

ENVIRONMENT STATISTICS OF NEPAL 2024

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Government of Nepal
Office of the Prime Minister and Council of Ministries

National Statistics Office

Thapathali, Kathmandu
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Preface

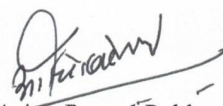
I am pleased to release the publication "Environment Statistics of Nepal 2024" an updated edition of the previous publication in 2019. Environment statistics portray key information about the state of the environment and its most relevant changes through space and time. Environment statistics are necessary for producing environmental assessments, state of the environment reports, environmental compendia, environmental indicators, indicators of sustainable development, as well as to facilitate environmental-economic accounting. The demand for environment statistics is increasing with the continued environmental challenges faced by modern society. The increased concern on environmental and sustainability issues has led to the regular production of environment statistics of the highest possible quality to support evidence-based policymaking.

Environment statistics cover a wide range of information and are interdisciplinary in nature. Their sources are dispersed over a variety of data producers, and similarly numerous methods are applied in their compilation. In this context, the United Nations Statistics Division (UNSD) has developed the Framework for the Development of Environment Statistics (FDES) 2013 to organize environment statistics in a systematic manner. The FDES is a multi-purpose conceptual and statistical framework that is comprehensive and integrative in nature. It provides an organizing structure to guide the collection and compilation of environment statistics at the national level and this publication has been prepared with the guidelines of the FDES 2013. The publication consists of number of statistical tables related to environmental conditions and quality, environmental resources and their use, residuals, extreme events and disasters, human settlements and environmental health and environmental protection, management and engagement. I hope that this publication will be useful to planners, policy makers and other users as well.

I would like to thank Deputy Chief Statisticians for the overall guidance to bring out this publication. My special thanks go to the Director, Statistical Officers and Statistical Assistant of the Environment Statistics Section for their hardworking to publish the book on time. I sincerely acknowledge the contribution of all data providers, without whom the compilation of such diverse statistics could not have been possible.

The National Statistics Office (NSO) always welcomes comments and suggestions from users for the publication in the future.

June 2024


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Acronyms and Abbreviations

ACA	Annapurna Conservation Area
ANCA	Api- Nampa Conservation Area
As	Arsenic
BOD	Biological oxygen demand
Ca	Calcium
CBS	Central Bureau of Statistics
Cd	Cadmium
CFC	Chlorofluorocarbons
cfu	Coliform
CFUG	Community Forest User Group
CH₄	Methane
CITES	Convention on International Trade in Endangered Species of World Fauna and Flora
CO	Carbon monoxide
CO₂	Carbon dioxide
COD	Chemical oxygen demand
CV	Coefficient of Variation
dBA	Decibel A
DDT	Dichloro diethene trichloroethen
DHM	Department of Hydrology Meteorology
DO	Dissolved oxygen
DMG	Department of Mines and Geology
DWSS	Department of Water Supply and Sewage
DWIDM	Department of Water Induced Disaster Management
EIA	Environmental Impact Assessment
ft³	Cubic feet
GDP	Gross Domestic Product
GEF	Global Environment Facility
Ha	Hectare
HC	Hydrocarbon
HHs	Households
Hr	Hour
ICIMOD	International Centre for Integrated Mountain Development

IPCC	Intergovernmental Panel on Climate Change
IUCN	The World Conservation Union (International Union for the Conservation of Nature and Natural Resources)
KCA	Kanchanjanga Conservation Area
K₂O	Potassium oxide
kg	Kilogram
KL	Kiloliter
Km	Kilometer
Km²	Square kilometer
KUKL	Kathmandu Upatyaka Khanepani Limited
KWh	Kilowatt hour
L	Liter
L/d/p	Liter / day / person
lcd	Liter consumption/day
LPG	Liquefied petroleum gas
LRMP	Land Resource and Mapping Project
Lt/min	Liter per minute
m	Meter
M	Million
M².	Square meter
M³	Cubic meter
m³/ min	Cubic meter per minute
m³/yr	Cubic meter per year
mg/l	Milligram per liter
MCA	Manaslu Conservation Area
mg/m³	Milligrams per cubic meter
ml	Local magnitude / milliliter
mld	Million liter/day
mm	Millimeter
MoSTE	Ministry of Science, Technology and Environment
mt.	Metric ton
N	Nitrogen
NA	Not Available
Na	Sodium
NARC	Nepal Agriculture Research Council

NAST	Nepal Academy of Science and Technology.
NDHSs	Nepal Demographic and Health Surveys
NLSS	Nepal living standards survey
NO₂	Nitrogen dioxide
NP	National Parks
NSO	National Statistics Office
NWSC	Nepal Water Supply Corporation
O₃	Ozone
°C	Degree Celsius
ODS	Ozone depleting substance
P₂O₅	Phosphorus pentaoxide
pb	Lead
pH	Hydrogen-in concentration
PM₁₀	Particulate matter less than 10 microgram (0.07 g/m ³)
PO₃	Phosphate
ppb	Parts per billion
ppm	Parts per million
ppt	Parts per trillion
RETs	Renewable Energy Technologies
SAE	Small Area Estimation
SEEA	Integrated Environmental and Economic Accounting
SD	Standard Deviation
SO₂	Sulphur dioxide
SO₄	Sulphate
SO_x	Oxides of Sulphur
SPM	Suspended Particulate Matter
SPNP	Shey-Phoksundo National Park
SNP	Sagarmatha National Park
TDS	Total Dissolved Solids
TOE	Tones of Oil Equivalent
TNC	Third National Communication
TSP	Total suspended particulates
TSS	Total Suspended Solids
TYIP	Three Year Interim Plan
UNEP	United Nations Environment Programme

UNFDES	United Nations Framework for the Development of Environment Statistics
UV	Ultra Violet
WECS	Water and Energy Commission Secretariat
WHO	World Health Organization
WP	Watt Power
WW	Waste Water
µe's	Micro- environments
µg/m³	Microgram per cubic meter
GHG	Greenhouse Gases
IPCC	Inter Governmental Panel on Climate Change
NGO	Non-Governmental Organization
Rs.	Rupees
UNSD	United Nations Statistics Division
WMO	World Meteorological Organization

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CHAPTER I

INTRODUCTION

Introduction

Background

The term environment was derived from a French word “*Environner*” which means to surround. It refers to both abiotic (non-living) and biotic (living) environment. The word environment means surroundings, in which organisms live. Environment and the organisms are two dynamic and complex components of nature. Environment regulates the life of the organisms including human beings. Human beings interact with the environment for their living. Environment, in other words, refers to the surroundings that surround living beings from all aspects and affect their living. Environment consists of atmosphere, hydrosphere and lithosphere. The sphere that holds living entities on the earth is biosphere. Chief components of biosphere are soil, water, air, solar energy and organisms. For humans, the environment has provided all the resources for required for comfortable living.

Environment Management in Nepal

Nepal is facing problems generated by the pressure on natural resources, environmental pollution (especially, air and water pollution), and the problems generated by novel disturbances, such as climate change, the issues could become more severe in future. It is realized that sustainability of the development depends upon the management of the environment, and hence, the expenditure on environmental management today is in fact, a reliable investment for the safe future.

Nepal has ratified several national and international treaties and conventions regarding environmental issues and has arranged the corresponding national legislative instruments, policies and institutional infrastructure to uphold its commitments. The constitution of Nepal, Article 30 states “Every citizen shall have the right to live in a clean and healthy environment”. The country has adopted the notion of green development to minimize stress on the environment and to mitigate the impacts of climate change. However, weak institutional capacity and inter-agency coordination to manage issues relating to environment and climate change, as well as the inadequate means and resources to address these problems are some of the challenges faced by the nation.

Issues relating to environment have been addressed since the sixth five years periodic plan. In the early seventies, priorities were given to address soil erosion, flood and landslides and conserve forest resources in the policies, strategies, and programs of the periodic plans. In the early eighties, emphasis was given on the policy of reducing water pollution generated by industries and urban areas. At the same time, efforts were made to manage resources through people’s participation. Remarkable achievements were gained in community forestry, but problems began to emerge in urban areas and industrial estates particularly of pollution due to solid waste, air and water pollutants and noise. On the other hand, rural areas continued to suffer from soil erosion, flood, landslides, and reduction in the sources of water. Nevertheless, various initiatives were taken by the government, Non-Governmental Organizations (NGOs), and private sector to address these problems. The government formulated policies and enacted Acts and regulations such as Environment Protection Act 1996, Environment Protection Rules 1997, Ozone Depleting Substances Consumption Rules 2001 etc. Environment Impact Assessment (EIA) for development works was institutionalized and standards related to the industrial effluents and air quality was implemented.

The 12th three-year interim plan (TYP) of the government of Nepal stresses on the need for effective monitoring system for the implementation of approved standards, strengthened coordination mechanism amongst the line ministries and agencies, and harmonizing environment and sectoral policies and programs. Similarly, the 13th three-year interim plan emphasizes a decentralized approach to implement the environment programs from central to local level. The Fourteenth National Plan (2016/17-2018/19) aims to integrate the goals of environmental protection and adaptation to climate change in pursuing national development.

The brief concept paper of Sixteenth Plan (2024/25- 2029/30) has laid out the following strategies for the environmental sector:

- None or minimum impact on environment while implementing development activities
- Integration of environment with development
- Enhancing economic prosperity and financial stability with sustainable and green development
- Prevention of natural, human disasters and risk reduction and management
- Transformation of fossils fuels-based machineries and transport into clean energy
- Conservation and sustainable management of forest, water, and land

The Government of Nepal has endorsed Environment Protection Act (EPA) in 2019 and Environment Protection Regulation (EPR) in 2020, for managing environment and pollution related issues and maintain harmony between environment and development.

In summary, the priorities for environment sector development of the Government of Nepal based on the periodic plans of the National Planning Commission are as following:

- Clean and healthy environment
- Green jobs and poverty reduction
- Climate adaptation and resilience
- Promotion of alternative energy
- Low-Carbon Development path
- Resource efficiency
- Gender equality and social inclusiveness
- Disaster risk reduction
- Increase forest coverage

Similarly, the priorities for the generation and use of Environmental Statistics are:

- Enhancing the production of timely, reliable, disaggregated and demand-driven sectoral statistics.
- Maximizing the use of quality statistics to foster evidence-based planning and policy formulation, monitoring and evaluation from central to local level.

Environmental Issues and Sustainable Development Goals

In line with the global sustainable development goals, Nepal in 2030 needs to achieve prosperity that is not only shared, but also lasting. This requires ensuring that economic growth be designed to go hand in hand with protecting and harnessing Nepal's natural resources and people's health, while investing sufficient resources into preparedness to address external and internal environmental threats. Envisioning Nepal 2030 foresees a major drive towards making Nepal's cities and villages not only more connected but also more livable – with clean air, clean water, proper garbage management, and sufficient green space. A better management of our environmental resources will determine the extent to which major sources of Nepal's prosperity, such as agriculture, tourism and hydroelectricity can be harnessed.

Environment Statistics and its Development in Nepal

The need for statistics on environmental aspects has been realized particularly after 1970s. With the growing problems of environment, policy makers, planners, development workers felt the need of new dimension of official statistics namely environment statistics for the sustainable development of the country. According to the Framework for Development of Environmental Statistics (FDES), the objective of environment statistics is to provide information about the environment, its most major changes over time and across locations and the main factors that influence them. Environment statistics seek to provide high-quality statistical information to improve knowledge of the environment, support evidence-based policy- and decision-making, and provide information for the public and specific user groups.

The scope of environment statistics covers biophysical aspects of the environment and those aspects of the socioeconomic system that directly influence and interact with the environment. The scope of environment, social and economic statistics overlap. It is not easy to draw a clear line dividing these areas. Social and economic statistics that describe processes or activities with a direct impact on, or direct interaction with, the environment is used widely in environment statistics. They are within the scope of the FDES. Other relevant social and economic statistics, which are not part of environment statistics, are also required to place environmental issues in context and facilitate the integrated analysis of environmental, social, and economic processes. The use of consistent definitions and classifications among these fields supports their integration. When properly integrated, data and other inputs from social and economic domains enrich the analysis of environmental statistics.

Environment statistics synthesize data originating from diverse types of sources. Thus, the data used to produce environmental statistics are not only compiled by different collection techniques, but also by various institutions. Types of sources include:

- i. statistical surveys (e.g., censuses or sample surveys of population, housing, agriculture, enterprises, households, employment, and various aspects of environment management)
- ii. administrative records of government and non-government agencies responsible for natural resources, as well as other ministries and authorities
- iii. remote sensing and thematic mapping (e.g., satellite imaging and mapping of land use and land cover, water bodies or forest cover)
- iv. monitoring systems (e.g., field-monitoring stations for water quality, air pollution or climate)
- v. scientific research and special projects undertaken to fulfill domestic or international demand.

Environment statistics serve a variety of users, including but not limited to:

- i. Policy and decision makers at all levels
- ii. The public, including media and civil society
- iii. Analysts, researchers, and academia, and
- iv. International agencies.

Different users need environment statistics at different levels of aggregation and depths of information. They may need cross-cutting environment statistics data sets, for instance regarding climate change. In other cases, they may be interested only in particular topics and themes pertaining to specific sectoral analysis and policymaking. Policy- and decision-makers at the highest levels and the public would tend to use environmental indicators and more aggregated statistics. Environmental administration, researchers, analysts and academics may be more inclined to examine extensive and detailed environment statistics.

The National Statistics Office (NSO) (then Central Bureau of Statistics) first published a compendium on Environment Statistics in 1994 which provided valuable insights into the importance and usefulness of the subject matter. ‘A Compendium on Environment Statistics 1998 Nepal’ was brought as second publication with an attempt to analyze available data on various aspect of the environment of Nepal. However, database on the environment was limited. Therefore, NSO continued attempts to bring out the environment related statistics by compiling and publishing its publication ‘Environment Statistics of Nepal, 2001’ in the form of environment database of Nepal. Similarly, NSO published the ‘Environment Statistics of Nepal, 2019’ as the ninth in the series, and this attempt to publish 'Environment Statistics of Nepal 2024 is the 10th series of the publication.

Framework for Development of Environment Statistics

In order to standardize the environment statistics being compiled by different countries, the United National Statistical Division (UNSD) developed and published in 1984 ‘A Framework for the Development of Environment Statistics (FDES)’. The FDES sets out the scope of environment statistics by relating the components of the environment to information categories that are based on the recognition that environmental problems are the result of human activities and natural events reflecting a sequence of action, impact, and reaction. The contents of the FDES are “statistical topics”; they are those aspects of environmental concerns that can be subjected to statistical description and analysis. It is a flexible framework for developing and organizing environmental and related socio-economic information. Since the publication of FDES in 1984, there have been a number of scientific, political, technological, statistical, and experience-based developments which necessitated the revision of FDES. The United Nations Statistical Commission, at its 41st session in February 2010, endorsed a work programme and the establishment of an Expert Group for the revision of the FDES. The members of the Expert Group represented producers and users of environment statistics of countries from all regions and international organizations. Specialized agencies and nongovernmental organizations were also involved at different stages of development of this framework.

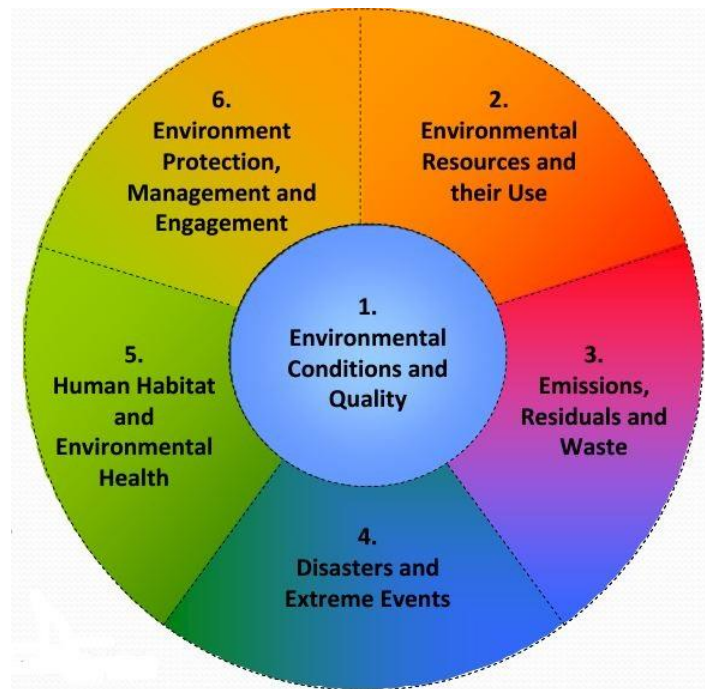


Figure 1: Six components of framework for development of environment statistics

After conducting a due consultative process and pilot testing, the draft FDES was finalized by the Expert Group, and UN Statistical Commission at its 44th Session held in 2013 endorsed the revised framework as the framework for strengthening environment statistics programmes in countries and recognized it as a useful tool in the context of sustainable Development Goals and Post 2015 Development Agenda. Final official edited version of FDES 2013 has been released by UNSD in June 2016.

The FDES 2013 is a multipurpose conceptual and statistical framework that is comprehensive and integrative in nature. The FDES is structured in a way that allows links to economic and social domains. It seeks to be compatible with other frameworks and systems, both statistical and analytical, such as for instance the System of Environmental-Economic Accounting (SEEA), the Driving force – Pressure – State – Impact – Response (DPSIR) framework, and the Sustainable Development Goals (SDGs) indicator framework. The relationship between FDES 2013 and the DPSIR framework is given in Appendix-I. As such, the FDES facilitates data integration with in environment statistics and with economic and social statistics.

The FDES organizes environment statistics into a structure consisting of components, subcomponents, statistical topics, and individual statistics using a multi-level approach. The first level of the structure consists of six fundamental components that follow the FDES conceptual framework.

The first component brings together statistics related to the conditions and quality of the environment and their change. The second component groups together statistics related to availability and use of environmental resources (ecosystem provisioning services, land and subsoil resources). The third component includes statistics related to the use of regulating services for the discharge of residuals from production and consumption processes into the environment. Statistics related to extreme events and disasters (both natural and technological) and their impacts are covered by the fourth component. The fifth component brings together statistics related to environmental conditions and impacts within human settlements. The sixth component groups statistics relevant to societal responses and economic measures aimed at protecting the environment and managing environmental resources.

Figure 1 shows the six components of the FDES. The dotted lines separating the components are an indication of the continuous interactions among them. These interactions are between and among all the components of the FDES. It should be noted that a two-dimensional diagram can only provide a limited visualization of the complex and interrelated nature of the relationships between humans and the environment. All the six components are intrinsically related to each other. The revised FDES uses a multi-level approach. The first level of the structure defines the six fundamental components. Each individual component is further broken down into its respective sub-components (second level) and statistical topics (third level). Each level uses numbering conventions. The final level contains the actual individual environment statistics.

The FDES 2013 sets out a comprehensive (though not exhaustive) list of statistics (the Basic Set of Environment Statistics) that can be used to measure the statistical topics relating to environment and to develop national environment statistics programmes. This Basic Set of Environment Statistics is designed with enough flexibility to be adapted to individual countries' environmental concerns, priorities and resources and it follows a progression of three tiers: (a) Tier 1 is the Core Set of Environment Statistics with 100 indicators, which are of high priority and relevance to most countries and have a sound methodological foundation. (b) Tier 2 includes environment statistics that are of priority and relevance to most countries but need more investment in time, resources or methodological development. (c) Tier 3 includes environment statistics which are either of less priority or require significant methodological development.

The Core Set of Environment Statistics (i.e., Tier 1) represents a broad consensus of opinion; as such, it is intended to foster collection, coordination, and harmonization of environment statistics at the national, regional and global levels in the short-term. Consequently, depending on their priorities and resources, countries are encouraged to consider producing Tier 2 and Tier 3 statistics in the medium- and in the long-term, respectively.

FDES and SDG

The UN General Assembly in its 70th Session considered and adopted the 2030 Agenda for Sustainable Development, which includes 17 goals (referred to as Sustainable Development Goals) and 169 targets. At the core of this agenda for sustainable development is the realization that for any development intervention to be sustainable, it must take into account the social, economic, and environmental consequences it generates, and lead to conscious choices in terms of the trade-offs, synergies and spin offs it creates. The 2030 Agenda and its indicator framework have, therefore, highlighted a number of statistical areas, which would be required for monitoring the achievement of the SDGs. The environmental dimension of sustainable development is fully reinforced in the goals on oceans and marine resources, ecosystems and biodiversity, land degradation and desertification, and is also mainstreamed/embedded under all other goals. Almost half of the SDG targets require environment statistics in order to be able to compile its indicators and enable regular monitoring of progress. Presumably because of the concurrent development of the two frameworks, FDES 2013 has a strong linkage with the SDG indicator framework.

Organization of the Report

Following the FDES 2013, the tables of the publication Environment Statistics of Nepal, 2024 have been categorized into seven chapters, corresponding to the components of FDES 2013.

Chapter I outlines the background and introduction to the environmental problems facing Nepal, the policy focus of the government of Nepal and development of the environmental statistics. Chapter II of the book contains statistical tables related to Environmental Conditions and Quality which include statistics about the physical, biological and chemical characteristics of the environment and their changes over time. Chapter III contains statistical tables related to Environmental Resources and their Use. Environmental resources include natural resources, such as subsoil resources (mineral and energy), soil resources, biological resources, water resources and land. They may be naturally renewable (e.g. fish, timber of water) or non-renewable (e.g. minerals). Chapter IV presents data on Residuals. This contains statistics on the amount and characteristics of residuals generated by human production and consumption processes, their management, and their final release to the environment. Chapter V presents the available statistical table on the extreme events and disasters. It includes extreme events and disasters and their impacts on human well-being and the infrastructure of the human subsystem. Chapter VI contains the statistical tables on the environment in which humans live and work, particularly about living conditions and environmental health. These statistics are important for the management and improvement of the conditions related to human settlements, shelter conditions, safe water, sanitation and health, particularly in the context of rapid urbanization, increasing pollution, environmental degradation, disasters, extreme events and climate change. Chapter VII contains data on Environmental Protection, Management and Engagement. This chapter is organized around the available data on Environmental Protection and Resource Management Expenditure, Environmental Governance and Regulation, Extreme events preparedness and Disaster management and Environmental Information and Awareness.

Annex I includes Basic Set of Environment Statistics which is identified by FDES 2013. Annex II includes a Glossary of major terminologies to facilitate common understanding.

CHAPTER II

Environmental Conditions and Quality

Table 2.1.1 : Annual Minimum and Maximum Temperature by Stations

S.N.	station	district	elevation (masl)	2017		2018		2019		2020		2021		2022	
				max	min	max	min	max	min	max	min	max	min	max	min
1	Baitadi..Gothalapani.	Baitadi	1352	24.8	7.1	26	9.4	28.2	11.4	30.1	NA	25.3	NA	NA	13.4
2	Patan..West.	Baitadi	1292	26.4	14	25.8	13	25.5	13.4	NA	NA	NA	NA	NA	NA
3	Dadeldhura	Dadeldhura	1879	22	12	21.8	12	21.2	11.5	21.1	NA	22	NA	NA	11.7
4	Mahendra.Nagar	Kanchanpur	197	30.8	18	30.2	18	30.6	18.5	29.8	NA	30.8	NA	NA	19
5	Darchula	Darchula	945	27	15	26.3	14	NA	NA	NA	NA	NA	NA	NA	NA
6	Dainsili..Sidhhapur.	Baitadi	2083	21	14	NA	NA	21.4	13.9	NA	NA	22.8	NA	NA	11.2
7	Darchula.New	Darchula	887	29.1	15	28.6	15	28.1	15.1	28	NA	28.5	NA	NA	15.2
8	Patan.new	Baitadi	1299	25	14	24.7	13	24.5	13.3	NA	NA	25	NA	NA	10.9
9	Silgadhi.Doti	Doti	1309	26.4	14	26.2	14	25.8	14.1	NA	NA	NA	NA	NA	14.2
10	Bajura..Martadi.	Bajura	1598	24.5	13	24.1	12	23.7	11.8	23.1	NA	23.6	NA	NA	12.6
11	Tikapur	Kailali	149	31.8	17	31.2	17	31.2	16.2	30.3	NA	30.9	NA	NA	18.2
12	Dhangadhi.Attariya.	Kailali	184	31.2	18	30.8	18	31.4	18.2	30.2	NA	30.5	NA	NA	18.6
13	Godavari.West.	Kailali	280	31.1	20	31.3	20	31.2	20.2	NA	NA	30.8	NA	NA	21.7
14	Mangalsen	Achham	1310	25.7	14	NA	NA	25.5	13.4	24.9	NA	NA	NA	NA	13.2
15	Dipayal..Doti.	Doti	563	30.9	16	30.9	15	30.8	15.9	29.6	NA	30.4	NA	NA	16.5
16	Oli.Gaun..Patkani.	Achham	989	28.1	14	29.1	14	29.3	13.5	28.3	NA	25.2	NA	NA	15.3
17	Gokuleshwar	Kailali	761	NA	NA	NA	NA	NA	NA	NA	NA	28.4	NA	NA	14.7
18	Chainpur.Bajhang.AWS		1405	NA	NA	26	13	NA	NA	NA	NA	25.7	NA	NA	12.3
19	Jumla	Jumla	2363	21.7	6.3	21.8	5.6	20.4	6.1	20.9	NA	21	NA	NA	6.1
20	Gam.Shree.Nagar	Mugu	2113	23.7	11	24	10	21.7	10.4	22.4	NA	21.5	NA	NA	11
21	Rara	Mugu	2989	NA	4.1	15.8	3.7	15.1	3.2	11.9	NA	14.9	NA	NA	4
22	Nagma	Kalikot	2017	22.7	9.1	22.5	8.2	21.6	8.4	21.7	NA	21.6	NA	NA	8.8
23	Dipal.Gaun	Jumla	2422	22.4	5.5	23.4	4.9	21.7	5.4	NA	NA	NA	NA	NA	5.8
24	Simikot	Humla	2993	16.3	6.3	16	5.6	15	4.8	NA	NA	15.9	NA	NA	5.6
25	Dunai	Dolpa	2098	20.8	11	22.1	9.9	21.5	8.3	22.3	NA	23.9	NA	NA	6.8
26	Manma	kalikot	1729	23.5	9.7	23.4	10	NA	11.6	21.6	NA	21.9	NA	NA	12.3
27	Kaigaun	Dolpa	2683	NA	NA	NA	NA	20.1	4.5	NA	NA	NA	NA	NA	NA
28	Jumla.Airport	Jumla	2384	21.8	3.6	21.6	4.6	20.1	4.7	NA	NA	20.5	NA	NA	5.4
29	Pusma.Camp	Surkhet	953	NA	NA	25.1	NA	25.2	13.4	24.6	NA	25.2	NA	NA	NA
30	Dailekh	Dailekh	1394	26	16	26.5	14	25.2	14.5	24.7	14	24.7	15	24.3	14.6
31	Surkhet.Airport..Birendranagar.	Surkhet	683	29.5	16	29	15	29	16.1	28.2	NA	28.8	NA	NA	16.2
32	Gulariya	Bardiya	126	30.9	19	30.4	18	30.6	18.5	29.7	NA	30.2	NA	NA	19
33	Khajura..Nepalganj.	Banke	129	31.6	19	30.9	18	30.8	18.7	30.2	NA	30.8	NA	NA	19
34	Nepalgunj.Reg.Off..	Banke	141	31.1	20	30.2	19	30.2	19.9	NA	NA	30.1	NA	NA	19.9
35	Rani.Jaruwa.Nursery	Bardiya	145	31.3	18	30.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
36	Sikta	Banke	161	31.9	18	31.2	18	31	18.5	30.3	NA	30.9	NA	NA	18.8
37	Mehalkuna	Surkhet	464	NA	16	30.5	16	29.7	16	30	NA	30.4	NA	30.5	17.1
38	Libang.Gaun	Rolpa	1314	26.6	14	26.6	14	26.6	13.3	26.1	12	26.4	13	26.4	13.3
39	Bijuwar.Tar	Pyuthan	835	29.9	16	29.5	15	29.4	15.5	28.6	16	28.4	16	29.4	16.1
40	Tulsipur	Dang	683	NA	NA	27.7	17	27.4	NA	26.6	NA	NA	NA	NA	NA

S.N.	station	district	elevation (masl)	2017		2018		2019		2020		2021		2022	
				max	min	max	min	max	min	max	min	max	min	max	min
41	Salyan.Bazar	Salyan	1557	25.9	15	25	14	24.7	13.8	24.6	14	NA	14	20.5	14.1
42	Chaurjhari.Tar	Rukum	863	28.9	15	28.7	14	28	14.3	NA	NA	27.6	NA	NA	13.6
43	Musikot.Rukumkot.	Rukum	1412	25.3	14	25	13	24.8	13.5	24.7	NA	24.7	NA	NA	14.1
44	Ghorai..Dang.	Dang	663	29.3	17	28.9	16	28.8	17	27.8	NA	28.4	NA	NA	17.4
45	Jomsom	Mustang	0	18.4	6.1	17.8	5.6	17.6	4.6	17.4	NA	17.3	NA	NA	4
46	Jomsom.Resort	Mustang	2846	NA	NA	NA	NA	NA	NA	20.3	NA	20.8	NA	NA	NA
47	Thakmarpha	Mustang	2655	18.1	3.9	17.6	3.6	17	5	17	NA	17.3	NA	NA	4.6
48	Baglung	Baglung	964	28.1	15	NA	NA	27.6	15.3	27.3	NA	27.4	NA	NA	15.4
49	Bahrabise	Sindhupalchok		29.5	15	29.1	15	29.1	14.5	28.2	NA	28.3	NA	28.7	14.7
50	Kushma	Parbat	900	NA	NA	28.5	15	28.4	15.4	28	NA	28.4	NA	NA	15.5
51	Gurja.Khani	Myagdi	2627	NA	NA	NA	NA	NA	NA	21.6	NA	NA	NA	NA	NA
52	Bhimgithhe	Baglung	1008	NA	NA	NA	NA	NA	NA	NA	NA	25.7	NA	NA	12.9
53	Chhoser	Mustang	3886	14.4	0.5	NA	NA	NA	NA	13.8	NA	14.4	NA	NA	NA
54	Tansen	Palpa	1183	26.3	13	25.8	15	25.4	13.5	24.8	NA	25.9	NA	NA	15.8
55	Bhairahawa.Airport	Rupandehi	108	31.5	19	30.7	18	31	19.8	30.5	NA	31.4	NA	NA	19.7
56	Dumkauli	Nawalpur	183	33.6	19	32.7	19	NA	NA	31.7	NA	32.7	NA	NA	19.7
57	Bhairahawa..Agric.	Rupandehi	112	31.7	19	31	19	31.7	19.3	30.7	NA	30.5	NA	NA	19.9
58	Parasi	Nawalparasi	112	31.4	19	31.8	19	31.1	18.4	30.1	NA	NA	NA	NA	19.4
59	Khanchikot	Arghakhachi	1801	21.9	13	21.2	13	21	12.7	20.5	NA	21.2	NA	NA	13
60	Taulihawa	Kapilvastu	106	31.1	19	30.1	19	30.4	19	29.3	NA	29.8	NA	NA	19.3
61	Tamghas	Gulmi	1547	23.9	12	23.4	12	NA	12.1	NA	NA	22.4	NA	NA	12.8
62	Semari	Nawalparasi	110	32.1	19	30.9	18	31.9	18.1	29.8	NA	30.4	NA	NA	19.7
63	Lumbini	Rupandehi	95	31.8	19	30.9	18	NA	NA	NA	NA	30.4	NA	NA	19.9
64	Anp.Chour		738	NA	NA	30.4	15	30.4	13.7	30.3	NA	30.4	NA	NA	NA
65	Sandhikharka	Arghakhachi	1030	27.6	14	26.9	14	26.7	13.7	26.3	NA	27.3	NA	NA	14.2
66	Khudi.Bazar	Lamjung	838	28.4	15	27.7	NA	27.9	NA	27.5	NA	27	NA	NA	15.3
67	Pokhara.Airport	Kaski	803.9	27.9	16	27.3	16	27.3	16.3	26.9	NA	27.3	NA	NA	16.5
68	Syangja	Syangja	871	28.2	16	27.3	15	27.3	15.5	26.3	NA	26.3	NA	NA	16
69	Bandipur	Tanahu	991	27.3	15	26.7	14	26	14.3	25.1	NA	25.4	NA	NA	12.1
70	Gorkha..Birechowk.	Gorkha	724	28.1	17	27.7	17	27.3	16.9	26.8	NA	27.1	NA	NA	17.1
71	Chapakot	Syangja	617	30	NA	29.5	17	29.2	16.8	28.9	NA	29.3	NA	NA	17.5
72	Malepatan..Pokhara.	Kaski	859	27.9	15	27.4	14	27.3	13.7	26	NA	26.7	NA	NA	15.6
73	Lumle	Kaski	1738	20.7	12	20.1	12	20.3	11.7	19.9	NA	20.5	NA	NA	12.2
74	Khairini.Tar	Tanahun	515	30.1	17	29.6	17	29.2	17.4	28.8	NA	29.1	NA	NA	17.9
75	Damauli	Tanahun	347	NA	NA	NA	NA	NA	NA	28.8	NA	29.2	NA	NA	19.2
76	Dandaswara	Syangja	1316	24.4	15	23.6	15	23.6	14.3	23.2	NA	23.9	NA	NA	NA
77	Ghalekharka	Kaski	1665	21.9	13	20.9	12	21.3	12.5	20.9	12	21.4	13	21.6	12.7
78	Begnas	Kaski	682	29.6	16	28.6	16	28.5	16.2	NA	NA	28.5	NA	NA	16.6
79	Bhorletar	Lamjung	469	NA	NA	30.1	17	NA	NA	NA	NA	NA	NA	NA	NA
80	Panchase	Parbat	2492	NA	NA	17.5	8.1	18	8.2	NA	NA	NA	NA	NA	NA
81	Humde	Manang	3401	NA	NA	13.8	-1.8	NA	NA	NA	NA	13.2	NA	NA	NA
82	Rampur	Chitwan	189	31	18	30.6	18	30.8	NA	30.1	NA	30.4	NA	30.5	18.6

S.N.	station	district	elevation (masl)	2017		2018		2019		2020		2021		2022	
				max	min	max	min	max	min	max	min	max	min	max	min
83	Daman	Makwanpur	2265	19.3	9	18.6	8.2	18.4	7.5	18.6	NA	18.7	NA	19	9.2
84	Hetauda.N.F.I.	Makwanpur	452	29.6	18	29.2	17	29.3	17.6	28.5	NA	29.2	NA	NA	NA
85	Simara.Airport	Bara	137	30.9	18	30.7	18	NA	NA	29.9	NA	30.4	NA	30.3	19.6
86	Parwanipur	Bara	87	30.5	19	30.2	19	NA	NA	29.7	NA	30.2	NA	30.4	19.4
87	Birganj	Parsa	67	31.8	20	NA	NA	NA	NA	NA	NA	31	NA	31.5	20.7
88	Kalaiya	Bara	100	NA	NA	NA	NA	NA	NA	NA	NA	30.2	NA	30.4	20.4
89	Gaur	Rautahat	77	NA	NA	NA	NA	31.9	20.2	NA	NA	NA	NA	31.5	18.5
90	Bharatpur	Chitwan	216	31.8	20	31.1	19	31.4	19.5	NA	NA	30.8	NA	30.8	19.9
91	Kakani	Nuwakot	2002	21.1	12	20.4	11	NA	NA	19.1	NA	19.5	NA	19.3	11.5
92	Chautara	Sindhupalchok	1552	25.4	14	NA	NA	25	12.3	25.1	13	25	13	25.6	13.5
93	Sarmathang	Sindhupalchok	2574	16.4	7.8	NA	NA	NA	NA	15.7	NA	16.5	NA	17	8.1
94	Dhulikhel	Kavre	1543	NA	NA	NA	12	23.8	12.3	23.4	NA	24	NA	24.1	12.8
95	Khumaltar	Lalitpur	1334	25.4	13	24.9	12	24.7	12.8	24.3	NA	24.7	NA	25.2	13.4
96	Kathmandu.Airport		1337	26.2	13	25.6	13	25.6	13.1	25.3	NA	25.6	NA	25.6	14
97	Panchkhal	Kavre	857	NA	NA	NA	NA	28.7	14.6	28.1	NA	28.7	NA	28.9	15.3
98	Dhunibesi	Dhading	991	27.8	16	27.6	16	26.9	16	26.1	NA	27.5	NA	NA	16
99	Panipokhari..Kathmandu.	Kathmandu	1329	29.2	14	27.6	13	25.9	13.7	NA	NA	26.5	NA	26.3	14.4
100	Nagarkot	Bhaktapur		20	11	NA	NA	19	10.1	18.4	NA	19.4	NA	19.3	10.3
101	Bhaktapur	Bhaktapur	1315	26.9	12	26.5	12	26.3	12.4	26.2	NA	25.9	NA	26.9	13
102	Dhunche	Rasuwa	2005	NA	NA	20.5	10	20.2	10.6	19.7	NA	20	NA	20	10.8
103	Pansayakhola	Nuwakot	1982	20.8	13	NA	NA	19.4	11.9	19.2	NA	NA	NA	NA	9.2
104	Changu.Narayan	Bhaktapur	1502	24.8	13	NA	NA	25.2	13.5	25.1	NA	NA	NA	25.9	13.7
105	Khokana	Lalitpur	1309	25.9	12	25.2	11	24.9	11.6	NA	NA	25.1	NA	25.9	12
106	Charikot	Dolakha	2132	23.8	10	23	9.8	23.2	10	22.6	NA	23.1	NA	22.5	10.3
107	Jiri	Dolakha	1877	21.4	8.8	20.9	8.4	21	8.5	20.7	NA	21	NA	21	9.3
108	Sindhuli.Madhi	Sindhuli	556	NA	NA	29.3	17	29.4	17.1	NA	NA	29.3	NA	29.1	17.2
109	Janakpur.Airport	Dhanusha	76	31.2	20	30.9	19	NA	19.7	NA	NA	30.6	NA	30.8	20.1
110	Hardinath	Dhanusha	93	30.4	20	30	19	30.4	19.9	NA	NA	29.8	NA	30.1	20.2
111	Manusmara	Sarlahi	90	30.7	19	30.2	19	30.4	19	NA	NA	29.9	NA	30.1	19.9
112	Karmaiya	Sarlahi	139	31.7	20	31.5	20	31.5	20.2	NA	NA	NA	NA	30.9	20.5
113	Jalesor	Mahottari	68	NA	NA	30.5	20	NA	NA	NA	NA	30.4	NA	31.1	20.6
114	Manthali	Ramechhap	497	31.2	17	30.8	17	30.7	17.1	NA	NA	30.4	NA	30.8	17.3
115	Kabre	Dolakha	1755	23.1	13	22.8	12	23	12	23.4	NA	23.9	NA	23.9	12
116	Phattepur	Saptari	101	32.1	20	31.4	19	31.2	19.1	30.3	NA	30.5	NA	30.3	19.4
117	Udayapur.Gadhi		469	NA	19	29.7	18	29.5	19	28.6	NA	29.6	NA	29.5	18.8
118	Lahan	Siraha	110	31.1	20	30.4	19	30.5	19.8	30.1	NA	30.8	NA	30.9	20.1
119	Siraha		63	32.1	14	31.3	12	32	NA	NA	NA	31.1	NA	31.2	20.5
120	Salleri		2383	NA	NA	NA	6.5	18.8	8.6	NA	NA	19.9	NA	NA	NA
121	Diktel	Khotang	1612	23	14	22.3	14	22.5	13.8	21.8	NA	22.3	NA	22.1	14.1
122	Rajbiraj	Saptari	68	30	21	NA	NA	30.3	20.5	30	NA	31.1	NA	30.5	20.3
123	Num	Sankhuwasabha	1494	NA	NA	NA	NA	22.6	12.8	NA	NA	NA	NA	22.7	13.3
124	Chainpur..East.	Sankhuwasabha	1277	25.8	15	24.8	14	NA	NA	25.4	NA	NA	NA	NA	15.4

S.N.	station	district	elevation (masl)	2017		2018		2019		2020		2021		2022	
				max	min	max	min	max	min	max	min	max	min	max	min
125	Pakhribas	Dhankuta	1720	21.5	13	21.1	12	21	12.7	20.7	NA	21.6	NA	NA	12.9
126	Dhankuta	Dhankuta	1192	25.5	16	25.1	15	25.5	15.4	25.1	NA	25.8	NA	NA	15.5
127	Dharan.Bazar	sunsari	310	30.5	21	29.9	20	29.9	20.6	29.2	NA	30	NA	NA	20
128	Terhathum		1525	NA	NA	NA	14	23.6	13.5	NA	NA	23.2	NA	NA	13.8
129	Chatara	Sunsari	105	31.7	NA	NA	NA	31.2	19.4	31	NA	31.8	NA	NA	19.6
130	Biratnagar.Airport	Morang	72	31.1	20	30.1	19	30.8	19.4	30.1	NA	30.3	NA	NA	19.7
131	Tarahara	Sunsari	120	31.3	19	30.6	18	29.8	18.7	NA	NA	30	NA	NA	19
132	Tumlingtar	Sankhuwasabha	477	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.4
133	Khadbari	Sankhuwasabha	1064	24.9	17	NA	16	25.7	16.5	25.7	NA	NA	NA	NA	16.8
134	Taplejung	Taplejung	1744	22.9	13	22.2	12	21.9	12.4	21.6	NA	21.7	NA	NA	12.4
135	Ilam.Tea.Estate	Ilam	1208	24.3	12	24.4	12	23.5	13.9	NA	NA	NA	NA	NA	15.9
136	Damak	Jhapa	119	31.6	19	30.7	19	30.8	17	NA	NA	31.1	NA	NA	16
137	Chandra.Gadhi	Jhapa	90	NA	19	NA	NA	31	21.2	NA	NA	31.1	NA	NA	NA
138	Kanyam.Tea.Estate	Ilam	1570	NA	NA	20.8	13	20.7	12.9	20.1	NA	21	NA	NA	14
139	Phidim..Panchther.	Panchthar	1157	27	NA	26.5	12	NA	15.3	26.5	NA	26.8	NA	NA	15.5
140	Dovan	TAPLEJUNG	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
141	Gaida..Kankai.	Jhapa	107	NA	NA	30.7	17	30.9	19	NA	NA	30.6	NA	NA	18.9
142	Kechana	Jhapa	71	30.8	20	NA	NA	30.1	19.1	29.7	NA	NA	NA	NA	20.1
143	Nuwakot	Nuwakot	966	27.9	17	27.7	16	27.4	16.3	27.1	NA	27.5	NA	27.2	16.6
144	Lukla.Airport	Solukhumbhu	2786	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.4
145	Chisapani.Karnali.	Kailali	201	30.2	20	29.8	19	30.2	19.9	29.1	19	29.9	20	29.9	20.2
146	Godavari		NA	24	11	NA	NA	22.9	11.4	22.7	NA	23.4	NA	23.6	11
147	Jyamirebari		1525	23	13	22	12	22.5	12.4	NA	NA	22.3	13	NA	NA
148	Lete	Mustang	2617	17.6	7.2	NA	NA	17	6	17	NA	16.7	NA	NA	8
149	Nepalgunj.Airport		NA	31.7	18	32	18	31.9	18.6	30.5	NA	30.9	NA	NA	19.4
150	Okhaldhunga		1725	22.8	13	22.7	12	22.5	12.6	21.6	NA	22.3	NA	22.3	13.3

Source: Department of Hydrology and Meteorology (DHM)

Table 2.1.2: Average minimum and maximum temperature by district and station

S.N.	Station	District	Average minimum temperature (1991-2020)					Average maximum temperature (1991-2020)				
			DJF	JJAS	MAM	ON	Annual	DJF	JJAS	MAM	ON	Annual
1	Patan..West.	Baitadi	5.2	19.6	13.6	11.1	13.1	18.7	29.1	27.8	24.6	25.4
2	Dadeldhura	Dadeldhura	4.7	16.8	11.8	9.8	11.3	15.8	24.9	23.6	21	21.7
3	Mahendra.Nagar	Kanchanpur	8.4	25.1	17.9	15.6	17.5	22.5	33.9	34.2	29.4	30.4
4	Darchula	Darchula	5.4	20.6	14.4	11.5	13.7	20.3	31.8	30.8	25.8	27.7
5	Silgadhi.Doti	Doti	6.6	19.6	14	12.2	13.7	18.5	30.1	28.4	24	25.8
6	Tikapur	Kailali	8.2	25.1	18.1	15.6	17.5	22.7	34	35.2	29.8	30.7
7	Dhangadhi.Attariya.	Kailali	8.6	25.2	18.1	15.9	17.7	22.6	33.8	34.8	29.8	30.6
8	Godavari.West.	Kailali	11.3	24.9	21.3	18.4	19.5	22.7	33.5	34.9	29.8	30.5
9	Dipayal..Doti.	Doti	6.3	23.4	15.4	13.4	15.4	23.8	34.5	33.7	29.6	30.8
10	Jumla	Jumla	-4	14.4	4.3	1.6	5.1	15.2	25.2	21.7	20.9	21.1
11	Dipal.Gaun	Jumla	-3.8	13.6	4.3	1.5	4.9	15.6	26.3	22.6	22	22
12	Pusma.Camp	Surkhet	8.8	NA	17.9	NA	NA	18.8	NA	29.5	NA	NA
13	Dailekh	Dailekh	6.6	17.2	14.2	11.6	12.9	18.1	29.3	28.7	24	25.5
14	Raughat.Khola.at.Raughat	Myagdi	11.8	25.1	21.1	18.2	19.6	21.6	32.6	34	28.4	29.5
15	Surkhet.Airport..Birendranagar.	Surkhet	6.5	22.9	16.3	13.2	15.5	21.9	31.7	32.1	27.4	28.6
16	Khajura..Nepalganj.	Banke	8.8	25.4	18.5	16.4	18	22.9	34.2	35.1	30	30.9
17	Nepalgunj.Reg.Off..	Banke	10.5	26.2	20.7	18.1	19.6	22.6	33.9	34.9	29.8	30.6
18	Rani.Jaruwa.Nursery	Bardiya	9.7	25.1	18.5	17	18.3	23.6	34.5	35.2	30.5	31.3
19	Sikta	Banke	8	24.4	17.3	15.4	17	23.1	34.6	35.4	30	31.2
20	Kali.Gandaki.at.Kota.Gaon	Tanahu	9.1	25.4	18.6	16.8	18.2	22.9	34.3	35.2	30	31
21	Tulsipur	Dang	7.7	23	17.8	14.4	16.5	22.3	31.5	32.3	27.6	28.7
22	Salyan.Bazar	Salyan	7.3	19	14.8	12.6	13.9	20.2	27.6	27.5	25.4	25.3
23	Chaurjhari.Tar	Rukum	6.6	22.1	15.1	13.4	15	21.3	32.4	32.5	26.1	28.6
24	Musikot.Rukumkot.	Rukum	5.6	18.9	13	11.8	12.9	19.4	28.3	27.1	24.3	25.1
25	Bagmati.at.Sundarijal.Bridge	Kathmandu	7.2	22.5	17.4	13.7	15.9	22.2	31	31.9	27.5	28.4
26	Jomsom	Mustang	-1.2	12.9	4.7	3.5	5.8	11.5	22.3	18.1	16.4	17.6
27	Thakmarpha	Mustang	-1.5	11.8	4.5	2.9	5.2	12.4	21.6	17.9	16.6	17.6
28	Baglung	Baglung	7.3	21.2	15.1	13.8	15	NA	31.2	29.9	27	NA
29	Kushma	Parbat	7.6	21.3	15.7	13.8	15.2	22.8	31.4	30.6	28.5	28.6
30	Tansen	Palpa	7.7	19.2	15.3	13.2	14.3	NA	NA	28.6	NA	NA
31	Butwal	Rupandehi	12.8	24.7	NA	20	NA	23.2	NA	34.5	29.9	NA
32	Bhairahawa.Airport	Rupandehi	9.9	25.8	19.6	17.6	18.9	23	34	34.7	30.8	30.9
33	Dumkauli	Nawalpur	10.4	25.3	19.4	17.8	18.8	24.2	34	34.3	30.1	31
34	Bhairahawa..Agric.	Rupandehi	9.9	25.8	19	17.7	18.8	23.4	34.2	34.9	31.1	31.2
35	Khanchikot	Arghakhachi	6.6	17.2	13.7	11.8	12.8	15.4	23.8	22.5	20.6	20.8
36	Taulihawa	Kapilvastu	NA	NA	19.3	NA	NA	23.2	33.6	35.1	NA	NA
37	Tamghas	Gulmi	5.5	18.2	13	11.1	12.5	16.5	26.4	25	21.7	22.8
38	Semari	Nawalparasi	9.2	24.8	19.7	16.3	18.2	22.7	35.9	35.8	29.6	31.5
39	Khudi.Bazar	Lamjung	NA	21	16.1	13.9	NA	22	30.8	29.5	27	27.6
40	Pokhara.Airport	Kaski	8.4	21.7	16	14.8	15.8	21.2	30.4	29.2	26.1	27.1
41	Syangja	Syangja	7.3	21.5	14.6	14.2	15	21.2	31	29.4	26.7	27.4
42	Gorkha..Birenchowk.	Gorkha	9.1	21.9	NA	14.9	NA	20.8	30.8	29.7	26.2	27.3
43	Chapakot	Syangja	9.1	22.8	17	15.6	16.7	22.4	32.5	31.8	28	29.1

S.N.	Station	District	Average minimum temperature (1991-2020)					Average maximum temperature (1991-2020)				
			DJF	JJAS	MAM	ON	Annual	DJF	JJAS	MAM	ON	Annual
44	Malepatan..Pokhara.	Kaski	7.4	21.5	14.7	14.1	15	20.9	30.7	28.9	26.2	27
45	Lumle	Kaski	5.8	17.1	12.1	11.1	12	15	23.8	22	20	20.5
46	Khairini.Tar	Tanahun	9.6	23.5	16.6	16.8	17.2	22.7	32.8	32	27.9	29.3
47	Rampur	Chitwan	8.9	24.9	17.8	16.6	17.7	24.1	33.8	34.2	30.2	30.9
48	Hetauda.N.F.I.	Makwanpur	8.5	23.3	17.4	15.5	16.8	23.7	32.5	32.8	28.6	29.7
49	Simara.Airport	Bara	9	25.2	18.7	17	18.2	23.7	33.4	33.8	30.4	30.6
50	Parwanipur	Bara	10	25.7	19.3	17.8	18.9	23.6	33.5	34	30.8	30.7
51	Gaur	Rautahat	9.8	24.9	19.3	18.1	18.6	21.9	33.8	32.3	29.6	29.8
52	Nuwakot	Nuwakot	9.5	21.4	17.4	15.7	16.5	22	30.6	30.1	NA	NA
53	Kakani	Nuwakot	5.1	16	11.9	10.7	11.3	14.9	22.9	22	19.6	20.1
54	Godavari	Lalitpur	3.9	17.8	11.5	9.9	11.4	17.4	26	24.8	22.1	22.9
55	Dhulikhel	Kavre	4.7	17.8	11.9	10.5	11.8	15.9	25.7	24.5	20.6	22.1
56	Khumaltar	Lalitpur	3.2	19.7	11.7	10.7	12.1	19.3	28	26.5	24.4	24.8
57	Kathmandu.Airport	Kathmandu	4.1	19.6	12.4	11.1	12.5	20.5	29	27.9	25.4	26
58	Panchkhal	Kavre	5.5	21.8	13.5	12.9	14.2	22.6	31.9	30.3	27.9	28.5
59	Dhunibesi	Dhading	9.1	21.6	16.9	15	16.2	20	30.6	29.8	25.4	26.9
60	Panipokhari..Kathmandu.	Kathmandu	5.4	19.9	13	12.8	13.3	20.9	29.4	27.7	25.9	26.3
61	Nagarkot	Bhaktapur	3.9	15.1	10.3	9.2	10.1	14.1	22.4	21.5	19	19.5
62	Jiri	Dolakha	-0.5	16.2	7.3	6.5	8.2	15.5	24.2	21.9	20.1	20.8
63	Sindhuli.Madhi	Sindhuli	NA	NA	NA	15.7	NA	NA	NA	NA	28.7	NA
64	Janakpur.Airport	Dhanusha	10.6	26.2	20.3	19	19.6	24.1	33.1	33.7	30.7	30.6
65	Manusmara	Sarlahi	9.9	25.8	19.5	18.2	19	23.8	33.7	33.8	30.6	30.8
66	Karmaiya	Sarlahi	12.5	25.8	21.6	19.6	20.4	24.3	33.8	34.1	30.6	31
67	Jalesor	Mahottari	11.1	25.8	21.1	19.7	20	23.9	NA	33.9	NA	NA
68	Okhaldhunga	Okhaldhunga	6.4	17.3	13.1	11.8	12.6	17.1	25	23.9	22.2	22.3
69	Phattepur	Saptari	NA	25.1	19.5	18.4	NA	26.5	34.1	34	32.1	31.8
70	Udayapur.Gadhi		NA	24	NA	18.6	NA	NA	31.1	NA	28.8	NA
71	Rajbiraj	Saptari	11.2	25.2	20.6	18.9	19.5	24.7	33.3	33.5	31	30.8
72	Chainpur..East.	Sankhuwasabha	7.6	18.4	14	12.6	13.7	19.4	27.8	26.9	24.2	24.9
73	Pakribas	Dhankuta	6.1	17.4	12.8	11.6	12.4	15.9	23.5	23	20.6	21
74	Dhankuta	Dhankuta	8.2	20.2	15.5	13.8	15	19.8	27.8	26	24.7	24.8
75	Terhathum		6.3	17.7	NA	11.8	NA	18.8	26.6	24.4	24.5	23.8
76	Biratnagar.Airport	Morang	10.5	25.6	20.1	18.4	19.2	24.6	32.8	32.9	30.6	30.4
77	Tarahara	Sunsari	9.8	24.9	18.9	17.4	18.4	24.4	32.4	32.2	30.4	30
78	Taplejung	Taplejung	5.3	17.6	12.1	10.9	12	15.8	25.2	22.4	21.1	21.5
79	Ilam.Tea.Estate	Ilam	NA	NA	NA	15.1	NA	NA	26	24.8	23.8	NA
80	Kanyam.Tea.Estate	Ilam	5.1	16.6	11.9	11.1	11.6	15.4	23.2	21.9	20.6	20.5
81	Phidim..Panchther.	Panchthar	8	20.8	15.6	13.6	15.1	21.5	29.4	28.1	26.5	26.6
82	Gaida..Kankai.	Jhapa	9.7	23.8	18.6	17.2	17.9	25.7	33.3	32.7	31.3	30.9

Department of Hydrology and Meteorology (DHM)

Note: DJF: Dec.,Jan., Feb.; MAM: March, April, May; JJAS: Jun, July, August, Sept. ON: Oct., Nov.

Table 2.1.3: Annual Rainfall by Station (in mm)

S.N.	station	district	elevation	2016	2017	2018	2019	2020	2021	2022
1	Kakerpakha	Baitadi	783	1524.7	1339.4	1385.2	1308	NA	1912	1454.6
2	Baitadi..Gothalapani.	Baitadi	1352	1185.6	NA	1401.4	1534.1	NA	NA	NA
3	Patan..West.	Baitadi	1292	1137.9	NA	1255.5	1209.6	NA	NA	NA
4	Dadeldhura	Dadeldhura	1879	1300.5	1374.1	1265.5	1101.3	1406.8	1889.9	1419.1
5	Mahendra.Nagar	Kanchanpur	197	2013	1869	2494.3	1850.4	2457.2	NA	2386.1
6	Santipur.Belauri	Kanchanpur	164	1990.6	1489.8	1437.4	993.7	1665	1748.7	1833.5
7	Darchula	Darchula	945	3036.5	2463.3	2305.2	NA	NA	NA	NA
8	Santbajh	Baitadi	1881	1242.4	1502.2	1357.1	1575.7	NA	1722.8	1384.6
9	Rupal	Dadeldhura	1458	1286.5	1228.7	1012.8	1584.4	NA	2556.1	1705.3
10	Sahu.Khark	Dadeldhura	2092	1555.1	1352.6	NA	1334.4	NA	2261.1	1595.5
11	Jogbudha	Dadeldhura	379	1530.3	987	NA	892.2	1373.7	2364.1	1750.9
12	Hanman.Nagar	Kanchanpur	213	2205.9	1573.6	1995.1	1487.6	NA	2454.4	2317.4
13	Kallagoth..Krishnapur.	Kanchanpur	189	1276.1	1398.6	1685.4	1532.3	NA	2053.4	2076.8
14	Dodhara	Kanchanpur	175	1842.8	1798.4	1917.5	1274.2	2027.5	1683.8	1853.1
15	Parsia	Kanchanpur	170	1723.8	1412.2	1382.4	893.9	1570.1	NA	1613.9
16	Bichawa	Kanchanpur	176	1586.5	1416.8	1442.1	1110.9	NA	1827.4	1673.3
17	Jhalari	Kanchanpur	195	1536.2	1525.7	1672.5	1363.9	NA	2298.3	1840.6
18	Darchula.New	Darchula	887	2251.3	2485.7	2629.2	2534.6	3139.7	3138.9	2919
19	Patan.new	Baitadi	1299	1124.7	1193.5	1217.1	1224.2	1382.3	1432.9	1426.9
20	Pipalkot	Bajhang	1455	2011.2	2298.1	2314.7	2102.8	NA	2950	2561
21	Silgadhi.Doti	Doti	1309	1266	1130.2	1179	1143.8	NA	NA	1352.9
22	Bajura..Martadi.	Bajura	1598	2023.2	NA	2319.8	2061.6	NA	NA	NA
23	Katai	Doti	1388	2229.2	1912.5	1512.9	971.2	NA	948.8	1282.9
24	Asara.Ghat	Achham	632	899.7	1056.5	845.9	1122.9	NA	1689.6	1645.8
25	Tikapur	Kailali	149	2128.2	1822.6	1130	964	2337.2	1653.5	1795.5
26	Sandhepani	Kailali	159	2176.4	1887.4	1398.8	1229.4	2451.6	1903.7	1655.6
27	Dhangadhi.Attariya.	Kailali	184	1592.9	1607.4	1530.7	1406.6	2123.9	2235.8	1958.6
28	Bangga.Camp	Achham	1180	1446.8	1508.3	1379.4	1515.3	NA	NA	NA
29	Sitapur	Kailali	148	1506.6	1769.4	1313.9	1059	1504.5	1964.3	1748.4
30	Kola.Gaun	Doti	1364	1479.2	1343	1647.2	1352.3	NA	2473.7	1723.8
31	Godavari.West.	Kailali	280	2368.9	2515.5	1800.3	1925.3	2358	NA	2774.3
32	Mangalsen	Achham	1310	1373.9	1225.9	1283.9	1271.3	1760.8	2095.2	1603.6
33	Dipayal..Doti.	Doti	563	1124.4	957.3	795.1	960.9	1048.4	1449.6	1254.7
34	Oli.Gaun..Patkani.	Achham	989	258.2	NA	493	657.5	NA	NA	NA
35	RAISALLI..Daulichaur.	Bhajang	2011	2774.1	2392.1	2806.1	2426.1	2495	3178	2931.5
36	THALARA	Bajhang	2360	1970.2	2580.9	2619.1	1940.6	NA	3072	2494.6
37	Olena..OIRANO.	Bajura	1116	1301.1	1955.1	1504.1	1643.3	NA	1795.2	1683
38	Sunkuda	Bajhang	894	790.8	1132.9	1018.9	853	NA	NA	1598.6
39	RAYAL	Bajhang	919	1346.8	1356.6	1114.1	1638.9	NA	1907.3	1566
40	Kolti.Airport	Bajura	1411	690.8	809.2	1066.2	1094.8	NA	NA	997.5
41	KAILASMANDU	Bajura	917	1740.9	1902.6	1944.5	1399	NA	2804.2	2174.5
42	JHINGRANA	Doti	2249	1913.1	2187.7	552.2	383.4	NA	NA	NA

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43	GOPGHAT..GOLAGHAT.	Achham	1548	1439.8	1912.5	1991.3	2186.4	NA	2596.8	1475.2
44	SAFE BAGAR	Achham	626	NA	1037	1088.6	1093.4	NA	NA	NA
45	GAIRA	Doti	1856	1760.2	1962.8	1802.5	1653	NA	2422.6	1873.3
46	DUMRAKOT	Dumrakot	1042	805.2	751.9	902.4	980.8	NA	1703.2	1321
47	SUGALI	Achham	1668	1888.3	1926.3	1660.4	1721	NA	2871.1	2315
48	SAPTA	Bajura	1099	376.1	512.9	521	NA	NA	978.3	794.7
49	BASTI	Achham	474	NA	995	NA	581.6	NA	1430.5	1329.7
50	Chiuri	Doti	1492	1680	1133.6	2404.6	NA	NA	2987.6	1937
51	MALAKHETI	Kanchanpur	185	1790.8	1788.4	1383.1	1428.7	1960.8	NA	1972.1
52	CHAUMALA	Kailali	171	1916.9	2313.8	2039.5	1272.9	2889.9	2405	2086.9
53	Gokuleshwar	Kailali	761	NA	NA	NA	NA	NA	2353.7	2096.5
54	GARMAN.DARBAR	Kailali	1280	2968.5	1628.2	2755.5	1271.8	NA	4324.7	3988.5
55	BALIYA	Kailali	167	1855.7	2213	1425.3	1453.3	NA	2162.2	1903.4
56	BHAJANI	Kailali	132	1568	1426.1	1333.3	824.6	NA	1493.6	1756.1
57	Chainpur.Bajhang.AWS		1405	1011.9	NA	1563.1	1913.1	NA	NA	NA
58	Thirpu	Kalikot	1017	388.1	392.5	443.6	797.3	949.2	NA	1169.1
59	Jumla	Jumla	2363	747.8	814	720.3	948.5	604.7	1004.3	835.7
60	Guthi.Chaur	Jumla	2727	1139.3	1399.5	1381.3	1318.4	NA	1397.1	1175.6
61	Sheri.Ghat	Kalikot	1090	1356	1494.9	1563.4	1813.3	1529.5	NA	2145.5
62	Gam.Shree.Nagar	Mugu	2113	979.8	NA	429.9	1111.1	NA	NA	NA
63	Rara	Mugu	2989	957.1	833.2	816.4	918.4	575.5	1296.5	1097.8
64	Nagma	Kalikot	2017	609.4	677.3	672.6	1057.1	1063.8	1441	996
65	Bijaypur..Raskot.	Kalikot	1822	1197.3	1786.9	1431.5	1924.8	NA	1442.2	1254.2
66	Dipal.Gaun	Jumla	2422	877.9	911.3	897.9	1080.1	NA	1365.8	1002.3
67	Simikot	Humla	2993	711.2	803.4	798.5	391.4	818.5	1170.1	828
68	Dunai	Dolpa	2098	488.4	556.9	386.5	613.2	NA	660.8	517.1
69	Darma	Humla	2288	NA	1026.2	1216.1	1079.1	NA	1249.1	1288.1
70	Kirmi	Humla	2859	516.4	712.7	644.8	945.1	NA	NA	779.4
71	Ghatya.Khola	Humla	2230	707.9	731.6	534.9	1050.3	NA	1241.8	831.6
72	Thali	Humla	2293	NA	1221.9	1272.1	1289.2	NA	1431.5	1285.8
73	Bau.Khola..Bam.	Mugu	2821	695.4	740.6	1043.9	1897.8	1222.7	627.8	758.3
74	Mangri	Mugu	2257	986.8	833.1	NA	NA	972.3	640.5	NA
75	Gamtha	Mugu	1848	1661.7	1103.6	2062.1	4855.6	3791	3094.7	2128.3
76	Seroge	Mugu	2245	NA	765.9	697.6	892.4	NA	744.1	903.5
77	Chautha	Jumla	2785	1256.7	1228.3	1267.2	2124.2	NA	1545.5	1303.4
78	Jacha	Jumla	2380	723.9	799.5	800.6	966.6	NA	1145.2	1190.8
79	Rudu..Narakot.	Jumla	2364	692.9	812.5	664	891.8	NA	959	1034.7
80	Rimichaur	Jumla	2692	1255.8	1331.8	1309.8	1433.9	NA	1440.5	1210.1
81	Jamna..Dillichaur.	Jumla	2438	1197.6	1129.6	1178.5	1123.9	NA	1086.1	1037.3
82	Tatopani	Jumla	2288	588.2	612.9	493.7	751.3	NA	1021.2	925
83	Biunthari	Dolpa	2440	423.2	681.5	762.4	NA	NA	937	539.6
84	Manma	kalikot	1729	1145.7	1352.7	1423.6	1593.7	1775.9	2054	2057.8
85	Kaigaun	Dolpa	2683	NA	NA	974.4	948.5	NA	NA	NA

S.N.	station	district	elevation	2016	2017	2018	2019	2020	2021	2022
86	Gela	Kalikot	1732	1047.9	898.8	1128.4	1392.5	1374	1650.6	1356.1
87	Juphal.Airport	Dolpa	2475	472.1	538.7	666.2	897.3	NA	727.1	640.6
88	Hilsa..Yari.	Humla	3726	NA	NA	NA	NA	NA	416.2	189.3
89	Talcha	Mugu	2750	NA	NA	NA	NA	705.8	1326.7	1245.8
90	Jalkundi	Dang	218	NA	NA	1207.6	1110.4	NA	NA	NA
91	Jumla.Airport	Jumla	2384	736	698	666.9	924.2	NA	NA	855.4
92	Pusma.Camp	Surkhet	953	1404.9	1554.8	1431.9	1558.5	1588.6	1736.1	2188.8
93	Dailekh	Dailekh	1394	1462.5	1673.8	1652.8	1751.8	1692.8	1827.2	1886.2
94	Jamu..Tikuwa.Kuna.	Surkhet	243	908.2	1217.3	1245.5	1220.9	1411.7	1368.6	1841.4
95	Jajarkot	Jajarkot	1236	NA	NA	NA	1171.1	NA	NA	NA
96	Surkhet.Airport..Birendranagar.	Surkhet	683	1427.1	1357	1336.5	1486.1	1808.4	1909.3	1708.4
97	Kusum	Dang	200	NA	NA	NA	NA	1657.2	1717.1	1486.4
98	Gulariya	Bardiya	126	1326.5	1047.3	1295.8	1089	1535.1	1468.5	1541.1
99	Khajura..Nepalganj.	Banke	129	1443.8	1142.5	1135.5	NA	1300.9	NA	1507.1
100	Bale.Budha..Tallo. Dhungeshwor.	Dailekh	590	889.6	1118.6	785.4	1108.3	1296.3	932.1	1400.7
101	Rajapur	Bardiya	133	1427.5	1642.7	1465	686.2	1699.6	1522.4	1535.6
102	Naubasta	Banke	161	1421.7	1318.2	1125.8	1447.5	1530.4	1900.2	1724.7
103	Shyano.Shree..Chepang.	Bardiya	510	NA	NA	NA	NA	1880.3	2065.6	2150.7
104	Bajipur	Banke	150	786.4	574	1498.9	1065	1537.9	NA	1250.4
105	Bargadaha	Banke	166	1865.8	1972.8	1515.3	1084.5	2269.9	1841.4	NA
106	Nepalgunj.Reg.Off..	Banke	141	1378.1	NA	1126.8	1555.8	NA	NA	NA
107	Rani.Jaruwa.Nursery	Bardiya	145	1082.6	1450.1	1196.4	NA	1968.2	NA	1699.1
108	Maina.Gaun..D.Bas.	Jajarkot	1913	2486.5	2527.1	2050.2	NA	NA	2428.3	2718.9
109	Sikta	Banke	161	1392.3	1916.8	NA	NA	1590.3	2045.7	1727
110	Gwati	Dailekh	1472	2676	2415.1	2590.1	2775.2	4110.1	2596	2537.6
111	Ranimatta	Dailekh	2157	NA	NA	NA	NA	2297.1	1923.5	2470.8
112	Dadimadi	DAilekh	1281	1590.1	1774.8	1445.9	1425.4	1869.9	2091.6	2492.5
113	Katti	Dailekh	1224	1629.1	1937.3	833	742.9	1851	3064.8	2165.4
114	Badhichaur	Surkhet	535	1398.3	1433.6	1758	1487.3	1598.9	1603.6	1969.3
115	Pipalchaur	Rukum West	783	NA	NA	NA	NA	NA	2306.3	2236.2
116	Jagtipur	Jajarkot	1386	943.2	966.6	1034	1071.7	NA	1312.5	1292
117	Khanikhola	Surkhet	1335	1166.4	1069.6	1021.3	1287.9	1481	1711.2	1635.8
118	Rakam	Surkhet	565	627.5	734.8	787.7	840.4	864.9	1064.8	924.5
119	Mehalkuna	Surkhet	464	1310.7	1441.6	1203.6	1201.1	1418.3	1577.1	1633.4
120	Kalidamar	Surkhet	635	1432.4	1630	1349.4	1325	1542.8	1669.5	1882.6
121	Kumalgaun	Bardiya	144	1262.6	1591.2	1279.8	1284.9	1891.6	1296.4	1660.8
122	Taratal	Bardiya	141	1054.2	1055.5	1333.5	1153.5	2237.7	2771.4	1699.4
123	Rambhapur	Bardiya	150	1683.2	1660.2	1433	1209.3	1811.7	1727.2	1952.2
124	Manpur	Bardiya	132	1321	1192.8	1230.9	1456.1	0	1553.9	1533.6
125	Dhakeri	Banke	153	1511.3	1692	1416.9	1222.3	1950.5	2026.9	1592.4
126	Belmar	Banke	134	1021.4	972.4	901.3	1154.3	1188.4	1112.2	1227.3
127	BHAGAWANPUR	Banke	137	817.8	1033.2	1454.7	1406.1	1145.6	1703.8	1198.2
128	Samajhighat..Bheri.Pul.	Surkhet	NA	1451.3	1387.9	1128.6	1226.8	1264.8	1362.1	1420.6

S.N.	station	district	elevation	2016	2017	2018	2019	2020	2021	2022
129	Trishuli.at.Betrawati	Nuwakot	NA	NA	NA	1346.7	808.7	1502.9	1230.7	NA
130	Narayani.at.Devghat	Chitwan	NA	2354.4	NA	2279.6	NA	NA	NA	NA
131	Rajaiya..rainfall.station.	Makawanpur	NA	NA	672.7	1904.5	2428.8	2324.5	2314.6	1935.3
132	Rukumkot	Rukum (East)	1568	1784.3	1692.8	1408.4	1965	1961.9	1950	2135
133	Shera.Gaun	Rukum	2170	1089.9	1013	1167.4	NA	360.9	1729.7	2883.7
134	Libang.Gaun	Rolpa	1314	1442.4	NA	1229.6	1373.1	NA	NA	NA
135	Bijuwar.Tar	Pyuthan	835	1776.5	1060.7	890.2	1115.4	1135.1	1831.8	1382.7
136	Nayabasti..Dang.	Dang	685	1646.2	1831.6	1862	1721.6	1399.6	2313.5	2124.1
137	Tulsipur	Dang	683	1788.2	NA	1458.8	1542	2156.7	NA	NA
138	Koilabas	Dang	200	1194.8	1400.4	1570.3	1174	1595.1	NA	NA
139	Salyan.Bazar	Salyan	1557	891.1	782	854.1	1017.9	1137.3	1213.6	1108.6
140	Chaurjhari.Tar	Rukum	863	1256.2	NA	1404.4	1239.2	NA	NA	NA
141	Musikot.Rukumkot.	Rukum	1412	2099.7	2068.1	2308.5	2174.6	2262	2283.6	2438.7
142	Ghorai..Dang.	Dang	663	1585.5	1607.3	1434.5	1198.3	1906.4	2157.8	1904
143	Kotjhari	Rukum	1142	2155.2	1659.6	1597.2	1048.5	NA	1604.1	1095.2
144	Kabreneta	Salyan	1143	1378.5	1309.2	1555	1646.5	1627.9	1646	1511
145	Tharmare	Salyan	1338	1100.6	1073.9	1350.8	1281.2	1319.9	1575.8	1253.5
146	Keur.Gaun	Rolpa	2145	1423.5	1399.5	1517.4	1346.6	1859.3	NA	1306.8
147	Rulbang..Juwang.	Rolpa	1046	NA	1450.1	1348.8	1463.1	1897.2	1928.2	1466.7
148	Jyamire	Salyan	649	1899.2	2398	2295.1	1773.1	1642.2	2269.1	1531.1
149	Seulibang	Pyuthan	1685	3246.6	NA	1461.7	2569.7	NA	NA	NA
150	Rampur.Kalimati	Salyan	696	1398.7	1625.2	1878.4	NA	1602.5	1937	1624.4
151	Sulichour..Sarichour.	Rolpa	845	1676.7	1111	1289.1	1215.9	1699	1797.8	1211.8
152	Phopli	Pyuthan	1641	3601.4	2445.5	2299.9	2755.3	2796.6	2689.4	2309.3
153	Swargdwari	Pyuthan	1232	1442.9	1117.2	610.3	836.8	1144	1779.1	1146
154	Ambapur	Dang	599	1233.5	1642.8	1193.6	1053.9	1868.6	1862.5	1374.7
155	Sukhabare	Dang	586	993.8	NA	1096.6	862.7	NA	NA	NA
156	Ratamata	Dang	457	1261.4	1104.2	1066.4	727.4	1586.2	NA	1564.5
157	Hanspur	Pyuthan	742	2155.6	1549.4	1375.7	1442.6	2329	2183.2	1966.3
158	Rampur..Beljhundi.	Dang	649	1546.4	1443.9	1569.3	344.4	1894.7	1801.6	1754.9
159	Gangadi	Dang	216	1198.4	1661.2	1308.5	1078	NA	1781.1	1914.8
160	Lamahi	Dang	243	1010.9	1353.8	1190.6	873.3	1759.4	1670.5	1676.3
161	Lalmatiya	Dang	287	1322.3	1681.1	1253.3	522.5	1621.7	2177.6	1806.4
162	Gadhawa	Dang	231	1072.3	1496.9	1091.3	1235.8	1729.4	2340.2	2199.4
163	Mari	Pyuthan	545	NA	NA	NA	NA	NA	1557	1245
164	Bagasoti	Dang	NA	NA	NA	NA	NA	NA	2234.9	1831.7
165	Marin.Khola.at.Kusumtar	Sindhuli	399	2661.1	NA	NA	NA	3493.6	NA	3859.2
166	Jomsom	Mustang	NA	262	NA	301.1	336.3	NA	NA	NA
167	Thakmarpha	Mustang	2655	368.1	390.4	385.9	363.8	528.9	697.2	456.7
168	Baglung	Baglung	964	2137.3	2011.6	NA	1023.7	2890.3	2922.4	2121.8
169	Tatopani..Ratopani.	Myagdi	1161	1647.9	1574.8	1503.6	1511	2137.7	1972	1603.4
170	Ranipauwa..Muktinath.	Mustang	3671	212	260.8	NA	NA	NA	NA	NA
171	Bahrabise	Sindhupalchok	NA	2613.2	NA	NA	NA	NA	NA	NA

S.N.	station	district	elevation	2016	2017	2018	2019	2020	2021	2022
172	Karkineta	Parbat	1642	2930.5	2070.9	2242.8	2197	3180.3	3186.8	2997.2
173	Kushma	Parbat	900	2381.7	2268.3	2114	2059	3670.7	3503.7	2454
174	Bobang	Baglung	1722	2179.9	2619.8	1727.8	1681.5	NA	3418.5	1946.7
175	Gurja.Khani	Myagdi	2627	NA	NA	NA	NA	1263.2	NA	NA
176	Ghorepani	Myagdi	2987	2352.1	2575.3	2315.5	2581.1	2903.1	2738.4	2524.4
177	Tribeni	Parbat	713	1711	2465.1	1856.5	1705.7	NA	NA	1687.4
178	Darbang	Myagdi	1160	3049	2379.8	2127.6	2502.5	NA	NA	NA
179	Rangkhani	Baglung	1728	2452.8	999.8	1671.3	1350.7	2343.2	NA	1619.9
180	Samar.Gaun	Mustang	3610	99.7	128.5	110.5	130	105	100.1	114
181	Dhakarjhung	Mustang	3200	180.6	239.3	NA	391.3	337.9	585.3	NA
182	Bega	Myagdi	1682	2447.1	1876.3	1820.3	1839.3	2602.1	2501.4	NA
183	Kuhun	Myagdi	1864	917.7	844.8	359.4	576.6	NA	514.7	1741.2
184	Muna	Myagdi	1970	2388.8	2670.1	2198	2175.9	NA	2872.5	2560.5
185	Baghara	Myagdi	2330	3307.5	2706.4	3083.3	2618.8	NA	2936.8	2840.3
186	Sirkon	Parbat	731	2129.1	1592.4	1792.5	1179.1	NA	2733.9	2752.2
187	Bhimgithhe	Baglung	1008	NA	NA	NA	NA	NA	1780.1	2338.7
188	Galkot	Baglung	1162	NA	NA	NA	NA	NA	2254.8	2609.9
189	Chhoser	Mustang	3886	251.8	269.4	NA	NA	224.3	262.1	NA
190	Dudh.Koshi.at.Rabuwabazar	Khotang	460	1386.2	808	NA	1191.7	794	684.7	732.7
191	Saptakoshi.at.Chatara..old.	Sunsari	NA	NA	NA	1830	NA	2855.8	NA	3019
192	Ridi	Gulmi	494	1115.3	1038.8	1059.3	841.9	1901.2	1966.5	1493.7
193	Tansen	Palpa	1183	1580.9	1683.2	1363.1	1047.9	2265.5	2750.2	1980
194	Butwal		180	3368.1	3525.5	NA	NA	NA	NA	NA
195	Beluwa..Girwari.	Nawalpur	237	3007.1	2400	2395.5	2382.1	3648	3779.3	NA
196	Bhairahawa.Airport	Rupandehi	108	1604.8	1717.2	1934.1	1273.5	1967	2843.8	1396.8
197	Dumkauli	Nawalpur	183	2523.5	1961.3	1774.6	NA	3791.9	3317.3	2836.5
198	Bhairahawa..Agric.	Rupandehi	112	1579.7	1891.4	1944.2	1514	NA	NA	1476.1
199	Parasi	Nawalparasi	112	1695.8	2005.1	1785.2	NA	2415.6	NA	1638.4
200	Dumkibas	Nawalpur	167	2307.7	3051.5	2670.8	1882.9	NA	NA	2752.4
201	Khanchikot	Arghakhachi	1801	1448.9	1491	1305.1	1604.3	1971.2	2455.8	1662.8
202	Taulihawa	Kapilvastu	106	1170.1	1632.4	1440.6	1191.7	1534.6	NA	1512.7
203	Tilottama	Rupandehi	146	NA	NA	NA	NA	NA	3076.2	2146.8
204	Pattharkot..West.	Kapilvastu	190	1897.7	2021.1	1575.8	1612.5	2810.5	3063.4	2476.8
205	Musikot		1353	2702.5	2912.2	1540.6	1653.6	3408.2	2925.6	NA
206	Bhagwanpur	Kapilvastu	148	1639.2	NA	675	1404.5	NA	NA	NA
207	Tamghas	Gulmi	1547	2030.4	1486.7	1133.7	1336.6	1898.1	1951.6	1726.9
208	Gandakot	Palpa	519	1605.7	1845.9	1696.8	NA	2366.9	3206	2252.2
209	Semari	Nawalparasi	110	1390	2401.5	2151.5	1666	2444.6	NA	2259.6
210	Lumbini	Rupandehi	95	1183.5	1369.5	1174	NA	NA	2043	1228.1
211	Sitapur..Nepaney.	Arghakhachi	1618	1997.9	2115.5	1819.7	1979.4	2936.4	3093.3	2367.4
212	Agimir	Gulmi	1493	1517.3	1023.8	NA	1090.6	1571.1	1541.1	1722
213	Anp.Chour		738	1588.1	1628.4	1044.5	1401.9	2123.6	2411.3	1428.8
214	Bharse	Gulmi	1626	2694.5	2281.9	1663.1	2169.2	2976.2	3411.2	2261.2

S.N.	station	district	elevation	2016	2017	2018	2019	2020	2021	2022
215	Daugha	Gulmi	960	958.3	1235.8	1872.4	1419.4	1968.6	1711.3	1351.8
216	Sidhara	Arghakhachi	371	1263.5	1853.9	1459.8	1390.2	1835.7	2373.4	2034.6
217	Dedh.Gaun	Nawalpur	379	NA	2181.6	1233.9	1222	NA	1943.2	NA
218	Rangsing	Arghakhachi	0	1227.1	1587.1	925.4	1216	1789.6	2234.4	1986.4
219	Baldyanggadi	Palpa	1640	2071.9	1819	2041.1	1629	2308.9	1347.4	2043.4
220	Jalpa	Palpa	1512	1791.6	2105.5	1615.3	1758.4	3075.8	3307.5	2062.8
221	Archale	Palpa	1005	1923.4	1810.5	2490.4	1226.5	1869.3	4389.2	2743.5
222	Hattilung	Palpa	1127	3315.8	2176.9	2644.5	1021.3	3642.7	4323.8	1917.8
223	Banganga	Kapilvastu	140	1692.9	1026.8	NA	NA	2219.8	2998.6	2137.7
224	Deurali.Nawal	Nawalpur	238	2750.2	NA	NA	569.3	NA	3570	NA
225	Suryapura	Rupandehi	114	1682.5	1499.7	1258.8	NA	2101.1	2494.8	1625.9
226	Bardaghat	Nawalparasi	126	1776.8	2763.8	1507.1	1394.9	NA	3339.6	2429.7
227	Marchabar	Rupandehi	104	1653.1	1972.8	NA	1259.6	1626.6	2085.4	1107.3
228	Sandhikharka	Arghakhachi	1030	1222.3	1116.1	993.5	959.3	1814.7	1928.3	1569.3
229	Jagat..Setibas.	Gorkha	1334	1699.7	1443.7	1511.6	2048.4	NA	NA	1540.8
230	Khudi.Bazar	Lamjung	838	3757.1	3256	3415.7	2932.1	4658.7	3811.7	4156
231	Pokhara.Airport	Kaski	803.9	3517.9	3743.3	2999.7	3102.1	5454.3	5216.7	4094.9
232	Syangja	Syangja	871	3125.4	2763.2	2830.9	2689.6	4333.3	4168.1	2813.4
233	Larke.Samdo	Gorkha	3650	714	606.3	660.3	722	491.2	947.1	800.6
234	Kunchha	Lamjung	820	2872.8	1978.1	1956.7	1720.4	NA	3241.2	3139.6
235	Bandipur	Tanahu	991	1378	770.2	1552.2	1629.7	2296.4	2712.3	2124.6
236	Gorkha..Birenchowk.	Gorkha	724	1524.6	1527.4	1728.6	1524.9	1960.2	2114.3	2048.9
237	Gorkha.Agromet	Gorkha	720	NA	NA	NA	NA	NA	NA	NA
238	Chapakot	Syangja	617	1626.2	1712.1	1506.4	1850.3	2476.8	2959.4	2280.6
239	Malepatan..Pokhara.	Kaski	859	4061.7	4234.4	3453.5	3324.8	5752.7	5454.6	4530.7
240	Bhadaure.Deurali	Kaski	1630	4362.7	4587.9	4188.1	4682.1	8937.2	6918.1	NA
241	Lumle	Kaski	1738	5145.6	5030.4	5055	5160.2	6226.4	5627	5202.9
242	Khairini.Tar	Tanahun	515	2099.4	2272.5	1946.2	2009.2	3276.3	3609.4	2790.3
243	Damauli	Tanahun	347	1172.1	NA	1511.5	1286.6	NA	NA	NA
244	Lamachaur	Kaski	991	4504.6	4586.4	3835.2	3664.7	NA	4741.6	4634.1
245	Manang.Bhot	Manang	3556	100.2	140	180.6	413.3	NA	399.7	330.4
246	Ghandruk	Kaski	1960	NA	NA	NA	NA	NA	4512.5	4606.6
247	Gharedhunga	Lamjung	1088	2870.6	2731.8	2885.3	2920.1	NA	3664.4	3179.7
248	Sikles	Kaski	1967	3939.3	3420.9	4201.6	4027.2	4885.2	4416.8	NA
249	Walling	Syangja	756	2250.3	1720.6	1918.4	NA	2667.6	2924	2716
250	Sallyan..Kaski.	Kaski	1591	4046.5	3986.4	3719.5	3879.7	NA	5341.6	4300.5
251	Pamdur	Kaski	1726	4588.5	4954.9	4470.3	4865.9	6467.8	6079.6	NA
252	Dandaswara	Syangja	1316	3163.6	2698	2883.7	2804.6	4662.8	4607.4	NA
253	Chhekampar	Gorkha	3300	750.5	419.9	683.9	793.1	NA	1312.8	938.6
254	Naar	Manang	4195	111.4	431.3	686.2	739.5	NA	NA	NA
255	Goga..Tilche.	Manang	2256	1090.8	977.5	1075.2	1291.1	1330.6	NA	1219.4
256	Pisang.Gaun	Manang	3214	588.5	614.9	589.8	932.5	788	1465.8	855
257	Namrung	Manang	NA	312.4	NA	NA	NA	NA	NA	635.7

