 2021 and federal and provincial elections are expected in late 2022. Local elections were recently concluded in May 2022. At the sub-national level, funds, functions, and staff continue to be managed by the seven provinces and 753 local governments for which legislation, institutions, and administrative procedures are being formalized as constitutionally prescribed. Meanwhile, the federal government has been streamlined with a focus on national policies and oversight.

6. **Nepal is highly vulnerable to climate change.** The country's mean annual temperature is projected to increase between 1.2°C and 4.2°C by the 2080s under the highest emission scenario compared to the baseline period 1986–2005.³ As total annual precipitation is predicted to fall within a shorter time frame and be more erratic, the dry seasons will be longer, and the risk of flooding due to higher monsoon precipitation is projected to increase by as much as 14–40 percent by 2030.⁴ Mountains are warming faster than the plains, triggering the melting of ice and permafrost and increasing the risk of glacier lake outburst floods. Changing climate has exacerbated more frequent and intense disaster events in recent years (drought, floods, landslides, disease outbreaks, and heatwaves), leading to a cascading effect on Nepal's overall economic growth and development.⁵

B. Sectoral and Institutional Context

7. **Nepal seeks to strengthen the resilience of its households, businesses, and government, while ensuring economic and social inclusion.** In September 2021, the Government of Nepal (GoN) and development partners declared their intention to develop a strategic action plan for Nepal, geared towards Green, Resilient, and Inclusive Development (GRID).⁶

8. **The GoN sees digital development as a key enabler of growth and of resilient and inclusive development.** The Digital Nepal Framework (DNF) is a strategy adopted by the GoN in 2019. It aims to use digital technologies to transform the economy by providing inclusive access to services and infrastructure for various groups of the population, promoting innovation and competitiveness in the private sector, and improving public service delivery. The DNF seeks to digitize 8 sectors through 80 initiatives.⁷ The planning commission has identified the DNF as a game-changing program.

9. **The DNF predates the GRID approach; however, it supports several priorities identified in the Kathmandu Declaration.** The DNF proposes digital initiatives that would boost inclusion and resilience, as well as green growth. The 15th National Plan (15NP)⁸ also envisages enhancing the digital ecosystem. Stakeholders from the private sector and civil society also note the need for Nepal to accelerate digital development, especially to ensure inclusion and to promote innovation. Many Nepalese concur with the concept of digital access as a critical

³ The World Bank Group, and the Asian Development Bank. 2021. "Climate Risk Country Profile: Nepal."

⁴ World Bank. 2018. Nepal - Systematic Country Diagnostic: A New Approach for a Federal Nepal. Washington, DC: World Bank.

⁵ World Bank. 2011. "Climate Risk and Adaptation Country Profile for Nepal." Washington, DC: World Bank.

⁶ "Government of Nepal and Development Partners Join Forces on Nepal's Green, Resilient, and Inclusive Development." 2021. www.worldbank.org. The World Bank.

<https://www.worldbank.org/en/news/press-release/2021/09/24/government-of-nepal-and-development-partners-join-forces-on-nepal-s-green-resilient-and-inclusive-development>.

⁷ The included sectors are digital foundations, health, agriculture, urban infrastructure, energy, education, financial services, and tourism. 2019. *Digital Nepal Framework*. Ministry of Communication and Information Technology. <https://mokit.gov.np/pages/digital-nepal-framework>

⁸ 2020. The Fifteenth Plan (Fiscal Year 2019/20 – 2023/24). Government of Nepal. https://npc.gov.np/images/category/15th_plan_English_Version.pdf



part of the response to the COVID-19 pandemic and its challenges.⁹ The private sector has also expressed interest in playing a more-strategic role, building on existing developments in telecoms connectivity, digital financial services, and e-commerce platforms.

10. Nepal's potential to use digital development to support GRID is hindered due to gaps in digital inclusion, the limited capacity of people and businesses to use digital technologies innovatively, and weaknesses in the foundations of digital service delivery. Digital inclusion (ensuring that all individuals and businesses have access to affordable, high-speed connectivity and secure digital services) is hindered by gaps in coverage and affordability of high-speed connectivity. Coverage gaps are typically due to high costs of deployment especially in rural or mountainous areas, while the high cost of upstream international connectivity leads to increased prices. Digital innovation (firms and people using digital technologies to boost productivity and competitiveness) is limited by the small talent pool of skilled workers and by gaps in the supporting ecosystem, especially outside of the capital, Kathmandu. Digital public and private service delivery is hampered by gaps in the infrastructure (e.g., limited capacity and resilience of government data centers (DCs)), poor coordination among public agencies, institutional capacity constraints, limited funding, and gaps in foundational elements (e.g., identification, digital signatures).

11. Nepal has made notable progress in basic digital connectivity, but much remains to be done to ensure digital inclusion. Estimates are that as of 2022, 75 percent of Nepal's population uses the internet. Recent years have seen competition among internet service providers, leading to a rise in the adoption of fiber broadband: households subscribing to fixed broadband increased from 7 percent in 2018 to 33 percent in December 2021. Significantly, almost 90 percent of those are fiber optic connections, pointing to considerable and recent investments by service providers. Competition among multiple service providers (SPs) has driven this investment and growth: at present, the fixed broadband market is competitive, with nineteen SPs operating; four of these providers each have a market share above 10 percent.¹⁰ Strategic GoN programs to improve internet access are underway, including through competitive mobilization of private sector stakeholders¹¹ and through funding provided by the universal service fund; these programs have also helped to connect many public institutions across Nepal to basic internet services. But they are limited in their coverage or face implementation challenges. For example, only 74 percent of municipalities are fully connected to broadband internet as of 2021. And some connectivity programs are underway but with low speed or limited sustainability of service provision.

12. Limited coverage is due to a range of factors, including the need to upgrade middle-mile network infrastructure (to support better quality services in downstream markets), the high costs of network deployment that raises market entry barriers to investments especially in rural and remote areas of the country, and the low returns on investments in those areas. Consultations with SPs reveal an interest in extending broadband networks beyond existing coverage areas but also note its infeasibility on purely commercial terms. As a result, network coverage remains poor and unreliable especially outside of larger cities, services are expensive for the poor, and both fixed and mobile broadband download speeds are far below global averages,¹² even though the GoN aims that connectivity of more than 30 Mbps is available to households and businesses across the country.

⁹ A World Bank survey found that 19 percent of respondents placed promoting digital and internet services among the top three areas to "focus on for COVID-19 recovery," alongside tourism (23 percent) and private sector development (11 percent). World Bank, Public Perception Survey 2021

¹⁰ As of 2021, 129 companies have internet service licenses in Nepal and there are 20 companies that own and operate networks. The Herfindahl-Hirschman Index (HHI) for the retail fiber internet market is 0.16 as of December 2021, indicating a fair level of competition. Analysis based on NTA data, December 2021.

¹¹ Nepal Telecommunication Authority (NTA) Annual Report (2077-78 BS; April 2020-April 2021). Government of Nepal. pp. 82-85 <https://nta.gov.np/wp-content/uploads/2021/10/NTA-Annual-Report-207778.pdf>

¹² Helani Galpaya, Tharaka Amarasinghe, "AfterAccess: ICT access and use in Nepal and the Global South (presentation, LIRNEasia on October 4, 2018, Kathmandu, Nepal)." <https://lirneasia.net/2018/10/afteraccess-ict-access-and-use-in-nepal-and-the-global-south/>



13. **The digital divide is multi-dimensional, partly due to high prices and low digital literacy.** On average the number of internet users in rural areas is about a third less compared to the average number urban users. Digital access inequalities in Nepal became starker during the COVID-19 pandemic. For instance, two-thirds of Nepal's schoolchildren were unable to access remote learning during school closures. There are direct and indirect underlying causes of this digital divide in Nepal. One is limited affordability: an entry-level (20 Mbps) fiber internet subscription can cost about 10 percent of average per capita Gross National Income, limiting the possible user base. And limited digital literacy is also a key barrier to digital engagement: two-thirds of the approximately 25 percent of the population that are non-users do not even know what the internet is.

14. **The digital divide also plays out along gender and social dimensions.** Among respondents of surveys in 2018, only 27 percent of females use the internet compared to 41 percent of males, and persons with disabilities are two-thirds less likely to be online (11 percent) than the general population (34 percent).¹³ Gender-specific divides are due to digital literacy gaps: prevailing social norms and practices such as the tendency to prioritize boys' education and use of digital resources over girls have resulted in more males than females accessing the internet. Available data for Nepal points to low awareness of digital opportunities. For instance, awareness about the internet was lower among rural, female, less educated, lower income, and older people. A second cause of the gender digital divide is related to affordability; high prices of internet services impact women more as they tend to have less disposable income, fewer opportunities to access external sources of finance, and limited economic power.¹⁴ This results in women going online less frequently and preventing them from thriving in an increasingly digital world. Thirdly, due to the lack of policies addressing safety and security issues, women, members of gender minorities, and persons with disabilities are more susceptible to online harassment, resulting in lower online presence and engagement among those demographics. About 4 percent of Internet or social media users in Nepal have experienced some form of online harassment with about 4 percent of men and 3 percent of women reporting such harassment.¹⁵ Similar factors—high prices and limited skills—constrain digital access of persons with disabilities, alongside the gaps in accessible technology.¹⁶ These gaps also point to a need to increase awareness about cyber risks (e.g., data security / protection, countering cyber bullying, or online gender-based violence, etc.) and the resources available to technology users to ensure a safe and secure digital experience.

15. **Nepal's businesses have begun to digitize, and technology startups are emerging.** Nepal has a dynamically developing IT sector that focuses on application development, consulting, and system integration services. As of August 2019, there were over 350 startups in areas such as software as a service, travel, health, education, real estate technology, and e-commerce.¹⁷ COVID-19 accelerated startup activities with entrepreneurs launching mobile money, e-commerce, online learning, and telehealth applications.

16. **Yet, a lack of capacities of (especially small) businesses limits job creation and the resiliency of businesses.** For instance, relatively few firms in Nepal started or increased the use of digital platforms during the pandemic (19 percent compared with 45 percent in Pakistan; 46 percent in Vietnam; 31 percent in Moldova; 38

¹³ LirneAsia, ICT access and use by Persons with Disabilities (PWD) in Nepal, 2018

¹⁴ Tyers-Chowdhury, Alexandra, and Gerda Binder. 2021. *What We Know about the Gender Digital Divide for Girls: A Literature Review. Evidence Briefs - Insights into the Digital Gender Divide for Girls*. UNICEF East Asia and Pacific. <https://www.unicef.org/eap/reports/innovation-and-technology-gender-equality-0>

¹⁵ See <https://kathmandupost.com/national/2021/12/06/online-harassment-rife-but-largely-ignored-as-system-fails-to-recognise-it>. Surveys in Nepal have found that people indicate lower levels of experiencing online harassment (4 percent) compared with India (19), Bangladesh (12), or Pakistan (12) [LirneAsia, 2018]. Yet, in the 2020-21 fiscal year, as per Nepal Cyber Bureau data, 55 percent of the victims of online harassment were females, 39 percent males, and 6 percent were identified as others.

¹⁶ LIRNEAsia, ICT access and use by Persons with Disabilities (PWD) in Nepal; March 2018

¹⁷ "Find Startups." n.d. Startupsnepal. <http://startupsnepal.com/companies/find-startups?limitstart=0>



percent in Cambodia).¹⁸ And despite the availability of startup funds and support programs, many small businesses are unable to take advantage of those resources. Stakeholder consultations suggest that businesses that do use technology effectively and frequently tend to typically be located in urban areas, limiting the inclusive effects of innovation, its associated job creation, and reducing the opportunities for more businesses to build resiliency into their operations. More specifically, in relation to startups, International Finance Corporation (IFC) analysis suggests that advisory support “could help IT start-ups become better prepared to seek [available] funding.” In addition, the analysis found that “Nepal’s weak IT infrastructure and the lack of quality IT parks have also constrained the IT services sector.”¹⁹ This implies missed opportunities for Nepal’s digital economy to grow.

17. Existing digital businesses and startups note the lack of adequately skilled and employable people, with specific skills gaps among women limiting their participation in digital jobs and entrepreneurship. Only 21 percent of the workers in Nepal’s ICT sector are female and they face a high pay gap (-33 percent).²⁰ A higher share of young females is not in any form of education, employment or training compared to young males (46.5 percent of female youth compared to 25.5 percent of male youth) in Nepal. Women often lack digital skills, mainly due to the negative biases associated with girls pursuing education and/or careers related to digital sectors;²¹ for example, only one in five students in Nepal’s engineering institutions are female. As research in Nepal finds, “strong social and gender norms ... work limit skills building and employment options of women and other excluded groups,” while “service providers show low priority and less interest in training women and excluded groups.”²² The result is that while 81 percent of the female population (over 15 years of age) is economically active only 0.5 percent of these females work in the Information and Communications Technologies (ICT) sector.²³ Women continue to face social, economic, and cultural barriers in entrepreneurship, including access to finance. For example, among entrepreneurs globally, only 1.7 percent of female entrepreneurs participate in the ICT sector (compared to 4.9 percent of males).

18. The GoN expects digital technologies to play an instrumental role in improving service delivery in the public sector. Nepal has made some progress in the use of digital technologies in the public sector. Basic services are available, and some digital public platforms are in use. The potential for such transformation is underscored by the success of digital financial services. A mix of public and private sectors initiatives, supported by development partners, has led to a rapid increase in the adoption of mobile wallets, quick response code-based payments, and electronic fund transfers.²⁴ However, existing public services are mostly limited to providing information; very few, if any, end-to-end digital transactions are available. The GoN has recently launched several activities expected to deliver significant improvements in digital government infrastructure and applications, including a unified mobile portal for government services (Nagarik App), Government Integrated Office Management/ System, and Government Enterprise Architecture 2.0. Cyber security has been another focus area for the GoN’s engagement.²⁵ More can also be done to deliver improved digital public services and integrate digital government across the different levels of a federal Nepal, through development of unified back-end and core

¹⁸ <https://www.worldbank.org/en/data/interactive/2021/01/19/covid-19-business-pulse-survey-dashboard>

¹⁹ IFC. 2018. Creating Markets in Nepal: Country Private Sector Diagnostic (CPSD): <https://openknowledge.worldbank.org/handle/10986/31006CPSD>, p. 51

²⁰ <https://ilostat.ilo.org/techs-persistent-gender-gap/>, ILO, 2019, Tech’s persistent gender gap

²¹ See <https://kathmandupost.com/science-technology/2019/05/13/technopolis-why-arent-there-more-women-in-it>; there is evidence that correcting misinformation can encourage girls into non-traditional training fields (Hicks, 2015).

²² Rep. 2020. *Gender Equality and Social Inclusion Diagnostic of Selected Sectors in Nepal*. Asian Development Bank (ADB). <https://www.adb.org/sites/default/files/publication/646661/nepal-gender-equality-social-inclusion-diagnostic.pdf>

²³ Central Bureau of Statistics. n.d. Nepal Labor Force Survey 2017-18.

²⁴ Prasain, Krishana. 2021. “National Payment Switch Expected to Launch Soon.” The Kathmandu Post. November 13, 2021. <https://kathmandupost.com/money/2021/11/13/national-payment-switch-expected-to-launch-soon>

²⁵ The Government has presented a draft Cyber Security Policy, conducted a feasibility study for the establishment of Cyber Security and ICT Research Center, launched government cloud service, introduced a syllabus for cybersecurity classes in grades 9 and 10.



digital infrastructures and through the development of replicable digital services that can be used in multiple provinces and municipalities.

19. **However, critical foundations for resilient service delivery are weak.** According to the UN's e-Government Development Index, Nepal is currently ranked 132 among 193 countries²⁶ and it was ranked 94 of 177 economies in the Global Cybersecurity Index 2020.²⁷ Its rank is low as important elements of the digital government ecosystem being weak or missing. Measures are needed to strengthen the trust ecosystem in terms of cybersecurity and personal data protection in Nepal. The MoCIT is currently developing a national cybersecurity strategy and some measures have been put in place by various agencies, including the Nepal Telecommunications Authority (NTA) and the central bank. Yet, Nepal is not fully prepared to address the increasing risks and scope of cyberthreats. There is also a need to protect investments made through the DNF, including the personal data, systems, and information that would underpin Nepal's digital economy.

20. **Core digital government infrastructures are limited in their capacity to respond to current demands.** Critically, additional DCs are needed that are fully resilient to adverse climate or seismic events and that can accommodate increasing demand for data hosting and cloud services. Improved DC capacity of the Government will support its continuity of business operations in the case of natural disasters and to retain data through such events. Existing sites operated by the GoN's National Information Technology Center (NITC) are almost fully occupied. Two sites (in Khumaltar and Kohalpur) have been identified with land already secured and Government budget allocated/requested for civil and core engineering works to create the shells. Two other sites are also planned, but their locations are not yet finalized. However, there is a financing gap to install the required IT and related equipment in these sites. Public platforms are not interoperable, limiting innovation and rapid rollout of services. The low level of digital literacy also limits the uptake of services. These gaps hinder the roll-out of more-advanced digital services, and limit how digital technologies can strengthen resilience to future shocks, including climate-induced disaster events.

21. **The policymaking and regulatory bodies include the Ministry of Communication and Information Technology (MoCIT) and the Nepal Telecommunications Authority (NTA).** MoCIT is the policymaker for the digital sector, and it oversees the expansion of digital infrastructure and services deployment. Under the leadership of MoCIT, the Department of Information Technology (DoIT) and the NITC are responsible for electronic delivery of all government services. The NTA is the *de jure* independent telecommunications regulatory agency, which also manages the universal service fund known as the Rural Telecommunication Development Fund (RTDF). Other ministries and agencies oversee digital agenda initiatives in their own respective sectors. The DNF defines a coordination mechanism which seeks to include various public agencies and representatives of the private sector; however, this is yet to be fully implemented.

22. **The regulatory and institutional framework to implement Nepal's digital vision needs strengthening.** The Telecommunications Act of 1997 and related regulatory framework are outdated and have an overly complex authorization scheme. The GoN is currently in the process of updating the telecommunication law.²⁸ Even though the broadband market is competitive, there is room for improved regulation of wholesale markets, and administrative procedures would also benefit from streamlining; e.g., the processes of securing rights of way or the acquisition of mobile network tower sites are complex and with no specific timelines. The capacity to supervise

²⁶ See <https://publicadministration.un.org/egovkb/Data-Center>

²⁷ See <https://www.itu.int/en/myitu/Publications/2021/06/28/13/22/Global-Cybersecurity-Index-2020>

²⁸ The Bank is supporting the preparation and introduction of this Bill to Parliament through the ongoing Fiscal DPC series (Second Fiscal Policy for Growth, Recovery and Resilience Development Policy Credit: P176498).



strategic projects is also limited, which results in delays or disputes. Nepal's data regulation and cybersecurity legal and policy frameworks are also evolving with some good practices missing.²⁹ The World Bank Group (WBG) is engaging with the GoN through complementary advisory activities and engagements to support broader improvements and updates to the digital policy and regulatory framework.³⁰

C. Relevance to Higher Level Objectives

23. **The proposed Project is consistent with the WBG's Country Partnership Framework (CPF) for Nepal FY19–23³¹ and extended to FY24 by corresponding Performance and Learning Review (PLR).**³² The PLR introduced a new objective on accelerating digital development under the CPF Focus Area 2 (Private Sector-Led Jobs and Growth), aiming that 85 percent of the population uses the internet by the end of FY24. The PLR recognizes that, *“Investing in the digital economy can support Nepal's resilient recovery from COVID-19 by providing access to information, services, and markets while promoting innovation in service delivery in the public and private sectors.”* The PLR notes that the WB will support investments to build Nepal's digital foundations.

24. **The proposed Project is consistent with the GoN's development plans.** Nepal intends to be a middle-income country by 2030,³³ transforming into a knowledge-based economy with ICT as a crucial driver of growth. This Project is consistent with government strategies, such as the 15 National Plan (2018/19 to 2022/23) and implements several foundational elements of the DNF. The proposed Project will also support Nepal's transition to GRID, by supporting digital inclusion and improving the resilience of digital networks and services.

25. **The Project is also fully consistent with IDA19 policy commitments** to: (a) increase broadband penetration in landlocked countries; (b) improve skills and employability toward more and higher-quality jobs, considering the differentials in constraints faced by young women and men, and people with disabilities; (c) finance digital skills development to support women's access to higher productivity jobs; (d) increase women's access to and usage of digital services; and (e) support adoption of widely accessible digital public services.

26. **Maximizing Finance for Development (MFD) through Private Capital Mobilized (PCM).** Under Subcomponent 1.1 (details see Section II.B below), concessions for building and operating broadband networks will be bid out to SPs, who once selected will benefit from a one-time grant under the Project to roll out fiber-optic networks in those areas that SPs are interested to invest in, but that are considered commercially unviable without this subsidy element (i.e., due to the high costs of installation and/or a low user base). One of the main criteria for awarding the concession for a particular area will be the size of the grant requested by the bidders, with the bidder requiring the lowest grant being awarded the concession, subject to that bidder satisfying technical and other criteria. Grants will be in the nature of parallel financing where IDA financing will focus on capital expenditures (e.g., civil works and telecommunications equipment) and the private contribution is expected to focus on operational expenditures. It is intended at this stage that the grant will defray some of the capital costs associated with rolling out the fiber-optic network, with the subsidy paid out on completion of the

²⁹ Nepal's Privacy Act 2075 (2018) is missing a few good regulatory practices such as privacy by design, data storage limitation, and regulatory limitation on algorithmic decision-making. World Bank, WDR21 Global Data Regulation Diagnostic for Nepal, 2021.