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258	Machhi.Khola	Gorkha	550	1975.4	1478.2	1852.3	NA	NA	2630.6	2009.9
259	Taal	Manang	1670	1915	NA	1393.9	1772.6	NA	NA	NA
260	Ghalekharka	Kaski	1665	4475.9	4105.3	4250.8	4137.8	4900.8	4238.7	NA
261	Rivan	Kaski	1506	5108.7	3731.7	4192	5246.3	5643.6	3784.5	2872
262	Bhujung	Lamjung	1690	3972.4	3318	4546.9	3853.6	NA	4156.9	3251.4
263	Faleni	Lamjung	1278	4073.7	3247.6	4478.9	3401.3	NA	4100.1	3863.7
264	Yamjakot	Kaski	1478	4703.5	3617.1	NA	NA	NA	4097.9	4600
265	Gilung	Lamjung	1430	3477.2	2862.9	3399.5	2679.3	NA	4591.9	4606.8
266	Pumdhi.Bhumdhi	Kaski	1565	4334.9	4459	3573.6	4141.5	5949.6	NA	4670.5
267	Barpak	Gorkha	1889	4673.2	2907.3	5835.5	NA	NA	3868.7	NA
268	Begnas	Kaski	682	3458.3	3065.2	3205.8	2580.6	NA	4876.6	3449
269	Bhorletar	Lamjung	469	2608.9	2257.7	2118.2	2054.9	NA	NA	NA
270	Panchamul	Syangja	1575	3405.8	3139	3302.5	2938.2	NA	4409.5	3339.2
271	Nirmal.Pokhari	Kaski	975	3083.9	2878.9	2253	1993.8	NA	4165	2764.1
272	Thaprek	Tanahun	1131	2638.4	2560.5	2639	2108.5	NA	3456.9	NA
273	Rainastar	Lamjung	588	1952.9	1599.4	2258.6	1905.8	NA	2972.1	2770.3
274	Syamgha	Tanahu	372	2221.7	1887.8	1977.1	NA	NA	NA	NA
275	Chisapani..Syangja.	Syangja	1002	1292.3	569.9	535.8	NA	NA	NA	2108.7
276	Chundi.Rangha	Tanahu	527	2163.8	1557	1655	1319.8	NA	2604.2	NA
277	Jyagdi		455	1997	NA	1150.3	1019.5	NA	NA	2258.6
278	Malunga	Syangja	764	1350.6	1611.5	1420.5	NA	NA	NA	NA
279	Atraulitar	Tanahun	349	1635.5	1601.9	1556.8	1539.6	NA	2958.5	2015.7
280	Sakhar.at.Tanahun	Tanahun	288	1429.9	1517.1	1531.9	1073.1	NA	1860.3	2060.1
281	Kotagaun	Tanahun	355	2535.9	NA	2243.2	2048.2	NA	3986.2	2249.2
282	Laprak	Gorkha	NA	3328.9	1638.5	1897.2	NA	NA	1043.8	1127.3
283	Panchase	Parbat	2492	3280.2	NA	2032.5	2867.7	NA	NA	NA
284	Chumchet	Gorkha	NA	839.8	617.5	413	545.9	NA	NA	723.2
285	Humde	Manang	3401	270.5	298.7	467.1	NA	NA	NA	NA
286	Rampur	Chitwan	189	2059.8	1695	1206.4	1539	3165.1	2216.3	NA
287	Jhuwani	Chitwan	177	1769.8	1913.7	1514	1926.6	2395.1	2315.7	1987.8
288	Chisapani.Gadhi	Makwanpur	1729	1646.6	1933.4	1905.5	2181	2432.5	NA	2254.4
289	Daman	Makwanpur	2265	NA	1357.6	1488.9	1721.1	1987.3	2193.8	1734.6
290	Hetauda.N.F.I.	Makwanpur	452	2083.6	2437.6	2135.6	2254.4	2500.2	2543.5	NA
291	Amlekhganj	Bara	310	505.8	1808.7	1260.3	NA	NA	NA	1121.6
292	Simara.Airport	Bara	137	1587.5	1967.1	1717.7	1738.1	2403.6	2383.1	1618.6
293	Nijgadh	Bara	244	330.1	NA	NA	NA	NA	2458.2	1878.4
294	Parwanipur	Bara	87	1312.5	1599	1553.2	1585.5	NA	1864.8	1357.6
295	Ramoli.Bairiya	Rautahat	152	1282.2	1854.4	NA	NA	NA	1910.8	1241
296	Markhu.Gaun	Makawanpur	1535	1012	1136.1	1092.3	1633.1	1675	1516.6	1337.8
297	Birganj	Parsa	67	NA	1227.4	NA	NA	NA	1950.8	1130.1
298	Makwanpur.Gadhi	Makwanpur	1050	2034.3	2388	1360	NA	3103.4	3208.8	3168.8
299	Kalaiya	Bara	100	1157.7	1121.8	1401	NA	1782.8	1742.8	1171.8
300	Gaur	Rautahat	77	NA	NA	NA	787.4	1732.1	NA	1012.4

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301	Kolbhi	Bara	114	1471.3	1975.6	1131.7	NA	NA	1984.5	1475.4
302	Bharatpur	Chitwan	216	2333.3	2040.7	2223.7	1607.1	NA	2649.9	2705.2
303	Shaktikhor	Chitwan	333	2034	NA	2103.9	2168.4	3207.9	2790.5	3185.9
304	Shilinge	Makwanpur	802	1464.3	1871.4	NA	NA	NA	2148.3	NA
305	Meghauli	Chitwan	157	1701.1	2032.7	1398.9	1670.6	3061.3	2799.8	2086.2
306	Madi.Kalyanpur	Chitwan	240	NA	2083.7	NA	1645.6	2460.1	2415.8	2037.4
307	Gajuri	Dhading	430	NA	NA	1957.6	1539.5	1926.5	1776.6	1785.1
308	Majhimtar	Dhading	327	3000.6	1876	2916.7	2416.7	3415.1	NA	3592.7
309	Govindabasti	Chitwan	227	NA	NA	NA	NA	NA	2194.8	NA
310	Riewkhola..Bankatta.	Chitwan	105	NA	NA	1721.9	1610.2	2341.5	NA	NA
311	Arughat..rainfall.	Gorkha	518	NA	550.7	NA	2123.5	2700.3	NA	2679.9
312	Gumthang	Sindhupalchok	1885	2927.8	3041.5	2732.1	2385.6	3360.7	3327.4	3158
313	Kakani	Nuwakot	2002	2649.4	2812.3	2945.6	2729.7	NA	NA	2585.7
314	Nawalpur	Sindhupalchok	1653	2132.7	2057.7	2203.3	NA	2653	2619.6	2459
315	Chautara	Sindhupalchowk	1552	2003.6	1572	NA	1695.8	2405.2	NA	2090.7
316	Sarmathang	Sindhupalchok	2574	3983.9	3988.7	3954.5	NA	4214.3	4095.6	4151.5
317	Duwachaur	Sindhupalchok	1481	1943.5	1129.3	708.7	NA	NA	NA	2284.3
318	Baunepati	Sindhupalchok	774	1600.9	1471.5	1834.2	1672.8	2107.8	1737.4	NA
319	Mandan	Kavrepalanchok	1358	NA	NA	NA	NA	NA	1381.6	1376.9
320	Dolal.Ghat	Kavre	659	1009.3	1179.1	824.9	1098.8	1170.6	1150.2	1375.3
321	Dhulikhel	Kavre	1543	1258.3	NA	1415.3	1745.8	1404.2	1480.5	1572.9
322	Dhap..Thangpal.	Sindhupalchok	1284	NA	2605.4	2751.2	NA	3073.8	3142	2497.7
323	Khumaltar	Lalitpur	1334	1098.4	1053.9	977.2	1320.7	1419.8	1278	1483.1
324	Kathmandu.Airport		1337	1482.8	1279.3	1529	1529.3	1517.1	1710	1825.6
325	Sankhu	Kathmandu	1436	NA	1426.5	2236.9	1373.6	2078.2	2392.3	2419.9
326	Panchkhal	Kavre	857	856.4	1035.6	NA	1330.4	1195.4	1191.9	1254.8
327	Dhunibesi	Dhading	991	1135.6	1179.3	1405.8	1811.9	1657.9	1560.2	1691.2
328	Panipokhari..Kathmandu.	Kathmandu	1329	1229.1	1388	1556.4	1840.9	1795.7	1529.7	2054
329	Nagarkot	Bhaktapur	NA	1363.7	1723	NA	1857.2	NA	1839.9	1935.6
330	Khopasi.Panauti.	Kavrepalanchowk	1442	1032.6	951.5	1273	NA	NA	1361.2	1179.7
331	Bhaktapur	Bhaktapur	1315	1286	1089.4	1350.2	1522	1573.8	1513.5	1511.3
332	Thamachit	Rasuwa	1770	1641.7	1089	NA	1475.4	1652.5	1410.8	851.1
333	Dhunche	Rasuwa	2005	NA	NA	1904.4	1960.5	2199	2311.8	1834.1
334	Pansayakhola	Nuwakot	1982	2930.5	2676.7	3031	NA	4198.6	3937.2	3312
335	Tarke.Ghyang	Sindhupalchok	2596	3683.1	NA	3897.8	3928.4	4088	4402.7	4281.8
336	Changu.Narayan	Bhaktapur	1502	1706.4	1770.1	1911.7	1830.9	1888.4	NA	2228.3
337	Chapa.Gaun	Lalitpur	1478	1149.9	1085.9	982.3	1426.9	1374.7	1447.4	NA
338	Sangachok	Sindhupalchok	1195	1442.4	1171.2	1324	1517.5	1587.7	1333.2	1596
339	Thokarpa	Sindhupalchok	1565	1755.6	1785.2	2048.5	1895.6	1816.5	1647	1931.9
340	Buddhanilakantha	Kathmandu	1378	NA	NA	NA	NA	NA	1808.9	2066.2
341	Khokana	Lalitpur	1309	1056.1	1131	996.1	1359.5	1460.9	1494.9	1242.9
342	Naikap	Kathmandu	1477	1032.7	826.7	NA	1468.7	1744.6	1438.2	1699.8
343	Sundarijal..Alapot.	Kathamandu	1384	1956	1902.9	NA	1904.7	1972	2086.1	2289.5

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344	Nagarjun	Kathamandu	1393	2136.3	1516.1	1710.6	NA	1919.1	1656.3	2220.8
345	Tikathali	Lalitpur	1305	1090.2	785.1	1045.6	1313.2	1339.3	1516.1	1195.3
346	Jitpurphedhi	Kathamandu	1409	1476.5	1864.2	1827.2	1801	2223	1907.3	2318.7
347	Nangkhel	Bhaktapur	1413	1200.4	1130.8	1280.8	1431.2	1303.5	1571.6	1556.7
348	Nagdaha	Dolakha	909	959.5	1057.5	1227.4	1380.6	1288	1019.7	1532.1
349	Charikot	Dolakha	2132	NA	2684.4	2593.2	2887.5	2715.7	3023.8	2722.5
350	Jiri	Dolakha	1877	NA	2770.5	2673.7	2405.7	2651.4	2739.2	2753.2
351	Melung	Dolakha	1536	NA	1469.3	1433.4	1676.2	1330	1424.8	2031.6
352	Sindhuli.Madhi	Sindhuli	556	2181.7	2124.4	2102.7	2092.5	2423.8	2876.8	2210.9
353	Bahun.Tilpung	Sindhuli	1129	1606.2	1243	1309.5	1783.5	1876.7	2025.1	1712.2
354	Pattharkot..East.	Sarlahi	189	NA	1376.2	1222.4	NA	NA	2350.3	1834.3
355	Tulsi	Dhanusha	271	1703.6	1756.7	1376.2	NA	NA	1857.4	1526.1
356	Janakpur.Airport	Dhanusha	76	1429.5	1466.4	1215.8	1536.7	1673.2	1875.5	1165
357	Chisapani.Bazar	Dhanusa	127	1710.7	1367.5	1209.4	1971.9	NA	1818.8	1259.8
358	Thodung		3120	NA	NA	NA	NA	NA	NA	NA
359	Hardinath	Dhanusha	93	1436.3	1205	1115.6	1505.3	NA	1706.4	1072.2
360	Nepalthok	Sindhuli	690	722.8	698.3	803.2	NA	835.8	1046.7	678.2
361	Hariharpur.G	sindhuli	880	NA	NA	NA	NA	NA	NA	NA
362	Hariharpur.Gadhi.Valley	Sindhuli	250	2033.5	2595.1	2517	NA	2709.7	2669.9	NA
363	Manusmara	Sarlahi	90	1205.5	1347.4	1202.9	1579.2	NA	1818.8	1242.4
364	Gausala	Mahottari	200	3102.2	2280.5	2453.8	1828.1	NA	1946.5	1113.1
365	Malangwa	Sarlahi	87	NA	1253.6	NA	NA	NA	NA	1066.8
366	Karmaiya	Sarlahi	139	NA	2214.2	1278.9	1795.4	2590	2255.7	1432.2
367	Jalesor	Mahottari	68	NA	NA	1272	NA	NA	2142.6	1024.2
368	Manthali	Ramechhap	497	592.3	677.1	837.1	855.5	NA	1301.1	804.5
369	Kabre	Dolakha	1755	2496.5	1940.9	2081.3	2144.7	1825.5	2086.3	2308.3
370	Chaurikhark	Lukla	2642	2134.3	1515	1896	2068.4	NA	2267.2	2137.2
371	Pekarnas	Solukhumbu	1945	1789.6	1396.6	1386	NA	NA	1822.4	1953.5
372	Aisealukhark		2064	2492.8	1869.3	1727.1	1941	NA	2190.2	2521
373	Mane.Bhanjyang	Okhaldhunga	1529	NA	851.4	775.1	NA	NA	1166.7	895.6
374	Kurle.Ghat		341	983.5	486.8	563.1	1091.9	NA	1031.5	757.2
375	Khotang.Bazar	Khotang	1305	1011.7	941.8	NA	1210.3	NA	1100.3	963.4
376	Phattepur	Saptari	101	2237.3	NA	1484.7	NA	NA	NA	NA
377	Udayapur.Gadhi		469	NA	1627.8	1564.2	2558.5	NA	2085.5	2295.1
378	Katari	Udayapur	195	NA	NA	NA	NA	NA	NA	1491.6
379	Lahan	Siraha	110	1592.2	1332.1	1411.3	1582.4	NA	NA	1624.2
380	Siraha		63	NA	1321.2	1275.5	1148.8	NA	1636.6	1345
381	Salleri		2383	1299.9	NA	1392.4	1612.4	NA	NA	NA
382	Chialsa		2770	NA	NA	NA	NA	NA	NA	NA
383	Diktel	Khotang	1612	1868.8	1509.8	1454.3	1529.2	1297.4	1385.3	1858.4
384	Rajbiraj	Saptari	68	1552.4	1670.4	1245.7	1798.3	2030	2140	1490.9
385	Siruwa	Solukhumbu	1614	NA	NA	2084.2	NA	NA	2308.1	2030.7
386	Barmajhiya	Saptari	118	1481.5	1709.9	1242.7	NA	NA	2141.6	1788.1

S.N.	station	district	elevation	2016	2017	2018	2019	2020	2021	2022
387	Gaighat	Udayapur	179	804.2	1575.1	1628.1	1955.5	NA	2654.5	1883.8
388	Num	Sankhuwasabha	1494	NA	NA	5074.1	4955	4500.8	3996.9	5789.9
389	Chainpur..East.	Sankhuwasabha	1277	1391.7	1142.5	1038.7	NA	1341.3	NA	NA
390	Pakhribas	Dhankuta	1720	1575.2	1404.7	1460.1	1727.1	1818.5	1860.1	1376
391	Leguwa.Ghat	Dhankuta	446	NA	936.4	768	1148.1	741.3	1235	928.6
392	Muga	Dhankuta	1457	NA	NA	NA	957.7	NA	NA	1155.4
393	Dhankuta	Dhankuta	1192	1068.2	936.5	731.2	1072	1454.2	1212.5	915.1
394	MulGhat	Dhankuta	286	NA	1105.6	856.4	NA	NA	1422.1	964.1
395	Tribeni..Dhankuta.	Dhankuta	146	2270.1	1746.1	1733.6	2102	1960.5	2065.7	2087.6
396	Dharan.Bazar	sunsari	310	2362.2	NA	1427.4	2409.8	NA	NA	NA
397	Haraincha	Morang	93	2406.7	1866.8	1440.9	1897.4	2419.6	2649.2	2207.5
398	Terhathum		1525	NA	NA	679.6	1173.7	NA	NA	NA
399	Chatara	Sunsari	105	2894	NA	1981.3	NA	NA	NA	NA
400	Chepuwa		2039	2972.9	2647.3	2945	2911.4	NA	NA	NA
401	Biratnagar.Airport	Morang	72	1826.5	1038.2	1739.5	2013.4	2580.1	2371.8	1816.5
402	Tarahara	Sunsari	120	2357.1	1987.4	1494.1	2491.8	NA	2509.4	2101.6
403	Tumlingtar	Sankhuwasabha	477	NA	1249.8	929.6	NA	1624.6	1493.5	1346.3
404	Machhuwaghat	Dhankuta	168	NA	1274.7	NA	NA	NA	1251.2	1833.2
405	Bhojpur	Bhojpur	1569	NA	NA	NA	NA	NA	NA	NA
406	Dingla		1169	2357.4	1557.8	1431.2	1815.5	2829.8	2329.7	2320.9
407	Letang	Morang	256	NA	2272.2	2019.8	NA	2984.8	2707.8	2334.6
408	Khadbari	Sankhuwasabha	1064	2171.9	1393.6	1342	1474.3	2907.2	2037.7	1874
409	Lungthung		1807	2501.1	2272	2630.9	NA	NA	2437.2	2187.8
410	Tapethok	Taplejung	1388	3268.8	2787.9	3149.5	NA	NA	2867.5	2826.4
411	Taplejung	Taplejung	1744	2321.6	1696.9	1503.8	1669.1	NA	1792.3	1838.6
412	Memeng.Jagat	PANCHTHAR	1590	NA	NA	1693.9	NA	NA	1405	1955.1
413	Ilam.Tea.Estate	Ilam	1208	1591.7	1101.3	1096.5	1449.6	NA	NA	1336.9
414	Damak	Jhapa	119	2881.4	NA	NA	2785	NA	NA	NA
415	Anarmani.Birta	Jhapa	122	3448	2675.7	2467.1	NA	NA	2628.7	2889.3
416	Himali.Gaun	Ilam	1654	NA	2382.9	2002.6	2358.8	NA	2876	1923.5
417	Chandra.Gadhi	Jhapa	90	1841.4	NA	NA	2768	NA	NA	NA
418	Sanischare	Jhapa	168	NA	2666	2198.2	2615.8	NA	NA	NA
419	Kanyam.Tea.Estate	Ilam	1570	2776.7	2786.9	2554.9	2709.8	3039.5	3492.9	2510.3
420	Phidim..Panchther.	Panchthar	1157	1217.3	1161.8	971.1	1094.1	1289.4	1547.9	1104.4
421	Dovan	TAPLEJUNG	700	1711.8	1375.4	1527.5	1650.7	NA	1720.8	1954
422	Gaida..Kankai.	Jhapa	107	2529	NA	2228.5	2922.4	NA	3059.2	2743.2
423	Kechana	Jhapa	71	NA	2688.4	2270.8	2294.8	NA	2848.7	2326.7
424	Barphalyang	Ilam	420	NA	NA	NA	NA	NA	3169.7	3110.9
425	Nuwakot	Nuwakot	966	1698.3	1728.6	2356.3	2340.6	2257.6	2238.9	2025.8
426	SindhuliGadi	Sindhuli	NA	1795.4	1079.8	1857	2078.3	2731.1	3080	3323.7
427	Lukla.Airport	Solukhumbhu	2786	NA	NA	NA	NA	NA	NA	2489
428	Kankai..Mainachuli		NA	1510.3	1799.6	1586.7	1634.2	NA	NA	NA
429	Chisapani.Karnali.	Kailali	201	2526.2	2258.7	2174.8	2103.2	3088	NA	3350.5

S.N.	station	district	elevation	2016	2017	2018	2019	2020	2021	2022
430	Bhorleni	Makawanpur	NA	3297.8	1295.8	3740.5	3300.7	NA	2938.8	NA
431	Binayak		465	986	1241.1	830.8	807.1	NA	1636	1041
432	Charchhare	Chitwan	171	NA	2401.1	1623.1	1828.2	NA	NA	1831.8
433	Dandagaun		1371	1271.6	1234.9	992.2	1092.6	1912.5	1920.8	1635.4
434	Dhap..Tarnamlang.	Sindhupaichok	1347	4116.3	2579.7	2942.9	2971.3	3485.1	3603.1	3045.2
435	Dharmpaniya		1167	1735	1957.6	1586.5	2001.2	2387.9	2484.1	2100.2
436	Dhaulatiya..Dallekhdhar.		2071	2636.1	2749.2	3346.2	2609.6	3443	3648.1	3519.5
437	Godavari		NA	1474.3	1334.9	1401.3	1672.9	1769	1754.4	1586.6
438	GOGANEPANI		1070	2755.8	2708.4	2129.8	2228.5	NA	2768.7	3268.7
439	Gothi		NA	1304	1366.1	1266.4	1088.4	NA	1378.7	1004.1
440	Itram..Surkhet.Regional.Office.		720	1385.7	1409.2	1432.9	1593.2	1872.2	1611.3	1766
441	Jyamirebari		1525	3715.7	2907.9	3330	3324.4	NA	3607.2	NA
442	KALUKHETI		1447	1245.4	1309.3	1572.2	1431.1	NA	2318.2	1843.3
443	Khaptad	Bajhang	3068	NA	NA	1802.1	1588.7	NA	NA	NA
444	Lele		NA	1472.3	NA	1322.8	1750	NA	NA	NA
445	Lete	Mustang	2617	1568.2	NA	1492.6	1452.5	NA	NA	NA
446	Lumphthi		1653	NA	1916	2336.7	2012	1903.2	2774.3	1822.8
447	Luwamjula.Bazar		895	NA	NA	NA	NA	NA	1414.9	1315
448	Nepalgunj.Airport		NA	1423.3	1335.9	1338	NA	1335.4	1577	1712.4
449	Okhaldhunga		1725	1925.5	1579.6	1310	1403.9	1468.3	1838.6	1480.6
450	Padhampur		656	1559.7	1636.7	1608.5	1366.2	1528	1929.1	1679.6
451	Pakhapani		846	840.6	958.1	NA	1114.1	987.7	1422.8	1135.8
452	Ramjakot		660	1512	1268.8	1301.9	NA	NA	NA	NA
453	Sundarijal..Mulkharka.	Khthamandu	1658	2454.1	1819.5	2426.5	2155.7	2483.6	2222.8	2392.6
454	Thori		243	NA	2730.8	NA	NA	NA	2463.2	1939.2

Department of Hydrology and Meteorology (DHM)

Table 2.1.4: Average precipitation (mm) by district and station, 1991-2020

S.N.	Station	District	Average precipitation (mm)				
			DJF	JJAS	MAM	ON	Annual
1	Kakerpakha	Baitadi	100.6	1311.7	205.5	41.1	1658.9
2	Baitadi..Gothalapani.	Baitadi	120.1	912.5	214.5	33.8	1280.9
3	Patan..West.		100.1	944.9	185.5	36.1	1266.6
4	Dadeldhura	Dadeldhura	129	1003.6	178.4	39.2	1350.2
5	Mahendra.Nagar	Kanchanpur	87.5	1654.5	86.6	52.8	1881.4
6	Santipur.Belaury	Kanchanpur	62.9	1414.6	82.4	53.2	1613.1
7	Darchula	Darchula	125.2	2005.8	243.7	71.8	2446.5
8	Santbajh	Baitadi	118.8	1136.3	219.9	33.7	1508.7
9	Pipalkot	Bajhang	112.8	1819.8	235.9	54.2	2222.7
10	Silgadhi.Doti	Doti	117.2	989.7	170.1	68	1345
11	Bajura..Martadi.	Bajura	151.9	1509.2	225.2	40.5	1926.8
12	Katai	Doti	100	1230.9	175.9	37.6	1544.4
13	Asara.Ghat	Achham	107.8	885.4	154.3	35.8	1183.3
14	Tikapur	Kailali	87	1373.5	111.5	40.6	1612.6
15	Sandhepani	Kailali	80.2	1700.4	103.3	46.5	1930.4
16	Dhangadhi.Attariya.	Kailali	70.3	1618	110.2	52.8	1851.3
17	Bangga.Camp	Achham	133.4	1387.8	173	45.4	1739.6
18	Sitapur	Kailali	73.3	1264.6	83.5	39.9	1461.3
19	Kola.Gaun	Doti	133.1	1436.3	190.1	48.5	1808
20	Godavari.West.	Kailali	88.1	2061.8	122	49.8	2321.7
21	Mangalsen	Achham	147.4	1037.3	187.6	46.2	1418.5
22	Dipayal..Doti.	Doti	107.8	763	139.5	44	1054.3
23	Thirpu	Kalikot	91.8	320.2	116.8	32.5	561.3
24	Jumla	Jumla	91.3	534.2	143	34.6	803.1
25	Guthi.Chaur	Jumla	77.2	832.5	162.7	38	1110.4
26	Sheri.Ghat	Kalikot	127	1083.7	220	53.6	1484.3
27	Gam.Shree.Nagar	Mugu	115.4	587.3	109.1	24.7	836.5
28	Nagma	Kalikot	131.9	467.2	172.5	34.6	806.2
29	Dipal.Gaun	Jumla	86.5	631.5	132	31.4	881.4
30	Dunai	Dolpa	29	274.8	38.9	14.8	357.5
31	Darma	Humla	148.1	847.3	164.6	99.7	1259.7
32	Pusma.Camp	Surkhet	108.7	1273.6	134.3	37.2	1553.8
33	Dailekh	Dailekh	95.8	1420	161.3	32.4	1709.5
34	Jamu..Tikuwa.Kuna.	Surkhet	79	805.8	72.6	21.7	979.1
35	Jajarkot	Jajarkot	86.9	1426	124.7	63.3	1700.9
36	Raughat.Khola.at.Raughat	Myagdi	75.7	2044.1	118.8	50.5	2289.1
37	Surkhet.Airport..Birendranagar.	Surkhet	100.9	1288.6	136.5	37	1563
38	Gulariya	Bardiya	54.6	1122.6	94.7	47.6	1319.5
39	Khajura..Nepalganj.	Banke	59.3	1086.1	88.4	45.7	1279.5
40	Bale.Budha..Tallo.Dhungeshwor.	Dailekh	90.8	844.3	120.2	43.9	1099.2
41	Rajapur	Bardiya	70.1	1179.5	91.4	23.7	1364.7

S.N.	Station	District	Average precipitation (mm)				
			DJF	JJAS	MAM	ON	Annual
42	Naubasta	Banke	58.5	1209.7	64.8	49.5	1382.5
43	Baijapur	Banke	60.2	871.5	99.7	45.8	1077.2
44	Bargadaha	Banke	76	1491	103.4	31.6	1702
45	Nepalgunj.Reg.Off..	Banke	57.3	1119.1	90.4	43.6	1310.4
46	Rani.Jaruwa.Nursery	Bardiya	61.8	1077.4	76.3	37.5	1253
47	Maina.Gaun..D.Bas.	Jajarkot	122.1	1535.2	198.9	50.9	1907.1
48	Sikta	Banke	56	1249.6	109.7	36.3	1451.6
49	Kali.Gandaki.at.Kota.Gaon	Tanahu	53.6	1276	95.4	50.4	1475.4
50	Rukumkot	Rukum (East)	90.7	1459.3	238.2	48.8	1837
51	Libang.Gaun	Rolpa	96	1234.8	177.7	50.8	1559.3
52	Bijuwar.Tar	Pyuthan	67	950.7	151.6	35.3	1204.6
53	Nayabasti..Dang.	Dang	70.9	1435.4	146.1	43.9	1696.3
54	Tulsipur	Dang	57.4	1356.6	137.5	71.4	1622.9
55	Koilabas	Dang	44.9	1353.8	115.7	52.1	1566.5
56	Salyan.Bazar	Salyan	84.4	747.2	104	38.6	974.2
57	Chaurjhari.Tar	Rukum	71.4	952.8	113	40.8	1178
58	Musikot.Rukumkot.	Rukum	82.1	1775.3	220.5	96.9	2174.8
59	Bagmati.at.Sundarijal.Bridge	Kathmandu	52.3	1332.3	140.9	55.2	1580.7
60	Jomsom	Mustang	40.7	158.5	70.4	22.8	292.4
61	Thakmarpha	Mustang	42.5	233.8	105.7	30.5	412.5
62	Baglung	Baglung	66.7	1627.3	237.9	66	1997.9
63	Tatopani..Ratopani.	Myagdi	62.1	1235.7	316.4	56.9	1671.1
64	Bhote.Koshi.at.Kodari	Sindhupalchowk	120.5	887.7	366.8	62.9	1437.9
65	Ranipauwa..Muktinath.	Mustang	34.5	179.9	34.3	8.5	257.2
66	Karkineta	Parbat	70.4	2005.2	314.2	82.7	2472.5
67	Kushma	Parbat	70.9	2126.3	275.6	71.3	2544.1
68	Bobang	Baglung	62.5	2019.8	177.9	53.8	2314
69	Ghorepani	Myagdi	65.4	2255.2	395	81.1	2796.7
70	Tribeni	Parbat	65.6	1555.6	318.7	72.6	2012.5
71	Darbang	Myagdi	80.5	1735.2	274.6	76.9	2167.2
72	Rangkhani	Baglung	86.2	2268.8	324.3	62.4	2741.7
73	Samar.Gaun	Mustang	32.2	134.1	NA	9.8	NA
74	Dhakarjhong	Mustang	41.6	133	52.2	23.1	249.9
75	Bega	Myagdi	74	1563.9	319.7	78.8	2036.4
76	Kuhun	Myagdi	64.8	1038.1	162.1	40.9	1305.9
77	Muna	Myagdi	76.7	2280.9	142.9	73.9	2574.4
78	Baghara	Myagdi	80.7	2523.7	217.6	99.5	2921.5
79	Sirkon	Parbat	67.8	1825.7	304.2	50.8	2248.5
80	Ridi	Gulmi	63	1060.8	149.7	36.9	1310.4
81	Tansen	Palpa	70.6	1267.7	160.8	51.1	1550.2
82	Butwal		50.5	2010.2	168.6	91.9	2321.2
83	Beluwa..Girwari.	Nawalpur	58.5	2258.9	301.7	70.8	2689.9

S.N.	Station	District	Average precipitation (mm)				
			DJF	JJAS	MAM	ON	Annual
84	Bhairahawa.Airport	Rupandehi	56.8	1368.6	136.7	70.4	1632.5
85	Dumkauli	Nawalpur	53	1970.4	297.3	81.2	2401.9
86	Bhairahawa..Agric.	Rupandehi	55.3	1499.5	140.2	69.4	1764.4
87	Parasi	Nawalparasi	53.6	1379	167.6	74	1674.2
88	Dumkibas	Nawalpur	63	2250.5	199.4	85.6	2598.5
89	Khanchikot	Arghakhachi	89.1	1359.7	179.2	60.1	1688.1
90	Taulihawa	Kapilvastu	47.8	1184.2	89.3	34.2	1355.5
91	Pattharkot..West.	Kapilvastu	56.9	1891.6	142.7	68.9	2160.1
92	Musikot		84.3	1960	338	45.2	2427.5
93	Bhagwanpur	Kapilvastu	67.8	1470.6	127	64.1	1729.5
94	Tamghas	Gulmi	80.4	1470.1	235.8	48	1834.3
95	Gandakot	Palpa	68.7	1504.9	278.3	54.8	1906.7
96	Semari	Nawalparasi	55.6	1579.6	179.8	72.5	1887.5
97	Jagat..Setibas.	Gorkha	99.8	1133.3	239	66.6	1538.7
98	Khudi.Bazar	Lamjung	91.7	2722.3	418.2	94.7	3326.9
99	Pokhara.Airport	Kaski	68.2	3063.6	560.1	176.4	3868.3
100	Syangja	Syangja	64.5	2327.8	430.9	92.6	2915.8
101	Larke.Samdo	Gorkha	135.1	431.1	207	50.4	823.6
102	Kunchha	Lamjung	70	1950.8	402.4	82.9	2506.1
103	Bandipur	Tanahu	59.5	1256	288	54.6	1658.1
104	Gorkha..Birenchowk.	Gorkha	57.1	1263.8	285.5	39.2	1645.6
105	Chapakot	Syangja	68.4	1451.2	269	54.2	1842.8
106	Malepatan..Pokhara.	Kaski	74	3171.3	542.1	172	3959.4
107	Bhadaure.Deurali	Kaski	65.2	3443.8	470.6	176.7	4156.3
108	Lumle	Kaski	101.8	4661.8	500.7	227.7	5492
109	Khairini.Tar	Tanahun	63.7	1674.5	462.6	62.4	2263.2
110	Damauli	Tanahun	60.1	1251	356	42.3	1709.4
111	Lamachaur	Kaski	71.1	3532	541.4	185.3	4329.8
112	Manang.Bhot	Manang	57.4	204.8	65.2	35.6	363
113	Ghandruk	Kaski	97.7	3196.1	456.8	88.7	3839.3
114	Gharedhunga	Lamjung	64.1	2452.1	421.1	80.1	3017.4
115	Sikles	Kaski	166.2	2817.7	672	131	3786.9
116	Walling	Syangja	53.9	1606.3	276.4	37	1973.6
117	Pamdur	Kaski	80.8	4231.3	460.6	214.1	4986.8
118	Rampur	Chitwan	45.9	1677.5	271.4	65	2059.8
119	Jhuwani	Chitwan	53.2	1625.1	248.7	72.7	1999.7
120	Chisapani.Gadhi	Makwanpur	62.1	1641.6	265.3	49	2018
121	Hetauda.N.F.I.	Makwanpur	47.5	1967.7	289.3	80.3	2384.8
122	Amlekhganj	Bara	33.3	1555	169.6	65.9	1823.8
123	Simara.Airport	Bara	37.5	1498.4	194.6	72.5	1803
124	Nijgadh	Bara	40.7	NA	166.6	71.2	NA
125	Parwanipur	Bara	33.6	1304.9	173.2	61	1572.7

S.N.	Station	District	Average precipitation (mm)				
			DJF	JJAS	MAM	ON	Annual
126	Ramoli.Bairiya	Rautahat	34.4	1333.4	155.7	62.5	1586
127	Markhu.Gaun	Makawanpur	65.3	1031.6	226	33.1	1356
128	Birganj	Parsa	NA	1263.4	170.7	62.8	NA
129	Makwanpur.Gadhi	Makwanpur	51.3	2048	229.3	109.3	2437.9
130	Kalaiya	Bara	38.4	1180.9	173.2	45.5	1438
131	Gaur	Rautahat	NA	1028.4	157.3	44.6	NA
132	Kolbhi	Bara	30.8	1272.9	164.3	58.4	1526.4
133	Arughat..rainfall.	Gorkha	47.3	1792.4	279.5	53.8	2173
134	Gumthang	Sindhupalchok	98.7	2902.4	451.8	190.8	3643.7
135	Kakani	Nuwakot	60.4	2346.9	337.1	73.6	2818
136	Nawalpur	Sindhupalchok	50.6	2109.2	244.2	75	2479
137	Chautara	Sindhupalchowk	41.7	1652.1	223.9	64.2	1981.9
138	Sarmathang	Sindhupalchok	65.2	2994.1	307.9	117.8	3485
139	Duwachaur	Sindhupalchok	53	1793.9	262.8	62.5	2172.2
140	Baunepati	Sindhupalchok	39.4	1395.4	199.9	55.4	1690.1
141	Mandan	Kavrepalanchok	NA	828.3	147.2	NA	NA
142	Dolal.Ghat	Kavre	36.4	853.4	177.6	44.6	1112
143	Dhulikhel	Kavre	48.1	1156.5	216.4	51.1	1472.1
144	Khumaltar	Lalitpur	45.3	878.8	200.1	38.6	1162.8
145	Kathmandu.Airport		46.6	1176	229.7	49.7	1502
146	Sankhu	Kathmandu	51.6	1509.9	256.4	51.1	1869
147	Panchkhal	Kavre	35.8	864.7	151.9	53.8	1106.2
148	Dhunibesi	Dhading	51.6	1277.8	202.2	48.3	1579.9
149	Panipokhari..Kathmandu.	Kathmandu	41.6	1223.7	209.8	45.4	1520.5
150	Nagarkot	Bhaktapur	48.7	1497.9	255	62.6	1864.2
151	Khopasi.Panauti.	Kavrepalanchowk	47.1	983.4	214.3	57.2	1302
152	Bhaktapur	Bhaktapur	47.4	1055	220.7	50.7	1373.8
153	Thamachit	Rasuwa	37.6	620.1	64.4	12.6	734.7
154	Dhunche	Rasuwa	92.2	NA	202.7	61.6	NA
155	Pansayakhola	Nuwakot	75.9	2518.8	328.4	84.4	3007.5
156	Tarke.Ghyang	Sindhupalchok	69.5	3064.4	301.3	85	3520.2
157	Changu.Narayan	Bhaktapur	46.6	1347.1	259.9	65.3	1718.9
158	Chapa.Gaun	Lalitpur	47.1	1036.1	170.1	34.4	1287.7
159	Sangachok	Sindhupalchok	35.8	1128.2	216.6	55.1	1435.7
160	Thokarpa	Sindhupalchok	48.8	1497.4	261.4	60.7	1868.3
161	Khokana	Lalitpur	53.3	988.6	214.6	43.7	1300.2
162	Nagdaha	Dolakha	24.4	937.7	218.4	38.7	1219.2
163	Charikot	Dolakha	46.3	1781.2	279	61.1	2167.6
164	Jiri	Dolakha	50.8	2011.5	328.5	84.3	2475.1
165	Melung	Dolakha	22.7	662.7	152.3	23.5	861.2
166	Sindhuli.Madhi	Sindhuli	34.1	NA	330.4	94.3	NA
167	Bahun.Tilpung	Sindhuli	46.1	1390.4	295.3	99.5	1831.3

S.N.	Station	District	Average precipitation (mm)				
			DJF	JJAS	MAM	ON	Annual
168	Pattharkot..East.	Sarlahi	34.9	1374.3	192	89.4	1690.6
169	Tulsi	Dhanusha	27.9	1372.9	204.9	69.9	1675.6
170	Janakpur.Airport	Dhanusha	23.2	1196	191.5	55.7	1466.4
171	Chisapani.Bazar	Dhanusa	15.8	1304.9	149.1	72	1541.8
172	Nepalthok	Sindhuli	38.6	622	129.5	31	821.1
173	Hariharpur.G	sindhuli	39.2	2028.8	259.6	92.8	2420.4
174	Manusmara	Sarlahi	26.7	1165.2	164.4	63.9	1420.2
175	Gausala	Mahottari	45.2	1183.1	226.4	62.1	1516.8
176	Malangwa	Sarlahi	23.6	1171	170.5	63.9	1429
177	Karmaiya	Sarlahi	25	1572.9	192.3	82.9	1873.1
178	Jalesor	Mahottari	10.4	851.1	133.1	21.3	1015.9
179	Manthali	Ramechhap	31.8	703.9	149	37.4	922.1
180	Chaurikhark	Lukla	42.5	1790.8	208.8	48.5	2090.6
181	Pekarnas	Solukhumbu	32	1527.6	167.8	71.4	1798.8
182	Aisealukhark		41.7	1741.5	269.9	92.2	2145.3
183	Mane.Bhanjyang	Okhaldhunga	32.5	800.8	171.1	38.3	1042.7
184	Kurle.Ghat		30.8	712.2	139.1	38.1	920.2
185	Khotang.Bazar	Khotang	39.1	901.2	181	45.1	1166.4
186	Phattepur	Saptari	31.5	1502.2	239.7	88.4	1861.8
187	Udayapur.Gadhi		31.8	1407	215.6	74.6	1729
188	Lahan	Siraha	27.7	1015.6	175.1	64.9	1283.3
189	Siraha		25.7	1118	187.6	64	1395.3
190	Salleri		32.9	1353.3	181.3	71.7	1639.2
191	Diktel	Khotang	34.8	1067.2	283.4	46.6	1432
192	Rajbiraj	Saptari	28.2	1181.6	198.5	65.8	1474.1
193	Siruwa	Solukhumbu	NA	1431.1	218.2	64.4	NA
194	Barmajhiya	Saptari	30.1	1240.4	212.5	77.4	1560.4
195	Num	Sankhuwasabha	NA	3236.4	1025.4	NA	NA
196	Chainpur..East.	Sankhuwasabha	35.4	981.3	328.3	64.9	1409.9
197	Pakhribas	Dhankuta	38.3	1176.8	250.7	61.1	1526.9
198	Leguwa.Ghat	Dhankuta	19.1	593.5	203.6	27.8	844
199	Muga	Dhankuta	29.3	794.9	166.2	40.3	1030.7
200	Dhankuta	Dhankuta	33.7	653.7	190.2	47.4	925
201	MulGhat	Dhankuta	30.2	813.6	193.4	53.3	1090.5
202	Tribeni..Dhankuta.	Dhankuta	39.4	1523.8	237.3	68.9	1869.4
203	Dharan.Bazar	sunsari	28.5	1670.9	263.7	133.9	2097
204	Haraincha	Morang	35.6	1610	290.5	89.6	2025.7
205	Terhathum		40.7	697	249.8	36.5	1024
206	Chatara	Sunsari	30.8	1666.5	289.3	160.6	2147.2
207	Chepuwa		124.5	1759	580.9	181.5	2645.9
208	Biratnagar.Airport	Morang	26.9	1413.4	251.1	79.5	1770.9
209	Tarahara	Sunsari	32.7	1518.9	277.5	94	1923.1

S.N.	Station	District	Average precipitation (mm)				
			DJF	JJAS	MAM	ON	Annual
210	Tumlingtar_Hydro	Sankhuwasabha	19.5	901.9	280.2	70.8	1272.4
211	Machhuwaghat	Dhankuta	38.4	1092.7	230.8	51.9	1413.8
212	Dingla		39.4	1471.5	303.1	105.1	1919.1
213	Lungthung		60.8	1798.9	353.5	123.8	2337
214	Tapethok	Taplejung	NA	2220.1	NA	NA	NA
215	Taplejung	Taplejung	52.3	1354.1	423	85	1914.4
216	Memeng.Jagat	PANCHTHAR	NA	1577	415.3	106.7	NA
217	Ilam.Tea.Estate	Ilam	31.9	1187	211.9	70.2	1501
218	Damak	Jhapa	30.3	1872.1	284.5	129.8	2316.7
219	Anarmani.Birta	Jhapa	21.8	2148.5	283.1	137.8	2591.2
220	Himali.Gaun	Ilam	40.4	1875.6	299.2	94.7	2309.9
221	Chandra.Gadhi	Jhapa	25.5	1827	288.7	106.1	2247.3
222	Sanischare	Jhapa	27.6	2237.8	313.3	135.8	2714.5
223	Kanyam.Tea.Estate	Ilam	43.3	2307.2	332.3	119.6	2802.4
224	Phidim..Panchther.	Panchthar	35.8	922.6	243.3	52.2	1253.9
225	Dovan	TAPLEJUNG	57.3	1156.1	425	60.6	1699
226	Gaida..Kankai.	Jhapa	29	2124.4	286.6	132.6	2572.6

Note: DJF: Dec., Jan., Feb.; MAM: March, April, May; JJAS: Jun, July, August, Sept. ON: Oct., Nov.

Department of Hydrology and Meteorology (DHM)

Table 2.1.5 : Average Rainfall by Altitude

Average Annual Rainfall (mm)	Altitude (in masl)			
	Less than 1000	1000-1500	1500-2000	2000-3000
Less than 500				Jomsom, Mustang
500-1000				Jumla
1000-2000	Mahendranagar, Kanchanpur	Salyan		Chailsa
	Nepalganj Banke	Nuwakot	Okhaldhunga	
	Dhangadi, Kailali	Dhankuta	Pakhribas	
	Bhairahawa, Rupandehi	Patan, Baitadi		Daman, Makawanpur
	Janakpur, Dhanusha	Gorkha	Tamghas	
	Dipayal, Doti	Ilam	Bhojpur	
	Simara, Bara	Silgadhi, Doti	Dadeldhura	
	Biratnagar, Morang	Dailekh		
2000-3000	Butawal, Rupandehi			Musikot
	Khairenitar, Tanahu		Chatara	Kakani, Nuwakot
	Hetauda, Makawanpur			
	Syangja, Syangja		Kannyam	Jiri, Dolakha
		Taplethok		
Greater than 3000				Lete
	Pokhara, Kaski	Panchsaya Khola		
			Lumle, Kaski	
	Khudibazar, Lamjung			

Source: Department of Hydrology and Meteorology, 1994.

Table 2.1.6: Average wind speed (in Knot) by station

S.N.	Station	2019	2020	2021	2022	2023
1	Simara Airport(Avg)	1.266	3.144	3.31	3.729	3.905
2	Janakpur Airport(Avg)	3.234	2.779	4.437	4.901	4.981
3	Okhaldhunga(Avg)	NA	1.603	1.635	1.42	1.886
4	Dhankuta(Avg)	NA	0.98	1.306	0.988	1.261
5	Biratnagar Airport(Avg)	NA	2.991	4.037	4.858	4.625
6	Taplejung(Avg)	NA	1.681	1.468	2.372	3.112
7	Chandragadi Airport(Avg)	NA	NA	NA	2.937	3.733
8	Nepalgunj Airport(Avg)	2.767	3.441	3.541	3.778	3.975
9	Ghorai (Dang)(Avg)	1.422	1.163	1.547	1.46	1.275
10	Bhairahawa Airport(Avg)	2.893	4.584	4.982	6.29	5.47
11	Dadeldhura(Avg)	2.873	3.955	3.655	3.466	3.199
12	Dhangadhi(Attariya)(Avg)	0.881	0.836	1.225	1.745	2.159
13	Dipayal (Doti)(Avg)	1.37	1.439	1.865	2.019	1.51
14	Jumla(Avg)	1.269	1.79	2.621	2.576	3.023
15	Surkhet Airport (Birendranagar)(Avg)	4.294	4.105	3.664	3.2	3.471
16	Pokhara Airport(Avg)	NA	3.218	3.18	3.328	3.823
17	Kathmandu Airport(Avg)	2.886	3	3.121	3.367	3.819

Department of Hydrology and Meteorology (DHM)

Table 2.1.7: Annual Relative Humidity by Stations

Station	RH 8:45 am				RH 5:45 pm			
	2018	2019	2020	2021	2018	2019	2020	2021
Baglung	78.89	78.76	83.85	87.16	71.43	72.82	76.18	85.94
Bahrabise	89.48	87.64	88.29	86.55	90.70	88.31	88.78	86.21
Baitadi (Gothalapani)	85.00	86.53	86.85	82.49	86.23	88.93	88.44	80.21
Bajura (Martadi)	75.88	76.19	77.31	78.01	78.88	79.76	80.16	78.20
Bandipur	83.87	85.61	87.66	86.24	76.74	78.91	80.29	78.01
Bhairahawa Airport	81.26	80.45	83.63	82.35	61.16	61.50	65.90	65.18
Bhaktapur	76.55	77.99	80.66	84.00	67.06	71.38	71.47	70.40
Bijuwar Tar	85.18	84.00	88.84	89.33	68.93	67.75	71.74	74.14
Biratnagar Airport	84.27	83.30	84.30	83.83	69.35	72.19	70.68	71.49
Birganj	NA	72.05	84.32	80.55	NA	63.24	76.66	71.05
Chainpur (East)	83.82	84.41	86.98	81.39	75.00	76.10	80.97	76.27
Chainpur Bajhang AWS	72.83	75.29	85.08	81.05	63.07	70.80	81.05	78.68
Changu Narayan	86.77	84.96	87.37	84.99	80.52	71.38	79.57	77.02
Chapakot	87.07	88.12	90.79	88.48	72.50	73.86	80.75	75.24
Charikot	72.35	70.03	72.44	77.00	78.94	78.05	80.64	82.91
Chatara	78.36	76.84	80.65	78.78	75.45	75.31	81.70	79.28
Chaurjhari Tar	78.11	81.93	89.98	84.78	60.73	68.32	74.73	72.28
Chautara	NA	78.03	81.36	81.71	NA	70.23	78.32	80.93
Chisapani(Karnali)	73.03	72.76	78.22	74.04	71.48	70.29	78.61	74.56
Dadeldhura	69.65	73.55	76.71	75.59	63.23	67.71	72.83	70.66
Dailekh	79.66	79.97	81.00	85.98	80.83	76.53	77.37	81.03
Damak	80.42	80.53	78.55	80.36	83.69	88.63	83.75	87.36
Daman	64.10	67.24	71.61	70.93	79.68	83.11	83.78	84.09
Damauli	87.79	88.12	90.37	92.60	78.74	85.26	80.13	90.26
Darchula New	85.84	83.92	85.72	82.73	71.33	66.24	70.08	62.98
Dhangadhi(Attariya)	82.38	80.98	84.02	83.18	67.01	64.02	71.05	70.08

Station	RH 8:45 am				RH 5:45 pm			
	2018	2019	2020	2021	2018	2019	2020	2021
Dhankuta	73.62	74.75	77.99	76.16	75.20	77.30	80.54	78.54
Dharan Bazar	79.06	79.40	81.36	80.43	83.92	80.40	82.64	84.85
Dhulikhel	79.66	81.53	81.99	81.07	71.89	73.79	77.36	76.37
Dhunche	62.09	62.34	62.90	66.08	75.14	78.09	80.12	79.74
Dhunibesi	73.79	74.58	78.22	74.10	65.11	66.43	70.78	68.79
Diktel	82.81	82.67	84.53	82.63	83.48	82.20	84.51	80.85
Dipayal (Doti)	82.81	83.86	86.48	85.71	59.74	61.45	64.95	65.82
Dumkauli	83.03	80.12	83.97	84.99	69.14	68.43	70.98	74.82
Dunai	75.19	74.34	74.66	71.48	79.73	78.98	73.71	71.54
Gaida (Kankai)	77.77	72.08	75.66	76.63	79.08	77.27	82.41	82.32
Gaur	81.53	83.63	87.91	86.21	75.34	76.20	82.24	80.97
Ghorai (Dang)	78.98	78.37	83.66	81.39	64.03	62.57	68.35	68.46
Godavari	84.05	80.72	81.80	79.95	88.08	78.06	81.65	81.12
Gorkha (Birenchowk)	89.65	90.72	92.14	89.78	71.47	74.28	75.83	73.67
Gulariya	88.94	82.28	92.29	86.56	80.40	68.66	84.69	74.51
Hardinath	79.77	78.42	NA	81.37	75.24	73.47	NA	76.72
Hetauda N.F.I.	83.27	85.04	86.33	84.61	76.42	77.88	79.88	78.25
Humde	69.05	61.24	62.31	64.60	79.47	78.18	76.00	77.84
Ilam Tea Estate	75.71	73.68	78.79	74.73	78.72	76.56	81.57	75.55
Jajarkot	72.23	73.24	77.92	84.64	63.00	62.54	65.25	78.97
Jalesor	81.77	81.70	86.25	83.13	71.72	70.77	82.04	73.35
Janakpur Airport	79.81	78.64	83.70	82.27	63.90	65.23	72.10	71.52
Jiri	89.00	88.67	88.22	85.70	78.23	75.61	78.50	76.83
Jomsom	49.68	60.64	54.35	63.03	54.16	64.21	54.19	60.41
Jumla	60.53	63.29	66.32	69.73	38.17	45.81	51.19	55.61
Jumla Airport	66.96	74.71	70.73	70.69	42.45	55.05	53.12	49.71
Kakani	77.99	83.16	77.59	74.64	85.38	88.29	82.51	78.38
Kanyam Tea Estate	76.60	76.58	77.16	76.45	86.35	86.75	87.84	85.66
Karmaiya	78.64	79.96	86.48	81.58	77.60	78.94	94.77	80.00
Kathmandu Airport	83.53	82.72	84.02	82.91	70.86	71.44	74.97	73.42
Khadbari	84.31	84.02	85.70	82.53	72.82	75.03	77.23	78.87
Khairini Tar	92.07	92.27	94.18	91.40	69.35	72.34	73.37	71.14
Khajura (Nepalganj)	80.85	80.59	83.92	82.39	65.55	64.54	69.75	68.22
Khanchikot	80.34	82.75	83.39	82.47	84.89	88.19	85.84	84.43
Khokana	86.34	86.69	86.25	84.07	61.53	61.88	64.42	69.26
Khudi Bazar	75.39	77.95	76.80	77.94	78.46	80.62	81.79	80.68
Khumaltar	72.49	76.40	79.27	78.55	72.93	74.74	77.53	78.64
Kushma	87.64	89.45	91.24	89.15	84.17	92.33	92.32	76.07
Lahan	77.38	77.00	79.96	80.15	74.80	75.41	77.64	76.45
Lete	69.62	59.04	66.10	69.64	84.69	74.06	78.55	80.60
Libang Gaun	94.42	96.74	88.32	86.71	94.91	97.18	85.05	80.04
Lumbini	82.94	NA	90.91	89.96	77.19	NA	91.24	90.29
Lumle	81.46	79.74	82.97	86.47	89.53	86.54	91.31	90.79
Mahendra Nagar	82.95	80.21	84.09	84.34	64.88	61.87	64.74	65.96
Mangalsen	82.67	83.68	84.79	84.21	74.07	71.75	67.25	68.07

Station	RH 8:45 am				RH 5:45 pm			
	2018	2019	2020	2021	2018	2019	2020	2021
Manma	78.00	79.86	73.78	76.64	78.78	77.68	70.82	74.04
Manthali	79.53	80.83	86.66	86.73	50.24	50.86	59.81	66.34
Manusmara	88.08	85.61	89.72	87.47	83.71	79.29	84.08	83.62
Musikot(Rukumkot)	73.95	79.30	76.98	77.55	68.87	79.66	66.75	71.89
Nagarkot	80.61	78.72	86.64	83.38	74.16	72.57	88.74	85.57
Nagma	70.50	80.46	76.75	77.09	49.15	68.36	66.54	65.41
Nepalgunj Airport	83.82	82.31	89.45	85.35	63.08	63.16	74.15	70.19
Nepalgunj(Reg.Off.)	77.97	79.96	81.58	79.35	63.11	70.81	67.80	66.57
Nuwakot	80.71	83.17	86.06	82.89	64.20	67.12	71.45	68.74
Okhaldhunga	77.69	79.57	82.00	79.77	79.28	81.03	81.66	80.70
Oli Gaun (Patkani)	85.09	91.78	89.13	87.48	86.79	93.09	89.20	87.63
Pakhribas	74.23	75.63	76.25	75.68	84.74	85.29	84.53	84.13
Panchkhal	91.08	84.67	87.46	87.19	93.73	70.75	73.85	73.51
Parasi	80.74	82.76	84.39	86.99	69.08	72.16	75.91	79.05
Parwanipur	79.65	76.27	82.54	82.03	70.10	66.78	75.29	75.49
Patan new	73.65	76.91	79.07	77.59	63.18	69.90	77.82	71.35
Phattepur	83.52	84.40	85.07	81.72	78.23	81.19	83.87	78.64
Phidim (Panchther)	74.30	73.90	77.71	79.27	73.93	72.47	73.87	76.08
Pokhara Airport	82.68	83.94	85.00	84.19	67.58	70.13	72.17	72.82
Pusma Camp	76.33	78.97	79.48	77.18	79.00	81.03	81.00	77.64
Rajbiraj	83.57	82.75	83.91	80.93	75.52	74.78	80.43	76.64
Rampur	85.70	86.90	84.75	83.56	82.94	84.07	77.46	77.65
Rara	76.08	72.42	72.85	71.03	77.00	73.59	76.81	73.44
Salleri	85.95	86.70	95.34	97.84	84.54	90.59	95.95	97.70
Salyan Bazar	81.69	74.47	77.87	83.61	83.34	76.92	77.46	82.92
Semari	88.89	89.15	84.36	85.70	89.28	88.62	81.73	87.50
Simara Airport	79.66	79.74	81.72	81.27	69.77	70.82	72.34	74.04
Simikot	68.88	73.78	68.65	75.57	59.09	66.85	58.48	69.85
Sindhuli Madhi	83.75	84.40	85.25	83.28	72.78	73.10	75.86	75.44
Siraha	81.38	82.64	82.64	82.04	76.34	79.84	76.34	72.62
Surkhet Airport (Birendranagar)	79.45	79.96	83.00	82.18	64.28	66.36	71.29	69.84
Syangja	89.12	89.21	90.86	90.61	83.82	82.58	85.15	85.92
Tamghas	84.37	82.89	84.97	84.05	86.59	85.46	87.41	86.51
Tansen	NA	NA	87.41	82.83	NA	NA	84.74	79.81
Taplejung	79.81	81.68	80.79	82.10	77.68	79.35	78.27	80.00
Tarahara	81.10	81.77	83.32	83.50	70.50	72.72	75.32	74.56
Taulihawa	81.27	79.35	83.45	82.61	71.69	67.23	72.15	72.98
Terhathum	80.96	83.21	82.71	82.18	74.60	75.91	75.79	74.89
Thakmarpha	67.40	68.17	73.58	76.21	64.04	68.97	71.97	72.87
Tikapur	86.76	82.81	85.43	82.68	81.47	71.10	72.54	68.81
Udayapur Gadhi	77.25	78.27	80.99	78.62	75.39	73.09	75.65	74.31

Department of Hydrology and Meteorology (DHM)

Table 2.1.8 : Average Sunshine Duration by Station

S. N.	District/Station Name	Latitude	Longitude	Elevation (masl)	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
1	Banke, Nepalganj	28° 06'	81° 40'	165	6.941	NA	7.183	7.079	6.712		6.6	6.417	7.274	3.5
2	Bara, Simara Airport	27° 10'	84° 59'	130	5.483	6.783	7.426	6.97	6.11	7.176	6.552	6.182	7.053	6.85
3	Dadeldhura, Dadeldhura	29° 18'	80° 35'	1848	7.216	NA	6.458	6.216			6.05	5.661	6.095	2.9
4	Dhankuta, Dhankuta	26° 59'	87° 21'	1210	6.391	NA			5.68		5.393	5.498	5.756	4.8
5	Doti, Dipayal	29° 15'	80° 57'	617	5.516	6.758	6.98	6.842	6.813		6.832	6.169	6.731	3.8
6	Jumla, Jumla	29° 17'	82° 14'	2300	0.750	NA	7.502	7.419	7.505	4.683	7.476	7.01	7.392	7.7
7	Kaski, Pokhara Airport	28° 13'	83° 48'	827	7.000	NA	6.815	6.752	5.607	6.323	6.006	5.922	6.614	4.08
8	Kathmandu, Kathmandu Airport	27° 42'	85° 22'	1336	6.350	5.741	5.084	5.961	5.516	6.924	5.843	5.399	6.368	7.2
9	Morang, Biratnagar Airport	26° 29'	87° 16'	72	6.133	5.175	6.832		5.594		6.205	6.163	6.842	5.9
10	Okhaldhunga, Okhaldhunga	27° 19'	86° 30'	1720	6.066	5.833	6.077		5.719		5.53	5.646	5.97	4.9
11	Rupandehi, Bhairahawa Airport	27° 31'	83° 26'	109	NA	NA	6.684				6.268	5.889	6.446	3.4
12	Surkhet, Birendranagar	28° 36'	81° 37'	720	7.708	NA	7.409	7.424	7.156		7.271	6.68	7.286	6.75
13	Taplejung, Taplejung	27° 21'	87° 40'	1732	6.391	6.150	5.623		5.373		5.122	5.011	5.414	3.2
14	Kailali, Dhangadhi	28° 41'	80° 41'	170	7.016	NA		6.784	6.377		6.449	6.019	6.165	0
15	Lalitpur, Khumaltar	27° 40'	85° 20'	1350	NA	6.400	5.435	6.323	5.761	5.716	5.604			

Source: Department of Hydrology and Meteorology.

Table 2.1.9 : Number of Lakes in Districts by altitude in Nepal

S.N.	District	Total Lake	<100m	100-499 m	500- 1999m	2000-2999m	3000-4999m	> 5000m
1	Taplejung	380				2	297	81
2	Panchthar	17			2	8	7	
3	Ilam	30		14	14	1	1	
4	Jhapa	136	59	78				
5	Morang	184	123	60	1			
6	Sunsari	69	41	28				
7	Dhankuta	4			4			
8	Terathum	4			2	2		
9	Sankhuwasabha	159			3	4	109	43
10	Bhojpur	7			5	1	1	
11	Solukhumbu	339			1	1	112	225
12	Okhaldhunga							
13	Khotang	10			4	5	1	
14	Udaypur	14	4	4	6			
15	Saptari	46	35	11				
16	Siraha	140	67	73				
17	Dhanusha	230	193	37				
18	Mahottari	186	173	13				
19	Sarlahi	74	47	27				
20	Sindhuli	9		4	5			
21	Ramechhap	25			1		21	3
22	Dolakha	42			3	5	23	11
23	Sindhupalchok	75			12	5	58	
24	Kavrepalanchok	1			1			
25	Lalitpur	3			3			
26	Bhaktapur	2			2			
27	Kathmandu	1			1			

S.N.	District	Total Lake	<100m	100-499 m	500- 1999m	2000-2999m	3000-4999m	> 5000m
28	Nuwakot	3				1	2	
29	Rasuwa	38					34	4
30	Dhading	5					5	
31	Makwanpur	2			1	1		
32	Rautahat	85	68	17				
33	Bara	93	75	18				
34	Parsa	71	63	8				
35	Chitwan	40		40				
36	Gorkha	36		1	5	3	26	1
37	Lamjung	23			5	4	14	
38	Tanahun	2		1	1			
39	Syangja	4			1	3		
40	Kaski	29			22		7	
41	Manang	66					26	40
42	Mustang	78				2	5	71
43	Myagdi	33			5	14	13	1
44	Parbat	5			5			
45	Baglung	60			15	37	8	
46	Gulmi	11			7	4		
47	Palpa	12			12			
48	Nawalparasi	163		163				
49	Rupandehi	289	131	158				
50	Kapilvastu	351	190	161				
51	Arghakhanchi	3			3			
52	Pyuthan	19			13	6		
53	Rolpa	16			11	1	4	
54	Rukum	70			13	14	31	12
55	Salyan	5			5			
56	Dang	38		8	30			
57	Banke	243		243				
58	Bardiya	82		82				
59	Surkhet	22		1	21			
60	Dailekh	7			5	2		
61	Jajarkot	16					16	
62	Dolpa	210					47	163
63	Jumla	99				1	97	1
64	Kalikot	1					1	
65	Mugu	125				3	93	29
66	Humla	381					147	234
67	Bajura	57				5	45	7
68	Bajhang	25				2	19	4
69	Achham	13			3	7	3	
70	Doti	19			9	4	6	
71	Kailali	114		113	1			
72	Kanchanpur	85	2	79	4			
73	Dadheldhura	2			2			
74	Baitadi	1			1			
75	Darchula	19			1		16	2
Total	5358	1271	1442	271	148	1295	931	

Source : National Lake Conservation Development Committee (National Lake Strategic plan, 2010)

Table: 2.1.10 Major rivers in Nepal

S.N.	River	Length (km)	Drainage Area(km ²)		Estimated Runoff (m ³ /sec)	
			Total	Nepal	From all basins	From Nepal
1	Mahakali	223	15260	5410	698	247
2	Karnali	507	44000	41890	1441	1371
3	Babai	190	3400	3400	103	103
4	West Rapti	257	6500	6500	224	224
5	Narayani	332	34960	28090	1753	1409
6	Bagmati	163	3700	3700	178	178
7	Sapkoshi	513	60,400	31940	1658	878
8	Kankai	108	1330	1330	68	68
9	Other River		24921	24921	1001	1001

Source: WECS, 2003

Table 2.1.11: Glaciers and Catchments Areas having Meteorological and Hydrological Stations

Stations	Date of Establishment	Location						Catchment area (km ²)	River basin	Glacier covered area (%)	Source	Type of hydrological station	Type of meteorological station	Remarks
		Meteorological station		Hydrological station										
		Lat. (N)	Long. (E)	Altitude (m.a.s.l)	Lat. (N)	Long. (E)	Altitude (m.a.s.l)							
1. MAKALU														
Tashigaon	Nov, 1990	27° 37' 00"	87° 16' 00"	2100							Semiautomatic			
Barun Dovan	29-Mar-00				27° 44'00	87° 11' 00	2000	240	Barun	Lower Barun Glacier	Staff gauge	Raingauge		
2. KHUMBU														
Dingboche	May, 1987	27° 53' 20"	86° 49' 50"	4355	27° 53' 40"	86° 56' 40"	4375	135	Imja	Imja glacier	Recorder	Semiautomatic		
Pangboche	May, 1996									khumbu Glacier		raingauge		
Imja lake	April 2017	27° 59' N	86° 56 E	5000					Imja	Imja glacier	RLS (Radar Level Sensor) in lake	AWS		
Sangboche	Oct, 1994	27° 48' 53.8"	86° 42' 48"	3832								AWS		
Gokyo	Nov, 2005	27° 57' 9.4"	86° 41' 55"	4800								AWS	closed	
Phanka	Nov, 2005				27° 54' 53"	86° 43' 65"	4450					RLS	closed	
Thukla	2007			4600								AWS	closed	
3. LANGTANG														
Kyangjing	July, 1987	28° 13' 00"	85° 37' 00"	3920	28° 12'34"	85° 32' 50"	3658	340	Langtang	Langtang , yala, Lirung and khimsung glacier	RLS (Radar Level Sensor)	Semiautomatic/A WS		
4. ANNAPURNA														
Machhapuchhre base camp	July, 1987	28° 32' 00"	83° 57' 00"	3750								Semiautomatic/A WS		
Bagar	July, 1987				28° 30'30"	83° 54' 19"	3313	148	Modi	Annapurna glacier	RLS (Radar Level Sensor)			

Stations	Date of Establishment	Location						Catchment area (km ²)	River basin	Glacier covered area (%)	Source	Type of hydrological station	Type of meteorological station	Remarks
		Meteorological station		Hydrological station		Altitude (m.a.s.l)	Altitude (m.a.s.l)							
		Lat. (N)	Long. (E)	Lat. (N)	Long. (E)									
5. KANIJROWA														
Hurikot	May, 1991	29° 07' 00"	82° 36' 00"	2735								Semiautomatic		
Hurikot	May, 1991				29° 05' 00"	82° 33' 00"	2600	725	Sano Bheri	Kanjirowa Glacier	Staff gauge			
6. HUMLA														
Panchamukhi base camp	18-Jun-03			3825						Panchmukhi Glacier	Semiautomatic			
Daldung	18-Jun-03				30° 11' 00"	81° 32' 00"	3500		Daldung khola		Staff gauge			
7. Tsho Rolpa	2000	27° 50' 00"	86° 28' 00"	4580						Trakarding glacier	RLS (Radar Level Sensor) in lake	AWS		
Rowalling Khola Beding	2000				27° 51' 00"	86° 27' 00"	3800		Rowalling khola		Staff gauge	Semiautomatic		
8. Dharapani Manag										Thulagi Glacier				
Dona Khola	2000				28° 30' 00"	84° 21' 00"			Dona khola		staff gauge	Raingauge	out let of Thulagi glacier lake	
9. Dafe lake Thali Jumla	2010 June	29° 21' 30"	82° 09' 35"	3800								Semiautomatic		

Source: Snow , Water Quality and Environment Section, DHM, 2017

Table 2.1.12 : Glaciers, Glacial Lakes and Major River Basins

Basins	Glaciers		Glacial Lakes	
	Number	Area (sq. km)	Number	Area (sq. km)
Koshi	845	1,103	599	26.0
Gandaki	1,340	1,665	116	9.538
Karnali	1,459	1,023	742	29.147
Mahakali	164	112.5	9	0.137
Total	3,808	3,902	1,466	64.78

Sources of glacier: Glacier Status in Nepal and decadal change from 1980 to 2010 based on landsat data : ICIMOD

Sources of glacial lake: ICIMOD (2011) Glacial lakes and glacial lake outburst floods in Nepal. Kathmandu: ICIMOD

Table 2.1.13 : Estimated Soil Erosion Rate at Selected Sites in Nepal

Area	Location and Characteristics	land Use	Erosion Rate (ton /sq. km/yr.)
Siwalik Range	Eastern Nepal, South aspect, sand stone foot hills	Different land use ranging from forest to grazing	780 - 3680
		Far Western Nepal, South aspect sand stone foot hills of Surkhet	a. Degraded land
	Far Western Nepal, South aspect sand stone foot hills of Surkhet	b. Degraded forest, gullied land	4000
		c. Severely degraded heavily grazed forest, gullied land	20000
Mahabharat Lekh	Central Nepal, steep slope on Metamorphic and Sedimentary Rocks	a. Degraded forest and agriculture land	3150 - 14000
		b. Gullied land	6300 - 42000
Middle Mountain	Northern foot hills of Katmandu Valley	a. Degraded forest & shrub land	2700 - 4500
		b. Over grazed shrub land	4300
		c. Severely gullied land	12500 - 57000
	South of Katmandu Valley	75 percent dense forest	800
	Phewa Watershed	a. Protected pasture	920
		b. Overgrazed grass land	2200 - 34700
		c. Gullied overgrazed grass land	2900

Source: Central Bureau of Statistics (A Compendium on Environment Statistics 1998 Nepal)

Table 2.1.14 : Affected Land Area from Erosion

S.N.	Degradation Type	Affected Area (million ha.)	Affected Area as % of Total Land Area of Nepal
1	Water erosion	6.7	45.4
2	Wind erosion	0.6	4
3	Chemical deterioration	0.3	1.7
4	Physical deterioration	0.2	1.3

Sources: Ministry of Environment, Science and Technology, 2008.

Table 2.1.15 : Type and Color of Soil by Area of Holdings and by Development Region,Nepal

(Area of holding in ha.)

S.N.	Type and Color of Soil	Nepal	
		Area of holding (ha)	Percent to total
Soil Type			
1	Sand	589455	25
2	Loam	884697	38
3	Silt	167822	7
4	Clay	532488	23
5	Clay Loam	145777	6
Total		2320239	100
Soil Color			
1	Black	825307	36
2	Brown	939299	40
3	Yellow	215460	9
4	Red	283687	12
5	Other	56485	2
Total		2320239	100

Source: Central Bureau of Statistics (National Sample Census of Agriculture, Nepal, 2001/02).

Table 2.1.16 : World Heritage Sites of Nepal

S. N.	World Heritage Sites	Place of Establishment	Existed Year
1	Hanumandhoka Durbar Square	Kathmandu	1979 AD
2	Patan Darbar Square	Lalitpur	1979 AD
3	Bhaktapur Darbar Square	Bhaktapur	1979 AD
4	Pashupatinath Temple	Kathmandu	1979 AD
5	Swayambhunath Stupa	Kathmandu	1979 AD
6	Bouddhanath Stupa	Kathmandu	1979 AD
7	Changunarayan Temple	Bhaktapur	1979 AD
8	Chitwan National Park	Chitwan	1984 AD
9	Sagarmatha National Park	Solukhumbu	1979 AD
10	Lumbini	Rupandehi	1997 AD

Source: Department of Information, Nepal,

Table 2.1.17 : Major Mountain Peaks of Nepal

S.N.	Name of Peak	Elevation (masl)	Latitude	Longitude
1	Mount Everest (Sagarmatha)	8848	27°59'17"	86°55'31"
2	Mount Kanchenjunga	8586	27°42'09"	88°09'25"
3	Mount Lhotse	8516	27°57'45"	86°56'03"
4	Mount Yalung Kang	8505	27°45'15"	88°08'25"
5	Mount Makalu	8463	27°53'23"	87°05'20"
6	Mount Cho-Oyu	8201	28°05'37"	86°39'43"
7	Mount Dhaulagiri	8167	28°41'46"	83°29'43"
8	Mount Manaslu	8163	28°32'58"	84°33'43"
9	Mount Annapurna I	8091	27°51'42"	86°51'50"

masl= metre above sea level

Source : Ministry of Culture, Tourism and Civil Aviation (Mountaineering in Nepal Facts and Figures,2020)

Table 2.2.1: Physiographic and Bioclimatic Zones of Nepal

Physiographic Zone	Area (%)	Elevation (m)	Bioclimatic Zone
High Himal	23	above 5000	Nival (Tundra and Arctic)
High Mountains	19	4,000-5,000	Alpine
		3,000-4,000	Sub-alpine
Middle Mountains	29	2,000-3,000	Montane(Temperate)
		1,000-2,000	Subtropical
Siwalik	15	500-1,000	Tropical
Terai	14	below 500	Tropical

Source: Ministry of Forest and Soil Conservation

Table 2.2.2 : Nepal's Climatic Zones

Region	Elevation	Climatic Zones	Average Annual Percipitation	Average annual Temperature
High Himal	Above 5000m	Tundra and arctic climate	150-200mm	< 3-10°C
High Mountains	3000m-5000m	Alpine and Subalpine		
Middle Mountains	1000m-3000m	Cool to warm temperature	275-2300mm	10-20°C
Siwalik	500m-1000m	Sub-tropical	1100-3000mm	20-25°C
Terai(low - laying plains)	below 500m	Tropical		

Source: MoSTE 2014

Table 2.2.3 Area and land use by province (Ha.)