³⁰ Activities include the World Bank advisory services provided [through Digital for GRID in Maldives, Nepal, and Sri Lanka (P177824); Digital Development in Maldives, Nepal, and Sri Lanka (P175577); and Digital Nepal (P171113)] and development policy programs [Fiscal DPC series], and the IFC's Upstream program in supporting telecommunications regulations to open markets to private sector investments in digital infrastructure.

³¹ Report No. 83148-NP; July 10, 2018, discussed by the Board on August 7, 2018

³² Report No. 168048-NP, January 17, 2022, discussed by the Board on February 22, 2022.

³³ Policies and Programs of the Government of Nepal for Fiscal Year 2072–73 (2015–16), presented by Rt. Hon. President Dr. Ram Baran Yadav at the Meeting of the Constituent Assembly/Legislature-Parliament.



installation or on delivery of services. The Government aims at supporting an estimated 100 municipalities under this component with network expansion projects and that are expected to mobilize a targeted amount of at least US\$40 million of private investments into those networks and during the Project lifetime.

27. In addition, as envisaged in the DNF, the Project also enables supports MFD enabling activities under Component 1 and the other components, including: (i) drawing on private resources to implement select DNF initiatives under SC3.3; (ii) identifying how to attract private investment into international connectivity (SC1.2) and DCs (SC3.2); and (iii) supporting reforms to reduce broadband network deployment costs by SPs (SC1.1).

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

28. To expand access to broadband in Project areas, to improve the capacity of individuals to engage in the digital economy, and to enhance the foundations for digital government.

PDO Level Indicators

29. Progress will be measured against the following PDO-level results indicators:

Expanded access to broadband in Project areas

- People provided with access to broadband services (Number)
 - Share among female inhabitants of Project areas (Percentage)
 - Share among inhabitants of rural municipalities (Percentage)

Improve the capacity of individuals to engage in the digital economy

- Beneficiaries of the digital skills development program who report being employed or in higher education (Percentage)
 - Among female beneficiaries (Percentage)
 - Among beneficiaries who are persons with disabilities (Percentage)

Enhance the foundations of digital government

- New digital government services available to the public, under the Project (number)

B. Project Components

30. **The GoN seeks investment project financing from the IDA to implement high-priority and foundational elements of DNF.** Activities will support development of high-priority digital foundations and some analog foundations (e.g., the trust ecosystem, digital skills). Total costs for the proposed Project are equivalent to US\$180 million, including US\$140 million in IDA financing, complemented by US\$40 million private capital mobilization (PCM) for private sector financed activities focused on expanding broadband access. Project costs are provided in Table 1. Implementing all 80 initiatives of the DNF could cost up to US\$1 billion. Hence, the GoN aims to fully implement the DNF by drawing on a mix of resources including the private sector and development partners apart



from the proposed IDA financing (with possible future phases to support downstream activities). The detailed technical design is available in the Project files.

Table 1: Project costs and financing sources (in US\$ million equivalent)

Components (and estimated total costs)	Subcomponents	Total costs	Source of financing	
			IDA	PCM
1. Expanding access to broadband (US\$111 million)	1.1. Promote broadband access and use	US\$89.5	US\$49.5	US\$40
	1.2. Improve international connectivity	US\$21.5	US\$21.5	-
2. Improving the capacity of individuals to engage in the digital economy (US\$6 million)	2.1. Promote digital literacy	US\$1	US\$1	-
	2.2. Develop advanced digital skills of individuals	US\$3	US\$3	-
	2.3. Support digital entrepreneurship	US\$2	US\$2	-
3. Enhancing the foundations of digital government (US\$62 million)	3.1. Enhance the digital trust ecosystem	US\$16	US\$16	-
	3.2. Improve data center capacity	US\$40	US\$40	-
	3.3. Implement select digital services	US\$6	US\$6	-
4. Project management and coordination (including incremental operating costs) (US\$1M)		US\$1	US\$1	-
TOTAL		US\$180.0	US\$140.0	US\$40.0

Component 1: Expanding access to broadband (IDA US\$71.0 million equivalent; US\$40.0 million equivalent targeted PCM)

Subcomponent 1.1. Promote broadband access and use (IDA US\$49.5 million equivalent, plus US\$40.0 million equivalent in targeted private capital mobilized)

1.1.(a) Regulatory and policy reforms to reduce the costs of network deployment and maximize the efficiency of public investments (US\$0.5 million equivalent IDA)

31. Subcomponent 1.1.(a) will finance consultancies supervised by NTA to define and implement measures and processes to reduce the costs of network deployment and to ensure that the benefits of Project-supported investments are available to all people and communities. Possible measures to be supported include *inter alia* simplification of rights-of-way permissions, mobile site acquisition, infrastructure sharing, open access regulations, quality of service monitoring. Implementation of these measures are intended to reduce entry barriers for more service providers to enter new markets and offer more affordable and innovative broadband services, extending the benefits of competitive service provision to more parts of the country.

1.1.(b) Grants to mobilize private investment into broadband (US\$47.5 million IDA)

32. This Subcomponent will finance consultancies for NTA to: (i) identify areas where market failures exist as un- or under-served areas,³⁴ including mapping of broadband networks and telecom-ready infrastructure and to

³⁴ Defined as connected to networks unable to deliver highspeed connectivity (>30Mbps) to end-users.



phase network roll out; (ii) develop the relevant operational, technical, and procurement documents; and (iii) undertake *ex post* audits/M&E to monitor completion of infrastructure deployment.

33. Subcomponent 1.1.(b) will also finance grants to SPs selected through a competitive 'least-cost' process administered by the NTA to build and commercially operate broadband networks in about 100 selected municipalities to serve households, businesses, and public institutions (e.g., public, healthcare, and educational institutions). Exact locations will be identified through a feasibility study. Selected SPs will assume several obligations to ensure high-quality of infrastructure development and service provision (including tariffs and packages, open access, and infrastructure sharing conditions, as defined by NTA, apart from rolling out climate resilient and cost-efficient highspeed broadband infrastructure).³⁵ After the completion of the broadband infrastructure deployment, the GoN and NTA will not directly assume any role in the ownership or operation of the networks. Program implementation will rely on ongoing public-private dialogue to verify the existence of market failures and to ensure engagement of SPs in the competitive allocation of funding.

1.1.(c) Design and pilot programs to enhance adoption of broadband services through demand-side interventions (US\$1.5 million IDA)

34. Subcomponent 1.1.(c) will finance the design, pilot, and evaluation of programs to enhance adoption of broadband services by specific groups of end users in Project areas. The NTA will design these pilots in partnership with the private sector, civil society, and development partners. The Subcomponent will finance (a) procurement by NTA of (i) broadband services; (ii) devices; and (iii) associated training, to benefit eligible individuals and households (e.g., low-income and women-headed households, individuals belonging to socially vulnerable groups, school going children, persons with disabilities; eligibility will be defined based on specific, transparent, and verifiable criteria); and (b) the evaluation of the impact of these pilots, and identify opportunities to scale them up through the RTDF or other development partner programs in the future.

Subcomponent 1.2: Improve international connectivity (IDA US\$21.5 million equivalent)

35. The Project will support Nepal to secure more affordable, higher quality, and more resilient international connectivity. As a landlocked country, Nepal does not have direct access to submarine telecommunications cables that carry the bulk of global data traffic. By aggregating its demand, Nepal's government and public sector can serve as an anchor tenant and negotiate improved, lower cost, and direct and dedicated access to submarine capacity through a competitive procurement for bulk capacity.

36. Subcomponent 1.2. will finance consultancies for: (a) technical analysis and design, including to identify measures to enhance redundancy and resilience of the country's international connectivity infrastructure to climate and natural disasters; (b) legal and strategic support including to avoid monopolistic access to the submarine cables; and (c) procurement & contract management support.

37. This Subcomponent will also finance the purchase of international bandwidth for government and priority users in the public sector for the period until Project closing. This includes financing to (a) procure international bandwidth at lowest cost and highest quality through a competitive selection process; and (b) support operation and maintenance costs to maintain this infrastructure during the period until Project closing, transitioning in that time to a fully internally funded model through commercial operation.

³⁵ The financing of these grants will be separate from the Rural Telecom Development Fund.



38. The subcomponent will finance the development of a virtual landing station (VLS) that will enable a landlocked country such as Nepal to have an equivalent physical landing point of the undersea cables.³⁶ The Project will finance goods, works, and services to develop and upgrade infrastructure to establish a VLS—including limited civil works—that is directly connected to a submarine cable landing station and is available on open-access terms. The design of the VLS will factor in a need to ensure reliability in the face of extreme weather events, such as flood-proof design and the ability to function in extreme temperatures.

Component 2: Improving the capacity of individuals to engage in the digital economy (IDA US\$6.0 million equivalent)

Subcomponent 2.1. Promote digital literacy (IDA US\$1.0 million equivalent)

39. Activities under Subcomponent 2.1. will enhance digital literacy among specific groups, such as women, students, persons with disabilities, low-income households, people from areas vulnerable to climate change, public officials, and small businesses. The Subcomponent will finance consultants to (i) engage with beneficiaries to assess needs and gaps, (ii) create media materials on relevant topics or curate and disseminate existing materials where available, (iii) implement training of trainer programs among partner institutions, and (iv) deliver training programs around the country. Throughout implementation, effort will be on building awareness and capacity of women and girls to protect themselves and respond to gender-based cyberthreats, and of men and boys about constructive behaviors. The selected consultant would also support citizen engagement for Component 2.

Subcomponent 2.2. Develop advanced digital skills of individuals (IDA US\$3.0 million equivalent)

40. This Subcomponent will implement a high-quality training on advanced digital skills to 1,500 individuals. The Project will finance training services contracts with international or local providers. The contracts will be structured to be results-focused and to increase employability of participants including of people from groups that are under-represented in the IT sector (especially women, persons with disabilities, people from rural areas, and individuals from socially vulnerable groups). Hence, programs will include mechanisms to mobilize and serve specific trainee profiles—including a target of 40 percent of trainees being females—and to maximize employment outcomes or transitions to higher levels of education with a target of 30 percent of such trainees being females. The program will also include training of trainers to support long-term sustainability.

Subcomponent 2.3: Support digital entrepreneurship (IDA US\$2.0 million equivalent)

2.3.(a) Incubation and acceleration program (IDA US\$1.5 million equivalent)

41. This proposed program aims to promote digital entrepreneurship for job creation and support the development of the innovation economy in Nepal. The Project will finance consultancy contracts with internationally reputed providers of incubation and accelerations services. The consultants would undertake a study to define a roadmap to develop the startup ecosystem in Nepal; and would implement a pilot program in partnership with a university, training center, or other similar organizations. Building on the lessons of the pilot, the Project will finance follow-up activities to implement entrepreneurship and startup training, and incubation

³⁶ The VLS connected to submarine cable landing stations allows to use a capacity purchase secured through a lease, indefeasible rights of use (IRU), or unlit 'dark' fiber. An IRU is a long-term lease for the right to use a stated amount of transmission capacity. Source: TeleGeography, 2021.



and acceleration programs. These will focus on inclusion of entrepreneurs outside of Kathmandu, in rural areas, and from target social groups, including a target of 30 percent of participants establishing a startup being female. The program will not provide grants or make investments in startups; the main modality of support will include capacity building through trainings, mentorship, and network development.

2.3.(b) Feasibility study on IT park development (IDA US\$0.5 million equivalent)

42. Subcomponent 2.3.(b) will finance an international consultancy for a detailed feasibility study and design to attract international and private investors to Nepal to set up and implement IT parks and their facilities and services; undertake detailed stakeholder and investor consultations to assess existing and expected demand—including from the public sector—for one or more IT parks (or knowledge parks, special economic zones, or technology hubs) and a network of innovation and cocreation centers; model its approach based on successful cases and good practices for geographically decentralized development of IT parks and alternative emerging models (such as virtual IT parks and programs to attract “digital nomads”).

Component 3: Enhancing the foundations of digital government (IDA US\$62.0 million equivalent)

Subcomponent 3.1: Enhance the digital trust ecosystem (IDA US\$16.0 million equivalent)

3.1.(a) Digital Signatures (IDA US\$0.5 million equivalent)

43. This subcomponent will finance consultancies to support the Office of Controller of Certification (OCC) under the MoCIT to acquire global certification and to promote the use of digital signatures. Digital signature certificates have been established in Nepal with the adoption of Electronic Transaction Act 2063 and Rules 2064. The OCC provides licenses for Certifying Authorities. The Subcomponent will finance international consultancies to advise and prepare OCC for an external audit leading to a global certification. The Project will also finance services to boost demand and adoption of digital signatures.

3.1.(b) Cybersecurity and Personal Data Protection (IDA US\$15.5 million equivalent)

44. Subcomponent 3.1.(b) will finance a range of activities to implement parts of the cybersecurity (CS) strategy being developed by the MoCIT. This includes:

- (i) Establishing a global standard national cyber security center (NCSC). The Project will finance the procurement of software and hardware equipment,³⁷ and of consultancies to advise on its establishment and initial operations. As part of the NCSC,³⁸ the Project would support setting up of: (i) a Security Operations Center (SOC),³⁹ (ii) a Network Operations Center (NOC),⁴⁰ and (iii) a cybersecurity laboratory (including for forensics) and training center.⁴¹ The NCSC will start its operations in existing premises of MoCIT and would not require development of new facilities in the initial stage. Where feasible, renewable energy sources will be used for the NCSC. In addition, the Project would also build the capacity of the

³⁷ This would include firewalls, intrusion detection and prevention systems, anti-malware tools, network access control products, and security information and event management products.

³⁸ Hardware equipment for the NCSC will be energy efficient, and where feasible, renewable energy sources will be used for the operations center, the cybersecurity laboratory and training center.

³⁹ The SOC would be responsible for monitoring, assessing, and defending government information systems (websites, applications, databases, data centers, and network).

⁴⁰ The NOC is a central location from which network administrators will manage, control, and monitor networking activities connected to data centers.

⁴¹ The Cybersecurity Lab will enable simulation and analysis of cyberattacks to prepare for future incidents. The training center shall also conduct security awareness trainings for employees of public institutions.



Computer Emergency Response Teams including across selected sectors that could be more susceptible to cyberthreats.

- (ii) Training and capacity building for Government and other key stakeholders on CS (e.g., banks, DCs and telecom providers, utilities, healthcare, and educational institutions). Trainings (including training-of-trainers) on cybersecurity and related topics (e.g., online child security, online women’s safety) will be designed and delivered to selected groups of government, public employees across levels of Government, and key stakeholders (estimated as 1,000 people to be identified as “cybersecurity champions”).

45. This Subcomponent will also finance consultancies to support improvements in the broader trust ecosystem. This includes legal and regulatory measures to improve personal data protection, cybersecurity, online safety of specific social groups, with a focus on various Project investments. At the same time, it would identify opportunities for Nepal to build its trust ecosystem to enhance its competitiveness (e.g., aligning with the European General Data Protection Regulations). The review and development of these policies will involve stakeholders representing women, persons with disabilities, socially vulnerable groups, and business associations to ensure their participation and integrate their concerns in policy development.

Subcomponent 3.2: Improve data center capacity (IDA US\$40 million equivalent)

46. This Subcomponent will support increasing the capacity of DCs and cloud services for the public sector by financing:

- (a) Consultancies for the demand analysis, design, and planning for the DCs to be implemented within the Project period. This would include assessment of existing DCs; design services and feasibility studies for DCs and definition of their in-demand and expected services, including to expand the range of cloud services; development of procurement documents; to develop the policy and procedures framework for DCs/cloud services; to identify possible private partnerships to develop Nepal as a data/cloud hosting country; to define a sustainable operational model for public DCs.
- (b) The supply and installation of information technology and related (power, cooling) equipment and services (telecommunications, operations and maintenance) to make new DC locations operational. The estimate is for a need to activate 10 MW of DC capacity nationally by 2027. The Project will not finance land acquisition and does not foresee significant civil works. The DCs would be designed to meet global standards in terms of (a) cybersecurity; (b) resilience to climatic events such as flooding (e.g., through appropriate site selection, drainage), and (c) resistance to seismic activity through appropriate construction techniques. The DCs design will also factor in energy efficiency to ensure that energy consumption is minimized and hence reducing the carbon footprint of the DC capacity activated.⁴² Where feasible, renewable energy will be used to power the DCs.

Subcomponent 3.3. Implement select digital services (IDA US\$6.0 million equivalent)

47. This Subcomponent will finance a consultancy firm to design and implement at least ten selected DNF initiatives across sectors. The implementation of this Subcomponent will follow two modalities, either to support Government-led initiatives by financing software development contracts for the benefit of the relevant service owner or to support private sector-driven initiatives that will only receive advisory support from the consultancy firm to mobilize private sector participation. The proposed public-private engagement model would attract from the private sector the required financial investment for implementation, with the government providing data and

⁴² For example, a 2016 report by the Lawrence Berkeley National Laboratory estimated that if 80 percent of servers in small US data centers moved to larger facilities, it would lead to 25 percent less energy use. See <https://www.nature.com/articles/d41586-018-06610-y>



other in-kind inputs including those set up through this Project. The firm will also design a Standard Operations Procedure for service digitization projects, which will include business process optimization, change management, staff optimization and reorganization, and availability of common resources. This Procedure can be used to digitize government processes and services beyond this program.

48. The selection of DNF initiatives implemented through this Subcomponent would be an ongoing process. This activity will support the identification and implementation of up to ten DNF initiatives that would not otherwise be supported by the DNA Project or other ongoing or planned Government activities. Annual surveys will be undertaken over the Project life to validate demand and relevance and to identify new priorities. A range of digital initiatives would also support climate change adaptation and mitigation, apart from disaster response and risk management.⁴³

Component 4: Project management and coordination (IDA US\$1 million equivalent, including incremental operating costs of US\$0.5 million equivalent)

49. This Component will support Project management, including carrying out the following: (i) financial management and procurement; (ii) monitoring and evaluation; and (iii) other tasks related to overall administration, environmental and social aspects, and communications and outreach. It will finance the hiring of consultants to activate the PMU within the MoCIT and to support Project management and coordination to implement the DNF and implement the DNA Project in coordination with each of the IAs (MoCIT, DoIT, NITC, NTA).

C. Project Beneficiaries

50. The Project will directly benefit three groups:

(a) **Individuals of the municipalities connected through the Project.** Subcomponent (SC) 1.1 will deliver improved and lower-cost broadband services in the connected rural and remote areas, allowing more people, households, and businesses in those areas to access a wider range of digital opportunities. SC1.2 will also help reduce the costs of connectivity and improve the quality and access to global digital markets and resources through improved international connectivity, which is a vital upstream element of digital connectivity. In addition, digital literacy activities supported through SC2.1 will boost the inclusion of women, persons with disabilities, and others who might be at risk of being left behind in or left out of the digital economy. Enhanced digital inclusion will also improve vulnerable populations' capacity to adapt to climate change with better access to information and services (e.g., disaster early warning, telemedicine, agro-meteorological information, etc.) to cope with climate variability and shocks.

(b) **Individuals and businesses will benefit from an expanded range of digital opportunities.** Activities under SC1.1 and Component 2 will support individuals and businesses seeking to leverage digital technologies to improve their economic opportunities through enhanced skills and capacity to boost their employability or competitiveness. Efforts will be made to ensure that services designed and implemented through SC3.3 will also factor in the universal and accessible design approaches to include persons with disabilities and be gender and socially inclusive as well.

⁴³ This includes precision farming program, smart irrigation system, use of drones for emergency health delivery, smart metering system for power distribution, smart building / energy management systems, smart metering for water, intelligent waste management, automated waste sorting, intelligent traffic management, improving the national disaster management system, and conducting disaster management training.



(c) **Firms and the GoN will also benefit from improved connectivity and digital platforms and services.** The improvements to connectivity and public services will benefit a range of enterprises and organizations (e.g., health centers, educational institutions, libraries) across Nepal. Component 3 will improve the ability of the GoN and public entities to use digital technologies to design, implement, and deliver public services to a range of beneficiaries across the country.

51. **Specific Project activities will narrow gender gaps in the digital economy.** Two specific SCs are designed to close existing gaps in access to skills, jobs, and entrepreneurship among women:

(a) The skills development programs under SC2.2 will close information and access gaps faced by women and girls regarding the opportunities to gain skills and thence employment in the digital industries. The training program includes mechanisms to reach a target of 40 percent of trainees being females, and to maximize employment outcomes or transitions to higher levels of education with a target of 30 percent of such trainees being females. By financing the cost of training services, SC2.2 will help address financial barriers that female trainees face. Mechanisms to maximize the probability of achieving these targets will include (i) informational campaigns including at educational institutions; (ii) outreach through women focused civil society organizations, (iii) mobilizing mentor networks to increase the probability of trainees successfully completing their programs, and (iv) engaging with employers early to increase the absorption of women into the digital workforce. The Project will also provide safe and inclusive training arrangements such as offering women only training led by female trainers, safe transport options for women to access training sites, and incorporating incident reporting mechanisms. It will explore the possibility of partnerships with employers to provide certifications to trainees to boost employability and will to conduct the training in-person and virtually to expand its geographic scope.