Province	Total	temporary crops	temporary meadows and pastures	temporary fallow	permanent crops	permanent meadows and pasture	farm buildings and farmyards	Forest and other wooded land	Ponds	Other land not elsewhere classified
Nepal	2,218,409.91	1,730,981.0	12,232.7	60,542.6	145,362.9	35,380.5	137,154.8	80,669.5	12,881.4	3,204.4
Koshi Province	532,937.2	381,445.4	2,725.0	14,602.3	56,304.3	8,580.6	34,028.7	32,436.4	2,051.0	763.7
Madhesh Province	492,497.1	429,237.3	2,319.0	5,647.1	19,387.3	2,136.1	23,584.5	2,580.5	6,977.0	628.4
Bagmati Province	282,292.3	219,356.7	1,859.1	11,854.2	11,879.4	5,617.7	19,476.4	11,031.8	788.4	428.4
Gandaki Province	173,773.0	114,580.5	1,404.7	10,443.4	16,194.9	8,302.3	11,601.5	10,487.4	381.3	376.9
Lumbini Province	426,614.4	336,193.9	1,762.9	10,016.6	29,379.5	4,974.8	26,100.4	15,304.9	2,068.3	813.1
Karnali Province	117,410.9	92,049.3	892.4	3,992.1	5,665.5	2,044.8	8,960.0	3,587.4	149.3	70.1
Sudurpaschim Province	192,884.9	158,118.0	1,269.6	3,986.9	6,552.0	3,724.2	13,403.3	5,241.1	466.1	123.8

Source: National Sample Census of Agriculture, 2021/22

Table 2.2.4. Number, area and fragmentation of holdings by district

District by province	Holdings				Fragmentation						
	Number	Area (ha)			Total no. of parcels	Average no. of parcels	Number of holdings consisting of parcels				
		Wet	Dry	Total			1	2-3	4-5	6-9	10 and over
Nepal	4,130,789	1,429,980.6	788,429.3	2,218,409.9	11,583,950	2.8	1,053,773	2,022,790	714,027	291,797	48,403
Koshi Province	786,108	328,130.1	204,807.2	532,937.2	1,719,692	2.2	289,626	395,347	76,057	22,056	3,021
Taplejung	24,032	6,874.1	13,410.7	20,284.8	50,433	2.1	10,045	11,142	2,204	554	87
Sankhuwasabha	32,372	8,223.0	17,054.9	25,277.9	93,185	2.9	8,234	15,476	5,552	2,666	444
Solukhumbu	22,797	1,639.5	14,149.8	15,789.3	77,872	3.4	4,454	10,361	4,621	2,511	849
Okhaldhunga	32,408	4,175.3	18,109.3	22,284.5	101,569	3.1	6,287	15,116	7,576	3,034	394
Khotang	38,131	7,018.0	18,598.9	25,616.8	114,529	3.0	8,474	18,514	7,184	3,521	438
Bhojpur	34,784	8,374.8	17,352.1	25,726.9	86,269	2.5	9,387	18,994	5,008	1,268	127
Dhankuta	31,526	4,931.8	16,849.0	21,780.8	72,211	2.3	9,513	17,397	3,961	624	30
Terhthum	18,698	6,683.9	8,536.7	15,220.6	35,938	1.9	8,166	8,972	1,371	163	25
Panchthar	36,718	5,043.9	20,003.5	25,047.4	85,130	2.3	11,349	19,695	4,572	1,046	57
Ilam	61,874	14,240.8	36,590.0	50,830.8	118,652	1.9	24,917	33,130	3,391	405	31
Jhapa	148,133	89,985.7	4,178.9	94,164.5	246,157	1.7	75,599	68,179	3,819	513	24
Morang	145,318	93,099.1	5,133.4	98,232.6	289,014	2.0	57,453	75,035	10,547	2,186	97
Sunsari	97,770	62,630.7	3,808.0	66,438.8	221,929	2.3	31,628	52,091	11,327	2,469	255
Udayapur	61,546	15,209.5	11,032.1	26,241.5	126,805	2.1	24,121	31,243	4,924	1,097	162
Madhesh Province	738,340	467,117.2	25,379.9	492,497.1	2,174,798	2.9	134,075	394,955	150,327	52,355	6,628
Saptari	104,660	64,138.7	3,153.1	67,291.8	340,961	3.3	11,563	56,754	25,074	9,936	1,332
Sirah	104,943	68,391.0	5,672.0	74,063.1	353,604	3.4	10,439	54,978	27,605	10,545	1,377
Dhanusha	105,255	60,528.5	4,297.1	64,825.5	359,480	3.4	13,684	49,846	28,351	11,800	1,574
Mahottari	87,062	55,850.6	3,567.1	59,417.7	241,055	2.8	14,783	51,561	16,413	3,893	413
Sarlahi	105,230	69,673.6	3,597.7	73,271.3	261,141	2.5	31,290	54,141	14,606	4,634	559
Rautahat	86,835	55,787.5	1,148.0	56,935.5	230,880	2.7	26,987	39,626	14,043	5,198	979
Bara	84,138	50,787.8	2,026.0	52,813.8	226,958	2.7	12,784	53,618	14,129	3,439	167
Parsa	60,217	41,959.5	1,918.9	43,878.4	160,719	2.7	12,545	34,429	10,106	2,910	226
Bagmati Province	668,177	114,957.0	167,335.3	282,292.3	1,728,498	2.6	189,421	336,289	102,202	36,147	4,119
Dolakha	40,894	5,391.3	17,053.3	22,444.6	155,756	3.8	3,962	17,995	11,832	6,069	1,034
Sindhupalchok	61,865	11,782.6	19,150.5	30,933.0	228,132	3.7	6,163	27,827	18,217	8,614	1,044
Rasuwa	9,312	1,129.6	3,273.2	4,402.9	33,586	3.6	1,098	4,286	2,452	1,278	198
Dhading	68,780	9,238.3	21,480.2	30,718.5	206,270	3.0	12,878	35,701	14,211	5,307	683
Nuwakot	56,915	13,415.5	13,874.6	27,290.1	161,803	2.8	10,088	31,835	11,785	2,961	246
Kathmandu	50,857	4,054.3	3,351.7	7,405.9	87,432	1.7	26,197	22,192	2,130	338	-
Bhaktapur	25,983	2,571.5	1,324.3	3,895.8	68,909	2.7	4,398	16,184	4,622	718	60
Lalitpur	29,991	1,779.8	4,398.5	6,178.3	45,276	1.5	19,579	9,501	737	143	31
Kavreplanchok	69,941	8,170.7	27,187.1	35,357.7	195,193	2.8	14,950	37,048	13,558	4,094	291
Ramechhap	41,863	4,470.1	20,301.9	24,772.1	131,961	3.2	7,291	20,674	9,443	4,063	392
Sindhuli	54,735	13,986.1	11,052.4	25,038.5	128,408	2.3	13,405	33,656	6,289	1,281	104

District by province	Holdings				Fragmentation						
	Number	Area (ha)			Total no. of parcels	Average no. of parcels	Number of holdings consisting of parcels				
		Wet	Dry	Total			1	2-3	4-5	6-9	10 and over
Makawanpur	67,523	9,447.6	18,759.9	28,207.5	121,437	1.8	30,704	33,551	2,798	447	23
Chitwan	89,519	29,519.7	6,127.6	35,647.3	164,336	1.8	38,708	45,838	4,125	834	13
Gandaki Province	412,677	69,970.2	103,802.8	173,773.0	1,233,241	3.0	89,461	201,738	82,137	34,172	5,169
Gorkha	60,028	8,850.5	17,243.9	26,094.4	200,331	3.3	7,876	30,185	15,000	6,082	884
Manag	951	7.9	480.9	488.8	5,385	5.7	51	252	243	266	140
Mustang	2,366	4.1	1,178.3	1,182.5	9,253	3.9	284	918	601	507	56
Myagdi	21,792	2,864.0	6,089.3	8,953.3	62,755	2.9	4,454	11,360	4,421	1,427	131
Kaski	53,228	11,382.2	7,781.6	19,163.8	117,476	2.2	20,575	25,121	5,770	1,625	136
Lamjung	31,912	6,117.5	4,965.7	11,083.2	92,551	2.9	5,909	17,104	6,607	2,157	135
Tanahu	58,595	8,685.5	17,414.2	26,099.6	150,860	2.6	13,291	33,637	9,158	2,182	327
Nawalparasi East	55,412	14,988.8	6,100.8	21,089.6	115,102	2.1	21,349	28,627	3,871	1,387	179
Syangja	51,592	7,177.4	17,279.3	24,456.6	213,367	4.1	4,895	19,395	16,072	9,323	1,907
Parbat	25,999	5,307.8	4,244.0	9,551.8	103,408	4.0	2,098	10,549	8,452	4,300	600
Baglung	50,802	4,584.5	21,024.8	25,609.2	162,753	3.2	8,679	24,591	11,943	4,915	675
Lumbini Province	765,092	287,126.4	139,488.1	426,614.4	2,252,764	2.9	180,368	369,415	141,350	62,799	11,160
Rukum East	11,845	248.3	4,514.1	4,762.4	54,077	4.6	692	4,072	3,810	2,645	625
Rolpa	46,842	1,829.8	21,810.8	23,640.7	155,007	3.3	7,658	22,730	10,361	5,204	890
Pyuthan	50,717	3,974.8	18,101.3	22,076.1	146,241	2.9	8,868	28,354	10,292	2,966	236
Gulmi	55,911	5,830.3	28,024.9	33,855.2	175,081	3.1	8,386	29,427	12,927	4,615	557
Arghakhanchi	42,418	4,706.7	20,461.5	25,168.2	136,736	3.2	5,435	22,245	10,585	3,813	341
Palpa	49,742	7,673.4	21,279.4	28,952.8	161,234	3.2	6,809	25,870	11,753	4,776	535
Nawalparasi West	55,098	29,451.6	672.2	30,123.8	162,120	2.9	12,177	27,668	10,276	4,205	772
Rupandehi	117,333	63,830.4	1,724.6	65,555.0	365,828	3.1	30,151	48,597	23,337	12,946	2,304
Kapilbastu	84,675	58,686.7	2,530.1	61,216.8	331,717	3.9	11,811	33,621	21,991	13,609	3,643
Dang	101,880	32,297.2	16,980.7	49,278.0	236,882	2.3	34,406	52,659	10,494	3,500	821
Banke	67,885	34,694.2	2,134.2	36,828.3	149,775	2.2	25,877	32,503	6,887	2,288	331
Bardiya	80,744	43,902.9	1,254.2	45,157.1	178,065	2.2	28,097	41,672	8,637	2,232	106
Karnali Province	302,640	32,408.0	85,002.9	117,410.9	1,017,924	3.4	51,128	145,295	64,854	32,872	8,489
Dolpa	8,373	963.3	1,649.0	2,612.3	30,774	3.7	545	4,186	2,432	1,008	201
Mugu	10,929	962.8	4,593.2	5,556.0	66,636	6.1	214	1,691	3,601	3,976	1,447
Humla	9,707	709.5	3,595.8	4,305.3	60,773	6.3	175	1,323	2,926	3,875	1,408
Jumla	21,548	1,070.3	5,826.8	6,897.1	133,777	6.2	222	3,661	7,043	7,650	2,972
Kalikot	24,432	3,168.6	5,717.9	8,886.5	101,322	4.1	1,692	9,501	8,103	4,309	827
Dailekha	49,646	6,194.0	13,563.9	19,757.9	136,217	2.7	9,201	28,104	10,030	2,250	61
Jajarkot	33,431	2,045.3	10,527.3	12,572.6	123,595	3.7	4,405	14,343	9,172	4,536	975
Rukum West	32,773	2,362.4	9,877.4	12,239.8	94,593	2.9	5,197	18,798	6,623	1,888	267
Salyan	49,274	4,896.9	15,547.4	20,444.3	136,358	2.8	9,955	27,148	9,392	2,448	331
Surkhet	62,526	10,034.9	14,104.3	24,139.2	133,879	2.1	19,523	36,540	5,532	931	-

District by province	Holdings				Fragmentation						
	Number	Area (ha)			Total no. of parcels	Average no. of parcels	Number of holdings consisting of parcels				
		Wet	Dry	Total			1	2-3	4-5	6-9	10 and over
Sudurpaschim Province	457,756	130,271.8	62,613.1	192,884.9	1,457,031	3.2	119,694	179,750	97,100	51,395	9,817
Bajura	25,279	1,883.2	4,909.3	6,792.5	134,555	5.3	293	7,391	8,556	6,643	2,395
Bajhang	35,330	3,355.8	6,586.4	9,942.3	147,725	4.2	1,924	13,543	12,208	6,685	970
Darchula	24,930	3,320.6	8,483.7	11,804.4	86,678	3.5	3,198	11,628	6,720	2,969	414
Baitadi	47,262	4,713.4	15,212.2	19,925.6	191,533	4.1	2,603	18,228	17,756	7,784	890
Dadeldhura	26,984	3,430.8	6,761.5	10,192.3	90,987	3.4	6,520	10,902	5,073	3,500	988
Doti	39,572	5,007.5	7,783.3	12,790.8	139,573	3.5	4,040	18,378	12,323	4,372	459
Achham	45,214	7,552.3	8,901.6	16,453.9	200,019	4.4	2,522	16,331	14,869	9,605	1,888
Kailali	127,016	59,272.0	3,462.3	62,734.2	301,579	2.4	49,731	54,903	14,278	6,913	1,193
Kanchanpur	86,170	41,736.3	512.7	42,249.0	164,381	1.9	48,862	28,444	5,317	2,924	621

Source: National Sample Census of Agriculture, 2021/22 (NSO)

Table 2.2.5 : Land use in Nepal, 1961/62 - 2011/12

Land use	Census year						
	1961/62	1971/72	1981/82	1991/92	2001/02	2011/12	2021/22
	('000 hectares)						
Agricultural land	1626.40	1592.3	2359.2	2392.9	2497.7	2363.09	1984.5
Arable land	1591.90	1567.00	2287.50	2324.30	2357.00	2162.14	1803.76
Land under temporary crops	1550.50	1537.10	2250.20	2284.70	2326.10	2123.17	1730.98
Other arable land	41.40	29.9	37.3	39.7	30.9	38.97	72.78
Land under permanent crops	12.20	15.0	29.2	29.4	117.5	168.45	145.36
Land under permanent pasturescrops	22.30	10.30	42.50	36.90	19.80	29.30	35.38
Ponds	n.a.	n.a.	n.a.	3.9	3.5	3.20	12.88
Non-agricultural land	59.00	61.80	104.50	205.00	156.40	161.91	233.9
Woodland and forest	13.80	4.70	15.00	108.80	37.20	54.89	80.67
Other land	45.2	57.1	89.5	96.2	119.2	107.02	3.2
Total area of holding	1685.40	1654.00	2463.70	2597.40	2654.00	2522.52	2218.4
	Percentage distribution						
Agricultural land	96.5	96.3	95.8	92.1	94.1	93.7	89.5
Arable land	94.5	94.7	92.8	89.5	88.8	85.7	81.3
Land under temporary crops	92.0	92.9	91.3	88.0	87.6	84.2	78.0
Other arable land	2.5	1.8	1.5	1.5	1.2	1.5	3.3
Land under permanent crops	0.7	0.9	1.2	1.1	4.4	6.7	6.6
Land under permanent pasturescrops	1.3	0.6	1.7	1.4	0.7	1.2	1.6
Ponds	n.a.	n.a.	n.a.	0.2	0.1	0.1	0.6
Non-agricultural land	3.5	3.7	4.2	7.9	5.9	6.4	10.5
Woodland and forest	0.8	0.3	0.6	4.2	1.4	2.2	3.6
Other land	2.7	3.5	3.6	3.7	4.5	4.2	0.1
Total area of holding	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source : National Sample Census of Agriculture

Table 2.2.6 : Estimated coverage by different types of wetlands in Nepal

S.N.	Wetland Types	Estimated Coverage	
		Area (ha.)	Percent (%)
1	Rivers	395000	47.77
2	Lakes	5000	0.6
3	Reservoirs	1500	0.19
4	Ponds	12749	1.4
5	Marginal swamps	12500	1.51
6	Irrigated paddy fields	398000	48.14
7	Irrigation Cannal	3160	0.38
8	Highway side ditches	262	0.03
Total		828171	100

Source : Directorate of fisheries Development (2077/78)

Table 2.2.7 : Sediment Yield in Large Watersheds

Watersheds	Watersheds Area (sq. km)	Sediment Delivery (ton/ha/yr)
Tamor	5770	38.0 (1)
	5700	70.0 (6)
	5900	80.0 (4)
	5770	38.0 (5)
Sunkoshi	18985	21.0 (1)
	19000	65.0 (3)
	19000	45.0 (4)
Bagmati	585	45.0 (6)
Trisuli	4100	18.0 (6)
	4110	18.5 (3)
Karnali	42890	21.0 (9)
Nagmati	1388	46.0 (3)
Ganges	1076000	13.5 (8)
Saptakosi	59280	15.0 (1)
	62000	27.7 (8)
	6100	31.0 (7)
	59280	15.0 (5)
Arun	34525	7.6 (1)
	36000	16.0 (7)
	36533	(4)
	34525	7.6 (5)

Reference : Impat-1979; Sherchan-1991; Schaffner-1987; Upadhaya-et.al. 1991; Ries- 1994; Maskey and Joshy- 1991; Karver-1995; Erl – 1988; HPC-1989.

Source : Water and Energy Commission Secretariat/ CIDA.(Himalayan Sediment, Issue and Guidelines, 2003).

Table 2.2.8 : Sediment Yield in Small Watersheds

Watersheds	Watersheds Area (sq. km)	Sediment Delivery (ton/Ha/yr)
Lahore River	63	6.8 (1)
Bamti Khola	8	13.3 (2)
Chhukarpo Khola (up)	23.5	29.8 (2)
Chhukarpo Khola (down)	369	3.7 (2)
Surma Khola	570	2.1 (2)
Harpan Khola (Phewa Tal)	12000	8.9 (9)
Kukhuri khola	75	17.0 (11)
Anderi Khola	540	15.0 (11)
Jhinkhu	11141	11.0 (11)
Sunsdarizal	1553	12.9 (3)
Godavari	1231	3.3 (3)
Bishnumati	614	10.7 (3)
Mahabharat 1 Check dams	19	29.0 (4)
Kulekhani (re - 1993)	12500	20.45 (10)

Reference : Impat-1979; Sherchan-1991; Schaffner-1987; Upadhaya-et.al. 1991; Laban-1978; Mulder- 1978; Carson- 1985.

Source : Water and Energy Commission Secretariat/CIDA (Himalayan Sediment, Issue and Guidelines 2003).

Table 2.2.9. Number, area of holdings and number of holdings reporting agro-forestry practice, soil degradation and soil test on the holding by province

Province	Total		Agro- forestry on the holding		Type of soil degradation						No. of holdings reporting soil test during last three year
	No. of holdings	Area (ha)	No. of holdings reporting	Area (ha)	Soil erosion		Chemical degradation		Physical degradation		
					No. of holdings reporting	Area (ha.)	No. of holdings reporting	Area (ha.)	No. of holdings reporting	Area (ha.)	
Nepal	4,130,789	2,218,409.9	107,184	18,932.6	345,744	37,918.0	32,298	4,360.2	362,209	31,784.7	105,837
Koshi Province	786,108	532,937.2	39,712	8,429.0	48,664	6,190.2	5,899	1,095.3	66,235	7,120.1	20,205
Madhesh Province	738,340	492,497.1	10,381	2,023.1	68,573	12,951.7	13,737	2,220.1	79,385	9,528.6	8,066
Bagmati Province	668,177	282,292.2	16,598	2,496.1	43,457	2,872.5	3,835	291.5	45,119	2,427.8	20,596
Gandaki Province	412,677	173,773.0	14,452	2,311.7	36,256	2,131.7	2,404	133.2	36,336	1,911.6	19,648
Lumbini Province	765,092	426,614.5	12,150	2,031.6	53,665	5,769.1	3,359	393.6	75,334	7,080.8	17,076
Karnali Province	302,640	117,410.9	7,016	808.7	31,636	1,869.6	1,134	77.0	14,276	677.8	8,756
Sudurpaschim Province	457,756	192,884.9	6,875	832.4	63,496	6,133.3	1,931	149.5	45,525	3,038.0	11,490

Source: National Sample Census of Agriculture, 2021/22 (NSO)

Table 2.2.10 : Numbers of Threatened Species by Major Groups of Organisms on the Red List, 1996- 2022

S.N.	Major Group of Species	Estimated Number of described species	Number of species evaluated by 2013	Number of threatened species							Species evaluated in 2017, as % of species described					
				2007	2008	2009	2010	2015	2016	2017		2018	2019	2020	2021	2022
Vertebrates																
1	Mammals	5,506	5,506	1,094	1,141	1,142	1,131	1,197	1,194	1,204	1,219	1,244	1,323	1,333	1,340	100%
2	Birds	10,065	10,065	1,217	1,222	1,223	1,240	1,375	1,460	1,469	1,492	1,486	1,481	1,445	1,400	100%
3	Reptiles	9,831	4,204	422	423	469	594	944	1,079	1,215	1,307	1,409	1,458	1,839	1,842	60%
4	Amphibians	7,044	6,409	1,808	1,905	1,895	1,898	1,994	2,068	2,100	2,092	2,200	2,442	2,488	2,606	86%
5	Fishes	32,700	11,172	1,201	1,275	1,414	1,851	2,271	2,359	2,386	2,332	2,674	3,210	3,332	3,551	49%
	Sub total	65,146	37,356	5,742	5,966	6,143	6,714	7,781	8,160	8,374	8,442	9,013	9,914	10,437	10,739	67%
Invertebrates																
6	Insects	1,000,000	4610	623	626	711	733	1,046	1,268	1,414	1,537	1,647	1,926	2,270	2,345	0.8%
7	Molluscs	85,000	6,809	978	978	1,036	1,288	1,950	1,984	2,187	2,195	2,250	2,300	2,385	2,399	10%
8	Crustaceans	47,000	3,163	460	606	606	596	1,950	732	732	733	733	742	743	745	7%
9	Corals	2,175	856	4	235	235	235	237	237	237	237	237	237	232	253	40%
10	Arachnids	102,248	35	11	18	18	19	164	166	170	182	197	203	251	251	0.24%
11	Velvet Worms	165	11	9	9	9	9	9	9	9	9	9	9	9	9	7%
12	Horseshoe Crabs	4	4	0	0	0	0	0	1	1	1	2	2	2	2	100%
13	Others	68,658	423	24	24	24	24	67	73	143	146	146	148	150	157	1.13%
	Sub total	1,305,250	15,911	2,109	2,496	2,639	2,904	4,201	4,470	4,893	5,040	5,221	5,489	6,042	6,161	2%
Plants																
14	Mosses	16,236	102	80	82	82	80	76	76	76	76	164	165	165	181	0.6%
15	Ferns and Allies	12,000	342	139	139	148	148	197	217	246	249	261	265	281	288	4%
16	Gymnosperms	1052	1010	321	323	322	371	400	400	401	401	402	403	403	436	96%
17	Flowering Plants	268,000	16,766	7,899	7,904	7,948	8,116	10,551	10,941	11,773	12,564	14,938	19,518	22,477	24,000	8%
18	Green Algae	4,242	13	0	0	0	0	0	0	0	0	0	0	0	0	0.2%
19	Red Algae	6,144	58	9	9	9	9	9	9	9	9	9	9	9	9	0.8%
	Sub total	307,674	18,291	8,448	8,457	8,500	8,724	11,233	11,643	12,505	13,299	15,774	20,360	23,335	24,914	8%
Fungi and Protists																
20	Lichens	17,000	2	2	2	2	2	7	7	10	20	24	48	56	62	0.08%
21	Mushrooms	31,496	1	1	1	1	22	21	21	33	33	140	185	208	226	0.137%
22	Brown Algae	3,127	15	6	6	6	6	6	6	6	6	6	6	6	6	0.4%
	Sub total	51,623	18	9	9	9	9	35	34	49	59	170	239	270	294	0.14%
Total		1,729,693	71,576	16,308	16,928	17,291	18,351	23,250	24,307	25,821	26,840	30,178	35,765	40,084	42,108	5%

source: IUCN Red list version 2022-1: Table 1

Table 2.2.11: Change in numbers of species in the threatened categories for the major taxonomic groups on the Red list ,1996-2022

Critically Endangered (CR)											
Group	1996/98	2000	2002	2015	2016	2017	2018	2019	2020	2021	2022
Mammals	169	180	181	209	204	202	201	203	221	229	233
Birds	168	182	182	218	225	222	224	225	223	225	233
Reptiles	41	56	55	180	237	266	287	309	324	433	433
Amphibians	18	25	30	528	546	552	550	588	650	673	722
Fishes	157	156	157	446	461	468	486	592	666	739	792
Insects	44	45	46	176	226	273	300	311	347	408	425
Molluscs	257	222	222	576	586	625	633	667	682	717	725
Other Invertebrates	57	59	59	209	211	243	252	270	282	290	314
Plants	909	1,014	1,046	2,347	2,506	2,722	2879	3229	4337	4976	5336
Fungi & Protists	0	0	0	5	8	10	14	19	30	32	38

Endangered (EN)											
Group	1996/98	2000	2002	2015	2016	2017	2018	2019	2020	2021	2022
Mammals	315	340	339	481	464	476	482	505	539	547	550
Birds	235	321	326	416	448	461	469	461	460	447	413
Reptiles	59	74	79	361	421	484	515	565	584	783	784
Amphibians	31	38	37	810	852	869	903	964	1036	1085	1144
Fishes	134	144	143	614	660	676	674	868	1036	1139	1220
Insects	116	118	118	305	408	461	537	571	690	937	971
Molluscs	212	237	236	503	513	547	546	564	586	599	607
Other Invertebrates	76	76	77	311	312	340	348	344	347	370	371
Plants	1,197	1,266	1,291	3,510	3,691	4,123	4537	5727	7925	9400	10202
Fungi & Protists	0	0	0	11	12	18	21	60	82	96	102

Vulnerable (VU)											
Group	1996/98	2000	2002	2015	2016	2017	2018	2019	2020	2021	2022
Mammals	612	610	617	507	526	526	536	536	557	557	557
Birds	704	680	684	741	787	786	799	800	798	773	754
Reptiles	153	161	159	403	421	465	505	535	541	623	625
Amphibians	75	83	90	656	670	679	639	648	704	730	740
Fishes	443	452	442	1,211	1,238	1,242	1172	1214	1338	1454	1539
Insects	377	392	393	565	634	680	700	765	811	925	949
Molluscs	451	479	481	871	885	1,015	1016	1019	1032	1069	1067
Other Invertebrates	300	300	300	685	695	709	708	710	712	727	732
Plants	3,222	3,331	3,377	5,376	5,446	5,660	5883	6818	8098	8959	9376
Fungi & Protists	0	0	0	13	14	21	24	91	127	142	154

Source: IUCN Red list version 2022-2: Table 2

Table 2.2.12: Number of Plant and Animal Species in Nepal

S.N.	Group	Number of Known Species	Percent of Known Species in the World
A	Flora		
1	Angiosperms	6973.00	3.20
2	Gymnosperms	26.00	5.10
3	Pteridophytes	534.00	5.10
4	Bryophytes	1150.00	8.20
5	Lichens	465.00	2.30
6	Fungi	1822.00	2.60
7	Algae	1001.00	2.50
	Flora Total	11971.00	32.00
B	Funa		
1	Mammals	208	5.2
2	Birds ²	867	9.5
3	Reptiles	123	1.9
4	Amphibians	117	2.5
5	Fishes	230	1.9
6	Mollusks	192	N/A
7	Moths	3958	3.6
8	Butterflies	651	3.7
9	Spiders	175	0.4
10	Rotifers	61	N/A
11	Crustaceans	59	N/A
12	Other Insects	5052	0.7
13	Platyhelminthes	168	1.4
	Fauna Total	11861	11

Source: Ministry of Forest and Soil Conservation (National Biodiversity Strategy and Action Plan 2014-2020)

Table 2.2.13 : Number of Wildlife Species in Nepal

S.N.	Species	Year	Area/place	Number
1	Arna	2021	Koshi Tappu Wildlife Reserve	498
2	Blackbuck	2021	Krishnasar Conservation Area	166
3	Blackbuck	2021	Suklaphata National Park	209
4	Blue sheep	2021	Dhorpatan Hunting Reserve	1290
5	Blue sheep	2016	Kanchenjunga Conservation Area	1613
6	Gaur	2021	Chitwan National Park	388
7	Gaur	2016	Parsa National Park	164
8	Gharial	2016	Babai River	31
9	Gharial	2016	Karnali River	1
10	Gharial	2011	Koshi River	0
11	Gharial	2016	Narayani River	84
12	Gharial	2016	Rapti River	82
13	Rhino	2021	Bardia National Park	38
14	Rhino	2021	Chitwan National Park	694
15	Rhino	2021	Suklaphata National Park	17
16	Rhino	2021	Parsa National Park	3
17	Swamp deer	2021	Suklaphata National Park	2313
18	Swamp deer	2017	Bardia National Park	94
19	Tiger	2022	Bardia National Park	125
20	Tiger	2022	Chitwan National Park	128
21	Tiger	2022	Suklaphata National Park	36
22	Tiger	2022	Banke National Park	25
23	Tiger	2022	Parsa National Park	41
24	Snow Leopard	2012	Mountain Protected Areas	301-400

Source : Department of National Park and Wildlife Conservation (Annual Progress Report 2079/80)

Table 2.2.14 : Number of Cultivated and Wild Food Plant Species

Groups	Food Plant Species			Cultivated Plants (%)	Wild Food Plant(%)
	Total	Cultivated	Wild +		
Dicots					
Families	120	50	70	42	58
Genera	180	120	60	67	33
Species*	395	175	190	44	48
Sub-species	25	25	0	100	0
Monocot					
Families	17	10	7	59	41
Genera	50	35	15	70	30
Species*	83	50	20	60	24
Sub-species	10	7	3	70	30
Pteridophyte					
Families	3		3		100
Genera	7		7		100
Species	11		11		100
Thallophytic					
Families	30		30		100
Genera	57		57		100
Species	108		108		100
Gymnosperms					
Families	2		2		100
Genera	2		2		100
Species	2		2		100

* Imported food plants are excluded, +National Seed Committee

Source: Ministry of Forests and Soil Conservation (Nepal Biodiversity Strategy, 2002).

Table 2.2.15 : Endemic Fishes of Nepal

S.N.	Scientific Name	Local Name
1	Cyprinus carpio	Common carp
2	Hypophthalmichthys molitrix	Sliver carp
3	Aristichthys nobilis	Bighead carp
4	Ctenopharyngodon iddillus	Grass carp
5	Labeo rohita	Rohu
6	Cirrhinus mrigala	Naini (Mrigal)
7	Catla catla	Bhakue (Catla)
8	Oncorhynchus mykiss	Rainbow trout

Source : Directorate of Fisheries Development, 2077/78

Table 2.2.16: Status of Nepal's species diversity

Group	No of known species	
	20141	2018
Flora		
Algae	1,001	1,001 (Prasad 2013)
Fungi	1,822	2,467 (Adhikari 2016))
Lichens	465	792 (Oalley and Sharma 2013)
Bryophytes	1,150	1,213 (Pradhan 2016)
Pteridophytes	534	580 (Jenkins et al. 2015)
Gymnosperms	26	41* (Shrestha et al. 2018)
Angiosperms	6,973	6,973 (Groombridge and Jenkins 2002)
Flora total	11,971	13,067
Fauna		
Platyhelminthes	168	168 (Gupta 1997)
Other Insects	5,052	10,204 (Thapa 2015)
Crustaceans	59	59 (Tiwari and Chhetry 2009)
Rotifers	61	61 (Surana et al. 2005)
Spiders	175	175 (ICIMOD and MoEST 2007)
Butterflies	651	664 (cited in Thapa 2015)
Moth	3,958	3,958 (Haruta 2006)
Mollusks	192	238** (Budha, December 2018, pers. Comm.)
Fishes	230	232 (Gurung 2016)
Amphibians	117	117 (ICIMOD and MoEST 2007)
Reptiles	123	123 (Schleich and Kastle 2002)
Birds	867	886 (DNPWC and BCN 2018)
Mammals	208	212 (Amin et al. 2018)
Fauna total	11,861	17,097

¹ Adopted from GoN/MoFSC 2014; From various sources 2018. Thapa (2015) prepared a checklist of 12,136 species of Insects of Nepal among which 384 species have their specific epithet after Nepal (nepalica, nepalensis, etc.). * Number of species of Gymnosperms include wild, cultivated and exotic. ** Personal Communication (Compiled from various sources including Budha, 2016); Budha et al., 2015; Budha et al., 2017

Source: NEPAL'S SIXTH NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY

Table 2.2.17 : Nepalese species of flora and fauna in the CITES list

Group	Appendix I		Appendix II		Appendix III		Total	
	20141	20182	20141	20182	20141	20182	2014	2018
Mammals	32	28	16	17	4	5	52	50
Birds	12	12	95	95	1	53	108	112
Reptiles	2	8	15	21	2	0	19	29
Amphibians				2				2
Butterflies	0	0	3	2	0	0	3	2
Floras ⁴	2	2	8	411	5	4	15*	417**

1-GoN-MoFSC (2014); 2-DNPWC (2014); 3-DNPWC & BCN (2018); 4 – Sharma-Dhakal and Saud

(2018). * comprises all orchids as a single entity; whereas ** comprises individual orchid species.

Source: NEPAL'S SIXTH NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY

Table 2.2.18 : Protected Faunal Species included in the National Parks and Wildlife Conservation Act,1973

S.N.	Scientific Name	Local Name	English Name	Status	
				IUCN	CITES Appendix
Mammals					
1	Sus salvanus	Sano bandel	Pigmy hog	Ex	I
2	Ailurus cervicapra	Habrey	Red panda		I
3	Antilope cervicapra	Krishnasar	Black buck	V	III Nep
4	Bos gaurus	Gauri gai	Gaur bison	V	I
5	Bos mutus	Yak nak	Wild yak	E	I
6	Bubalus arnee	Arna	Wild water buffalo	E	III Nep
7	Canis lupus	Bwanso	Gray wolf	V	I
8	Caprotgus hispidus	Hispid Kharayo	Hispid hare	E	I
9	Cervus duvauceli	Barasinghe	Swamp deer	E	I
10	Elephas maximus	Hatti	Asiatic elephant	E	I
11	Felis lynx	Banbiralo	Lynx	E	II
12	Hyanena hyaena	Hundar	Striped hyena	E	
13	Macaca assamensis	Asamese rato bander	Asamese monkey		II
14	Manis crassicaudata	Salak	Indian pangolin		II
15	Manis pentadactyla	Salak	Chinese pangolin		II
16	Moschus chrysogaster	Kasturi mriga	Himalayan forest, musk deer	E	I
17	Ovis ammon	Nayan	Great Tibetan sheep	I	I
18	Panthera tigris	Bagh	Bengal tiger	E	I
19	Panthera uncia	Hiunchituwa	Snow leopard	E	I
20	Pontholops hodgsoni	Chiru	Tibetan antelope		I
21	Neofelis nebulosa	Dwanshe chituwa	Clouded leopard	V	I
22	Platanista gangetica	Souns	Geanetic dolphin	V	I
23	Prionailurus bengolensis	Chari bagh	Leopard cat		II
24	Prionodon pardicolor	Silu	Spotted ling sang		I
25	Rhinoceros unicornis	Gainda	One horned rhinoceros	E	I
26	Tetrocerus quadricornis	Chauk	Four-horned antelope		III Nep
27	Ursus arctos	Himali rato bhalu	Brown bear		I
Birds					
1	Buceros bicornis	Thulo dhanes	Great- pied hornbill		I
2	Catreus wallichii	Cheer	Cheer pheasant	E	I

S.N.	Scientific Name	Local Name	English Name	Status	
				IUCN	CITES Appendix
3	Ciconia ciconia	Seto stork (saras)	White stork		II
4	Ciconia nigra	Kalo stork	Black stork		II
5	Grus grus	Saras	Souse crane		
6	Eupodotisbengalensis	Khar major	Bengal florican	E	I
7	Lophophorus impejanus	Danfe	Impedance pheasant		I
8	Sypheotides indica	Sano khar major	Lesser florican		III
9	Tragopan satyra	Munal	Crimson-horned pheasant		III Nep
Reptiles					
1	Gavialis gangeticus	Ghadial gohi	Gharial	E	I
2	Python molurus	Azingar	Asiatic rock python	V	I
3	Varanus flavescens	Sun gohori	Golden monitor lizard	I	I

Note: Common name pangolin refers for two main species, as suggested by Bio-diversity Profile Project, 1995.

I = Indeterminate, E = endangered, V = vulnerable, Ex = extinct

Source: Ministry of Environment (State of the Environment, Nepal, 2001) and Department of National park and Wildlife Conservation ,2001/02

Table 2.2.19 : Threatened Species in the SAARC Member Countries (Taxonomic Group)

Species	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Mammals	12	39	28	99	2	30	24	30
Birds	15	34	19	88	0	36	31	13
Reptiles	3	30	10	106	3	17	17	113
Amphibians	1	0	1	139	0	2	1	71
Fishes	11	78	5	328	41	11	120	135
Molluscs	0	0	0	7	0	1	0	0
Other Invertebrates	2	7	1	135	45	2	18	153
Plants	11	39	61	603	0	30	22	315
Fungi	0	0	2	3	0	2	0	0
Chromists	0	0	0	0	0	0	0	0
Total	55	227	127	1508	91	131	233	830

Source : IUCN Red List version 2023

Table 2.2.20 : Vegetation Area by Type and Household Involvement in Community Forest of Nepal

Vegetation Type	CF Area (ha.)	% of CF Area	No. of HHs	% of No. of HHs
Forest	1259625.77	71.16	1559346	65.03
Forest/Grass	47760.95	2.70	34432	1.44
Forest/Plantation	73891.57	4.17	143874	6.00
Forest/Plantation/Grass	2835.23	0.16	4016	0.17
Forest/Shrub	139110.52	7.86	142881	5.96
Forest/Shrub/Grass	12538.86	0.71	11156	0.47
Forest/Shrub/Plantation	11119.91	0.63	17005	0.71
Forest/Shrub/Plantation/Grass	6418.23	0.36	8046	0.34
Grass	3899.54	0.22	13289	0.55
Plantation	40979.13	2.32	171324	7.15
Plantation/Grass	3569.04	0.20	8842	0.37
Shrub	126287.50	7.13	193790	8.08
Shrub/Grass	5471.82	0.31	8666	0.36
Shrub/Plantation	32293.31	1.82	75669	3.16
Shrub/Plantation/Grass	4248.80	0.24	5372	0.22
TOTAL	1770050.16	100.00	2397708	100.00

Source: Community Forestry Division, Department of Forest, Kathmandu, Nepal, 2016

Table 2.2.21 : Protected Floral Species in Nepal

S.N.	Scientific Name	English Name	Local Name	Potential Use
I. Banned for Collection, Use, Transportation and Trade				
1	Dactylorhiza hatagirca	Orchid	Panchaunle	Tonic
2	Bark of Juglans regia Linn.	Walnut	Okharko bokra	Medicine
I(a) Banned for Export without identification and certificateion				
1	Neopicrorhizia scrophulariiflora(Pennell)		kutaki	
II. Banned for export outside the country without processing				
1	Abies spectabilis		Talispatra	Medicine
2	Cinnamomum glaucescens		Sugandakokila	
3	Nardostachys grandiflora	Spikenard	Jatamansi	Medicine
4	Rauwolfia serpentina	Rauwolf	Sarpagandha	Medicine
5	Taxus baccata subsp	Himalayan yew	Lauth salla	Medicine
6	Valeriana jatamansi	Valerian	Sugandhawal	Medicine
7	Rock exudate		Silajit	Medicine
III. Banned for felling, transportation and export foe commercial purpose*				
1	Dalbergia Latifolia Roxb	Cutch tree	Shatisaal	Medicine
2	Juglans regia Linn	Red Cotton tree	Okhar	Medicine
3	Pterocarpus marsupium	Indian Kino tree	Bijayasal	Timber
4	Shorea robusta	Common sal	Saal	Timber

*The restriction shall not apply for the trees complying to the conditions mentioned in Nepal Rajpatra (Part 5), Section 73, No. 38, Date B.S. 2080-08-07.

Floral Species Protected by Forest Act, 2076 in Nepal

Source: Department of Plant Resources, Floral Species Protected by Forest Act, 2076 in Nepal

Table 2.2.22 : Threatened Medicinal and Aromatic plants in Nepal

S.N.	Plant Species	Nepali Name	Threat Category	
			CAMP	IUCN
1	<i>Paphiopedilum</i> spp.	सुनगाभा/सुनाखरी	Appendex I	
2	<i>Rauvolfia serpentina</i> Benth. ex Kurz	सर्पगन्धा/चाँदमरुवा	Appendex II	
3	<i>Podophyllum hexandrum</i> Royle	लघुपत्र, वन भान्टा	Appendex II	
4	<i>Cyathea</i> spp.	रुख उन्चु/छत्रे	Appendex II	
5	Cycadaceae spp.	कलबल/थाकल	Appendex II	VU
6	Orchidaceae spp.	सुनगाभा/सुनाखरी/जीवन्ति	Appendex II	
7	<i>Dioscorea deltoidea</i> Wall.ex Griseb.	कुकुर तरुल/भ्याकुर	Appendex II	
8	<i>Euphorbia</i> spp.	सिँउडी/कनिके घाँस/वनमुली	Appendex II	
9	<i>Dalbergia</i> spp.	सिसौ/सतिसाल	Appendex II	
10	<i>Taxus contorta</i> Griff.	लौठसल्ला/सिन्गी	Appendex II	EN
11	<i>Taxus wallichiana</i> Zucc.	लौठसल्ला/वर्मे सल्ला	Appendex II	EN
12	<i>Nardostachys jatamansi</i> (D.Don) DC.	जटामसी/ भुत्ले	Appendex II	
13	<i>Magnolia hodgsonii</i> (Hook.f. & Thomson) H.Keng	भोटेचाँप/भालुकाठ	Appendex II	
14	<i>Gnetum montanum</i> Markgr.	भोटेहरा/पिप्ली	Appendex III	
15	<i>Magnolia hodgsonii</i> (Hook.f. & Thomson) H.Keng	भोटेचाँप/भालुकाठ	Appendex III	
16	<i>Meconopsis regia</i> G.Taylor	क्यासर	Appendex III	
17	<i>Podocarpus neriifolius</i> D.Don	गुन्सी	Appendex III	
18	<i>Tetracentron sinense</i> Oliv.	झरकोटे/किम्बुक	Appendex III	
19	<i>Cupressus cashmeriana</i> Royle ex Carrière	काठेधुपी		NT
20	<i>Ulmus wallichiana</i> Planch.	धमिना		VU
21	<i>Takakia ceratophylla</i> (Mitt.) Grolle			VU
22	<i>Diplocolea sikkimensis</i> Amakawa			EN
23	<i>Scaphophyllum speciosum</i> (Horik.) Hentschel, K. Feldberg, Bombosch, D.G. Long, Váňa & Heinrichs			
24	<i>Tritomaria ferruginea</i> (Grolle) Váňa			VU
25	<i>Abies spectabilis</i> (D.Don) Mirb.	तालिसपत्र		EN
26	<i>Paphiopedilum venustum</i> (Wall. ex Sims) Pfitzer	सुनाखरी	Appendex I	NT
27	<i>Cypripedium cordigerum</i> D.Don	सुनाखरी, जित्रे	Appendex II	EN
28	<i>Cypripedium elegans</i> Rchb.f.	सुनाखरी	Appendex II	VU
29	<i>Cypripedium himalaicum</i> Rolfe ex Hemsl.	सुनाखरी, खुजुक्पा	Appendex II	EN
30	<i>Gentiana kurroo</i> Royle	कारू		CR
31	<i>Citrus latipes</i> (Swingle) Tanaka			NT
32	<i>Dalbergia latifolia</i> Roxb.	सतिसाल		VU
33	<i>Pterocarpus marsupium</i> Roxb	बिजयसाल		NT
34	<i>Aconitum heterophyllum</i> Wall.	अतिस		EN
35	<i>Aconitum violaceum</i> Jacquem. ex Stapf	मधु विष		VU
36	<i>Buchwaldoboletus lignicola</i> (Kallenb.) Pilát	ध्यात्रे च्याउ		VU

S.N.	Plant Species	Nepali Name	Threat Category	
			CAMP	IUCN
37	Sorbus sharmae M.F.Watson, V.Manandhar & Rushforth			VU
38	Cinnamomum impressinervium Meisn.			VU
39	Ephedra gerardiana Wall. ex Klotzsch & Garcke	सोमलता		VU
40	Litsea panamanja (Buch.-Ham. ex Nees) Hook.f.			VU
41	Litsea doshia (D.Don) Kosterm.	काठे काउलो		NT
42	Aegle marmelos (L.) Corrêa	बेल		NT
43	Quercus oblongata D.Don			NT
44	Paris polyphylla Sm.	सतुवा		VU
45	Trillium govanianum Wall. ex D.Don	नक्कली सतुवा		EN
46	Ophiocordyceps sinensis	यासागुम्बा		VU
47	Quercus lamellosa Sm.	ठूलो फलाँट		NT
48	Impatiens serratifolia Hook.f.			VU
49	Dactylorhiza hatagirea (D.Don) Soó	पाँचऔले	Appendix II	EN
50	Anacyclus pyrethrum (L.) Lag.	अकरकरा		VU
51	Fritillaria cirrhosa D.Don	काकोली		VU
52	Butea peltita Hook.f. ex Prain			CR

Note: CR = Critically endangered, EN= Endangered, NT= Nearly threatened, VU= Vulnerable,

Source: Department of Plant Resources, Plants of Nepal

Table 2.2.23 : Ecosystems and Protected Areas in Nepal

Physiographic Zone	No. of Total Ecosystems	Types	Number of Ecosystems in Protected Areas
High Himal and High Mountain	38	37 Forest and 1 Glacier/ Snow/ Rock	30
Middle Mountain	53	52 Forest and 1 Cultivated	33
Siwalik	14	13 Forest and 1 Cultivated	5
Terai	12	10 Forest and 2 Cultivated	11
Others	1	Water bodies found in all zones except Siwalik	1
Total	118		80

Source: Ministry of Forest and Soil Conservation (National Biodiversity Strategy and Action Plan 2014-2020)

Table 2.2.24 : National Parks, Wildlife Reserves and Conservation Area of Nepal

S.N.	Protected Area	Year of Declaration	Area (sq. km)	Physiographic Zone	Conservation Focus
National Parks					
1	Chitwan National Park	1973	952.63	Tarai / Siwalik	Rhino , elephant, tiger , bison etc
2	Langtang National Park	1976	1710	High Mountain	Musk deer, and red panda
3	Rara National Park	1976	106	High Mountain	Musk deer, red panda and high altitude lake
4	Sagarmatha National Park	1976	1148	High Mountain	Musk deer, red panda, bear and snow leopard
5	She-Phoksundo National Park	1984	3555	High Mountain	Wild goat, blue sheep, musk deer, lake
6	Khaptad National Park	1984	225	Middle Mountain	Wild goat, blue sheep, spiritual site
7	Bardia National Park	1984	968	Tarai	Rhino, elephant, tiger, etc
8	Makalu Barun National Park	1991	1500	High Mountain	High altitude, endangered plants
9	Shivapuri Nagarjun National Park	2002	159	Mid hills	Conservation of capital city
10	Banke National Park	2010	550	Tarai	Tiger, elephant etc
11	Shuklaphanta National Park	1976	305	Tarai	elephant,tiger , deer,
12	Parsa National Park	1984	627.39		
Total			11806.02		
Wildlife Reserves					
1	Koshi Tappu Wildlife Reserve	1976	176	Tarai	Wild buffalo and migratory birds
Total			176		
Hunting Reserve					
1	Dhorpatan Hunting Reserve	1987	1325	Middle Mountain	Blue sheep
Total			1325		
Conservation Area					
1	Annapurna Conservation Area	1992	7629	Middle Mountain	endemic plants and mountain
2	Kanchanjunga Conservation Area	1997	2035	Middle Mountain	endemic plants and mountain
3	Manasalu Conservation Area	1998	1663	High Mountain	endemic plants and mountain
4	Krishnasar Conservation Area	2009	16.95	Tarai	blackbuck
5	Gaurisankar Conservation Area	2010	2179	High Mountain	Musk deer, and red panda etc.
6	Api Nampa Conservation Area	2010	1903	High Mountain	Musk deer, and red panda etc.
Total			15425.95		
Grand Total			28732.97		

Source : Department of National Parks and Wildlife Conservation

Table 2.2.25 : Number of Districts with Buffer Zone of Nepal

S.N.	Buffer zones	Declared Year	Area (sq. km)	District
1	Chitwan National Park	1996	729.37	4
2	Bardia National Park	1996	327	2
3	Langtang National Park	1998	420	3
4	Shey Phoksundo National Park	1998	1349	2
5	Makalu Barun National Park	1999	830	2
6	Sagarmatha National Park	2002	275	1
7	Koshi Tappu Wildlife Reserve	2004	173	3
8	Shuklaphanta National Park	2017	243.5	1
9	Parsa National Park	2017	285.3	3
10	Rara National Park	2006	198	2
11	Khaptad National Park	2006	216	4
12	Banke National Park	2010	343	4
13	Shivapuri Nagarjun National Park	2016	118.61	
Total			5507.78	31

Source : Department of National Park and Wildlife Conservation

Table 2.2.26 : Changes in status of community forestry in between 2008 - 2023

Categories	2008	2013 (June)	2018 (June)	2023
User Groups	14431	18133	22266	22415
Households	1660000	2237195	2907871	2927329
Forest Area (ha.)	1230000	1700048	2237670.5	2272356

Source : Ministry of Forest and Soil Conservation, FECOFUN

Table 2.2.27 : Major Botanical Garden of Nepal

S.N.	Name of Garden	Location and District	Area (ha.)	Elevation (masl)	Established Year(B.S.)
1	National Botanical Garden	Godawari, Lalitpur	82	1515	2019
2	Maipokhari Botanical Garden	Maipokhari, Ilam	10.4	2121	2040
3	Dhanush Botanical Garden	Dhanushadham, Dhanusha	105	107	2056
4	Brindaban Botanical Garden	Hetauda, Makawanpur	57	400	2019
5	Mountain Botanical Garden	Daman, Makawanpur	65	2320	2019
6	Tistung Botanical Garden	Tistung, Makawanpur	45	1900	2019
7	Dhakeri Botanical Garden	Dhakeri, Banke	5.29	170	2056
8	Mulpani Botanical Garden	Kapurkot, Salyan	5.5	1420	2056
9	Dhitalchor Botanical Garden	Jumla	4.51	2500	2047
10	Dewahriya Botanical Garden	Dhangadhi, Kailali	100	170	2056
11	World Peace Biodiversity Garden	Pokhara, Kaski	164.76	775-1078	2070

Source: Department of Plant Resource

Table 2.2.28 : Central Zoo (Sadar Chidiya Khana) of Nepal

Location : Jawalakhel, Lalitpur

Area: 118 Ropani

Established Year : 1932 A.D.

Fiscal Year	Mammals		Birds		Reptiles		Fishes		Total	
	Species	Number	Species	Number	Species	Number	Species	Number	Species	Number
2008/09	31	212	52	270	10	23	17	364	110	869
2009/10	33	221	51	232	10	24	14	418	108	895
2010/11	34	197	58	434	10	24	14	199	116	854
2011/12	35	207	57	359	11	27	16	281	119	874
2012/13	36	196	53	330	11	26	16	345	116	897
2013/14	36	214	52	385	11	34	17	439	116	1072
2014/15	35	218	52	383	10	36	17	313	114	950
2015/16	34	253	48	462	10	32	13	222	105	969
2016/17	33	287	56	365	11	35	13	220	113	907
2017/18	34	288	57	460	9	32	27	162	127	942
2018/19	34	267	55	719	10	33	18	50	117	1069
2019/20	33	276	54	745	10	44	15	44	112	1109
2020/21	36	299	51	620	10	48	15	41	112	1008
2021/22	38	307	50	624	10	58	15	37	113	1026
2022/23	38	287	50	745	10	96	12	36	110	1164

Source: Central Zoo, Lalitpur.

Table 2.2.29: Snow leopard potential habitat in protected areas, blocks and landscapes

Protected Area	Core Area (km ²)	Buffer Zone (km ²)	Total Area (km ²)	Potential Habitat (km ²)	Three landscapes with estimated potential habitats (km ²)**
Kangchenjunga Conservation Area	2035	-	2035	698 (B1)	Eastern - 2900
Makalu-Barun National Park	1500	830	2330	1073 (B2)	
Sagarmatha National Park	1148	275	1423		
Gaurishankar Conservation Area	2179	-	2179	1129 (B3)	
Langtang National Park	1710	420	2130		
Manaslu Conservation Area (MCA)	1663	-	1663	5470 (B4)	Central (MCA to western part of ACA) - 5470
Annapurna Conservation Area (ACA)	7629	-	7629		
Dhorpatan Hunting Reserve	1325	-	1325	4445 (B5)	Western (Tschharka Pass in the east to ANCA in the west) - 4445
Shey-Phoksundo National Park	3555	1349	4904		
Rara National Park	106	198	304		
Khaptad National Park	225	216	461		
Api-Nampa Conservation Area (ANCA)	1903	-	1903		
Total	24978	3288	28266	12815	12815

Source: Revised SLCAP, 2012, Department of National Parks and Wildlife Conservation

Table 2.2.30: Protected Mammals of Nepal with potential distribution area and estimated population

SN	Name of Species	Potential Distribution	Estimated population
1	Ailurus fulgens	LNP, SNP, KCA, MBNP	317-582
2	Hyaena hyaena	BNP, SPNP, CNP, KtWR	NA
3	Bos Mutus	Limi Valley	NA
4	Pantholops hodgsoni	ACA, SPNP, Humla	NA
5	Ovis ammon hodgsoni	ACA, Mustang, Manang	77
6	Bubalus arnee	KtWR	441
7	Bos gaurus	PNP, CNP, Trijuga valley	NA
8	Cervus duvaucelii	SPNP, BNP	2325
9	Moschus chrysogaster	SNP, LNP	NA
10	Sus salvanius		NA
11	Rhinoceros unicornis	CNP, BNP, PNP, SPNP	645
12	Elephas Maximus	BNP, CNP, KtWR, PNP, SPNP	255-265 (+150 domestic)
13	Panthera Unica	ACA, MCA, SNP, SPNP, KCA, LNP, MBNP	3921-6290
14	Panthera tigris tigris	BNP, CNP, PNP, BNP, SPNP and some other Tarai districts	235
15	Pardofelis nebulosa	ACA, CNP, KCA, LNP, MBNP, SNNP, RNP, Ghodaghodi lake	300-500
16	Felis lynx	ACA, DHR, SPNP	NA
17	Prionailurus bengalensis	KNP, SPNP, LNP, MBNP, SNNP, CNP	NA
18	Prionodon pardicolor	eastern terai and lower hilly regions	NA
19	Ursus arctos	ACA, SNP, MCA	NA
20	Canis lupus	ACA, MCA, KCA, DHR	30-50
21	Platanista gangetica	Karnali, Geruwa, Mohana, Bhada, Koshi and Narayani river systems	<20
22	Caprolagus hispidus	CNP, BNP, SPNP	NA
23	Manis crassicaudata	southern and western lowlands Nepal	NA
24	Macaca assamensis	ACA, MBNP, LNP, SNNPM	300 mature
25	Antelope cervicapra	KCA, SPNP	328
26	Tetracerus quadricornis	PNP, CNP, BNP, BrNPNA	NA

Source : Department of National Parks and Wildlife Conservation

Table 2.2.31: Estimated snow leopard populations in three landscapes in Nepal

Landscapes	Protected Areas	Density/100 (km ²)	Limits	
			Lower Limits	Upper Limits
Eastern	KCA	2.6	13	21
	SNP	1.8	2	5
Central	ACA & MCA	1.5	6	24
Western	SPNP & ANCA	3.2	280	349
			301	400

Source: WWF Nepal, 2009 in revised SLCAP (2005-2015), 2012, Department of National Parks and Wildlife Conservation

Table 2.2.32: Potential habitat and population estimation of red panda in Nepal

S.N.	Sub Populations	Area (Km ²)		Populations	
		Confirmed	Possible	Confirmed	Possible
1	Annapurna-Manaslu	4.18	84.23	2	34
2	Darchula	-	-	-	-
3	Dhorpatan	89.05	434.92	36	174
4	Gauri Shankar	45.17	114.15	18	46
5	Kanchenjunga	111.91	160.76	45	64
6	Khaptad	3.57	211.22	1	84
7	Langtang	47.83	125.7	19	50
8	Rara	55.63	1,099.16	22	440
9	Sagarmatha	73.71	150.96	29	60
10	Sankhuwasabha East	101.88	119.01	41	41
11	Sankhuwasabha West	59.46	152.02	24	48
	Total	592.39	2,652.13	237	1,061

Source :Red Panda Field Survey and Protocol for Community Based Monitoring,Ministry of Forest and Soil Conservation

Table 2.2.33: Forest resources and forest areas of Nepal

Forest area and resources	Statistics
Total Forest Area	61.7 lakh hectares
Shrub area	5.4 lakh hectares (3.62 percent)
Total stem volume (DBH>=10cm, Forest)	982 million 3164.76 thousand m ³ /ha
Sal species among total stem volume	19.28 percent(31.76m ³ /ha)
Total Biomass (Air-dried) Around ground tree (DBH>=10cm) biomass	1159.65millions tonnes (194.51ton/ha)
Average stem volume	165 cubic meters per hectare
Average number of trees	430 per hectare
Number of community forests	19916
Handover area of community forest transfer(Hactare)	1879998
Numbe of households involved in community forest	2546760
Number of leasehold forest (poverty)	7509
Area of leasehold Forest(Hectare)	43293
Household number attached to the forest	72198
Number of protected forest	10
Area of protected forest(Hectare)	190809
Number of Partnership forest	30
Area of Partnership forest (Hectare)	73364
Number of households benefited from partnership	827225
Beneficiaries population from partnership forest	4262516
Number of religius forests	36
Area of religious forests(Hectare)	2056
Number of private forest	2458
Area of Private Forest(Hectare)	2360

Source : Forest department/Forest research and survey department

Table 2.2.34: Forest Coverage by Province

Province	Total Area (ha)	Forest Area (ha)	Districts Included	Municipalities Covered
Koshi	2,590,500.00	1,134,250.00	14	137
Madhesh	966,100.00	263,630.00	8	136
Bagmati	2,030,000.00	1,090,880.00	13	119
Gandaki	2,150,400.00	817,290.00	11	85
Lumbini	2,228,800.00	974,380.00	12	109
Karnali	2,798,400.00	1,183,400.00	10	79
Sudurpashchim	1,987,400.00	1,147,110.00	9	88
Total	14,751,600.00	6,610,940.00	77	753

Source: Ministry of Forest and Environment

Table 2.2.35 : Ramsar Site of Nepal

S.N.	Sites	Zone	Province	Altitude (m)	Area (ha)	Date	
						Designation	Ratification
1	Koshi Tappu	Terai, lowland	2	90	17,500	12/17/1987	8/13/2003
2	Ghodaghodi Lake Area	Terai, lowland	7	205	2,563	8/13/2003	8/13/2003
3	Jagadishpur Reservoir	Terai, lowland	4	195	225	8/13/2003	8/13/2003
4	Beeshazari and Associated Lakes	Terai, lowland	3	285	3,200	8/13/2003	8/13/2003
5	Rara Lake	Himalayas	6	2990	1,583	9/23/2007	9/23/2007
6	Phoksundo Lake	Himalayas	6	3610	494	9/23/2007	9/23/2007
7	Gosaikunda and Associated Lakes	Himalayas	3	4700	1,030	9/23/2007	9/23/2007
8	Gokyo and Associated Lakes	Himalayas	3	5000	7,770	9/23/2007	9/23/2007
9	Mai Pokhari	Midhills	1	2100	90	10/20/2008	10/20/2008
10	Lake Cluster of Pokhara Valley	Midhills	4	827	26,106	2/2/2016	2/2/2016

Source : Ramsar Information Sheet 2017, MoFE

Table 2.2.36: Extent of Wetlands in Nepal

S.N.	Wetlands	Estimated Area (ha)	Percentage (%)
1	Rivers	395000	48.2
2	Lakes	5000	0.6
3	Reserveoirs	1500	0.2
4	Marshy Lands	12500	1.5
5	Ponds	7277	0.9
6	Irrigated Paddy Fields	398000	48.6
	Total	819277	100

Source: Directorate of Fisheries Development, Kathmandu, Nepal (DoFD 2012)

Table 2.3.1 (a): Monthly Average PM 2.5 in 2021 at different stations.

Stations	Month	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dece	Total
Bhimdatta	Monthly Average PM 2.5 (µg/m ³)	81.55	103	52.41							44.46			
	Total days with valid data	26	21	23							21	14		103
	No of days exceeding National Standard	23	21	20							13	14		91
Dhangadhi	Monthly Average PM 2.5 (µg/m ³)		123	103.62	108.79	40.14	31.7				30.37	49.92	44.5	
	Total days with valid data		13	31	30	31	21				23	30	31	210
	No of days exceeding National Standard		13	31	29	14	8				2	26	19	42
Rara	Monthly Average PM 2.5 (µg/m ³)		21.1	41.24	56	10.83	9.43	8.64	4.67	4.09	7.91	5.3	5.08	
	Total days with valid data	4	28	31	30	29	24	27	28	18	27	30	18	294
	No of days exceeding National Standard	1	1	16	14									32
Nepalganj	Monthly Average PM 2.5 (µg/m ³)	91.07	76.5	56.45	66.83									
	Total days with valid data	31	19	19	16	10								95
	No of days exceeding National Standard	30	16	16	13	7								82
Dang	Monthly Average PM 2.5 (µg/m ³)	67.5	68.6	37.51	47.28	22.62	15.9	12.48		8.68			44.24	
	Total days with valid data	31	28	30	29	31	25	28	15	28			27	272
	No of days exceeding National Standard	27	25	8	19	2	1	1					13	96
Gandki Boarding School, Pokhara	Monthly Average PM 2.5 (µg/m ³)	56.76	48.3	76.34	75.45			27.09	7.69		25.72	89.64		
	Total days with valid data	27	28	31	28			16	31	4	30	21	6	222
	No of days exceeding National Standard	25	19	31	23			6		2	3	19	6	34
Pokhara University, Pokhara	Monthly Average PM 2.5 (µg/m ³)		46.8	63.18	65.33	16.91	12.9	7.76	7.57	8.45				
	Total days with valid data	11	28	31	29	30	11	23	31	14				208
	No of days exceeding National Standard	11	20	25	19									75
Bhaisipati	Monthly Average PM 2.5 (µg/m ³)	74.12	58.9	113.05	84.57	29.87	18.5	12.53	11.42	13.96	21.68			
	Total days with valid data	31	18	31	30	31	30	29	28	30	27	6	13	302
	No of days exceeding National Standard	31	15	31	27	9					2			115
Bhaktapur	Monthly Average PM 2.5 (µg/m ³)	82.57	72.6	103.15	76.76		13.6	12.24	11.76		22.78			
	Total days with valid data	31	28	31	29	6	19	31	31	3	30			239
	No of days exceeding National Standard	31	28	31	26	5								121
Ratnapark	Monthly Average PM 2.5 (µg/m ³)	95.09	67.1	62.19	87.22	36.91	22.3	15.93	15.49	17.19			55.76	
	Total days with valid data	30	28	29	29	31	30	27	31	30	4	11	29	309
	No of days exceeding National Standard	30	26	20	26	15					2	11	25	153
Tribhuvan University	Monthly Average PM 2.5 (µg/m ³)		101	101.66	75.61	24.8	16.3	13.6	12.85	15.72	26.64	54.6	82.23	

Stations	Month	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dece	Total
	Total days with valid data		17	28	25	31	30	31	30	30	27	30	31	310
	No of days exceeding National Standard		17	28	21	1					3	24	30	124
Simara	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)					52.29						113.4	66.42	
	Total days with valid data		8	10	28	28	14				4	29	31	148
	No of days exceeding National Standard		8	10	24	5	2				4	29	20	102
Janakpur	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)		88	44.62	26.4	11.8	7.97	5.47	5.09	6.18	18.73	38.83	50.73	
	Total days with valid data	14	28	31	30	31	30	30	31	30	29	30	28	340
	No of days exceeding National Standard	14	28	20	3							10	17	92
Biratnagar	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	131.32			44.73	22.65	13.2	9.62	34.06		57.91	117.8	100.96	
	Total days with valid data	30	2	8	30	25	29	26	20	8	31	30	30	269
	No of days exceeding National Standard	30	2	8	17				8		19	30	28	142
Jhumka	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)		67.9	52.02	24.67									
	Total days with valid data	11	27	31	30	3								102
	No of days exceeding National Standard	11	27	26	6									70
Dhankuta	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	64.54	70.1	72.01	53.8	27.73	19.4	12.18	11.68		25.53	38.56	30.53	
	Total days with valid data	31	28	31	30	31	30	31	31	10	27	30	29	339
	No of days exceeding National Standard	29	26	30	25	6	2				4	10	2	134
Damak	Monthly AveragePM 2.5($\mu\text{g}/\text{m}^3$)	12	104	85.18	54.54	23.1	17.6	12.67	14.02	14.04			128.59	
	Total days with valid data	12	27	31	25	5	30	31	25	20			30	236
	No of days exceeding National Standard		27	31	22	1						11	29	122

Source : Department of Environment, 2023

Table 2.3.1 (b) : Monthly Average PM 10 in 2021 at different stations

Stations	Month	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec	Total
Bhimdatta	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	105.76	178	118.24							83.3			
	Total days with valid data	24	21	23							21	14		103
	No of days exceeding National Standard	6	19	9							2	9		45
Dhangadhi	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)		219	243.49	299.49	91.53	60.2				43.22	59.15	49.91	
	Total days with valid data		13	31	20	31	21				23	30	31	200
	No of days exceeding National Standard		13	31	19	9	2							74
Rara	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)		29.3	62.15	73.33	14.53	12.7	11.43	5.84	4.81	9.36	7.34	7.08	
	Total days with valid data	9	28	31	30	29	25	29	29	20	27	30	19	301
	No of days exceeding National Standard	4		2	7									9
Nepalganj	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	94.89	78.8	79.06	89.73									
	Total days with valid data	31	19	19	16	10								95
	No of days exceeding National Standard	4	3		2									9
Dang	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	100.21	99.9	44.94	80.06	34.59	20.6	16.15		10.66			63.21	
	Total days with valid data	31	28	31	29	31	28	30	15	29			27	279
	No of days exceeding National Standard	3	9		3								15	30
Gandki Boarding School, Pokhara	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	67.86	58.4	90.55	97.87			30.16	10.55		29.31	96.07		
	Total days with valid data	27	28	31	28			16	31	4	31	21	6	222
	No of days exceeding National Standard			6	7							3	4	20
Pokhara University, Pokhara	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)		61.3	82.61	86..83	22.26	18.3	9.97	8.77	10.86				
	Total days with valid data	11	28	31	29	30	11	23	31	14				208
	No of days exceeding National Standard			4	10									14
Bhaisipati	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	101.44	86.9	211.26	175.65	41.97	29.4	17.42	17.42	25.04	34.27			
	Total days with valid data	31	18	31	30	31	30	29	26	30	27	6	13	302
	No of days exceeding National Standard	8	4	27	21									60
Bhaktapur	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	149.8	129	197.06	163.69		19.8	16.91	15.77		33.89			
	Total days with valid data	31	28	31	29	6	19	31	31	3	30			239
	No of days exceeding National Standard	30	21	27	22									100
Ratnapark	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	144.84	102	114.01	165.08	53.07	34	25.78	30.11	32.02			82.69	
	Total days with valid data	30	28	29	29	31	30	27	31	30	4	11	27	309
	No of days exceeding National Standard	18	8	13	20							1	2	62
Tribhuvan University	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)		149	159.06	135.26	41.4	33.2	21.66	16.78	24.21	45.47	89.72	129.26	

Stations	Month	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec	Total
	Total days with valid data		17	28	25	31	30	31	30	30	27	30	31	310
	No of days exceeding National Standard		15	21	14							3	18	71
Simara	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)				168	52.29						113.4	68.42	
	Total days with valid data	8		10	28	26	14				4	29	31	148
	No of days exceeding National Standard	4		10			21				1	12	3	51
Janakpur	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)													
	Total days with valid data													
	No of days exceeding National Standard													
Biratnagar	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	145.65			83.65	31.63	16.4	11.53	35.62		67.67	140.6	111.65	
	Total days with valid data	30	2	8	30	25	29	26	20	8	31	30	30	269
	No of days exceeding National Standard	24	2	6	3						3	23	11	72
Jhumka	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)													
	Total days with valid data													
	No of days exceeding National Standard													
Dhankuta	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)	90.04	111	105.12	95.74	34.71	24.6	14.25	13.25		29.91	46.67	39.52	
	Total days with valid data	31	28	31	30	31	30	31	31	10	27	30	29	339
	No of days exceeding National Standard	3	13	10	6									32
Damak	Monthly Average PM 10($\mu\text{g}/\text{m}^3$)		183	162.95	113.48		22.5	15.69	17.73	19.38	31.93			
	Total days with valid data		27	31	25		30	31	25	20	18			207
	No of days exceeding National Standard		26	22	10									58

Source : Department of Environment, 2023

Table 2.3.1 (c) :Monthly Average Total suspended particulate Matter (TSPM) in 2021 at different stations

Stations	Month	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec	Total
Bhimdatta	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	139.2	337	301.33							195.24			
	Total days with valid data	24	21	23							21	24		103
	No of days exceeding National Standard	2	20	19							8	9		58
Dhangadhi	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)			492.57	681.97	217.41	127				63.78	76.13	60.38	
	Total days with valid data		12	31	29	31	21				23	30	31	208
	No of days exceeding National Standard		10	31	29	14	4							88
Rara	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)		50.4	62.15	120.91	19.16	19.2	15.34	7.75	6.13	11.35	12.58	12.19	
	Total days with valid data	4	28	31	30	29	26	30	29	20	27	30	19	303
	No of days exceeding National Standard				5									5
Nepalganj	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	94.89	78.9	79.06	89.73									
	Total days with valid data													
	No of days exceeding National Standard													
Dang	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	152.11	156	73.23	183.58	58.95	33.3	19.26		14.07			86.53	
	Total days with valid data	31	28	30	29	31	26	28		28			27	258
	No of days exceeding National Standard	1	2		5									8
Gandki Boarding School, Pokhara	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	97.89	94.3	135.32	166.95			35.21	14.07		36.41	115		
	Total days with valid data	27	28	31	28			16	31	4	30	21	6	222
	No of days exceeding National Standard			2	2									4
Pokhara University, Pokhara	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)		93.8	129.24	146.72	31.94	26.7	13.2	10.29	14.44				
	Total days with valid data	11	28	31	29	30	11	23	31	14				208
	No of days exceeding National Standard			3	3									6
Bhaisipati	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	170.8	177	411.01	356.26	70.07	57.4	31.34	35.13	54.7	64.22			
	Total days with valid data	31	18	31	30	31	30	29	26	30	27	6	13	302
	No of days exceeding National Standard	5	5	26	22									58
Bhaktapur	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	246.97	266	421.86	341.66		36.2	30.38	26.59		45.5			
	Total days with valid data	31	28	31	29	6	19	31	31	3	30			239
	No of days exceeding National Standard	25	20	31	22									98
Ratnapark	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	248.14	216	251.97	354	94.43	65.8	61.39	79.08	81.09			149.75	
	Total days with valid data	30	28	29	29	31	30	27	31	30	4	11	29	309
	No of days exceeding National Standard	18	8	13	20							1	2	62

Stations	Month	Jan	Feb	Mar	April	May	June	July	August	Sept	Oct	Nov	Dec	Total
Tribhuvan University	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)		247	275.81	257.22	65.68	57.1	40.26	24.58	42.89	85.8	162.3	205.24	
	Total days with valid data		17	27	25	31	30	31	30	30	27	30	31	309
	No of days exceeding National Standard		9	18	15								8	54
Simara	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)				328.54	84.16						128.1	79.23	
	Total days with valid data	8		10	26	26	14				4	29	31	148
	No of days exceeding National Standard	4		10	21						1	12	3	51
Janakpur	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)													
	Total days with valid data													
	No of days exceeding National Standard													
Biratnagar	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	160.76			185.76	45.47	21.1	13.74	36.91		82.11	172.8	130.46	
	Total days with valid data	31	2	8	30	25	29	26	20	8	31	30	30	270
	No of days exceeding National Standard	1		7	6							2		16
Jhumka	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)		101	108.67	49.92									
	Total days with valid data													
	No of days exceeding National Standard													
Dhankuta	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)	161.17	231	221.91	244.81	51.09	36.2	17.48	15.49		42.75	73	70.78	
	Total days with valid data	31	28	31	30	31	30	31	31	10	27	30	29	339
	No of days exceeding National Standard		13	13	18									44
Damak	Monthly Average TSPM ($\mu\text{g}/\text{m}^3$)		298	288.34			30.1	19.98	20.16	27.91	43.03			
	Total days with valid data		27	31			30	31	25	20	18			182
	No of days exceeding National Standard		25	20										45

Source : Department of Environment, 2023

Table 2.3.2 : PM₁₀, TSP, SO₂, NO₂, Co and pb Measurements

(Average Time 8 hrs.)

Major city (Site)	Altitude (masl)	Date	Time	Parameters				
				PM ₁₀	TSP	NO ₂	Co	pb
				(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)	(µg/m ³)
Pokhara	827	26/11/2000	10:00-18:00	90.2	118.5	9.1	NA	0.11
Birganj	91	30/11/2000	10:00-18:00	482.9	567.8	23	378	0.27
Biratnagar	125	4/12/2000	08:00-16:00	961.4	1024.3	24.5	1145.5	0.24
Janakpur	90	7/11/2000	11:00-19:00	1820.9	2019.5	20.7	859.11	0.53
Narayanghat	256	10/12/2000	08:00-16:00	196.3	260.3	14.8	NA	0.04
Butawal	205	19/12/2000	07:00-15:00	1076.6	1150.2	21.38	229.09	0.09
Bhairahawa	110	22/12/2000	07:00-15:00	864.8	926.41	23.28	1145.5	0.13
Nepalganj	144	26/12/2000	07:00-15:00	2104.8	2222.5	17.78	1445.5	0.23
Mahendranagar	176	29/12/2000	08:00-16:00	355.05	378.54	17.14	NA	0.04

Note : Data were collected using high volume air sampler.

Source: Nepal Health Research Council and Nepal Environmental and Scientific Services (P) Ltd., (Transport Sector Air Pollution Survey, at Nine Major Urban Cities of Nepal, the World Conservation Union, Sept, 2001).

Table 2.3.3 : Mineral Contaminants of Drinking Water, 2016/17

Parameters	Unit	Maximum	Minimum	Mean
pH(25°C)	-	8.25	5.7	6.73
Total dissolved solid (25°C)	ppm			
Ammonia(Qlt- test)	-			
Sulphate (Qlt- test)	-	-	-	-
Hardness as CaCO ₃	ppm	63.4	4.0	26.52
Alkalinity as HCO ₃	ppm	1684.34	23.91	63.53
Iron	ppm	< 0.2	< 0.2	< 0.2
Chloride	ppm	35.36	2.9	5.77
Calcium	ppm		-	-
Magnesium	ppm	-	-	-
Zinc (mg/l)	ppb	-	-	-
Lead (mg/l)	ppb	-	-	-
Cadmium	ppb			
Arsenic	ppb			
Microbiological Analysis of Water				
Micro-organisms				
Total Mesophilic Count	per ml	2920	Absent	73
Coliform group count	per 100 ml	>1600	Absent	5
Faecal Coliform	per 100 ml	Absent	Absent	Absent
E. Coli	per 100 ml	Absent	Absent	Absent
Bacillus	per ml	-	-	-
Yeast and Mold	per ml	Absent	Absent	Absent
Salmonella spp	per 25 ml	Absent	Absent	Absent
Physical Appearance				

ND : Not defined.,ppb:parts per billion,ppm:parts per million,Qlt=Qualitative test

Source : Department of Food Technology and Quality Control -2016/17.

Table 2.3.4 : Ground Water Quality of (Shallow Tube) Aquifers in the East Tarai

Site (District)	Chloride (mg/l)	Ammonia (mg/l)	Nitrate (mg/l)	Iron (mg/l)	Manganese (mg/l)	Coliform (cfu/100 ml)
Panchgachhi (Jhapa)	15.4	0.7	0.2	6	0.8	1.1
Baijanathpur (Morang)	16.6	0.5	0.2	4.5	0.5	15.9
Bayarban (Morang)	17.6	0.5	2.4	6	0.6	0.5
Takuwa (Morang)	21	1	1	10.4	0.4	45.9
Shreepur Jabdi (Sunsari)	37.2	0.9	0.2	8	0.6	25.5
Bandipur (Sunsari)	195.6	0.7	3.5	0.4	0.4	1
Naktiraipur (Saptari)	45.6	1.2	0.3	12	1.3	16
WHO Guideline	250	1.24	10	3	0.5	nil

Source: Environment and Public Health Organization 1999 and United Nations Environment Program, 2000.

Table 2.3.5 : Water Quality of Major Rivers During Dry Season

Development Region	Location / River	pH	TDS (mg/l)	DO (mg/l)	BOD (mg/l)
Eastern	Mechi	8.3	30	8.9	1.8
	Kankai	7.7	60	8.7	2
	Arun	6.2	200	9.1	2.1
Central	East Rapti at Sauraha	7.8	213	8.7	2.5
Western	Seti at Ramghat	8.2	222	9.3	2
Mid- Western	Bheri at Chatagaon	7.8	208	9.3	1.1
Far -Western	Karnali at Chisapani	7.8	264	10.5	1.5
	Mahakali at Pancheswor	8.8	110	5	2
WHO Guideline		6.5-8.5	100	>5.0	3

Source: Department of Hydrology and Meteorology, 2018

Table 2.3.6 : Summary of Known Arsenic Occurrence in Tarai Districts, FY 2010/11

S.N.	District	Tube wells by arsenic concentration levels							
		0-10ppb		11-50ppb		>50ppb		Total	
		Number	%	Number	%	Number	%	Number	%
1	Banke	23796	97.01	568	2.32	166	0.68	24530	2.26
2	Bara	34444	89.26	2689	6.97	1456	3.77	38589	3.56
3	Bardiya	38243	89.15	2484	5.79	2170	5.06	42897	3.96
4	Chitwan	57232	99.74	104	0.18	46	0.08	57382	5.29
5	Dang	26040	99.26	153	0.58	41	0.16	26234	2.42
6	Dhanusa	54388	96.21	1724	3.05	419	0.74	56531	5.22
7	Jhapa	113077	99.34	699	0.61	53	0.05	113829	10.50
8	Kailali	74357	88.30	7009	8.32	2839	3.37	84205	7.77
9	Kanchanpur	47633	88.90	4365	8.15	1580	2.95	53578	4.94
10	Kapilbastu	36031	90.76	2508	6.32	1160	2.92	39699	3.66
11	Mahottari	33546	98.91	341	1.01	29	0.09	33916	3.13
12	Morang	109653	98.12	1950	1.74	155	0.14	111758	10.31
13	Nawalparasi	24136	76.20	3836	12.11	3704	11.69	31676	2.92
14	Parsa	26550	92.13	1598	5.54	671	2.33	28819	2.66
15	Rautahat	39351	80.74	8305	17.04	1084	2.22	48740	4.50
16	Rupandehi	69950	96.21	2283	3.14	470	0.65	72703	6.71
17	Saptari	53070	94.65	2445	4.36	557	0.99	56072	5.17
18	Sarlahi	42905	85.02	6952	13.78	609	1.21	50466	4.66
19	Siraha	38608	84.66	5823	12.77	1172	2.57	45603	4.21
20	Sunsari	63903	95.86	2343	3.51	418	0.63	66664	6.15
Total		1006913	92.90	58179	5.37	18799	1.73	1083891	100.00

Source: Department of Water Supply and Sewerage.

Table 2.3.7 : Noise Level at Different Areas

(dBA)

Traffic Area	Day Hour			Night Hour	
	Nepal Observed	WHO Guideline	Indian Guideline	Nepal Observed	Indian Guideline
High Traffic Area		70			
Kalanki, Kathmandu	74			70	
Shahidgate, Kathmandu	67			69	
Putalisadak, Kathmandu	75			69	
Maitighar, Kathmandu	71			70	
TU Gate, Kirtipur, Kathmandu	58			58	
Lagankhel, Lalitpur	70			70	
Satdobato, Lalitpur	70			71	
Kupandol, Lalitpur	77			75	
Suryabinayak, Bhaktapur	71			81	
Thimi Bus Stop, Bhaktapur	65			53	
Ramananda Chowk, Janakpur	68			62	
Commercial Cum Residence Area			64		55
Asan Chowk, Kathmandu	74			67	
Naya Bazar, Kirtipu, Kathmandu	64			62	
Manbhawan, Lalitpur	71			67	
Bhanu Chowk, Janakpur	70			67	

Traffic Area	Day Hour			Night Hour	
	Nepal Observed	WHO Guideline	Indian Guideline	Nepal Observed	Indian Guideline
Commercial Cum Tourist Area			65		55
Thamel Chowk, Kathmandu	75			61	
Darbar Squar, Bhaktapur	59			50	
Mangal Bazar, Lalitpur	69			59	
Janaki Mandir, Janakpur	73			70	
Old Residence Area					45
Lagan, Kathmandu	68			67	
Panga, Kirtipur, Kathmandu	60			57	
Bhatkepati, Kirtipur, Kathmandu	52			60	
Pimbhal, Lalitpur	57			51	
Katunje, Bhaktapur	52			65	
Bhairab Mandir, Bhaktapur	67			51	
Maharaj Sagar, Janakpur	58			61	
New Residence Area			55		45
Samakhushi, Kathmandu	55			60	
Sano Thimi, Bhaktapur	62			62	
Sanitar, Bhaktapur	60			53	
Sainbu, Lalitpur	45			42	
Khumaltar, Lalitpur	53			54	
Industrial Area		70	75		70
Balaju Yantra Shala, BID	78			70	
Chirag Foam Ind. Pvt. Ltd., BID	63			54	
Balaju Industrial Gate, BID	74			68	
Supreme Textile, PID	61			58	
Himal Tents Pvt. Ltd., PID	61			56	
Patan Industrial Gate, PID	70			70	

Source: Nepal Health Research Council and World Health Organization, Assessment of Noise Pollution and Development of Criteria for its Prevention and Control, June 2003.