(b) Second, SC2.3 will also support female participation in incubation and acceleration programs through (i) targeted informational campaigns to mobilize participation; (ii) organizing activities during convenient times of the day and at safe locations, and offering women-only training led by female trainers; (iii) engaging with appropriate mentors and role models to increase participants' and community awareness on the impacts of empowering female workers and entrepreneurs; (iv) working through civil society organizations to design and implement activities. The program will target that 30 percent of participants establishing a startup are female.

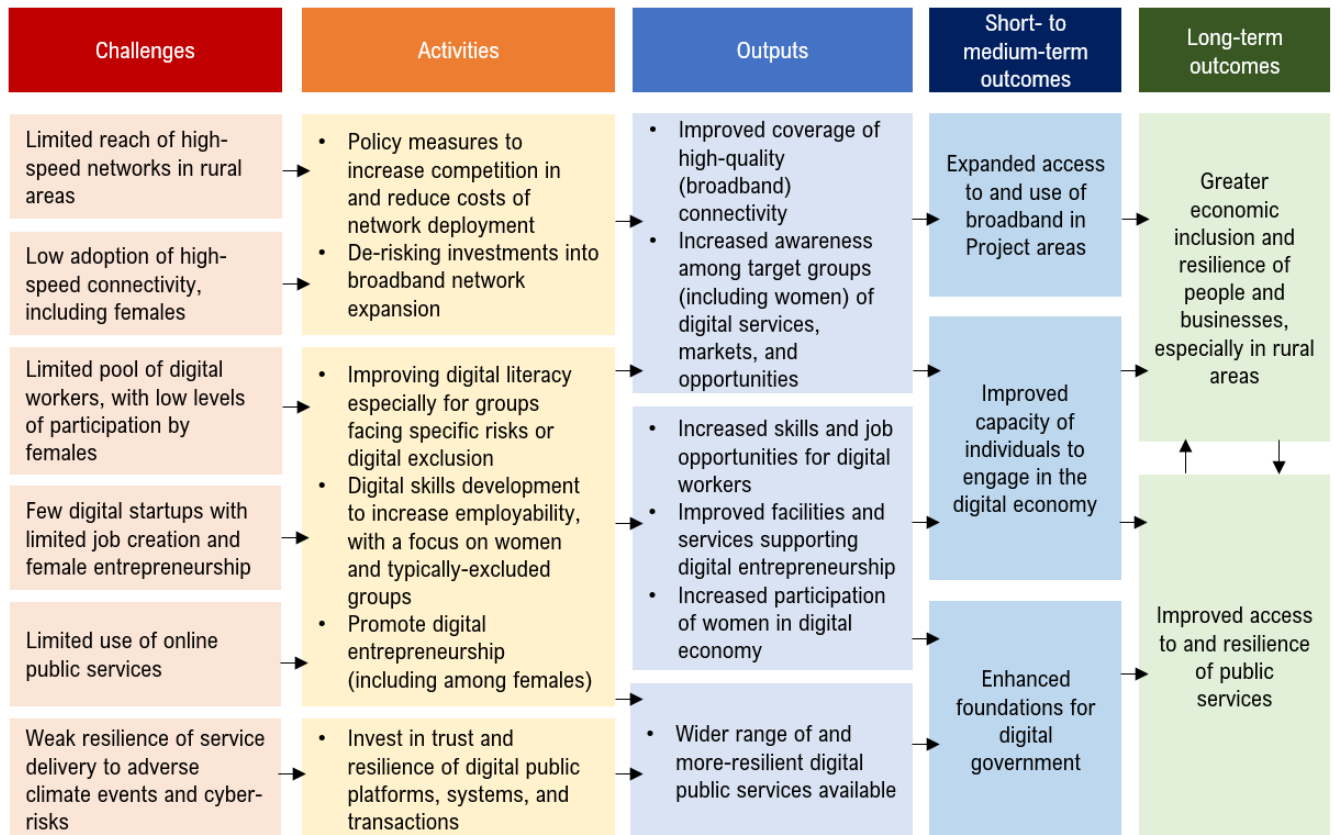
52. In addition, other activities support narrowing gender gaps. SC1.1 includes piloting programs to provide subsidized broadband services or devices to address the gender digital divides by testing how improving their affordability can drive female's usage and interest in digital engagement.⁴⁴ And SC2.1 will build the ability of women and girls to protect themselves and respond to gender-based cyber threats. Informational programs regarding e-services, targeted towards female users, will be organized including for services developed under SC3.3. Gender-disaggregated results indicators will track narrowing gender gaps.

⁴⁴ For example, decreasing prices of mobile phones and voice commands are contributing to reducing the gender gap in mobile ownership in India. Ee GSMA Development Fund. Women and Mobile-A Global Opportunity. 2013



D. Results Chain

Figure 1: Results Chain



53. **Critical assumptions influence the results chain shown in Figure 1.** First, that SPs will engage with and co-invest in the broadband roll-out to serve end-users in the settlements that the Project covers. Second, that individuals and businesses can and will pay for improved Internet services in the covered settlements and will engage with the digital services and programs supported by the Project. The Project will engage with beneficiaries regularly to verify and boost demand and interest. Third, that the GoN’s policy stance to attract private investments and enhance competition remains. And fourth, that the global macroeconomic conditions are conducive, and the investment climate continues to improve.

E. Rationale for Bank Involvement and Role of Partners

54. **The Project builds on the WBG’s long-term engagement in Nepal’s digital development.** The proposed Project continues this support as the country recovers from the effects of the COVID-19 pandemic and aims for a transition to GRID. The GoN also sees value in the WB’s support to implement the strategic DNF, helping to attract international vendors and stakeholders to implement the program, and as a knowledge resource, to inform the design and implementation of the DNF. The WB has also engaged with a range of development partners, who



have confirmed their interest in supporting specific aspects of digital development and possibly specific DNF initiatives.⁴⁵

55. **The Project’s financing and associated support through a One WBG approach helps accelerate the implementation of GoN programs.** The WBG’s support—which includes IDA financing, but also the technical advisory, knowledge sharing, and convening activities, in collaboration with the IFC as appropriate—will support the GoN in implementing the DNF. The GoN sees value in the WB’s global experience in supporting the development of digital connectivity and public platforms in a range of countries across South Asia and other regions. It also seeks the WB’s expertise and advice on emerging high priority issues such as the development of the trust ecosystem and of the capacity of the public sector, and among individuals and small businesses to take advantage of digital opportunities. Finally, the WB has engaged with development partners working in Nepal to identify and link activities that could draw on their ongoing or planned engagements across sectors (e.g., agriculture, education) and in specific areas (e.g., business advisory, training of small businesses).

F. Lessons Learned and Reflected in the Project Design

56. **The design of the Project’s activities is informed by the experience of the WB in supporting digital acceleration programs globally.** Activities under Component 1 draw on the experiences of broadband connectivity programs implemented across Africa and Europe and Central Asia, including to (i) focus on measures to reduce the cost of network deployment; (ii) ensuring upstream and consistent engagement with private sector to maximize their participation in grant programs; (iii) position the public sector as an anchor tenant to improve the prices and quality of international connectivity; and (iv) include demand-side interventions to complement investments in network deployment to enhance inclusive impacts of the Project activities. The design of activities under Component 2 draw on projects implemented in a range of countries,⁴⁶ where capacity development programs benefited from links with public institutions (for digital literacy), tertiary education institutions and employers (for skills development), and the local and regional innovation ecosystems especially funders and investors (for entrepreneurship), to boost outcomes, including for successful employment and startup development. Component 3 draws on the WB’s global experience on digital platform development, including to ensure alignment of investments in DCs with demand from potential users, to explore possibilities for private participation in DC and digital services development, and to design infrastructure and services in a collaborative manner across the government and its institutions to avoid duplication or silos. We also draw on the WB’s significant experience in implementing investment projects in Nepal, especially related to the design of Project implementation arrangements. Design ensures alignment with national programs and priorities to promote ownership and sustainability and has well-defined roles and responsibilities for implementation among involved agencies with appropriate capacity building and coordination support.

57. **The proposed Project and its design also draw on the findings of the WBG’s analytical work.** Overall, the Project balances among analog complements (skills and the regulatory environment) with improvements in core digital foundations and services, in line with the findings of the World Development Report 2016.⁴⁷ The Project

⁴⁵ This includes digital initiatives in education, health, tourism, financial services, among others. Development partners consulted with include Foreign, Commonwealth and Development Office (U.K.), United States Agency for International Development, Swiss Agency for Development and Cooperation, UN Capital Development Fund, Embassy of Finland, Kathmandu, Asian Development Bank, and Delegation of the European Union to Nepal.

⁴⁶ This includes World Bank projects such as Bangladesh Leveraging ICT Growth, Employment and Governance Project (P122201), Log-in Georgia (P169698), Kosovo Digital Economy (P164188), Digital Jobs in Khyber Pakhtunkhwa (P165684), and Caribbean Digital Transformation Project (P171528).

⁴⁷ It is also important to note that the Project design focuses on building digital foundations, while also recognizing that Nepal can derive greater digital dividends by building the analog complements, including to address the many other constraints that affect inclusion, innovation, and efficiency across the



scope was also informed by the results of an assessment undertaken for Nepal as part of a Digital Economy for South Asia analytical work (P172300) that recommended, among a range of reforms and investments, a need for Nepal to consider (i) accelerating the deployment of infrastructure in rural areas; (ii) de-risking private investments in less-commercially-viable and high-cost; (iii) improving access to devices for rural and low-income households and individuals; (iv) organize digital skills initiatives at different levels of the education system; and (v) strengthen cybersecurity and personal data protection.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

58. **The MoCIT will oversee implementation of the Project.** It will constitute a Project Steering Committee (PSC) chaired by the Secretary of MoCIT. The Project will have four implementing agencies (IAs)—MoCIT, the DoIT, the NITC, and NTA—supported by a Project Management Unit (PMU) to be established at the MoCIT. Each IA will be responsible for implementation of specific activities. A Project Operations Manual (POM) will detail arrangements and procedures for institutional coordination and day-to-day execution of the Project including the responsibilities of the PSC, PMU and the Implementing Agencies' focal points, apart from administrative, financial, technical and organizational arrangements and procedures as shall be required for the Project. Proposed arrangements are detailed in Annex 1.

B. Results Monitoring and Evaluation Arrangements

59. **Proposed indicators rely on data that public agencies and surveys already collect, and some indicators will be collected through Project activities during implementation.** The NTA collects data on subscriptions, subscription packages and fees, and telecommunications business. The Project will also finance collection and analysis of the data needed to measure outcomes, including disaggregated data of access and use by women, women-headed households, women-owned enterprises, persons with disabilities, and other beneficiary groups.

C. Sustainability

60. **The proposed Project finances activities that are an integral part of the GoN's national and sector strategies and that are designed to maximize sustainability.** The 15th National Plan (which goes until 2024), includes an explicit reference to the DNF as noted above. The Project's sustainability is enhanced by using targeted and market-based mechanisms to expand digital connectivity including by mobilizing private capital, by supporting investments in digital platforms that reduce the long-run costs of public services delivery, and through support to policy and regulatory measures that create an enabling environment with long-term benefits. Project activities will build capabilities that will outlive the Project period. The primary issues of sustainability that might arise after Project closure include the GoN's and stakeholders' commitment to continue to upgrade, operate, and maintain digital infrastructure and services developed through the SCs 1.1, 1.2, 3.2, and 3.3. Efforts are already underway to liaise with the private sector, development partners, and public agencies that could continue or complement activities.

public and private sectors and for individuals. Those include improved access to hard infrastructure and to finance, improved business regulations and market competition, sustainable public finances, stronger institutions, and greater trust in citizen-state relations.



IV. PROJECT APPRAISAL SUMMARY

A. Technical and Economic Analysis

61. **The expansion of broadband connectivity is expected to have positive economic impacts.** The economic analysis for SC1.1—accounting for 48 percent of the Project costs—using a cost-benefit framework using a ‘with’ and ‘without’ methodology found the expected economic rate of return (ERR) over a 10-year period to be positive under a range of assumptions. Various analyses of the economic impact of fixed broadband connectivity on GDP per capita has found impacts of between 0.3 and 3.2 percentage point increases in GDP per 10 percentage point increases in fixed broadband penetration. This is due to the reductions in transaction costs and increased opportunities for productivity and income generation among those individuals and households that will be better connected. A base case scenario—considering a positive impact on per capita incomes of subscribing households of 0.9 percentage points per every 10 percentage-point increase in fixed broadband adoption,⁴⁸ with a third of households in covered areas subscribing by 2027, and a 10 percent discount rate—is that the ERR will be 17 percent. The results are robust for higher costs of deployment and for lower subscription rates.

62. **Digital skills development activities under SC2.2 are also expected to lead to positive returns.** The program will build the skills and capacities of individuals to work with the digital economy, allowing them to access new markets and opportunities. The expected impact on trainees’ incomes, apart from broader productivity spillovers, is positive. Returns to the GoN only the through additional income taxes collected if 80 percent of trainees that find employment, under conservative assumptions, is 7 percent over a five-year period. The discount rate used for the analysis is 10 percent and the income tax rate considered is 10 percent.

63. **The Project activities supporting improved delivery of public services will reduce the costs of service borne by individuals and lead to overall positive economic returns.** The economic analysis focuses on wider use by individuals of improved digital government services that are deployed using improved DC capacity under SC3.2 and that are developed under SC3.3 (total of about 25 percent of Project costs). Benefits accrue to citizens through the decreases in cost of public services, reduced travel times, or simplification of business processes. The ERR using a ‘with’ and ‘without’ methodology over a 10-year period, considering a 10 percent discount rate, and a conservative two percentage point reduction in the cost of services currently borne by Nepalese citizens, is 24 percent. Results are robust for a range of scenarios, including increased activity costs and reduced benefits.

B. Fiduciary

(i) Financial Management

64. **A PMU set up under the MoCIT will include qualified and experienced finance officer(s) or consultant(s) as needed to coordinate the Financial Management (FM) functions for all IAs.** The fund flow for all the agencies shall be following the normal GoN budget release system. Payments shall be pre-financed from the GoN’s treasury accounts and IDA will make reimbursements to the GoN treasury based on SOEs. Direct payments to payees can also be made from IDA as specified in the DFIL. The PMU will be responsible for disbursement coordination for

⁴⁸ See for example, https://www.un.org/ohrlls/sites/www.un.org.ohrlls/files/19-00328_1h_economic_impact_of_broadband.pdf or <https://documents1.worldbank.org/curated/en/178701467988875888/pdf/102955-WP-Box394845B-PUBLIC-WDR16-BP-Exploring-the-Relationship-between-Broadband-and-Economic-Growth-Minges.pdf>



the Project. The PMU will coordinate with all the agencies to ensure that a timely and quality internal audit is carried out by Financial Comptroller General Office (FCGO). Details are in Annex 1.

(ii) Procurement

65. **Depending on the activity, Project procurement will be carried out by MoCIT/PMU, NTA, NITC and DoIT as the cost centers.** However, for the purpose of procurement transaction under the Project, three implementing agencies have been determined to be included in the WB’s STEP system, viz. (i) MoCIT/PMU for MoCIT and DOIT, (ii) NTA, and (iii) NITC. The WB’s Procurement Regulations for IPF Borrowers, July 2016 (Revised November 2020) and the provisions stipulated in the FA will be applicable to the procurement of Goods, Works, Non- Consulting and Consulting Services for the Project. However, procurement of Goods, Works, and Non-Consulting services with open-national market approach may be carried out using national procurement procedures, with caveats, as indicated in the Project Procurement Strategy for Development (PPSD) and the Procurement Plan in the Systematic Tracking of Exchanges in Procurement (STEP) system. The MoCIT will oversee the overall implementation of the Project through the PMU established within the Ministry. Details are in Annex 1.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

66. **The environmental and social risks of the Project are rated Moderate.** The relevant Environmental and Social Standards (ESSs) are ESS1, 2, 3, 4, 5, 6, 7, 8 and 10. Potential environmental risks and impacts include: (i) soil removal and vegetation clearance for the construction of the new DC, telecommunications towers, and for the deployment of fiber optic cables; (ii) generation of solid waste from residual construction materials; (iii) management and disposal of electronic waste (E-waste) as a result of the decommissioning of old equipment which includes unused e-gadgets, fibers and electronic wires; and (iv) nuisance related to dust generation, vibration and noise during construction activities. Key social risks are: (i) temporary restriction of access to land/property and livelihood impacts during construction of new DC and laying of fiber optic cables depending on the length and location of the cables (e.g. roadside vendors); (ii) Occupational Health and Safety hazards for the workers; (iii) labor influx; (iv) social exclusion of women, population living in rural and small town areas, persons with disabilities and other members of vulnerable groups in accessing Project benefits; (v) social risks associated with protection of personal data and data privacy considerations; (vi) lack of adequate consultation of affected persons and access to functioning grievance redress mechanisms; and (vii) low capacity of the implementing agency to manage E&S risks. However, these risks are expected to be site-specific, short-term, and reversible. The Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) risk of the Project has also been rated “Moderate” considering increased interaction between workers, community, school children, and women and girls during construction works (towers, DCs, deployment of fiber optic cables) as well as insufficient capacity and experience of the client in handling SEA/SH complaints.



67. MoCIT has prepared an Environmental and Social Management Framework (ESMF) and a Stakeholder Engagement Plan (SEP) in line with the WB's Environmental and Social Standards and national regulations including GoN's Environmental Protection Act 2019 and Environmental Protection Rule 2020. The ESMF includes an environmental and social (E&S) screening checklist/template, exclusion list, measures related to occupational health and safety, community health and safety, conservation of biodiversity and solid and hazardous waste management. The ESMF also includes a simplified Resettlement Policy Framework (RPF). A Labor Management Procedure (LMP) was also disclosed. During implementation, site specific Environmental and Social Management Plans (ESMPs) will be prepared and implemented based on the screening guidance and risk level of each specific activity/subproject. The ESMF will include SEA/SH response and prevention Action Plan with specific mitigation and response measures such as stakeholders' consultations and awareness on gender-based violence/SEA/SH, mapping of Project areas service providers, code of conducts for Project personnel and workers, and strengthening institutional mechanisms that aid in accessing grievance redressal. During implementation, the PMU will be responsible for environmental and social screening and ensuring that E&S risk mitigation measures are included in bidding documents and specific contractual clauses in contracts with contractors. PMU will train employees of IAs and contractors on implementing E&S instruments and preparation of reports. The implementation of E&S measures will be regularly monitored and reported by MoCIT PMU. The ESMF, SEP, LMP, and Environmental and Social Commitment Plan (ESCP) were disclosed by the WB on April 10, 2022, and by the MoCIT on April 21, 2022.⁴⁹

68. **Citizen engagement.** Beneficiaries will be central to the design and implementation of Project activities, including in the design of major investments that support the achievement of the PDO. The Project includes citizen engagement through consultations and participatory planning, beneficiary satisfaction surveys, and a grievance redressal mechanism to respond to stakeholder feedback or concerns related to Project-financed activities. Specific Project activities will be designed through consultation and engagement with intended beneficiaries, including: (a) community surveys and consultations within targeted settlements to inform choice of locations and routing of broadband networks (under SC1.1); and (b) engagement with potential beneficiaries and citizen feedback on satisfaction to improve design and impact of digital services delivered (under SC3.3). The results framework includes citizen engagement indicators that assess beneficiary satisfaction over the Project period, with (1) access to and quality of broadband services (under SC1.1); (2) skills development activities under SC2.2; (3) digital business support services delivered under SC2.3; (4) new e-services supported through the Project under SC3.3; and (5) grievance redressal.

69. **Climate change and disaster screening and co-benefits.** The Project activities are susceptible to climate change, seismic or adverse climatic events—including landslides, floods, and heavy precipitation, which can damage telecommunications networks and DCs. The delivery of skills development programs could be hampered by such adverse events if people lose access to transportation, or if delivered online, to the digital networks connecting them. Hence, the Project will incorporate climate change mitigation and adaptation measures to reduce the impacts of climate risk and reduce greenhouse gas emissions. Infrastructure development will incorporate design standards and engineering measures to withstand climate risks and ensure greater security in case of natural hazards. The Project activities will provide broadband services to educational, government, and healthcare establishments for continued services using digital platforms if travel is not possible or facilities are overwhelmed in the event of climate change-exacerbated natural disasters. The Project will also use energy efficient technologies and renewable energy sources in its activities (for broadband connectivity and DC development), while appropriately handling any e-waste generated through Project activities; it will also seek to

⁴⁹ The E&S documents have been disclosed by the MoCIT at <https://mocit.gov.np/categorydetail/20790105>



promote wider e-waste management processes across the GoN and private sector. The Project will enhance resilience to climate impacts by enhancing digital literacy and access to timely information on climate variability, as well as early warning of disasters in rural communities, targeting agriculture workers, for example. The Project will also provide better connectivity that would enable real time monitoring of water supply systems by public services and communities vulnerable to climate impacts.