Table 2.3.8: Mercury in Rain Water

SN	Date of Sampling	Location	Concentration (ng/m3)
1	Jan-27-2020	DoEnv	30
2	Feb-16-2020	DoEnv	14
3	Jan-20-2021	DoEnv	39
4	Feb-1-2021	SLS	5.8
5	Apr-15-2021	UCI	2.6
6	Oct-3-2021	DoEnv	12
7	Oct-9-2021	HCI	1.4
8	Nov-10-2021	DDC	1.4
9	Nov-10-2021	KLS	5.6
10	Feb-19-2022	PLS	5.2
11	May-19-2022	HCI	2.1

SN	Date of Sampling	Location	Concentration (ng/m3)
12	Aug-11-2022	SLS	130
13	Nov-1-2022	DoEnv	56
14	Jan-3-2023	DoEnv	60
15	Jan-3-2023	DoEnv	51
16	Jan-15-2023	BMX	1.2
17	Jan-16-2023	DDC	1.6
18	June-19-2023	BLS	3.7

DoEnv: Department of Environment; **SLS:** Sisdol Landfill Site; **UCI:** United Cement Industry; **HCI:** Hongshi Cement Industry; **DDC:** Devghat Dham Chitwan; **KLS:** Karautedanda Landfill Site; **PLS:** Pokhara Landfill; **BMC:** Bharatpur Metropolitan City; **BLS:** BanchareDanda Landfill Site

Source: Department of Environment, 2023

Table 2.3.9: Mercury in Ambient Air

S.N.	Time of Sampling	Concentration (ng/L)
1	July 29,2020	47.56
2	Aug 28,2020	152.18
3	Sep 13,2020	58.01
4	June 11,2021	68.07
5	June14,2021	143.02
6	July 16,2021	179.96
7	Sep 2,2021	542.48
8	Sep 7,2021	760
9	Dec 29,2021	592.52
10	Feb 1,2022	113.13
11	May 20,2022	374.66
12	May 25,2022	67.71
13	June 1,2022	133.04
14	June 6,2022	194.96
15	July 4,2022	15.35
16	Sep 8,2022	126.69
17	Sep 20,2022	188.69
18	April 30,2023	812.67
19	May 14,2023	940.71

Source: Department of Environment, 2023

CHAPTER III

Environmental Resources and their use

Table 3.1.1. : Mineral Distribution in Koshi Province**METALLIC MINERALS****ARSENIC (As)**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bering Khola	Ilam	26.822	88.046	Occurrence
2	Yamphodin	Taplejung	27.446	87.9	Showing
3	Kholakhani (khokling)	Taplejung	27.4	87.65	Occurrence
4	Mewa Khola	Taplejung	27.383	87.65	Showing
5	Kurule	Udayapur	27.083	86.433	Showing

BISMUTH (Bi)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bering Khola	Ilam	26.822	88.046	Showing
2	Waspa	Solukhumbu	27.529	86.742	Showing
3	Kurule	Udayapur	27.08	86.433	Showing

COPPER (Cu)-I

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Jantrekhani	Okhaldhunga	27.4	86.5	Occurrence, old working
2	Ringmo	Solukhumbu	27.583	86.602	Occurrence
3	Wapsa	Solukhumbu	27.529	86.741	Sub-economic, old working
4	Chhirling Khola	Bhojpur	26.95	87.1	Occurrence, old working
5	Balukhop	Taplejung	27.345	87.866	Occurrence, old working
6	Siddhikhani	Ilam	26.85	88.097	Occurrence, old working
7	Bering Khola	Ilam	26.821	88.046	Occurrence
8	Kurule	Udayapur	27.08	86.433	Sub-economic
9	Lodimkhani	Solukhumbu	27.533	86.566	Showing
10	Kakha khola	Sunsari/Dhankuta	26.866	87.216	Showing
11	Kokling	Taplejung	27.366	87.6	Showing
12	Gidar Khola	Sankhuwasabha	27.433	87.417	Showing
13	Mewa Khola	Taplejung	27.383	87.65	Showing

GOLD (Au)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bering Khola-Sunmai	Ilam	26.822	88.046	Primary, occurrence
2	Chirling Khola	Bhojpur	26.95	87.1	Primary, showing

IRON (Fe)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sibchung Khani	Taplejung	27.475	87.675	Showing
2	Piputhap	Taplejung	27.495	87.758	Showing
3	Yamphodin Khani	Taplejung	27.445	87.9	Showing
4	Lohakot	Sankhuwasabha	27.285	87.23	Sub- economic

LEAD (Pb)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sisa Dhovan	Solukhumbu	27.45	86.517	Occurrence
2	Pangum	Solukhumbu	27.585	86.752	Occurrence
3	Kholakhani	Taplejung	27.4	87.65	Occurrence, old working
4	Banketar	Taplejung	27.375	87.892	Showing
5	Phakuwa	Sankhuwasabha	27.4	87.417	Occurrence
6	Khaikhola	Solukhumbu	27.5	86.733	Showing
7	Bering Khola	Ilam	26.822	88.039	Occurrence
8	Ringmo	Solukhumbu	27.588	86.603	Occurrence

MOLYBDENUM (Mo)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Khani Khola	Solukhumbu	27.594	86.746	Occurrence

NICKEL (Ni)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bering Khola	Ilam	26.822	88.046	Occurrence

SILVER (Ag)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bering Khola	Ilam	26.822	88.046	Occurrence

TANTALUM – NOBIUM

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Dobala Pokhari	Taplejung	27.438	87.983	Showing
2	Hyakule	Sankhuwasabha	27.475	87.375	Showing
3	Phakuwa	Sankhuwasabha	27.4	87.417	Showing

TUNGSTEN (W)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bering Khola	Ilam	26.822	88.046	Showing
2	Hyakule	Sankhuwasabha	27.479	87.383	Showing

ZINC (Zn)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Pangum	Solukhumbu	27.585	86.752	Occurrence
2	Phakuwa	Sankhuwasabha	27.4	87.433	Occurrence
3	Bering Khola	Ilam	26.822	88.039	Occurrence

NON METALLIC MINERALS

BARITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Phakuwa	Sankhuwasabha	27.446	87.407	Showing

CLAY

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Beltar (Deuri and Anpsota)	Udayapur	26.783	86.891	Red clay (Economic), mining
2	Salghari	Dhankuta	27.138	87.291	Red clay (Economic)
3	Mauna Budhak	Dhankuta	26.9	87.433	Red clay (Economic)

FELDSPAR

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Hyakule	Sankhuwasabha	27.45	87.417	Occurrence
2	Phakuwa	Sankhuwasabha	27.417	87.433	Occurrence

GRAPHITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sweng	Ilam	26.823	88.017	Showing
2	Khanibhanjyang	Ilam	26.788	87.957	Showing
3	Pandum	Ilam	26.917	87.95	Showing
4	Baidi	Sankhuwasabha	27.596	87.35	Showing, old working
5	Yamphudin	Taplejung	27.446	87.9	Showing, old working

MAGNESITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kamphughat	Udayapur	26.875	86.817	Sub-economic

MICA

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bhojpur	Bhojpur	27.167	87.067	Showing
2	Dabala Pokhari	Taplejung	27.437	87.983	Showing
3	Phikal Bazar	Ilam	26.891	88.058	Showing
4	Arubhatte	Ilam	26.882	88.072	Showing
5	Ramphag	Jhapa	26.75	88.095	Showing
6	Sikharpur	Udayapur	27.008	86.479	Showing

PEGMATITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Hyakule	Sankhuwasabha	27.478	87.333	Occurrence
2	Phakuwa	Sankhuwasabha	27.446	87.407	Occurrence
3	Chakte	Sankhuwasabha	27.343	87.429	Occurrence
4	Sikarpur	Udayapur	27.008	86.479	Occurrence

PHOSPHORITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Barahachhetra	Sunsari	26.833	87.2	Occurrence
2	Dharan-Takure	Dhankuta	26.9	87.383	Occurrence

PYRITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bering Khola	Ilam	26.822	88.046	Sub-economic

CORUNDUM

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ekabu	Taplejung	27.488	87.746	Occurrence
2	Alubar	Ilam	27.044	87.908	Showing

DOLOMITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Udaipur (Sindhali)	Udayapur	26.9	86.683	Economic
2	Bojhe	Khotang	27.188	86.553	Sub- Economic

**NON METALLIC MINERALS
(Construction materials)****GRANITE**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Udaipur	Udayapur	27.067	86.6	Large deposit
2	Makalu	Sankhuwasabha/Solukhumbhu	27.867	87	Large deposit
3	Taplejung	Taplejung	27.833	87.867	Large deposit

LIMESTONE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Nigale	Dhankuta	27.1	87.35	Economic
2	Sindhali	Udayapur	26.9	86.683	Economic, mining
3	Katari	Udayapur	27.017	86.45	Economic
4	Chuladhunga	Udayapur	26.958	86.525	Economic
5	Ghhyampethumka	Udayapur	26.95	86.542	Economic
6	Halesi	Khotang	27.175	86.625	Occurrence
7	Mauwa Khola	Dhankuta	26.921	87.344	Occurrence
8	Tamor River	Dhankuta	26.925	87.344	Occurrence
9	Tankuwa Khola	Dhankuta	26.984	87.383	Occurrence
10	Dhankuta	Dhankuta	26.992	87.341	Occurrence
11	Khalung Khola	Sankhuwasabha	27.825	87.491	Occurrence

MARBLE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Pakharibas	Dhankuta	27.075	87.3	Occurrence
2	Nigale	Dhankuta	27.1	87.35	Economic
3	Mawa Khola	Dhankuta	26.921	87.344	Occurrence
4	Satuwa	Taplejung	27.467	87.717	Occurrence

QUARTZITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sanghuri	Dhankuta	26.875	87.3	Occurrence

FUEL MINERALS AND THERMAL SPRINGS**COAL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Barahakshetra	Sunsari	26.833	87.167	Occurrence
2	Kokaha Khola	Sunsari	26.833	87.283	Occurrence
3	Daran Bazar	Sunsari	26.817	87.283	Occurrence
4	Doijhava Khola	Jhapa	26.708	87.933	Occurrence
5	Sanka Maka Khola	Jhapa	26.683	87.95	Occurrence
6	Barahakshetra	Udayapur	26.8	87.033	Occurrence

OIL AND GAS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kechhagbadh	Jhapa	26.483	88.083	Occurrence

NON METALLIC MINERALS**(Gem Minerals)****AQUAMARINE/BERYL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ikhu Khola	Bhojpur	26.967	87.025	Occurrence
2	Phakuwa	Sankhuwasabha	27.417	87.433	Sub-economic
3	Ikabu	Taplejung	27.448	87.746	Showing
4	Sansabu	Taplejung	27.468	87.683	Showing
5	Ckogle	Sankhuwasabha	27.343	87.429	Showing
6	Lodantar	Taplejung	27.6	87.683	Showing
7	Mangsima	Sankhuwasabha	27.553	87	Showing
8	Rangmale	Taplejung	27.6	87.733	Showing
9	Gorujudhe	Sankhuwasabha	27.488	87.39	Showing

KYANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ranidhunga	Sankhuwasabha	27.517	87.333	Showing

QUARTZ

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Khejemi	Taplejung	27.497	87.708	Economic, mining
2	Gorujudhe	Sankhuwasabha	27.489	87.39	Showing
3	Kalipokhari	Taplejung	27.65	87.7	Showing

TOURMALINE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Hyakule	Sankhuwasabha	27.45	87.417	Sub-economic, mining postponed
2	Phakuwa	Sankhuwasabha	27.417	87.433	Sub-economic
3	Chokte	Sankhuwasabha	27.343	87.417	Showing
4	Thorbu	Sankhuwasabha	27.496	87.35	Showing
5	Mangsima	Sankhuwasabha	27.533	87.333	Showing
6	Ikhabu	Taplejung	27.488	87.746	Showing
7	Namjaling	Ilam	26.911	87.983	Showing
8	Maipokhari	Ilam	27.006	87.933	Showing
9	Rakse	Dhankuta	27.017	87.35	Showing
10	Dharma dhuri	Dhankuta	27.017	87.333	Showing
11	Chaimata	Dhankuta	27.017	87.283	Showing
12	Hile-tintale	Ilam	27.064	87.983	Showing
13	Chilindin	Panchthar/Ilam	27.033	87.792	Showing
14	Sabhapatal	Taplejung	27.481	87.491	Showing
15	Tinjore	Sankhuwasabha	27.466	87.408	Showing

GARNET

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sankhuwasabha	Sankhuwasabha	27.433	87.367	Occurrence
2	Chainkuwa	Sankhuwasabha	27.346	87.285	Showing
3	Hanglalung	Sankhuwasabha	27.391	87.306	Showing
4	Swachi (Budekhami)	Sankhuwasabha	27.408	87.331	Showing
5	Bansthala	Sankhuwasabha	27.391	87.325	Showing
6	Sunuala	Sankhuwasabha	27.45	87.391	Showing
7	Kusuwa Khola	Sankhuwasabha	27.388	87.339	Showing
8	Sinchuwa	Sankhuwasabha	27.386	87.296	Showing
9	Khiling	Sankhuwasabha	27.446	87.308	Showing
10	Pawa	Sankhuwasabha	27.446	87.317	Showing
11	Yaksuwa	Sankhuwasabha	27.438	87.304	Showing
12	Rupatar	Taplejung	27.783	87.942	Showing
13	Dalaicha	Sankhuwasabha	27.508	87.133	Showing
14	Imakhola	Taplejung	27.467	87.672	Showing
15	Khanigaon	Taplejung	27.428	87.717	Showing
16	Mamangkhe	Taplejung	27.467	87.683	Showing
17	Sibuk	Taplejung	27.467	87.65	Showing
18	Luwafu	Panchthar	27.183	87.867	Showing

Source: Department of Mines & Geology

Table 3.1.2. : Mineral Distribution in Madhesh Province**NON METALLIC MINERALS****CLAY**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Parbanipur	Parsa	27.083	84.917	Bentonite (Occurrence)
2	Shamshi	Mahottari	26.815	85.732	Occurrence
3	Parswa	Rautahat	27.055	85.283	Occurrence
4	Pipra	Dhanusha	26.702	85.855	Occurrence
5	Noukailwa	Sarlahi	26.894	85.627	Occurrence

SILICA SAND

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Pasaha Khola	Bara	27.265	85.075	Occurrence
2	Dudhara Khola	Bara	27.275	85	Occurrence

FUEL MINERALS AND THERMAL SPRINGS**COAL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Uja	Bara	27.292	85.042	Occurrence
2	Bijauri	Bara	27.258	85.108	Occurrence
3	Chandi Khola	Makawanpur/Rautahat	27.217	85.35	Occurrence
4	Hariharpur VDC	Dhanusha	27	86	Showing
5	Shakti Khola	Bara	27.25	85.1	Showing

GEOHERMAL HOT SPRINGS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Janakpur	Dhanusha	26.717	85.933	Occurrence

Source: Department of Mines & Geology

Table 3.1.3 : Mineral Distribution in Bagmati Province**METALLIC MINERALS****ANTIMONY (Sb)**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa/Dhading	28.231	85.188	Showing
2	Damar	Makawanpur	27.526	85.171	Occurrence
3	Barghare	Makawanpur	27.517	85.171	Showing

ARSENIC (As)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa/Dhading	28.231	85.188	Occurrence
2	Likche	Ramechhap	27.572	85.922	Showing
3	Barghare	Makawanpur	27.517	85.191	Showing
4	Saje Khola	Makawanpur	27.51	85.025	Showing
5	Damar	Makawanpur	27.526	85.172	Showing
6	Mul Khola	Ramechhap	27.425	86	Showing

BISMUTH (Bi)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa/Dhading	28.231	85.188	Showing
2	Barghare	Makawanpur	27.517	85.192	Occurrence
3	Thosne	Lalitpur	27.517	85.325	Showing

CADMIUM (Cd)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa/Dhading	28.231	85.188	Showing

CHROMIUM (Cr)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Those	Ramechhap	27.567	86.279	Showing

COBALT (Co)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Lamadanda	Dhading	27.733	85.1	Showing
2	Nangre	Kabhre	27.617	85.85	Occurrence
3	Bhorle	Ramechhap	27.6	85.875	Occurrence, old working
4	Ganesh Himal	Rasuwa/Dhading	28.231	85.188	Showing

COPPER (Cu)-I

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kitini (Lagonbas)	Makawanpur	27.579	85.162	Occurrence, old working
2	Kule Khani	Makawanpur	27.588	85.156	Occurrence, old working
3	Deurali	Dhading/Nuwakot	27.883	84.983	Occurrence, old working
4	Ipa	Makawanpur	27.511	85.225	Occurrence, old working
5	Arkhule	Makawanpur	27.516	85.211	Occurrence, old working
6	Kholakhani	Chitwan/Tanahu	27.8	84.525	Occurrence, old working
7	Dhusa	Dhading	27.733	84.816	Sub-economic, old working
8	Agra Khola	Makawanpur	27.65	85.03	Occurrence
9	Kalitar	Makawanpur	27.366	85.06	Sub-economic
10	Bhorle	Ramechhap	27.516	85.883	Occurrence, old working
11	Ningre	Ramechhap	27.483	85.9	Occurrence, old working
12	Sano Todke	Makawanpur	27.616	84.833	Showing
13	Manhari	Makawanpur	27.566	84.879	Showing
14	Kawalpur (Kalphu)	Dhading	27.766	85.08	Showing
15	Chobhar	Lalitpur	27.666	85.366	Showing
16	Markhu	Makawanpur	27.616	85.15	Showing
17	Solabhanjyang	Makawanpur	27.541	85.15	Showing
18	Madhawtar	Ramechhap	27.433	85.879	Showing
19	Khanigaon	Sindhupalchowk	27.7	85.716	Showing
20	Dhansa pakha	Sindhupalchowk	27.766	85.716	Showing, old working
21	Kilpu	Ramechhap	27.538	85.858	Showing
22	Dorkhani	Ramechhap	27.572	85.866	Showing
23	Sipasorkhani	Dolakha	27.783	86.3	Showing
24	Sikrikhola	Dolakha	27.633	86.208	Showing
25	Syaulegaon	Sindhupalchowk	27.783	85.716	Showing
26	Kriti Khola	Makawanpur	27.594	84.983	Showing

GOLD (Au)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Marodi Khola	Chitwan	27.467	84.25	Placer, showing
2	Holchok	Kathmandu	27.775	85.292	Primary, showing
3	Trisuli River	Dhading/Nuwakot	27.783	85.1	Placer, showing
4	Arughat (Buri Gandaki)	Dhading	27.994	84.8	Placer, occurrence
5	Darbung (Buri Gandaki)	Dhading	27.8	84.717	Placer, occurrence
6	Benighat	Dhading	27.75	84.767	Placer, showing
7	Chandi Khola	Makawanpur	27.258	85.333	Primary, showing
8	Damar	Makawanpur	27.536	85.172	Primary, showing
9	Reu Khola	Chitwan	27.45	84.333	Placer, occurrence

IRON (Fe)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Barpu	Dhading	27.783	84.72	Showing
2	Gothbhanjyang	Dhading	27.754	84.725	Showing
3	Jirbang	Dhading	27.75	84.733	Occurrence
4	Shambrang	Dhading	27.733	84.733	Showing
5	Hugpung (Langin)	Chitwan	27.7	84.733	Showing
6	Hathi khola	Makawanpur	27.5	84.863	Showing
7	Manhari	Makawanpur	27.567	84.879	Showing

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
8	Likche	Makawanpur	27.572	84.921	Showing
9	Thuldi	Dhading	27.766	85.133	Showing
10	Phulchoki	Lalitpur	27.583	85.383	Economic/Sub-economic
11	Shyalegaon	Sindhupalchowk	27.811	85.708	Showing, old working
12	Khanidanda	Kabhre	27.375	85.633	Showing
13	Those	Ramechhap	27.566	86.279	Sub-economic, old working

LEAD (Pb)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Thulo Todke	Makawanpur	27.617	84.817	Showing
2	Dhunga Khurka	Kabhre	27.53	85.517	Showing, old working
3	Ganesh Himal	Rasuwa/Dhading	28.231	85.186	Economic, mining postponed
4	Manjit Khola	Dhading	28.2	85.008	Occurrence, old working
5	Tipling	Dhading	28.183	85.167	Occurrence, old working
6	Barghare	Makawanpur	27.517	85.192	Occurrence, old working
7	Phulchowki	Lalitpur	27.572	85.4	Occurrence
8	Bhaluchapra	Kabhre	27.496	85.449	Showing
9	Chyalti	Kabhre	27.508	85.521	Showing
10	Sollendanda	Sindhuli	27.333	85.467	Occurrence
11	Kirulebhanjyang (north)	Kabhre	27.45	85.467	Showing
12	Kirulebhanjyang (south)	Makawanpur/Kabhre	27.4	85.45	Showing
13	Damar	Makawanpur	27.526	85.171	Occurrence
14	Labang-khairang	Makawanpur	27.7	84.867	Sub-economic
15	Rossi	Kabhre	27.415	85.55	Showing

LITHIUM (Li)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa	28.242	85.228	Showing

MERCURY (Hg)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa/Dhading	28.231	85.188	Showing
2	Tirche Pani	Makawanpur	27.55	85	Showing

MOLYBDENUM (Mo)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Chaukhola	Makawanpur	27.568	85.025	Showing
2	Katwan	Lalitpur	27.504	85.308	Showing

NICKEL (Ni)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Nangre	Kabhre	27.45	85.75	Showing
2	Khopre Khani	Sindhuli	27.3	85.75	Showing
3	Those	Ramechhap	27.567	86.279	Occurrence

SILVER (Ag)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa/Dhading	28.231	85.188	Occurrence
2	Manjit Khola	Dhading	28.2	85.083	Showing
3	Barghare	Makawanpur	27.517	85.192	Occurrence
4	Thosne Khola	Lalitpur	27.517	85.327	Showing

TANTALUM – NOIBIUM

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Palung Granite	Makawanpur	27.6	85	Showing

TIN (Sn)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Exo-cont of Palung Granite	Makawanpur	27.5	84.933	Showing
2	"	Makawanpur	27.5	84.967	Showing
3	"	Makawanpur	27.483	84.992	Showing
4	"	Makawanpur	27.5	85.117	Occurrence
5	Exo-cont of Ipa Granite	Makawanpur	27.5	85.25	Showing
6	Chaukhola	Makawanpur	27.568	85.025	Showing
7	Ipa	Makawanpur	27.467	85.267	Showing
8	Durlung	Lalitpur/Kavre	27.458	85.417	Showing

TITANIUM

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Those	Ramechhap	27.567	86.279	Showing

TUNGSTEN (W)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Exo-cont of Palung Granite	Makawanpur	27.5	84.933	Showing
2	"	Makawanpur	27.5	84.967	Showing
3	"	Makawanpur	27.483	84.992	Showing
4	"	Makawanpur	27.5	85.117	Occurrence
5	Exo-cont of Ipa Granite	Makawanpur	27.5	85.25	Showing
6	Sikri Khola	Dolkha	27.6	86.233	Showing

URANIUM (U)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Thinbhangale	Makawanpur	27.271	85.296	Sub-economic
2	Chandi Khola	Makawanpur	27.254	85.346	Showing
3	Chiruwa Khola	Makawanpur	27.225	85.475	Showing
4	Panpa Khola	Chitwan	27.625	84.633	Showing
5	Mardar Khola	Chitwan	27.633	84.667	Showing
6	Buka Khola	Sindhuli	27.191	85.967	Showing
7	Jagat	Kathmandu	27.8	85.323	Showing

ZINC (Zn)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa/Dhading	28.231	85.186	Economic, mining postponed
2	Manjit Khola	Dhading	28.2	85.083	Occurrence
3	Tipling	Dhading	28.183	85.167	Occurrence
4	Phulchowki	Lalitpur	27.572	85.4	Occurrence
5	Bhaluchapra	Lalitpur/Kabhre	27.496	85.449	Showing
6	Chyalti	Kabhre	27.508	85.521	Showing
7	Sollendanda	Sindhuli	27.333	85.467	Occurrence
8	Kirulebhanjyang (north)	Kabhre	27.45	85.467	Showing
9	Kirulebhanjyang (south)	Kabhre	27.4	85.45	Showing
10	Damar	Makawanpur	27.526	85.172	Occurrence
11	Labang-khairang	Dhading	27.7	84.867	Sub-economic
12	Rossi	Kabhre	27.415	85.55	Showing

NON METALLIC MINERALS**BARITE**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Phulchoki	Lalitpur	27.583	85.383	Showing
2	Barghare	Makawanpur	27.517	85.191	Showing

CALCITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Nibuwa	Makawanpur	27.508	85.058	Occurrence

CLAY

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kathmandu valley	Lalitpur	27.633	85.367	Pottary Clay (Occurrence)
2	Thimi	Bhaktapur	27.682	85.389	Diatomite (Occurrence)
3	Chobhar	Kathmandu	27.657	85.292	Diatomite (Occurrence)
4	Panchmane (Jitpur, Dalcap)	Kathmandu	27.783	85.283	Kaolin (Occurrence)
5	Palung (Naliban, Kharka)	Makawanpur	27.517	85.1	Kaolin (Sub-economic)
6	Panchkhal	Kabhre	27.651	85.638	Red clay (Economic), mining postponed
7	Lamsure	Makawanpur	27.411	85.008	Red clay (Economic)

GRAPHITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kharentar	Nuwakot	27.917	85.308	Showing
2	Marthum pass	Nuwakot	27.95	85.283	Showing
3	Patibhanjyang	Nuwakot	27.842	85.291	Showing, old working
4	Yaijo	Nuwakot	27.967	85.275	Showing

MAGNESITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kharidhunga	Dolakha	27.7	85.942	Economic, mining postponed
2	Phalpu	Dolakha	27.667	86.217	Occurrence
3	Phulping	Sindhupalchowk	27.908	85.941	Occurrence

MICA

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Langtang	Rasuwa	28.083	85.4	Showing
2	Kharanotar	Nuwakot	27.941	85.325	Showing, old working
3	Tame	Nuwakot	27.941	85.35	Showing
4	Goganpani	Dhading	27.783	85.003	Showing, old working
5	Lamagaon	Nuwakot	27.844	85.24	Occurrence
6	Dandagaon	Nuwakot	27.793	85.267	Occurrence
7	Nibuwagaon	Sindhupalchowk	27.791	85.508	Occurrence, old working
8	Chaukibhanjyang	Kathmandu	27.762	85.501	Showing, old working
9	Singhu Dhuseni	Sindhupalchowk	27.813	85.541	Showing
10	Kipche	Sindhupalchowk	27.841	85.537	Showing
11	Sepgaon	Sindhupalchowk	27.861	85.728	Showing
12	Godikhang	Rasuwa	28.167	85.283	Occurrence
13	Hattikharka	Sindhuli	27.1	86.338	Showing
14	Okhareni	Sindhuli	27.096	86.317	Showing

OCHER

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Phulchoki	Lalitpur	27.594	85.383	Showing
2	Gorati	Sindhupalchowk	27.811	85.708	Showing
3	Kharidhunga	Dolkha	27.7	85.942	Occurrence

PEGMATITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Hatikharka	Sindhuli	27.1	86.338	Occurrence
2	Okhreni	Sindhuli	27.096	86.233	Occurrence
3	Jagat	Kathmandu	27.805	85.238	Occurrence
4	Baguwa	Sindhupalchowk	27.783	85.617	Occurrence
5	Singargaon	Sindhupalchowk	27.933	85.9	Occurrence
6	Parkeghyang	Sindhupalchowk	28	85.558	Occurrence
7	Yangri Danda	Sindhupalchowk	27.883	85.567	Occurrence
8	Jalkani	Kathmandu	27.779	85.258	Occurrence
9	Panchmani	Kathmandu	27.808	85.3	Occurrence
10	Palung area	Makawanpur	27.6	85.25	Occurrence
11	Sangla Khola	Kathmandu	27.796	85.317	Occurrence
12	Kagati gaon	Kathmandu	27.779	85.258	Occurrence
13	Nibuwa gaon	Sindhupalchowk	27.813	85.5	Occurrence
14	Lama gaon	Nuwakot	27.864	85.233	Occurrence
15	Godikang	Rasuwa	28.258	85.392	Occurrence
16	Chindring Khola	Nuwakot	27.966	85.383	Occurrence

PYRITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Devitar	Makawanpur	27.583	84.875	Occurrence
2	Phalanga Mangsewa	Rasuwa	28.017	85.275	Occurrence
3	Chilaune	Kathmandu/Dhading	27.767	85.25	Showing
4	Lipche	Makawanpur	27.533	85.008	Occurrence
5	Charchare khola	Makawanpur	27.567	85.133	Showing
6	Kharidhunga	Dolkha/Sindhupalchowk	27.7	85.942	Showing

SILICA SAND

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Karra Khola	Makawanpur	27.408	85.05	Economic

SILLIMANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sheopuri (Likhu Khola)	Kathmandu	27.8	85.375	Showing

TALC

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Gaighat	Chitwan	27.7	84.45	Sub-economic
2	Aale	Chitwan	27.8	84.55	Showing
3	Maldung	Dhading	27.733	85.017	Occurrence
4	Bandar Khola	Dhading	27.74	85.062	Occurrence
5	Kali Khola	Makawanpur	27.633	85.033	Showing
6	Sewlegaon	Sindhupalchowk	27.811	85.708	Occurrence
7	Kharidhunga	Dolkha	27.633	85.942	Economic, mining
8	Phalpu	Dolkha	27.658	86.217	Occurrence
9	Jagre (Sikriya)	Bhojpur	27.133	87.225	Showing

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
10	Sallerkali	Sindhupalchowk	27.833	85.95	Occurrence
11	Gari	Sindhupalchowk	27.85	85.925	Occurrence
12	Phulping	Sindhupalchowk	27.9	85.933	Showing, mining
13	Chandibhanjyang	Chitwan	27.808	84.567	Showing, mining
14	Hawa	Dolkha	27.575	86.167	Showing, mining
15	Chandanpur	Lalitpur	27.485	85.409	Sub-economic

CORUNDUM

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Lapa	Dhading	28.175	85.025	Occurrence

DOLOMITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bhatpolebesi	Kabhre	27.675	85.642	Occurrence
2	Jogimara	Dhading	27.75	84.68	Economic

NON METALLIC MINERALS

(Construction materials)

BASIC ROCK

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Malekhu	Dhading	27.8	84.833	Occurrence
2	Dhusa Khola	Dhading	27.771	84.758	Occurrence
3	Manahari Khola	Makawanpur	27.563	84.867	Occurrence

GRANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Palung	Makawanpur	27.6	85	Large deposit
2	Agrakhola	Makawanpur/Dhading	27.7	84.933	Large deposit
3	Ipa	Makawanpur/Lalitpur	27.517	85.25	Large deposit
4	Narayanthan	Kabhre	27.475	85.5	Large deposit
5	Langdi	Sindhuli	27.25	85.883	Large deposit
6	Sindhuli	Sindhuli	27.117	86.25	Large deposit
7	Dandakharka	Dhading	27.679	84.923	Large deposit

LIMESTONE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Chobhar	Kathmandu	27.663	85.299	Economic, mining postponed
2	Bhainse	Makawanpur	27.508	85.058	Economic, mining
3	Okhare	Makawanpur	27.492	85.117	Economic, mining
4	Rossi	Kabhre	27.556	85.538	Economic
5	Jogimara	Dhading	27.8	84.683	Economic, mining
6	Beldanda	Dhading	27.783	84.683	Economic, mining
7	Kakaru	Sindhuli	27.05	86.35	Economic, mining
8	Balthali	Kabhre	27.558	85.567	Occurrence
9	Nandu	Kabhre	27.55	85.513	Sub-economic

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
10	Bhatte Danda	Lalitpur	27.5	85.3	Occurrence
11	Mane	Kabhre	27.55	85.5	Sub-economic
12	Nigure	Kabhre	27.542	85.517	Sub-economic
13	Lamatar	Kabhre	27.625	85.442	Sub-economic
14	Bhardeo	Lalitpur	27.575	85.333	Sub-economic
15	Majuwa	Makawanpur	27.458	85.092	Economic, mining
16	Nibuwatar	Makawanpur	27.503	85.082	Economic
17	Masta	Lalitpur	27.486	85.261	Economic
18	Rukache	Makawanpur	27.573	84.916	Economic
19	Ganeshtan	Nuwakot	27.919	85.262	Economic
20	Badhichaur	Makawanpur	27.474	85.174	Economic

MARBLE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Godawari	Lalitpur	27.6	85.367	Economic, mining
2	Anekot (Timilsingaon)	Kabhre	27.683	85.617	Economic, mining
3	Bhainsedovan	Makawanpur	27.508	85.058	Economic
4	Bhimsen	Makawanpur	27.5	85.083	Economic
5	Budichaur	Makawanpur	27.5	85.175	Economic
6	Paudol	Lalitpur/Kabhre	27.593	85.417	Occurrence

QUARTZITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	NE of Kharidhunga	Dolkha	27.683	85.992	Occurrence
2	Rashimadi	Makawanpur	27.467	84.983	Occurrence
3	Lakuri (Ahale)	Dolkha	27.683	86	Occurrence
4	Daglam (Kodari)	Sindhupalchowk	27.925	85.933	Occurrence
5	Baireni	Dhading	27.77	85.015	Economic/Sub- economic
6	Shikharpur	Sindhupalchowk	27.8	85.59	Economic/Sub- economic
7	Hagam	Sindhupalchowk	27.83	85.81	Economic/Sub- economic
8	Baramchi	Sindhupalchowk	27.84	85.79	Economic/Sub- economic
9	Tatopani	Sindhupalchowk	27.97	85.94	Economic/Sub- economic
10	Dhungkharka	Kavrepalanchowk	27.51	85.5	Economic/Sub- economic
11	Changsingkharka	Kavrepalanchowk	27.52	85.51	Economic/Sub- economic
12	Duragaon	Ramechhap	27.48	86.21	Economic/Sub- economic

SLATE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Gaighat	Chitwan/Tanahu	27.783	84.45	Occurrence
2	Benighat	Dhading	27.808	84.791	Occurrence
3	Agrakhola	Makawanpur	27.7	85.033	Occurrence
4	Palung	Makawanpur	27.667	85.075	Occurrence
5	Belkot	Nuwakot	27.867	85.167	Occurrence
6	Lachang	Rasuwa	28.2	85.333	Occurrence
7	Selang	Sindhupalchowk	27.85	85.75	Occurrence
8	Melamchi	Sindhupalchowk	28.008	85.525	Occurrence
9	Sikharpur	Sindhupalchowk	27.833	85.591	Occurrence
10	Golche	Sindhupalchowk	27.883	85.741	Occurrence

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
11	Fulping	Sindhupalchowk	27.767	85.767	Occurrence
12	Listi	Dhading	27.917	85.883	Occurrence
13	Barhabise	Sindhupalchowk	27.775	85.917	Occurrence
14	Bigu	Dolkha	27.841	86.083	Occurrence
15	Those (Dande bigu)	Ramechhap	27.55	86.258	Occurrence
16	Ghatte khola	Kabhre	27.633	85.733	Occurrence
17	Jhillu khola-Morang Khola	Sindhupalchowk/ Dolkha	27.667	85.917	Occurrence
18	Jambu (Phalesangu)	Sindhupalchowk	27.933	85.9	Occurrence
19	ranipauwa	Sindhupalchowk	27.833	85.667	Occurrence
20	Gajuri	Dhading	27.791	84.917	Occurrence

FUEL MINERALS AND THERMAL SPRINGS

COAL

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Chandi Khola	Makawanpur/Rautahat	27.217	85.35	Occurrence
2	Lukundol	Lalitpur	27.6	85.3	Occurrence, old working
3	Dharmasthali	Kathmandu	27.775	85.3	Occurrence
4	Tupek (Gokarna)	Kathmandu	27.75	85.367	Occurrence
5	Chhampi	Lalitpur	27.596	85.317	Occurrence, old working
6	Dhukuchhap	Lalitpur	27.598	85.292	Showing, old working

GEOTHERMAL HOT SPRINGS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kodari	Sindhupalchowk	27.943	85.95	Occurrence
2	Thumman (Chileme)	Rasuwa	28.211	85.302	Occurrence
3	Lande khola	Rasuwa	28.164	85.331	Occurrence
4	Parang	Rasuwa	28.217	85.283	Occurrence

OIL AND GAS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kathmandu	Kathmandu	27.708	85.317	Economic

NON METALLIC MINERALS

(Gem Minerals)

AQUAMARINE/BERYL

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kulphu Khola	Dhading	27.775	85.208	Occurrence
2	Jyamire	Sindhupalchowk	27.833	85.613	Occurrence
3	Jagat	Kathmandu	27.805	85.321	Showing
4	Baguwa	Sindhupalchowk	27.783	85.615	Showing
5	Tarkeghyang	Sindhupalchowk	28	85.558	Showing
6	Yangridanda	Sindhupalchowk	27.917	85.567	Showing
7	Jalkani	Kathmandu	27.7	85.267	Showing
8	Panchmane	Kathmandu	27.808	85.3	Showing
9	Kagatigaon	Kathmandu	27.779	85.258	Showing
10	Sangla Khola	Kathmandu	27.791	85.314	Showing

QUARTZ

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Raluka	Nuwakot	27.947	85.329	Economic, mining

RUBY-SAPPHIRE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ganesh Himal	Rasuwa	28.217	85.217	Sub-economic
2	Ganesh Himal	Dhading	28.217	85.167	Sub-economic
3	Chumar	Dhading	28.222	84.981	Showing
4	Ruyal	Dhading	28.251	85.035	Showing

TOURMALINE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Jagat	Kathmandu	27.805	85.321	Showing
2	Langtang valley	Rasuwa	28.217	85.517	Showing

Source: Department of Mines & Geology

Table 3.1.4. : Mineral Distribution in Gandaki Province**METALLIC MINERALS****BISMUTH (Bi)**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sandi Khola	Gorkha	28.119	84.652	Showing

COPPER (Cu)-I

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Rumakhani	Myagdi	28.4	83.333	Occurrence, old working
2	Gyazi	Gorkha	28.104	84.688	Occurrence, old working
3	Bhutkhola/Labdikhola	Tanahu	27.833	84.433	Sub-economic, old working
4	Minamkot	Syangja/Tanahu	27.983	83.917	Occurrence, old working
5	Pandav Khani	Baglung	28.216	83.316	Occurrence, old working
6	Kottham	Nawalparasi	27.816	84.25	Occurrence
7	Chandauli	Nawalparasi	27.783	84.283	Occurrence
8	Gaighat	Nawalparasi	27.716	84.366	Occurrence
9	Banspani (Okharbot)	Myagdi/Baglung	28.4	83.316	Occurrence, old working
10	Kholakhani	Chitwan/Tanahu	27.8	84.525	Occurrence, old working
11	Machhim	Myagdi	28.483	83.35	Showing
12	Dandakhani	Myagdi	28.366	83.508	Showing
13	Kapurdikhani	Syangja	27.983	83.65	Showing
14	Kanhun	Tanahu	27.9	84.258	Showing
15	Tilahr	Parbat	28.275	83.744	Showing, old working
16	Phalam Khani	Parbat	28.116	83.7	Showing
17	Kuenekhani	Myagdi	28.5	83.45	Showing
18	Chandali Khola	Tanahu	27.783	84.383	Showing

GOLD (Au)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Mayagadi River	Myagdi	28.337	83.55	Placer, occurrence
2	Jyamirghat (Kali Gandaki)	Parbat	28.1	83.633	Placer, occurrence
3	Modi Khola	Parbat	28.208	83.681	Placer, showing
4	Madi Khola	Tanahu	28.08	84.25	Placer, showing
5	Marsyangdi River	Tanahu	27.833	84.417	Placer, showing
6	Bunkot Ghat (Buri Gandaki)	Gorkha	27.883	84.743	Placer, occurrence
7	Tatopani (Kali Gandaki R)	Myagdi	28.5	83.656	Placer, occurrence
8	Mure gurja Khola	Myagdi	28.508	83.383	Placer, occurrence
9	Khiwang Khola	Myagdi	28.5	83.4	Placer, occurrence
10	Kuine khani Khola	Myagdi	28.483	83.417	Placer, occurrence
11	Rakhor Khola	Myagdi	28.491	83.517	Placer, occurrence
12	Ching Khola	Mustang	28.708	83.7	Placer, occurrence
13	Rahughat Khola	Myagdi	28.383	83.533	Placer, occurrence
14	Bag Khola	Myagdi	28.45	83.617	Placer, occurrence
15	Ghare Khola	Myagdi	28.433	83.733	Placer, occurrence
16	Sikhe Khola	Myagdi	28.45	83.717	Placer, occurrence
17	Mistri Khola	Myagdi	28.517	83.683	Placer, occurrence

IRON (Fe)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kalche	Baglung	28.333	83.25	Showing, old working
2	Benighat	Nawalparasi	27.75	84	Showing
3	Kueinekhani	Myagdi	28.5	83.45	Showing
4	Lukerban	Baglung	28.354	83.275	Occurrence
5	Arlangkot	Baglung	28.177	83.362	Occurrence
6	Kholakharka	Baglung	28.317	83.283	Occurrence
7	Dhamja	Baglung	28.311	83.283	Occurrence, old working
8	Mangale	Baglung	28.266	83.516	Occurrence
9	Khanigaon	Parbat	28.116	83.7	Showing
10	Dhole	Tanahu	28.033	84.025	Showing
11	LabdiKhola/Bhutkhola	Tanahu	27.841	84.458	Sub-economic, old working
12	Dhuwakot	Parbat	28.133	83.7	Showing, old working
13	Kiran Khola	Nawalparasi	27.754	84.103	Showing
14	Dhaubadi	Nawalparasi	27.74	84.1	Economic/Sub- economic

LEAD (Pb)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Labdi Khola	Baglung	28.241	83.279	Showing
2	Shisakhani	Baglung	28.222	83.317	Showing, old working
3	Shisa	Baglung	28.214	83.362	Showing
4	Gijang Ghose Danda	Tanahu	27.917	84.45	Showing, old working
5	Mapes Khola	Baglung	28.331	83.367	Showing
6	Dhuwakot	Parbat	28.133	83.7	Occurrence, old working
7	Barchyang	Tanahu	27.917	84.183	Occurrence
8	Kandebas	Baglung	28.208	83.363	Occurrence

TANTALUM – NOBIUM

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sandi Khola	Gorkha	28.072	84.568	Showing

URANIUM (U)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Lomangthang	Mustang	29.202	83.867	Economic/Sub-economic

ZINC (Zn)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Gijang Ghose Danda	Tanahu	27.917	84.45	Showing
2	Mapes Khola	Baglung	28.331	83.367	Showing
3	Barchyang	Tanahu	27.917	84.183	Occurrence

NON METALLIC MINERALS**FELDSPAR**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ampipal	Gorkha	28.067	84.55	Economic
2	Uram Pokhara	Parbat	28.04	83.624	Occurrence

PYRITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Andhi Khola	Syangja	27.967	83.608	Showing
2	Khanigaon	Gorkha	27.967	84.45	Showing
3	Jhargaon	Tanahu	27.907	84.437	Showing

TALC

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bandare	Baglung	28.3	83.489	Showing
2	Rakhu (Kharikhola)	Myagdi	28.417	83.567	Occurrence
3	Pumdibhumdi	Kaski	28.2	83.967	Showing, mining
4	Phirphire	Tanahu	28.067	84.008	Showing, mining
5	Dhorphirdi	Tanahu	28.075	84.025	Showing

COMMON SALT BRINE SEEPS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Narsingh Khola	Mustang	28.913	83.88	Occurrence, mining
2	Chelegaon	Mustang	28.921	83.829	Showing
3	Chhirdi Khola	Mustang	29.175	84.1	Occurrence
4	Lamjung	Lamjung	28.204	84.373	Showing
5	Tetang	Mustang	28.913	83.879	Showing
6	Kusum Khola	Mustang	29.175	84.1	Showing
7	Bhulbhule	Lamjung	28.289	84.404	Showing
8	Darimbot	Lamjung	28.238	84.45	Showing
9	Nandiswara	Lamjung	28.267	84.391	Showing
10	Chipling	Lamjung	28.408	84.415	Showing
11	Kahulepatal	Lamjung	28.258	84.383	Showing
12	Tatopani-Bahundanda	Lamjung	28.341	84.408	Showing
13	Thar Khola	Lamjung	28.333	84.333	Showing
14	Pani Nunkhani	Lamjung	28.364	84.408	Showing
15	Jagat	Lamjung	28.422	84.408	Showing

DOLOMITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Udaipur (Sindhali)	Udaypur	26.9	86.683	Economic
2	Odare	Tanahun	28.031	84.301	Sub- Economic
3	Baidi	Tanahun	27.866	84.3	Sub- Economic

NON METALLIC MINERALS
(Construction materials)

GRANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Manaslu	Gorkha/Manang	28.667	84.583	Large deposit
2	Mustang	Mustang/Dolpa	29.05	83.75	Large deposit

GYPSUM

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Mustang	Mustang	28.913	83.879	Occurrence

LIMESTONE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Waling	Syangja	28.083	83.867	Occurrence
2	Ghyalchok	Gorkha	28	84.712	Economic
3	Ghasikuwa	Tanahun	27.997	84.32	Economic

QUARTZITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Naudanda (Syangja)	Syangja	28.15	83.88	Occurrence
2	Deurali	Parbat/Syangja	28.117	83.708	Occurrence
3	Tara	Baglung	28.32	83.36	Economic/Sub- economic

SLATE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Gaighat	Chitwan/Tanahu	27.783	84.45	Occurrence
2	Bandipur	Tanahu	27.933	84.433	Occurrence
3	Sinchyang	Tanahu	27.833	84.433	Occurrence
4	Mele-Phaperkhet	Baglung	28.275	83.483	Occurrence
5	Ruma	Myagdi	28.391	83.341	Occurrence
6	Keladighat	Palpa/Syangja	27.891	83.933	Occurrence
7	Tukucho	Mustang	28.725	83.65	Occurrence

SYENITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ampipal	Gorkha	28.067	84.55	Economic

FUEL MINERALS AND THERMAL SPRINGS**COAL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kagbeni (Chanche)	Mustang	28.842	83.758	Occurrence

GEOHERMAL HOT SPRINGS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Mayangdi	Myagdi	28.369	83.509	Occurrence
2	Kali Gandaki	Myagdi	28.497	83.658	Occurrence
3	Sekeharku	Myagdi	28.457	83.626	Occurrence
4	Seti Khola	Kaski	28.419	83.995	Occurrence
5	Nayagaon	Kaski	28.36	83.962	Occurrence
6	Chitepani-1	Kaski	28.29	83.954	Occurrence
7	Marsyangdi	Lamjung	28.15	84.373	Occurrence
8	Chiteopani-2	Kaski	28.226	84.072	Occurrence
9	Jagat	Gorkha	28.414	84.406	Occurrence
10	Machhi Khola	Gorkha	28.227	84.875	Occurrence

OIL AND GAS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Muktinath	Mustang	28.808	83.889	Occurrence

NON METALLIC MINERALS**(Gem Minerals)****AQUAMARINE/BERYL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Naje	Manang	28.504	84.363	Showing

TOURMALINE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Naje	Manang/Lamjung	28.45	84.367	Sub-economic

Source: Department of Mines & Geology

Table 3.1.5 : Mineral Distribution in Lumbini Province**METALLIC MINERALS****ARSENIC (As)**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Khalero Khola	Rolpa	28.338	82.908	Showing
2	Bharepa Khola	Rolpa	28.341	82.908	Showing
3	Bhitriban Khola	Rolpa	28.375	82.917	Showing

COBALT (Co)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Netadurling	Gulmi	28.25	83.183	Showing, old working
2	Samarbhamar	Arghakhanchi	28.083	83.1	Occurrence, old working
3	Tamghas	Gulmi	28.067	83.25	Occurrence, old working

FUEL MINERALS AND THERMAL SPRINGS**COAL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Tosh	Dang	28.004	82.517	Economic, mining
2	Koilabas	Dang	27.7	82.517	Occurrence
3	Sisneri	Dang	28.083	82.606	Occurrence
4	Madday Khajuri	Dang	28.033	82.608	Occurrence
5	Siuja	Dang	28.067	82.604	Economic, mining
6	Chhap	Dang	28.075	82.6	Economic, mining
7	Khara	Rolpa	28.142	82.492	Economic, mining
8	Dubring	Rolpa	28.171	82.475	Economic, mining
9	Sarpani	Rolpa	28.246	82.4	Economic, mining
10	Naulo Khola	Dang	28.21	82.275	Economic, mining
11	Ajimara	Dang	28.2	82.267	Economic, mining
12	Boksi Khola	Dang	28.217	82.225	Economic, mining
13	Loharpani	Dang	27.998	82.717	Economic, mining
14	Murkuti	Dang	28	82.704	Economic, mining
15	Phalide	Dang	28.05	82.583	Economic, mining
16	Chhipan	Dang	28.054	82.6	Economic, mining
17	Jumlipani	Dang	28.017	82.617	Economic, mining
18	Dabang	Dang	28.008	82.65	Economic, mining
19	Sibang	Dang	28.225	82.375	Economic, mining
20	Pakhapani	Dang	28.227	82.342	Economic, mining
21	Asarkot Danda	Dang	28.2	82.292	Occurrence
22	Mettaura Goan	Rolpa	28.2	82.433	Occurrence
23	Simaldi	Palpa	27.817	83.714	Economic
24	Chirtung Danda	Palpa	27.802	83.714	Occurrence
25	Purwa Khola	Palpa	27.819	83.731	Occurrence
26	Agha Khola	Palpa	27.838	83.689	Occurrence
27	East of Tansen	Palpa	27.864	83.556	Occurrence
28	Sisne Khola	Palpa	27.858	83.564	Occurrence
29	Ripdikot Danda	Palpa	27.835	83.425	Occurrence
30	Phek	Palpa	27.814	83.417	Occurrence
31	Lummas	Palpa	27.832	83.4	Occurrence
32	Ghat Khola	Palpa	27.846	83.408	Occurrence
33	Tila	Rolpa	28.324	82.509	Occurrence

GEOHERMAL HOT SPRINGS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Rear	Dang	27.917	82.333	Occurrence

OIL AND GAS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Rear	Dang	27.917	82.333	Occurrence

Source: Department of Mines & Geology

Table 3.1.6 : Mineral Distribution in Karnali Province**METALLIC MINERALS****COPPER (Cu)-I**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ghorkhani	Rukum paschim	28.604	82.574	Occurrence, old working
2	Gumi	Surkhet	28.5	81.825	Showing, old working
3	Surkhet	Surkhet	28.416	81.866	Showing
4	Mugu Karnali	Mugu	29.533	82.08	Showing

GOLD (Au)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bargo	Rukum Paschim	28.543	82.829	Primary, occurrence
2	Karnali River	Kailali	28.675	81.25	Placer, occurrence

IRON (Fe)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Pharsa	Surkhet	28.5	81.825	Showing
2	Salimar valley	Mugu/Humla	29.616	81.833	Showing
3	Jajarkot	Jajarkot	28.866	82.266	Showing
4	Nayakwada	Salyan	28.57	82.254	Showing
5	Ramidanda	Jajarkot	28.941	82.25	Showing
6	Barakot	Dolpa	28.841	82.991	Showing
7	Nayak Bada	Jajarkot	28.962	88.273	Occurrence
8	Digabha Danda	Mugu	29.493	82.004	Showing

LEAD (Pb)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Salimar Valley	Humla/Mugu	29.666	81.833	Occurrence
2	Chairo Khola	Achham	29.108	81.283	Showing

ZINC (Zn)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Salimar Valley	Mugu/Humla	29.666	81.833	Occurrence

NON METALLIC MINERALS**BARITE**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Tri flowing from Urathi & Latepani	Surkhet	28.458	81.875	Showing

CALCITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kajeri	Salyan	28.408	82.175	Occurrence
2	Kalgaon	Salyan	28.6	82.2	Sub- economic

CLAY

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Guttu	Surkhet	28.841	81.321	Red clay (Economic)
2	Golchekhola	Surkhet	28.417	81.833	Red clay (Economic)

PYRITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Jatro Gad	Kalikot	29.26	81.527	Showing

TALC

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Rati Khola	Surkhet	28.667	81.617	Showing

COMMON SALT BRINE SEEPS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Chharkabhot	Dolpa	29.089	83.362	Occurrence
2	Jima	Mugu	29.617	81.975	Showing
3	Namda	Dolpa	29.467	83.083	Showing

DOLOMITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sattal	Surkhet	28.442	81.9	Occurrence
2	Kot	Surkhet	28.383	81.942	Occurrence

NON METALLIC MINERALS**(Construction materials)****BASIC ROCK**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Rakma	Dailekh	29.051	81.458	Occurrence
2	Ranimatta	Surkhet	28.658	81.646	Occurrence
3	Sinja Khola	Jumla	29.4	81.958	Occurrence

GRANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Mustang	Mustang/Dolpa	29.05	83.75	Large deposit
2	Mugu	Mugu/Humla	29.8	82.533	Large deposit
3	Saipal	Humla	30.083	81.333	Large deposit
4	Dailekh	Dailekh	28.867	81.833	Large deposit

LIMESTONE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Surkhet (Chaukune)	Surkhet	28.867	81.283	Economic
2	Kajeri (Halchaur)	Salyan	28.408	82.175	Economic
3	Sarada	Dang/Salyan	28.25	82.25	Occurrence
4	Lakharpata	Surkhet	28.75	81.5	Economic
5	Kurichaur	Salyan	28.425	82	Occurrence
6	Kajeri	Salyan	27.557	83.356	Economic
7	Lamakhali	Salyan	28.428	82.135	Economic

SLATE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Khutilekh	Dailekh	28.95	81.75	Occurrence

FUEL MINERALS AND THERMAL SPRINGS**GEOTHERMAL HOT SPRINGS**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Jumla	Jumla	29.271	82.142	Occurrence

OIL AND GAS

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Padukasthan	Dailekh	28.9	81.554	Occurrence
2	Sirsasthan	Dailekh	28.842	81.68	Occurrence
3	Nabhisthan	Dailekh	28.85	81.671	Occurrence

NON METALLIC MINERALS**(Gem Minerals)****AQUAMARINE/BERYL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Lekh Patan	Jajarkot	28.817	82.1	Sub-economic

KYANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Daha	Jajarkot	28.875	82.083	Economic, mining (Kyanite + Tourmaline)
2	Bharta	Kalikot	29.052	81.064	Sub- economic/Mining
3	Archhani	Jajarkot	28.855	82.097	Sub- economic/Mining
4	Saureni	Jajarkot	28.86	82.065	Sub- economic/Mining
5	Garkhakot	Jajarkot	28.863	82.017	Sub- economic/Mining
6	Paik	Jajarkot	28.934	82.127	Sub- economic/Mining
7	Bishala	Dailekh	29.047	81.577	Sub- economic/Mining

QUARTZ

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ripa	Humla	29.73	81.885	Sub- economic

TOURMALINE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Tikachaur	Jajarkot	28.8	82.05	Occurrence
2	Bajh	Jajarkot	28.958	81.983	Sub- economic
3	Garkhakot	Jajarkot	28.892	82.033	Sub- economic
4	Paik	Jajarkot	29.935	82.127	Sub- economic
5	Archhani	Jajarkot	28.855	82.097	Sub- economic
6	Pajaru	Jajarkot	28.83	82.043	Sub- economic

Source: Department of Mines & Geology

Table 3.1.7 : Mineral Distribution in Sudur Pashchim Province**METALLIC MINERALS****ANTIMONY (Sb)**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bauli Gad	Bajhang	29.708	81.129	Showing

ARSENIC (As)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bamangaon	Dadeldhura	29.292	80.678	Showing
2	Bauli Gad	Bajhang	29.708	81.129	Showing
3	Meddi	Dadeldhura	29.267	80.7	Showing

BISMUTH (Bi)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bamangaon	Dadeldhura	29.292	80.678	Showing
2	Bauli Gad	Bajhang	29.708	81.129	Occurrence

CHROMIUM (Cr)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bauligad	Bajhang	29.708	81.129	Showing

COBALT (Co)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bauli Gad	Bajhang	29.708	81.129	Showing

COPPER (Cu)-I

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Judia (Marma)	Darchula	29.816	80.866	Occurrence, old working
2	Bamangaon	Dadeldhura	29.291	80.678	Sub-economic
3	Khandeshwari	Darchula	29.792	80.895	Occurrence, old working
4	Danfchuli	Darchula	29.842	80.862	Occurrence, old working
5	Arkhar (Ghusa)	Darchula	29.844	80.891	Occurrence, old working
6	Bauli Gad (upper part)	Bajhang	29.708	81.129	Occurrence
7	Neti Khola	Bajura	29.648	81.688	Occurrence
8	Lali Gad	Darchula	29.68	80.433	Occurrence
9	Dhalaun	Bajhang	29.693	81.363	Occurrence
10	Khatiyaro Khola	Bajhang	29.533	81.047	Occurrence
11	Sheri	Bajhang	29.6	81.03	Occurrence, old working
12	Baikatya	Bajhang	29.529	81.016	Occurrence
13	Bauli Gad	Bajhang	29.693	81.152	Occurrence
14	Manakot	Bajura	29.479	81.386	Occurrence
15	Dangri Khola	Bajhang	29.517	81.25	Occurrence
16	Trib of Seti	Doti	29.008	81.116	Showing
17	Banku Gad	Darchula	29.694	80.4	Showing
18	Thini Khola	Bajura	29.45	81.704	Showing

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
19	Tusari gad	Bajura	29.508	81.433	Showing
20	Matailoko Khola	Baitadi	29.391	80.3	Showing
21	Ganera	Dadeldhura	29.267	80.725	Showing
22	Thulo Khola	Dadeldhura	29.35	80.483	Showing
23	Ritthe Khola	Dadeldhura	29.291	80.691	Showing
24	Gal	Dadeldhura	29.341	80.433	Showing
25	Batmunidhari	Darchula	29.867	80.598	Showing
26	Kaligad	Darchula	29.9	80.617	Showing
27	Rheti	Darchula	29.883	80.567	Showing
28	Kaude Khola	Dadeldhura	29.279	80.711	Showing
29	Sirsegad	Dadeldhura	29.183	80.383	Showing
30	Nagra-chedikhola	Doti	29.317	81.067	Showing
31	Melmura	Dadeldhura	29.283	80.665	Showing
32	Ghattegad	Doti	29.283	80.797	Showing
33	Dulanikaya Gad	Dadeldhura	29.283	80.634	Showing

GOLD (Au)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Naridang (Seti River)	Doti	29.183	81.025	Placer, occurrence
2	Bangabagar	Baitadi	29.655	80.526	Primary, occurrence
3	Gorang	Baitadi	29.604	80.583	Primary, occurrence
4	Sunigad	Bajhang	29.6	81.215	Placer, occurrence
5	Bauli Gad	Bajhang	29.563	81.183	Placer, showing
6	Taru Gad	Bajhang	29.5	81.054	Placer, showing
7	DhauilGad	Bajhang	29.597	81.033	Placer, showing
8	Seti River	Bajhang	29.6	80.775	Placer, occurrence
9	Jamari Gad	Baitadi	29.64	80.517	Placer, showing
10	Panjunaya (Chamaliya R)	Baitadi	29.629	80.5	Placer, occurrence
11	Raktadi (Chamaliya R)	Baitadi	29.615	80.421	Placer, occurrence
12	Mahakali River	Baitadi	29.542	80.342	Placer, occurrence
13	Lali Gad	Darchula	29.667	80.417	Placer, showing
14	Bamangaon	Dadeldhura	29.292	80.678	Primary, occurrence
15	Lachhi Gad (trib of Seti R)	Bajhang	29.548	81.256	Placer, showing
16	Bithar Gad (trib of Kalanga R)	Doti	29.33	80.804	Placer, showing
17	Kalanga Gad	Bajhang	29.483	80.9	Placer, showing
18	Rakma (Karnali R)	Achham	29.054	81.45	Placer, showing
19	Gothi (Karnali R)	Bajura	29.483	81.721	Placer, showing
20	Nyuna (Seti R)	Bajhang	29.738	81.3	Placer, showing
21	Khatero	Baitadi	29.417	80.867	Placer, occurrence
22	Ghatte gad	Doti	29.283	80.797	Placer, occurrence

IRON (Fe)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Ekghar	Bajhang	29.645	80.975	Occurrence, old working
2	Kachali	Bajhang	29.512	80.895	Occurrence, old working
3	Patturi	Bajhang	29.608	81.129	Occurrence, old working
4	Bhatgaon	Bajhang	29.604	81.245	Occurrence, old working
5	Khatauda	Baitadi	29.483	80.633	Showing
6	Baitadi	Baitadi	29.441	80.583	Showing

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
7	Jajarkot	Jajarkot	28.866	82.266	Showing
8	Lali Gad	Darchula	29.676	80.429	Occurrence
9	Banku Gad	Darchula	29.686	80.395	Occurrence
10	Patya	Bajura	29.541	81.395	Showing
11	Neta	Bajura	29.654	81.693	Showing
12	Purchaunri (Lamuni Gad)	Baitadi	29.558	80.636	Occurrence, old working
13	Jaban	Bajhang	29.633	80.866	Occurrence
14	Kesharpur	Baitadi	29.417	80.433	Showing
15	Dhola	Baitadi	29.617	80.517	Showing
16	Lamuni	Baitadi	29.583	80.667	Showing
17	Gwani	Doti	29.054	80.725	Showing
18	Aiyadi	Baitadi	29.586	80.542	Showing

LEAD (Pb)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Dil Gad	Bajhang	29.517	81.176	Showing
2	Matailo Khola	Baitadi	29.391	80.3	Showing
3	Chaki (Sirsegad)	Dadeldhura	29.191	80.308	Showing
4	Thulo Khola	Dadeldhura	29.35	80.483	Showing
5	Melmura (Lula Khola)	Dadeldhura	29.283	80.665	Showing
6	Manakot-tanakot	Bajura	29.479	81.386	Showing
7	Dhap	Darchula	29.75	80.54	Sub-economic

LITHIUM (Li)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Khaptad	Doti/Bajhang	29.389	81.15	Showing

MOLYBDENUM (Mo)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bamangaon	Dadeldhura	29.292	80.678	Showing
2	Bauli Gad	Bajhang	29.7	81.15	Showing
3	Melmura	Dadeldhura	29.283	80.665	Showing
4	Dulanikayagad	Dadeldhura	29.283	80.635	Showing

NICKEL (Ni)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bamangaon	Dadeldhura	29.292	80.678	Occurrence
2	Bauli Gad	Bajhang	29.708	81.129	Showing

SILVER (Ag)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bamangaon	Dadeldhura	29.292	80.678	Occurrence
2	Thulo Khola	Dadeldhura	29.291	80.683	Showing

TIN (Sn)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Melmura	Dadeldhura	29.283	80.665	Occurrence
2	Meddi	Dadeldhura	29.275	80.708	Occurrence
3	Jainaule	Dadeldhura	29.267	80.717	Showing
4	Sumailo Khola	Dadeldhura	29.308	80.458	Showing
5	Basani Gad	Dadeldhura	29.333	80.567	Showing
6	Dudola Khola (Jijora)	Dadeldhura	29.317	80.567	Showing
7	Ganera	Dadeldhura	29.267	80.725	Showing
8	Ghattegad	Doti	29.271	80.775	Showing
9	Bauli Gad	Bajhang	29.708	81.129	Showing

TUNGSTEN (W)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bamangaon	Dadeldhura	29.283	80.678	Occurrence
2	Melmura	Dadeldhura	29.283	80.665	Showing
3	Satigaon	Dadeldhura	29.317	80.4	Showing
4	Jaikhola	Dadeldhura	29.208	80.391	Showing
5	Poknagad	Dadeldhura	29.2	80.4	Showing
6	Sumailo Khola	Dadeldhura	29.308	80.458	Showing
7	Gangat Khola	Dadeldhura	29.163	80.508	Showing
8	Dudola Khola (Jijora)	Dadeldhura	29.317	80.567	Showing
9	Kaluwa Gad	Dadeldhura	29.158	80.533	Showing
10	Sikri Khola	Dolkha	27.6	86.233	Showing

URANIUM (U)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bangabagar-Baggot	Baitadi	29.655	80.526	Occurrence
2	Gorang (east)	Baitadi	29.608	80.592	Occurrence
3	Gorang (West)	Baitadi	29.604	80.583	Occurrence
4	Jamari	Baitadi	29.64	80.517	Occurrence
5	Sani Gad	Baitadi	29.629	80.533	Showing
6	Chaupata	Darchula	29.679	80.464	Showing
7	Pautali (Laili Gad)	Darchula	29.694	80.447	Showing
8	Banku	Darchula	29.7	80.383	Showing
9	Uku Gad	Darchula	29.729	80.383	Occurrence
10	Bage Gad (west)	Baitadi	29.604	80.722	Occurrence
11	Bage Gad (east)	Baitadi	29.61	80.754	Occurrence
12	Devlek (Ghatti Gad)	Bajhang	29.523	80.824	Occurrence
13	Nimli Gad (upper part)	Bajhang	29.596	80.791	Occurrence
14	Buriganga	Achham	29.13	81.172	Showing
15	Sain Gad	Bajhang	29.537	81.038	Occurrence
16	Lumthi	Darchula	29.796	80.837	Showing
17	Kodari Gad	Bajura	29.4	81.454	Showing

ZINC (Zn)

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Dil Gad	Bajhang	29.517	81.176	Showing
2	Matailo Khola	Baitadi	29.391	80.3	Showing
3	Chaki (Sirsegad)	Dadeldhura	29.191	80.308	Showing
4	Thulo Khola	Dadeldhura	29.35	80.483	Showing

NON METALLIC MINERALS**MAGNESITE**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Baitadi	Baitadi	29.533	80.55	Occurrence
2	Jamari Gad	Baitadi	29.638	80.525	Occurrence
3	Buda Gad	Darchula	29.671	80.429	Showing
4	Bir Khola	Bajhang	29.563	80.813	Showing
5	Kadachaur	Bajhang	29.563	80.941	Showing
6	Bhakari Khola	Baitadi	29.663	80.708	Occurrence
7	Banian	Baitadi	29.583	80.583	Showing
8	Salleri	Baitadi	29.579	80.6	Showing
9	Vasail	Baitadi	29.6	80.617	Showing
10	Dhik Gad	Baitadi	29.578	80.572	Occurrence

MICA

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bajhang	Bajhang	29.517	81.133	Showing
2	Khaptad	Doti/Bajhang	29.383	81.15	Occurrence, old working
3	Bhasuban	Accham	29.333	81.15	Occurrence, old working
4	Balaita	Accham	29.341	81.175	Occurrence
5	Baskota	Accham	29.258	81.167	Occurrence
6	Burkot	Accham	29.279	81.2	Showing

PEGMATITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bhasuban	Doti/Achham	29.288	81.125	Occurrence
2	Budakot	Achham	29.288	81.2	Occurrence
3	Khaptad	Doti/Bajhang	29.39	81.167	Occurrence

PHOSPHORITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
2	Dhik Gad	Baitadi	29.6	80.508	Sub-economic
3	Junkuna	Baitadi	29.575	80.6	Sub-economic
4	Sangaon	Baitadi	29.57	80.722	Sub-economic
5	Taru Gad	Bajhang	29.529	81.047	Sub-economic
6	Juil Gad	Bajhang	29.538	80.979	Sub-economic
7	Goichan - Kadachaur	Bajhang	29.592	80.958	Sub-economic
8	Bajura	Bajura	29.483	81.45	Occurrence
10	Moregaon	Baitadi	29.576	80.633	Occurrence
12	Basaur	Baitadi	29.586	80.54	Showing

PYRITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Dwari Gad	Bajhang	29.592	81.256	Occurrence
2	Gamre Gad	Achham	29.122	81.463	Showing
3	Parpali Gad	Achham	29.244	81.172	Showing
4	Khatiyaro Khola	Bajhang	29.533	81.047	Occurrence
5	Banku Gad	Darchula	29.689	80.396	Occurrence
6	Regmi Gad	Bajhang	29.431	80.946	Showing

TALC

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Durga Bhawani	Baitadi	29.555	80.458	Sub-economic
2	Sirkot	Baitadi	29.555	80.517	Sub-economic
3	Goani	Darchula	29.752	80.537	Sub-economic
4	Kotpatera	Darchula	29.67	80.484	Sub-economic

DOLOMITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Diyari Gad	Baitadi	29.55	80.533	Occurrence
2	Osil Gad	Darchula	29.717	80.822	Occurrence

NON METALLIC MINERALS**(Construction materials)****BASIC ROCK**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Darchula road (South of Gokule)	Baitadi	29.656	80.531	Occurrence
2	Sani Gad	Baitadi	29.633	80.535	Occurrence
3	Ghorari	Baitadi	29.625	80.547	Occurrence
4	Kholi	Baitadi	29.617	80.561	Occurrence
5	Jamari Gad	Baitadi	29.638	80.539	Occurrence
6	Wari Gorang	Baitadi	29.614	80.583	Occurrence
7	Pari Gorang	Baitadi	29.622	80.592	Occurrence
8	Kerda	Baitadi	29.621	80.564	Occurrence
9	Bohara Gad	Darchula	29.661	80.517	Occurrence
10	Lali Gad	Darchula	29.681	80.442	Occurrence
11	Banku	Darchula	29.692	80.389	Occurrence
12	Maubhari Gad	Baitadi	29.61	80.617	Occurrence
13	Ghatte Gad	Baitadi	29.614	80.65	Occurrence
14	Patthar Gad	Baitadi	29.625	80.646	Occurrence
15	Mar Gad	Baitadi	29.621	80.677	Occurrence
16	Hat	Baitadi	29.604	80.708	Occurrence
17	Bage Gad	Baitadi	29.625	80.771	Occurrence
18	Loli Gad	Baitadi	29.629	80.721	Occurrence
19	Khatera Khola	Bajhang	29.558	81.029	Occurrence
20	Khatiyaro Khola	Bajhang	29.549	81.053	Occurrence
21	Dsheri	Bajhang	29.6	81.033	Occurrence

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
22	Lachhi Gad	Bajhang	29.525	81.304	Occurrence
23	Dwari Gad	Bajhang	29.563	81.332	Occurrence
24	Badigaon	Bajhang	29.597	81.354	Occurrence
25	Gothaman Goth	Bajhang	29.65	81.324	Occurrence
26	Lisni Gad	Bajhang	29.671	81.34	Occurrence
27	Ganai Gad	Bajhang	29.692	81.358	Occurrence
28	Ghat Gad	Bajhang	29.721	81.346	Occurrence
29	Tusari Gad	Bajuara	29.508	81.431	Occurrence
30	Gandi Gad	Doti	29.213	81.033	Occurrence
31	Seti River	Doti	29.192	81.021	Occurrence
32	Sherali Khola	Doti	29.15	81.042	Occurrence
33	Kachali Khola	Doti	29.125	81.053	Occurrence
34	Patal Gad	Achham	29.189	81.267	Occurrence
35	Semrial Gad	Achham	29.175	81.3	Occurrence
36	Buriganga River	Achham	29.165	81.217	Occurrence
37	Kailash Khola	Achham	29.329	81.25	Occurrence
38	Shameziro Khola	Achham	29.039	81.275	Occurrence
39	Dungala	Achham	29.071	81.321	Occurrence
40	Kalapani (Bari Gad)	Bajura	29.513	81.629	Occurrence
41	Bandu	Bajura	29.479	81.717	Occurrence
42	Kodari Gad	Bajura	29.413	81.438	Occurrence

GRANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Doti	Doti	29.167	80.667	Large deposit
2	Khaptad (Gr-gneiss)	Doti/Bajhang	29.35	81.117	Large deposit
3	Dadeldhura	Dadeldhura	29.15	80.583	Large deposit

LIMESTONE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Diyari Gad	Baitadi	29.55	80.533	Economic
2	Bhumeshwar	Baitadi	29.488	80.533	Economic
3	Chauraha	Baitadi	29.525	80.504	Economic

QUARTZITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Dhaulkana	Bajhang	29.633	80.788	Occurrence
2	Panju Naya (Rt Bank of chamaliya R)	Darchula	29.638	80.504	Occurrence

SLATE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	East of Sungala	Bajhang	29.507	81.133	Occurrence
2	Regmi Gad	Bajhang/Doti	29.431	80.946	Occurrence
3	Bedupani Khola	Dadeldhura	29.35	80.691	Occurrence

FUEL MINERALS AND THERMAL SPRINGS**GEOTHERMAL HOT SPRINGS**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Sirbari	Darchula	29.867	80.55	Occurrence
2	Sina	Darchula	29.883	80.683	Occurrence
3	Joeligad	Bajhang	29.633	81.083	Occurrence
4	Chainpur	Bajhang	29.596	81.243	Occurrence
5	Barpata	Darchula	29.733	80.783	Occurrence
6	Bauligad	Bajhang	29.575	81.167	Occurrence

COAL

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Nigale (Kankari)	Doti	29.233	80.8	Showing

NON METALLIC MINERALS**(Gem Minerals)****AQUAMARINE/BERYL**

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Khaptad	Doti/Bajhang	29.392	81.15	Occurrence

KYANITE

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Bhasuba	Achham	29.283	81.125	Showing
2	Burkot	Achham	29.279	81.2	Showing
3	Barala	Achham	29.154	81.486	Sub- economic/Mining

QUARTZ

S.N.	LOCATION	DISTRICT	LATITUDE	LONGITUDE	STATUS
			(Degree)	(Degree)	
1	Kada	Bajhang	29.73	81.23	Sub- economic

Source: Department of Mines & Geology

Table 3.1.8 : Primary Production and Import of Coal in Nepal,

					(Unit in 000 tons)	
Year	Primary Production	Import	Total	Change in %		
1998/99	10.95	104.22	115.17			
1999/00	17.53	400.62	418.15		263.07	
2000/01	16.59	279.84	296.43		-29.11	
2001/02	9.61	248.39	258		-12.96	
2002/03	11.85	215.91	227.76		-11.72	
2003/04	10.46	279.84	290.3		27.46	
2004/05	9.29	247.88	257.17		-11.41	
2005/06	11.96	400.62	412.58		60.43	
2006/07	19.58	239.48	259.06		-37.21	
2007/08	14.02	314.12	328.14		26.67	
2008/09	14.82	293.76	308.58		-5.96	
2009/10	11.8	473.15	484.95		57.15	
2010/11	13.16	476.25	489.41		0.92	
2011/12	9.41	355.77	365.18		-25.38	
2012/13	14.08	443.32	457.4		25.25	
2013/14	8.2	459	467.2		2.14	
2014/15	6.8	794	800.8		71.4	
2015/16	1.7	762	763.7		-4.63	
2016/17	8.2	992	1000.2		30.97	
2017/18	11.8	1302	1313.8		31.35	
2018/19	NA	1667.61	1667.61		26.93	
2019/20	7	1340.19	1,347		-19.2	
2020/21	11.3	1911.81	1,923		42.72	
2021/22	6.93	1781.22	1,788		-7.02	

Source: Department of Mines & Department of Customs

Table 3.2.1 : Energy Consumption by Sector in '000 ToE

Item	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Traditional	9104	9227	9319	9473	9601	9624	9901.11	9808.89
Firewood	8264	8376	8459	8604	8720	8762	9023.23	8946.28
Agricultural residues	408	414	418	425	431	436	448.61	429.1
Cow dung	432	438	442	444	450	427	429.14	433.51
Commercial	2331.44	2248.20	3253.00	3715	4115	4488	4683.68	5091.55
Coal	465	536.25	664	762	970	1046	1395.95	1388.85
Petroleum Products	1469.16	1275.39	2088.00	2388	2633	2895	26.57.81	2943.97
Electricity	397.28	436.56	501	565	512	547	629.92	758.73
Renewable	292.12	292.49	294.00	296	299	352	359.07	384.87
Total	11727.83	11767.87	12866.00	13484	14015	14464	14943.86	15285.31

Source: WECS 2017 and 2022 and economic Survey2022/23

Table 3.2.2 : District Wise RETs Installed under Alternative Energy Promotion Centre (till 2077/78)

District	MHP		beneficiary HH by MHP		Domestic Biogas		Large Biogas		District			Improved cooked stove			District		SHS		District		ISPS		Solar Drinking water		Household solar Energy		Solar Irrigation till 077-78	
	No. of Project	Total kW	Total HHs	No. of Systems	No. of Systems	No. of Systems	No. of Systems	Total Mud ICS	Metallic ICS	Number of IWM	District	District	District	District	District	District	District	District	District	District	Number	Capacity (wP)	No. of Systems	Number of Systems	Number of Systems	Number of Systems	Number of Systems	
Achham	52	1236	13619	28				9112	204	142	Achham	Achham	24294	146	191850	7	24294	2			146	191850	7	24294	2		2	
Arghakhanchi	2	9.5	146	952			30098	433			Arghakhanchi	Arghakhanchi	9517	37	68000	2	9517	12			37	68000	2	9517	12		12	
Baglung	145	3646	33931	999	2		26465	509	40		Baglung	Baglung	4074	25	92000	3	4074				25	92000	3	4074			3	
Baitadi	30	617	6395	78			12136	19	522		Baitadi	Baitadi	23053	80	127850	3	23053				80	127850	3	23053			3	
Bajhang	58	1546	17001	283			5883	642	215		Bajhang	Bajhang	22115	153	232420	1	22115				153	232420	1	22115			1	
Bajura	41	1759	19391	8			3247	1486	124		Bajura	Bajura	8414	69	103440		8414				69	103440		8414			107	
Banke				6791	4		1329	987			Banke	Banke	13874	18	41500		13874				18	41500		13874			107	
Bara				6622	4		9779	1096			Bara	Bara	5226	7	14000		5226				7	14000		5226			86	
Bardiya				13627	1		1342	1171			Bardiya	Bardiya	5459	3	6000		5459				3	6000		5459			43	
Bhaktapur				848	7		1247	2178			Bhaktapur	Bhaktapur															6	
Bhojpur	41	508	4845	276			14892	142			Bhojpur	Bhojpur	15142	21	37000		15142				21	37000		15142			21	
Chitwan	9	31.5	570	20382	13		342	89	18		Chitwan	Chitwan	13450	24	73100		13450				24	73100		13450			174	
Dadeldhura	12	123	1173	216			8413	15	231		Dadeldhura	Dadeldhura	4606	6	9500		4606				6	9500		4606			3	
Dalekh	16	278	2984	233			19910	812	275		Dalekh	Dalekh	42445	73	109000		42445				73	109000		42445			9	
Dang				13725	4		18632	735			Dang	Dang	13330	20	38000		13330				20	38000		13330			21	
Darchula	17	554	6266	521			2505	513	242		Darchula	Darchula	16495	72	98055		16495				72	98055		16495			3	
Dhading	82	972	9075	10340	1		26810	8179	545		Dhading	Dhading	11979	27	35285		11979				27	35285		11979			19	
Dhankuta	5	163	1609	2654	2		28067	356	3		Dhankuta	Dhankuta	2012	5	10000		2012				5	10000		2012			19	
Dhanusa				1309			16585	855			Dhanusa	Dhanusa	313	36	69000		313				36	69000		313			33	
Dolakha	44	1196	11969	2244	1		17397	7369	629		Dolakha	Dolakha	3222	148	204030		3222				148	204030		3222			15	
Dolpa	9	396	3593	4			0	46	50		Dolpa	Dolpa	4797	65	78645		4797				65	78645		4797			2	
Doti	14	445	4154	131			15663	134	263		Doti	Doti	12953	53	69920		12953				53	69920		12953			2	
Gorkha	57	1016	10521	9035	2		8865	12372	57		Gorkha	Gorkha	5989	53	67370		5989				53	67370		5989			2	
Gulmi	21	399	4311	1765			43418	1781			Gulmi	Gulmi	13632	43	91000		13632				43	91000		13632			33	
Humla	17	518	4393	2			31	2669	13		Humla	Humla	4107	67	91825		4107				67	91825		4107			3	
Ilam	92	497	5030	6754	1		25103	948	69		Ilam	Ilam	5569	36	75500		5569				36	75500		5569			6	
Jajarkot	36	837	8765	95			13317	1511	295		Jajarkot	Jajarkot	28096	72	121500		28096				72	121500		28096			2	
Jhapa				26989	34		17798	1598			Jhapa	Jhapa	1414	32	73400		1414				32	73400		1414			99	
Jumla	29	830	8053	6			2	818	209		Jumla	Jumla	13292	119	170615		13292				119	170615		13292			58	
Kailali	2	9	186	30672	2		21690	756	125		Kailali	Kailali	25591	29	53500		25591				29	53500		25591			2	
Kailikot	13	581	4849	264			425	1680	591		Kailikot	Kailikot	22470	66	118500		22470				66	118500		22470			2	
Kanchanpur				19242			8677	837			Kanchanpur	Kanchanpur	2148	11	22000		2148				11	22000		2148			30	
Kapilvastu				5687			31534	76			Kapilvastu	Kapilvastu	278	4	17400		278				4	17400		278			100	

District	MHP	MHP	beneficiary HH by MHP	Domestic Biogas	Large Biogas	District		Improved cooked stove		District		SHS	District		ISPS		Solar Drinking water	Household solar Energy	Solar Irrigation till 077-78
	No. of Project	Total kW	Total HHs	No. of Systems	No. of Systems	Total Mud ICS	Metallic ICS	Number of IWM	Total Mud ICS	Metallic ICS	Number of IWM		Number	Capacity (wP)	No. of Systems	Number of Systems	Number of Systems		
Kaski	9	248	1876	19100	38	2855	1594	55	2855	1594	55	1792	12	24000	2	1792	2	1792	1
Kathmandu				1466	31	3596	1179		3596	1179			11	331000					
Kavrepalanchowk	82	968	9949	11887	10	23514	6958	810	23514	6958	810	4820	31	366000	2	4820	2	4820	8
khotang	48	892	8314	92	10	9516	141	18	9516	141	18	15233	43	73000	2	15233	2	15233	1
Lalitpur	13	45	441	1884	10	1718	1871	307	1718	1871	307	1442	5	11500		1442		1442	3
Lamjung	24	439	3819	12083	12	4947	1886	12	4947	1886	12	5402	20	41500		5402		5402	1
Mahottari				2546		32525	680		32525	680		1359	11	23000		1359		1359	26
Makwanpur	45	182	2308	28372	5	17543	4980	1205	17543	4980	1205	13968	30	54500	2	13968	2	13968	20
Manang	12	299	1688	0		16	68	5	16	68	5	135				135		135	
Morang				15299	41	8723	2027		8723	2027		2773	43	86500		2773		2773	152
Mugu	9	217	2271	8		18	2372	11	18	2372	11	8281	48	72660		8281		8281	5
Mustang				14		0	3	5	0	3	5	1333	31	27510		1333		1333	
Myagdi	38	562	5475	1078	2	11290	1456	23	11290	1456	23	4851	48	64145	1	4851	1	4851	
Nawalparasi E/W				12051	6	3695	585		3695	585		10113	19	51000	1	10113	1	10113	83
Nuwakot	10	86	912	5153	1	19640	10042	1198	19640	10042	1198	2547	1	1000		2547		2547	2
Okhaldhunga	67	1215	13064	708	3	12690	3704	200	12690	3704	200	13331	117	169190	3	13331	3	13331	6
Palpa	36	339	3571	8509	3	22987	121	1	22987	121	1	10279	18	37000	10	10279	10	10279	
Panchthar	68	897	9120	1002	3	16137	251	17	16137	251	17	9990	85	99300	16	9990	16	9990	
Parbat	13	194	1923	989	2	16792	388	5	16792	388	5	4504	2	4500		4504		4504	
Parisa				1458	5	7667	857		7667	857		1004	2	3000		1004		1004	175
Pyuthan	12	187	2083	1825	1	32572	56	78	32572	56	78	11682	22	32000		11682		11682	18
Ramechhap	42	438	4760	2190		21330	4479	440	21330	4479	440	13936	106	149880	13	13936	13	13936	
Rasuwa	6	63.5	702	750		3601	5480	187	3601	5480	187	1064				1064		1064	
Rautahat				3320		58056	3468		58056	3468		5184	15	19000		5184		5184	299
Rolpa	41	965	10102	313		12314	558	131	12314	558	131	48951	88	157000	19	48951	19	48951	12
Rukum				68		9768	330	162	9768	330	162	40291			8	40291	8	40291	
Rupandehi				8368	4	10489	548		10489	548		63	9	38800		63		63	33
Salyan	2	13	257	303		22690	238	216	22690	238	216	38256	96	139250	3	38256	3	38256	
Sankhuwasava	18	367	3024	659		19554	1011	5	19554	1011	5	10030	59	71120		10030		10030	
Saptari				1199	5	3881	6178		3881	6178		3344	6	12500		3344		3344	117
Sarlahi				6917	4	48274	2581		48274	2581		10793	31	52000	3	10793	3	10793	219
Sindhuli	43	419	4672	13119	2	10882	4862	438	10882	4862	438	30264	40	59500	7	30264	7	30264	7
Sindhupalchowk	45	417	4273	2439		16845	17330	678	16845	17330	678	2165	52	60500	1	2165	1	2165	1

District	MHP	MHP	beneficiary HH by MHP	Domestic Biogas	Large Biogas	District		Improved cooked stove			SHS	District	ISPS		Solar Drinking water	Household solar Energy	Solar Irrigation till 077-78
	No. of Project	Total kW	Total HHs	No. of Systems	No. of Systems	No. of Systems	Total Mud ICS	Metallic ICS	Number of IWM	Total ICS			Number	Capacity (wP)	No. of Systems	Number of Systems	Number of Systems
Siraha				1238	3	Siraha	13608	945			2516	Siraha	15	28000		2516	42
Solukhumbu	58	1752	14402	174		Solukhumbu	3137	828	31		4944	Solukhumbu	8	17500		4944	
Sunsari				5608	50	Sunsari	11806	950			1766	Sunsari	5	7000		1766	66
Surkhet	3	79	1025	4805	2	Surkhet	18977	552	493		29122	Surkhet	62	121000	16	29122	5
Syangja	7	157	1464	9871	5	Syangja	19739	805	1		4059	Syangja	20	39000	5	4059	2
Tanahun	22	273	2355	20561	18	Tanahu	13986	3328	1		11177	Tanahu	3	6000	15	11177	5
Taplejung	44	1436	13321	268	1	Taplejung	13727	902	2		7854	Taplejung	57	80210		7854	
Terhathum	38	468	4321	1859		Terhathum	18045	81			2400	Terhathum	8	16500		2400	
Udayapur	26	182	1865	7154	1	Udayapur	22214	1678	22		24057	Udayapur	33	57000	8	24057	37
Nawalparasi (E)	44	302.30	4,307			Nawalparasi E						Nawalparasi E			4		
Nawalparasi W						Nawalparasi W						Nawalparasi W			4		
Rukum (E)	30	994	10157			Rukum E						Rukum E	87	19700			
Rukum (W)	52	1216	12907			Rukum W						Rukum W	29	31000			

Source: Alternative Energy Promotion centre

Note: Parenthesis () figures are in under construction

Labels: SHS=Solar Home Systems; SSSS = Small Solar Home Systems; ISPS= Institutional Solar Photovoltaic Systems; PVPS = Photo Voltaic Pumping Systems;

IWM=Improved Water Mills; M/PHPS= Micro/Pico Hydro Plants; MSMEs=Micro, Small and Medium Enterprises; IICS=Institutional Improved Cooking Systems

Table 3.2.3: Total Number of Hydropower in Nepal with their Capacity

S. N.	Project	Capacity (MW)	River	Location	C O D
1	Khimti -I	60	Khimti Khola	Sahure, Hawa (Dolakha) Betali (Ramechhap)	3/27/2057
2	Devighat	14.1	Trishuli	(Nuwakot)	8/16/2041
3	Sun Koshi	10.05	Sun Koshi	(Sindhupalchok)	1/1/2029
4	Tinau	1.024	Tinau	(Palpa)	1/1/2038
5	Seti	1.5	Seti Khola	(Kaski)	7/16/2042
6	Marsyangdi	69	Marsyangdi	(Tanahu)	7/20/2046
7	Kulekhani-I	60	Kulekhani	(Makawanpur)	1/21/2039
8	Trishuli	24	Trishuli	(Nuwakot)	1/1/2024
9	Gandak	15	Narayani	(Nawalparasi)	12/19/2035
10	Panauti	2.4	Roshi	(Kabhrepalanchok)	1/1/2022
11	Tatopani	2	Tatopani	(Myagdi)	1/1/2045
12	Kulekhani-II	32	Kulekhani	(Makawanpur)	7/15/2043
13	Andhi Khola	9.4	Andhi Khola	(Syangja)	2/18/2048
14	Jhimruk Khola	12.5	Jhimruk	(Pyuthan)	4/17/2041
15	Puwa	6.2	Puwa	Ilam N.P. (Ilam)	12/22/2060
16	Modi Khola	14.8	Modi Khola	(Parbat)	8/16/2057
17	Kali Gandaki A	144	Kali Gandaki	Shreekrishna Gandaki (Syangja)	2059-04-31
18	Upper Bhotekoshi	45	Bhote Koshi	(Sindhupalchok)	10/11/2057
19	Chilime	22	Chilime	Chilime (Rasuwa)	5/7/2065
20	Indrawati -III	7.5	Indrawati Khola	Jyamire, Langarche (Sindhupalchok)	6/21/2059
21	Madhya Marsyangdi	70	Marsyangdi	(Lamjung)	7/16/2065
22	Piluwa Khola	3	Piluwa Khola	(Sankhuwasabha)	6/1/2060
23	Sunkoshi Small	2.6	Sun Koshi	(Sindhupalchok)	12/11/2061
24	Mailung Khola	5	Mailung Khola	(Rasuwa)	3/19/2071
25	Chaku Khola	3	Chaku	Fulpingkatti, Tatopani (Sindhupalchok)	3/1/2062
26	Khudi Khola	4	Khudi	Ghanpokhara, Khudi, Simpani (Lamjung)	9/15/2063
27	Thoppal Khola	1.65	Thoppal	(Dhading)	4/24/2064
28	Chameliya Khola	30	Chameliya Khola	Latinath, Seri, Sikhar (Darchula)	10/27/2074
29	Mardi Khola	4.8	Mardi	(Kaski)	10/8/2066
30	Ridi Khola	2.4	Ridi	(Palpa)	7/10/2066
31	Mai Khola	4.5	Mai Khola	(Ilam)	10/14/2064
32	Kule Khani Third	14	Kulekhani	Bhaise (Makawanpur)	7/1/2076
33	Hewa khola	4.455	Hewa Khola	Jaljala, Siddhapokhari (Sankhuwasabha)	4/17/2067
34	Lower Chaku Khola	1.8	Chaku	(Sindhupalchok)	4/24/2070
35	Sipring Khola	10	Sipring	Khare, Gauri Sankar (Dolakha)	10/3/2069
36	Lower Modi -1	10	Modi Khola	(Parbat)	8/9/2069
37	Bhairab Kund Khola	3	Bhairab Kund	Tatopani (Sindhupalchok)	2/22/2071
38	Siuri Khola	5	Siuri	(Lamjung)	6/30/2069
39	Ankhu Khola - 1	7	Ankhu Khola	(Dhading)	5/8/2070
40	Baramchi Khola HPP	4.2	Baramchi	Baramchi, Hagam (Sindhupalchok)	12/30/2071
41	Bijayapur-1	4.5	Bijayapur	(Kaski)	5/5/2069
42	Upper Madi	25	Madi Khola	Namarjung, Thumakodada, Sildujure (Kaski)	9/25/2073
43	Upper Mai Hydropower Project (Panchakanya Mai Hydropwer limi	12	Mai Khola	Mabu, Maimajhuwa (Ilam)	3/9/2073
44	Mai	22	Mai Khola	(Ilam)	10/14/2071
45	Lower Modi Khola	20	Modi Khola	Durlung, Deurali, Ramja, Tilahar (Parbat)	6/14/2078
46	Phawa khola Hydropower Project	5	Phawa Khola	Dummrise, Chaksibote, Thechambu (Taplejung)	0000-00-00
47	Charnawati Khola Hydroelectric Project	3.52	Charnawati	Mati (Dolakha)	2/24/2070

S. N.	Project	Capacity (MW)	River	Location	C O D
48	Upper Tamakoshi HPP	456	Tama Koshi	Bulung, Gauri Sankar, Khare, Lamabagar, Sunakhani, Sundrawati (Dolakha)	5/4/2078
49	Upper Trishuli 3A	60	Trishuli	Dandagoun, Laharepouwa, Thulogoun, Ramche (Rasuwa)	5/13/2076
50	Jiri Khola SHP	2.4	Jiri Khola	(Dolakha)	11/1/2071
51	Pikhuwa Khola	5	Pikhuwa	Kota, Bokhim, Bhojpur (Bhojpur)	2/27/2076
52	Middle Chaku Khola	1.8	Chaku	(Sindhupalchok)	11/15/2069
53	Radhi Small	4.4	Radhi	(Lamjung)	2071-02-31
54	Dordi Khola	27	Dordi	Archalbot, Chiti, Dhodeni, Nauthar, Shree Banjyang, Udipur (Lamjung)	6/14/2079
55	Mristi Khola	42	Mristi	Dana, Narchyang (Myagdi)	3/3/2078
56	Tadi Khola (thaprek)	5	Tadi Khola	(Nuwakot)	10/10/2058
57	Upper Chaku A	22.2	Chaku	Marbin, Fulpinkatti (Sindhupalchok)	2/1/2078
58	Likhu-4	52.4	Likhu Khola	Ragani, Pokli (Okhaldhunga) Saibu, Bijulikot, Naga Daha, Tilpung (Ramechhap)	7/21/2078
59	Upper Marsyangdi A	50	Marsyangdi	Bhulbhule, Bahundada, Khudi (Lamjung)	7/30/2073
60	Thapa Khola	11.2	Thapa Khola	(Mustang)	8/22/2074
61	Daraundi A	6	Daraundi	(Gorkha)	8/12/2073
62	Jhyari Khola	2	Jhyari Khola	Pipaldanda, Sanusiruwari, Kunchok, Bhotsipa (Sindhupalchok)	4/1/2073
63	Lower Khare	11	Khare	Bulung, Chankhu, Khare, Suriti (Dolakha)	9/6/2078
64	Nau Gad Khola	8.5	Naugad	(Darchula)	5/2/2072
65	Upper Hugdi	5	Hugdi	(Gulmi)	12/9/2071
66	Midim Khola	3	Midim Khola	Karapu (Lamjung)	10/15/2074
67	Upper Sanjen	14.8	Sanjen	Chilime (Rasuwa)	6/21/2080
68	Mai Cascade	7	Mai Khola	(Ilam)	12/19/2072
69	Hewa Khola A	14.9	Hewa Khola	Bharapa, Nangeen, Yanganam (Panchthar)	1/10/2074
70	Upper Khimti	12	Khimti Khola	Chuchure (Ramechhap)	3/6/2079
71	Namarjun Madi	12	Madi Khola	Namarjung, Sildujure (Kaski)	6/13/2077
72	Sabha Khola	3.3	Sabha Khola	Dhupu (Sankhuwasabha)	6/4/2074
73	Dordi-1	12	Dordi	Chiti, Bansar, Dhodeni, Faleni (Lamjung)	6/14/2079
74	Nyadi Khola	30	Nyadi	Bahundada, Bhulbhule (Lamjung)	1/27/2079
75	Tungun - Thosne Khola	4.36	Tugun	(Lalitpur)	8/9/2073
76	Khani Khola	2	Khani Khola	(Lalitpur)	8/9/2073
77	Lower Tadi	4.993	Tadi Khola	Balkumari, Samundratar, Sundaradevi, Thaprek (Nuwakot)	12/10/2078
78	Jogmai Khola	7.6	Jogmai Khola	Namsaling, Naya Bazar, Panchakanya, Phikal Bazar (Ilam)	1/18/2074
79	Daram Khola-A	2.5	Daram	(Baglung)	3/12/2073
80	Upper Puwa-1	3	Puwa	(Ilam)	10/1/2071
81	Middle Modi	18	Modi Khola	Deupurkot, Tilahar (Parbat)	9/8/2079
82	Sardi Khola	4	Sardi	(Kaski)	8/23/2074
83	Upper Mai -C	6.1	Mai Khola	Mabu, Sulubung (Ilam)	4/9/2074
84	Kabeli B - 1	25	Kabeli Khola	Nagi, Tharpu (Panchthar)	7/23/2076
85	Lower Hewa	22.1	Hewa Khola	Bharapa, Nangeen, Phidim (Panchthar)	4/21/2076
86	Mai Cascade HPP	8	Mai Khola	Goduk, Chisapani, Ilam N.P., Soyak (Ilam)	12/26/2074
87	Chhandi Khola	2	Chhandi	(Lamjung)	12/13/2072
88	Puwa Khola-1	4	Puwa	Shantidanda, Barbote, Ilam N.P. (Ilam)	6/23/2074
89	Rudi A	8.8	Rudi Khola	Mijuredada (Kaski) Bhoje, Pasagaun (Lamjung)	12/5/2075
90	Ghalemdi Khola	5	Ghalemdi	Narchyang (Myagdi)	11/5/2076
91	Kapadigad	3.33	Kapadigad	Barchhen (Doti)	2/25/2076
92	Madkyu Khola	13	Madkyu	(Kaski)	12/19/2074

S. N.	Project	Capacity (MW)	River	Location	C O D
93	Chake Khola	2.83	Chake Khola	Chuchure (Ramechhap)	8/28/2074
94	Super Dordi Kha Hydropower Project	54	Dordi	Dhodeni, Faleni (Lamjung)	2/8/2080
95	Solu Hydropower Project	23.5	Solu Khola	Gora Khami, Garma, Salleri (Solukhumbu)	12/10/2076
96	Upper Dordi A HEP	25	Dordi	Dhodeni, Faleni (Lamjung)	8/17/2079
97	Maya Khola Hydropower Project	14.9	Maya	Mamling, Madi Rambeni, Baneswor (Sankhuwasabha)	3/22/2080
98	Dwari Khola SHP	3.75	Dwari		1/23/2074
99	Bagmati Nadi	22	Bagmati	Kogate, Ipa Panchakanya, Sisneri Mahadevsthan (Makawanpur)	12/19/2075
100	Molun Khola SHP	7	Molun	Baraneshwor, Prapchan, Harkapur (Okhaldhunga)	12/12/2074
101	Solu Khola (Dudha Koshi)	86	Solu Khola	Kagel, Tingla, Panchan, Newa Beddhari, Salyan (Solukhumbu)	11/17/2079
102	Upper Khimti II	7	Khimti Khola	Chuchure (Ramechhap)	2/17/2079
103	Upper Hewa HPP	8.5	Hewa Khola	Jaljala, Siddhapokhari (Sankhuwasabha)	12/19/2078
104	Suri Khola	7	Suri	, Chankhu (Dolakha)	1/18/2079
105	Rukum gad	5	Rukum Gad	Kanda, Sobha (Rukum)	12/28/2079
106	Ghatte Khola	5	Ghatte Khola	Marbu (Dolakha)	11/23/2077
107	Iwa Khola	9.9	Iwa Khola	Sawalakhu (Taplejung)	6/20/2076
108	Theule Khola HPP	1.5	Theule	Kusmi, Binamare, Sarkuwa (Baglung)	3/24/2075
109	Likhu Khola 'A'	51	Likhu Khola	Chaulakharka(Waula), Goli (Solukhumbu)	10/25/2078
110	Upper Piluwa Khola-2 SHP	4.72	Piluwa Khola	Mawadin, Siddhakali (Sankhuwasabha)	11/22/2079
111	Singati Khola hydropower project	25	Singati	Babare, Laduk, Lamidada (Dolakha)	4/17/2078
112	Kalanga	15.33	Kalanga Gad	Sunkuda, Khiratadi, Banjh (Bajhang)	10/27/2079
113	Upper Kalangad	38.46	Kalanga Gad	Dahabagar, Khiratadi (Bajhang)	11/6/2079
114	Sanigad	10.7	Sani Gad	Kaphalaseri, Pipalkot (Bajhang)	5/2/2080
115	Lower Likhu	28.1	Likhu Khola	Tarkerabari, Yasam, Gamanamatar (Okhaldhunga) Bijulikot, Gothgau (Ramechhap)	7/19/2079
116	Taksar Pikhuwa	8	Pikhuwa	Kota, Mane Bhanjyang, Taksar, Dalgaun (Bhojpur)	1/1/2078
117	Upper Balephi A	36	Balephi	Golche, Pangtang, Dhumthang (Sindhupalchok)	8/6/2079
118	Bijaypur Khola-2 HPP	4.5	Bijaypur	Lekhnath (Kaski)	11/18/2077
119	Upper Khorunga HPP	7.5	Khoranga Khola	Morahang, Shree Jung, Oyabjung, Pouthak (Terhathum)	11/17/2076
120	Upper Solu Khola HPP	19.8	Solu Khola	Beni, Salleri (Solukhumbu)	3/1/2080
121	Makari gad	10	Makari gad	Guljar, Khandeswori (Darchula)	11/27/2079
122	Upper Naugad Gad Hydropower Project	8	Naugad	Dhuligada, Sikhar (Darchula)	7/13/2076
123	Upper Mardi Hydropower Project	7	Mardi	Lwangghale (Kaski)	6/20/2076
124	Rawa Khola	3	Rawa Khola	Sungdel, Diplung (Khotang)	6/4/2077
125	Super Mai Hydropower Project	7.8	Mai Khola	Barbote, Soyang, Sumbek (Ilam)	7/11/2075
126	Super Madi	44	Madi Khola	Namarjung, Parche, Saimrang, Kalika (Kaski)	12/27/2079
127	Upper Syange Khola SHP	2.4	Syange	Taghring (Lamjung)	11/15/2078
128	Rudi Khola-B Hydropower Project	6.6	Rudi Khola	Mijuredada (Kaski) Pasagaun (Lamjung)	11/5/2076
129	Padam Khola SHP	4.8	Padam Khola	Kalika (Dailekh)	9/8/2076

S. N.	Project	Capacity (MW)	River	Location	C O D
130	Sapsup Khola Small Hydro Electric Project	7.151	Sapsup Khola	Batase, Chhorambu, Rajapani (Khotang)	9/23/2078
131	Richet Khola SHP	5	Richet	Manbu, Kashigaun (Gorkha)	4/28/2078
132	Super Mai-A HPP	9.6	Mai Khola	Sumbek, Sulubung, Pyang (Ilam)	2077-02-32
133	Mai Beni HPP	9.51	Mai Khola	Namsaling, Soyang, Goduk (Ilam)	6/1/2078
134	Upper Chhyandi Small HPP	4	Chhyangdi	Bansar, Faleni (Lamjung)	8/24/2078
135	Puwa II hydropower Project	4.96	Puwa	Sakhejung, Maipokhari, Barbote (Ilam)	8/12/2079
136	Super Mai Khola Cascade HPP	3	Mai Khola	Soyang, Barbote (Ilam)	3/31/2077
137	Lower Jogmai Khola HPP	6.2	Jogmai Khola	Namsaling, Goduk, Panchakanya (Ilam)	7/15/2078
138	Upper Suri Khola HPP	7	Hulak, Kolung	Chankhu (Dolakha)	8/21/2080
139	Upper Chameliya HP	40	Chameliya Khola	Tapoban, Latinath, Guljar, Sitaula (Darchula)	4/28/2080
140	Kabeli B1 Cascade HPP	9.94	Kabeli Khola	Ambarpur, Nagi (Panchthar)	12/12/2078
141	Chepe Khola Small HEP	8.63	Chepe Khola	Kharibot (Gorkha) Dudhpokhari (Lamjung)	6/16/2079
142	Upper Machha Khola HEP	4.55	Machha Khola	Gumda, Laprak (Gorkha)	11/17/2079
143	Mid Solu Khola HEP	9.5	Solu Khola	Gora Khami, Salleri (Solukhumbu)	9/15/2079
144	Sunigad HEP	11.05	Suni Gad	Sunikot (Bajhang)	5/28/2079

Total capacity for 144 projects = 2625.263 MW

Source: Department of Electricity Development, 2024

Table 3.2.4 : Consumption of Petroleum Products in Nepal, 2000/01-2022/23

Year	Petrol (kl)	High Speed Diesel(kl)	Kerosene Oil (kl)	Llight Diesel Oil (kl)	Furnace Oil (kl)	Aircraft Turbine Oil (kl)	L.P. Gas (mt)
2000/01	59245	326060	316381	3416	20934	63131	40102
2001/02	63271	286233	386592	2413	18255	47453	48757
2002/03	67457	299973	348620	610	14496	52839	56079
2003/04	67586	299730	310826	577	12653	64041	66142
2004/05	75989	315368	239328	88	2696	66825	77594
2005/06	80989	294329	226637	290	3695	64335	81005
2006/07	101912	306687	197850	179	4558	63778	93562
2007/08	100842	302706	155216	306	2919	68938	96837
2008/09	124169	446468	70089	377	2171	68935	115813
2009/10	162275	612505	55788	238	2589	82631	141171
2010/11	187641	655128	49495	227	1415	101314	159286
2011/12	199749	648513	41808	0	435	109808	181411
2012/13	221676	716747	24721	258	2450	115786	207038
2013/14	251451	811100	19064	NA	2172	123527	232660
2014/15	283567	901393	18628	NA	883	139404	258299
2015/16	238578	782658	14870	NA	77	80119	214263
2016/17	402,278	1,297,066	19,459	NA	36	164,299	312,928
2017/18	484,781	1,597,551	22,311	NA	NA	194,358	370,560
2018/19	562,866	1,702,157	25,086	0	0	200,137	429,609
2019/20	507,786	1,453,592	19,212	0	0	138,680	449,063
2020/21	587,677	1,698,427	23,427	0	0	70,400	477,752
2021/22	730,488	1,727,571	17,797	0	0	154,078	536,028
2022/23	672,761	1,381,325	13,478	0	0	174,882	514,717

Table 3.2.5: Overall Energy Consumption in Nepal in 2022

Category	FY 2078/79					Growth Rate from previous FY
	Fuel Type	Energy (000 GJ)	000 TOE	GWh	% of National	
					Total	
	Firewood	374,562.95	8,946.28	104,877.63	58.53%	-0.85%
	Agricultural Residues	17,965.50	429.1	5,030.34	2.81%	-4.35%
Traditional	Animal Waste	18,150.14	433.51	5,082.04	2.84%	1.02%
	Total	410,678.59	9,808.89	114,990.01	64.17%	-0.93%
	Coal	58,148.22	1,388.85	16,281.50	9.09%	-0.51%
	Petrol	24,653.98	588.85	6,903.11	3.85%	26.04%
	Diesel	66,079.60	1,578.28	18,502.29	10.33%	4.12%
	Kerosene	640.68	15.3	179.39	0.10%	-22.91%
	LPG	24,657.27	588.93	6,904.04	3.85%	13.09%
	ATF	5,392.72	128.8	1,509.96	0.84%	143.10%
	Furnace Oil	1,834.45	43.82	513.65	0.29%	-46.03%
Commercial	Total	181,406.91	4,332.83	50,793.94	28.35%	6.88%
	Grid Electricity	31,766.40	758.73	8,894.59	4.96%	20.45%
	Biogas	10488.72	250.52	2,936.84	1.64%	7.50%
	Wind	1.87	0.04	0.52	0.00%	0.00%
	Micro/Pico	539.97	12.9	151.19	0.08%	4.86%
	Hydro					
Renewable	Solar	5083.32	121.41	1,423.33	0.79%	6.80%
	Total	16113.88	384.87	4,511.89	2.52%	7.19%
Total		639,965.79	15,285.32	179,190.42	100%	2.28%

Source: Energy Synopsis 2023, WECS

Table 3.2.6: Energy Balance of FY 2078/79 (2022)

Energy Balance 2078/79																				
in TJ	Traditional				Commercial							Renewables				Grand Total				
	Fuelwood	Agricultural Residue	Animal Waste	Total Traditional	Petroleum Products						Coal	Electricity	Total Commercial	Biogas	Wind		Micro/ Pico Hydro	Solar	Total Renewables	
					Petrol	Diesel	Kerosene	LPG	ATF	Furnace Oil										Total Petroleum
Production	374,563	17,966	18,150	410,679	-	-	-	-	-	-	216	34,276	34,492	10,489	1.9	540	5,083	16,114	461,284	
Imports	-	-	-	-	24,849	65,926	624	24,656	5,499	1,834	123,390	57,932	186,877	-	-	-	-	-	-	186,877
Exports	-	-	-	-	-	-	-	-	-	-	-	-1,777	-1,777	-	-	-	-	-	-	-1,777
Stock Changes	-	-	-	-	-195	154	16	-	-107	0	-132	-	-132	-	-	-	-	-	-	-132
Total Primary Supply	374,563	17,966	18,150	410,679	24,654	66,080	641	24,656	5,393	1,834	123,258	58,148	219,459	10,489	1.9	540	5,083	16,114	646,252	
Transformation																				
Inputs	-	-	-	-	-	-	-	-	-	-	-	-38,053	-38,053	-	-	-	-	-	-	-38,053
Electricity Generation	-	-	-	-	-	-	-	-	-	-	-	38,053	38,053	-	-	-	-	-	-	38,053
T&D Losses	-	-	-	-	-	-	-	-	-	-	-	-6,249	-6,249	-	-	-	-	-	-	-6,249
Other Losses, Own-use etc.	-	-	-	-	-	-	-	-	-	-	-	-38	-38	-	-	-	-	-	-	-38
Net Supply to Consumers	374,563	17,966	18,150	410,679	24,654	66,080	641	24,656	5,393	1,834	123,258	58,148	213,172	10,489	1.9	540	5,083	16,114	639,965	
Final Consumption																				
Residential	316,281	6,247	17,584	340,111	-	-	151	18,927	-	-	19,078	60	15,458	10,480	1.6	432	2,150	13,064	387,771	
Industrial	39,217	11,455	0	50,672	2,813	15,476	402	796	-	1,833	21,320	57,475	12,396	-	-	-	-	-	-	141,863
Commercial	18,953	264	566	19,783	197	-	64	4,596	-	-	4,857	613	2,357	8.39	0.3	108	2,908	3,024	30,635	
Agriculture	-	-	-	-	69	5,075	-	-	-	-	5,144	-	868	-	-	-	25	25	25	6,037
Transportation	-	-	-	-	21,202	40,494	-	1.32	5,393	-	67,090	-	14	-	-	-	-	-	-	67,104
Construction and Mining	112	-	-	112	372	5,035	24	336	-	1.47	5,769	-	673	-	-	-	-	-	-	6,554
Total	374,563	17,965	18,150	410,679	24,654	66,080	641	24,656	5,393	1,834	123,258	58,148	31,766	10,489	1.9	540	5,083	16,114	639,965	

Source: Energy Synopsis 2023, WECS

Table 3.2.7 : Energy Consumption by Sector in '000 GJ

Item	2014/15(2071-72)	2015/16(2072-73)	2016/17(73-74)	2018/19	2019/20	2020/21	2021/22
Traditional	388039.49	393278.02	175303.05	401974.67	402979.59	414539.74	410678.59
Firewood	352229.10	356984.19	17815.87	365088.95	366847.42	377790.36	374562.95
Agricultural residues	17408.43	17643.44	18838.79	18045.11	18254.45	18782.36	17965.5
Cow dung	18401.96	18650.39	138648.39	18840.6	17877.64	17967.02	18150.14
Commercial	99370.11	95822.06	122878.36	174008.05	147899.41	196096.47	213173.32
Coal	19819.09	22855.89	88994.11	40780.08	43203.07	58445.58	58148.22
Petroleum Products	62618.27	54359.25	21353.47	110363.59	81496.29	111277.5	123258.7
Electricity	16932.75	18606.93	12530.78	22864.38	23200.05	26373.39	31766.4
Renewable	12430.26	12466.42	548370.79	12582.06	14658.1	15033.46	16113.88
Total	499839.86	501566.50	846552.21	588564.78	565537.1	625669.67	639965.79

Source: WECS

Table 3.2.8: Final Energy Intensities

Parameter	Unit	2075/76	2076/77	2077/78	2078/79
	GJ per 1000 NRs Value Addition	0.28	0.27	0.29	0.28
Final Energy Intensity	GJ per capita	20.62	19.82	21.92	21.94
Agriculture	GJ per 1000 NRs	0.01	0.02	0.02	0.02
Commercial	GJ per 1000 NRs	0.03	0.04	0.04	0.04
Industry	GJ per 1000 NRs	0.76	0.78	0.97	0.91
Residential	GJ per capita	13.27	13.51	13.86	13.3
Electricity	kWh per 1000 NRs	3.08	3.2	3.52	3.63
	kWh per capita	228	232	265	305
Residential Electricity	kWh per HH	218	251	296	649

Source: WECS

Table 3.2.9: Material intensity by sector, 1996/97 – 2011/12

Sector	Description	Material Intensity in Percent 1996	Material Intensity in Percent 2002	Material Intensity in percent 2007	Material Intensity in percent 2012
15	Food and beverages	62.35	65.6	71.39	71.55
16	Tobacco products	27.56	17.68	17.01	23.8
17	Textiles	50.71	54.97	66.33	67.92
18	Wearing apparel, fur	62.24	55.54	60.16	65.98
19	Leather, leather products and footwear	61.51	63.03	71.44	69.31
20	Wood products (excl. furniture)	56.04	66.35	66.23	64.83
21	Paper and paper products	51.02	56.38	40.01	62.87
22	Printing and publishing	46.81	52.65	53.9	56.98
23	Coke, refined petroleum products, nuclear fuel	74.36	75.42	39.02	67.5
24	Chemicals and chemical products	61.88	58.14	52.16	52.75
25	Rubber and plastics products	59.02	64.36	72.26	69.09
26	Non-metallic mineral products	14.43	23.56	49.96	48.17

Sector	Description	Material Intensity in Percent 1996	Material Intensity in Percent 2002	Material Intensity in percent 2007	Material Intensity in percent 2012
27	Basic metals	74.66	79.57	74.78	80.04
28	Fabricated metal products	67.13	76.55	78.16	76.81
29	Machinery and equipment n.e.c.	58.35	55.91	68.85	66.81
31	Electrical machinery and apparatus	70.31	75.53	82.18	71.48
32	Radio, television and communication equipment	55.49	74.35	66.37	64.97
34	Motor vehicles, trailers, semi-trailers	64.43	59.07	67.31	64.12
36	Furniture; manufacturing n.e.c.	53.38	58.02	54.9	58.92
	NEPAL	55.12	60.02	64.32	66.05

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014

Future Challenges, CBS, 2014

Table 3.2.10 : Energy consumed in Mega Joules (MJ) per Rs 1000 value of produced goods, 1996/97-2011/12

ISIC rev.3	Description	1996/97	2001/02	2006/07	2011/12
15	Food and beverages	63.4	51.1	29.3	19.1
16	Tobacco products	18.9	19.1	7.1	5.6
17	Textiles	63	89.3	64.4	54.5
18	Wearing apparel, fur	22	23.4	12.9	34.1
19	Leather, leather products and footwear	63.7	69.1	30.6	34.3
20	Wood products (excl. furniture)	72.2	64.1	38.7	33.3
21	Paper and paper products	278.6	224.8	90	61.5
22	Printing and publishing	50	19.8	17.6	21
23	Coke, refined petroleum products, nuclear fuel	26.8	14.4	2.5	4.6
24	Chemicals and chemical products	57	43	29.5	29.3
25	Rubber and plastic products	128.2	93.6	41.8	48.8
26	Non-metallic mineral products	639.2	378.4	153.7	178.7
27	Basic metals	120.7	73.1	30	34.7
28	Fabricated metal products	72.3	67.5	36.9	38
29	Machinery and equipment n.e.c.	82.7	58.5	41.6	49.2
31	Electrical machinery and apparatus	34.7	48.4	18.4	22.2
32	Radio, television and communication equipment	19.7	6.7	5.4	4
34	Motor vehicles, trailers, semi-trailers	138.8	75	13.8	16.9
36	Furniture; manufacturing n.e.c.	56.5	43.8	23.1	17.4
	NEPAL	95.8	73.4	43.5	47.2

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014

Future Challenges, CBS, 2014

Table 3.2.11: Energy Intensity per 100 Rs value of produced goods (1996/97 -2011/12)

ISIC rev.3 code in 2 digit	Description	1996/97	2001/02	2006/07	2011/12
15	Food and beverages	3.03	3.63	3.42	2.09
16	Tobacco products	0.9	1.35	0.82	0.61
17	Textiles	3.01	6.34	7.5	5.97
18	Wearing apparel, fur	1.05	1.66	1.5	3.73
19	Leather, leather products and footwear	3.04	4.91	3.57	3.75
20	Wood products (excl. furniture)	3.45	4.55	4.51	3.64
21	Paper and paper products	13.31	15.97	10.48	6.74
22	Printing and publishing	2.39	1.41	2.05	2.31
23	Coke, refined petroleum products, nuclear fuel	1.28	1.02	0.3	0.51
24	Chemicals and chemical products	2.72	3.05	3.43	3.21
25	Rubber and plastic products	6.13	6.65	4.86	5.34
26	Non-metallic mineral products	30.54	26.88	17.9	19.57
27	Basic metals	5.77	5.2	3.49	3.8
28	Fabricated metal products	3.45	4.8	4.3	4.17
29	Machinery and equipment n.e.c.	3.95	4.16	4.84	5.39
31	Electrical machinery and apparatus	1.66	3.44	2.14	2.43
32	Radio, television and communication equipment	0.94	0.47	0.63	0.44
34	Motor vehicles, trailers, semi-trailers	6.63	5.33	1.61	1.85
36	Furniture; manufacturing n.e.c.	2.7	3.11	2.69	1.9
	NEPAL	4.58	5.22	5.07	7.67

Source:- Development of Manufacturing Industries in Nepal, Current State and Challenges,CBS,2014

Table 3.3.1: Nepal Land cover Statistics between 2000 and 2019

	Area 2000		Area 2019	
Forest	5915518	39.99	6166766	41.69
Grassland	2064046	13.95	1963286	13.27
Cropland	3891500	26.31	3581047	24.21
Bare soil	156	0.00	4033	0.03
Bare rock	1091125	7.38	835030	5.64
Water body	65824	0.44	71587	0.48
Riverbed	170699	1.15	163721	1.11
Glacier	464468	3.14	463872	3.14
Snow	576278	3.90	930199	6.29
Built-up area	25487	0.17	78296	0.53
OWL	527915	3.57	535179	3.62
Total (2000)	14793015	100.00	14793015	100.00

FRTC (2022). National Land Cover Monitoring System of Nepal. Forest Research and Training Centre (FRTC). Kathmandu, Nepal.

Research and Training Centre (FRTC). Kathmandu, Nepal.

NLCMS used the mapped area of 147930.15 km² applying the Lambert Conformal Conic map projection.

Table 3.3.2: Land cover change matrix (hectares) 2000 and 2019

land cover	2019(ha)											
	Water body	Glacier	Snow	Forest	Riverbed	Built-up area	Cropland	Bare soil	Bare rock	Grassland	OWL	
Water body	42232	3	964	613	15702	215	1991	111	561	3248	5	65824
Glacier	1	463550	701	0	0	0	0	0	62	153	0	464468
Snow	79	132	458738	67	5	154	0	50	72608	44150	293	576278
Forest	1250	0	553	5589552	191	1081	118385	26	422	95268	108790	5915518
Riverbed	16827	0	5	290	144696	2631	4911	1	39	1237	61	170699
Built-up area	45	0	121	3	14	25156	31	1	50	65	0	25487
Cropland	6618	0	3	370805	1969	43598	3420253	4	136	9531	38582	3891500
Bare soil	4	0	25	0	0	0	0	37	62	28	0	156
Bare rock	273	104	347071	67	65	804	2	975	605454	135808	502	1091125
Grassland	4081	81	120314	109282	1068	4569	15341	2824	154405	1601339	50742	2064046
OWL	176	1	1702	96087	11	88	20132	5	1231	72458	336023	527915
Total (2019)	71587	463871	930199	6166766	163721	78296	3581047	4033	835030	1963286	535179	14793015

Source: FRTC (2022). National Land Cover Monitoring System of Nepal. Forest Research and Training Centre (FRTC). Kathmandu, Nepal.

Table 3.3.3. Number, area, number of holdings reporting and area irrigated by source of irrigation and total area of holding

Total area of holding	Total		Irrigation by source												Irrigation around the Year			
	No. of holdings	Area (ha)	No. of holdings reporting	Area (ha)	River/lake/pond		Dam/reservoir		Tube well/boring		Others		Mixed		No. of holdings	Area (ha)		
					By gravity	By pumping	No. of holdings	Area (ha)	No. of holdings	Area (ha)	No. of holdings	Area (ha)	No. of holdings	Area (ha)				
Holdings without land	131,504	8,412.8	25,970	1,314.0	6,852	395.0	1,674	272.4	484	89.2	11,008	408.9	5,761	116.9	590	31.6	20,315	1,080.9
Holdings with land	3,999,285	2,209,997.1	2,863,136	1,207,951.5	1,135,304	341,106.3	425,474	155,087.2	258,768	91,259.0	1,041,324	503,485.8	357,244	76,116.1	120,770	40,897.1	2,154,001	878,489.1
Under 0.1 ha	425,218	25,509.3	266,726	10,951.8	73,997	3,131.5	24,066	1,008.3	13,060	543.3	107,506	4,341.6	46,414	1,549.3	9,556	377.7	203,031	8,198.5
0.1 ha and under 0.2 ha	648,450	96,299.3	413,974	44,511.9	164,324	15,140.8	52,529	5,238.2	33,005	3,270.0	131,476	15,577.1	49,712	3,901.0	14,309	1,384.7	306,485	32,193.1
0.2 ha and under 0.5 ha	1,430,114	478,190.5	1,013,145	241,130.4	427,645	82,449.1	145,792	29,941.0	98,302	20,484.0	321,682	82,520.7	120,156	17,761.8	40,234	7,973.8	749,475	171,123.1
0.5 ha and under 1 ha	945,304	660,203.1	722,946	357,783.8	298,458	109,467.6	119,945	46,804.3	72,819	29,129.8	271,889	137,603.7	86,314	23,030.3	32,366	11,748.1	544,825	255,365.8
1 ha and under 2 ha	427,039	576,346.8	342,912	325,637.5	134,894	86,615.5	61,844	41,975.0	32,018	23,296.0	151,038	142,502.6	42,850	19,884.0	18,148	11,364.4	265,187	237,052.4
2 ha and under 3 ha	81,948	194,230.8	68,001	114,811.8	24,912	25,421.4	13,582	15,369.7	6,324	8,048.3	35,993	55,932.7	8,311	5,985.6	3,950	4,054.1	55,234	85,810.0
3 ha and under 4 ha	25,963	88,368.6	21,969	53,341.4	7,318	9,928.0	4,531	6,969.9	1,989	2,979.2	13,005	29,242.4	2,133	2,092.6	1,388	2,129.4	18,507	41,796.9
4 ha and under 5 ha	7,397	32,799.7	6,477	20,276.8	1,770	3,068.5	1,474	2,616.3	575	1,034.5	4,084	12,233.8	722	730.5	336	593.1	5,295	15,636.9
5 ha and under 10 ha	6,979	44,892.9	6,185	30,350.9	1,733	4,243.8	1,533	4,278.3	581	1,806.7	4,105	18,222.6	541	818.2	427	981.4	5,293	24,513.1
10 ha and over	875	13,156.1	801	9,155.3	253	1,640.0	179	886.2	96	667.2	545	5,308.6	91	362.9	55	290.3	670	6,799.3
Total	4,130,789	2,218,409.9	2,889,106	1,209,265.5	1,142,156	341,501.3	427,148	155,359.6	259,251	91,348.3	1,052,332	503,894.7	363,005	76,233.0	121,359	40,928.7	2,174,316	879,570.0

Source : National of Sample Census Agriculture Nepal, 2021/22 :

Table 3.4.1 : Area under Permanent Crops

Permanent Crop	Compact area ('000 in ha.)				
	1981/82	1991/92	2001/02	2011/12	2021/22
Orange	0.60	2.40	3.20	5.96	6.54
Lemon	0.40	0.40	0.62	0.39	2.80
Lime	0.40	0.20	0.29	0.21	0.15
Junar	-	-	-	0.20	0.25
Sweet Oranges	0.10	-	0.23	0.11	0.19
Other Citrus fruit	0.20	0.40	0.34	0.40	0.28
Mangoes	5.20	15.20	18.48	17.95	1.98
Bananas	4.00	2.10	3.14	4.90	7.90
Guavas	1.10	0.40	0.48	0.39	0.36
Jackfruit	1.80	0.60	0.68	0.43	0.50
Pineapples	0.40	0.20	0.23	0.28	0.40
Lychees	0.10	0.30	0.78	1.38	1.18
Pears	0.20	0.10	0.35	0.25	0.18
Apples	NA	0.60	1.38	1.71	3.10
Plums / Peach	NA	0.10	0.45	0.15	0.23
Papayas	0.70	0.10	0.30	0.19	0.16
Pomegranate	-	0.10	0.09	0.04	0.18
Coconut	-	-	-	0.09	0.05
Walnut	-	-	-	0.18	0.61
Betel Nut	-	-	-	1.78	2.10
Kiwi Fruit	NA	NA	NA	NA	1.50
Avocado	NA	NA	NA	NA	0.47
Other fruit	14.00	2.70	1.70	0.67	0.71
Tea	NA	3.50	6.20	5.19	5.67
Coffee	-	-	-	0.41	0.60
Other permanet crop	NA	NA	NA	NA	3.10
Black Cardamom	-	-	-	14.28	19.10
Thatch	NA	66.40	67.60	78.99	38.91
Fodder Tree	NA	2.50	7.30	9.35	6.00
Bamboo	NA	6.00	6.30	7.23	3.70
Multi year grass crops	-	-	-	2.49	
Broom Grass (Amrisho)	-	-	-	12.86	15.41

na = not applicable

Source : National Sample Censuses of Agriculture Nepal

Table 3.4.2 : Area Under Selected Temporary Crops

S.N.	Selected Crops	Crop Area ('000 Ha)				
		1981/82	1991/92	2001/02	2011/12	2021/22
1	Paddy	1394	3252	3423	1456	1216
2	Wheat	389	633	794	749	654
3	Maize	523	769	769	674	560
4	Millet	154	302	251	201	122
5	Barley	28	46	39	26	23
6	Buckwheat	11	16	21	13	8
7	Other Cereals	NA	5	5	4	2
8	Legumes	335	340	379	298	NA
9	Tubers	86	79	93	111	NA
10	Cash Crops	86	63	61	68	NA
11	Oilseeds	224	260	214	186	NA
12	Spices	58	29	41	44	NA
13	Vegetables	17	40	60	84	NA
14	Temp. Grass Crops	NA	NA	NA	9	NA

Source: Central Bureau of Statistics (National Sample Censuses of Agriculture, Nepal)

Table 3.4.3 : Production of Agricultural Commodities

(unit in '000 mt)

Agricultural Commodities	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Food grains	7745	7767	7656	7329	8069	8115	7763	8615	12293	11330	9562	9266	8615	9759	10013	10686	10936	11118	10771
Paddy	4456	4290	4209	3681	4299	4524	4023	4460	5072	4505	5047	4789	4299	5230	5152	5610	5551	5622	5130
Maize	1590	1716	1734	1820	1879	1931	1855	2067	2179	1999	2283	2145	2232	2300	2556	2714	2836	2998	3106
Wheat	1387	1442	1394	1515	1572	1344	1557	1746	1846	1727	1883	1976	1737	1879	1949	2006	2185	2127	2145
Millet (Kodo)	283	290	291	285	291	293	300	303	3151	3055	304	308	302	307	314	314	321	326	339
Barley	28	29	28	28	28	23	28	30	35	34	35	37	33	31	31	31	31	29	32
Buckwheat	NA	NA	NA	NA	NA	NA	NA	9	10	10	10	11	12	12	11	11	12	16	19
Cash Crops	4102	4276	4597	4698	4694	4933	5183	5719	5710	5817	6330	5874	7374	6037	7025	6963	6820	6806	6868
Sugarcane	2305	2376	2463	2600	2485	2354	2495	2932	2930	2930	3316	3063	4347	3220	3680	3558	3400	3184	3160
Oilseeds	133	142	139	136	134	135	155	175	179	179	182	210	208	214	246	281	278	287	287
Tobacco	3	3	3	3	3	2	2	2	3	2	1	2.2	0.6	NA	NA	NA	NA	NA	NA
Jute	17	16	17	17	17	18	13	13	14	16	13	13	12	11	11	11	10	10	10
Potato	1643	1739	1975	1943	2055	2424	2518	2597	2584	2690	2818	2586	2806	2592	3088	3113	3132	3325	3411
Other Crops	2679	2903	2992	3164	3457	3713	3993	4336	4672	4623	4778	4933	5306	5186	5454	5872	5657	5785	6024
Pulses	265	271	267	274	270	255	262	318	320	357	352	354	364	378	369	382	404	394	408
Fruits	511	553	535	575	631	686	707	794	1030	939	980	993	976	1,018	1087	1178	1250	1356	1417
Vegetables	1890	2065	2190	2299	2539	2754	3004	3204	3299	3302	3421	3580	3929	3,750	3958	4271	3962	3993	4153
Tea	12	13	13	15	16	16	17	17	19	21	21	NA	24	24	24.8	25	24	24	26
Coffee	0.22	0.25	0.30	0.46	0.28	0.27	0.31	0.4	0.4	0.4	0.4	0.4	0.5	1	0.513	0.53	0.297	0.315	0.355
Cotton	0.01	0.01	0.06	0.05	0.07	0.06	0.11	0.11	0.13	0.15	0.13	0.13	0.12	0	0.125	0.099	0.14	0.147	0.172
Honey	0.58	0.6	0.65	0.65	1	0.85	1	1.2	1.5	1.6	1.6	3	3.5	4	4	4	4	4	5
Cocoon	0.03	0.03	0.03	0.03	0.03	0.02	0.03	NA	0.03	0.04	0.04	0.04	0.05	0.055	0.03	0.032	0.035	0.039	0.005
Mushroom	NA	NA	NA	NA	NA	1	1.1	1.3	1.5	1.7	1.9	2.7	9.3	11	11	11	13	13	14
Spice Crops	220	223.3	226.9	238.6	243.1	276	321	357.2	364.3	345.1	429.4	405	433.4	436.4	474.3	414.1	550.28	553	566.7
Cardamom	5.98	6.07	6.65	6.79	7.1	7	5.23	5.21	6	5.8	5.2	5.1	6.4	6	6.849	7.954	9.545	8.289	8.714
Turmeric	23	23.23	23.57	25.4	25	32	38	41	35.3	35.7	67.6	72	64	65	71.5	11.51	99.907	105.7	111
Ginger	151	152.7	154.2	160.6	161	179	211	240	255	235	276	243	272	272	284	297.5	298.95	279.2	288
Chillies	12	12.62	13.78	15.57	19	24	28	27	27	27.9	35.6	40.1	41	42	52.5	25.27	68.025	87.3	84
Garlic	28.3	28.61	28.72	30.31	31	34	39	44	41	40.7	45	44.7	50	51	59.5	71.9	73.859	72.49	75

Source : Ministry of Agriculture Development (Agri-Business Promotion and Statistics Division).

Table 3.4.4 : Annual Production of Improved Seeds

Seeds	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Paddy	1209.1	1200.46	774	9537.00	9621.00	9472.21	10297.00	13533.17	14594.32	14199.25	13580.05	16238.17
Wheat	2982.56	2180.93	2877.23	10216.00	12258.90	12529.82	13983.00	12910.41	16068	17039	17522	1825
Maize	0.84	0	0.34	2330.00	2294.22	2407.27	2989.00	3682.56	2542.97	1882.94	1024.3	1469.78
Vegetable	0.75	2.92	0.12	6.45	7.70	8.16	7.35	NA	NA	NA	NA	NA
Lentil	12.73	8.58	17	280.00	351.69	368.05	398.00	388.22	449	345	455	449
Jute	0	0	0	0.00	0.00	0.00	0.00	NA	NA	NA	NA	NA
Mustard	3.02	1.76	2	12.70	12.00	13.30	15.70	273.89	344	337	330	339
Others	2.02	0.2	0.22	1.30	1.90	1.98	2.37	NA	NA	NA	NA	NA
Total	4211.02	3394.85	3670.91	22383.45	24547.41	24800.79	27692.42	30788.25	33998.29	33803.19	32911.35	37742.95

Source: Seed quality control center

Table 3.4.5 : Crop Species Registered in Nepal

Crops Species	Number of Species Registered												
	2009	2010	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Cereal crops													
Paddy	44	48	74	5	15	2	8	16	16	6	6	19	
Maize	16	16	51	5	3	14	2	14		8	1	4	8
Wheat	19	20	22	-	2	2	-	6			10		
Barley	6	6	6	-	-	-	-						
Millet	3	3	3	-	2	-	-				1		
Total	88	93	156	10	22	18	10	36	16	14	18	23	8
Leguminous													
Leguminous and Pulse	33	33	35	-	1	-	1	4	1	2		2	
Vegetables	46	46	333	6	2	-	-	8	20	2	6	7	
Oil Crops	15	15	17	1	-	-	-	1	2				
Total	94	94	385	7	3	0	1	13	23	4	6	9	0
Others (huse Til)													
Grass crops		2	5	-	4	-	8						
Total		2	6	0	4	0	8	0	0	0	0	0	0
Industrial/Cash Crops													
Jute	2	2	2	-	-	-	-					1	
Ginger	1	1	1	-	-	1	-						
Sugarcane	4	4	4	-	-	-	-				3	2	

Crops Species	Number of Species Registered													
	2009	2010	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Tobacco	1	1	1	-	-	-	-	-	-	-	-	-	-	-
Cotton/Fiber Crops	1	1	1	-	-	-	-	-	-	-	-	-	-	-
Total	9	9	9	0	0	1	0	0	0	0	3	3	0	0
Grand Total	97	198	556	17	29	19	19	49	39	18	27	35	8	8

Source: Seed quality control center

Table 3.4.6: Production of Livestock

Products	Unit	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Milk Production (000 mt)		1496	1557	1623	1681	1700	1756	1854	1911	2092	2168	2301	2480	2567
Cow Milk		429	442	469	492	532	588	644	665	754.1	795.5	920.4	1,060.5	1,101.8
Buff Milk		1067	1115	1154	1188	1168	1168	1210	1246	1338.3	1372.9	1,380.6	1,419.4	1,464.8
Meat Production (000 mt)		249	277	288	295	298	303	323	333	346.2	357.1	552.2	520.7	512.8
Buffalo		162	168	172	175	174	174	175	180	185.2	188.6	189.5	188.2	194.1
Mutton (Sheep)		3	3	3	3	3	3	3	3	2.8	2.8	2.7	3.0	2.9
Goat		50	52	54	56	59	61	66	68	70.8	73.9	75.0	70.8	74.2
Pig		17	18	18	19	19	20	24	25	28.2	28.6	29.5	31.4	36.1
Chicken		17	36	40	43	43	45	55	57	60.1	62.9	255.0	227.0	204.9
Duck		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.6
Egg Production No (000)		643203	704000	801370	887240	872918	879501	1308072	1352296	1512265	1549689	1,620,000	1,493,550	1,330,602
Hen Egg		629793	690628	788310	874194	859515	865947	1294166	1338312	1498024.0	1534680.0	1,604,526	1,475,620	1,306,380
Duck Egg		13410	13490	13060	13046	13403	13554	13906	13984	14241.0	15009.0	15,474	17,930	24,223
Wool Production (000 kg)		580	587	587	588	587	587	588	594	594.6	589.7	592.7	584.0	567.4
Fish Production (000 mt)		50	52	56	58							97.3	104.6	108.4

Source : Ministry of Agriculture Development, Agri-Business Promotion and Statistics Division.Ministry of agriculture and livestock development.

Table 3.4.7 : Number of Livestock by Type in Nepal,1981/82-2011/12

S.N.	Livestock type	Number of Livestock (in 'ooo)				
		1981/82	1991/92	2001/02	2011/12	2021/22
1	Cattle	6501.6	7359.3	7215.2	6430.4	4559.3
2	Yak/Nak/Chaunri	55.5	58.6	95.4	48.9	53.2
3	Buffaloes	2379.7	3116.3	3477.7	3174.4	2923.1
4	Goats/Chyangra	3643.7	5515.5	6932.9	10990.1	14242.2
5	Sheep	677.1	602.8	471.2	608.1	478.2
6	Pigs	433.6	495.8	632.6	818.5	1357.5
7	Horses	NA	14.3	20.1	17.9	11.0
8	Mules and asses	27.5	5.3	6	5.5	6.3
9	Rabbits	NA	NA	10.1	24.2	NA
10	Other animals	36.8	7.3	5.9	17.1	34.5
11	Chickens	7368.6	12333.1	17631.3	26267.8	45118.2
12	Ducks	142.3	280.3	393.1	429.9	1326.0
13	Pigeons	830.7	1419.9	1845.2	1498.9	1097.4
14	Laukat	NA	NA	NA	NA	27.4
15	Quail	NA	NA	NA	NA	191.6
16	Turkey	NA	NA	NA	NA	86.4
17	Other poultry	20.4	9.2	57.3	52.1	52.6
	Total	22117.5	31217.7	38794	50383.8	71564.9

Source: National sample censuses of Agriculture Nepal

Table 3.4.8 : Livestock and Poultry Population in Arid and Semi-Arid Land

Year	Cattle		Buffaloes		Sheep		Goats		Pigs		Fowls		Ducks	
	Population	p/land*	Population	p/land*	Population	p/land*	Population	p/land*	Population	p/land*	Population	p/land*	Population	p/land*
1994/95	6837913	116	3278255	56	918885	16	5649056	96	636024	11	14063581	239	403705	10
1995/96	7008420	119	3302200	56	859000	15	5783140	98	670340	11	14521100	247	416100	11
1996/97	7024775	119	3362435	57	869582	15	5921956	101	723613	12	15576525	265	415758	11
1997/98	7048660	120	3419150	58	869142	15	6080060	103	765718	13	16664730	283	416943	11
1998/99	7030698	119	3470600	59	855159	15	6204616	105	825132	14	17796826	302	421423	11
1999/00	7023166	119	3525952	60	851913	14	6325144	107	877681	15	18619636	316	425160	11
2000/01	6982660	119	3624020	62	850170	14	6478380	110	912530	15	19790060	336	411410	11
2001/02	6978690	119	3700864	63	840141	14	6606858	112	934461	16	21370420	363	408584	11
2002/03	6953584	118	3840013	65	828286	14	6791861	115	932192	16	22260700	378	408311	11
2003/04	6966436	118	3952654	67	824187	14	6979875	119	935076	16	23023979	391	405217	10
2004/05	6994463	119	4081463	69	816727	14	7153527	122	947711	16	22790224	387	391855	10
2005/06	7002916	119	4204886	71	812085	14	7421624	126	960827	16	23221439	394	392895	10
2006/07	7044279	120	4366813	74	813621	14	7847624	133	989429	17	23924630	406	394798	10
2007/08	7090714	120	4496507	76	809480	14	8135880	138	1013359	17	24665820	419	390748	10
2008/09	7175198	122	4680486	80	802993	14	8473082	144	1044498	18	24481286	416	383123	10
2009/10	7199260	122	4836984	82	801371	14	8844172	150	1064858	18	25760373	438	379753	10
2010/11	7226050	123	4995650	85	805070	14	9186440	156	1093610	19	40000000	679	378050	10
2011/12	7244944	123	5133139	87	807267	14	9512958	162	1137489	19	45171185	767	376916	10
2012/13	7274022	124	5241873	89	809536	14	9786354	166	1160035	20	47959239	815	375975	10
2013/14	7243916	123	5178612	88	789216	13	10177531	173	1190138	20	48079406	817	390209	10
2014/15	7241743	123	5167737	88	789292	13	10251569	174	1203230	20	50195285	853	390287	10
2015/16	7302808	124	5168809	88	800658	14	10986114	187	1291308	22	68630638	1166	392255	10
2016/17	7347487	125	5177998	88	801975	14	11165099	190	1328036	23	70007151	1189	394775	10
2017/18	7376306	125	5277819	90	800749	14	11647319	198	1435369	24	72245732	1227	404670	10
2018/19	7385035	125	5308664	90	798889	14	12283752	209	1488338	25	75709330	1286	416400	11
2019/20	7458885	127	5257591	89	806079	14	12811953	218	1519593	26	82598879	1403	427226	11
2020/21	7466841	127	5159931	88	793725	13	13442614	228	1588838	27	73418077	1247	432226	11
2021/22	7413197	126	5132931	87	771205	13	13990703	238	1504624	26	66803117	1135	605944	16

* Arid land /semi arid land= Cultivated land, Non cultivated land and Grass land/Pasture estimated area 58873.3 sq. km.

NA : Not Available

Source: Ministry of Agriculture Developments, Ministry of Agriculture and Livestock Development.

Table 3.4.9 : Summary of Fish Production in Nepal, 2021/22

S.N.	Particulars	No. of Pond	Area (ha.)	Production (kg.)	Yield (kg./ha.)
Fish Production from Aquaculture Practices					
1	Pond Fish Culture				
	Mountain	670	22	31000	1409.09
	Hill	8874	510	1397000	2739.22
	Tarai	40318	14010	75892000	5416.99
	Total	49862	14542	77320000	5317.012791
2	Other area (ghols)		3550	8930000	
3	Paddy cum fish culture (ha)		49	17000	
4	Cage fish culture (m3)		73803	313000	
5	Enclosure fish culture (ha)		40	53000	
6	Trout Fish Culture in Raceway (m3)		5	747000	
7	Fish Production in Public Sector			5000	
Fish Production from Capture Fisheries					
8	Rivers		395000	7110000	18
9	Lakes		5000	1000000	200
10	Reservoirs		1500	525000	350
11	Marginal/ Swamps / Ghols etc.		9000	5200000	578
12	Irrigated Paddy Fields		398000	7165000	18
Total Fish Production				108385000	

Source : Directorate of Fisheries Development

Table 3.4.10 : Chemical Fertilizer Use in Nepal, 1990/00 to 2016/17

Year	Government Sector				Private Sector	Total Fertilizer	Nutrient mt / Cultivated Land ha*100
	Urea	DAP	Potash	Complex			
1999/00	43508	26154	308		76727	146697	4.75
2000/01	29528	15633	58		101145	146364	4.74
2001/02	17697	20645	1016		101140	140498	4.55
2002/03	34449	33331	2966		103636	174382	5.64
2003/04	7428	11377	1688		118265	138758	4.49
2004/05	10043	19436	2332		90895	122706	3.97
2005/06	1960	10857	478		78258	91553	2.96
2006/07	14985	7437	NA		65679	88101	2.85
1999/00	43508	26154	308		76727	146697	4.75
2000/01	29528	15633	58		101145	146364	4.74
2001/02	17697	20645	1016		101140	140498	4.55
2002/03	34449	33331	2966		103636	174382	5.64
2003/04	7428	11377	1688		118265	138758	4.49
2004/05	10043	19436	2332		90895	122706	3.97
2005/06	1960	10857	478		78258	91553	2.96
2006/07	14985	7437	-	2747	65679	90848	2.94
2007/08	2500	1990	-	2156	47107	53753	1.74
2008/09	5935	-	-	1198	5677	12810	0.41
2009/10	5049	2523	236	2521			
2010/11	85190	22001	2821				
2011/12	97957	43146	3711				
2012/13	108553	65722	2688				
2013/14	145622	82520	5046				

Year	Government Sector				Private Sector	Total Fertilizer	Nutrient mt / Cultivated Land ha*100
	Urea	DAP	Potash	Complex			
2014/15	190163	101797	6716				
2015/16	164952	87532	6577				
2016/17	149515	77414.85	5946.7	-	-	-	-
2017/18	154186	80274.96	6001.4	-	-	-	-
2018/19	162782	85574.39	5213	-	-	-	-
2019/20	149156	101669.6	6691.58	-	-	-	-
2020/21	125282	90184.73	10305.35	-	-	-	-
2021/22	102644	56357.13	3594.9	-	-	-	-
2022/23	122518	70734.6	6210.7	-	-	-	-

Note : The Cultivated land (3090780 ha) based on Department of Forest Research and Survey, 2001.

Source: Ministry of Agriculture and Cooperatives and Agriculture Inputs Company Ltd.

Table 3.4.11: Pesticide Imported and Formulated in Nepal

Pesticide	2013/14 a.i. (kg)	2014/15 a.i. (kg)	2015/16 a.i. (kg)	2016/17 a.i. (kg)	2017/18 a.i. (kg)	2018/19 a.i. (kg)	2019/20 a.i. (kg)	2020/21 a.i. (kg)	2021/22 a.i. (kg)
insecticide	1623226.00	156041.9	181270.87	169360.00	216131.91	246145.67	163380.99	186493.42	370208.39
fungicide	192203.63	250807.8	247475.27	347707.22	267034.99	390509.81	352419.81	407887.76	529501.55
Bactericide	31.50	25.88	11.36	6.70	37.99	54.16	24.16	35	324.7
Herbicide	90126.99	133857.4	134232.37	105445.44	142142.70	164370.04	162066.04	184718.59	226005.72
Rosdenticide	9836.36	9180.382	11007.74	12077.31	6171.21	7959.06	3574.84	4008.44	9288.4
Bio-Pesticide	71.74	51.778	63.33	1125.25	900.91	54.16	40.88	50.1	175.59
Total	1915496.22	549965.14	574060.94	635721.92	632419.71	809092.90	681506.72	783193.31	1135504.4

Source: Plant Quarantine and Pesticide Management Center, MOALD

Table 3.4.12 (a): Households reporting (%) emergence of new crop diseases in last 25 years

Analytical Domains	Yes	No	Not Applicable	Total
Municipality				
Urban	45.6	18.9	35.5	100
Rural	55.9	33.1	11.1	100
Ecological Zone				
Mountain	68.7	21.2	10.1	100
Hill	50.3	26	23.7	100
Terai	46.3	24.5	29.3	100
Altitude (meter)				
Below 120	45.2	25.4	29.4	100
120 - 350	48.1	21.3	30.6	100
350 - 1000	59	23.7	17.3	100
1000 - 1300	48.7	23.4	27.9	100
1300 - 1500	40.8	22.2	37	100
1500 - 2000	60.2	32.9	7	100
2000 and above	56.3	31.6	12	100
Climate Risk				
Very Low	51.9	21.7	26.3	100
Low	47.4	38.3	14.3	100
Moderate	42.9	23.8	33.3	100
High	67.6	14.1	18.3	100
Very High	43.4	18.2	38.4	100
Nepal	50	24.9	25.1	100

Table 3.4.12 (b): Households reporting (%) emergence of new insects/pests in crops in the last 25 years

Analytical Domain	Yes	No	Not Applicable	Total
Municipality				
Urban	46.9	17.6	35.5	100
Rural	63.3	25.6	11.1	100
Ecological zone				
Mountain	73.3	16.6	10.1	100
Hill	61.2	15.1	23.7	100
Terai	42.9	27.8	29.3	100
Altitude (meters)				
Below 120	40.1	30.5	29.4	100
120 - 350	49	20.3	30.6	100
350 - 1000	67.1	15.7	17.3	100
1000 - 1300	56	16.1	27.9	100
1300 - 1500	52.3	10.7	37	100
1500 - 2000	72.9	20.2	7	100
2000 and above	64.1	23.9	12	100
Climate risk				
Very Low	55.4	18.3	26.3	100
Low	56.2	29.4	14.3	100
Moderate	45.2	21.4	33.3	100
High	59.4	22.3	18.3	100
Very High	41.2	20.4	38.4	100
Nepal	53.9	21	25.1	100

Source: National Climate Change Survey (NCCS) 2022

Table 3.4.13 : Food Consumption Pattern (NLSS Food Basket Composition)

(per capita/g/d)

S. N.	Food Items	1995/96	2003/04	2010/11
1	Fine rice	26.15	26.4	39.41
2	Coarse rice	217.3	219.35	288.64
3	Beaten rice, flattened rice	3.47	3.50	9.16
4	Maize	58.55	59.1	31.61
5	Maize flour	40.07	40.45	48.13
6	Wheat flour	91.77	92.64	82.25
7	Millet	35.57	35.91	17.97
8	Black Gram (<i>Mas</i>)	1.9	1.92	3.47
9	Lentil (<i>Musuro</i>)	8.17	8.25	8.63
10	Rahar	1.02	1.03	
11	Red Gram	0.72	0.73	1.48
12	Horse Gram (<i>Chana</i>)			2.53
13	Beans			2.34
14	Eggs	0.49	0.49	2.27
15	Milk	30.7	31.06	63.43
16	Baby milk/ power milk	0.01	0.01	0.09
17	Curd/ whey	1.21	1.22	34.37
18	Ghee	1.17	1.19	1.49
19	Vegetable oil	0.22	0.22	0.73
20	Mustard oil	7.35	7.42	12.77

S. N.	Food Items	1995/96	2003/04	2010/11
21	Potatoes	28.88	29.15	64.07
22	Colocassia			14.32
23	Onions	5.84	5.90	16.19
24	Cauliflower/ cabbage	4.06	4.10	10.73
25	Tomatoes	2.41	2.43	4.08
26	Pointed gourd			4.52
27	Bitter gourd			4.21
28	Bananas	3.70	3.74	10.39
29	Citrus fruit	0.85	0.85	7.69
30	Mangoes	4.99	5.04	5.12
31	Apples	0.37	0.38	2.26
32	Pineapple	0.10	0.10	0.33
33	Papaya	1.70	1.71	3.29
34	Fish	1.72	1.73	5.39
35	Mutton	1.64	1.66	3.45
36	Buffalo meat	1.79	1.81	4.71
37	Chicken	1.08	1.09	6.15
38	Salt	13.31	13.44	13.18
39	Sugar	3.55	3.58	10.22
40	Gur (sakhar)	0.77	0.78	0.9
41	Sweets (mithai)	1.91	1.93	0.55
42	Tea	0.25	0.26	

Note : Food consumption of the NLSS-III poverty basket is obtained by adjusting the NLSS-II basket for the change in the demographic composition of an average Nepali household.

Source : Central Bureau of Statistics.

Table 3.4.14: Households facing food scarcity by ecological zone in last five years

Analytical domain	Disasters	Yes (%)	No (%)	Total
Mountain	Drought	27.6	72.4	100
	Forest fire	1.7	98.3	100
	Fire (settlement)	3.2	96.8	100
	Flood	19.6	80.4	100
	Windstorm	6	94	100
	Thunderstorm		100	100
	Hailstorm	13.5	86.5	100
	Heavy rain	12.9	87.1	100
	Sporadic rain		100	100
	Soil erosion	3.2	96.8	100
	Landslide	16	84	100
	Avalanche	13.7	86.3	100
	GLOF		100	100
	Diseases / insects	28.7	71.3	100
	Others	24.4	75.6	100
Hill	Drought	21.9	78.1	100
	Forest fire	0.4	99.6	100
	Fire (settlement)	9.7	90.3	100
	Flood	10.5	89.5	100
	Windstorm	9.3	90.7	100

Analytical domain	Disasters	Yes (%)	No (%)	Total	
	Thunderstorm	0.6	99.4	100	
	Hailstorm	25.1	74.9	100	
	Heavy rain	17.7	82.3	100	
	Sporadic rain	5.5	94.5	100	
	Soil erosion	5.9	94.1	100	
	Landslide	10.9	89.1	100	
	Diseases / insects	25.9	74.1	100	
	Others		100	100	
	Terai	Drought	10	90	100
		Forest fire	1	99	100
		Fire (settlement)	20.2	79.8	100
		Flood	20.9	79.1	100
		Inundation	23.8	76.2	100
		Windstorm	4.2	95.8	100
		Thunderstorm	0.3	99.7	100
		Hailstorm	6.2	93.8	100
		Heavy rain	16.2	83.8	100
		Sporadic rain	7.4	92.6	100
Soil erosion			100	100	
Landslide		28.8	71.2	100	
Heat wave		0.4	99.6	100	
Cold wave		3.6	96.4	100	
Diseases / insects		23.8	76.2	100	
Others		36.6	63.4	100	

Source: National Climate Change Survey 2022

Table 3.5.1 : Supply of Drinking Water by Agency

Year	Unit	Water Supply				
		DWSS		NWSC	KUKL	Total
		Total	Urban Area Only			
1993/94	Th. L/d	46948	1736	16000		64684
1994/95	Th. L/d	54471	4608	3300		62379
1995/96	Th. L/d	54067	3880	5500		63447
1996/97	Th. L/d	34650		5500		40150
1997/98	Th. L/d	31815		300		32115
1998/99	Th. L/d	20011		7000		27011
1999/00	Th. L/d	28271		3000		31271
2000/01	Th. L/d	25164		1480		26644
2001/02	Th. L/d	2876		7000		9876
2002/03	Th. L/d	5552		5000		10552
2003/04	Th. L/d	8550		3000		11550
2004/05	Th. L/d	5580		4000		9580
2005/06	Th. L/d	7200	1000	18100		26300
2006/07	Th. L/d	22500	8000	3000		33500
2007/08	Th. L/d	19545	28600	7500	101900*	55645
2008/09	Th. L/d	15615	21120	125000		
2009/10	Th. L/d	16605	1040	129440	119160	
2010/11	Th. L/d			135033	118880	
2011/12	Th. L/d			168305	117300	
2012/13	Th. L/d			155125		
2013/14	Th. L/d	18045	1035	148000	115729	282809
2014/15	Th. L/d	35280	17640	131450	116265	300635

Year	Unit	Water Supply				
		DWSS		NWSC	KUKL	Total
		Total	Urban Area Only			
2015/16	Th. L/d			135000	114000	249000
2016/17	Th. L/d			135000	134660	269660
2017/18	Th. L/d	NA	NA	128000	142320	
2018/19	Th. L/d	NA	NA	105790	102656	
2019/20	Th. L/d	NA	NA	90000	91336	
2020/21	Th. L/d	NA	NA	92570	109976	
2021/22	Th. L/d	NA	NA	117800	101240	
2022/23	Th. L/d	NA	NA	138200	NA	

Th. L/d = Thousand litre per day

* Water supply in dry season, + KUKL

Source: Department of Water Supply and Sewerage (DWSS), Nepal Water Supply Corporation (NWSC) and Kathmandu Upatyaka Khanepani Ltd. (KUKL).

Table 3.5.2: River Water Runoff from Nepal

S.N.	River	Length (km)	Drainage Area (sq.km)		Estimated Runoff (m ³ /sec)	
			Total	Nepal	From all Basins	From Nepal
1	Mahakali	223	15260	5410	698	247
2	Karnali	507	44000	41890	1441	1371
3	Babai	190	3400	3400	103	103
4	West Rapti	257	6500	6500	224	224
5	Narayani	332	34960	28090	1753	1409
6	Bagmati	163	3700	3700	178	178
7	Sapta Koshi	513	60400	31940	1658	878
8	Kankai	108	1330	1330	68	68
9	Other River		24921	24921	1001	1001
Total			194471	147181	7124	5479

Source : Water and Energy Commission Secretariat (Water Resources of Nepal in the context of Climate Change, 2011)

Table 3.5.3(a): Household (%) Reporting Reasons for Depletion in Water Sources Over Last 25 Years

S.N.	Reasons	1 st priority	2 nd priority	3 rd priority
1	Insufficient rainfall	47.7	6.9	1.1
2	Increased drought	20.3	25.2	2.2
3	Road construction	3.4	7.7	5.4
4	Land slide / soil erosion	1.3	1.7	1.7
5	Urbanization	2	2.5	2.5
6	Deforestation	3.2	4.3	5
7	Heavy extraction of underground water	1	1.1	0.8
8	Mine and excavation	0.1	0.4	1.8
9	Increased population	3.2	3.4	4
10	Earthquake	2.9	2.7	2.1
11	Change in land use	0.1	0.5	1.1
12	Others	14.8	0.3	0.5
13	Not reported	0	43.3	71.8
	Total	100	100	100

Source: NCCS 2022

Table 3.5.3(b): Households (%) Reporting Major Reason for Depletion in Water Sources Over Last 25 Years.

Analytical domain	Major Reason for Decrease in Water Sources (%)										Total	
	Insufficient rainfall	Increase in drought	Road construction	Landslide/soil erosion	Urbanization	Deforestation	Over extraction of ground water	Excavation	Population growth	Earthquake		Change in land use
Ecological zone												
Mountain	37.7	30.3	1	3.2	0.1	3.3	0	0.1	1.1	14	0.1	9
Hill	42.2	25.7	5.5	1.9	2.6	4.2	0.7	0.1	4.1	3.7	0.1	9.2
Terai	55.1	12.9	1.7	0.3	1.7	2.2	1.5	0.1	2.8	0	0.1	21.6
Nepal	47.7	20.3	3.4	1.3	2	3.2	1	0.1	3.2	2.9	0.1	14.8

Source: NCCS 2022

CHAPTER IV

Residuals

Table 4.1.1: Nepal's GHG emission Base Year 1994/95

Greenhouse Gas Source and Sink Categories	CO2 (Gg)		CH4(Gg)	N2O (Gg)
	Emission	Removal		
1. Energy	1465			
2. Industrial Processes	165			
3. Agriculture			867	29
4. Land-Use Change & Forestry	22895	-14778		
5. Waste			10	1
Total emission and Removals	24525	-14778	877	30
Net emission	9747		877	30

Source: TNC, 2021, MOFE

Table 4.1.2: Nepal's direct and indirect GHG emissions in the base year 2000

GHG Source and Sink Categories	Direct Gases (Gg)				Indirect Gases (Gg)			
	CO ₂	CO ₂	CH ₄	N ₂ O	NO _x	CO	NMVOC	SO ₂
	Emissions	Removal	Emission					
Total National Emissions and removals	2,894	-12,776	662	26	67	2,889	333	76
1. Energy	2,763	0	164	2	67	2,755	332	76
2. Industrial Processes	131	0	0	0			1	
3. Agriculture			466	23				
4. Land-Use Change & Forestry		-12,776	15		0	134		
5. Waste			17	1				
6. Memo items								
International Bunkers (Aviation)	162				1			
CO2 emission from Biomass	30,294							

Source: TNC, 2021, MOFE

Table 4.1.3: GHG Emission and Removal/Sink as per Sector/Sub-Sector

Sector/Sub-Sector	Emission					Removal/Sink	Net Emission/Sink
	CO2	CH4	N2O	HFC*	CO2-eq	CO2-eq	
TOTAL	14667.22	1259.61	26.37	0.01	54028.7	25862.7	28166.06
1. Energy	4678.22	354.9	4.03	0	14751.7	0	14751.66
- Energy Industries	2.38	0	0		2.38		2.38
- Manufacturing Industries and Construction	2237.34	0.04	0.06		2256.22	0	2256.22
- Transport	1708.92	0.27	0.08		1739.51	0	1739.51
- Others (Commercial/ Institutional, Residential, Agricultural)	729.58	354.59	3.89		10753.6	0	10753.55
2. Industrial Processes and Product Use	355.4	0	0	0.01	368.4	0	368.4
3. Agriculture, Forestry and Land Use (AFOLU)	9631.24	882.36	21.12		37984	25862.7	12121.33
- Livestock	0	705.49	0.09		17664.1		17664.07
- Land (Forest)	6715.02	0	0	0	6715.02	23792.8	-17077.81
- Land (Non-Forest)	2105.23				2105.23	2069.84	35.39
- Aggregate Sources and Non-CO2 Emissions Sources on Land (3C)	810.99	176.87	21.03		11499.7	0	11499.68
4. Waste	2.36	22.35	1.22		924.67	0	924.67

Source: TNC, 2021, MOFE

Table 4.1.4: GHG emissions from Energy Sector for 2011.

Categories		CO2	CH4	N2O	CO2eq
1 ENERGY		Tonnes			Gg
1A	Fuel Combustion Activities				
1A1	Energy Industries	2376.07	0.09	0.02	2.38
1A2	Manufacturing Industries and Construction	2237336.52	39.4	60.06	2256.22
1A3	Transport	1708915.97	274.02	79.72	1739.52
1A4	Others	729575.7	354593.88	3889.65	10753.54
Grand Total (in Tonnes)		4678204.26	354907.39	4029.45	14751.67
Grand Total (in Gigagram)		4678.2	354.91	4.03	14751.67
Memo ITMES			Tonnes		Gg
	International Bunker	172,507.58	1.21	4.83	173.98
INFORMATION ITEMS		Gg			
CO2 from Biomass Combustion for Energy Production (Gg)		23,499			

Source: TNC, 2021, MOFE

Table 4.1.5: GHG emissions and removal (Gg) from AFOLU sector, 2011

Activities	GHG Emission (Gg), 2011						Remarks
	CO2	CH4	N2O	CO2-Eq	CO	NOx	
TOTAL AFOLU	-16231.43	882.36	21.12	12121.33			
Livestock (3A)		705.49	0.09	17664.07			
Enteric fermentation (3A1)		648.74		16218.5			
Manure management (3A2)		56.75	0.09	1446.63			
Land(3B)	-17042.42			-17042.42			
Forest land (3B1)	-17077.81			-17077.81			
Non-forest land	35.39			35.39			
Aggregate sources and non-CO2 emissions sources on land (3C)	810.99	176.87	21.03	11499.65	186	2.87	
-Forest	229.85	12.19	0.47	673.51	186	2.87	
-Crop residue		5.61	0.15	183.55			
-Grassland burning		0.08	0	3.2			
Liming (3C2)	564.11			564.11			
Urea application (3C3)	17.04			17.04			
Direct N2O emissions from managed soils (3C4)			0.86	255.12			
Indirect N2O emissions from managed soils (3C5)			0.23	67.93			
Indirect N2O emissions from manure management (3C6)			19.33	5760.3			
Rice cultivations (3C7)		159		3974.91			
Biomass burning (3C1)	229.85	17.88	0.62	860.25			Not included in inventory

Source: TNC, 2021, MOFE

Table 4.1.6: GHG Emission from Waste, 2011

Waste Categories	Emissions [Gg]			Emissions [Gg; CO2-Eq]			
	CO2	CH4	N2O	CO2	CH4	N2O	Total
1. Solid Waste Disposal		10.4633			261.5813		261.5813
2. Biological Treatment of Solid Waste		0.1047	0.0063		2.6171	1.8718	4.4889
3. Open Burning of Waste	2.3617	0.3402	0.0061	2.3617	8.5057	1.825	12.6924
4. Wastewater Treatment and Discharge		11.4461	1.2036		286.1522	358.6615	644.8137
4a. Domestic Wastewater		6.9628	1.2036		174.0689	358.6615	532.7304
4b. Industrial Wastewater		4.4833			112.0833		112.0833
Total	2.3617	22.3543	1.216	2.3617	558.8563	362.3583	923.586

Source: TNC, 2021, MOFE

Table: 4.1.7: Emission reduction accounts

S.N.	Renewable Energy Technologies	ER Calculation (tCO ₂ eq)*										Emission reduction per year (tCO ₂ eq) of total installation until 2017/18
		2070/71 (2013/14)	2071/72 (2014/15)	2072/73 (2015/16)	2073/74 (2016/17)	2074/75 (2017/18)	2075/76 (2018/19)	2076/77 (2019/20)	2077/78 (2020/21)	2078/79 (2021/22)	2079/80 (2022/23)	
1	Mini/Micro/Pico Hydro Power	10,716	16,514	19,318	22,791	25,578	3,342	2,001	2,567	4,020	4,020	73,770
2	Improved Water Mill	2,865	5,311	5,632	6,555	6,902	588			299	299	37,945
3	(Small) Solar PV Home Systems	9,160	19,021	23,411	39,547	44,183	6,045	2,045	2,820	2,419	2,419	95,290
4	Institutional Solar PV Systems	178	816	1,047	1,386	2,653		341	1,005	2,325	2,325	4,220
5	Solar Drinking Water/Irrigation Pumping Systems	22	47	57	178	410		462	490	30	30	436
6	Solar Dryer	1,327	1,490	1,490	1,490	2,116	244					14,936
7	Mud ICS	209,149	657,910	770,578	824,474	834,300				6,134	6,134	1,972,797
8	Metallic ICS+Institutional	7,792	25,753	75,241	145,468	207,520	46,388	36,141	29,680			236,416
9	Domestic Biogas Plants	114,012	189,291	226,539	262,614	284,943	28,353	5,463	16,923	24,504	24,504	1,294,887
10	Institutional/community/Commercial Biogas Plants and Waste to Energy Projects	-	112	168	498	1,118	295	142	208	25	25	1,118
11	Wind Energy	23	81	138	219	322	345	115	1,198	39,756	39,756	1,099
	Total	355,244	916,345	1,123,617	1,305,220	1,410,043	86,803					3,732,916

Source: Alternative Energy Promotion centre

*The emission reduction accounts for the emission reduction for all installed systems and all are not tradable Certified Emission Reduction generated by Carbon projects

Table 4.1.8: Greenhouse gas emissions from the IPPU sector in 2011

Category	CO ₂ (Gg)	N ₂ O (Gg)	HFC (kg)				CO ₂ -equivalent (Gg)	NO _x (Gg)	NMVOC (Gg)	CO (Gg)	SO ₂ (Gg)
			R134a	R404a	R407a	R410a					
Cement production	350.2						350.2				0.21
Iron and steel production								0.0014	0.0011	0	0
Product uses as substitutes for ozone depleting substances											
N ₂ O from product uses		0.0035					1				
Non-energy products from fuels and solvent use	5.2						5.2				
Paper production									0.1457		
Food and beverage production									5.8319		
Total	355.4	0.0035	7475	218	565	5085	379.8	0	6	0	0.2

Notes:

- HFC data is not the actual emission but only the potential emission.
- Since the HFC data is not available for 2011, the year 2013 has been taken as the base year for this category.
- GWP values for 100-year time horizon are taken from IPCC Fourth Assessment Report. GWP values of N₂O, R-134a (HFC-134a), R-404A, R-407A and R-410A are taken as 298, 1430, 3922, 2107, and 2088.