70. With regards to SC1.1, design and specifications of broadband networks would ensure that the supported civil works (estimated to be about 60 percent of the total investments) are built following international good practices to ensure climate-resilience including to natural disasters (e.g., earthquakes, landslides, flooding), that telecommunications equipment used (estimated to be about 20 percent of the total investments) will be energy efficient, use to the greatest extent feasible the existing utility infrastructure to reduce the costs and the social and economic impacts of network deployment, and to ensure the sustainability of these solutions by preventing environmental degradation and reducing greenhouse gas emissions (for example, the use of renewable energy sources for active equipment and to power mobile networks and/or co-deploy energy solutions/mini-grids). With regards to SC3.2, DCs will be designed to be climate-resilient by allowing connectivity to be re-routed in the event of damage caused by a natural disaster, and a data recovery and back-up plan will be in place to prevent any data loss. IT equipment used (about 80 percent of the costs) will be energy efficient lowering induced greenhouse gas emissions. Additional analysis on climate co-benefits is available in the Project files.

V. GRIEVANCE REDRESS SERVICES

71. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit www.worldbank.org/grs. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

72. **Overall risk rating for the Project is Substantial.** Key risks and mitigation measures are discussed below.

73. **Political and Governance risks are rated as Substantial.** Elections are scheduled for all three tiers of government during 2022, of which local level elections have been recently concluded. In principle, the federal system provides opportunities to decentralize development benefits and make service delivery more effective and accountable. The pandemic also underscored the role of local governments, especially in deploying social programs. However, the risks of political uncertainty, jurisdictional overlap between the three tiers of government, and lack of clarity and coherence between policies and devolved powers will remain in the coming period. The WB is closely monitoring the country situation and maintains regular dialogue on the development agenda with all key stakeholders to mitigate any risks that may be influenced by political change. While the extent



to which political risks can be mitigated through Project-specific measures is limited, the Project design includes specific actions to build public support through broader stakeholder participation, strategic communication, and outreach. Other measures include implementing the institutional strengthening activities under the Project, dialogue and close collaboration with GoN entities, and proactive engagement by the WB team and management as issues arise.

74. **Macroeconomic risks are Substantial.** One major uncertainty is the speed of booster dose deployment and vaccine effectiveness to stop transmission of a new COVID-19 variant. A second is stronger import control measures to mitigate pressures on international reserves, which could affect growth through lower trade-related tax revenues, depressed private consumption and production, and lower capital expenditures. The ongoing war in Ukraine, if it deepens further, could lower travel demand and may threaten the recovery of tourism and tourism related sectors. While downside risks are significant, Nepal's strong record of sustained macroeconomic stability during periods of large exogenous shocks demonstrates a growing capacity to navigate future macroeconomic risks.

75. **Institutional Capacity for Implementation and Sustainability Risks are Substantial.** IAs have limited experience with WB-financed Projects and limited capacity for project management. Project design mitigates this risk through implementation support embedded in activities, along with creation of a PMU to coordinate among and support all four IAs. The Project will also draw upon the private sector to support implementation of various activities where it has a competitive advantage. In addition, the WB will provide advisory services through parallel engagements to support implementation of the Project.

76. **The Fiduciary risks of the Project are Substantial.** The IAs have limited recent experience in implementing WB-funded projects. Considering the volume and complexity of procurement and technical works they will need significant capacity building. The primary mitigation measure is to establish the PMU within the MoCIT, staffed with procurement and FM specialists to support all the IAs. Other mitigation measures include (i) contract awards within the original bid/proposal validity periods; (ii) ensuring adequate staffing with the requisite expertise at the PMU and IAs throughout the Project lifecycle; (iii) recruiting consultants for procurement, FM and technical support, and for specific technical support; and (iv) an appropriate capacity building program designed and implemented for all IAs including an orientation program in the beginning of the Project implementation.

77. **Stakeholders risk is Substantial** across two dimensions. First, delivery of improved public services (under SC3.3) will rely on demand and engagement of multiple government agencies, potentially across multiple levels of the federal system. Mitigation measures include aligning with demand and interest of the agencies responsible for the selected services to be digitized. Second, SC1.1 anticipates significant private capital mobilization. Unforeseen changes in the macroeconomic circumstances might disrupt the investment plans of the private sector. Key mitigation measures here include constant engagement with potential investors in the design and roll out of the program and regulatory measures to reduce costs of network rollout.



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY: Nepal
Digital Nepal Acceleration (DNA) Project

Project Development Objectives(s)

To expand access to broadband in Project areas, to improve the capacity of individuals to engage in the digital economy, and to enhance the foundations for digital government.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Expanding access to broadband			
People provided with access to broadband services (Number)		0.00	1,000,000.00
Share among female inhabitants of Project areas (Percentage)		0.00	50.00
Share among inhabitants of rural municipalities (Percentage)		0.00	70.00
Improve the capacity of individuals to engage in the digital economy			
Beneficiaries of the digital skills development program who report being employed or in higher education (Percentage)		0.00	80.00
Among female beneficiaries (Percentage)		0.00	80.00
Among beneficiaries who are persons with disabilities (Percentage)		0.00	80.00
Enhance the foundations of digital government			
New digital government services available to the public, under		0.00	20.00



Indicator Name	PBC	Baseline	End Target
the Project (Number)			

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Expanding access to broadband			
PCM indicator: Private capital attracted into rural broadband under Subcomponent 1.1 (Amount(USD))		0.00	40,000,000.00
Citizen engagement: Beneficiaries satisfied with access to and quality of broadband services (Percentage)		0.00	80.00
Installed telecommunications equipment that is certified as energy efficient (Percentage)		0.00	90.00
Reduction in price of international IP transit services (Percentage)		0.00	33.00
Improving the capacity of individuals to engage in the digital economy			
People trained through digital literacy programs (Number (Thousand))		0.00	10.00
Share of whom are female (Percentage)		0.00	50.00
Participants in skills development securing new income or employment opportunities after completing the digital skills training supported by the Project (Percentage)		0.00	80.00
Share of whom are female (Percentage)		0.00	30.00
Citizen engagement: Skills program participants expressing satisfaction with the activities under Subcomponent 2.2 (Percentage)		0.00	80.00
Participants establishing a startup after completing		0.00	80.00



Indicator Name	PBC	Baseline	End Target
entrepreneurship activities supported by the project (Percentage)			
Share of whom are female (Percentage)		0.00	30.00
Citizen engagement: Startups reporting satisfaction with incubation and acceleration services received under Subcomponent 2.3 (Percentage)		0.00	80.00
Share among female owned or managed startups (Percentage)		0.00	80.00
Enhancing the foundations of digital government			
Digital signatures issued in Nepal (Number (Thousand))		5.00	20.00
Cybersecurity Center established and operational with staff in place and procedures published in a format that is readily available to the public and industry (Yes/No)		No	Yes
Installed IT equipment that is certified as energy efficient (Percentage)		0.00	90.00
Digital government functions and services using data centers supported by the Project (Number)		0.00	40.00
Citizen engagement: People accessing new e-services supported through the Project and reporting satisfaction (Percentage)		0.00	80.00
Of which, share among females (Percentage)		0.00	80.00
Project management and coordination			
Citizen engagement: Grievances registered that receive an adequate response within 30 days (Percentage)		0.00	80.00



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
People provided with access to broadband services	The number of people provided with access to broadband services in the municipalities included in the Project. This counts those able to access greater-than-30 Mbps service through networks supported by the Project directly or indirectly. It supports the CRI of people provided with access to the internet. This indicator is disaggregated by gender.				
Share among female inhabitants of Project areas					
Share among inhabitants of rural municipalities					
Beneficiaries of the digital skills development program who report being employed or in higher education	This indicator will measure the percentage of graduates from specialized digital skills training supported by the project, who are either employed or in a higher level of education 12 months after completing the training. Employment would include employment in the				



	private sector/public sector or self-employment, and education would include graduates pursuing higher education (e.g., specialized master’s and/or PhD programs), both in fields related to the digital skills training programs. It supports the CRI of number of beneficiaries of jobs-focused interventions. The indicator is gender-disaggregated.				
Among female beneficiaries					
Among beneficiaries who are persons with disabilities					
New digital government services available to the public, under the Project	The sum of the number of digital services delivered through SC3.3 and of new services hosted in the data centers supported through SC3.2.				

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
PCM indicator: Private capital attracted into rural broadband under					



Subcomponent 1.1					
Citizen engagement: Beneficiaries satisfied with access to and quality of broadband services					
Installed telecommunications equipment that is certified as energy efficient	Share of network equipment installed (by share of total costs of equipment procured under Subcomponent 1.1 and 1.2) that is certified by Energy Star or equivalent standards.				
Reduction in price of international IP transit services					
People trained through digital literacy programs	It will count people who have participated in at least one training session conducted as part of SC 2.1. This indicator will also count those trained by third parties that were not directly financed by the Project but where training used materials financed by the Project.				
Share of whom are female					
Participants in skills development securing new income or employment opportunities after completing the digital skills training supported by the Project					



Share of whom are female					
Citizen engagement: Skills program participants expressing satisfaction with the activities under Subcomponent 2.2					
Participants establishing a startup after completing entrepreneurship activities supported by the project					
Share of whom are female					
Citizen engagement: Startups reporting satisfaction with incubation and acceleration services received under Subcomponent 2.3	This indicator will measure the satisfaction rate of firms participating in the programs run by the supported incubators and accelerators, which will indicate the quality of services provided.				
Share among female owned or managed startups					
Digital signatures issued in Nepal					
Cybersecurity Center established and operational with staff in place and procedures published in a format that is readily available to the public and industry					
Installed IT equipment that is certified as energy efficient	Share of equipment installed (by share of total costs of equipment procured under SCs 3.1 and 3.2) that is certified by Energy Star or equivalent				



	standards.				
Digital government functions and services using data centers supported by the Project	The number of separately identifiable digital government functions or services using the facilities.				
Citizen engagement: People accessing new e-services supported through the Project and reporting satisfaction	This indicator will track the percentage of people accessing new e-services supported through the project and reporting satisfaction. Data collected will be connected through the e-services.				
Of which, share among females					
Citizen engagement: Grievances registered that receive an adequate response within 30 days	Percentage of grievances or complaints, relating to the project, which are responded to within 30 days of receipt (annual average)				



Annex 1: Implementation Arrangements and Support Plan

COUNTRY: Nepal
Digital Nepal Acceleration (DNA) Project

1. The roles and responsibilities of the various parties are defined in the Financing Agreement (FA) and will be defined in the POM. Responsibilities of NTA are defined through a Project Agreement (between IDA and NTA) given its status as an independent regulatory agency and statutory body. In case of any conflict among these documents, the FA shall be the reference.