Source: Third National Communication (TNC), 2021, MoFE

Table 4.1.9 : PM_{2.5} scenario of Kathmandu valley (for all three stations): Assessment of seasonal variation

Season	Mean	N	SD	CV
Spring/Pre-monsoon	70	20513	56.4	80.6
Summer/Monsoon	23.8	22235	28.6	120.1
Autumn/Post-monsoon	23.7	22030	27.1	114.4
Winter	82	21116	58.7	71.7
Total	49.1	85894	52.1	106

Table 4.1.10: CO scenario of Kathmandu valley (for all three stations): Assessment of seasonal variation

Season	Mean	N	SD	CV
Spring	447.3	348518	1541.9	344.7
Summer	502.7	345159	4937.17	982.1
Autumn	298.4	397446	1180.25	395.5
Winter	517.3	380150	1116.11	215.8
Total	438.2	1471273	2643.43	603.3

Table 4.1.11: NO2 scenario of Kathmandu valley (for all three stations): Assessment of seasonal variation

Season	Mean	N	SD	CV
Spring	267	374746	1075.1	402.6
Summer	97.3	396223	337.9	347.2
Autumn	47.1	420320	101	214.3
Winter	314.7	368603	266.3	84.6
Total	175.9	1559892	582	330.9

Stations :- Putalisadak in Kathmandu, Mahalaxmithan in Lalitpur and Bhimsensthan - Jagati in Bhaktapur

Source: Situation analysis of Ambient Air Pollution and Respiratory Health Effects in Kathmandu Valley, 2015, NHRC

Table 4.1.12: Carbon dioxide emission by industrial sectors in percentage (1996/97-2011/12)

NSIC code3	NSIC Name	Tons CO2 emissions 1996/97	Tons CO2 emissions 2001/02	Tons CO2 emissions 2006/07	Tons CO2 emissions 2011/12
15	Food and beverages	8.59	11.51	9.96	37.06
16	Tobacco products	0.52	0.58	0.25	0.18
17	Textiles	4.46	3.06	1.67	0.92
18	Wearing apparel, fur	0.28	0.53	0.11	0.04
19	Leather, leather products and footwear	0.17	0.3	0.05	0.11
20	Wood products (excl. furniture)	0.97	0.73	0.2	1.17
21	Paper and paper products	0.2	1.02	0.48	0.11
22	Printing and publishing	0.15	0.08	0.06	0.04
23	Coke, refined petroleum products, nuclear fuel	0.03	0.01	0.01	0.01
24	Chemicals and chemical products	2.61	4.36	2.86	1.57
25	Rubber and plastic products	1.29	0.8	0.76	1.03
26	Non-metallic mineral products	76.94	71.3	72.32	49.4
27	Basic metals	0.52	2.96	2.57	1.66
28	Fabricated metal products	2.49	2.22	8.28	6.5
29	Machinery and equipment n.e.c.	0.08	0.08	0.15	0.03
31	Electrical machinery and apparatus	0.18	0.22	0.16	0.09
32	Radio, television and communication equipment	0.01	0	0.01	0.01
33	Medical Precision, and optical Instruments			0.001	
34	Motor vehicles, trailers, semi-trailers	0.03	0	0	0
35	Other transport equipment			0.002	
36	Furniture; manufacturing n.e.c.	0.48	0.22	0.1	0.07
	Nepal	100	100	100	100

Source:- Development of Manufacturing Industries in Nepal, Current State and Future Challenges, CBS, 2014

Table 4.2.1 : Annual Average Organic Waste Collection per Municipality by Years

S.N.	Waste Type	FY	Metropolitan City	Sub-Metropolitan City	Municipality	Average
1	Textile (mt)	FY 2073/74	3,811.00	141.3	117	183.1
		FY 2074/75	4,034.00	162	106.3	159.5
		FY 2075/76	2,514.50	146.8	124.2	173.1
2	Leather (mt)	FY 2073/74	2,018.00	16.3	62.3	114.2
		FY 2074/75	2,136.00	20.3	55.3	96.5
		FY 2075/76	1,342.00	19.8	50	86.3
3	Paper (mt)	FY 2073/74	4,708.00	169	131.7	221.8
		FY 2074/75	4,983.00	202.3	137.9	207
		FY 2075/76	3,494.00	735.4	107.1	207.3
4	Agricultural/Garden management (mt)	FY 2073/74	1,076.00	699.7	444.2	472.8
		FY 2074/75	1,139.00	836	536.4	558.8
		FY 2075/76	2,343.00	1,808.00	393.9	506.3
5	Other Organic (mt)	FY 2073/74	1,121.00	1,243.50	74.7	161.5
		FY 2074/75	1,186.00	1,823.50	114	192.8
		FY 2075/76	976	1,378.30	148.9	233.2
6	Total of Organic Waste (mt)	FY 2073/74	12,734.00	2,269.80	829.8	1,153.30
		FY 2074/75	13,478.00	3,044.20	950	1,214.60
		FY 2075/76	10,669.50	4,088.20	824.2	1,206.10

Source: Waste Management Baseline Survey 2020

Table 4.2.2 : Annual Inorganic Waste Collection of All Types

Categories	Average Annual Collection of Inorganic Waste (mt)		
	FY 2073/74	FY 2074/75	FY 2075/76
Metropolitan City	8,787.00	9,725.00	7,100.00
Sub-Metropolitan City	1,005.70	1,338.70	1,525.90
Municipality	518.3	504.6	551.9
Overall	698	666.8	743.5

Source: Waste Management Baseline Survey 2020

Table 4.2.3 : Annual Average Waste Collection per Municipality by Waste Types and Categories

S.N.	Waste Type	FY	Metropolitan City (mt/Year)	Sub-Metropolitan City (mt/Year)	Municipality (mt/Year)	Annual Average of Municipalities (mt/Year/Municipality)	Daily Average of Municipalities (mt/Day/Municipality)
1	Organic	FY 2073/74	12,734.00	2,269.80	829.8	1,153.30	3.2
		FY 2074/75	13,478.00	3,044.20	950	1,214.60	3.3
		FY 2075/76	10,669.50	4,088.20	824.2	1,206.10	3.3
2	Inorganic	FY 2073/74	8,787.00	1,005.70	518.3	698	1.9
		FY 2074/75	9,725.00	1,338.70	504.6	666.8	1.8
		FY 2075/76	7,100.00	1,525.90	551.9	743.5	2
3	Other	FY 2073/74	5,145.00	228	194.8	379.6	1
		FY 2074/75	5,446.00	213.5	155.6	283	0.8
		FY 2075/76	6,200.00	229.7	177.5	283	0.8
4	Total	FY 2073/74	26,666.00	3,503.50	1,543.00	2,231.00	6.1

S.N.	Waste Type	FY	Metropolitan City (mt/Year)	Sub-Metropolitan City (mt/Year)	Municipality (mt/Year)	Annual Average of Municipalities (mt/Year/Municipality)	Daily Average of Municipalities (mt/Day/Municipality)
		FY 2074/75	28,649.00	4,596.30	1,610.20	2,164.40	5.9
		FY 2075/76	23,969.50	5,843.70	1,553.60	2,232.70	6.1

Source: Waste Management Baseline Survey 2020

Table 4.2.4: Average Quantity of Waste Collected from Different Sources and Municipal Categories

Categories	Household waste(kg/day)	Business House/Commercial Complex waste(kg/day)	Industrial House/ District waste(kg/day)	Educational Institutes waste(kg/day)	Health Institutions/ Hospitals waste(kg/day)	Other(kg/day)	Total Quantity (kg/day)
Metropolitan City	15920	7720	4460	4680	4560	-	37340
	-42.6	-20.7	-11.9	-12.5	-12.2	-	-100
Sub-Metropolitan City	3316	3025	1544	1322	594	1171	10973
	-30.2	-27.6	-14.1	-12.1	-5.4	-10.7	-100
Municipality	1441	932	310	358	381	282	3704
	-38.9	-25.2	-8.4	-9.7	-10.3	-7.6	-100
Overall	1784	1142	436	477	467	313	4619
	-38.6	-24.7	-9.5	-10.3	-10.1	-6.8	-100

Source: Waste Management Baseline Survey 2020

Table 4.2.5 : Estimation of waste generation, based on waste categories

S.No.	Waste type	Kg/day/patient
1	General	1.6
2	Recyclable	0.41
3	Infectious	0.47
4	Pharmaceutical	0.2
5	Sharp waste	0.18
6	Chemical	0.1
7	Radioactive waste	0.02
Total		3.0

Total waste production in healthcare institutions was 3.0 kg/day /patient out of which health care risk waste= 1.0 kg/day/patient and health care non risk waste = 2.0 kg/day/patient

Source: Nepal Health Research Council(Assesing the Biomedical Waste management Practice Among the Health Care Institution of Nepal 2013)

Table 4.2.6 : Segregation of wastes on Private Hospitals

Area	Does the hospital segregate wastes?		Total
	Yes	No	
Nepal	294	7	301
Ecological Belt			
Mountain	9	0	9
Hill	147	1	148
Terai	138	6	144
In and Out of Valley			
Kathmandu Valley	67	0	67
Out of Kathmandu Valley	227	7	234

Source: Census of Private Hospitals in Nepal 2013,CBS

Table 4.2.7 : Place of Private Hospital Waste Segregation

Place of Hospital Waste Segregation	Responses percent
Operation Room	23.0%
Ward room	28.4%
Laboratory	26.9%
kitchen	9.8%
Other	11.8%
Total	100.0%

Source: Census of Private Hospitals in Nepal 2013,CBS

Table 4.2.8 : Categories of hospital wastes segregated

Type of Wastes segregated	Response Percent
Sharp waste	20.1
Pathological waste	18
Infectious waste	18.1
Radioactive waste	7.2
Chemical waste	12.5
Medicinal waste	18.5
Other waste	5.5
Total	100

Source: Census of Private Hospitals in Nepal 2013,CBS

Table 4.2.9: Final disposal locations/places of hospital waste products

Final Disposal Location	Responses Percent
Municipality/VDC Collection Centers	30.1
Lansfill Site	9.1
Hospital Compound	16.8
Burning in Incineration	23.2
Burining Open	13.3
Other kind of Disposal	7.5
TOTAL	100

Source: Census of Private Hospitals in Nepal 2013,CBS

Table 4.2.10 : Number of Staff for Hospital Waste Product Management

Area	No of Staff
Nepal	1004
Hospital Type	
Private	701
Community	172
Other	131
Bed Category	
Upto 15 Beds	202
16 to 50 Beds	210
51 to 100 Beds	344
100 Beds and Above	248

Source: Census of Private Hospitals in Nepal 2013, CBS

Table 4.3.1 : Maximum Residual Limits (MRL) of Pesticides in Foodstuffs

Pesticides	Max. Residual Limit (MRL)	Pesticides	Max. Residual Limit (MRL)
Aldrin, Dieldrin	0.01 mg/kg	DDT	Absent
Chlordane	0.02 mg/kg	Dichlorvos	1 mg/kg
Diazinon	0.05 mg/kg	Fenitrothion	0.02mg/kg
Hydrogen Cyanide	37.05 mg/kg	Hydrogen Phosphide	.02 mg/kg
	0.01 mg/kg	Inorganic Bromide	25 mg/kg
Malathion	4.00 mg/kg	Lindane	.01 mg/kg
	0.01 mg/kg	Phosphamidon	.05 mg/kg
Fenithion	0.10 mg/kg	Carbofuran	.10 mg/kg
Phenthoate	0.05 mg/kg	Dithiocarbamates	.20 mg/kg
Carbendazim	0.50 mg/kg	Phorate	.05 mg/kg
Oxydemeton methyl	0.02 mg/kg	Trichlorfon	.05mg/ kg
Paraquat dichloride	0.025 mg/kg	Decmethrin/ Deltamethrin	.50mg/kg
Chlorphyrifos	0.05 mg/kg	Monocrothphos	.025 mg/kg
Chlorfenvinphos	0.025 mg/kg	Prethrins	Absent
Carbaryl	1.5mg/kg		

Source : Nepal Gazette 5 Feb 2001

Table 4.3.2: Carbon dioxide emission by industrial sectors in tons CO₂ (1996/97 to 2011/12)

NSIC code 3	NSIC Name	Tons CO ₂ emissions 1996/97	Tons CO ₂ emissions 2001/02	Tons CO ₂ emissions 2006/07	Tons CO ₂ emissions 2011/12
15	Food and beverages	44,477	73,601	76,761	635,478
16	Tobacco products	2,706	3,696	1,920	3,158
17	Textiles	23,062	19,560	12,887	15,803
18	Wearing apparel, fur	1,443	3,383	869	711
19	Leather, leather products and footwear	870	1,896	392	1,963
20	Wood products (excl. furniture)	5,026	4,696	1,545	20,123
21	Paper and paper products	1,060	6,519	3,677	1,897
22	Printing and publishing	781	528	463	610

NSIC code 3	NSIC Name	Tons CO ₂ emissions 1996/97	Tons CO ₂ emissions 2001/02	Tons CO ₂ emissions 2006/07	Tons CO ₂ emissions 2011/12
23	Coke, refined petroleum products, nuclear fuel	143	85	102	144
24	Chemicals and chemical products	13,516	27,896	22,032	26,896
25	Rubber and plastic products	6,661	5,148	5,838	17,603
26	Non-metallic mineral products	398,216	456,036	557,544	847,090
27	Basic metals	2,670	18,954	19,849	28,497
28	Fabricated metal products	12,894	14,180	63,804	111,406
29	Machinery and equipment n.e.c.	391	539	1,157	470
31	Electrical machinery and apparatus	933	1,403	1,209	1,586
32	Radio, television and communication equipment	48	28	64	109
33	Medical Precision, and optical Instruments			7	
34	Motor vehicles, trailers, semi-trailers	170	27	20	84
35	Other transport equipment			19	
36	Furniture; manufacturing n.e.c.	2,471	1,395	792	1,203
	Nepal	517,539	639,570	770,951	1,714,832

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.3 : Status of manufacturing establishments having pollution control machine installed

ISIC rev 3 Codes	Description	Having any pollution control machine			Percent having pollution control machine/tools installed
		Yes	No	Total	
15	Food and beverages	166	899	1065	15.6
16	Tobacco products	3	27	30	10
17	Textiles	20	268	288	6.9
18	Wearing apparel, fur	6	65	71	8.5
19	Leather, leather products and footwear	9	41	50	18
20	Wood products (excl. furniture)	14	305	319	4.4
21	Paper and paper products	11	81	92	12
22	Printing and publishing	5	89	94	5.3
23	Coke, refined petroleum products, nuclear fuel	2	4	6	33.3
24	Chemicals and chemical products	30	102	132	22.7
25	Rubber and plastics products	31	206	237	13.1
26	Non-metallic mineral products	253	681	934	27.1
27	Basic metals	10	31	41	24.4
28	Fabricated metal products	16	217	233	6.9
29	Machinery and equipment n.e.c.	1	25	26	3.8
31	Electrical machinery and apparatus	6	27	33	18.2
32	Radio, television and communication equipment	0	5	5	0
34	Motor vehicles, trailers, semi-trailers	1	13	14	7.1
36	Furniture; manufacturing n.e.c.	11	395	406	2.7
	NEPAL	595	3481	4076	14.6

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.4: Status of Reuse or recycle the metal or non-metal scraps produced by Industry by ISIC rev.3 2 digit

ISIC Rev.3 code	Description	Reuse or recycle the metal or non-metal scraps			% of Reuse or recycle
		Yes	No	Total	
15	Food and beverages	9	1056	1065	0.8
16	Tobacco products	0	30	30	0
17	Textiles	3	285	288	1
18	Wearing apparel, fur	2	69	71	2.8
19	Leather, leather products and footwear	6	44	50	12
20	Wood products (excl. furniture)	1	318	319	0.3
21	Paper and paper products	5	87	92	5.4
22	Printing and publishing	2	92	94	2.1
23	Coke, refined petroleum products, nuclear fuel	0	6	6	0
24	Chemicals and chemical products	1	131	132	0.8
25	Rubber and plastic products	58	179	237	24.5
26	Non-metallic mineral products	6	928	934	0.6
27	Basic metals	3	38	41	7.3
28	Fabricated metal products	7	226	233	3
29	Machinery and equipment n.e.c.	2	24	26	7.7
31	Electrical machinery and apparatus	1	32	33	3
32	Radio, television and communication equipment	0	5	5	0
34	Motor vehicles, trailers, semi-trailers	0	14	14	0
36	Furniture; manufacturing n.e.c.	8	398	406	2
	NEPAL	114	3962	4076	2.8
	NEPAL (%)	2.8	97.2	100	
	NEPAL (%)	2.8	97.2	100	

Source:- Development of Manufacturing Industries in Nepal, Current State and Challenges, CBS, 2014 Future Challenges, CBS, 2014

Table 4.3.5: Status of polluted air, gas control machine installation

ISIC rev3 code	Description	Installation Status			Percent
		Yes	No	Total	
15	Food and beverages	23	1042	1065	2.2
16	Tobacco products	1	29	30	3.3
17	Textiles	3	285	288	1
18	Wearing apparel, fur	3	68	71	4.2
19	Leather, leather products and footwear	0	50	50	0
20	Wood products (excl. furniture)	1	318	319	0.3
21	Paper and paper products	0	92	92	0
22	Printing and publishing	0	94	94	0
23	Coke, refined petroleum products, nuclear fuel	1	5	6	16.7
24	Chemicals and chemical products	11	121	132	8.3
25	Rubber and plastics products	11	226	237	4.6
26	Non-metallic mineral products	13	921	934	1.4
27	Basic metals	5	36	41	12.2
28	Fabricated metal products	1	232	233	0.4
29	Machinery and equipment n.e.c.	1	25	26	3.8
31	Electrical machinery and apparatus	5	28	33	15.2

ISIC rev3 code	Description	Installation Status			Percent
		Yes	No	Total	
32	Radio, television and communication equipment	0	5	5	0
34	Motor vehicles, trailers, semi-trailers	0	14	14	0
36	Furniture; manufacturing n.e.c.	4	402	406	1
	NEPAL	83	3993	4076	2
	NEPAL (%)	2	98		

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.6: Status of smoke and dust control machine installation

ISIC rev3 code	Description	Installation status			Percent
		Yes	No	Total	
15	Food and beverages	97	968	1065	9.1
16	Tobacco products	1	29	30	3.3
17	Textiles	11	277	288	3.8
18	Wearing apparel, fur	2	69	71	2.8
19	Leather, leather products and footwear	0	50	50	0
20	Wood products (excl. furniture)	6	313	319	1.9
21	Paper and paper products	5	87	92	5.4
22	Printing and publishing	1	93	94	1.1
23	Coke, refined petroleum products, nuclear fuel	2	4	6	33.3
24	Chemicals and chemical products	17	115	132	12.9
25	Rubber and plastic products	16	221	237	6.8
26	Non-metallic mineral products	105	829	934	11.2
27	Basic metals	5	36	41	12.2
28	Fabricated metal products	6	227	233	2.6
29	Machinery and equipment n.e.c.	1	25	26	3.8
31	Electrical machinery and apparatus	4	29	33	12.1
32	Radio, television and communication equipment	1	4	5	20
34	Motor vehicles, trailers, semi-trailers	0	14	14	0
	Other transport equipment	0	0	0	0
36	Furniture; manufacturing n.e.c.	3	403	406	6.9
	NEPAL	283	3793	4076	6.9
	NEPAL (%)	6.9	93.1		

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.7: Status of sound pollution control machine installation

ISIC rev3 code	Description	Installation status			Percent
		Yes	No	Total	
15	Food and beverages	22	1043	1065	2.1
16	Tobacco products	1	29	30	3.3
17	Textiles	2	286	288	0.7
18	Wearing apparel, fur	2	69	71	2.8
19	Leather, leather products and footwear	0	50	50	0
20	Wood products (excl. furniture)	2	317	319	0.6
21	Paper and paper products	3	89	92	3.3
22	Printing and publishing	4	90	94	4.3
23	Coke, refined petroleum products, nuclear fuel	0	6	6	0
24	Chemicals and chemical products	5	127	132	3.8
25	Rubber and plastic products	6	231	237	2.5
26	Non-metallic mineral products	11	923	934	1.2
27	Basic metals	2	39	41	4.9
28	Fabricated metal products	1	232	233	0.4
29	Machinery and equipment n.e.c.	0	26	26	0
31	Electrical machinery and apparatus	0	33	33	0
32	Radio, television and communication equipment	1	4	5	20
35	Other transport equipment	0	0	0	0
36	Furniture; manufacturing n.e.c.	2	404	406	1.6
	NEPAL	64	4012	4076	1.6
	NEPAL (%)	1.6	98.4		

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.8: Status of radiation control machine installation

ISIC rev3 code	Description	Installation status			Percent
		Yes	No	Total	
15	Food and beverages	8	1057	1065	0.8
16	Tobacco products	0	30	30	0
17	Textiles	2	286	288	0.7
18	Wearing apparel, fur	1	70	71	1.4
19	Leather, leather products and footwear	0	50	50	0
20	Wood products (excl. furniture)	0	319	319	0
21	Paper and paper products	0	92	92	0
22	Printing and publishing	0	94	94	0
23	Coke, refined petroleum products, nuclear fuel	0	6	6	0
24	Chemicals and chemical products	3	129	132	2.3
25	Rubber and plastics products	1	236	237	0.4
26	Non-metallic mineral products	3	931	934	0.3
27	Basic metals	1	40	41	2.4
28	Fabricated metal products	1	232	233	0.4
29	Machinery and equipment n.e.c.	0	26	26	0
31	Electrical machinery and apparatus	0	33	33	0
32	Radio, television and communication equipment	0	5	5	0
34	Motor vehicles, trailers, semi-trailers	0	14	14	0
36	Furniture; manufacturing n.e.c.	0	406	406	0
	NEPAL	20	4056	4076	0.5
	NEPAL (%)	0.5	99.5		

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.9: Status of sewerage system or sublimating residuals pond management

ISIC rev3 code	Description	Installation status			Percent
		Yes	No	Total	
15	Food and beverages	84	981	1065	7.9
16	Tobacco products	2	28	30	6.7
17	Textiles	23	265	288	8
18	Wearing apparel, fur	9	62	71	12.7
19	Leather, leather products and footwear	9	41	50	18
20	Wood products (excl. furniture)	10	309	319	3.1
21	Paper and paper products	9	83	92	9.8
22	Printing and publishing	3	91	94	3.2
23	Coke, refined petroleum products, nuclear fuel	1	5	6	16.7
24	Chemicals and chemical products	27	105	132	20.5
25	Rubber and plastic products	37	200	237	15.6
26	Non-metallic mineral products	35	899	934	3.7
27	Basic metals	6	35	41	14.6
28	Fabricated metal products	18	215	233	7.7
29	Machinery and equipment n.e.c.	3	23	26	11.5
31	Electrical machinery and apparatus	5	28	33	15.2
32	Radio, television and communication equipment	0	5	5	0
34	Motor vehicles, trailers, semi-trailers	0	14	14	0
35	Other transport equipment	0	0	0	0
36	Furniture; manufacturing n.e.c.	4	402	406	1
	NEPAL	285	3791	4076	7
	NEPAL (%)	7	93		

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges, CBS, 2014, Future Challenges, CBS, 2014

Table 4.3.10: Status of solid wastes management

ISIC rev3 code	Description	Management status			Percent having management
		Yes	No	Total	
15	Food and beverages	135	930	1065	12.7
16	Tobacco products	3	27	30	10
17	Textiles	38	250	288	13.2
18	Wearing apparel, fur	14	57	71	19.7
19	Leather, leather products and footwear	9	41	50	18
20	Wood products (excl. furniture)	16	303	319	5
21	Paper and paper products	10	82	92	10.9
22	Printing and publishing	24	70	94	25.5
23	Coke, refined petroleum products, nuclear fuel	2	4	6	33.3
24	Chemicals and chemical products	25	107	132	18.9
25	Rubber and plastics products	47	190	237	19.8
26	Non-metallic mineral products	47	887	934	5
27	Basic metals	9	32	41	22
28	Fabricated metal products	20	213	233	8.6
29	Machinery and equipment n.e.c.	3	23	26	11.5
31	Electrical machinery and apparatus	6	27	33	18.2
32	Radio, television and communication equipment	1	4	5	20
34	Motor vehicles, trailers, semi-trailers	0	14	14	0

ISIC rev3 code	Description	Management status			Percent having management
		Yes	No	Total	
35	Other transport equipment	0	0	0	0
36	Furniture; manufacturing n.e.c.	26	380	406	6.4
	NEPAL	435	3641	4076	10.7
	NEPAL (%)	10.7	89.3		

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.11: Status of Reuse or recycle the metal or non-metal scraps produced by Industry by ISIC rev.3 2 digit

ISIC Rev.3 code	Description	Reuse or recycle the metal or non-metal scraps			Percent of reuse or recycle
		Yes	No	Total	
15	Food and beverages	9	1056	1065	0.8
16	Tobacco products	0	30	30	0
17	Textiles	3	285	288	1
18	Wearing apparel, fur	2	69	71	2.8
19	Leather, leather products and footwear	6	44	50	12
20	Wood products (excl. furniture)	1	318	319	0.3
21	Paper and paper products	5	87	92	5.4
22	Printing and publishing	2	92	94	2.1
23	Coke, refined petroleum products, nuclear fuel	0	6	6	0
24	Chemicals and chemical products	1	131	132	0.8
25	Rubber and plastic products	58	179	237	24.5
26	Non-metallic mineral products	6	928	934	0.6
27	Basic metals	3	38	41	7.3
28	Fabricated metal products	7	226	233	3
29	Machinery and equipment n.e.c.	2	24	26	7.7
31	Electrical machinery and apparatus	1	32	33	3
32	Radio, television and communication equipment	0	5	5	0
34	Motor vehicles, trailers, semi-trailers	0	14	14	0
35	Other transport equipment				0
36	Furniture; manufacturing n.e.c.	8	398	406	2
	NEPAL	114	3962	4076	2.8
	NEPAL (%)	2.8	97.2	100	

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.12: Status of Having Pollution Control Certificate by ISIC rev.3

ISIC rev 3 code	Description	Pollution control certificate			Percent
		Yes	No	Total	
15	Food and beverages	36	1029	1065	22.64
16	Tobacco products	0	30	30	0
17	Textiles	0	288	288	0
18	Wearing apparel, fur	2	69	71	1.26
19	Leather, leather products and footwear	3	47	50	1.89
20	Wood products (excl. furniture)	4	315	319	2.52
21	Paper and paper products	6	86	92	3.77
22	Printing and publishing	2	92	94	1.26
23	Coke, refined petroleum products, nuclear fuel	1	5	6	0.63
24	Chemicals and chemical products	14	118	132	8.81
25	Rubber and plastic products	12	225	237	7.55
26	Non-metallic mineral products	66	868	934	41.51
27	Basic metals	4	37	41	2.52
28	Fabricated metal products	6	227	233	3.77
29	Machinery and equipment n.e.c.	0	26	26	0
31	Electrical machinery and apparatus	1	32	33	0.63
32	Radio, television and communication equipment	0	5	5	0
34	Motor vehicles, trailers, semi-trailers	0	14	14	0
35	Other transport equipment				0
36	Furniture; manufacturing n.e.c.	2	404	406	1.26
	NEPAL	159	3917	4076	100
	NEPAL (%)	3.9	96.1	100	

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges,CBS,2014, Future Challenges, CBS, 2014

Table 4.3.13: Total environment expenditures by ISIC rev 3 classification, 2012

ISICrev.3 Code	Description	Expenditure to control polluted air, gas	Expenditure to control smoke and dust	Expenditure to control sound pollution	Expenditure to control industrial radiation	Expenditure for sewerage management or sublimating residuals	Expenditure for managing solid wastes	Expenditure on environment protection	Expenditure for recycling wastes	Total expenditure in Rs 000	Per cent
15	Food and beverages	2,425	2,033	2,729	5,520	2,046	10,147	74,795	767	170,462	11.11
16	Tobacco products	28	59	4	-	58	-	4	-	153	0.01
17	Textiles	11	565	-	-	553	753	100,300	502	102,684	6.69
18	Wearing apparel, fur	200	140	100	-	133	182	225,052	80	225,887	14.72
19	Leather, leather products and footwear		100			91	338	1,565	120	2,214	0.14
20	Wood products (excl. furniture)	-	632	120		628	718	660	-	2,758	0.18
21	Paper and paper products		179	1,200		175	11,614	21,758	15,155	50,081	3.26
22	Printing and publishing		187	37		185	1,358	18,064	-	19,831	1.29
23	Coke, refined petroleum products, nuclear fuel	-	10			11	-	25		46	0
24	Chemicals and chemical products	530	247	830	-	237	2,908	8,068	-	12,820	0.84
25	Rubber and plastic products	780	458	1,890	-	437	9,557	2,630	44,392	60,144	3.92
26	Non-metallic mineral products	4,268	1,763	1,625	1,050	1,833	14,268	777,843	25,853	828,503	53.99
27	Basic metals	15	77	100	-	76	2,746	21,000	50	24,064	1.57
28	Fabricated metal products	5,556	460	-	-	448	749	273	21,592	29,078	1.89
29	Machinery and equipment n.e.c.	30	51			49	50	135	102	417	0.03
31	Electrical machinery and apparatus	1,925	62			61	109	247	150	2,554	0.17
32	Radio, television and communication equipment		9	-		10	3	-	-	22	0
34	Motor vehicles, trailers, semi-trailers		28			28		-		56	0
35	Other transport equipment										0
36	Furniture; manufacturing n.e.c.	135	809	30		808	531	316	70	2,699	0.18
	NEPAL	15,903	7,869	8,665	76,570	7,867	3,65	1,252,735	108,833	1,534,473	100
	NEPAL (%)	1.04	0.51	0.56	4.99	0.51	3.65	81.64	7.09	100	

Source:- Development of Manufacturing Industries in Nepal, Current State and Challenges, CBS, 2014, Future Challenges, CBS, 2014

Table 4.3.14: Impact by Environment Act on manufacturing establishments

ISIC rev 3 code	Description	Impact by Environment Act on manufacturing establishments						Total
		Very positive	Positive	No effect	Negative	Very negative	Not reported	
15	Food and beverages	8	396	577	33	5	46	1065
16	Tobacco products	2	14	12	1	0	1	30
17	Textiles	2	66	189	14	3	14	288
18	Wearing apparel, fur	0	21	44	1	0	5	71
19	Leather, leather products and footwear	0	15	28	4	0	3	50
20	Wood products (excl. furniture)	2	92	204	12	3	6	319
21	Paper and paper products	0	31	47	7	2	5	92
22	Printing and publishing	0	30	53	5	0	6	94
23	Coke, refined petroleum products, nuclear fuel	1	0	5	0	0	0	6
24	Chemicals and chemical products	4	61	54	3	5	5	132
25	Rubber and plastic products	4	81	121	13	6	12	237
26	Non-metallic mineral products	19	384	456	57	6	12	934
27	Basic metals	0	16	24	1	0	0	41
28	Fabricated metal products	1	67	147	8	4	6	233
29	Machinery and equipment n.e.c.	1	7	14	2	1	1	26
31	Electrical machinery and apparatus	0	13	17	2	0	1	33
32	Radio, television and communication equipment	0	4	1	0	0	0	5
34	Motor vehicles, trailers, semi-trailers	0	3	9	0	0	2	14
35	Other transport equipment							
36	Furniture; manufacturing n.e.c.	6	88	279	17	5	11	406
	NEPAL	50	1389	2281	180	40	136	4076
	NEPAL (%)	1.2	34.1	56	4.4	1	3.3	100

Source:- Development of Manufacturing Industries in Nepal,

Current State and Challenges, CBS, 2014, Future Challenges, CBS, 2014

CHAPTER V

Extreme Events and Disaster

Table 5.1.1 : Potentially Dangerous Glacial Lakes in Nepal

S.N.	Glacier Lake	Location /District	Altitude (m.)	Area (sq.m.)
1	Lower Barun	Sankhuwasabha	4550	NA
2	Lumding Tsho	Solukhumbu	4846	104943
3	Dig Tsho		4364	143249
4	Imja Tsho		5023	48811
5	Tam Pokhari		4431	138846
6	Dudh Pokhari		4760	274296
7	Unnamed 1		5266	133752
8	Unnamed 2		5056	112398
9	Hungu		5181	198905
10	East Hungu 1		5379	78760
11	East Hungu 2		5483	211877
12	Unnamed 3		5205	349396
13	West Chamjang		4983	6446
14	Tsho Rolpa		Dolakha	4556
15	Unnamed 4	Taplejung	4876	179820
16	Nagma Pokhari		4907	18971
17	Unnamed 5	Gorkha	3590	81520
18	Unnamed 6	Mustang	5419	149544
19	Unnamed 7		5452	1015173
20	Thulagi		3825	223385

NA : Not Available

Source : Ministry of Environment,(NAPA, 2010)

Table 5.1.2: Details of Earthquake by Magnitude and Epicenter, Jan 2020 to November 2023.

S.N.	Date	Time	Latitude	Longitude
11	11/3/2023	18:02	28.92	82.21
12	10/22/2023	11:48	27.95	84.79
13	10/22/2023	11:46	27.96	84.79
14	10/22/2023	10:18	28.03	84.83
15	10/22/2023	3:14	27.95	84.79
16	10/22/2023	2:43	28	84.8
17	10/22/2023	2:23	27.99	84.81
18	10/22/2023	1:54	27.94	84.79
19	10/21/2023	13:10	29.6	81.28
20	10/18/2023	16:18	29.62	81.19
21	10/16/2023	3:41	30.06	80.58
22	10/12/2023	20:06	29.49	81.25
23	10/12/2023	18:46	28.48	83.21
24	10/11/2023	18:37	29.61	81.19
25	10/7/2023	6:47	29.61	81.24
26	10/7/2023	6:00	29.58	81.26
27	10/5/2023	17:06	29.6	81.23
28	10/3/2023	23:58	29.63	81.2
29	10/3/2023	22:42	29.41	81.26
30	10/3/2023	19:05	29.65	81.19
31	10/3/2023	18:31	29.62	81.27
32	10/3/2023	11:53	29.65	81.27
33	10/3/2023	11:34	29.56	81.16
34	10/3/2023	10:46	29.53	81.14
35	10/3/2023	10:43	29.59	81.28
36	10/3/2023	10:00	29.58	81.1

S.N.	Date	Time	Latitude	Longitude
37	10/3/2023	9:28	29.55	81.18
38	10/3/2023	9:21	29.59	81.19
39	10/3/2023	8:55	29.64	81.29
40	9/17/2023	19:03	26.97	87.54
41	8/31/2023	19:26	27.37	87.06
42	7/19/2023	4:08	28.43	83.99
43	7/13/2023	5:32	29.75	81.78
44	6/23/2023	0:10	28.15	84.54
45	6/19/2023	23:10	29.78	80.92
46	6/12/2023	1:53	29.72	81.61
47	5/23/2023	22:21	29.66	81.61
48	5/22/2023	13:09	29.68	81.61
49	5/20/2023	21:14	28.62	82.84
50	5/10/2023	23:30	29.73	81.62
51	5/4/2023	7:32	29.78	81.58
52	5/1/2023	8:50	29.89	81.93
53	4/28/2023	3:40	29.74	81.63
54	4/27/2023	19:45	29.78	81.61
55	4/27/2023	18:13	29.75	81.56
56	4/23/2023	7:27	29.38	81.34
57	4/11/2023	13:05	28.17	84.74
58	4/1/2023	5:42	27.76	86.19
59	3/31/2023	21:34	28.12	84.9
60	3/28/2023	17:56	27.86	87.89
61	3/26/2023	16:42	29.42	81.66
62	3/24/2023	4:06	29.64	81.89
63	3/13/2023	13:11	28.95	81.68
64	3/5/2023	2:50	29.29	81.4
65	3/5/2023	2:18	27.57	85.59
66	3/1/2023	11:57	27.82	88.02
67	2/28/2023	4:18	27.08	87.96
68	2/22/2023	8:00	29.68	81.67
69	2/12/2023	22:45	27.83	87.95
70	2/10/2023	3:07	28.8	82.53
71	2/1/2023	5:59	29.71	81.62
72	1/31/2023	18:39	27.42	87.47
73	1/25/2023	19:22	29.64	81.68
74	1/24/2023	8:58	29.75	81.7
75	1/21/2023	22:53	27.8	85.81
76	12/27/2022	21:43	28.45	83.09
77	12/27/2022	20:22	28.36	83.19
78	12/27/2022	19:38	28.45	83.14
79	12/23/2022	1:30	29.1	83.3
80	12/21/2022	19:15	30	80.74
81	12/18/2022	17:08	28.26	85.06
82	11/28/2022	5:00	26.93	87.26
83	11/15/2022	12:23	29.35	81.21
84	11/12/2022	14:27	29.45	81.19
85	11/9/2022	23:28	29.35	81.29
86	11/8/2022	20:27	29.38	81.13
87	11/8/2022	16:11	29.38	81.11
88	11/8/2022	15:22	29.38	81.11
89	10/30/2022	3:41	29.6	81.04
90	10/19/2022	10:08	28.07	86.02

S.N.	Date	Time	Latitude	Longitude
91	10/19/2022	9:22	28.15	86.06
92	8/19/2022	19:43	28.24	81.77
93	8/18/2022	16:58	27.97	85.54
94	8/5/2022	23:41	27.83	85.15
95	7/31/2022	2:28	27.16	86.83
96	7/25/2022	0:22	27.94	85.52
97	7/17/2022	22:46	29.41	81.34
98	7/10/2022	14:04	29.82	80.76
99	7/2/2022	9:47	27.66	86.2
100	6/23/2022	1:37	28.1	84.81
101	6/22/2022	22:11	28.33	83.86
102	6/10/2022	20:51	27.7	85.41
103	6/7/2022	7:05	29.61	80.51
104	5/23/2022	9:24	27.3	87.73
105	5/23/2022	9:15	27.31	87.94
106	5/4/2022	4:12	29.35	82.04
107	4/19/2022	0:18	29.58	81
108	3/23/2022	10:54	27.9	87.86
109	2/22/2022	10:07	29.7	80.71
110	1/26/2022	11:09	27.9	84.57
111	1/21/2022	0:58	27.98	85.58
112	1/6/2022	18:29	28.68	82.97
113	1/5/2022	10:31	27.67	86.32
114	11/9/2021	8:43	27.87	85.92
115	10/25/2021	14:45	28.29	84.36
116	10/18/2021	9:38	27.86	85.82
117	10/18/2021	9:35	27.85	85.81
118	10/18/2021	8:11	27.92	85.81
119	10/18/2021	8:01	27.92	85.8
120	10/16/2021	22:24	28.18	84.93
121	10/2/2021	14:28	27.91	85.81
122	10/2/2021	14:13	27.92	85.81
123	10/1/2021	7:09	27.71	85.92
124	9/25/2021	6:27	27.91	85.8
125	9/20/2021	10:45	29.89	80.59
126	9/12/2021	14:56	27.64	86.1
127	8/23/2021	20:38	29.61	81.01
128	8/12/2021	4:09	26.98	86.69
129	7/23/2021	13:12	27.28	86.9
130	7/18/2021	15:14	28.98	81.47
131	7/7/2021	10:12	28.13	84.56
132	7/2/2021	16:17	29.79	81.59
133	6/29/2021	8:35	27.3	87.26
134	5/19/2021	16:54	28.24	84.41
135	5/19/2021	15:38	28.27	84.42
136	5/19/2021	2:41	28.27	84.4
137	5/19/2021	2:32	28.26	84.36
138	5/19/2021	2:31	28.26	84.35
139	5/18/2021	23:57	28.28	84.39
140	4/5/2021	15:19	26.75	89.09
141	3/18/2021	4:20	27.5	85.63
142	3/3/2021	12:58	27.79	86.35
143	2/9/2021	1:50	27.89	87.91
144	2/4/2021	22:13	27.78	88.15

S.N.	Date	Time	Latitude	Longitude
145	2/2/2021	16:14	28.78	84.1
146	1/14/2021	11:40	27.66	86.18
147	1/12/2021	4:03	29.89	80.7
148	1/3/2021	4:59	27.66	87.62
149	12/29/2020	20:04	27.66	86.34
150	12/8/2020	13:23	27.77	87.86
151	12/2/2020	7:57	27.75	85.87
152	11/8/2020	21:44	27.73	87.87
153	10/28/2020	18:34	29.58	80.81
154	10/24/2020	10:32	27.62	86.24
155	9/15/2020	23:34	27.77	85.88
156	9/11/2020	3:45	26.76	88.21
157	9/9/2020	10:03	27.92	84.94
158	9/4/2020	1:35	27.58	87.19
159	8/25/2020	15:24	29.59	80.89
160	8/15/2020	10:22	27.8	87.62
161	6/16/2020	4:08	27.88	86.2
162	5/30/2020	15:51	27.85	84.93
163	5/26/2020	10:15	29.73	82.01
164	5/12/2020	18:08	27.65	86.15
165	4/15/2020	19:10	27.55	86.59
166	4/2/2020	15:10	29.58	80.96
167	3/25/2020	12:51	28.01	84.97
168	3/15/2020	15:00	28.34	83.8
169	3/4/2020	13:32	27.79	86.18
170	2/19/2020	15:28	29.71	81.69
171	1/28/2020	2:14	29.61	81.71
172	1/12/2020	20:22	29.59	81.73
173	1/12/2020	14:34	29.58	81.71

Source: Seismological center, DMG 2023

25-Apr-15	28.28	84.72	6.6	Gorkha
25-Apr-15	28.13	85.65	5.7	Rasuwa
25-Apr-15	28.2	85.75	5.3	Rasuwa
25-Apr-15	27.78	85.84	5.2	Sindhupalchok
25-Apr-15	27.9	84.86	5.1	Dhading
25-Apr-15	28.18	84.95	5.2	Gorkha
26-Apr-15	27.95	85.87	5.3	Sindhupalchok
26-Apr-15	27.89	85.6	5	Sindhupalchok
26-Apr-15	27.94	86.05	5	Tibet
26-Apr-15	27.75	85.94	5.3	Sindhupalchok
26-Apr-15	27.84	86.05	6.9	Dolakha
26-Apr-15	27.64	85.63	5	Kabre
26-Apr-15	27.8	85.16	5.1	Nuwakot
26-Apr-15	27.99	85.02	5.5	Nuwakot
02-May-15	28.24	84.76	5.1	Gorkha
08-May-15	27.69	86.04	5	Dolakha
12-May-15	27.82	86.12	6.8	Dolakha
12-May-15	27.79	86.11	5	Dolakha
12-May-15	27.66	86.17	5.2	Dolakha
12-May-15	27.8	85.94	5.1	Sindhupalchok
12-May-15	27.69	86.24	5	Dolakha
12-May-15	27.84	86.17	5.8	Dolakha
12-May-15	27.76	86.31	5.3	Dolakha

12-May-15	27.8	85.83	5.3	Sindhupalchok
12-May-15	27.73	86.21	6.2	Dolakha
12-May-15	27.73	86.11	5	Dolakha
13-May-15	27.91	84.82	5.9	Dhading
13-May-15	27.68	86.17	5.1	Dolakha
14-May-15	27.67	86.08	5	Dolakha
15-May-15	27.93	84.84	5.5	Dhading
16-May-15	27.6	86.26	5.5	Dolakha
25-May-15	28.01	84.68	5	Gorkha
26-May-15	28.02	85.26	5	Rasuwa
29-May-15	28	84.98	5.2	Dhading
11-Jun-15	27.96	85.73	5.3	Sindhupalchok
13-Jun-15	27.73	86.16	5.2	Dolakha
17-Jun-15	28.27	85.94	5.1	Tibet
17-Jun-15	27.91	85.59	5.2	Sindhupalchok
20-Jun-15	28.65	82.76	5.4	Rukum
29-Jun-15	27.35	86.2	5	Ramechhap
02-Jul-15	27.97	85.62	5	Sindhupalchok
23-Aug-15	27.87	86.17	5.1	Dolakha
30-Aug-15	27.72	85.75	5	Sindhupalchok
19-Nov-15	27.89	85.75	5.3	Sindhupalchok
18-Dec-15	29.44	81.69	5.5	Bajura
05-Feb-16	27.95	85.52	5.5	Sindhupalchok
21-Feb-16	28.08	84.76	5.5	Gorkha
24-Feb-16	27.8	85.74	5.4	Sindhupalchok
29-Jun-16	29.63	81.28	5	Bajhang
28-Nov-16	27.79	86.58	5.6	Ramechhap/sindhupalchok
02-Jul-17	27.34	86.49	5.1	Okhaldhunga
08-Dec-17	27.63	86.19	5.2	Dolakha
28-Jun-18	27.87	84.91	5	Dhading

Note:- magnitude of 5 and above is covered after 03 Nov 2013.

Source: Seismological center, DMG

Table 5.1.3 : Pre-and post-earthquake situation of landslides in the affected districts of Nepal

S.N.	District	Pre Earthquake Landslides*			Earthquake Induced Landslides**		
		Total Number of Landslides	Total Area m ²	Total Volume of Debris m ³	Total Number of Landslides	Total Area m ²	Total Volume of Debris m ³
1	Gorkha	62	1,796,607	898,303.50	107	1,993,838	996,919
2	Dhading	76	2,577,996	1,288,998	275	3,162,267	1,581,134
3	Rasuwa	70	3,243,149	1,621,575	127	5,828,329	2,914,165
4	Nuwakot	38	118,887	59,443.50	66	1,242,119	621,059.50
5	Sindhupalchowk	87	3,623,521	1,811,761	1278	18,667,721	9,333,861
6	Dolkha	29	259,475	129,737.50	153	3,080,708	1,540,354
7	Ramechhap	101	1,714,325	857,162.50	253	764,032	382,016
8	Kathmandu	NA	NA	NA	44	328,797	164,398.50
9	Bhaktapur	NA	NA	NA	NA	NA	NA
10	Lalitpur	NA	NA	NA	65	85,025	42,512.50
11	Makwanpur	87	1,046,123	5,230,61.5	156	204,060	102,030
12	Kavre	52	2,968,952	1,484,476	176	1,129,346	564,673
13	Sindhuli	171	2,448,103	1,224,052	59	1,361,619	680,809.50
14	Okhaldhunga	80	3,158,977	1,579,489	23	389,215	194,607.50
Total		853	22,956,115	11,478,058	2782	38,237,076	19,118,538

* Source: TU-CDES (2015)

** Source: ICIMOD (2015) (Makwanpur data obtained from DSCWM3) NA: Data not available

Source :Nepal Earthquak 2015 ,Rapid Environmental Assessment,Ministry of Science,Technology and Environment

Table 5.1.4 : Loss of Lives, Livestock and Other Effects by Type of Disaster,1983-2023

(Disasters: Flood, Cold, Landslide, Avalanches, Earthquake, Fire, Epidemic, Windstorm, Hailstone & Thunderbolt)

Year	Number of People		Number of Livestock Loss	Number of House Destroyed	Number of Affected Family	Land Affected (Ha.)	Public Infrastructure	Estimated Loss (Million NRs.)
	Dead	Injured						
1983	579	NA	248	12	NA	NA	NA	240
1984	941	NA	3547	10597	NA	1242	869	49
1985	1387	NA	3399	7166	NA	1355	436	23
1986	1512	NA	6566	3370	NA	1315	436	23
1987	881	162	1852	36220	97036	18858	421	2005
1988	1584	12538	2788	108801	70197	NA	4365	6099
1989	1716	3014	4240	7648	NA	NA	NA	4172
1990	913	196	867	6352	8462	1132	NA	139
1991	971	43	642	5510	6426	283	39	43
1992	1318	17	1586	13997	11535	135	66	52
1993	1524	246	NA	21911	90911	NA	NA	5189
1994	765	155	1329	3234	11701	392	NA	184
1995	873	1937	2053	10275	134216	41867.26	NA	1933
1996	895	1527	2480	30014	58329	6063.4	NA	1579
1997	1160	1120	1191	4825	46054	6063.4	NA	410
1998	1190	117	1179	15082	36987	326.89	NA	1230
1999	1466	146	650	4304	17842	182.4	NA	509
2000	377	162	1017	6886	24900	889	NA	1141.5
2001	415	132	665	6103	15908	NA	NA	526.65
2002	458	287	2126	19856	40935	10078	NA	525.56
2003	310	160	1125	6819	11730	2360	NA	989.93
2004	192	220	888	4818	16997	0	NA	341.09
2005	242	153	955	3169	4315	0	NA	387.21
2006	132	88	10098	3765	19023	3396.84	NA	392.31
2007	274	144	21861	37984	117203	513.65	NA	1928.55
2008	171	55	7066	13864	21600	21315	NA	1633.28
2009	641	117	228	1050	3028	NA	4.88	420.25
2010	448	261	1526	23370	19026	200 no	2.85	1398.19
2011	507	666	864	11348	12135	NA	NA	7051.62
2012	385	384	1181	4235	3645	NA	NA	1293.96
2013	460	494	1536	2510	2710	NA	NA	3425.59
2014	503	479	0	34721	39812	NA	NA	1681.00
2015	9248	22633	1974	1079778	828	NA	NA	944.00
2016	450	764	8162	4655	13241	NA	NA	2812.00
2017	490	737	3291	1433352	19073	NA	NA	2495.00
2018	478	2902	NA	4386	8180	NA	NA	4341.89
2019	489	2452	2674	11812	25264	NA	NA	28111.18
2020	2170	6010	14688	83559	109541	NA	NA	14059.41
2021	508	1773	2334	3546	6578	NA	NA	2541.41
2022	417	983	3042	4320	6746	NA	NA	2803.54
2023	561	1545	3634	68040	80263	NA	NA	5479.03

Source: Department of Water Induced Disaster Prevention ,MOHA & drportal.gov.np

Table 5.1.5: Major disaster in Nepal and the damage and loss, 2016 - 2023

S.N.	Incident	No of death	No. of persons missing	No. of persons injured	No. of Houses damaged	No.of affected families	No. of Incidents
1	Landslide	1023	160	929	6970	10960	2816
2	Fire	664	0	2667	14753	27274	19537
3	Thunderbolt	637	0	2182	339	3117	2059
4	Flood	499	215	148	19384	31074	1316
5	Animal Incidents	231	1	1087	802	2455	1532
6	Earthquake	162	0	421	65573	67930	163
7	Snake Bite	125	0	82	0	199	197
8	Other	120	9	207	81	335	227
9	High Altitude	101	0	78	0	169	157
10	Heavy Rainfall	95	1	265	1928	3226	1618
11	Wind storm	84	1	1483	6574	16983	832
12	Air Crash	75	1	17	0	94	6
13	Cold Wave	48	0	0	0	48	48
14	Epidemic	38	0	2690	0	1213	28
15	Boat Capsize	33	17	22	0	60	29
16	Avalanche	25	5	28	1	56	21
17	Snow Storm	17	0	1	2	174	10
18	Forest Fire	9	0	17	53	96	430
19	Leak	0	0	1	0	0	1
20	Hail Storm	0	0	2	2039	2042	8
21	Flash Flood	0	0	1	0	1	2
22	Sinkhole	0	0	0	0	1	1
23	Hailstone	0	0	0	2	3127	5

Source: drrportal.gov.np

Table 5.1.6 : Human casualties due to major disasters in Nepal, 1983-2023

Year	Flood & Landslides	Earthquake	Windstorms, Hailstorm & Thunderbolt	Avalanche	Fire	Epidemic	Boat Capsize, Cold wave & Drowning	Stampede	Other	Total
1983	293	0	NA	0	69	217		0		579
1984	363	0	NA	0	57	521		0		941
1985	420	0	NA	0	52	915		0		1387
1986	315	0	NA	0	96	1101		0		1512
1987	391	0	2	0	62	426		0		881
1988	328	721	NA	14	23	427		71		1584
1989	680	0	28	20	109	879		0		1716
1990	307	0	57	0	46	503		0		913
1991	93	0	63	0	90	725		0		971
1992	71	2	20	0	97	128		0		318
1993	1336	0	45	0	43	100		0		1524
1994	49	0	47	0	43	626		0		765
1995	203	0	34	43	73	520		0		873
1996	258	3	75	4	61	494		0		895
1997	83	0	49	12	65	951		0		1160

Year	Flood & Landslides	Earthquake	Windstorms, Hailstorm & Thunderbolt	Avalanche	Fire	Epidemic	Boat Capsize, Cold wave & Drowning	Stampede	Other	Total
1998	273	0	23	0	54	840		0		1190
1999	193	0	22	5	39	1207		0		1466
2000	173	0	26	0	37	141		0		377
2001	196	1	38	0	26	154		0		415
2002	441	0	6	0	11	0		0		458
2003	232	0	62	0	16	0		0		310
2004	131	0	10	0	10	41		0		192
2005	141	0	18	21	28	34		0		242
2006	114	0	15	0	3	0		NA		132
2007	216	0	40	6	9	3		NA		274
2008	134	0	16	0	11	10		0		171
2009	135	0	7	2	35	462		0		641
2010	240	0	70	0	69	36		NA		415
2011	252	6	114	0	46	9	80	NA		507
2012	112	1	148	9	77	33	5	NA		385
2013	219	0	154	8	59	4	16	NA		460
2014	248	0	135	13	83	12	10	NA		501
2015	124	8962	93	1	57	3	0	NA	8	9248
2016	256	0	108	0	41	19	20	NA	6	450
2017	249	0	90	1	63	10	18	NA	59	490
2018	108	0	89	0	87	5	62	36	91	478
2019	159	0	134	8	78	0	1	66	43	489
2020	773	162	305	16	448	4	9	264	189	2170
2021	241	0	56	2	99	4	4	70	32	508
2022	118	6	98	2	106	0	4	63	20	417
2023	67	156	46	12	111	0	1	70	98	561

Source: MOHA & Department of Water Induced Disaster Prevention ,drrportal.gov.np

Table 5.1.7: Households (%) Reporting Major Climate Induced Incidences During Past 25 Years

Analytical domain	Drought	Forest fire	Fire in settlement	Flood	Inundation	Wind storm	Thunderstorm	Hailstorm	Heavy rain	Sporadic rain	Soil erosion	Land slide	Snowstorm	Avalanche	Heat wave (Loo)	Cold wave	Diseases / Insect	Others	Total
Municipality																			
Urban	47	1.7	0.7	12.4	4.5	9.6	0.7	3.8	0.8	0.2	0.3	4.5			1.9	2.2	4.2	5.6	100
Rural	41.8	1.5	1.2	16	3.9	10.3	1.8	3.1	0.5	0	0.2	12.6	0	0.3	0.1	1.7	2.3	2.5	100
Ecological zone																			
Mountain	40.3	1.3	0.1	13.5		14.9	0.5	3.4	0.8	0.2	0.3	12.1	0.2	1.7			6.8	3.7	100
Hill	49.4	2.5	0.2	4.3		12.2	1.9	4.5	1	0.2	0.4	12.9					2.7	7.8	100
Terai	41.1	0.8	1.7	23.4	9.1	6.8	0.5	2.5	0.3	0	0.2	2.1			2.5	4.3	3.7	1	100
Province -ecological zone																			
Koshi-Mountain	75.5	0.6		3.5		0.6		1.3		0.7		4					12.3	1.4	100
Koshi-Hill	71.6	4.1		3.9		7.8	0.4	0.7			0.6	7.8					3		100
Koshi-Terai	21.1	0.3	0.9	46.9	10.7	10.2	0.4	0.5				5				0.9	2.8	0.2	100
Madhesh-Terai	51.1	1.2	3	14.1	4.2	6.5	0.2	5.4	0.1		0.1				4.6	4	5.1	0.2	100
Bagmati-Mountain	50.9	2.9		4.9		7.2	0.6	2.7			1	11.7					12.8	5.4	100
Bagmati-Hill	53	1.8	0.4	1.5		11	2.1	2.8	1.4	0.4	0.3	9.6					3.8	12	100
Bagmati-Terai	51.3	1.1	0.6	16.4	3.2	15.9	0.6	2.3	2.2	0.2					0.4	1.5	2.7	1.5	100
Gandaki-Mountain						15.7		15.2	11.1	5.1		36.4					11.1	5.6	100
Gandaki-Hill	42.4	0.2		7.1		21.9	2.8	14.9	1.5		0.3	5.7					1.5	1.7	100
Gandaki-Terai	26.4	2.3		32.7	5.3	1.4	1.9	2.6				21.8					2.6	2.9	100
Lumbini-Hill	7.7	3.5		4.6		5.8	4.5		1.4	0.4	0.3	46.1						25.7	100
Lumbini-Terai	48.7	0.4	0.7	15.1	15.6	1.6	1.1		0.5			0.8			2.7	10.9	0.4	1.6	100
Karnali-Mountain	22.7	0.5	0.7	36.1		8.6		1.1	4.4			23					0.5	2.4	100
Karnali-Hill	54.9	8.5	0.1	5.8		9.7		3.1	0.4			14.6					2.9		100
Sudurpaschim-Mountain	15	0.6		17.8		36.8	1.1	6.5				11.7	0.7	5.7				4.1	100
Sudurpaschim-Hill	49.2	0.5		13.5		15.1		1.9	0.5	0.5	1.6	14.8					2.1	0.5	100
Sudurpaschim-Terai	26.5	0.3	0.7	22.4	18.8	9.6	0.4	0.4	0.4		1.5	2.8				0.7	9.7	5.8	100
Nepal	44.87	1.62	0.88	13.87	4.22	9.9	1.14	3.5	0.7	0.12	0.29	7.81	0.02	0.13	1.16	1.99	3.46	4.31	100

Source: National Climate Change Survey 2022

Table 5.1.8: Level of Impact from the Climate Induced Disaster over the Past 25 Years

Disaster	Impact Severity (%)					Total
	Very low	Low	Moderate	High	Very high	
Drought	33.3	18.1	27.4	17.3	4	100
Forest fire	53.9	20.2	12.9	11.1	1.9	100
Fire in settlement	60.7	22.3	7.8	4.1	5.1	100
Flood	26.1	23	20.3	25.3	5.2	100
Inundation	22.1	30.1	28.7	15.5	3.6	100
Wind storm	29.6	28.7	27.7	11.4	2.6	100
Thunderstorm	53.8	19.9	10.4	10.9	5	100
Hailstorm	23.3	34.9	25.1	12.3	4.3	100
Heavy rain	39.1	21.6	25.5	10.1	3.7	100
Sporadic rain	53.7	16.6	13.7	14.2	1.9	100
Soil erosion	18.6	30.3	26.4	16.2	8.5	100
Landslide	25.9	17.1	23.2	26.2	7.6	100
Snowstorm	18.4	34.1	22.2	25.2		100
Avalanche		14.3	35.7	50		100
GLOF	13.9	14.9	14.9	42.6	13.9	100
Hot wave	40.4	30.3	24.1	4.4	0.9	100
Cold wave	31.9	34.3	21.5	9.5	2.8	100
Diseases / insects	14	20.4	31	26.4	8.1	100
Others	35.3	14.7	10.6	23.9	15.5	100

Source: National Climate Change Survey 2022

Table 5.1.9 : Households Affected by Climate Induced Disasters in Last 5 Years

Disaster	Yes	No	Not Applicable	Total
Drought	65.4	33.6	1	100
Forest fire	14.1	75.5	10.4	100
Fire in settlement	6.3	90.9	2.8	100
Flood	28.5	66.1	5.4	100
Inundation	17.5	26.5	56	100
Wind storm	46.2	50.1	3.7	100
Thunderstorm	15.7	81.7	2.6	100
Hailstorm	32.6	65.3	2.1	100
Heavy rain	10.7	82.8	6.5	100
Sporadic rain	11	80	9	100
Soil erosion	7.4	70.8	21.8	100
Landslide	21.5	47.5	31	100
Snowstorm	0.1	5.5	94.4	100
Avalanche	0.2	5.5	94.3	100
GLOF	0.1	5.6	94.4	100
Hot wave	11.6	19.9	68.5	100
Cold wave	21.7	18.5	59.9	100
Diseases / insects	54.3	36.4	9.3	100
Others	0.2	89.6	10.3	100

Source: National Climate Change Survey 2022

Table 5.1.10: Households with economic loss due to climate induced disasters in the last five years

Analytical domain	Disasters	Loss below 15,000 (NPR)	Loss 15,001 - 30,000 (NPR)	Loss 30,001 - 45,000 (NPR)	Loss 45,001 - 60,000 (NPR)	Loss more than 60,000 (NPR)	Total
Nepal	Drought	31.9	22	9.2	10.5	26.4	100
	Forest fire	67.3	14.8	1.8	10.1	6	100
	Fire (settlement)	14.9	26	3.7	14.4	41	100
	Flood	18.2	19.2	10.1	8.9	43.6	100
	Inundation	23.3	20.1	10.4	12.8	33.4	100
	Windstorm	40.4	24.6	7.6	10.9	16.5	100
	Thunderstorm	54.4	15.5	1.1	6.7	22.3	100
	Hailstorm	42.1	21	9.4	8.4	19.1	100
	Heavy rain	54.5	21.1	7	9.1	8.3	100
	Sporadic rain	71.4	18.7	4.3	0.4	5.2	100
	Soil erosion	43.4	22.4	7.4	9.7	17.2	100
	Landslide	12.8	14.5	7.4	13.3	52.1	100
	Snowstorm					100	100
	Heat wave	52.2	15.8	12.9	6.5	12.7	100
	Cold wave	46.6	23.4	9.4	4.8	15.8	100
	Diseases / insects	33.2	17.4	9.2	10.9	29.3	100
	Others			68.2		31.8	100

Source: National Climate Change Survey 2022

CHAPTER VI

Human Settlement and Environmental Health

Table 6.1.1 : Population Size, Growth Rate and Doubling Time, 1911 – 2021

Census year	Total Population	Population Change	Annual Growth Rate (Exponential)	Doubling Time
1911	5,638,749		-	-
1920	5,573,788	-64,961	-0.13	-
1930	5,532,574	41,214	-0.07	-
1941	6,283,649	7,51,075	1.16	60
1952-54	8,256,625	19,72,976	2.27	31
1961	9,412,996	11,56,371	1.64	42
1971	11,555,983	21,42,987	2.05	34
1981	15,022,839	34,66,856	2.62	26
1991	18,491,097	34,68,258	2.08	33
2001	23,151,423	46,60,326	2.25	31
2011	26,494,504	3,343,081	1.35	52
2021	29,164,578	2,670,074	0.92	76

Source : National Statistics Office

Table 6.1.2 : Areas, Population and Sex Ratio in province level, Nepal

Name of province	Area (%)	Number of District	Population 2021			Total household	Average hhd size	Sex Ratio (males per 100 females)	Population Density (persons / sq. km.)
			Total	Male	Female				
Nepal	147181.0	77	29164578	14253551	14911027	6666937	4.37	95.59	198
Koshi	25905	14	4961412	2417328	2544084	1191556	4.16	95.02	192
Madhesh	9661.0	8	6114600	3065751	3048849	1156715	5.29	100.55	633
Bagmati	20300.0	13	6116866	3048684	3068182	1570927	3.89	99.36	301
Gandaki	21504.0	11	2466427	1170833	1295594	662480	3.72	90.37	115
Lumbini	22288.0	12	5122078	2454408	2667670	1141902	4.49	92.01	230
Karnali	27984.0	10	1688412	823761	864651	366255	4.61	95.27	60
Sudurpaschim	19539.0	9	2694783	1272786	1421997	577102	4.67	89.51	138

Source : National Statistics Office (National Population Census 2021)

Table 6.1.3a : Population Growth Rates by Ecological Belt, Nepal, 1961-2021

Duration	Average Annual Growth Rate of Population 1961-2021			
	Mountain	Hill	Terai	Total
1961-1971	-	-	2.39	2.05
1971-1981	1.35	1.65	4.11	2.62
1981-1991	1.02	1.61	2.75	2.08
1991-2001	1.57	1.97	2.62	2.25
2001-2011	0.54	1.06	1.72	1.35
2011-2021	-0.05	0.30	1.54	0.92

Source : National Statistics Office

Table 6.1.3b : Population Growth Rates by Province, Nepal, 2011-2021

Province	Average Annual Growth Rate of Population
	2011-2021
Nepal	0.92
Koshi	0.86
Madhesh	1.19
Bagmati	0.97
Gandaki	0.25
Lumbini	1.24
Karnali	0.70
Sudur Paschim	0.52

Source : National Statistics Office

Table 6.1.4 : Population, Households and Population Density of District in Nepal, 2021

S. N.	District	Number of Household	Population 2021			Annual Growth Rate(%)	Sex Ratio (males per 100 females)	Average Household Size	Area in Sq.km.	Population Density (persons / sq.km.)
			Total	Male	Female					
1	TAPLEJUNG	27798	120590	60773	59817	-0.53	101.60	4.34	3,646	33
2	SANKHUWASABHA	39173	158041	79579	78462	-0.04	101.42	4.03	3,480	45
3	SOLUKHUMBU	26319	104851	52747	52104	-0.09	101.23	3.98	3,312	32
4	OKHALDHUNGA	34294	139552	68080	71472	-0.56	95.25	4.07	1,074	130
5	KHOTANG	41750	175298	86637	88661	-1.56	97.72	4.20	1,591	110
6	BHOJPUR	38631	157923	78211	79712	-1.39	98.12	4.09	1,507	105
7	DHANKUTA	37648	150599	73824	76775	-0.78	96.16	4.00	891	169
8	TERHATHUM	21857	88731	43581	45150	-1.30	96.52	4.06	679	131
9	PANCHTHAR	42495	172400	85683	86717	-1.02	98.81	4.06	1,241	139
10	ILAM	70532	279534	139431	140103	-0.36	99.52	3.96	1,703	164
11	JHAPA	245142	998054	478509	519545	1.97	92.10	4.07	1,606	621
12	MORANG	272283	1148156	557512	590644	1.66	94.39	4.22	1,855	619
13	SUNSARI	212545	926962	449023	477939	1.86	93.95	4.36	1257	737
14	UDAYAPUR	81089	340721	163738	176983	0.68	92.52	4.20	2,063	165
15	SAPTARI	146854	706255	351368	354887	0.96	99.01	4.81	1,363	518
16	SIRAHA	148571	739953	363724	376229	1.43	96.68	4.98	1,188	623
17	DHANUSA	177143	867747	429893	437854	1.34	98.18	4.90	1,180	735
18	MAHOTTARI	137902	706994	349159	357835	1.14	97.58	5.13	1,002	706
19	SARLAHI	164893	862470	435131	427339	1.09	101.82	5.23	1,259	685
20	RAUTAHAT	137032	813573	408403	405170	1.63	100.80	5.94	1,126	723
21	BARA	131240	763137	389787	373350	1.00	104.40	5.81	1,190	641
22	PARSA	113080	654471	338286	316185	0.82	106.99	5.79	1,353	484
23	DOLAKHA	49538	172767	83720	89047	-0.74	94.02	3.49	2,191	79
24	SINDHUPALCHOK	71773	262624	129205	133419	-0.88	96.84	3.66	2542	103
25	RASUWA	11140	46689	24035	22654	0.72	106.10	4.19	1,544	30
26	DHADING	83642	325710	159048	166662	-0.30	95.43	3.89	1,926	169
27	NUWAKOT	68679	263391	128998	134393	-0.50	95.99	3.84	1,121	235

S. N.	District	Number of Household	Population 2021			Annual Growth Rate(%)	Sex Ratio (males per 100 females)	Average Household Size	Area in Sq.km.	Population Density (persons / sq.km.)
			Total	Male	Female					
28	KATHMANDU	544867	2041587	1035726	1005861	1.51	102.97	3.75	395	5169
29	BHAKTAPUR	108503	432132	218418	213714	3.35	102.20	3.98	119	3631
30	LALITPUR	140367	551667	277131	274536	1.58	100.95	3.93	385	1433
31	KAVREPALANCHOK	91428	364039	178909	185130	-0.46	96.64	3.98	1396	261
32	RAMECHHAP	46489	170302	80824	89478	-1.67	90.33	3.66	1,546	110
33	SINDHULI	69364	300026	147065	152961	0.12	96.15	4.33	2,491	120
34	MAKWANPUR	105792	466073	233816	232257	0.99	100.67	4.41	2,426	192
35	CHITAWAN	179345	719859	351789	368070	2.07	95.58	4.01	2,218	325
36	GORKHA	71826	251027	118155	132872	-0.74	88.92	3.49	3,610	70
37	MANANG	1572	5658	3192	2466	-1.39	129.44	3.60	2,246	3
38	MUSTANG	3674	14452	7934	6518	0.69	121.72	3.93	3,573	4
39	MYAGDI	28830	107033	52153	54880	-0.57	95.03	3.71	2,297	47
40	KASKI	160651	600051	292791	307260	1.90	95.29	3.74	2,017	297
41	LAMJUNG	44170	155852	74077	81775	-0.70	90.59	3.53	1,692	92
42	TANAHU	88583	321153	150094	171059	-0.06	87.74	3.63	1,546	208
43	NAWALPARASI (EAST)	93925	378079	177887	200192	1.86	88.86	4.03	NA	NA
44	SYANGJA	68959	253024	116678	136346	-1.28	85.57	3.67	1,164	217
45	PARBAT	36137	130887	61678	69209	-1.09	89.12	3.62	494	265
46	BAGLUNG	64153	249211	116194	133017	-0.72	87.35	3.88	1,784	140
47	RUKUM (EAST)	12886	56786	27516	29270	0.63	94.01	4.41	NA	NA
48	ROLPA	52221	234793	109871	124922	0.43	87.95	4.50	1,879	125
49	PYUTHAN	56203	232019	104132	127887	0.16	81.43	4.13	1,309	177
50	GULMI	66125	246494	112025	134469	-1.23	83.31	3.73	1,149	215
51	ARGHAKHANCHI	48465	177086	80672	96414	-1.05	83.67	3.65	1,193	148
52	PALPA	65049	245027	112761	132266	-0.61	85.25	3.77	1,373	178
53	NAWALPARASI (WEST)	82738	386868	188182	198686	1.47	94.71	4.68	NA	NA
54	RUPANDEHI	238320	1121957	550478	571479	2.33	96.33	4.71	1,360	825
55	KAPILBASTU	121946	682961	334687	348274	1.70	96.10	5.60	1,738	393
56	DANG	162316	674993	320573	354420	1.92	90.45	4.16	2,955	228
57	BANKE	129307	603194	296745	306449	1.97	96.83	4.66	2,337	258
58	BARDIYA	106326	459900	216766	243134	0.72	89.15	4.33	2,025	227
59	DOLPA	9398	42774	21371	21403	1.47	99.85	4.55	7,889	5
60	MUGU	12439	64549	32381	32168	1.49	100.66	5.19	3,535	18
61	HUMLA	11228	55394	27886	27508	0.82	101.37	4.93	5,655	10
62	JUMLA	24438	118349	59228	59121	0.80	100.18	4.84	2,531	47
63	KALIKOT	26779	145292	72245	73047	0.57	98.90	5.43	1,741	83
64	DAILEKH	54610	252313	120774	131539	-0.35	91.82	4.62	1,502	168
65	JAJARKOT	37466	189360	94063	95297	0.96	98.71	5.05	2,230	85

S. N.	District	Number of Household	Population 2021			Annual Growth Rate(%)	Sex Ratio (males per 100 females)	Average Household Size	Area in Sq.km.	Population Density (persons / sq.km.)
			Total	Male	Female					
66	RUKUM (WEST)	37303	166740	81091	85649	0.68	94.68	4.47	NA	NA
67	SALYAN	54701	238515	114982	123533	-0.16	93.08	4.36	1,462	163
68	SURKHET	97893	415126	199740	215386	1.62	92.74	4.24	2,451	169
69	BAJURA	28065	138523	67070	71453	0.25	93.87	4.94	2,188	63
70	BAJHANG	38048	189085	88470	100615	-0.30	87.93	4.97	3,422	55
71	DARCHULA	28417	133310	64424	68886	0.00	93.52	4.69	2,322	57
72	BAITADI	49428	242157	113864	128293	-0.34	88.75	4.90	1,519	159
73	DADELHURA	31193	139602	65893	73709	-0.17	89.40	4.48	1,538	91
74	DOTI	45182	204831	93604	111227	-0.32	84.16	4.53	2,025	101
75	ACHHAM	49595	228852	105319	123533	-1.13	85.26	4.61	1,680	136
76	KAILALI	195957	904666	433456	471210	1.48	91.99	4.62	3,235	280
77	KANCHANPUR	111217	513757	240686	273071	1.25	88.14	4.62	1,610	319
	NEPAL	6666937	29164578	14253551	14911027	0.92	95.59	4.37	147,181	198

Source : National Statistics Office, Population Census 2021

Table 6.1.5 : Distribution of district by size of Population, Nepal, 1971-2021

Size of Population	Number of District							Population										
	1971	1981	1991	2001	2011	2021	1971	1981	1991	2001	2011	2021	1971	1981	1991	2001	2011	2021
Less than 10,000	1	1	1	1	1	1	7,436	7,021	5,363	9,587	6,538	5,658	7,436	7,021	5,363	9,587	6,538	5,658
10,000-19,999	3	1	1	1	1	1	45,644	12,930	14,292	14,981	13,452	14,452	45,644	12,930	14,292	14,981	13,452	14,452
20,000-29,999	3	2	1	1	-	-	82,186	42,346	25,013	29,545	-	-	82,186	42,346	25,013	29,545	-	-
30,000-39,999	-	1	3	-	1	-	-	30,241	107,491	-	36,700	-	-	30,241	107,491	-	36,700	-
40,000-49,999	-	1	-	3	1	2	-	43,705	-	129,263	43,300	89,463	-	43,705	-	129,263	43,300	89,463
50,000-59,999	1	-	-	-	2	2	57,946	-	-	-	106,144	112,180	57,946	-	-	-	106,144	112,180
60,000-69,999	3	1	-	-	-	1	199,073	68,797	-	-	-	64,549	199,073	68,797	-	-	-	64,549
70,000-79,999	-	1	1	-	-	-	-	74,649	75,964	-	-	-	-	74,649	75,964	-	-	-
80,000-89,999	2	3	1	1	-	1	171,279	262,736	88,805	89,427	-	88,731	171,279	262,736	88,805	89,427	-	88,731
90,000-99,999	2	4	2	-	-	-	190,986	378,888	189,210	-	-	-	190,986	378,888	189,210	-	-	-
100,000-199,999	41	28	25	16	20	22	5,802,698	4,433,030	3,842,156	2,240,152	3,014,094	3,313,442	5,802,698	4,433,030	3,842,156	2,240,152	3,014,094	3,313,442
200,000-299,999	12	18	20	23	19	15	2,752,028	4,293,871	5,034,279	5,570,510	4,816,345	3,683,812	2,752,028	4,293,871	5,034,279	5,570,510	4,816,345	3,683,812
300,000-399,999	7	10	6	11	6	7	2,245,707	3,505,384	2,092,131	3,920,048	2,014,279	2,416,596	2,245,707	3,505,384	2,092,131	3,920,048	2,014,279	2,416,596
400,000-499,999	-	3	9	4	6	4	-	1,334,549	4,006,670	1,913,623	2,749,844	1,773,231	-	1,334,549	4,006,670	1,913,623	2,749,844	1,773,231
500,000 or more	-	1	5	14	18	21	-	534,692	3,009,723	9,234,287	13,693,808	17,602,464	-	534,692	3,009,723	9,234,287	13,693,808	17,602,464
	75	75	75	75	75	77	11,554,983	15,022,839	18,491,097	23,151,423	26,494,504	29,164,578	11,554,983	15,022,839	18,491,097	23,151,423	26,494,504	29,164,578

Source : National Statistics Office (Population census 1971,1981,1991,2001, 2011 and 2021)

Table 6.1.6 : Population Distribution and Composition, 1971-2021

(population in %)

Population Distribution	1971	1981	1991	2001	2011	2021
Nepal (Number of Population)	11554983	15022839	18491097	23151423	26494504	29164578
Ecological belt						
Mountain	9.9	8.7	7.8	7.29	6.73	6.08
Hill	52.5	47.7	45.5	44.28	43.01	40.31
Tarai	37.6	43.6	46.7	48.43	50.27	53.61
Residence						
Rural	96	93	91	86	82.93	33.19
Peri-Urban	NA	NA	NA	NA	NA	39.75
Urban	4	7	9	14	17.07	27.07
Population composition						
By age						
0-14	40	41	42	39	34.91	27.83
15-59	54	53	52	54	56.96	61.96
60+	6	6	6	7	8.13	10.21
Total	100	100	100	100	100	100
By sex						
Male	50.34	51.22	49.87	49.95	48.5	48.9
Female	49.66	48.78	50.13	50.05	51.5	51.1
Sex ratio	101.4	105	99.5	99.8	94.2	95.59
By cast/ethnic group						
Kshetri			16.1	15.3	16.6	16.45
Bramhin-Hill			13.8	12.7	12.2	11.29
Magar			7.2	7.1	7.1	6.9
Tharu			6.7	6.8	6.6	6.2
Tamang			5.5	5.6	5.8	5.62
Bishwokarma	NA	NA	NA	NA	NA	5.04
Musalman			4.1	4.2	4.4	4.86
Newa (Newar)	NA	NA	5.6	5.5	5	4.6
Yadav	NA	NA	NA	NA	NA	4.21
Others			40.9	42.7	42.3	34.82
Total			100	100	100	99.99
By literacy						
Male		34	54	65.5	75.1	83.6
Female		12	25	42.8	57.4	69.4
Total		23.3	39.6	54.1	65.9	76.2

(contd...)

(population in %)

Population Distribution	1971	1981	1991	2001	2011	2021
By religion						
Hindu		90	86	81	81.3	81.19
Baudha		5	8	11	9	8.21
Islam		3	4	4	4.4	5.09
Others		2.5	2.1	4	5.3	5.53
By Mother Tongue						
Nepali		58	50	48.6	44.6	44.86
Maithali		11.1	11.8	12.3	11.7	11.05
Bhojpuri		7.6	7.5	7.5	6	6.24
Tharu		3.6	5.4	5.8	5.8	5.88
Tamang		3.5	4.9	5.2	5.1	4.88
Bajjika		NA	NA	NA	NA	3.89

Population Distribution	1971	1981	1991	2001	2011	2021
Avadhi		NA	NA	NA	NA	2.96
Nepalbhasha (Newari)		3	3.5	3.6	3.2	2.96
Magar Dhut		NA	NA	NA	NA	2.78
Others		13.2	16.9	17	23.6	14.5
By employment status						
Employer				3.81	2.15	1.42
Employee				24.63	27.47	28.65
Self employed /Own accountn worker				62.73	65.82	55.34
Unpaid family worker /Family support				8.83	1.33	14.52
Not stated					3.24	0.07
By occupation						
Agriculture		91.4	81.1	65	60.43	57.31
Non- agriculture		6.3	18.6	35	37.54	42.63
Not stated		2.3	0.3	0	2.03	0.07
Occupational classifications						
Manager / Administrator / Legislator		0.1	0.3	0.6	1.41	5.15
Professional		0.9	1.8	2.5	3.99	3.80
Technician				1.7	2.09	1.86
Clerks/office assistance		0.7	1.1	2.03	1.27	1.32
Service worker		1.5	9.2	7.9	8.29	5.81
Agriculture / livestock / forestry / fisheries		92.2	81.2	65.7	60.43	50.07
Craft production worker				9.3	8.07	5.58
Plant production worker				1.4	2.22	2.68
Elementary				8.8	9.94	22.95
Armed force					0.24	0.70
Not stated					2.03	0.09

Source : National Statistics Office (National Population Censuses 1971,1981,1991,2001 and 2011).

Table 6.1.7 : Population and Household

S.N.	Description	1961	1971	1981	1991	2001	2011	2021
1	Population ('000)	9412	11556	15023	18491	23151	26494	29164
2	Average annual population growth rate	1.64	2.05	2.62	2.08	2.25	1.35	0.92
3	Number of households	1738975	2084062	2585154	3328198	4253220	5427302	6666937
4	Average household size	5.3	5.5	5.8	5.6	5.44	4.88	4.37

Source : Central Bureau of Statistics

Table 6.1.8 : Percentage distribution of Households by types of House, Nepal, 1991-2021

Year	Area	Total Households	Households by types of House(%)			
			Permanent (Pakki)	Semi-permanent (Ardha-Pakki)	Impermanent (Kachchi)	Others
1991	Nepal	3328721	23.5	24.8	49.7	2.0
	Ecological Belt					
	Mountain	274135	32.4	47.3	19.2	1.1
	Hill	1558493	34.7	33.1	31	1.2
	Tarai	1496093	10.4	12.2	75.2	2.2
2001	Nepal	4174374	36.6	29.2	33.5	0.7
	Ecological Belt					
	Mountain	285213	44.8	41.6	13	0.6
	Hill	1951191	51.1	30.8	17.6	0.5
	Tarai	1937970	20.8	25.7	52.4	1
	Place of Residence					
	Urban	664507	68.2	16.1	15.2	0.4
	Rural	3509867	30.6	31.7	36.9	0.8
2021	Nepal	6660841	76.45	15.76	7.76	0.03
	Ecological Belt					
	Mountain	409260	79.58	19.18	1.21	0.03
	Hill	2945030	89.84	8.98	1.16	0.02
	Tarai	3306551	64.14	21.37	14.45	0.04
	Place of Residence					
	Urban	1939001	89.5	7.55	2.93	0.02
	Peri-Urban	2432079	62.89	22.16	14.91	0.04
Rural	2289761	79.81	15.9	4.26	0.03	

Source : National Statistics Office, Population Census,1991, 2001 and 2021

Table 6.1.9 : Households by types of Ownership of House/housing unit

Name of province	Total	Ownership of house/housing unit			
		Owned	Rented	Institutional	Others
Nepal	6660841	5728586	850562	36809	44884
Koshi	1190755	1067240	103586	8258	11671
Madhesh	1156383	1117188	26633	4753	7809
Bagmati	1567917	1084672	464512	10431	8302
Gandaki	661632	532518	116721	5216	7177
Lumbini	1141345	1036311	94336	4458	6240
Karnali	366037	344079	19393	1294	1271
Sudur paschim	576772	546578	25381	2399	2414

Source : National Statistics Office, Population Census,2021

Table 6.1.10 : Percentage distribution of Households by foundation of house/housing unit,Nepal

Name of province	Total	Type of foundation of house				
		Mud bonded bricks/stone	Cement bonded bricks/stone	RCC with pillar	Wooden pillar	Others
Nepal	6660841	2200886	1984029	1492693	944148	39085
Koshi	1190755	382055	299268	249893	250357	9182
Madhesh	1156383	128355	376846	203656	441378	6148
Bagmati	1567917	343817	572132	576941	65572	9455
Gandaki	661632	289780	210489	150825	9398	1140
Lumbini	1141345	468190	347610	243390	73405	8750
Karnali	366037	304096	29386	23051	9123	381
Sudur paschim	576772	284593	148298	44937	94915	4029

Source : National Statistics Office, Population Census,2021

Table 6.1.11 : Households by outer wall of house/housing unit,Nepal

Name of province	Total	Type of outer wall							
		Mud bonded bricks/stone	Cement bonded bricks/stone	Wood/ planks	Bamboo	Unbaked brick	Galvanized sheet	Prefabricated sheet	Others
Nepal	6660841	2042978	3474957	210694	779922	28141	80989	2064	41096
Koshi	1190755	345610	505454	60716	237981	2052	34350	206	4386
Madhesh	1156383	113761	552229	41402	436375	2226	2065	177	8148
Bagmati	1567917	316144	1165039	24525	16356	2443	37045	1053	5312
Gandaki	661632	270675	375767	5856	3335	1221	2785	193	1800
Lumbini	1141345	433174	608553	18824	51154	15563	1932	205	11940
Karnali	366037	293784	62956	6549	809	671	758	158	352
Sudur paschim	576772	269830	204959	52822	33912	3965	2054	72	9158

Source : National Statistics Office, Population Census,2021

Table 6.1.12 : Percentage Distribution of Households by roof of house/housing unit Nepal

Name of province	Total	Roof of the house(%)							
		Galvanized sheet	Reinforced Cement Concrete	Thatch / straw	Tile	Stone/ slate	Wood / planks	Mud	Other
Nepal	6660841	2793342	2515093	260006	613912	405771	18190	47642	6885
Koshi	1190755	830756	264067	66781	18328	6505	2789	0	1529
Madhesh	1156383	222340	407166	82999	432111	4805	4867	0	2095
Bagmati	1567917	606924	902451	9964	32611	12927	2044	0	996
Gandaki	661632	349579	225858	7019	2493	72436	988	3013	246
Lumbini	1141345	459084	518436	49646	55238	53976	2520	1452	993
Karnali	366037	161989	43757	23683	6144	86178	3687	40229	370
Sudur paschim	576772	162670	153358	19914	66987	168944	1295	2948	656

Source : National Statistics Office, Population Census,2021

Table 6.1.13 : Distribution of House, Household and Average Household size, Nepal, 2021

Province	Number of Census House	Number of Household	Total Population	Male Population	Female Population	Average household Size	Average household per house	Average person per house
Nepal	5421333	6666937	29164578	14253551	14911027	4.37	1.23	5.38
Koshi	1042763	1191556	4961412	2417328	2544084	4.16	1.14	4.76
Madhesh	917617	1156715	6114600	3065751	3048849	5.29	1.26	6.66
Bagmati	1127857	1570927	6116866	3048684	3068182	3.89	1.39	5.42
Gandaki	549855	662480	2466427	1170833	1295594	3.72	1.20	4.49
Lumbini	970070	1141902	5122078	2454408	2667670	4.49	1.18	5.28
Karnali	320518	366255	1688412	823761	864651	4.61	1.14	5.27
Sudur paschim	492653	577102	2694783	1272786	1421997	4.67	1.17	5.47

Note :- Including institutional household

Source: National Population Census, 2021

Table 6.1.14 : Percentage Distribution of House having Number of Households Residing in the house, Nepal, 2011

Province	Number of House	Number of Household	House with		
			One Household	2-3 household	4+ Household
Koshi	878,109	992,445	801,331	68,566	8,212
Madhesh	770,755	932,308	664,813	93,315	12,627
Bagmati	892,419	1,270,797	724,465	120,951	47,003
Gandaki	482,361	578,219	425,731	47,723	8,907
Lumbini	775,464	885,203	700,813	66,761	7,890
Karnali	266,258	298,359	241,035	23,897	1,326
Sudur paschim	401,565	469,971	349,592	48,864	3,109
Total	4,466,931	5,427,302	3,907,780	470,077	89,074

Source : National Population Census, 2011.

Table 6.1.15: Percentage distribution of building structures by type of main use, 2021

Name of Province	Total Number of Building Structures	Percent by type of main use											
		Residential	Business and trading	Government	Educational	Health	Industrial	Banking and financial institution	Institutional	Hotel and Lodge	Shed/store	Other	Vacant
NEPAL	7552066	71.72	3.09	0.37	1.12	0.20	0.43	0.09	0.41	0.32	10.12	5.87	6.26
Koshi	1454965	71.93	2.45	0.31	1.21	0.17	0.37	0.07	0.40	0.24	9.71	8.62	4.53
Madhesh	1283338	73.19	3.08	0.31	0.53	0.16	0.36	0.07	0.24	0.12	11.85	6.04	4.04
Bagmati	1575824	70.07	3.73	0.46	1.06	0.20	0.72	0.12	0.55	0.48	8.33	5.23	9.05
Gandaki	776686	69.87	2.89	0.33	1.23	0.19	0.37	0.10	0.78	0.66	10.98	4.76	7.84
Lumbini	1292676	74.96	2.94	0.34	0.99	0.19	0.41	0.09	0.34	0.29	10.20	4.04	5.20
Karnali	439717	72.69	2.51	0.55	1.97	0.33	0.18	0.08	0.23	0.29	9.58	3.14	8.45
Sudur paschim	728860	67.95	3.82	0.41	1.65	0.28	0.29	0.08	0.30	0.21	11.08	7.50	6.41

Source : National Statistics Office, Population Census, 2021

Table 6.1.16: Percentage distribution of building structures by number of floors, NPHC 2021

Area	Total Number of Building Structures	Percent by number of floors						
		1	2	3	4	5-7	8+	Not stated
NEPAL	7552066	59.82	28.78	9.17	1.30	0.64	0.01	0.28
Koshi	1454965	63.65	26.58	9.07	0.37	0.16	0.00	0.16
Madhesh	1283338	84.42	13.66	1.04	0.16	0.35	0.00	0.37
Bagmati	1575824	50.46	27.87	14.26	4.77	2.25	0.08	0.30
Gandaki	776686	45.74	44.83	7.79	0.91	0.31	0.00	0.41
Lumbini	1292676	63.15	28.22	7.87	0.34	0.15	0.00	0.26
Karnali	439717	28.68	48.65	21.76	0.59	0.07	0.00	0.25
Sudur paschim	728860	56.94	33.65	8.87	0.17	0.15	0.00	0.23

Source : National Statistics Office, Population Census,2021

Table 6.1.17 : Households by Type of Lighting facilities, Nepal

Name of Province	Total	Usual source of lighting					Clean Source of lighting	% of Clean lighting source
		Electricity	Solar	Kerosene	Bio gas	Other		
NEPAL	6660841	6139141	439282	38907	2032	41479	6580455	98.79
KOSHI	1190755	1115686	59864	9765	295	5145	1175845	98.75
MADHESH	1156383	1132078	9511	10645	613	3536	1142202	98.77
BAGMATI	1567917	1526035	36537	2203	115	3027	1562687	99.67
GANDAKI	661632	645780	12633	1505	105	1609	658518	99.53
LUMBINI	1141345	1069081	51425	11368	549	8922	1121055	98.22
KARNALI	366037	181676	175306	1775	145	7135	357127	97.57
SUDURPASCHIM	576772	468805	94006	1646	210	12105	563021	97.62

Note: Clean source of lighting includes electricity, solar and bio gas

Source : National Statistics Office, Population Census,2021

Table 6.1.18 : Households by Type of Main Fuel Used for Cooking, Nepal

Name of Province	Total	Type of cooking fuel							Clean cooking fuel	% of clean cooking fuel
		Wood	Liquefied Petroleum Gas	Electricity	Cow dung	Bio gas	Kerosene	Other		
NEPAL	6660841	3398316	2949995	32574	191531	78406	3297	6722	3060975	45.95
Koshi	1190755	635672	490297	6177	40207	15682	468	2252	512156	43.01
Madhesh	1156383	677732	331992	9468	126273	8252	303	2363	349712	30.24
Bagmati	1567917	453987	1094195	8887	185	9342	755	566	1112424	70.95
Gandaki	661632	311925	341017	1390	225	6548	315	212	348955	52.74
Lumbini	1141345	612698	481748	4692	23686	17230	574	717	503670	44.13
Karnali	366037	300962	61727	353	510	1623	648	214	63703	17.4
Sudur paschim	576772	405340	149019	1607	445	19729	234	398	170355	29.54

Note: Clean source of cooking fuel includes LPG, electricity and bio gas

Source : National Statistics Office, Population Census,2021

Table 6.1.19 : Percentage Distribution of Households using Main Sources of Drinking Water, Nepal, 2021

Name of Province	Total	Main source of drinking water										Safe source of drinking water	% of safe source of drinking water
		Tap/piped water (within premises)	Tap/piped water (outside premises)	Tubewell / handpump	Covered well/kuwa	Uncovered well/kuwa	Spout water*	River /stream	Jar / bottle	Other			
NEPAL	6660841	2304015	1490846	1982180	102235	141857	262044	23827	308388	45449	6187664	92.9	
Koshi	1190755	407645	239686	476658	9979	19613	26420	2725	4816	3213	1138784	95.64	
Madhesh	1156383	177156	84653	830219	8062	25966	13857	729	2252	13489	1102342	95.33	
Bagmati	1567917	688107	378484	75205	35647	42682	62391	3778	264204	17419	1441647	91.95	
Gandaki	661632	347261	215468	10776	7808	10298	45567	2475	20234	1745	601547	90.92	
Lumbini	1141345	431642	224064	373956	29784	26172	29608	4433	15128	6558	1074574	94.15	
Karnali	366037	130465	162619	1635	7573	9210	48699	4276	480	1080	302772	82.72	
Sudur paschim	576772	121739	185872	213731	3382	7916	35502	5411	1274	1945	525998	91.2	

Note: Safe source of drinking water includes piped water, tubewell/handpump, covered well/kuwa and jar/bottle

Source : National Statistics Office, Population Census, 2021

Table 6.1.20 : Percentage Distribution of Households by Toilet Facility, Nepal, 2021

Name of Province	Total	Type of toilet used				Without toilet facility	
		Flush toilet (public sewerage)	Flush toilet (septic tank)	Ordinary toilet	Public toilet		
NEPAL	6660841	653710	3667780	2005480	32381	301490	
Koshi	1190755	26542	726577	394698	5362	37576	
Madhesh	1156383	31159	414032	561660	10322	139210	
Bagmati	1567917	512026	777874	253515	5031	19471	
Gandaki	661632	18456	501855	132898	2131	6292	
Lumbini	1141345	45867	668730	357955	4763	64030	
Karnali	366037	8149	220226	126779	1287	9596	
Sudur paschim	576772	11511	358486	177975	3485	25315	

Source : National Statistics Office, Population Census, 2021

Table 6.1.21 : Multidimensional Poverty by Province, 2019

Sub-national region	Population share (%)	MPI		Incidence (H, %)		Intensity (A, %)		poor Number (thousand)	
		Value	Confidence interval (95%)	Value	Confidence interval (95%)	Value	Confidence interval (95%)		
Karnali	5.60%	0.169	0.144	0.195	33.9	45.1	41.7	44.1	636
Madhesh	18.70%	0.109	0.085	0.132	19.1	29.3	43.3	46.6	1296
Sudurpaschim	8.70%	0.105	0.083	0.126	20.4	30.3	40.1	42.5	631
Lumbini	18.40%	0.078	0.059	0.098	14.1	22.2	41	45.2	958
Koshi	17.00%	0.066	0.05	0.082	12.3	19.5	39.6	43.3	773
Gandaki	8.20%	0.035	0.027	0.044	7.3	11.9	35.7	37.2	227
Bagmati	23.30%	0.028	0.018	0.038	4.8	9.3	38.6	42	470
National	100.00%	0.074	0.067	0.082	15.8	19.1	41.8	43.2	4980

Source: Calculations based on data from MICS 2019, NPC

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Table 6.1.22 : Poverty Head Count Rate

S.N.	Region	Poverty Head count Rate				Distribution of the Poor			
		1995/96	2003/04	2010/11	2022/23	1995/96	2003/04	2010/11	2022/23
1	Ecological Belt								
	Mountain	57	32.6	42.27	NA	10.7	7.5	11.8	NA
	Hill	40.7	34.5	24.32	NA	41.9	47.1	42.8	NA
	Tarai	40.3	27.6	23.44	NA	47.4	45.4	45.4	NA
2	Residence								
	Urban	21.6	9.6	15.46	18.34	3.6	4.7	11.7	62.86
	Rural	43.3	34.6	27.43	24.66	96.4	95.3	88.3	37.14
Nepal		41.8	30.8	25.16	20.27	100	100	100	100

Source : National Statistics Office (Nepal Living Standard Surveys, 1995/96, 2003/04, 2010/011 and 2022/23).

Table 6.1.23 : Poverty Gap in Rural and Urban, Nepal

	Year	Urban	Rural	Nepal
Poverty Gap Index	1995/96	6.54	12.14	11.75
	2003-04	2.18	8.5	7.55
	2010/11	3.19	5.96	5.43
	2022/23	4.03	5.64	4.52
	1995/96-2003/04 Change (%)	-66.67	-29.98	-35.74
	2003/04-2010/11Change (%)	46.33	-29.88	-28.08
	2010/11-2022/23 Change (%)	26.33	-5.37	-16.76
Squared Poverty Gap Index	1995-96	2.65	4.83	4.67
	2003-04	0.71	3.05	2.7
	2010/11	1.01	2.00	1.81
	2022/23	1.29	1.91	1.48
	1995/96-2003/04 Change (%)	-73.21	-36.85	-42.18
	2003/04-2010/11Change (%)	42.25	-34.43	-32.96
	2010/11-2022/23 Change (%)	27.72	-4.50	-18.23

Source : National Statistics Office (Nepal Living Standard Surveys, 1995/96, 2003/04, 2010/011 and 2022/23).

Table 6.1.24 : Inter-Zonal Life-Time Migrants, Nepal, 1971-2021

Year	Place of Birth	Place of Enumeration			
		Mountain	Hill	Tarai	Total
1971	Mountain	-	15667	33990	49657
	Hill	9258	-	376074	385332
	Tarai	440	9699	-	10139
	Total	9698	25366	410064	445128
1981	Mountain	-	134,254	162,832	297,086
	Hill	33,423	-	561,211	594,634
	Tarai	2,196	561,211	-	37,865
	Total	35,619	169,923	724,043	929,585
1991	Mountain	-	76,503	121,826	198,329
	Hill	32,003	-	895,888	927,891
	Tarai	4,671	97,465	-	102,136
	Total	36,674	173,968	1,017,714	1,228,356
2001	Mountain	-	125597	169825	295422
	Hill	33895	-	1157035	1190930

Year	Place of Birth	Place of Enumeration			
		Mountain	Hill	Tarai	Total
	Tarai	6424	234574	-	240998
	Total	40319	360171	1326860	1727350
2011	Mountain	-	37672	7497	45169
	Hill	213714	-	375101	588815
	Tarai	180587	1273599	-	1454186
	Total	394301	1311271	382598	2088170
2021	Mountain	-	369577	249932	619509
	Hill	63079	-	1834573	1897652
	Tarai	12463	541704	-	554167
	Not Stated	32	4686	1917	6635
	Foreign	6516	128182	599965	734663
	Total	82090	674572	2436455	3193117

Source : Population Censuses of Nepal

Table 6.1.25 : Farm population 1991/92 - 2021

Discription	Census year			
	1991	2001	2011	2021
Total household*****	3328721	4253220	5427302	6666937
Total holding	2736050	3364139	3831093	4130789
Percentage of holding	82	79.1	70.6	61.96
Total Population*****				
Male	9220974	11563921	12849041	14253551
Female	9270123	11587502	13645463	14911027
Total	18491097	23151423	26494504	29164578
Sex ratio	99.5	99.8	94.2	95.59
Farm population				
Male	8496843	10267646	10317681	9543825
Female	7761377	9544003	10234862	9904130
Total	16258220	19811649	20552543	19447955
Percentage of the farm population				
Male	52.3	51.8	50.2	49.1
Female	47.7	48.2	49.8	50.9
Total	87.9	85.6	77.6	66.7
Sex ratio of farm population	109.5	107.6	100.8	96.4
Average size of farm household	5.9	5.9	5.4	4.7

***** Population Census

Source: NSO

Table 6.1.26: Road Length with Category and Pavement(In Kilometer)

Year:2020

Road Classification	Province	BT	GR	ER	Total	UC	PL
National Highway	Koshi	1274.45	182.38	436.03	1892.86	226.89	855.49
	Madhesh	547.33	183.69	183.72	914.74	0	158.53
	Bagmati	1359.74	268.9	261.05	1889.68	33.01	406.07
	Gandaki	530.24	75.16	694.57	1299.97	32.01	191.51
	Lumbini	1428.9	165.11	791.09	2385.1	94.33	72.59
	Karnali	664.47	161	615.72	1441.19	21	671.36
	Sudurpaschim	1031.32	80.12	243.94	1355.38	80	694.55
	Subtotal	6836.45	1116.36	3226.12	11178.92	487.24	3050.11
Grand Total		6836.45	1116.36	3226.12	11178.92	487.24	3050.11

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	6836.45	1116.36	3226.12	11178.92	487.24	3050.11
Total	6836.45	1116.36	3226.12	11178.92	487.24	3050.11

Table 6.1.27: Road Length with Category and Pavement(In Kilometer)

Province: Koshi

Year:2020

Road Classification	Zone	BT	GR	ER	Total	UC	PL
National Highway	Taplejung	34.5	13	21	68.5	53.03	26.97
	Sankhuwasabha	100.5	40	91	231.5	12.53	31.84
	Solukhumbu	37	0	0	37	0	173.94
	Okhaldhunga	69.91	0	5.77	75.68	0	54.93
	Khotang	77.26	0	112.74	190	0	153.96
	Bhojpur	65	0	42	107	0	12.92
	Dhankuta	75.56	16	0	91.56	7	58.38
	Terhathum	33.07	37	55	125.07	0	0
	Panchthar	98.08	5	8	111.08	0	131.15
	Ilam	112.2	7	71.01	190.21	0	38.54
	Jhapa	128.35	28.74	4.88	161.97	148.6	32.86
	Morang	94.41	0	1.61	96.02	0	49.82
	Sunsari	126.74	18.86	5.02	150.62	5.73	35.22
	Udayapur	221.87	16.78	18	256.65	0	54.96
	Subtotal	1274.45	182.38	436.03	1892.86	226.89	855.49
Grand Total		1274.45	182.38	436.03	1892.86	226.89	855.49

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	1274.45	182.38	436.03	1892.86	226.89	855.49
Total	1274.45	182.38	436.03	1892.86	226.89	855.49

Road Length with Category and Pavement(In Kilometer)

Province: Madhesh

Year:2020

Road Classification	Zone	BT	GR	ER	Total	UC	PL
National Highway	Saptari	118.45	14	9.28	141.73	0	19.98
	Siraha	76.93	18	32.92	127.85	0	16.4
	Dhanusa	79.85	28.73	12.02	120.6	0	73.99
	Mahottari	48.63	58.57	20.41	127.61	0	0
	Sarlahi	32.79	64.39	0	97.18	0	0
	Rautahat	71.83	0	23.15	94.98	0	0
	Bara	101.78	0	24.61	126.39	0	14.8
	Parsa	17.07	0	61.33	78.4	0	33.36
	Subtotal		547.33	183.69	183.72	914.74	0
Grand Total		547.33	183.69	183.72	914.74	0	158.53

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	547.33	183.69	183.72	914.74	0	158.53
Total	547.33	183.69	183.72	914.74	0	158.53

Road Length with Category and Pavement(In Kilometer)

Province: Bagmati

Year:2020

Road Classification	Zone	BT	GR	ER	Total	UC	PL	
National Highway	Dolakha	142.25	60.21	17	219.46	0	27	
	Sindhupalchok	123.09	0	0	123.09	5	35	
	Rasuwa	47.07	21.8	36.06	104.93	0	0	
	Dhading	145.99	38.87	45	229.86	0	23	
	Nuwakot	108.41	42.2	10	160.61	0	0	
	Kathmandu	77.51	0	0	77.51	0	43	
	Bhaktapur	14.12	0	0	14.12	0	22.01	
	Lalitpur	31.59	23.99	32.2	87.78	0	7	
	Kavrepalanchok	97.39	6.2	0	103.59	0	47.93	
	Ramechhap	34.36	0	0	34.36	28.01	47.5	
	Sindhuli	160.18	49.3	70.94	280.42	0	21.77	
	Makwanpur	219.98	1.89	17.7	239.57	0	56	
	Chitawan	157.79	24.44	32.15	214.38	0	75.86	
	Subtotal		1359.74	268.9	261.05	1889.68	33.01	406.07
	Grand Total		1359.74	268.9	261.05	1889.68	33.01	406.07

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	1359.74	268.9	261.05	1889.68	33.01	406.07
Total	1359.74	268.9	261.05	1889.68	33.01	406.07

Road Length with Category and Pavement(In Kilometer)

Province: Gandaki

Year: 2020

Road Classification	Zone	BT	GR	ER	Total	UC	PL
National Highway	Gorkha	25.53	29.66	71.12	126.31	0	97
	Manang	0	0	30	30	0	0
	Mustang	0	0	168	168	0	0
	Myagdi	0	0	34	34	0	0
	Kaski	70.67	0	43	113.67	0	0
	Lamjung	21.67	27.5	45	94.17	0	0
	Tanahu	104.34	0	43.77	148.11	0	21.93
	Nawalparasi East	76.15	0	142.95	219.1	0	28.08
	Syangja	95.44	5	25.76	126.2	3.01	24.49
	Parbat	37.11	0	4.97	42.08	5	16.01
	Baglung	99.33	13	86	198.33	24	4
	Subtotal	530.24	75.16	694.57	1299.97	32.01	191.51
Grand Total		530.24	75.16	694.57	1299.97	32.01	191.51

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	530.24	75.16	694.57	1299.97	32.01	191.51
Total	530.24	75.16	694.57	1299.97	32.01	191.51

Road Length with Category and Pavement(In Kilometer)

Province: Gandaki

Year:2020

Road Classification	Zone	BT	GR	ER	Total	UC	PL
National Highway	Rukum East	27.77	19	37.23	84	0	0
	Rolpa	50.41	66	32	148.41	37	0
	Pyuthan	139.43	8	53.65	201.08	0	0
	Gulmi	44.97	0	200	244.97	0	0
	Arghakhanchi	62.24	0	316.76	379	0	0
	Palpa	94.58	0	103	197.58	0	22
	Nawalparasi West	56.37	11.19	2.63	70.19	0	0
	Rupandehi	159.75	3	0	162.75	0	0
	Kapilbastu	145.88	30.51	17.82	194.21	0	10.29
	Dang	318.86	23.41	12	354.27	1.44	24.3
	Banke	144.16	0	0	144.16	55.89	0
	Bardiya	184.48	4	16	204.48	0	16
		Subtotal	1428.9	165.11	791.09	2385.1	94.33
Grand Total		1428.9	165.11	791.09	2385.1	94.33	72.59

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	1428.9	165.11	791.09	2385.1	94.33	72.59
Total	1428.9	165.11	791.09	2385.1	94.33	72.59

Road Length with Category and Pavement(In Kilometer)

Province: Karnali

Year:2020

Road Classification	Zone	BT	GR	ER	Total	UC	PL
National Highway	Dolpa	0	0	107.26	107.26	0	48.15
	Mugu	0	0	27.11	27.11	0	159.23
	Humla	0	0	90	90	0	90
	Jumla	31	0	94.76	125.76	0	36.97
	Kalikot	65.9	0	36	101.9	0	55.7
	Dailekh	148.81	89	44	281.81	0	129.75
	Jajarkot	37	13	147.44	197.44	0	68.98
	Rukum West	47.4	45	18.73	111.13	0	0
	Salyan	145.08	0	34.42	179.5	21	0
	Surkhet	189.28	14	16	219.28	0	82.58
	Subtotal	664.47	161	615.72	1441.19	21	671.36
Grand Total		664.47	161	615.72	1441.19	21	671.36

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	664.47	161	615.72	1441.19	21	671.36
Total	664.47	161	615.72	1441.19	21	671.36

Road Length with Category and Pavement(In Kilometer)

Province: Sudurpaschim

Year: 2020

Road Classification	Zone	BT	GR	ER	Total	UC	PL
National Highway	Bajura	43	0	7	50	22	102
	Bajhang	79.08	0	29.38	108.46	24	158.24
	Darchula	71.42	0	63	134.42	0	101.98
	Baitadi	171.61	0	0	171.61	0	62.9
	Dadeldhura	77.08	30.89	0	107.97	0	74.47
	Doti	116.44	5	46.99	168.43	0	194.96
	Achham	151.08	0	0	151.08	0	0
	Kailali	228.16	20	76.12	324.28	34	0
	Kanchanpur	93.45	24.23	21.45	139.13	0	0
		Subtotal	1031.32	80.12	243.94	1355.38	80
Grand Total		1031.32	80.12	243.94	1355.38	80	694.55

Summary Of Road Length

Road Classification	BT	GR	ER	Total	UC	PL
National Highway	1031.32	80.12	243.94	1355.38	80	694.55
Total	1031.32	80.12	243.94	1355.38	80	694.55

Source: Depaorment of Road Nepal

SSRN data 2020

BT=Black Top

GR=Graveiied Roads

ER= Earthen Roads

UC=Under Construction

PL= Planned Roads

Table 6.1.28 : Number of Vehicles Registered, 1989/90 - 2022/23*

Year	Number of Vehicles Registered											Total
	Bus	Minibus	Crane/Dozer/Excavator/Truck	Car/Jeep/Van	Pickup	Micro	Tempo	Motorcycle	Tractor/Power Tailor	E-ricksaw	Others	
up to 1989/90	4159	2064	8969	24050	-	-	2359	35776	6769	0	102	84248
1990/91	458	226	800	1893	-	-	856	4954	788	0	1549	11524
1991/92	413	148	1524	2115	-	-	1207	8154	548	0	358	14467
1992/93	606	185	1491	2266	-	-	62	7608	262	0	381	12861
1993/94	1168	77	1740	3049	-	-	154	8653	1396	0	372	16609
1994/95	850	83	1629	3043	-	-	241	9401	1814	0	353	17414
1995/96	486	82	1151	5261	-	-	117	13855	2183	0	58	23193
1996/97	608	175	907	2993	-	-	185	12633	1257	0	352	19110
1997/98	899	130	1291	4139	-	-	344	12306	1265	0	51	20425
1998/99	872	19	978	2507	-	-	388	17090	2248	0	37	24139
1999/00	494	122	829	3647	-	-	789	19755	2542	0	102	28280
2000/01	1203	250	1271	5152	-	-	232	29291	3519	0	77	40995
2001/02	868	475	1798	4374	-	-	248	38522	3189	0	86	49560
2002/03	432	298	1212	2906	581	232	17	29404	2485	0	43	37610
2003/04	732	237	1477	7079	478	884	16	26547	2191	0	58	39699
2004/05	753	285	1592	4781	-	584	48	31093	1374	0	21	40531
2005/06	1528	663	2263	5114	36	66	60	45410	635	0	-	55775
2006/07	1564	806	3278	5156	736	138	12	72568	2942	0	1535	88735
2007/08	1419	1179	3594	4741	1588	31	18	69666	3297	0	206	85739
2008/09	1843	593	3643	6857	1287	128	20	83334	4663	0	202	102570
2009/10	1888	780	4524	12268	1975	145	9	168707	11460	0	31	201787
2010/11	1610	1370	1969	8510	3087	115	2	138907	7937	0	133	163640
2011/12	2085	1170	1333	8711	2981	155	10	145135	8413	0	91	170084
2012/13	3263	1328	3332	9595	5422	158	57	175381	9795	0	152	208483
2013/14	2776	1412	2789	11372	5668	178	17	163945	10070	0	116	198343
2014/15	3737	2270	4236	13560	6057	932	1541	196383	10524	0	343	239583
2015/16	4353	4625	8328	28361	5060	1137	2613	267439	9786	11894	169	343765
2016/17	5342	2008	12712	21292	10675	841	17782	354071	17085	2247	204	444259
2017/18	2972	1972	12154	24338	10342	1934	16209	341623	13396	0	12673	437613
2018/19	3722	2409	13425	23019	9759	2330	11025	282997	12220	8952	380	370238
2019/20	2282	998	4112	11211	4347	393	5764	209671	5160	1068	216	245222
2020/21	3400	3078	6339	19140	9317	563	14944	556819	11549	3512	678	629339
2021/22	3679	2160	8235	21242	8598	485	10132	503279	8872	8767	134	575583
2022/23*	2246	3239	3239	9849	2518	286	4939	183078	2519	6820	4	218737
Total	64710	36916	128164	323591	90,512.00	11,715.00	92417	4263455	184153	43260	21267	5260160

* Up to Mid March 2023

Source :Department of Transport Management.

Table 6.2.1 : Annual Livestock Disease Report, 2015

Diseases Name	Epizootiology of the diseases			Disease control	
	Number of			Number of animals	
	Outbreaks	Affected	Dead	Vaccinated	Treated
Foot and mouth disease	196	16200	292	533193	15908
Peste des petits ruminants	71	18261	7118	1675003	11143
Sheep and goat pox	32	675	0	0	675
Classical swine fever (Hog cholera)	4	170	4	86866	166
Newcastle disease/Ranikhet	128	76571	15832	501650	60739
Highly Pathogenic Avian Influenza					
Anthrax	1	1	1	150	0
Rabies	60	154	154	44750	0
Anaplasmosis					
Babesiosis	35	148	8	0	140
Haemorrhagic septicaemia	43	1465	138	479552	1327
Theileriosis	33	447	17	0	430
Fowl cholera	47	25108	3570	2300	21538
Fowl pox	143	12642	1045	64272	11597
Fowl typhoid (S.gallinarum)	19	19601	2328	0	17273
(Gumboro disease)	171	188647	18679	303888	169968
Marek's disease	4	1690	0	0	1690
Mycoplasmosis (M.gallisepticum)	27	24601	3350	0	21251
Pullorum disease(S.pullorum)	50	19095	3322	0	15773
Blackquarter	39	2038	116	439174	1922
Actionomycosis/Lumpy jaw	33	1269	0	0	1269
Coccidiosis	721	245684	12949	0	232735
Distomatosis	0	554128	687	0	553441
Warble infection	42	2913	0	0	2913
Contagious pustular dermatitis					
Enterotoxaemia	80	1764	80	0	1684
Infectious coryza	1	45	0	0	45
Abortion	100	30502	52	0	30450
Cough	0	26487	11	0	26476
Colibacillosis	49	112965	7804	0	105161
Calf-scour	5	238	0	0	238
Degnala disease					
Diarrhoea	0	398857	11660	0	387197
Dystocia	0	11122	76	0	11046
Enzootic bovine haematuria	17	274	8	0	266
Ephemeral fever	225	8488	4	0	8484
External parasites	0	355161	1030	0	354134
Foot lesion	0	140	0	0	140
Gastro - intestinal nematodes	0	8861	1	0	8860
Infertility	0	81203	0	0	81203
Intestinal helminthiasis	0	152006	3485	0	148521
Khari disease	5	178	0	0	178
Milk fever	84	816	0	0	816
Mange	0	138189	69	0	138120
Metritis	10	845	0	0	845
Mycotoxicosis	64	57004	5102	0	51902
Nervous sign	1025	31473	2004	0	29469

Diseases Name	Epizootiology of the diseases			Disease control	
	Number of			Number of animals	
	Outbreaks	Affected	Dead	Vaccinated	Treated
Parasitic gastroenteritis	0	209158	1232	0	207926
Pneumonia	0	5	0	0	5
Paramphistomosis	0	200235	97	0	200138
Parvo virus enteritis	7	197	13	0	184
Respiratory disease -unclassified	389	278763	12309	0	266454
Respiratory sign	0	88602	1866	0	86736
Red urine	0	9006	19	0	8987
Tetanus					
Tympany	0	40737	147	0	40590

Source: Veterinary Epidemiology center

Table 6.2.2 : Infection Cases by Disease

Infection Diseases	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Malaria													
Total Slide Examination	136719	135363	133730	134909	113382	101377	116276	118165	207581	199927	251138	156783	292893
Total Positive	2920	3239	2857	2172	1674	1352	991	1128	1187	1065	619	377	491
Kala-azar													
Number of Patient	791	806	118	305	339	215	250	225	239	216	186	212	322
Death due to Kala-azar	4	4	3	0	0	0	0						
Tuberculosis													
TB case finding rate(%)	76	73	73	78	136	123	113	111	112	109	93	95	129
Treatment Success Rate (Percent)	90	90	90	90	90	92	90	91	91	89	91		
Leprosy													
New Case Detection Rate/10,000	1.15	1.12	1.01	1.19	1.18	1.1	1.07	1.123	1.12	1.12	0.62	0.72	0.78
Prevalence Rate/10,000	0.77	0.79	0.85	0.82	0.83	0.89	0.89	0.92	0.99	0.99	0.69	0.73	0.81
Other Transmitting Diseases													
ARI reported Deaths	319	646	201	1793	168	155	225	176	139	178	105	84	56
Total Diarrhoeal deaths	91	44	45	116	36	80	89	33	47	63	74	50	34
Incidence of diarrhoea /1000 < 5 year population	598	500	528	578	629	501	422	400	385	375	350	339	365

Note: ARI= Acute Respiratory Tract Infection

Source: Department of Health Services, Annual Report, 2009/10-2021/22

Table 6.2.3: Increase in incidence of disease in last 25 years

Analytic Domain	Types of Disease (HH, %)																						
	Diarrhea	Dysentery	Malaria	Skin diseases	Cough	Fever	Typhoid	Asthma	Jaundice	Malnutrition	Dengue	Psychological	Chicken Pox	Cholera	Respiration	Viral infection	Kala-far	Water/Food born diseases	Cancer	Heart Diseases	Tuberculosis	Others	
Municipality																							
Urban	6.2		1.2	5.8	43	32.6	2.8	10.8	1.2	0.8	10	2.5	0.4	0.2	7.8	0.1	0.1	0.2	2.7	11.5	0.8		44.8
Rural	7.7	0.7	1.3	5.9	44	32.9	7	14.4	2.4		0.9	3.2		0.1	7.7	0.1	0.4	0.9	1.6	10	2.5		41.2
Ecological zone																							
Mountain	6.2			4.5	35	22.1	6.2	20.1	1.4		0.4	1.7		0.4	10.7		0.3	0.6	2.1	12.2	0.4		42.7
Hill	1.4	0.2	0.1	4.8	40	27.1	1.9	11.6	0.4	0.2	10	2.4	0.1	0	8.7	0.1		0	2.4	8.1	0.6		45.8
Terai	13.5	0.5	2.8	7.4	49	41.7	7.3	11.4	3.3	0.9	2.8	3.5	0.4	0.2	6	0.2	0.5	1	2	14	2.8		40.4
Province-ecological zone																							
Koshi-Mountain	3.6			5.2	42	39	21.9	17.6				2.5			4.2			2.5	2.4	14.7			46.7
Koshi-Hill	1.5	0.9		5.4	55	43	6.3	11.1	1.2			3.8			2.8	0.4			2	5.9	0.6		42
Koshi-Terai	3.4	0.7	0.6	11.3	36	18.8	1.4	15.1	2.3	0.6	1.1	7.2	1.4	0.5	6.8	0.1		2.4	5.2	7.9	1.1		51
Madhesh-Terai	11.9		1.1	6.3	69	63.9	10.2	11	4.5	1.3	1.9	0.8			4.3		1.1	0.2		20	4.9		29.8
Bagmati-Mountain	4.5			2.5	13	1.5		19.9			0.9	2.2			13.1					11.9	0.7		56.7
Bagmati-Hill	1.4			4.2	45	28.5	1.3	10.1	0.2	0.5	24	1.4		0.1	7				2.1	5.8	0.3		46.6
Bagmati-Terai	10.4				22	8.2		2.9	0.7		19	3.1			10.9				4.3	6.7	1.6		59.8
Gandaki-Mountain	8.1			8.1	41	58.1	25.8	33.9				8.9			16.9				25.8	32.3			8.1
Gandaki-Hill	1.5		0.8	4.2	50	36.2		5.3			5	0.4			12.4			0.2	1.5	11.4	1.6		45.9
Gandaki-Terai	1.8		1.5	1.7	5	8		5.8			8.2	1.5			12.8				1.5	8.7	2.6		73.2
Lumbini-Hill				2.3				23				9			6.2				8.9	19.5			52.5
Lumbini-Terai	15.9	2	0.8	2.7	12	14.7	3.7	6.3	2.2		3.5	5			9.1	1		0.8	0.3	11.5			56.8
Karnali-Mountain	3.9			2.8	55	23.3	0.6	23.3							16.5		1.3		3.6	12.4	0.6		18.3
Karnali-Hill	1.9			5.3	11	3.8	0.6	18.3			0.6	5.1			10.5				3.3	6.1	0.6		53.7
Sudurpaschim-Mountain	24.2			14.5	75	66.6	4.6	19.7	13.6					3.8	3.8				4.8	4.8			21.7

Analytic Domain	Types of Disease (HH, %)																						
	Diarrhea	Dysentery	Malaria	Skin diseases	Cough	Fever	Typhoid	Asthma	Jaundice	Malnutrition	Dengue	Psychological	Chicken Pox	Cholera	Respiration	Viral infection	Kala-jar	Water/Food born diseases	Cancer	Heart Diseases	Tuberculosis	Others	
Sudurpaschim-Hill				8.5	14	3.1	0.8	20.8	0.6		1	1.2	1.8		24				3.5	16.8			35.1
Sudurpaschim-Terai	67.5		28.4	11.1	68	66.3	25.9	12.4	3.9	1.1	5.9	3.6			4.2			1.6	4	9.5	1.2		17.7
Altitude (meter)																							
Below 120	9.2	0.4	0.9	8.2	53	46.5	8.1	11.8	4.5	1.2	2.1	4.4	0.7	0.3	6.1	0.1	0.3	0.7	2.4	15.6	4		37.4
120 - 350	20.8		7.1	5.8	37	30.2	6.4	8.7	1.7		5.6	1.6			6.3	0.4	0.9	0.7	1.9	11.3	0.8		47.7
350 - 1000	4.4			5.3	44	30.2	2.9	10		0.2	3.2	3.8			10.1			0.6	2.4	11.1	0.1		44.8
1000 - 1300	2.1	0.2	0.4	4.3	42	25.9	2.4	13.8	0.7		13	2.5		0.2	7.6			0.4	2.9	7.7	0.6		41.9
1300 - 1500	2	1		7.4	36	23.1	4.5	14.1	0.8	0.7	14	2.2		0.2	7.3	0.3		0.4	0.9	6.1	0.5		47.9
1500 - 2000	2.2			3.3	34	28.7	1	13.6	0.7		0.9	1.4	0.7		9.8		0.2		2.4	10.2	0.3		50
2000 and above	5			1.6	49	35.1	0.8	16.6				0.2			12				2.2	11	3		38.5
Climate risk																							
Very Low	6.8	0.1	0.9	5	46	35.3	4.1	11.5	1	0.5	8.1	1.5	0.1	0.1	7.8	0.1	0.3	0.2	1.9	10.4	0.9		43.4
Low	4.7	0.4	0.8	7.7	37	26.9	7.2	16.7	4	0.5	1.6	6	0.8		6.4			0.8	2.1	12.3	3.8		44.5
Moderate	13.5	1.1	5.2	8.9	49	32.7	3.6	10.9	2.2		4.2	3	0.2	0.7	10.5	0.2		2	4.7	12.4	1		36.4
High				5.4	40	30.9		7.9			3	10.2			6.9	2				6			43.9
Very High	4.3				4.3	4.3	3	2.9			9.3	4.7			7.9				7.6	11.7			62.2
Nepal	6.8	0.3	1.2	5.8	43	32.7	4.5	12.3	1.7	0.5	6.3	2.8	0.2	0.1	7.8	0.1	0.2	0.5	2.2	10.9	1.5		43.3

Source : NCCS 2022

Table 6.2.4 : Status of Calorie Consumption and Malnutrition

(proportion)

Region	Calorie Intake Shortfall (k ₀)		Stunting (S ₀)<5 age		Underweight (U ₀) <5 age		Wasting (W ₀) <5 age	
	NLSS-II 2003/04	Small Area Estimation CBS	Nepal Demographic and Health Survey 2006	Small Area Estimation CBS	Nepal Demographic and Health Survey 2006	Small Area Estimation CBS	Nepal Demographic and Health Survey 2006	Small Area Estimation CBS
Ecological Belt								
Mountain	0.400	0.452	0.586	0.614	0.473	0.451	0.062	0.053
Hill	0.371	0.418	0.523	0.524	0.433	0.414	0.051	0.059
Tarai	0.330	0.374	0.465	0.473	0.504	0.484	0.134	0.133
Residence								
Urban	0.426	0.416	0.363	0.368	0.331	0.335	0.085	0.078
Rural	0.339	0.395	0.506	0.522	0.483	0.467	0.096	0.98
Nepal	0.352	0.398	0.497	0.504	0.473	0.452	0.095	0.096

Nutrition Status	NDHS 2001 [^]	NDHS 2006 [^]	NDHS 2011 [^]	NLSS- III 2010/11 [*]	NDHS 2016 [^]	NDHS 2022 [^]
Stunting (S ₀)<5 age %	57	49	41	41.5	36	25
Underweight (U ₀) <5 age %	43	39	29	31.1	27	19
Wasting (W ₀) <5 age %	11	13	11	13.7	10	8

Source : * National Statistics Office, (Nepal Living Standard Surveys).[^] Nepal Demographic Health Surveys

Table 6.2.5 : Statistics on Crime, Corruption, Traffic Accidents in Nepal,2001/02-2012/13

Cases	Year										
	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Crime (Case Number)*	22632	27386	28070	28563	31462	39315	43051	41898	40120	46902	56323
Corruption (Case Number)+	11298	22602	31213	24691	19580	19488	24085	25152	22625	24331	28067
Traffic Accident*	8484	8406	9146	10013	10178	10965	13366	15554	20634	24537	23597

Source : * Police Headquarter

+ Commission for Investigation Abuse Authority.

Table 6.2.6 : Number of Hard Drug Users by Sex,Nepal, 2012

Area	Number of current hard drug users by sex, 2006	
	Male	Female
Kathmandu Valley	15580	1878
Sunsari	2854	332
Kaski	4794	318
Morang	1266	50
Jhapa	3378	145
Rupandehi	2454	133
Chitawan	1880	191
Banke		
Parsa	1212	89
Makawanpur	462	19
Others	9074	200
Total	42954	3355

Source : Central Bureau of Statistics (Survey on Hard Drug Users in Nepal, 2006,2012)

CHAPTER VII

Environmental Protection, Management and Engagement

Table 7.1.1: Climate Relevant Budget Allocation in Nepal

Fiscal year	Climate relevant budget of Government of Nepal (Rupees, in Arab), (%)		
	Directly Relevant	Relevant	Neutral
2012/2013	18(4.45)	9.28(2.29)	377.54(93.26)
2013/2014	27.75(5.36)	25.73(4.98)	463.76(89.66)
2014/2015	34.98(5.66)	31.37(5.07)	551.75(89.27)
2015/2016	46.37(5.66)	112.98(13.79)	660.12(80.55)
2016/2017	61.85(5.90)	139.76(13.32)	847.31(80.78)
2017/2018	57.7(4.42)	335.62(26.24)	885.63(69.24)
2018/2019	69.22(5.26)	281.49(21.40)	964.44(73.33)
2019/2020	79.84(5.21)	384.04(25.05)	1069.09(69.74)
2020/2021	79.09(5.36)	399.74(27.11)	995.84(67.53)
2021/2022	94.02(5.71)	455.68(27.66)	1097.88(66.64)
2022/2023	105.84(5.9)	503.63(28.08)	1184.35(63.02)
2023/2024	104.39(5.96)	523.59(29.9)	1123.33(64.14)

Source: Ministry of finance, Red Book

Table 7.1.2 : Sectoral share of climate budget (in %)

Budget Head	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Economic affairs	68.9	68	84.7	70.7	27.8	34.52	26.67	31.44	33.67	33	39.04
Housing and community amenities	24.3	21	9.1	14.6	9.1	7.25	7.54	8.76	5.7	5.8	6.08
Environment protection	5.4	8.5	4.5	7	3.6	7.46	5.59	2.19	2.05	1.6	1.26
General public service	1	0.7	0.4	0.6	59.3	33.74	44.43	40.09	43.44	39.2	33.61
Education	0.2	0.7	0.4	0	0	0.05	0.19	0.11	0.15	0.7	1.08
Health	0	0.1	0.1	0.1	0.2	2.71	1.68	3.3	2.35	2.1	1.22
Social Protection							13.9	14.1	12.22	17.3	17.47
Recreation,Culture and Religion											0.21

Source: MoF

Table 7.1.3: Contribution to climate budget by source

Budget details	Fiscal Year											
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	
Total Climate Budget (in US\$ million)	534	663	1594	2016	3933	288414	463880	478836	549699	609487	627982	
Government	57	56	44	44	81	82	81	78	81	83	78	
Donor fund	22	23	32	14	4	5	4	6	4	4	4	
	21	21	24	42	15	13	15	16	15	13	18	

Source: MoF, 2024

Table 7.2.1 : National Ambient Air Quality Standards for Nepal, 2012

Parameters	Units	Averaging Time	Concentration in Ambient Air, maximum	Test Methods
TSP (Total Suspended Particulates)	µg/m ³	Annual	-	High Volume Sampling and Gravimetric Analysis
		24-hours*	230	
PM10	µg/m ³	Annual	-	High Volume Sampler and Gravimetric Analysis, TOEM, Beta Attenuation
		24-hours*	120	
Sulphur Dioxide	µg/m ³	Annual**	50	Ultraviolet Fluorescence, Waste & Gaeke method
		24-hours*	70	Same as annual
Nitrogen Dioxide	µg/m ³	Annual	40	Chemiluminescence
		24-hours*	80	Same as annual
Carbon Monoxide	µg/m ³	8 hours*	10,000	Non dispersive Infra Red spectrophotometer (NDIR)
Lead	µg/m ³	Annual**	0.5	High volume sampling, followed by atomic absorption spectrometry
Benzene	µg/m ³	Annual**	5	Gas chromatographic Technique
PM2.5	µg/m ³	24-hours*	40	PM2.5 sampling gravimetric analysis
Ozone	µg/m ³	8 hours*	157	UV spectrophotometer

* 24 & 8 hourly values shall be met 95% of the time in a year. 18 days per calendar year the standard may be exceeded but not on two consecutive days.

** The above indicators are prepared by the 104 data taken yearly average in a fixed location in one week by observing two times in 24 hours.

Table 7.2.2 : Standard on Emission for Dust Particles in Air

Industry	Compulsory	Emission limit
Cement Industry	Total Suspended Particulate Matter	Less than 500 µg/Nm ³
Croser Industry		Less than 600 µg/Nm ³

Source: Ministry of Environment, Science and Technology, Nepal Gazette 2069/07/13

Table 7.2.3 : Standard on Emission of Smoke in Air by New Dissel Generator (Import)

Category_(kW)	Emission limit (g/kWh)		
	CO	HC+Nox	PM
kW<8	8	7.5	0.8
8=kW<19	6.6	7.5	0.8
19=kW<37	5.5	7.5	0.6
37=kW<75	5	4.7	0.4
75=kW<130	5	4	0.3
130=kW<560	3.5	4	0.2

Note : This standard is equivalent to EURO III or INDIA III

Source: Ministry of Environment, Science and Technology, Nepal Gazette 2069/07/13

Table 7.2.4 : WHO Guideline Value on Air Quality

Compound	Guideline Value	Averaging Time
Ozone (1)	120 micrograms/m ³ (0.06 ppm)	8 hours
Nitrogen dioxide (1)	200 micrograms/cubic metre (0.11 ppm)	1 hour
	40 to 50 micrograms/cubic metre (0.021 to 0.026 ppm)	1 hour
Sulfur dioxide (1)	500 micrograms/cubic metre(0.175 ppm)	10 min
	125 micrograms/cubic metre (0044 ppm)	24 hours
	50 micrograms per cubic metre (0.017 ppm)	1 hour
Carbon monoxide (2)	100 milligrams/cubic metre (90 ppm) ^b	15 min
	60 mg/cubic metre (50ppm)	30 min
	30 mg/cubic metre (25 ppm)	1 hour
	10 mg/cubic metre (10 ppm)	8 hours
Lead (3)	0.5 to 1.0 micrograms/cubic	1 hour

(1) No guideline values were set for particulate matter because there is no evident threshold for effects on morbidity and mortality.

(2) The guideline is to prevent carboxyhemoglobin levels in the blood from exceeding 2,5%. The values above are mathematical estimates of some of the CO concentrations and averaging times at which this goal should be achieved.

(3) The guideline for lead was established by WHO in 1987.

Source: World Health Organization (Ambient Air Quality Guideline).

Table No. 7.2.5 (a): Air Quality Index

Parameters			AQI	Category
O ₃ (ppb) 8-hours average	PM _{2.5} (µg/m ³) 24-hour average	PM ₁₀ (µg/m ³) 24-hour average		
0.0-40.0	0.0-20.0	0.0-60.0	0-50	Good
41.0-75.0	20.0-40.0	61.0-120.0	51-100	Moderate
76.0-85.0	41.0-60.0	121.0-254.0	101-150	Unhealthy for Sensitive Groups
86.0-105.0	61.0-160.0	255.0-354.0	151-200	Unhealthy
106.0-200.0	161.0-260.0	355.0-424.0	201-300	Very Unhealthy
200.0-400.0	261.0-360.0	425.0-504.0	301-400	Hazardous
> 401.0	> 360.0	> 505.0	401-500	Very Hazardous

Source:- Department of Environment, 2018

Table 7.2.5 (b) : Color Coding of Air Quality Index for health Concern

AQI	Levels of Health Concern	Colors Coding
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151-200	Unhealthy	Red
202-300	Very Unhealthy	Purple
301-400	Hazardous	Maroon
401-500	Very Hazardous	Maroon

Source:

Table 7.2.6: Standard on Emission of Smoke in Air by Operated Dissel Generator

Category_(kW)	Emission limit (g/kWh)			
	CO	HC	Nox	PM
kW<8	8	1.3	9.2	1
8=kW<19	6.6	1.3	9.2	0.85
19=kW<37	6.5	1.3	9.2	0.85
37=kW<75	6.5	1.3	9.2	0.85
75=kW<130	5	1.3	9.2	0.7
130=kW<560	5	1.3	9.2	0.54

Note : This standard is equivalent to EURO III or INDIA III

Source: Ministry of Environment, Science and Technology ,Nepal Gazette 2069/07/13

Table 7.2.7: Vehicular Emission Standard for Kathmandu Valley

SN	Vehicle by Fuel type	Year of Manufacture	CO (by volume)
1	Petrol		
	Four wheelers	up to 1980 AD	4.50%
		after 1981	3%
	Three Wheelers	up to 1991	4.50%
	Two Wheelers		4.50%
	Vehicle by Fuel type	Year of Manufacture	Maximum Smoke Density (H.S.U)
2	Diesel		
		Up to 1994	75
		after 1995	65

Source: Nepal Gazette, 2054/09/28

Table 7.2.8 : Standard on Emission for Industrial Boiler

Steam generation capacity of Boiler(Kg/hr)	Pollutant	Limits mg/Nm3
less than 2000	Pollutate matter	1200*
2000 to less than 10000		800*
10000 to less than 15000		600*
15000 to above		150**

* As a controller equipment Cyclone/Muticyclone to be attached with Boiler

** As a controller equipment Bag filter/Electrostatic precipittor, ESP to be associated with Boiler

12% of CO2 correction is used as reference to the emission of particulate matter in mg/Nm3.

Source: Ministry of Environment, Science and Technology ,Nepal Gazette 2069/07/13

Table 7.2.9: Standard on Emission and Stack Height for Brick Industry

SN	Types of Kiln	Suspended Particulate Matter (Maximum Limit(mg/Nm3))	Height of Stack(Minimum limit meter)
1	Bull's Trench Kiln, Forced Draft (Fixed Chimney)	350	17
2	Bull's Trench Kiln, Natural Draft (Fixed Chimney)	500	30
3	Hoffmann Kiln, Forced Draft	350	17
4	Hoffmann Kiln, Natural Draft	500	30
5	Vertical Shaft Brick Kiln (VSBK)	250	15
6	Hybrid Hoffmann Kiln (HHK)	200	7
7	Tunnel Kiln	100	10

Source: Nepal Gazatte,2074

Table 7.2.10: Chimney Height and Emission for Incinerator

S.N	Parameters	Unit	Limit	Remarks
1	Chimney Height from the ground level	Meter (m)	Higher than 11	The Chimney should be higher than height of the existing surrounding houses
2	Suspended Particulate Materials (SPM) at 11% Oxygen (O ₂) reference	Milligram per normal Cubic Meter (mg/Nm ³)	50	
3	Carbon monooxide (CO)	Milligram per normal Cubic Meter (mg/Nm ³)	50	
4	Total organic Carbon (TOC)	Milligram per normal Cubic Meter (mg/Nm ³)	20	
5	Dioxin/Furan	Nano gram per Toxic Equivalent per Normal Cubic Meter (ng/TEQ/NM ³)	0.1	
6	Hydrochloric acid (HCl)	Milligram per normal Cubic Meter (mg/Nm ³)	50	
7	Hydrogen fluoride (HF)	Milligram per normal Cubic Meter (mg/Nm ³)	4	
8	Oxides of Sulphur (SO _x)	Part per Million (ppm)	200	
9	Oxides of Nitrogen (Nox)	Part per Million (ppm)	250	
10	Lead (Pb), Same for Chromium (Cr), Beryllium (Be), Argon (Ar), Arsenic (As), Antimony (Sb) Barium (Ba)	Milligram per normal Cubic Meter (mg/Nm ³)	1	
11	Cadmium (Cd) same for Thorium (Th)	Milligram per normal Cubic Meter (mg/Nm ³)	0.05	
12	Mercury (Hg) and its Compounds	Milligram per normal Cubic Meter (mg/Nm ³)	0.05	

Source: Nepal Gazette, 2071

Table 7.2.11 : Ranges of Emission Reductions Required for Various Stabilization Level (Bali Declaration)

(The ranges of the difference between emission in 1990 and emission allowances in 2030/2050 for various GHG concentration levels Annex I and Non-Annex I countries as a group ^a)

SCENARIO CATEGORY (lowest level of GHG assesses by IPCC 2007)	UNIT	REGION	2020	2050
A- 450	ppmv CO ₂ -eq (b)	Annex I	-25% to -40%	-80% to -95%
		Non- Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-planned Asia	Substantial deviation from base line in aii regions
B-550	ppmv CO ₂ -eq (b)	Annex I	-10% to -30%	-40% to -90%
		Non- Annex I	Deviation from baseline in Latin america, Middle East, East Asia.	Deviation from baseline in most regions, specially Latin america, Middle East.
C-650	ppmv CO ₂ -eq (b)	Annex I	-0% to -25%	-30% to -80%
		Non- Annex I	Baseline	Deviation from baseline in most regions, specially Latin america, Middle East.

a- The aggregate range is based on multiple approaches to apportion emission between regions (concentration and convergence, multistage. Triptych and intensity targets among others). Each approach makes different assumptions about the pathway, specific national efforts and other variables. Additional extreme cases- in which Annex. I undertakes all reductions, or non-Annex I undertakes all reductions- are not included.

The range presented here do not imply political feasibility, nor do not result reflect cost variances.

b- Only the studies aiming at stabilization at 450 ppmv CO₂, -eq assume a (temporary) overshoot of about 50 ppmv CO₂, -eq (see Den Elzen and Mainshausen, 2006)

Annex I and II = Industrialized countries and that pay for cost in developing countries. (The Bali Road Map page 205). Non-Annex - I except Annex I and II.

Source : IPCC Working Group III (WG III) Chapter 13 Box 13.7.

Table 7.2.12 : Emission Guidelines for Hospital / Medical / Infectious Waste by Incinerator

Pollutant	Small	Medium	Large
Particular matter	(<=91 kg/h)	(>91-227kg/h)	(>227 kg/h)
	115 mg m ³	69 mg/ m ³	
Carbon monoxide (Co)	40 ppmv	40ppmv	
Dioxins / furans	125 mg/m ³	125 mg/m ³	125 mg/m ³
	Total CCD/CCF or	Total CCD/CCF or	Total CCD/CCF or
	2.3mg /m ³ TEQ	2.3mg/m ³ TEQ	2.3mg/m ³ TEQ
Hydrogen Chloride (HCl)	100 ppmv or	100 ppmv or	100 ppmv or
	93 % reduction	93 % reduction	93 % reduction
Sulfur dioxide (SO ₂)	55 ppmv	55 ppmv	55 ppmv
Nitrogen oxides	250 ppmv	250 ppmv	250 ppmv
Lead	1.2 mg/m ³ or	1.2 mg/m ³ or	1.2 mg/m ³ or
	70 % reduction	70 % reduction	70 % reduction
Cadmium	0.16 mg/m ³ or	0.16 mg/m ³ or	0.16 mg/m ³ or
	65 % reduction	65 % reduction	65 % reduction
Mercury	0.55 mg/m ³ or	0.55 mg/m ³ or	0.55 mg/m ³ or
	85 % reduction	85 % reduction	85 % reduction

Source: World Health Organization (Safe Management of Wastes from Health Care Activities and National Health Care Waste Management Guidelines, 2002).

Table 7.2.13 : National Ambient Sound Quality Standard,2012

Sound Limit	Area	Sound limit Leq (dBA)	
		Day	Night
	Industrial Area	75	70
	Commercial Area	65	55
	Rural Residential Area	45	40
	Urban Residential Area	55	50
	Mixed Residential Area	63	55
	Peace Area	50	40
Optimum Sound emission limit	Household appliance	Optimum limit (dBA)	
	Water Pump	65	
	Disel Generetor	90	
	Entertainment goods	70	

Source: Ministry of Environment, Science and Technology ,Nepal Gazette 2069/07/13

Table 7.2.14 : List of Banned Pesticides in Nepal

S.N.	Name of Pesticide	S.N.	Name of Pesticides
1	Chlordane	50	Mirex
2	DDT	9	BHC
3	Dieldrin	10	Lindane
4	Endrin	11	Phosphamidon
5	Aldrin	12	Orano mercury fungicides
6	Heptachlor	13	Methyl parathion
7	Toxafen	14	Monocrotophos
15	Endosulphan*		

* Persistent Organic Pollutant; Deregisterd in 2069/7/20, grace period for sell and use till 2071/7/19

Source: Pesticide Registration and Management Section

Table 7.2.15 : Classification of registered pesticides (WHO,2004)

S.N.	Hazard level	WHO group	Pesticides (Technical)
1	Extremely hazardous	Ia	0
2	Highly hazardous	Ib	53
3	Moderately hazardous	II	541
4	Slightly hazardous	III	219
5	Unlikely to present acute hazard in normal use	NH	258
6	Not calculated	NC	27
Total			1098

Source: Pesticide Registration and Management Section, MOAD

Table 7.2.16 : Pesticides Registered in Nepal

S.N.	Pesticide	Number of Trade Name				
		1997*	2002*	2016	2017	2020
1	Insecticides	46	207	1276	1405	1787
2	Herbicides (Weedicides)	9	22	286	350	620
3	Fungicides	17	71	564	648	1141
4	Acaricides	1	2	23	27	32
5	Rodenticides		8	29	33	41
6	Bio- Pesticides	-	-	78	90	160
7	Bactericides			13	15	24
8	Molluscicide			2	2	4
9	Others	5	2	4	6	18
Total		78	312	2275	2576	3827

*Nepal Gazette vol.47, No. 11 (1997).+Updated Registration List of the Pesticide.

Source : MOALD

Table 2.7.17 : Nepal's Drinking Water Quality Standards

Group	Parameter	Unit	Maximum Concentration Limits
Physical	Turbidity	NTU	5 (10)**
	pH		6.5-8.5*
	Color	TCU	5 (15)**
	Taste & Odor		Would not be objectionable
	Total Dissolved Solids	mg/l	1000
	Electrical Conductivity	µc/cm	1500
	Iron	mg/l	0.3 (3)**
	Manganese	mg/l	0.2
	Arsenic	mg/l	0.05
	Cadmium	mg/l	0.003
	Chromium	mg/l	0.05
	Cyanide	mg/l	0.07
	Fluoride	mg/l	0.5-1.5*
	Lead	mg/l	0.01
Chemical	Ammonia	mg/l	1.5
	Chloride	mg/l	250
	Sulphate	mg/l	250
	Nitrate	mg/l	50
	Copper	mg/l	1
	Total Hardness	mg/l	500
	Calcium	mg/l	200
	Zinc	mg/l	3

Group	Parameter	Unit	Maximum Concentration Limits
	Mercury	mg/l	0.001
	Aluminum	mg/l	0.2
	Residual Chlorine	mg/l	0.1-0.2*
Micro Germs	E-Coli	MPN/100ml	0
	Total Coli form	MPN/100ml	95 % in sample

Note : * These standards indicate the maximum and minimum limits.

** Figures in parenthesis are upper range of the standards recommended.

Source : Nepal Gazette (26 June 2006).

Table 7.2.18 : Tolerance Limits for Different Industrial Effluents Discharged into Inland Surface Water

S.N.	Characteristics	Land Surface Water	Public Sewerage	Inland Surface Water
1	Total Suspended solids, mg/l, Max	30-200	600	50
2	Particle size of total suspended particles	Shall pass 850-micron sieve		Shall pass 850-micron sieve
3	pH value	5.5-9.0	5.5-9.0	5.5-9.0
4	Temperature, °C, Max	Shall not exceed 40 degree C in any section of the stream within 15 meters downstream from the effluent outlet.	45	Shall not exceed 40 degree C in any section of the stream within 15 meters downstream from the effluent outlet.
5	Total Chromium, mg/l, Max	-	2	
6	Sulphates (SO ₄), mg/l, Max		500	
7	Total Dissolved Solids, mg/l, Max	-	2100	
8	Biochemical oxygen demand (BOD) for 5 days at 20 degree C, mg/l, Max	50	400	50
9	Oils and grease, mg/l, max	10	50	10
10	Phenolic compounds, mg/l, max	1	10	1
11	Cynides (as CN), mg/l, max	0.2	2	0.2
12	Sulphides (as S), mg/l, max	2	2	2
13	Radioactive materials			
	a. Alpha emitters, c/ml, max	10 ⁻⁷		10 ⁻⁷
	b. Beta emitters, c/ml, max	10 ⁻⁸		10 ⁻⁸
14	Insecticides	absent	absent	absent
15	Total residual chlorine, mg/l	1		1
16	Fluorides (as F), mg/l, max	2	10	2
17	Arsenic (as AS), mg/l, max	0.2	1	0.2
18	Cadmium (as Cd), mg/l, max	2	2	2
19	Hexavalent chromium (as Cr,) mg/l max	0.1		0.1
20	Copper (as Cu), mg/l, max	3	3	3
21	Lead (as pb), mg/l, max	0.1	0.1	0.1
22	Nickel (as Ni), mg/l, max	3	3	3
23	Selenium (as Se), mg/l, max	0.05	0.05	0.05
24	Zinc (as Zn), mg/l, max	5	5	5
25	TDS, mg/l, max			
26	Chloride (Cl), Mg/l, max			
27	Soleplate (SO ₄), mg/l, max			
28	Mercury (as Hg) mg/l, max	0.01	0.01	0.01
29	Mineral oils, mg/l, max		10	
30	Inhibition of nitrification test at 2000 ml/l		<50%	
31	Sodium, % max			
32	Ammonical nitrogen, mg/l, max	50	50	50
33	Chemical Oxygen Demand, mg/l, max	250	1000	250
34	Silver, mg/l, max	0.1	0.1	0.1

Source:: Nepal Gazette , 30 April 2001 and 23 June 2003

Table 7.2.19 : Generic Standard /Tolerance Limits for Different Industrial Effluents Discharged into Inland Surface Water

S.N.	Characteristics	Environmental Standard and Norms											
		Tanning Industry	Wool Processing Industry	Fermentat Industry	Vegetable Ghee & Oil Industry	Paper & Pulp Industry	Dairy Industry	Sugar Industry	Cotton and Textile Industry	Soap Industry	Non-alcoholic Drinks Industry	Glavanizing and Electro-plating	Paints Industry
1	TSS mg/l	100	100	100		100	150	100	100	200	200	100	150
2	Particle Size of TSS									5.5-9.0	5.5-9	6-8.5	5.5-9
3	pH value	5.5-9.0	5.5-9	5.5-9	5.5-9.0	5.5-9	5.5-8.5	5.5-9	6.0-9.0	5.5-9.0			
4	Temperature °C		40								not exceed 40o C		
5	TDS, mg/l, max	2100											
6	Color and Odor	Absent											
7	BOD for 5 days at 200 degree C, mg/l, max	100	100	60	100	100	100	100	100	100	100	50	100
8	Oils and grease, mg/l, max		10		10		10			10	10	10	10
9	Cyanides (as CN), mg/l, max		5 (as C6 h5 OH)	101									
10	Sulphides (as S), mg/l, max	2	2									0.2	
11	Radioactive materials;			5.5-10									
12	Total residual Chlorine, mg/l			61								1	
13	Nickel (as Ni), mg/l, max				3							3	
14	Chlorides (as Cl), mg/l, max	600											
15	Sodium, % max	60											
16	Chemical oxygen demand mg/l, Max	250	250		250		250		250	250	250	200	250
17	Total chromium (as Cr) mg/l, max	2	2									2	2
18	Hexavalent chromium (as Cr) mg/l, Max	0.1										0.1	0.1
19	Phenolic compounds (as C ₆ h ₅ OH), mg/l		5							1			1
20	Bioassay Test												90% survival of fish after

S.N.	Characteristics	Environmental Standard and Norms												
		Tanning Industry	Wool Processing Industry	Fermentat Industry	Vegetable Ghee & Oil Industry	Paper & Pulp Industry	Dairy Industry	Sugar Industry	Cotton and Textile Industry	Soap Industry	Non-alcoholic Drinks Industry	Glavanizing and Electro-plating	Paints Industry	Pharma-ceutical Industry
														96 hours in 100% effluent
21	Ammonical nitrogen (asN)											50		
22	Cadmium (as Cd)											2		
23	Zinc (as Zn)											5	5	
24	Copper (as Cu)											3	3	
25	Lead (as Pb)											0.1	0.1	
26	Total Heavrr Metals											10	7	
27	Iron (as Fe)											3		
28	Copper as Cu													3

Source: Nepal Gazette, 2067/4/27

Table 7.2.20 : Nepal Water Quality Guidelines for Irrigation Water

S.N.	Parameter name	Target Water Quality Range	Remarks
Microbiological constituents:			
1	Coliforms(faecal)	< 1 count /100 ml	1 – 1000 count / 100 ml could be used for plants for which edible parts are not wetted.
Physical Constituents:			
1	pH	6.5 – 8.5	Adverse effect on plants outside this range
2	Suspended Solids	< 50 mg/l	Above the limit problem with sedimentation and irrigation system
3	Electrical Conductivity	< 40 mS/m	Upto 540 mS/m depending upon sensitivity of crops.
Chemical Constituents:			
1	Aluminium	< 5 mg/l	Upto 20 mg/l max. acceptable conc.
2	Arsenic	< 0.1 mg/l	> 2 mg/l creates severe problem
3	Beryllium	< 0.1 mg/l	0.1 – 0.5 mg/l max. acceptable conc.
4	Boron	< 0.5 mg/l	Upto 15 mg/l depending upon species.
5	Cadmium	< 0.01 mg/l	0.01 – 0.05 mg/l max. acceptable conc.
6	Chloride	< 100 mg/l	Upto 700 mg/l depending upon species
7	Chromium	< 0.1 mg/l	Upto 1.0 mg/l max. acceptable conc.
8	Cobalt	< 0.05 mg/l	Upto 5.0 mg/l max. acceptable conc.
9	Copper	< 0.2 mg/l	Upto 5.0 mg/l max. acceptable conc.
10	Fluoride	< 2.0 mg/l	Upto 15 mg/l max. acceptable conc.
11	Iron	< 5.0 mg/l (non-toxic)	> 1.5 mg/l creates problem in drip irrigation system
12	Lead	< 0.2 mg/l	Upto 2.0 mg/l max. acceptable conc.
13	Lithium	< 2.5 mg/l	For citrus < 0.75 mg/l
14	Manganese	< 0.02 mg/l	Upto 10 mg/l max. acceptable conc.
15	Molybdenum	< 0.01 mg/l	Upto 0.05 mg/l max. acceptable conc.
16	Nickel	< 0.2 mg/l	Upto 2.0 mg/l max. acceptable conc.
17	Nitrogen (inorganic)	< 5 mg/l	Higher concentration may affect sensitive plants and may contaminate ground water
18	Selenium	< 0.02 mg/l	Upto 0.05 mg/l max. acceptable conc.
19	Sodium Adsorption Ratio (SAR)	< 2.0	Upto 10 depending upon sensitivity of crops.
20	Sodium	< 70 mg/l	Upto 460 depending upon sensitivity of crops
21	Total Dissolved Solids (as EC)	< 40 mS/m	Upto 540 mS/m depending upon sensitivity of crops
22	Uranium	< 0.01 mg/l	Upto 0.1 mg/l max. acceptable conc.
23	Vanadium	< 0.1 mg/l	Upto 1.0 mg/l max. acceptable conc.
24	Zinc	< 1.0 mg/l	Upto 5 mg/l max. acceptable conc.

Source: Department of Irrigation, Ground Water Project (Nepal Gazette (Number 10.16 June 2008))

Table 7.2.21 : Nepal Water Quality Guidelines for Aquaculture

S.N.	Constituents	Target Water Quality Range	Remarks
1	Algae	No criteria	
2	Alkalinity	20 – 100 mg/l as CaCO ₃	High alkalinity reduces natural food production in ponds below optimal production
3	Aluminium	< 30µg/L (pH >6.5), < 10 µg/L (pH < 6.5)	Highly toxic to trouts (1.5 µg/l is fatal to brown trout)
4	Ammonia (for cold water fish)	0 – 25 µg/L	
5	Ammonia (for warm water fish)	0 – 30 µg/L	
6	Arsenic	0 – 0.05 mg/l	
7	Bacteria (E. Coli)	< 10 counts of E.coli /g of fish flesh	
8	BOD ₅	< 15 mg/l	
9	Cadmium	Hardness: 0– 60 mg/l < 0.2 mg/l Hardness: 60–120 mg/l < 0.8 mg/l Hardness: 120–180mg/l < 1.3 mg/l Hardness: >180 mg/l < 1.8 mg/l	Cadmium toxicity depends upon hardness of water
10	Carbon dioxide	< 12 mg/l, upto 75 mg/l for warm water fish	
11	Chloride	Value not recommended (fish can survive at < 600 mg/l Chloride but the production is not optimum)	
12	Chlorine	< 2 µg HOCl /L for cold water fish < 10 µg HOCl/L for warm water fish	
13	Chromium (VI)	< 20 µg/L	
14	COD	< 40 mg/l	
15	Colour	< 100 Pt-Co unit	
16	Copper	< 5 µg/L	0.006 and 0.03 µg/L are upper limits for hard and soft water
17	Cyanides	< 20 µg/L as HCN	LC ₅₀ starts from 100 µg/L upwards
18	Dissolved oxygen	6 – 9 mg/l for cold water species 5 – 8 for intermediate water species, 5 – 8 for warm water species.	
19	Fluoride	< 20 µg/l	
20	Iron	< 10 µg/l	0.2 - 1.75 general lethal threshold for fish
21	Lead	< 10 µg/l	30 µg/L max. conc. limit for brook trout
22	Magnesium	< 15 mg/l	
23	Manganese	< 100 µg/l	Above 500 µg/L increasing risk of lethal effect
24	Mercury	< 1 µg/l	Bioaccumulation and biomagnification occurs
25	Nickel	< 100 µg/l	
26	Nitrate-N	< 300 mg/l	1000 mg/l is below the 96-hour LC ₅₀ values for most fish
27	Nitrite-N	0 – 0.05 mg/l for cold water fish 0.06 - .25 mg/l for warm water fish	> 7 mg/l is LC ₅₀ for many fish species
28	Nuisance plants	Less than 10 % of the fish pond should be covered by aquatic plants.	
29	Oils and Greese (including Petrochemicals)	< 300 µg/L	
30	PCBs	No quantitative guidelines, should not be detected in fish	
31	pH	6.5 – 9.0	Outside this range the health of fish is adversely affected
32	Phenols	< 1 mg/l	> 7.5 mg/l 24 hr. LC ₅₀ starts for most fish

S.N.	Constituents	Target Water Quality Range		Remarks	
33	Phosphorus	< 0.6 mg/l as orthophosphate		> 12.5 mg/l 96 hr. LC ₅₀ starts for most fish	
34	Selenium (VI)	< 0.3 mg/l			
35	Sulphide as H ₂ S	< 0.001 mg/l		> 0.002 mg/l long term health hazard for fish	
36	Temperature	4 – 18 for cold water fish		Mortality increases with increasing TGP	
		16 – 32 for intermediate species			
		24 – 30 for warm water fish			
37	Total Dissolved Gases as Total Gas Pressure (TGP)	< 100 % for cold water fish			
		< 105 % for warm water fish			
38	Total Dissolved Solids	< 2000 mg/l			
39	Total Hardness as CaCO ₃	20 – 100 mg/l ,		In > 175 mg/l osmoregulation of fish is affected.	
40	Total Suspended Matter.	< 20000 mg/l for turbid water species, < 25 NTU for clear water species			
41	Zinc, depends upon water hardness: mg/l dissolved Zn	Hardness:	Coldwater	Warm water	Warm water fish are more tolerant
		10 mg/l	0.03	0.3	
		50 mg/l	0.2	0.7	
		100 mg/l	0.3	1	
		500 mg/l	0.5	2	

Pesticides: No guideline values provided.

Source : Department of Irrigation, Ground Water Projcet (Nepal Gazette (Number 10, 16 June 2008).

Table 7.2.22 : Nepal Water Quality Guidelines for Recreation

S.N.	Parameter Name:	Full contact	Partial contact	Non contact
Biological Parameters:				
1	Algae, macrophytes, phytoplankton scum, etc.	Should not be present in excessive amount		
Indicator Organism				
	Total coliform Bacteria			
	Faecal coliform	<130 count/100 ml	<1000 count/100ml	No target value
	Escherichia coli	<130 count/100 ml	No target value	No target value
	Enterococci			
	Faecal Streptococci	<30 count/100 ml	0 – 230 count/100 ml	No target value
	Coliphage	< 20 count/100 ml	No target value	No target value
	Schistosoma/ Bilharzia	No snails capable of acting as the intermediate host of the bilharzia parasite	No snails capable of acting as the intermediate host of the bilharzia parasite	No target value
Nuisance plants				
		Swimmer should not be entangled	Boats should not be entangled.	
Chemical Irritant				
The criteria are qualitative and no specific irritant and quantitative measures are given				
Chemical Parameters:				
	pH	6.5 – 8.5	6.5 – 8.5	No target value
Physical Parameters:				
1	Clarity	> 1.6 (Secchi disc depth Metres)	No target value	No target value
2	Colour	100 Pt-Co units	100 Pt-Co units	No Target value

S.N.	Parameter Name:	Full contact	Partial contact	Non contact
3	Floating Matter and refuse	Free of floating or submerged debris	No target value	No target value
4	Odour	No objectionable or unpleasant odour	No objectionable or unpleasant odour	No objectionable or unpleasant odour
5	Residual Chlorine	0.1 mg/l	No target value	No target value
6	Surface films	Should not be noticeable	Should not be noticeable	Should not be noticeable
7	Turbidity	0.5 NTU		

Source : Department of Irrigation, Ground Water Project (Nepal Gazette (Number 10, 16 June 2008).

Table 7.2.23 : Nepal Water Quality Guidelines for Livestock Watering

S.N.	Constituent	Proposed concentration
1	Algae	No visible blue-green scum
2	Aluminium	< 5 mg/l
3	Arsenic	< 0.2 mg/l
4	Beryllium	< 0.1 mg/l
5	Boron	< 5 mg/l
6	Cadmium	< 0.01 mg/l
7	Calcium	< 1000 mg/l
8	Chloride	
9	Chromium (VI)	< 1 mg/l
10	Cobalt	< 1 mg/l
11	Copper	< 0.5 mg/l
12	Electrical Conductivity	< 1.5 dS/m
13	Fluoride	< 2 mg/l
14	pH	6.5 – 8.5
15	Iron	Not Toxic
16	Lead	< 0.1 mg/l
17	Magnesium	< 500 mg/l
18	Manganese	< 10 mg/l
19	Mercury	< 10 µg/L
20	Molybdenum	< 0.01 mg/l
21	Nickel	< 1 mg/l
22	Nitrate/Nitrite	< 100 mg/l as nitrate
23	Nitrite – N	< 10 mg/l
24	Selenium	< 0.05 mg/l
25	Sodium	< 2000 mg/l
26	Sulphate	< 1000 mg/l
27	Total Dissolved Solids	
	Dairy Cattle	< 7100 mg/l
	Sheep	<12800 mg/l
	Horse	< 6400 mg/l
	Pigs	< 4300 mg/l
	Poultry	< 2800 mg/l
28	Vanadium	< 0.1 mg/l (FAO)
29	Zinc	< 24 mg/l (FAO)
Pathogens		
1	Faecal coliform count	< 200 count /100ml
		< 1000 counts for < 20 % of the samples

Pesticides: Guidelines applicable for human beings.

Chlorinated Hydrocarbons: Guidelines for human beings apply.

Source : Department of Irrigation, Ground Water Project (Nepal Gazette (Number 10, 16 June 2008).

Table 7.2.24 : Nepal Water Quality Guidelines for the Protection of Aquatic Ecosystem

S.N.	Parameter name		Target Water Quality Range	Chronic Effect Value	Acute Effect Value
1	Aluminium (mg/l)		At pH <6.5: 5	10	100
			At pH >6.5:10	20	150
2	Ammonia (µg/L)		< 7	< 15	< 100
3	Arsenic (µg/L)		< 10	< 20	< 130
4	Atrazine (µg/L)		< 10	< 19	< 100
5	Cadmium				
6	Soft water	(60 mg/l CaCO ₃)	< 0.15	0.3	3
	Medium water	(60 – 119 mg/l)	< 0.25	0.5	6
	Hard water	120 – 180 mg/l	< 0.35	0.7	10
	Very Hard	> 180 mg/l	< 0.40	0.8	13
6	Chlorine (Residual) µg/L		< 0.2	0.35	5
7	Chromium (VI) µg/L		7	10	200
8	Chromium (III) µg/L		< 12	24	340
9	Copper µg/L				
	Soft water	(60 mg/l CaCO ₃)	< 0.3	0.53	1.6
	Medium water	(60 – 119 mg/l)	< 0.8	1.5	4.6
	Hard water	120 – 180 mg/l	< 1.2	2.4	7.5
	Very Hard	> 180 mg/l	< 1.40	2.8	12
10	Cyanide µg/L		1	4	110
11	Dissolved Oxygen (% saturation)		80 – 120	> 60	> 40
12	Endosulphan (µg/L)		< 0.01	0.02	0.2
13	Fluoride (µg/L)		< 750	1500	2540
14	Iron		The iron concentration should not be allowed to vary by more than 10 % of the background dissolved iron concentration for a particular site or case, at a specific time.		
15	Lead µg/L				
16	Soft water	(60 mg/l CaCO ₃)	< 0.2	0.5	4
	Medium water	(60 – 119 mg/l)	< 0.5	1	7
	Hard water	120 – 180 mg/l	< 1.0	2	13
	Very Hard	> 180 mg/l	< 1.2	2.4	16
16	Manganese (µg/L)		< 180	370	1300
17	Mercury (µg/L)		< 0.04	0.08	1.7
18	Nitrogen (inorganic)		Inorganic nitrogen concentrations should not be changed by more than 15 % from that of the water body under local unimpacted conditions at any time of the year;		
			The trophic status of the water body should not increase above its present level, though a decrease in trophic status is permissible (see Effects);		
			The amplitude and frequency of natural cycles in inorganic nitrogen concentrations should not be changed.		
19	pH				
	All aquatic ecosystems		pH values should not be allowed to vary from the range of the background pH values for a specific site and time of day, by > 0.5 of a pH unit, or by > 5 %, and should be assessed by whichever estimate is more conservative.		
20	Phenols (µg/l)		<30	60	500
21	Phosphorus (inorganic) waters		All surface		
			Inorganic phosphorus concentrations should not be changed by > 15 % from that of the water body under local, unimpacted conditions at any time of the year;		
			The trophic status of the water body should not increase above its present level, though a decrease in trophic status is permissible (see Effects);		
		The amplitude and frequency of natural cycles in inorganic phosphorus concentrations should not be changed.			

S.N.	Parameter name	Target Water Quality Range	Chronic Effect Value	Acute Effect Value
22	Selenium (µg/l)	< 2	5	30
23	Temperature (All aquatic ecosystems)	Water temperature should not be allowed to vary from the background average daily water temperature considered to be normal for that specific site and time of day, by > 2 °C, or by > 10 %, whichever estimate is the more conservative.		
24	Total Dissolved Solids (All inland waters)	<ul style="list-style-type: none"> TDS concentrations should not be changed by > 15 % from the normal cycles of the water body under unimpacted conditions at any time of the year; The amplitude and frequency of natural cycles in TDS concentrations should not be changed. 		
25	Total Suspended Solids (All inland waters)	Any increase in TSS concentrations must be limited to < 10 % of the background TSS concentrations at a specific site and time.		
26	Zinc (µg/l)	< 2	3.6	36

Source : Department of Irrigation, Ground Water Project (Nepal Gazette (Number 10, 16 June 2008).

Table 7.2.25 : Nepal Water Quality Guidelines for Industries

S. N.	Parameter Name:	Recommended value			
		Category 1	Category 2	Category 3	Category 4
1	Alkalinity	<50 mg/l	< 120 mg/l	< 300 mg/l	< 1200 mg/l
2	COD	< 10 mg/l	< 15 mg/l	< 30 mg/l	< 75 mg/l
3	Chloride	< 20 mg/l	< 40 mg/l	< 100 mg/l	< 500 mg/l
4	Iron	< 0.1 mg/l	< 0.2 mg/l	< 0.3 mg/l	< 10 mg/l
5	Manganese	< 0.05 mg/l	< 0.1 mg/l	< 0.2 mg/l	< 10 mg/l
6	pH	7.0 - 8.0	6.5 - 8.0	6.5 - 8.0	10-May
7	Silica	< 5 mg/l	0 - 10 mg/l	< 20 mg/l	< 150 mg/l
8	Sulphate	< 30 mg/l	< 80 mg/l	< 200 mg/l	< 500 mg/l
9	Suspended solids	< 3 mg/l	< 5 mg/l	< 5 mg/l	< 25 mg/l
10	Total dissolved solids	TDS: < 100 mg/l	TDS: < 200	TDS: < 450	TDS: < 1600
		EC: < 15 mS/m	EC: < 30	EC: < 70	EC: < 250
11	Total Hardness	< 50 mg/l as CaCO ₃	< 100 mg/l as CaCO ₃	< 250 mg/l as CaCO ₃	< 1000 mg/l as CaCO ₃

Source : Department of Irrigation, Ground Water Project (Nepal Gazette (Number 10, 16 June 2008).

Table 7.2.26 : Nepal National Building Code, 2003

S. N.	Building Code No.	Contents	Remarks
1	NBC 000	Requirements for State of the Art Design: An Introduction	Building for Foreign Donor Organizations > 1000 sq.ft plinth area and more than 3 flats. Building designer and monitoring by Architecture Engineer
2	NBC 001	Materials Specifications	
3	NBC 002	Unit Weight of Materials	
4	NBC 003	Occupancy Load (Imposed Load)	
5	NBC 004	Wind Load	
6	NBC 005	Seismic Design of Building	
7	NBC 006	Snow Load	
8	NBC 007	Provisional Recommendation on First Safety	
9	NBC 008	Site Consideration for Seismic Hazards	
10	NBC 009	Masonry : Unreinforced	
11	NBC 010	Plain and Reinforced Concrete	
12	NBC 011	Steel	
13	NBC 012	Timber	
14	NBC 013	Aluminum	
15	NBC 014	Construction Safety	
16	NBC 201	Mandatory Rule of Timber : Reinforced Concrete Buildings with Masonry Infill	< 1000 sq. ft plinth area and less than 3 flats. Building designer and monitoring by Architecture Sub-Engineer
17	NBC 202	Mandatory Rule of Timber : Load Bearing Masonry	
18	NBC 203	Guidelines for Earthquake Resident Building Construction : Low Strength Masonry	
19	NBC 204	Guidelines for Earthquake Resident Building Construction : Earthen Building (EB)	
20	NBC 205	Mandatory Rule of Thumb : Reinforced Concrete Buildings without Masonry Infill	
21	NBC 206	Architectural Design Requirements	> 1000 sq.ft plinth area and more than 3 flats. Building designer and monitoring by Architecture Engineer
22	NBC 207	Electrical Design Requirements for (public Buildings)	
23	NBC 208	Sanitary and Plumbing Design Requirements	

Source : Department of Housing and Urban Development.

Table 7.2.27: Environment Related Laws, Regulations and Policies

I. Laws Having Environment Friendly Provisions:	
1.	Constitution of Nepal, 2015 (2072)
2.	Nepal Disaster Risk Management Act, 2017
3.	Nepal Tourism Board Act, 1996
4.	Environment Protection Act, 1997
5.	Forest Act, 1993
6.	Local government operationb Act 2017
7.	Water Resources Act, 1992
8.	Electricity Act, 1992
9.	Motor Vehicle & Transportation Management Act, 1992
10.	Labour Act, 2074 B. S.
11.	Industrial Enterprises Act, 2016
12.	Pesticides Act, 1991
14.	Nepal Water Supply Corporation Act, 1989
15.	Town Development Act, 1988
16.	Kathmandu Valley Development Authority Act, 1988
17.	Pashupati Area Development Trust Act, 1987

18.	Solid Waste (Management & Resource Mobilization) Act, 1987
19.	Mines & Mineral Act, 1985
20.	Nepal Electricity Authority Act, 1984
21.	Nepal Petroleum Act, 1983
22.	Nature Conservation Trust Act, 1982
23.	Soil & Watershed Conservation Act, 1982
24.	Tourism Act, 1978
25.	Trust Corporation Act, 1976
26.	Public Road Act, 1974
27.	National Parks & Wild Life Conservation Act, 1973
28.	Plant Protection Act, 1964
29.	Aquatic Animals Protection Act, 1960
30.	Civil Aviation Act, 1958
31.	Ancient Monuments Protection Act, 1956
32.	Public Health Services Act, 2075 B.S.
33.	Local Government regulation Act, 2074 B.S.

II. Instruments Having Environment Friendly Policies:

1.	Climate Change Policy, 2011
2.	Wildlife Protection, Fertility and Research Policy, 2060 (2004)
3.	Nepal Environmental Policy and Action Plan, 2050 (1993)
4.	Environment Conservation Policy, 2044 (1988)
5.	Industrial Policy, 2067 B.S.