2. MoCIT will set up a PSC that will provide strategic oversight for all Project activities. It will have the Secretary, MoCIT as its Chair and include representatives of the four IAs (MoCIT, DoIT, NITC, and NTA), and other ministries and organizations—including private sector representatives—that are key stakeholders. A Project Management Unit (PMU), headed by the Joint Secretary (IT) of MoCIT, to be established at the MoCIT will have two roles: as a coordinating body for all Project administrative activities, and as an implementing entity for SCs 3.1 and 3.3 on behalf of the MoCIT.

3. Each IA will be responsible for specific activities as defined in Table A1.1 below. Each IA would designate an internal Project Implementation Team, including a Focal Point, to oversee and manage the activities under its responsibility. The Project Implementation Team members would be dedicated to the Project-related activities for the maximum time possible to ensure timely and high-quality implementation. The Focal Point will be a coordinator interfacing between the PMU and the IA to ensure smooth implementation of Project activities.

Table A1.1: Arrangements for implementation of Project activities

Project components	Implementing agency	Materials to be provided to PMU for report keeping and records	Other notes
1. Expanding access to broadband			
1.1. Promote broadband access and use	NTA	Procurement documents; acceptance of related consulting outputs, goods, works, and services; invoice acceptance; and Grants Manual	NTA shall be an authorized signatory and be able to issue payment orders (to the District Treasury Controller Office; DTCO)
1.2. Improve international connectivity			
2. Improving the capacity of individuals to engage in the digital economy			
2.1. Promote digital literacy	DoIT	Procurement documents; acceptance of related consulting outputs, goods, works, and services; and invoice acceptance	DoIT will be a cost center
2.2. Develop advanced digital skills			
2.3. Support digital entrepreneurship			
3. Enhancing the foundations of digital government			
3.1. Enhance the digital trust ecosystem	MoCIT, via the PMU	Procurement documents; acceptance of related consulting outputs, goods, works, and services; and invoice acceptance	The Office of Controller of Certifications will be the beneficiary of this activity;



Project components	Implementing agency	Materials to be provided to PMU for report keeping and records	Other notes
			MoCIT PMU will be a cost center
3.2. Improve data center capacity	NITC	Procurement documents; acceptance of related consulting outputs, goods, works, and services; and invoice acceptance	NITC will be a cost center
3.3. Implement select digital services	MoCIT, via the PMU	Procurement documents; acceptance of related consulting outputs, goods, works, and services; and invoice acceptance	The agencies and organizations that ‘own’ the selected services will be the beneficiaries of this activity; MoCIT PMU will be a cost center

4. As part of its role in implementing SC 1.1, the NTA will prepare and adopt a Grants Manual, satisfactory in form and substance to the Association, setting forth the procedures for selecting, appraising, and approving grant applications, and for supervising implementation of contracts, including, inter alia: (i) the eligibility criteria for SPs and locations for the grant program coverage; (ii) the application, evaluation, selection, award, and management procedures for the selection of grantees; (iii) the criteria for grants disbursements, monitoring, evaluation, and reporting; and (iv) mandatory provisions that shall exclude the financing of activities that: (a) involve land acquisition; (b) would give rise to Displaced Persons or be in disputed areas; (c) may aggravate and/or impact existing environmental conditions. Adoption of this Grants Manual will be a withdrawal condition for the relevant part of the Project.

FINANCIAL MANAGEMENT

5. **Financial Management (FM) Staffing.** MoCIT and its subordinate agencies have adequate and qualified government finance staffs. NTA, an independent and regulating agency has adequate finance staffs with previous experience, though not recent experience, in carrying out IDA-financed projects. Thus, finance staffs in all the agencies need capacity enhancement in terms of Project FM. The PMU (set up under MoCIT) with qualified and experienced finance officer(s) or consultant(s) as needed to coordinate the FM functions for all IAs. The FCGO will assign a dedicated Finance/Accounts Officer (FO) at the PMU to look solely after the Project FM. There will be a designated Finance Officer(s) in each implementing agency to look after the Project FM. Considering the regular workload of the IAs’ staffs, FM consultant(s) will be hired to support the FOs and to help ensure timely and quality accounting, financial reporting, and effective internal controls. FM Consultant(s) shall support the Finance Officers in all Project-related FM functions mainly in preparing Annual Work Plan and Budget (AWPB), budget release from FCGO, Project financial reports including SOEs, withdrawal applications, and recording and resolving audit issues.

6. **Applicable FM Regulations.** The FM arrangements will follow mainly the prevailing Federal regulations—such as the Financial Procedure and Fiscal Responsibility Act and Regulation. All the IAs shall follow the government Public Financial Management system. Specific FM arrangements to be followed by the IAs will be guided by the POM, which shall include an FM manual.

7. **Planning and Budgeting.** The Project will have a separate budget sub-head in the Red Book (GoN’s Budget Allocation Book) starting from FY 2022-23. MOF shall assign budget sub-codes to the IAs as needed to enable the



agencies as cost center. In any case, MOCIT shall coordinate the planning and budgeting process for all the IAs including for NTA. All the sub-IAs shall formulate individual annual work plan and budgets (AWPBs) for the Project as per the planning and budgeting process of the GoN and send the same to the PMU at MOCIT. PMU shall consolidate all the AWPBs and prepare a consolidated Project AWPB. PMU shall have responsibility to get approval from the MOF and be included in the red book. Line Ministry Budgetary Information System shall recognize PMU, NTA and other agencies as required as the cost centers and accordingly budget authorization and release shall be made.

8. **Fund Flow.** The fund flow for all the agencies shall be following normal GoN budget release system. Previous period's financial reports, inter alia, shall be taken as a mandatory requirement by the Borrower for releasing fund for the next quarter of a Fiscal Year (FY). The GoN shall prefinance for all the expenditures incurred, and accordingly payments to suppliers, service providers, contractors will be made from government treasury. Besides, direct payment can also made in accordance with the DFIL and the respective agency carrying out the activity shall be the authorized signatory for issuing the direct payment requests. The grants for the SPs (under SC1.1) shall be paid in instalments from the NTA on an independently verified output basis. NTA shall reimburse to the service providers (SPs) on their Bank Account upon verifying the financial reports from the SPs and other reports like independent verification report substantiating that the grant is utilized for the eligible expenditures only, before claiming funds with the Bank. The details of the grant mechanism shall be stipulated in the Grant Manual, approval of the manual shall be a precondition for withdrawals under this activity. Funds will be reimbursed to the GoN treasury following the withdrawal application process. IDA funds will be reimbursed for eligible expenditures only. All the agencies shall be reporting to the PMU and the PMU shall coordinate and submit the financial reports. Both the PMU under MoCIT and NTA shall be authorized signatories for submitting withdrawal applications (WAs) for direct payment and reimbursement of the expenditures.

9. **Internal control mechanisms.** At the federal level, the internal control process of the federal government will be applied. NTA shall also develop and implement an Internal Control Guidelines including for FM arrangements. The POM shall also include necessary internal control measures for the Project FM. All agencies shall submit periodic progress reports, annual reports, unaudited/audited financial reports, and other mandatory reports, as required to the PMU in form and substance as specified in the POM/Project Agreement.

10. **Internal audit and external audit.** The PMU will coordinate with all the agencies to ensure timely and quality internal audit to be carried out from FCGO and its subsidiary, the DTCO. NTA shall also carry out its internal audit regularly and make available the internal audit reports to the Association. The PMU shall record and monitor internal audit issues. NTA shall submit entity financial statements to the Association. NTA shall submit project financial statements to the PMU and PMU shall prepare a single project financial statements by including of the NTA and all other agencies. The Project financial statements and the NTA entity financial statements, including the SOEs will be audited by the Office of the Auditor General (OAG) or auditor(s) appointed by the OAG. The external audit report for each year of Project implementation, including the audit opinion will be submitted to the IDA within nine months from the end of each FY. To avert delays in audit report submission, the PMU will coordinate with the OAG by May of each year to ensure that the Project's audit in a timely manner. PMU shall record and follow up the audit issues by preparing Audit Arrears Resolving Action Plan.

PROCUREMENT

11. **Overall Procurement Arrangements:** The PMU will support Project implementation in accordance with the provisions of the POM, which will include a section on procurement and on grant operating mechanism. The POM would elaborate the planning and implementation arrangements, roles, responsibilities, reporting lines,



communication procedures, procurement, and financial management procedures. The acquisition of Goods, Works and Services is carried out through (i) procurement, and (ii) grant mechanism approaches. The Procurement Risk Mitigation measures are detailed in the key risk section of the PAD. The procurement arrangement for each Component is summarized in the table below:

Component #	Implementing Agency	Procuring Agency	Project Management Arrangement
1	NTA	NTA	PMU @ MoCIT
2	DoIT	PMU	
3.1	MoCIT	PMU	
3.2	NITC	NITC	
3.3	MoCIT	PMU	

12. **Procurement Risk Assessment:** The WB team conducted a procurement assessment and a detailed report of procurement risk and mitigation measures have been uploaded in the WB’s Procurement Risk Assessment Management System (P-RAMS). The procurement risk assessment was carried out for the MoCIT as the overall Project implementation coordinating agency (spending about 20 percent of the Project fund including DoIT), NTA as the largest Project fund implementing agency (about 50 percent of the Project fund), and NITC as the second largest Project fund implementing agency (about 29 percent of the Project fund). Though the MoCIT was the line ministry for the last IDA-financed project on a related sector (the Telecommunications Sector Reform project; P050671, closed in August 2009) was implemented by NTA. Hence, MoCIT has no direct experience of IDA-project implementation. NTA has the experience of implementation of the said IDA-financed project and five key staff from that earlier project are available and will be assigned to implement the current project activities. This is considered as a big strength of NTA for the current project’s management. The NITC has no experience of any IDA/donor-financed project.

13. The Procurement Assessment identified the following major risks: (i) limited technical and procurement capacity considering the volume and complexity of the procurement and technical works; (ii) delay in decision-making due to challenges of coordination among implementing agencies and other stakeholders/beneficiaries; (iii) adverse impact of the Public Procurement Regulations and Act due to some impractical provisions brought through amendments, i.e. not allowing the bidders to participate in more than five procurement opportunities, excluding the bidders or their joint venture partners if a fraud and corruption related case is filed against them in the Court of Law, requiring several bureaucratic layers to make procurement decisions, etc.

14. **Procurement Support by the WB:** The WB team will provide implementation support at least twice a year at the field level. At project inception, a procurement orientation will be provided to all Project related staff including project directors/coordinators, procurement officials and consultants, FM officials and consultants and others. The WB procurement team will organize procurement clinics customized to the project need.

15. **e-Procurement:** Since the National Public Procurement Act and Regulations were passed, procurement has gradually incorporated the use of electronic Government Procurement (e-GP). This is a single online procurement portal operated by Public Procurement Monitoring Office. An upgraded system called e-GP II allows for online entry of procurement plan, invitation of bids, online submission of bids, and uploading of signed contract document. The project will use e-GP for its procurement as per the Office’s e-GP directive.