III. Rules

1.	Vehicle & Transportation Management Rules, 1997
2.	Environment Protection Rules, 1997
3.	Bardiya National Park Rules, 1996
4.	Conservation Area Management Rules, 1996
5.	Forest Rules, 1995
6.	Buffer Zone Management Rules, 1995
7.	Water Resources Rules, 1993
8.	Pesticides Rules, 1993
9.	Labour Rules, 2075
10.	Electricity Rules, 1993
11.	Local Self-government Rules 1993
12.	Ancient Monuments Protection Rules, 1989
13.	Solid Waste (Management & Resource Mobilization) Rules, 1989
14.	Khaptad National Park Rules, 1987
15.	Nature Conservation Trust Rules, 1984
16.	Petroleum Rules, 1984
17.	Himalayan National Park Rules, 1979
18.	Wild Life Reserve Rules, 1977
19.	Mountaineering Rules, 1979
20.	Plant Protection Rules, 1974
21.	National Parks & Wild Life Conservation Rules, 1973

IV. Acts and Regulations

1	Constitution of Nepal
2	National Periodic Plans

3	Human Rights Commission Act, 1997
4	Social Welfare Act, 1992
5	Forest Act, 1993 / Forest Regulation, 1994
6	Environment Protection Act, 1997/ Environment Protection Regulation, 1997
7	Plant Protection Act, 2007/ Plant Protection Rules, 2010
8	Water Resources Act, 1992
9	Soil and Watershed Conservation Act, 1982
10	Solid Waste Management Act, 2011
11	Poverty Alleviation Fund Act, 2006
12	National Parks and Wildlife Conservation Act, 1973
13	National Trust for Nature Conservation Act, 1982
14	Statistics Act, 1958

V. Policies and Strategies

1	National Strategy for Disaster Risk Management, 2009
2	National Biodiversity Strategy and Action Plan, 2014
3	National Pollution Control Strategy and Action Plan, 2016
4	Nepal Health Sector Strategy, 2015
5	National Education Plan
6	Climate Change Policy, 2011
7	National Land Use Policy, 2012
8	Water Resource Strategy, 2002
9	National Agricultural Policy, 2004
10	Rural Energy Policy, 2011
11	Forest Sector Strategy (2016-2025)
12	Environment Friendly Vehicle and Transport Policy, 2014
13	National REDD Strategy
14	Low-Carbon Economic Development Strategy

VI. Standards

1	Nepal Vehicle Mass Emission Standard, 2002 upgraded in 2012
2	National Ambient Air Quality Standard, 2003 upgraded in 2012
3	Standard on Emission and Chimney Height for Brick Kilns, 2008 upgraded in 2018
4	Standard on Emission and Chimney Height for Industrial Boiler, 2012
5	Standard on Emission for Diesel Generator, 2012
6	Standard on Emission for Cement and Crusher Industries, 2012
7	Environmental Standards for Incinerators in 2012
8	National Standard on Noise Level 2069 BS

VII. Programs and Initiatives

1	Poverty Alleviation Fund Projects
2	Community Based Disaster Risk Reduction Program
3	Environment Friendly Local Government Framework
4	National Adaptation Programs of Actions (NAPA)
5	Local Adaptation Plans for Actions (LAPA)
6	National Adaptation Plans (NAP)
7	Nepal Climate Change Support Program (NCCSP)
8	Community Forestry Program
9	Climate Smart Village and Climate Smart City
10	REDD (Reducing Emission from Deforestation and Degradation) Implementation Unit

11	President Chure Terai Madhesh Conservation Program
12	Pilot Program on Climate Resilience (PPCR)
13	Hariyo Ban (Green Forest) Program
14	Community based Flood Risk Reduction Program
15	GLOF (Glacier Lake Outburst Floods) Risk Reduction Program
16	Minamata Initial Assessment in Nepal

Source: Ministry of Environment, Science and Technology

Table 7.2.28 : List of Conventions Signed and/or Ratified by the Government of Nepal

S. N.	Name of Convention	Entry into Force in Nepal
1	UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and / or Desertification Particularly in Africa,1994	13 Jan, 1997
2	UN Framework Convention on Climate Change, 1992	31 Jul, 1994
3	Convention on Biodiversity Diversity May 22,1992 Bio-safety Protocol	21 Feb, 1994
4	Agreement on the Network of Aquaculture Centers in Asia and the Pacific Region,1988	4 Jan,1990
5	Convention on Wetlands of International Importance especially as Waterfowl habitat, 1971	17 Apr,1988
6	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 1973	16 Sep,1975
7	Plant Protection Agreement for the South East Asia and Pacific Region (as amended) 1956	12 Aug,1965
8	Convention on the High Seas,1958	27 Jan,1963
9	Treaty Banning Nuclear Weapon Test in the Atmosphere, in outer Space and Sea-bed 1963	7 Oct, 1964
10	Treaty on Prohibition of the Emplacement Nuclear Weapons and Other Weapons of Mass destruction on the Sea-bed and the Ocean Floor and in the Subsoil Thereof 1971	18 May, 1972
11	Convention for the Protection of the World Cultural and Natural Heritage, 1972	20 Sept, 1978
12	International Agreement for Tropical Timber (ITTA),1983	3 Jul ,1990
13(a)	Vienna Convention for the Protection of the Ozone Layer , 1985	4 Oct,1994
13(b)	Montreal Protocol substances that Deplete the Ozone Layer (Montreal Protocol), 1987	4 Oct,1994
13(c)	London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (London Agreement), 1990	4 Oct,1994
14	Basel Convention on the Control of Tran boundary Movements of Hazardous Wastes (Basel Convention), 1989 .	13 Jan, 1997
15	Treaty on Principals Governing the activities of State in the Exploration and Use of Outer Space including and Other the Moon Celestial Bodies, 1967	10 Oct, 1967
16	Kyoto Protocol	14 Dec, 205
17	Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972	1 Jan,1973
18	Stockholm Convention on Persistent Organic Pollutants, 20001	2002
19	Rotterdam Convention on the Prior Informed Consent Procedure for certain Hazardous chemicals and Pesticides in international Trade	2007
Signed		
1	Convention on the Prohibition of the Development, Production and stockpiling of Bacteriological and Toxic Weapons and on their Destruction,1972	10 Apr,1972
2	United Nations on the Law of the Sea, 1982	10 Dec,1982
3	Convention on Fishing and Convention of the Living Resources of the High Sea, 1958.	29 Apr,1958
4	Convention on the Continental Shelf, 1958.	29 Apr,1958
5	Minamata Convention on Mercury	10,oct. 2013
6	Statute of the International Atomic Energy Agency, 1957	
7	Convention on the World Meteorological Organization, 1873	
8	Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer ,1990 Copenhagen Amendment to	

S. N.	Name of Convention	Entry into Force in Nepal
	the Montreal Protocol, 1992 Montreal Amendment to the Montreal Protocol, 1997 Beijing Amendment to the Montreal Protocol, 1999	
9	Instrument of Ratification (Paris Agreement)	1/10/2016
10	Statute of the International Atomic Energy Agency, A34:D49	20/6/1978 (A)
11	International Treaty on Plant Genetic Resources for Food and Agriculture, 2001	19/10/2009 (A)
12	Plant Protection Agreement for the Asia and Pacific Region (1955)	12/8/1965 (Adherence)
13	SAARC Framework Agreement for Energy Cooperation (Electricity)	27/11/2014 (A)
14	Cartagena Protocol on Biosafety to the Convention on Biological Diversity, 2000	2/3/2001
15	Memorandum of Association among the BIMSTEC Member Countries Concerning Establishment of a Center for Weather and Climate	4/3/2014

Source: Government of Nepal, Ministry of Law, Justice and Parliamentary Affairs, 2018

Table 7.2.29 : Ozone Depleting Substance (ODS) Protection Status-Montreal Protocol, 1987

A) Montreal Protocol : Controlled Substance-1					
No	Annex	Group	Chemical Composition of Ozone Depleting Substance	Name of Ozone Depleting Substance	Ozone- Depleting Potential
1	A	1	Trichlorofluoromethane $CFCl_3$	(CFC -11)	1.0
2	A	1	Dichlorodifluoromethane CF_2Cl_2	(CFC -12)	1.0
B) Montreal Protocol : Controlled Substance-2					
1	C	1	Chlorodifluoromethane CHF_2Cl	(HCFC -2402)	0.055
C) Montreal Protocol : Controlled Substance-3					
1	A	II	Bromochlorodifluoromethane (CF_2BrCl)	Halon-1211	3.0
2	A	II	Bromotrifluoromethane (CF_3Br)	Halon-1301	10.0
3	A	II	Dibromotetrafluoromethane ($C_2F_4Br_2$)	Halon-1213	6.0
4	B	II	Carbon Tetrachloride (CCl_4)	Carbon Tetrachloride	1.1
5	B	III	1,1,1-trichloroethane($C_2H_2Cl_3$)	Methyl Chloroform	0.1
6	E	I	Bromomethane (CF_3Br)	Methyl Bromide	0.6

D) Phase Out rate of CFC-11 and CFC-12	
Year	CFC-11 and CFC-12 (MT)
2000	29.058
2001	26
2002	23
2003	20
2004	17.0
2005	14
2006	11
2007	8
2008	5
2009	2
2010	0

Source : Nepal Gazette 2057/6/9 . Additional 36

Table 7.3.1 : Households (%) access to Early-warning Information on climate induced disasters over last 5 years

Analytical domain	Yes	No	Total
Municipality			
Urban	16.3	83.7	100
Rural	8.3	91.7	100
Ecological zone			
Mountain	3	97	100
Hill	5.3	94.7	100
Terai	22.5	77.5	100
Province ecological zones			
Koshi-Mountain	3.5	96.5	100
Koshi-Hill	13.5	86.5	100
Koshi-Terai	39.3	60.7	100
Madhesh-Terai	16.4	83.6	100
Bagmati-Mountain	1.9	98.1	100
Bagmati-Hill	3.9	96.1	100
Bagmati-Terai	24.1	75.9	100
Gandaki-Mountain	2.6	97.4	100
Gandaki-Hill	5.4	94.6	100
Gandaki-Terai	31.2	68.8	100
Lumbini-Hill	4.9	95.1	100
Lumbini-Terai	6.4	93.6	100
Karnali-Mountain	0.7	99.3	100
Karnali-Hill	0.4	99.6	100
Sudurpaschim-Mountain	5.1	94.9	100
Sudurpaschim-Hill	1.3	98.7	100
Sudurpaschim-Terai	47.4	52.6	100
Altitude (meters)			
Below 120	20.5	79.5	100
120- Below 350	25.8	74.2	100
350- Below 1000	6.5	93.5	100
1000- Below 1300	6.6	93.4	100
1300- Below 1500	4.6	95.4	100
1500- Below 2000	5.7	94.3	100
2000+	2.4	97.6	100
Climate risk			
Very Low	9.7	90.3	100
Low	16.6	83.4	100
Moderate	20.6	79.4	100
High	17.6	82.4	100
Very High	21.4	78.6	100
Nepal	12.91	87.09	100

Source: National Climate Change Survey 2022 (NSO)

Table 7.3.2: Households (%) reporting preparatory activities performed after receiving early-warning information to minimize loss from disaster

Analytical domain	Yes	No	Total
Municipality			
Urban	32.1	67.9	100
Rural	45.1	54.9	100
Ecological zone			
Mountain	40.5	59.5	100
Hill	25.4	74.6	100
Terai	38.1	61.9	100
Province - ecological zone			
Koshi-Mountain	13.4	86.6	100
Koshi-Hill	44.3	55.7	100
Koshi-Terai	44.4	55.6	100
Madhesh-Terai	22.2	77.8	100
Bagmati-Mountain	72.6	27.4	100
Bagmati-Hill	8.9	91.1	100
Bagmati-Terai	32.2	67.8	100
Gandaki-Mountain		100	100
Gandaki-Hill	10.2	89.8	100
Gandaki-Terai	49.2	50.8	100
Lumbini-Hill	22.7	77.3	100
Lumbini-Terai	67.1	32.9	100
Karnali-Mountain		100	100
Karnali-Hill		100	100
Sudurpaschim-Mountain	46.7	53.3	100
Sudurpaschim-Hill	46.6	53.4	100
Sudurpaschim-Terai	38.7	61.3	100
Altitude (meters)			
Below 120	34.4	65.6	100
120- Below 350	38.9	61.1	100
350- Below 1000	32.7	67.3	100
1000- Below 1300	47.3	52.7	100
1300- Below 1500	16.1	83.9	100
1500- Below 2000	31.6	68.4	100
2000+	32.4	67.6	100
Climate risk			
Very Low	35.8	64.2	100
Low	32.3	67.7	100
Moderate	37.2	62.8	100
High	32.2	67.8	100
Very High	44.8	55.2	100
Nepal	35.7	64.3	100

Source: National Climate Change Survey 2022 (NSO)

Table 7.3.3: Households (%) reporting major preparatory activities performed after receiving early warning information

Analytical domain	Moving to a safe place	Managing required money	Moving livestock in the safe place	Safe storage of food	Received support	Others	Not stated	Total
Municipality								
Urban	33.2	7.1	24.1	12.9	0.6	13	9.1	100
Rural	69.1	1.5	23.9	3.4		0.5	1.6	100
Ecological zone								
Mountain	32.2	16.1	22.1	8		8.5	13.1	100
Hill	21		63.4	4.6		4.5	6.5	100
Terai	50	5.7	17.7	10.5	0.4	9.4	6.4	100
Province - ecological zone								
Koshi-Mountain			100					100
Koshi-Hill	8.9		88.5				2.6	100
Koshi-Terai	55.1	1.2	28.4	3.9		3.2	8.2	100
Madhesh-Terai	10.2	7.6	13.8	24.6	2.5	32.3	8.9	100
Bagmati-Mountain			37.8			24.4	37.8	100
Bagmati-Hill	29.8			29.8		19.9	20.4	100
Bagmati-Terai	43.8	8.7	5.1	9.8		28.9	3.7	100
Gandaki-Hill	100							100
Gandaki-Terai	52.5	12.6		19.2		8.6	7.1	100
Lumbini-Hill	43.6					27.4	28.9	100
Lumbini-Terai	77.2	16.8	4	2				100
Sudurpaschim-Mountain	57.1	28.6		14.3				100
Sudurpaschim-Hill			42.7	57.3				100
Sudurpaschim-Terai	58.6	6.7	7.4	18.8		5.5	3	100
Altitude(meters)								
Below 120	36.9	4.7	25.2	10.9	0.8	14	7.5	65,583
120- Below 350	61.7	8.5	9.8	10.7		5.2	4.2	47,735
350- Below 1000	62.2	2.3	11.9	8.2		5.6	9.7	11,129
1000- Below 1300	23.3		59	4.1		4.5	9.1	14,681
1300- Below 1500	22.6		39.4	22.6			15.4	2,610
1500- Below 2000	42.2		57.8					6,067
2000+	76.2	23.8						1,095
Climate risk								
Very Low	33.7	7.9	24.7	14.3	0.8	12.1	6.5	71,311
Low	44.2	2.1	25.3	5.4		12.7	10.4	33,785
Moderate	58.2	4.7	23.5	8.2			5.5	28,329
High	25		75					3,204
Very High	95.4		4.6					12,269
Nepal	45.6	5.2	24	9.6	0.4	8.7	6.5	148,899

Source: National Climate Change Survey 2022 (NSO)

Table 7.4.1: Percentage distribution of households on awareness about climate change.

Analytical domain	Response (%)		
	Yes	No	Total
Municipality			
Urban	42.8	57.2	100
Rural	26.3	73.7	100
Ecological zone			
Mountain	29.1	70.9	100
Hill	37.4	62.6	100
Terai	35.3	64.7	100
Province-ecological zone			
Koshi-Mountain	23.8	76.2	100
Koshi-Hill	41.5	58.5	100
Koshi-Terai	50.5	49.5	100
Madhesh-Terai	35.6	64.4	100
Bagmati-Mountain	28.6	71.4	100
Bagmati-Hill	44.4	55.6	100
Bagmati-Terai	46	54	100
Gandaki-Mountain	15	85	100
Gandaki-Hill	38.4	61.6	100
Gandaki-Terai	42.5	57.5	100
Lumbini-Hill	34.9	65.1	100
Lumbini-Terai	22.5	77.5	100
Karnali-Mountain	23.8	76.2	100
Karnali-Hill	23.6	76.4	100
Sudurpaschim-Mountain	37.6	62.4	100
Sudurpaschim-Hill	8.8	91.2	100
Sudurpaschim-Terai	16.3	83.7	100
Altitude (meters)			
Below 120	33.6	66.4	100
120- Below 350	39.3	60.7	100
350- Below 1000	37.7	62.3	100
1000- Below 1300	39.6	60.4	100
1300- Below 1500	37.3	62.7	100
1500- Below 2000	31.3	68.7	100
2000+	25.8	74.2	100
Climate risk			
Very Low	35.3	64.7	100
Low	36.7	63.3	100
Moderate	33.8	66.2	100
High	32.4	67.6	100
Very High	47	53	100
Sex of Respondent			
Male	38.7	61.3	100
Female	25.9	74.1	100
Age Group of Respondent			
45-54 Yrs.	38.8	61.2	100
55-64 Yrs.	35.5	64.5	100
65-74 Yrs.	33.3	66.7	100
75+ Yrs.	29.4	70.6	100
Education Level of Respondent			
Beginners/Informal education.	29.2	70.8	100
Primary (1-5)	32.3	67.7	100
Lower Sec. (6-8)	44.4	55.6	100

Analytical domain	Response (%)		
	Yes	No	Total
Secondary (9-10)	53.2	46.8	100
SLC/SEE	63.4	36.6	100
Class 12	79.9	20.1	100
Bachelor	85.3	14.7	100
Master and above	91.6	8.4	100
Others	19.3	80.7	100
Illiterate	17.1	82.9	100
Years of living			
25-34 Yrs.	42.5	57.5	100
35-44 Yrs.	40.6	59.4	100
45-54 Yrs.	37.1	62.9	100
55-64 Yrs.	32.7	67.3	100
65-74 Yrs.	32.1	67.9	100
75-84 Yrs.	27.2	72.8	100
85+ Yrs.	24.2	75.8	100
Income (Yearly)			
Below 15,000	24.5	75.5	100
15,001-30,000	26.1	73.9	100
30,001-45,000	32.1	67.9	100
45,001-60,000	33.3	66.7	100
More than 60,000	49.8	50.2	100
Not Stated	16.5	83.5	100
Nepal	35.8	64.2	100

Source: National Climate Change Survey 2022 (NSO)

Table 7.4.2: Households (%) by major Source of Information about Climate Change

Analytical domain	Response (%)										
	Radio	Television	Newspaper	Awareness program	Educational institution	Local agencies / official	Neighbor / friends	Family member	Internet	Others	Total
Municipality											
Urban	29.3	33.1	3.5	2.9	7.5	1.5	10.5	3.1	7.3	1.3	100
Rural	42.6	21.9	0.8	3.2	7	2.5	16.3	2.7	2.6	0.4	100
Ecological zone											
Mountain	48.7	27.4	0.7	2.9	11.7	3.2	3.2	0.2	0.9	1.1	100
Hill	30.7	34.4	2.5	2	10.3	2	9.2	1.8	6	1.1	100
Terai	34.1	24.6	3.2	4	3.6	1.4	17.2	4.7	6.4	0.9	100
Province- ecological zone											
Koshi-Mountain	40.6	17.7	1.7	4.2	24.6	4.2	2.3		4.8		100
Koshi-Hill	39.7	11.7	0.7	0.9	3.7	1.2	30.1	5.6	6.5		100
Koshi-Terai	32.8	19.1	2.8	0.8		0.4	32.4	4	7.8		100
Madhesh-Terai	47.3	18	2.3	5.4	2.3	1.8	8.1	6	7.9	0.8	100
Bagmati-Mountain	36.1	33.9	1.3	1.3	13.9	5.2	7.7	0.6			100
Bagmati-Hill	24.6	43.3	4.1	2.1	11.9	1.7	3.3	0.9	6.8	1.3	100
Bagmati-Terai	19.4	34.2	5	4.7	12.8	1.8	9.4	6.7	4.3	1.7	100
Gandaki-Mountain		50.8		15.9	33.3						100
Gandaki-Hill	28.7	46.6	1.7	0.4	9.3	0.7	2.5		8.7	1.3	100
Gandaki-Terai	6.6	28.3	12.5	10.1	16.1	5.1	12.6	5	2.8	0.9	100

Analytical domain	Response (%)										
	Radio	Television	Newspaper	Awareness program	Educational institution	Local agencies / official	Neighbor / friends	Family member	Internet	Others	Total
Lumbini-Hill	37.3	30.5	1.1	3.5	10.2	0.9	15.1	0.9	0.6		100
Lumbini-Terai	12.5	54.4	4.4	4.8	6	1.6	11.4	2.1	1.3	1.4	100
Karnali-Mountain	73.4			4.8	13	3.5	3.6			1.8	100
Karnali-Hill	37.5	9.2	0.2	7.2	20.9	12.6	4.3	3.1		5	100
Sudurpaschim-Mountain	56.3	35.5		2.6	2.3	0.9				2.3	100
Sudurpaschim-Hill	62.2		3.3	3.7	11.4	3.5	7.3	8.6			100
Sudurpaschim-Terai	27.9	14.6	1.4	10.2	17.5	1.9	16	2	1.8	6.6	100
Climate risk											
Very Low	34.1	29.1	2.9	3.3	7.6	2.2	9.4	3.2	6.8	1.4	100
Low	36.7	24.1	2.3	1.4	7.5	1.4	19.3	2.6	4.4	0.4	100
Moderate	32.4	37.3	1.8	4.2	5	1.2	10.2	1.5	5.7	0.6	100
High	35.8	26.5	3.2		3.2		25	3.1	3.1		100
Very High	14.2	41.1	3.2	3.8	9.9	1	22	4.5	0.4		100
Age group of respondents											
45-54 Yrs.	34.8	28	2.8	2.5	8.2	1.7	10.3	2.4	7.8	1.5	100
55-64 Yrs.	33.9	28.8	3	3.4	7	1.6	13.3	3.3	4.8	1	100
65-74 Yrs.	30.4	34.3	1.4	2.9	6.8	2.8	14.5	3.2	3.4	0.4	100
75+ Yrs.	32.2	27.8	4.7	4.4	5.8	0.4	14.4	4.1	6.1		100
Education level of respondent											
Beginners/Informal Edu.	41.1	21.5	2.2	3.7	4	3.9	18.1	3	1.7	0.9	100
Primary (1-5)	38.3	22.7	1.1	2.4	3.6	1.6	19.9	5	4.2	1.1	100
Lower sec. (6-8)	40	28.4	2.2	3	4.3	1.9	10.6	2.1	6.1	1.5	100
Secondary (9-10)	29.9	39.7	1	2	5	1.4	8.2	3.7	8.5	0.7	100
SLC/SEE	30.3	34.9	4.4	3.3	7.1	2.6	6.8	1.1	8.2	1.3	100
Class 12	22.6	40.4	2.5	2.5	14.9	2	5.4	1.3	7.3	1.1	100
Bachelor	19.8	38.1	10.3	2.1	16.1	0.1	2	1.1	8.5	1.9	100
Master and above	8	33.5	6	1.5	33.8				15.7	1.4	100
Others	25.6	36.1	2.8	14.6	2.2		12.3		6.4		100
Illiterate	41.1	21.4	0.8	3.8	3.6	1	20.2	5.3	2.5	0.2	100
Sex of household head											
Male	34.2	29.1	2.7	3	7.5	1.5	12	2.7	6	1.1	100
Female	27.5	32.7	2.3	3	6.3	4.3	14.7	4.7	4.6	0.2	100
Income (Yearly)											
Below 15,000	52	17.2	0.7	5.9	5.6	1	9.9	3.6	2.8	1.3	100
15,001-30,000	51.7	24.4	0.5	4.3	2.6	4.1	8.6	1.6	1.7	0.4	100
30,001-45,000	35.5	28	0.9	2.8	5.3	0.2	14.5	5.5	6.5	0.8	100
45,001-60,000	32.6	28.4	2.5	0.6	2.2	2.2	20.5	4.1	6.3	0.6	100
More than 60,000	24	34.6	4	2.4	10.2	1.8	12	2.5	7.3	1.2	100
Not Stated	45.2	21.5	3.3	3	5.1	1	13.7	1.2	6		100
Nepal	33.4	29.6	2.7	3	7.4	1.8	12.3	3	5.8	1	100

Source: National Climate Change Survey 2022 (NSO)

Table 7.4.3: Households' (%) Perception on Change in Climate Compared to Last 25 Years.

Analytical domain	Yes	No	Don't know	Total
Municipality				
Urban	89.5	7.6	2.9	100
Rural	84.1	11.7	4.2	100
Ecological Zone				
Mountain	82.4	11.4	6.3	100
Hill	86	11.4	2.6	100
Terai	89.4	6.9	3.8	100
Province-ecological zone				
Koshi-Mountain	74.1	12.5	13.3	100
Koshi-Hill	90.6	7.2	2.2	100
Koshi-Terai	93.3	4.7	2	100
Madhesh-Terai	93.5	4.3	2.2	100
Bagmati-Mountain	82.5	12.6	5	100
Bagmati-Hill	92.1	6.7	1.2	100
Bagmati-Terai	83.8	11.8	4.4	100
Gandaki-Mountain	47.1	17.6	35.2	100
Gandaki-Hill	86.6	12.8	0.6	100
Gandaki-Terai	90.8	4.7	4.6	100
Lumbini-Hill	78.6	20	1.4	100
Lumbini-Terai	83.3	13.3	3.4	100
Karnali-Mountain	91.7	4.1	4.2	100
Karnali-Hill	74.7	21.9	3.3	100
Sudurpaschim-Mountain	86.1	12.5	1.3	100
Sudurpaschim-Hill	66.8	15	18.3	100
Sudurpaschim-Terai	75.5	6.4	18.1	100
Sex of respondent				
Male	88.7	8.2	3.1	100
Female	82.4	13.2	4.5	100
Nepal	87.2	9.3	3.4	100

Source: National Climate Change Survey 2022 (NSO)

Table 7.4.4 : Number of Environment Related NGOs and INGOs Affiliated with Social Welfare Council

S.N.	District	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
1	Taplejung	6	6	6	6	0	0	1	0	1
2	Panchthar	5	5	7	7	0	0	0	0	0
3	Ilam	6	6		7	0	1	1	4	1
4	Jhapa	22	23	23	24	0	1	2	3	1
5	Morang	21	23	23	23	0	0	2	5	0
6	Sunsari	23	25	26	28	0	1	2	2	1
7	Dhankuta	3	3	3	3	0	0	2	0	0
8	Terhathum	3	3	3	3	0	0	0	0	0
9	Sankhuwasabha	1	1	1	1	0	0	2	0	0
10	Bhojpur	2	2	2	2	0	0	1	0	0
11	Solukhumbu	3	3	3	3	0	5	4	5	3
12	Okhaldhunga	3	4	4	4	0	1	0	0	0
13	Khotang	2	2	2	2	0	1	0	0	0
14	Udayapur	4	4	4	4	1	1	0	2	1

S.N.	District	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
15	Saptari	21	21	21	22	0	0	0	2	1
16	Siraha	13	15	15	15	1	0	0	1	0
17	Dhanusa	15	15	17	20	0	0	0	5	1
18	Mahottari	10	10	11	11	0	0	0	1	0
19	Sarlahi	11	11	11	11	0	0	0	0	0
20	Sindhuli	12	12	12	12	0	1	1	1	0
21	Ramechhap	4	4	4	4	0	1	1	1	0
22	Dolakha	12	12	12	12	0	0	0	0	1
23	Sindhupalchok	9	9	10	10	4	3	1	2	2
24	Kavre	19	20	24	24	4	4	3	8	2
25	Lalitpur	79	80	88	89	4	4	1	5	3
26	Bhaktapur	11	12	12	13	1	3	1	2	0
27	Kathmandu	570	584	596	608	5	6	4	13	9
28	Nuwakot	9	10	12	13	0	0	1	0	0
29	Rasuwa	2	2	3	3	1	1	0	1	2
30	Dhading	15	16	17	18	0	2	2	3	1
31	Makwanpur	20	21	21	21	2	0	5	3	3
32	Rautahat	15	15	16	16	1	1	0	1	1
33	Bara	13	14	14	14	0	0	1	1	0
34	Parsa	14	14	14	14	1	0	0	0	2
35	Chitawan	46	50	52	53	2	2	8	10	4
36	Gorkha	11	13	13	13	4	1	4	2	0
37	Lamjung	13	13	13	13	0	0	1	2	0
38	Tanahu	10	10	10	10	0	0	3	1	0
INGOs										
1	Lalitpur	7	8	8	9	0	0	0	0	0
Total		7	8	8	9	0	0	0	0	0

Source: Social Welfare Council

S.N.	District	NGOs								
		2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
39	Syangja	8	8	8	8	1	0	0	0	0
40	Kaski	45	45	45	46	3	3	4	7	0
41	Manang	0	0	0	0	0	1	0	0	0
42	Mustang	1	1	1	1	0	0	0	0	0
43	Myagdi	4	4	4	4	1	0	0	0	0
44	Parbat	10	10	10	10	1	0	1	0	0
45	Baglung	4	4	5	5	0	0	0	1	1
46	Gulmi	8	9	9	9	1	0	1	1	0
47	Palpa	13	14	14	14	0	1	1	1	0
48	Nawalparasi	18	19	19	21	2	1	2	3	0
49	Rupandehi	20	21	21	21	0	3	4	4	0
50	Kapilbastu	9	9	10	10	0	1	2	0	0
51	Arghakhanchi	5	5	5	5	0	0	1	0	0
52	Pyuthan	3	3	4	4	0	0	1	1	0

S.N.	District	NGOs								
		2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
53	Rolpa	2	2	2	2	0	0	1	1	0
54	Rukum	2	2	3	3	0	1	1	2	0
55	Salyan	9	9	9	9	0	0	2	1	0
56	Dang	34	34	34	34	1	0	2	1	0
57	Banke	21	21	22	23	0	0	3	4	2
58	Bardiya	20	20	20	20	1	1	6	9	1
59	Surkhet	15	15	16	18	1	0	0	1	1
60	Dailekh	9	9	9	9	2	0	2	1	0
61	Jajarkot	3	3	3	3	0	3	1	2	0
62	Dolpa	5	5	5	5	0	0	1	0	0
63	Jumla	2	2	2	5	0	0	1	1	0
64	Kalikot	13	13	13	13	2	2	1	1	1
65	Mugu	10	11	11	11	2	2	1	1	0
66	Humla	3	3	4	4	0	0	2	2	0
67	Bajura	3	3	3	3	0	1	0	1	0
68	Bajhang	8	8	8	8	0	1	1	2	0
69	Achham	10	10	10	10	3	0	2	1	0
70	Doti	8	9	9	9	1	0	2	1	0
71	Kailali	33	34	36	38	2	1	4	5	1
72	Kanchanpur	28	29	30	30	0	0	2	4	1
73	Dadeldhura	5	5	6	6	0	0	1	0	0
74	Baitadi	6	6	6	6	0	0	0	0	0
75	Darchaula	4	4	4	4	0	0	0	1	0
Total		1459	1502	1545	1587					
INGOs										
2	Kathmandu	7	9	10	10	1	0	0	0	3
	Total	7	9	10	10	1	0	0	0	3

Source: Social Welfare Council

ANNEXES

Annex: I

Basic Set of Environment Statistics

Component 1: Environmental Conditions and Quality

Sub-component 1.1: Physical Conditions

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance		
Topic 1.1.1: Atmosphere, climate and weather	a.	Temperature		<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ World Meteorological Organization (WMO) ▪ Intergovernmental Panel on Climate Change (IPCC) ▪ National Oceanic and Atmospheric Administration (NOAA)/National Aeronautics and Space Administration (NASA) 		
		1. Monthly average	Degrees				
		2. Minimum monthly average	Degrees				
		3. Maximum monthly average	Degrees				
		Precipitation (also in 2.6.1.a)					
	b.	1. Annual average	Height				
		2. Long-term annual average	Height				
		3. Monthly average	Height				
		4. Minimum monthly value	Height				
		5. Maximum monthly value	Height				
	c.	Relative humidity		<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By station 	<ul style="list-style-type: none"> ▪ WMO ▪ IPCC ▪ NOAA/NASA 		
		1. Minimum monthly value	Number				
		2. Maximum monthly value	Number				
	d.	Pressure					
		1. <i>Minimum monthly value</i>	Pressure unit				
		2. <i>Maximum monthly value</i>	Pressure unit				
	e.	Wind speed				<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ WMO ▪ IPCC ▪ NOAA/NASA
		1. <i>Minimum monthly value</i>	Speed				
		2. <i>Maximum monthly value</i>	Speed				
	f.	Solar radiation					
	1. <i>Average daily value</i>	Area, Energy unit					
	2. <i>Average monthly value</i>	Area, Energy unit					
	3. <i>Number of hours of sunshine</i>	Number	<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By month and per year 				

<p>Topic 1.1.2: Hydrographical characteristics</p>	g.	UV radiation				<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ World Health Organization (WHO)-UV Radiation Index ▪ WMO-UV Radiation 	
		1. <i>Maximum daily value</i>		Area, Energy unit				
		2. <i>Average daily value</i>		Area, Energy unit				
		3. <i>Maximum monthly value</i>		Area, Energy unit				
		4. <i>Average monthly value</i>		Area, Energy unit				
		h.	Occurrence of El Niño/La Niña events, when relevant				<ul style="list-style-type: none"> ▪ By location ▪ National ▪ Sub-national 	
			1. <i>Occurrence</i>		Number			
			2. <i>Time period</i>		Time period			
		a.	Lakes				<ul style="list-style-type: none"> ▪ By location ▪ By watershed/river basin ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ United Nations Statistics Division (UNSD): International Recommendations for Water Statistics (IRWS) ▪ UN-Water
			1. <i>Surface area</i>		Area			
			2. <i>Maximum depth</i>		Depth			
		b.	Rivers and streams					
			1. <i>Length</i>		Length			
			Artificial reservoirs					
			1. <i>Surface area</i>		Area			
			2. <i>Maximum depth</i>		Depth			
		d.	Watersheds					
			1. Description of main watersheds		Area, Description			
		e.	Seas				<ul style="list-style-type: none"> ▪ By location ▪ National, within coastal waters or Exclusive Economic Zone (EEZ) 	
			1. <i>Coastal waters</i>		Area			
		2. <i>Territorial sea</i>		Area				
		3. <i>Exclusive Economic Zone (EEZ)</i>		Area				
		4. <i>Sea level</i>		Depth				
		5. <i>Area of sea ice</i>		Area				
	f.	<i>Aquifers</i>		Depth, Description		<ul style="list-style-type: none"> ▪ By location ▪ By salinity levels ▪ By watershed ▪ National ▪ Sub-national ▪ Renewable ▪ Non-renewable 		
	g.	Glaciers		Area		<ul style="list-style-type: none"> ▪ By location ▪ National ▪ Sub-national 		

Topic 1.1.3: Geological and geographical information		National		UNSD: Demographic Yearbook Food and Agriculture Organization of the United Nations (FAO) Center for International Earth Science Information Network (CIESIN)					
a.	Geological, geographical and geomorphological conditions of terrestrial areas and islands	Length	<ul style="list-style-type: none"> ▪ National ▪ By location ▪ National 						
	1. Length of border	Area, Location							
	2. Area of country or region	Number							
	3. Number of islands	Area							
	4. Area of islands	Description							
	5. Main geomorphological characteristics of islands	Description, Location							
	6. Spatial distribution of land relief	Description, Area, Height							
	7. Characteristics of landforms (e.g., plains, hills, plateaus, dunes, volcanoes, mountains, seamounts)	Area							
	8. Area by rock types	Length							
	9. Length of fault lines	Area, Description							
b.	Coastal waters (including area of coral reefs and mangroves)	Length	<ul style="list-style-type: none"> ▪ By location ▪ By soil type ▪ National ▪ Sub-national 		<ul style="list-style-type: none"> ▪ FAO and the International Institute for Applied Systems Analysis (IIASA) Harmonized World Soil Database ▪ International Soil Reference and Information Centre (ISRIC) World Data Centre for Soils ▪ United Nations Convention to Combat Desertification (UNCCD) ▪ FAO Global Assessment of Human-induced Soil Degradation (GLASOD) 				
	c.	Length of marine coastline				Area			
d.	Coastal area	Area				<ul style="list-style-type: none"> ▪ By location ▪ By nutrient ▪ National ▪ Sub-national 		<ul style="list-style-type: none"> ▪ By soil type ▪ By nutrient ▪ National ▪ Sub-national 	
	a.	Soil characterization							Area
	b.	1. Area by soil types							Area
		Soil degradation							Area
		1. Area affected by soil erosion							Area
		2. Area affected by desertification							Area
		3. Area affected by salinization							Area
		4. Area affected by waterlogging							Area
		5. Area affected by acidification	Area						
	6. Area affected by compaction	Area							
c.	Nutrient content of soil, measured in levels of:	Concentration	<ul style="list-style-type: none"> ▪ By soil type ▪ By nutrient ▪ National ▪ Sub-national 		<ul style="list-style-type: none"> ▪ By soil type ▪ By nutrient ▪ National ▪ Sub-national 				
	1. Nitrogen (N)	Concentration							
	2. Phosphorous (P)	Concentration							
	3. Calcium (Ca)	Concentration							
	4. Magnesium (Mg)	Concentration							
	5. Potassium (K)	Concentration							
	6. Zinc (Zn)	Concentration							
	7. Other	Concentration							
Topic 1.1.4: Soil characteristics									

Component 1: Environmental Conditions and Quality

Sub-component 1.2: Land Cover, Ecosystems and Biodiversity

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	a.	b.			
Topic 1.2.1: Land cover	a.	Area under land cover categories	Area	<ul style="list-style-type: none"> ▪ By location ▪ By type of land cover (e.g., artificial surfaces including urban and associated areas; herbaceous crops; woody crops; multiple or layered crops; grassland; tree-covered areas; mangroves; shrub-covered areas; shrubs and/or herbaceous vegetation, aquatic or regularly flooded; sparsely natural vegetated areas; terrestrial barren land; permanent snow and glaciers; inland water bodies; and coastal water bodies and inter-tidal areas)^(a) ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ FAO Land Cover Classification System ▪ System of Environmental-Economic Accounting (SEEA) Central Framework (2012) land cover categories ▪ European Environment Agency (EEA)
Topic 1.2.2: Ecosystems and biodiversity	a.	General ecosystem characteristics, extent and pattern		<ul style="list-style-type: none"> ▪ By location ▪ By ecosystem (e.g., forest, cultivated, dryland, coastal, marine, urban, polar, inland water, island, mountain)^(b) 	<ul style="list-style-type: none"> ▪ Millennium Ecosystem Assessment ▪ Convention on Biological Diversity (CBD) ▪ UN Economic Commission for Europe (UNECE) Standard Statistical Classification of Flora, Fauna and Biotopes (1996) ▪ Convention on Wetlands of International Importance, especially as Waterfowl Habitat (the Ramsar Convention) ▪ Millennium Ecosystem
		1. Area of ecosystems	Area		
		2. <i>Proximity of ecosystem to urban areas and cropland</i>	Distance		
	b.	Ecosystems' chemical and physical characteristics			
		1. <i>Nutrients</i>	Concentration		
		2. <i>Carbon</i>	Concentration		
	3. <i>Pollutants</i>	Concentration			
c.	Biodiversity		Number	<ul style="list-style-type: none"> ▪ By ecosystem (e.g., forest, cultivated, dryland, coastal, marine, urban, polar, inland 	<ul style="list-style-type: none"> ▪ Millennium Ecosystem
	1. Known flora and fauna species				

	b.	<p>Forest biomass</p> <p>1. Total</p> <p>2. <i>Carbon storage in living forest biomass</i></p>	<p>Volume</p> <p>Mass</p>	<p>Assessment and Reporting (MAR)</p> <ul style="list-style-type: none"> ▪ UNSD: MDG Indicator 7.1 Metadata ▪ Montreal Process (Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests) ▪ State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section)
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Component 1: Environmental Conditions and Quality

Sub-component 1.3: Environmental Quality

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance		
Topic 1.3.1: Air quality	a.	Local air quality		<ul style="list-style-type: none"> ▪ By point measurement ▪ Sub-national ▪ Daily maximum ▪ Monthly maximum and average ▪ Yearly maximum and average 	<ul style="list-style-type: none"> ▪ WHO Air Quality Guidelines-Global Update 2005, Particulate matter, ozone, nitrogen dioxide and sulfur dioxide ▪ WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide, Global Update 2005, Summary of risk assessment ▪ UNECE Standard Statistical Classification of Ambient Air Quality (1990) 		
		1. Concentration level of particulate matter (PM₁₀)	Concentration				
		2. Concentration level of particulate matter (PM_{2.5})	Concentration				
		3. Concentration level of tropospheric ozone (O₃)	Concentration				
		4. Concentration level of carbon monoxide (CO)	Concentration				
		5. Concentration level of sulphur dioxide (SO₂)	Concentration				
		6. Concentration levels of nitrogen oxides (NO_x)	Concentration				
		7. Concentration levels of heavy metals	Concentration				
		8. Concentration levels of non-methane volatile organic compounds (NMVOCs)	Concentration				
		9. <i>Concentration levels of dioxins</i>	Concentration				
		10. <i>Concentration levels of furans</i>	Concentration				
		11. Concentration levels of other pollutants	Concentration				
		12. Number of days when maximum allowable levels were exceeded per year	Number				
Topic 1.3.2: Freshwater quality	b.	Global atmospheric concentrations of greenhouse gases		<ul style="list-style-type: none"> ▪ Global 	<ul style="list-style-type: none"> ▪ WMO 		
		1. Global atmospheric concentration level of carbon dioxide (CO ₂)	Concentration				
		2. Global atmospheric concentration level of methane (CH ₄)	Concentration				
	a.	Nutrients and chlorophyll				<ul style="list-style-type: none"> ▪ By water body ▪ By watershed/river basin ▪ By surface or groundwater ▪ By point measurement ▪ By type of water resource 	<ul style="list-style-type: none"> ▪ UNECE Standard Statistical Classification of Freshwater Quality for the Maintenance of Aquatic Life (1992)
		1. Concentration level of nitrogen	Concentration				
		2. Concentration level of phosphorous	Concentration				
		3. Concentration level of chlorophyll A	Concentration				
	b.	Organic matter					
		1. Biochemical oxygen demand (BOD)	Concentration				
		2. Chemical oxygen demand (COD)	Concentration				

			Concentration			<ul style="list-style-type: none"> ▪ UNECE Standard Statistical Classification of Marine Water Quality (1992) ▪ NOAA/NASA ▪ UNEP Regional Seas Programme ▪ Stockholm Convention ▪ UNECE Standard Statistical Classification of Marine Water Quality (1992) ▪ NOAA/NASA ▪ UNEP Regional Seas Programme
e.	2. Concentration levels in marine organisms	Organic contaminants (e.g., PCBs, DDT, pesticides, furans, dioxins, phenols, radioactive waste)	Concentration			
		1. <i>Concentration levels in sediment and marine water</i>	Concentration			
		2. <i>Concentration levels in marine organisms</i>	Concentration			
f.	Physical and chemical characteristics					
		1. <i>pH/Acidity/Alkalinity</i>	Level			
		2. Temperature	Degrees			
		3. <i>Total suspended solids (TSS)</i>	Concentration			
		4. <i>Salinity</i>	Concentration			
		5. Dissolved oxygen (DO)	Concentration			
		6. <i>Density</i>	Density			
g.	Coral bleaching					
	1. Area affected by coral bleaching		Area			
h.	Plastic waste and other marine debris					
	1. <i>Amount of plastic waste and other debris in marine waters</i>		Area, Mass			
i.	Red tide					
	1. <i>Occurrence</i>		Number			
	2. <i>Impacted area</i>		Area			
	3. <i>Duration</i>		Duration			
j.	Oil pollution					
	1. <i>Area of oil slicks</i>		Area			
	2. <i>Amount of tar balls</i>		Area, Diameter, Number			
a.	Sites affected by pollution					
	1. Contaminated sites		Area, Number			
	2. Potentially contaminated sites		Area, Number			
	3. Remediated sites		Area, Number			
	4. Other sites		Area, Number			
a.	Noise levels from specific sources		Level			
b.	Noise levels in specific locations		Level			
Topic 1.3.4: Soil pollution						
Topic 1.3.5: Noise						
						<ul style="list-style-type: none"> ▪ WHO

Component 2: Environmental Resources and their Use

Sub-component 2.1: Mineral Resources

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	a.				
Topic 2.1.1: Stocks and changes of mineral resources	Mineral resources			<ul style="list-style-type: none"> ▪ By mineral (e.g., metal ores including precious metals and rare earths, coal, oil, gas, stone, sand and clay, chemical and fertilizer minerals, salt, gemstones, abrasive minerals, graphite, asphalt; natural solid bitumen, quartz, mica) ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ United Nations Framework Classification for Energy and Mineral Resources (UNFC 2009) ▪ SEEA Central Framework (2012) asset and physical flow accounts ▪ International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4, Section B, Divisions 05-09
	1. Stocks of commercially recoverable resources		Mass, Volume		
	2. New discoveries		Mass, Volume		
	3. <i>Upward reappraisals</i>		Mass, Volume		
	4. <i>Upward reclassifications</i>		Mass, Volume		
	5. Extraction		Mass, Volume		
	6. <i>Catastrophic losses</i>		Mass, Volume		
	7. <i>Downward reappraisals</i>		Mass, Volume		
	8. <i>Downward reclassifications</i>		Mass, Volume		
	9. Stocks of potentially commercially recoverable resources		Mass, Volume		
10. <i>Stocks of non-commercial and other known resources</i>		Mass, Volume			
Topic 2.1.2: Production and trade of minerals	a. Production of minerals		Mass, Volume	<ul style="list-style-type: none"> ▪ Harmonized Commodity Description and Coding Systems (HS) 2012, Section V, Chapters 25 and 26, and Section VI Chapter 28 	
	b. Imports of minerals		Currency, Mass, Volume		
	c. Exports of minerals		Currency, Mass, Volume		

Component 2: Environmental Resources and their Use

Sub-component 2.2: Energy Resources

Topic	Statistics and Related Information		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	(Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)				
Topic 2.2.1: Stocks and changes of energy resources	a.	Energy resources		<ul style="list-style-type: none"> By resource (e.g., natural gas, crude oil and natural gas liquids, oil shale, and extra heavy oil (includes oil extracted from oil sands), coal and lignite, peat, non-metallic minerals except for coal or peat, uranium and thorium ores) National Sub-national 	<ul style="list-style-type: none"> UNSD: International Recommendations for Energy Statistics (IRES) International Energy Agency (IEA) Energy Statistics Manual SEEA Central Framework (2012) asset and physical flow accounts UNFC 2009 ISIC Rev. 4, Section B, Divisions 05-09 HS 2012, Section V, Chapter 27
		1. Stocks of commercially recoverable resources	Mass, Volume		
		2. New discoveries	Mass, Volume		
		3. <i>Upward reappraisals</i>	Mass, Volume		
		4. <i>Upward reclassifications</i>	Mass, Volume		
		5. Extraction	Mass, Volume		
		6. <i>Catastrophic losses</i>	Mass, Volume		
		7. <i>Downward reappraisals</i>	Mass, Volume		
		8. <i>Downward reclassifications</i>	Mass, Volume		
		9. Stocks of potentially commercially recoverable resources	Mass, Volume		
	10. <i>Stocks of non-commercial and other known resources</i>	Mass, Volume			
Topic 2.2.2: Production, trade and consumption of energy	a.	Production of energy		<ul style="list-style-type: none"> By non-renewable resource (e.g., petroleum, natural gas, coal, nuclear fuels, non-sustainable firewood, waste, other non-renewables) By renewable resource (e.g., solar, hydroelectric, geothermal, tidal action, wave action, marine, wind, biomass) National Sub-national By primary energy resource (e.g., petroleum, natural gas, coal, hydroenergy, geothermal, nuclear fuels, cane products, other primary) By secondary energy product (e.g., electricity, liquefied petroleum gas, gasoline/alcohol, kerosene, diesel oil, fuel oil, coke, charcoal, 	<ul style="list-style-type: none"> UNSD: IRES IEA Energy Statistics Manual Joint Wood Energy Enquiry (UNECE-FAO Forestry and Timber Section)
		1. Total production	Energy unit, Mass, Volume		
		2. Production from non-renewable sources	Energy unit, Mass, Volume		
		3. Production from renewable sources	Energy unit, Mass, Volume		
		4. Primary energy production	Energy unit, Mass, Volume		
		5. Imports of energy	Energy unit, Mass, Volume		
	6. Exports of energy	Energy unit, Mass, Volume			

	7. Secondary energy production		Energy unit, Mass, Volume	gases, other secondary) <ul style="list-style-type: none"> ▪ National ▪ Sub-national 	
b.	Total energy supply		Energy unit, Mass, Volume	<ul style="list-style-type: none"> ▪ By energy product 	
c.	Final consumption of energy		Energy unit, Mass, Volume	<ul style="list-style-type: none"> ▪ By households ▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Sub-national 	

Component 2: Environmental Resources and their Use

Sub-component 2.3: Land

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 2.3.1: Land use	a.	Area under land use categories	Area	<ul style="list-style-type: none"> ▪ By type of land use (e.g., agriculture; forestry; land used for aquaculture; use of built-up and related areas; land used for maintenance and restoration of environmental functions; other uses of land not elsewhere classified; land not in use; inland waters used for aquaculture or holding facilities; inland waters used for maintenance and restoration of environmental functions; other uses of inland waters not elsewhere classified; inland water not in use; coastal waters (including area of coral reefs and mangroves); Exclusive Economic Zone (EEZ)) ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ FAO ▪ UNECE Standard Classification of Land Use (1989) ▪ SEEA Central Framework (2012) Annex 1
	b.	Other aspects of land use	Area	<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ FAO Inter-departmental Working Group on Organic Agriculture
		1. <i>Area of land under organic farming</i>	Area		<ul style="list-style-type: none"> ▪ Forest Stewardship Council
		2. Area of land under irrigation	Area		
		3. Area of land under sustainable forest management	Area		
		4. <i>Area of land under agroforestry</i>	Area		
Topic 2.3.2: Use of forest land	c.	Land ownership	Area	<ul style="list-style-type: none"> ▪ By ownership category ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ FAO
	a.	Use of forest land		<ul style="list-style-type: none"> ▪ By forest type ▪ National ▪ Sub-national ▪ By dominant tree species 	<ul style="list-style-type: none"> ▪ FAO FRA ▪ UNFF MAR ▪ UNSD: MDG Indicator 7.1
		1. Area deforested	Area		
		2. Area reforested	Area		
		3. Area afforested	Area		

		4. <i>Natural growth</i>	Area		<p>Metadata</p> <ul style="list-style-type: none"> ▪ Montreal Process (Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests) ▪ State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section) ▪ FAO FRA
b.		Forest area by primary designated function	Area	<ul style="list-style-type: none"> ▪ Production ▪ Protection of soil and water ▪ Conservation of biodiversity ▪ Social services ▪ Multiple use ▪ Other 	

Component 2: Environmental Resources and their Use

Sub-component 2.4: Soil Resources

Topic	Statistics and Related Information		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	(Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)				
Topic 2.4.1: Soil resources	Further research is needed to develop the necessary statistics in this topic.				

Component 2: Environmental Resources and their Use

Sub-component 2.5: Biological Resources

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 2.5.1: Timber resources	a.	Timber resources		<ul style="list-style-type: none"> ▪ By type (e.g., natural or planted) <ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ SEEA Central Framework (2012) ▪ FAO FRA ▪ State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section) ▪ UNECE/FAO Joint Working Party on Forest Statistics, Economics and Management ▪ ISIC Rev. 4, Section A, Division 02 ▪ FAOSTAT database
		1. Stocks of timber resources	Volume		
		2. Natural growth	Volume		
		3. Fellings	Volume		
		4. Removals	Volume		
		5. <i>Felling residues</i>	Volume		
		6. <i>Natural losses</i>	Volume		
		7. <i>Catastrophic losses</i>	Volume		
		8. <i>Reclassifications</i>	Volume		
	b.	Amount used of:			
		1. Fertilizers (also in 3.4.1.a)	Area, Mass, Volume		
		2. Pesticides(also in 3.4.1.b)	Area, Mass, Volume		
	c.	Forest production	Volume		

					Forest Statistics, Economics and Management <ul style="list-style-type: none"> ISIC Rev. 4, Section A, Division 02 FAOSTAT database 	
d.	Fuelwood production	Volume	<ul style="list-style-type: none"> National 		FAO/ITTO/UNECE/ Eurostat Inter-secretariat Working Group on Forest Sector Statistics <ul style="list-style-type: none"> State of Europe's Forests (Forest Europe/UNECE-FAO Forestry and Timber Section) HS 2012, Sections IX and X FAOSTAT database 	
e.	Imports of forest products	Currency, Mass, Volume	<ul style="list-style-type: none"> By type of product 			
f.	Exports of forest products	Currency, Mass, Volume				
Topic 2.5.2: Aquatic resources	a.	Fish capture production	Mass	<ul style="list-style-type: none"> By relevant freshwater and marine species National Sub-national 	FAO International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) <ul style="list-style-type: none"> ISIC Rev. 4, Section A, Division 03 The United Nations Convention on the Law of the Sea (UNCLOS) UNSD: MDG Indicator 7.4 Metadata HS 2012, Section I, Chapter 03 SEEA Central Framework (2012) 	
	b.	Aquaculture production	Mass			
	c.	Imports of fish and fishery products	Currency, Mass, Volume	<ul style="list-style-type: none"> By relevant freshwater and marine species By type of product By species 		
	d.	Exports of fish and fishery products	Currency, Mass, Volume	<ul style="list-style-type: none"> By type of water (i.e., marine or freshwater) National Sub-national 		
	e.	Amount used of:				
		1. <i>Pellets</i> (also in 3.4.1.c)	Mass, Volume			
		2. <i>Hormones</i> (also in 3.4.1.d)	Mass, Volume			
		3. <i>Colourants</i> (also in 3.4.1.e)	Mass, Volume			
		4. <i>Antibiotics</i> (also in 3.4.1.f)	Mass, Volume			
		5. <i>Fungicides</i>	Mass, Volume			
	f.	Aquatic resources		<ul style="list-style-type: none"> By relevant freshwater and marine species By type (e.g., natural or cultivated) National Sub-national 		
		1. Stocks of aquatic resources	Mass			
		2. <i>Additions to aquatic resources</i>	Mass			
		3. <i>Reductions in aquatic resources</i>	Mass			

Topic 2.5.3: Crops							
a.	Main annual and perennial crops						
	1. Area planted		Area			<ul style="list-style-type: none"> ▪ By crop ▪ By size ▪ National ▪ Sub-national 	
	2. Area harvested		Area				
	3. Amount produced		Mass				
	4. <i>Amount of organic production</i>		Mass				
	5. <i>Amount of genetically modified crops produced</i>		Mass				
b.	Amount used of:					<ul style="list-style-type: none"> ▪ By type of fertilizer ▪ By type of pesticide ▪ By crop ▪ National ▪ Sub-national 	
	1. Natural fertilizers (e.g., manure, compost, lime) (also in 3.4.1.a)		Area, Mass, Volume				
	2. Chemical fertilizers (also in 3.4.1.a)		Area, Mass, Volume				
	3. Pesticides (also in 3.4.1.b)		Area, Mass, Volume				
	4. Genetically modified seeds		Mass				
c.	Monoculture/resource-intensive farming systems					<ul style="list-style-type: none"> ▪ By crop ▪ National ▪ Sub-national 	
	1. Area being used for production		Area				
	2. Amount produced		Mass				
	3. <i>Amount of genetically modified crops produced</i>		Mass				
	Imports of crops		Currency, Mass				
d.	Exports of crops		Currency, Mass			<ul style="list-style-type: none"> ▪ By type of animal ▪ National ▪ Sub-national 	
a.	Livestock						
	1. Number of live animals		Number				
	2. Number of animals slaughtered		Number				
	Amount used of:						
	1. <i>Antibiotics</i> (also in 3.4.1.f)		Mass				
	2. <i>Hormones</i> (also in 3.4.1.d)		Mass				
c.	Imports of livestock		Currency, Number			<ul style="list-style-type: none"> ▪ ISIC Rev. 4, Section A, Division 01 ▪ HS 2012, Section I, Chapter 01 	
d.	Exports of livestock		Currency, Number				
a.	Permits for regulated hunting and trapping of wild animals						<ul style="list-style-type: none"> ▪ ISIC Rev. 4, Section A, Class 0170
	1. Number of permits issued per year		Number				
	2. Number of animal kills allowed by permits		Number				
b.	Imports of endangered species		Currency, Number			<ul style="list-style-type: none"> ▪ Convention on International Trade in Endangered Species 	
c.	Exports of endangered species		Currency, Number				
Topic 2.5.4: Livestock							
Topic 2.5.5: Other non-cultivated biological resources							

									of Wild Fauna and Flora (CITES)
d.	<i>Reported wild animals killed or trapped for food or sale</i>		Number						<ul style="list-style-type: none"> ▪ ISIC Rev. 4, Section A, Class 0170 ▪ CITES
e.	<i>Trade in wildlife and captive-bred species</i>		Description, Mass, Number						<ul style="list-style-type: none"> ▪ By status category ▪ National ▪ Sub-national
f.	<i>Non-wood forest products and other plants</i>		Mass, Volume						<ul style="list-style-type: none"> ▪ ISIC Rev. 4, Section A, Class 0230

Component 2: Environmental Resources and their Use

Sub-component 2.6: Water Resources

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 2.6.1: Water resources	a.	Inflow of water to inland water resources		<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By territory of origin and destination 	<ul style="list-style-type: none"> ▪ UNSD: IRWS ▪ UNECE Standard Statistical Classification of Water Use (1989) ▪ UNSD: MDG Indicator 7.5 Metadata ▪ FAO AQUASTAT ▪ SEEA Central Framework (2012) asset accounts ▪ SEEA Water ▪ UNSD: Environment Statistics Section-Water Questionnaire
		1. Precipitation (also in 1.1.1.b)	Volume		
		2. Inflow from neighbouring territories	Volume		
		3. <i>Inflow subject to treaties</i>	Volume		
	b.	Outflow of water from inland water resources		<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	
		1. Evapotranspiration	Volume		
		2. Outflow to neighbouring territories	Volume		
		3. Outflow subject to treaties	Volume		
		4. Outflow to the sea	Volume		
	c.	Inland water stocks		<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	
		1. Surface water stocks in artificial reservoirs	Volume		
		2. Surface water stocks in lakes	Volume		
		3. <i>Surface water stocks in rivers and streams</i>	Volume		
	4. <i>Surface water stocks in wetlands</i>	Volume			
	5. <i>Surface water stocks in snow, ice and glaciers</i>	Volume			
	6. Groundwater stocks	Volume			
Topic 2.6.2: Abstraction, use and returns of water	a.	Total water abstraction	Volume	<ul style="list-style-type: none"> ▪ By type of source ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ UNSD: IRWS ▪ UNECE Standard Statistical Classification of Water Use (1989) ▪ FAO AQUASTAT ▪ SEEA Central Framework (2012) ▪ SEEA Water ▪ UNSD: Environment Statistics Section-Water Questionnaire
	b.	Water abstraction from surface water	Volume		
	c.	Water abstraction from groundwater			
		1. From renewable groundwater resources	Volume		
		2. From non-renewable groundwater resources	Volume		
	d.	Water abstracted for own use	Volume	<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ National ▪ Sub-national 	
	e.	Water abstracted for distribution	Volume		
	f.	Desalinated water	Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	
	g.	Reused water	Volume		
	h.	Water use	Volume	<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Sub-national 	
i.	<i>Rainwater collection</i>	Volume			
j.	<i>Water abstraction from the sea</i>	Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national 		
		Volume			

	k.	Losses during transport	Volume	<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ National ▪ Sub-national 	
	l.	<i>Exports of water</i>	Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	
	m.	<i>Imports of water</i>	Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	
	n.	<i>Returns of water</i>	Volume	<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ By destination (e.g., inland water, land, sea, ocean) ▪ National ▪ Sub-national 	

Component 3: Residuals

Sub-component 3.1: Emissions to Air

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	a.	b.			
Topic 3.1.1: Emissions of greenhouse gases	Total emissions of direct greenhouse gases (GHGs), by gas:			<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Sub-national ▪ By IPCC source categories 	<ul style="list-style-type: none"> ▪ IPCC Emission Factor Database ▪ UN Framework Convention on Climate Change (UNFCCC) Reporting Guidelines ▪ UNECE Standard Statistical Classification of Ambient Air Quality (1990) ▪ UNSD: MDG Indicator 7.2 Metadata ▪ WHO
	1.	Carbon dioxide (CO₂)	Mass		
	2.	Methane (CH₄)	Mass		
	3.	Nitrous oxide (N₂O)	Mass		
	4.	Perfluorocarbons (PFCs)	Mass		
	5.	Hydrofluorocarbons (HFCs)	Mass		
	6.	Sulphur hexafluoride (SF ₆)	Mass		
	Total emissions of indirect greenhouse gases (GHGs), by gas:				
	1.	Sulphur dioxide (SO₂)	Mass		
	2.	Nitrogen oxides (NO_x)	Mass		
Topic 3.1.2: Consumption of ozone depleting substances	3. Non-methane volatile organic compounds (NM-VOCs)		Mass	<ul style="list-style-type: none"> ▪ UNEP Ozone Secretariat ▪ IPCC Emission Factor Database ▪ UNECE Standard Statistical Classification of Ambient Air Quality (1990) ▪ UNSD: MDG Indicator 7.3 Metadata ▪ WHO 	
	4.	Other	Mass		
	Consumption of ozone depleting substances (ODSs), by substance:				
	1.	Chlorofluorocarbons (CFCs)	Mass		
	2.	Hydrochlorofluorocarbons (HCFCs)	Mass		
	3.	Halons	Mass		
	4.	Methyl chloroform	Mass		
	5.	Carbon tetrachloride	Mass		
	6.	Methyl bromide	Mass		
	7.	Other	Mass		
Topic 3.1.3: Emissions of	a. Emissions of other substances:			<ul style="list-style-type: none"> ▪ UNECE Standard Statistical Classification of 	
	1.	Particulate matter (PM)	Mass		

other substances		2. Heavy metals	Mass	Ambient Air Quality (1990)
		3. <i>Other</i>		
<ul style="list-style-type: none"> ▪ European Monitoring and Evaluation Programme (EMEP) under the Convention on Long-range Transboundary Air Pollution 				

Component 3: Residuals

Sub-component 3.2: Generation and Management of Wastewater

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 3.2.1: Generation and pollutant content of wastewater	a.	Volume of wastewater generated	Volume	<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ By tourists ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ UNSD: IRWS ▪ ISIC Rev. 4, Section E, Divisions 35-37 ▪ SEEA Water ▪ UNSD: Environment Statistics Section-Water Questionnaire
	b.	Pollutant content of wastewater	Mass	<ul style="list-style-type: none"> ▪ By pollutant or pollution parameter (e.g., biochemical oxygen demand (BOD), chemical oxygen demand (COD), nitrogen, phosphorous, total suspended solids (TSS)) ▪ By ISIC economic activity ▪ National ▪ Sub-national 	
Topic 3.2.2: Collection and treatment of wastewater	a.	Volume of wastewater collected	Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ UNSD: IRWS ▪ ISIC Rev. 4, Section E, Division 35 and 36 ▪ UNSD: Environment Statistics Section-Water Questionnaire
	b.	Volume of wastewater treated	Volume	<ul style="list-style-type: none"> ▪ By treatment type (e.g., primary, secondary, tertiary) ▪ National ▪ Sub-national 	
	c.	Total urban wastewater treatment capacity			
		1. Number of plants	Number		
	d.	2. Capacity of plants	Volume		
		Total industrial wastewater treatment capacity			
e.	1. Number of plants	Number			
	2. Capacity of plants	Volume			
Topic 3.2.3: Discharge of wastewater to the environment	a.	Wastewater discharge		<ul style="list-style-type: none"> ▪ By treatment type (e.g., primary, secondary, tertiary) ▪ By recipient (e.g., surface water, groundwater, wetland, sea, land) ▪ By ISIC economic activity ▪ National ▪ Sub-national ▪ By source (point/non-point source) 	
		1. Total volume of wastewater discharged to the environment after treatment	Volume		
		2. Total volume of wastewater discharged to the environment without treatment	Volume		
	b.	Pollutant content of discharged wastewater	Mass	<ul style="list-style-type: none"> ▪ By pollutant or pollution parameter (e.g., BOD, COD, nitrogen, phosphorous) ▪ National ▪ Sub-national ▪ Net emission by ISIC economic activity ▪ By source (point/non-point source) 	

Component 3: Residuals

Sub-component 3.3: Generation and Management of Waste

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	a.	b.			
Topic 3.3.1: Generation of waste		Amount of waste generated by source	Mass	<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ By households ▪ By tourists ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ European Commission: European List of Waste, pursuant to European Waste Framework Directive ▪ Eurostat: Environmental Data Centre on Waste ▪ Eurostat: European Waste Classification for Statistics (EWC-Stat), version 4 (Waste categories) ▪ Basel Convention: Waste categories and hazardous characteristics ▪ Eurostat: Manual on Waste Statistics ▪ Eurostat: Guidance on classification of waste according to EWC-Stat categories ▪ SEEA Central Framework (2012) ▪ UNSD: Environment Statistics Section-Waste Questionnaire ▪ Eurostat: Environmental Data Centre on Waste ▪ Eurostat metadata: Organisation for
		Amount of waste generated by waste category	Mass	<ul style="list-style-type: none"> ▪ By waste category (e.g., chemical waste, municipal waste, food waste, combustion waste) ▪ National ▪ Sub-national 	
		Amount of hazardous waste generated	Mass	<ul style="list-style-type: none"> ▪ By ISIC economic activity ▪ National ▪ Sub-national 	
Topic 3.3.2: Management of waste	a.	Municipal waste		<ul style="list-style-type: none"> ▪ By type of treatment and disposal (e.g., reuse, recycling, composting, incineration, landfilling, other) ▪ By type of waste, when possible ▪ National 	
		1. Total municipal waste collected	Mass		
		2. Amount of municipal waste treated by type of treatment and disposal	Mass		
		3. Number of municipal waste treatment and	Number		

	disposal facilities		Sub-national	Economic Co-operation and Development (OECD)/Eurostat definition of municipal waste
	4. Capacity of municipal waste treatment and disposal facilities	Volume		
b.	Hazardous waste			<ul style="list-style-type: none"> ▪ UNSD: Environment Statistics Section-Waste Questionnaire ▪ Basel Convention: Waste categories and hazardous characteristics ▪ Eurostat: EWC-Stat, version 4 (Waste categories) ▪ European Commission: European Waste Framework Directive (Waste treatment operations) ▪ Eurostat: Manual on Waste Statistics ▪ Eurostat: Guidance on classification of waste according to EWC-Stat categories ▪ Rotterdam Convention
	1. Total hazardous waste collected	Mass		
	2. Amount of hazardous waste treated by type of treatment and disposal	Mass		
	3. Number of hazardous waste treatment and disposal facilities	Number		
	4. Capacity of hazardous waste treatment and disposal facilities	Volume		
c.	Other/industrial waste			
	1. Total other/industrial waste collected	Mass		
	2. Amount of other/industrial waste treated by type of treatment and disposal	Mass		
	3. Number of other/industrial treatment and disposal facilities	Number		
	4. Capacity of other/industrial waste treatment and disposal facilities	Volume		
d.	Amount of recycled waste	Mass	<ul style="list-style-type: none"> ▪ By specific waste streams (e.g., e-waste, packaging waste, end of life vehicles) ▪ By waste category ▪ National ▪ Sub-national 	
e.	Imports of waste	Mass		
f.	Exports of waste	Mass		
g.	Imports of hazardous waste	Mass		
h.	Exports of hazardous waste	Mass		

Component 3: Residuals

Sub-component 3.4: Release of Chemical Substances

Topic	Statistics and Related Information		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	(Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)				
Topic 3.4.1: Release of chemical substances	a.	Total amount of fertilizers used		<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By ISIC economic activity (forestry, agriculture) ▪ By type of fertilizer ▪ By type of pesticide 	<ul style="list-style-type: none"> ▪ FAOSTAT database ▪ Stockholm Convention
		1. Natural fertilizers(also in 2.5.1.b and 2.5.3.b)	Area, Mass, Volume		
		2. Chemical fertilizers(also in 2.5.1.b and 2.5.3.b)	Area, Mass, Volume		
	b.	Total amount of pesticides used (also in 2.5.1.b and 2.5.3.b)	Area, Mass, Volume		
	c.	<i>Total amount of pellets used (also in 2.5.2.e)</i>	Mass, Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture) 	<ul style="list-style-type: none"> ▪ Stockholm Convention
	d.	<i>Total amount of hormones used (also in 2.5.2.e and 2.5.4.b)</i>	Mass, Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture, livestock production) 	
e.	<i>Total amount of colourants used (also in 2.5.2.e)</i>	Mass, Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture) 		
f.	<i>Total amount of antibiotics used (also in 2.5.2.e and 2.5.4.b)</i>	Mass, Volume	<ul style="list-style-type: none"> ▪ National ▪ Sub-national ▪ By ISIC economic activity (aquaculture, livestock production) 		

Component 4: Extreme Events and Disasters

Sub-component 4.1: Natural Extreme Events and Disasters

Topic	Statistics and Related Information		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	(Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)				
Topic 4.1.1: Occurrence of natural extreme events and disasters	a.	Occurrence of natural extreme events and disasters		<ul style="list-style-type: none"> ▪ By event ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ Centre for Research on the Epidemiology of Disasters Emergency Events Database (CRED EMDAT) ▪ UN Economic Commission for Latin America and the Caribbean (UNECLAC) Handbook for Estimating the Socio-economic and Environmental Effects of Disasters ▪ The United Nations Office for Disaster Risk Reduction (UNISDR)
		1. Type of natural extreme event and disaster (geophysical, meteorological, hydrological, climatological, biological)	Description		
		2. Location	Location		
		3. Magnitude (where applicable)	Intensity		
		4. Date of occurrence	Date		
		5. Duration	Time period		
		People affected by natural extreme events and disasters			
Topic 4.1.2: Impact of natural extreme events and disasters	a.	People affected by natural extreme events and disasters		<ul style="list-style-type: none"> ▪ By event ▪ By ISIC economic activity ▪ National ▪ Sub-national ▪ By direct and indirect damage 	
		1. Number of people killed	Number		
		Number of people injured	Number		
		Number of people homeless	Number		
		Number of people affected	Number		
	b.	Economic losses due to natural extreme events and disasters (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption)	Currency		
	c.	Physical losses/damages due to natural extreme events and disasters (e.g., area and amount of crops, livestock, aquaculture, biomass)	Area, Description, Number		
	d.	Effects of natural extreme events and disasters on integrity of ecosystems			
		1. Area affected by natural disasters	Area		
		2. Loss of vegetation cover	Area		
		3. Area of watershed affected	Area		
		4. Other	Description		
	e.	<i>External assistance received</i>	Currency		
			<ul style="list-style-type: none"> ▪ By event ▪ National 		

Component 4: Extreme Events and Disasters

Sub-component 4.2: Technological Disasters

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 4.2.1: Occurrence of technological disasters	a.	Occurrence of technological disasters		<ul style="list-style-type: none"> ▪ By event ▪ By ISIC economic activity ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ CRED EMDAT ▪ UNECLAC: Handbook for Estimating the Socio-economic and Environmental Effects of Disasters
		1. Type of technological disaster (industrial, transportation, miscellaneous)	Description		
		2. <i>Location</i>	Location		
		3. <i>Date of occurrence</i>	Date		
		4. <i>Duration</i>	Time period		
Topic 4.2.2: Impact of technological disasters	a.	People affected by technological disasters		<ul style="list-style-type: none"> ▪ By event ▪ National ▪ Sub-national 	
		1. Number of people killed	Number		
		2. <i>Number of people injured</i>	Number		
		3. <i>Number of people homeless</i>	Number		
		4. <i>Number of people affected</i>	Number		
	b.	Economic losses due to technological disasters (e.g., damage to buildings, transportation networks, loss of revenue for businesses, utility disruption)	Currency	<ul style="list-style-type: none"> ▪ By event ▪ By ISIC economic activity ▪ National ▪ Sub-national ▪ By direct and indirect damage 	
	c.	Physical losses/damages due to technological disasters (e.g., area and amount of crops, livestock, aquaculture, biomass)	Area, Description, Number		
	d.	Effects of technological disasters on integrity of ecosystems		<ul style="list-style-type: none"> ▪ By event ▪ National ▪ Sub-national 	
		1. <i>Area affected by technological disasters</i>	Area		
		2. <i>Loss of vegetation cover</i>	Area		
		3. <i>Area of watershed affected</i>	Area		
		4. <i>Other</i> (e.g., for oil spills: volume of oil released into the environment, impact on ecosystem)	Description		
	e.	<i>External assistance received</i>	Currency	<ul style="list-style-type: none"> ▪ By event ▪ National 	

Component 5: Human Settlements and Environmental Health

Sub-component 5.1: Human Settlements

Topic	Statistics and Related Information		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance	
	(Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)					
Topic 5.1.1: Urban and rural population	a.	Population living in urban areas	Number	<ul style="list-style-type: none"> ▪ Urban ▪ Rural 	<ul style="list-style-type: none"> ▪ UN Population Division ▪ UN Population Fund (UNFPA) 	
	b.	Population living in rural areas	Number			
	c.	Total urban area	Area			
	d.	Total rural area	Area			
	e.	Population living in coastal areas	Number			
Topic 5.1.2: Access to selected basic services	a.	Population using an improved drinking water source	Number	<ul style="list-style-type: none"> ▪ Urban ▪ Rural ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ UNSD: MDG Indicator 7.8 and 7.9 Metadata ▪ UN-Water ▪ UNSD: Environment Statistics Section-Water and Waste Questionnaire ▪ WHO/(United Nations Children's Fund (UNICEF) Joint Monitoring Programme for Water Supply and Sanitation 	
	b.	Population using an improved sanitation facility	Number			
	c.	Population served by municipal waste collection	Number			
Topic 5.1.3:	d.	<i>Population connected to wastewater collecting system</i>	Number	<ul style="list-style-type: none"> ▪ By treatment type (e.g., primary, secondary, tertiary) ▪ National ▪ Sub-national ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ UNSD: IRWS ▪ ISIC Rev. 4, Section E, Division 35-37 ▪ UNSD: Environment Statistics Section-Water Questionnaire 	
	e.	Population connected to wastewater treatment	Number			
	f.	Population supplied by water supply industry	Number			
	g.	Price of water	Currency			▪ By source (e.g., piped, vendor)
	h.	Population with access to electricity	Number			
	i.	Price of electricity	Currency			
	a.	Urban population living in slums	Number			<ul style="list-style-type: none"> ▪ UN Habitat ▪ UNSD: MDG
	b.	Area of slums	Area			

Housing conditions	c. Population living in hazard-prone areas	Number		Indicator 7.10 Metadata	
		Area	Number		
Topic 5.1.4: Exposure to ambient pollution	d. Hazard-prone areas	Area		<ul style="list-style-type: none"> ▪ Urban ▪ Rural ▪ National ▪ Sub-national 	
	e. <i>Population living in informal settlements</i>	Number			
	f. <i>Homeless population</i>	Number			
	g. <i>Number of dwellings with adequacy of building materials defined by national or local standards</i>	Number			
	a. Population exposed to air pollution in main cities	Number			<ul style="list-style-type: none"> ▪ By pollutant (e.g., SO₂, NO_x, O₃)
Topic 5.1.5: Environmental concerns specific to urban settlements	b. <i>Population exposed to noise pollution in main cities</i>	Number		<ul style="list-style-type: none"> ▪ UN Habitat ▪ WHO ▪ UNEP Urban Environment Unit 	
	a. Extent of urban sprawl	Area			
	b. Available green spaces	Area			
	c. Number of private and public vehicles	Number			<ul style="list-style-type: none"> ▪ By type of engine or type of fuel
	d. Population using public modes of transportation	Number			
	e. <i>Population using hybrid and electric modes of transportation</i>	Number			
	f. Extent of roadways	Length			
	g. <i>Existence of urban planning and zoning regulations and instruments in main cities</i>	Description			
	h. <i>Effectiveness of urban planning and zoning regulations and instruments in main cities</i>	Description			

Component 5: Human Settlements and Environmental Health

Sub-component 5.2: Environmental Health

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
	a.				
Topic 5.2.1: Airborne diseases and conditions		Airborne diseases and conditions		<ul style="list-style-type: none"> ▪ By disease or condition ▪ National ▪ Sub-national ▪ Urban ▪ Rural ▪ By gender ▪ By age group ▪ By time period 	<ul style="list-style-type: none"> ▪ WHO
		1. Incidence	Number		
		2. Prevalence	Number		
		3. Mortality	Number		
		4. Loss of work days	Number		
Topic 5.2.2: Water-related diseases and conditions		5. <i>Estimates of economic cost in monetary terms</i>	Currency		
	a.	Water-related diseases and conditions			
		1. Incidence	Number		
		2. Prevalence	Number		
		3. Mortality	Number		
Topic 5.2.3: Vector-borne diseases		4. Loss of work days	Number		
		5. <i>Estimates of economic cost in monetary terms</i>	Currency		
	a.	Vector-borne diseases			
		1. Incidence	Number		
		2. Prevalence	Number		
Topic 5.2.4: Health problems associated with excessive UV radiation exposure		3. Mortality	Number		
		4. Loss of work days	Number		
		5. <i>Estimates of economic cost in monetary terms</i>	Currency		
	a.	Problems associated with excessive UV radiation exposure			
		1. Incidence	Number		
Topic 5.2.5: Toxic substance- and nuclear		2. Prevalence	Number		
		3. Loss of work days	Number		
		4. <i>Estimates of economic cost in monetary terms</i>	Currency		
	a.	Toxic substance- and nuclear radiation-related diseases and conditions			
		1. Incidence	Number		
		2. Prevalence	Number		
		3. Loss of work days	Number		
				<ul style="list-style-type: none"> ▪ By category of toxic substance ▪ By disease or condition ▪ National ▪ Sub-national ▪ Urban 	<ul style="list-style-type: none"> ▪ WHO

radiation-related diseases and conditions		4. <i>Estimates of economic cost in monetary terms</i>	Currency	<ul style="list-style-type: none"> ▪ Rural ▪ By gender ▪ By age group 	
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Component 6: Environmental Protection, Management and Engagement

Sub-component 6.1: Environmental Protection and Resource Management Expenditure

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance			
Topic 6.1.1: Government environmental protection and resource management expenditure	a.	Government environmental protection and resource management expenditure		<ul style="list-style-type: none"> ▪ By environmental activity ▪ By type of expenditure: current, investment ▪ By ministry ▪ National ▪ Sub-national ▪ By funding 	<ul style="list-style-type: none"> ▪ Eurostat-SERIEE Environmental Protection Accounts Compilation Guide (2002) ▪ Eurostat-Environmental expenditure Statistics. General Government and Specialised Producers Data Collection Handbook (2007) ▪ Classification of Environmental Activities (CEA) ▪ SEEA Central Framework (2012) Annex 1 			
		1. Annual government environmental protection expenditure	Currency					
		2. Annual government resource management expenditure	Currency					
	Topic 6.1.2: Corporate, non-profit institution and household environmental protection and resource management expenditure	a.	Private sector environmental protection and resource management expenditure				<ul style="list-style-type: none"> ▪ By environmental activity ▪ By type of expenditure: current, investment ▪ By ISIC economic activity ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ Eurostat-Environmental expenditure statistics. Industry data collection handbook (2005) ▪ Eurostat-Environmental expenditure Statistics. General Government and Specialised Producers Data Collection Handbook (2007)
			1. Annual corporate environmental protection expenditure			Currency		
			2. <i>Annual corporate resource management expenditure</i>			Currency		
		3. <i>Annual non-profit institution environmental protection expenditure</i>	Currency					
		4. <i>Annual non-profit institution resource management expenditure</i>	Currency					
	5. <i>Annual household environmental protection expenditure</i>	Currency						
	6. <i>Annual household resource management expenditure</i>	Currency						

Component 6: Environmental Protection, Management and Engagement

Sub-component 6.2: Environmental Governance and Regulation

Topic	Statistics and Related Information		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance	
	(Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)					
Topic 6.2.1: Institutional strength	a.	Government environmental institutions and their resources		<ul style="list-style-type: none"> ▪ National ▪ Sub-national 		
		1. Name of main environmental authority and year of establishment	Description			
		2. Annual budget of the main environmental authority	Currency			
		3. Number of staff in the main environmental authority	Number			
		4. List of environmental departments in other authorities and year of establishment	Description			
		5. Annual budget of environmental departments in other authorities	Currency			
		6. Number of staff of environmental departments in other authorities	Number			
	b.	Other environmental institutions and their resources				<ul style="list-style-type: none"> ▪ By media (e.g., water, air, land, soil, oceans) ▪ By ISIC economic activity ▪ National ▪ Sub-national
		1. Name of institution and year of establishment	Description			
		2. Annual budget of the institution	Currency			
		3. Number of staff in the institution	Number			
		Direct regulation				
	1. List of regulated pollutants and description (e.g., by year of adoption and maximum allowable levels)	Description, Number				
Topic 6.2.2: Environmental regulation and instruments		2. Description (e.g., name, year established) of licensing system to ensure compliance with environmental standards for businesses or other new facilities	Description			
		3. Number of applications for licences received and approved per year	Number			
		4. List of quotas for biological resource extraction	Number			
		5. Budget and number of staff dedicated to enforcement of environmental regulations	Currency, Number			
	b.	Economic instruments				

	1. <i>List and description (e.g., year of establishment) of green/environmental taxes</i>	Description, Currency		
	2. <i>List and description (e.g., year of establishment) of environmentally relevant subsidies</i>	Description, Currency		
	3. <i>List of eco-labelling and environmental certification programmes</i>	Description		
	4. Emission permits traded	Number, Currency		
Topic 6.2.3: Participation in MEAs and environmental conventions	a.	Participation in MEAs and other global environmental conventions		MEA Secretariats
		1. List and description (e.g., country's year of participation ^(d)) of MEAs and other global environmental conventions	Description, Number	
<p>(d) Participation means that the country or area has become party to the agreements under the treaty or convention, which is achieved through various means depending on the country's circumstances, namely: accession, acceptance, approval, formal confirmation, ratification and succession. Countries or areas that have signed but not become party to the agreements under a given convention or treaty are not considered to be participating.</p>				

Component 6: Environmental Protection, Management and Engagement

Sub-component 6.3: Extreme Event Preparedness and Disaster Management

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 6.3.1: Preparedness for natural extreme events and disasters	a.	National natural extreme event and disaster preparedness and management systems		<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	<ul style="list-style-type: none"> ▪ International Emergency Management Organization (IEMO) ▪ UNISDR ▪ Hyogo Framework for Action
		1. Existence of national disaster plans/programmes	Description		
		2. Description (e.g., number of staff) of national disaster plans/programmes	Description		
		3. Number and type of shelters in place or able to be deployed	Description, Number		
		4. <i>Number and type of internationally certified emergency and recovery management specialists</i>	Description, Number		
		5. <i>Number of volunteers</i>	Number		
		6. <i>Quantity of first aid, emergency supplies and equipment stockpiles</i>	Number		
		7. <i>Existence of early warning systems for all major hazards</i>	Description		
Topic 6.3.2: Preparedness for technological disasters		8. <i>Expenditure on disaster prevention, preparedness, clean-up and rehabilitation</i>	Currency		
	a.	National technological disaster preparedness and management systems			
		1. <i>Existence and description (e.g., number of staff) of public disaster management plans/programmes (and private when available)</i>	Description		
		2. <i>Expenditure on disaster prevention, preparedness, clean-up and rehabilitation</i>	Currency		

Component 6: Environmental Protection, Management and Engagement

Sub-component 6.4: Environmental Information and Awareness

Topic	Statistics and Related Information (Bold Text - Core Set/Tier 1 ; Regular Text - Tier 2; <i>Italicized Text - Tier 3</i>)		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
Topic 6.4.1: Environmental information	a.	Environmental information systems		<ul style="list-style-type: none"> ▪ National ▪ Sub-national 	
		1. Existence of publicly accessible environmental information system	Description		
		2. Annual number of visits/users of specific environmental information programmes or environmental information systems	Number		
	b.	Environment statistics			
		1. Description of national environment statistics programmes (e.g., existence, year of establishment, lead agency, human and financial resources)	Description		
		2. <i>Number and type of environment statistics products and periodicity of updates</i>	Description, Number		
Topic 6.4.2: Environmental education		3. Existence and number of participant institutions in inter-agency environment statistics platforms or committees	Number		
	a.	Environmental education			
		1. <i>Allocation of resources by central and local authorities for environmental education</i>	Currency		
		2. <i>Number and description of environmental education programmes in schools</i>	Description, Number		
		3. <i>Number of students pursuing environment-related higher education (e.g., science, management, education, engineering)</i>	Number		
	a.	Public environmental perception and awareness			
Topic 6.4.3: Environmental perception and awareness		1. <i>Knowledge and attitudes about environmental issues or concerns</i>	Description		
		2. <i>Knowledge and attitudes about environmental policies</i>	Description		
	a.	Environmental engagement			
Topic 6.4.4: Environmental engagement		1. Existence of pro-environmental NGOs (number of NGOs and their respective human and financial resources)	Currency, Number		
		2. <i>Number of pro-environmental activities</i>	Number		
		3. <i>Number of pro-environmental programmes</i>	Number		

Annex: II

Glossary

Abiotic: non- living, e.g. rocks or minerals.

Algae: simple non-vascular plants with unicellular organs of reproduction. Algae are found in fresh and salt water. They range from unicellular forms, usually microscopic, to multi cellular forms up to 30 m in length.

Afforestation: artificial establishment of forests by planting or seeding in an area of non-forest land.

Acidification: increase of hydrogen ions, usually expressed as the pH value of environmental media.

Airborne Disease: disease that is generally transmitted by nasopharyngeal discharges and by respiratory secretions, through coughing and sneezing, though it may also be conveyed through close contact. Respiratory diseases include the common childhood infections, measles, whooping cough, chickenpox, mumps, diphtheria and acute sore throat, as well as diseases of the respiratory tract, influenza and other acute viral infections, the pneumonias, and pulmonary tuberculosis (WHO, 1992).

Air Pollution: the presence of contaminant of pollutant substances in the air that do not disperse properly and that interferes with human health of welfare, or produces other harmful environmental effects.

Air Quality Standards: levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

Air Pollutants: substances in air that could, at high enough concentrations, harm human beings, animals, vegetation or material. Air pollutants may thus include forms of matter of almost any natural or artificial composition capable of being airborne. They may consist of solid particles, liquid droplets or gases, or combinations of these forms. See also hazardous air pollutants.

Alternative Energy: energy sources other than the traditional forest product and commercial energy items. They are: Direct Solar Insulation, Wind, Micro-hydro, Geothermal, Bio-gas plants.

Ambient: surrounding, environmental.

Annual Average: average of concentrations measured over one year.

Annual Rainfall (mm): total rainfall in a year

Assets: Assets are entities that must be owned by some unit, or units, and which economic benefits are derived by their owner(s) by holding or using them over the period of time.

Average Daily Sunshine Hours: average of daily sunshine hours measured over one year.

Acidity: acidity as applied to water is defined as the quantitative capacity of aqueous media to react with hydroxyl ions. The determination of acidity may provide an index of the severity of pollution or may indicate the probable behavior of water in treatment processes.

Adaptation: Adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities.

Adaptive Capacity : Ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Alkalinity: the alkalinity of a solution may be defined as the capacity for solutes it contains to react with and neutralize acid. In water the alkalinity is produced by the dissolved carbon dioxide species, bicarbonate and carbonate. There are three types of alkalinity methyl-orange alkalinity, total alkalinity, and phenolphthalein alkalinity.

Ammonia: the term ammonia includes the non-ionized ammonia molecule and ionized ammonium ion species. Ammonia in water is an indicator of possible bacterial, sewage and animal waste pollution. No health related guidance value for drinking water has been set by WHO but concentration above 1.5 mg/l creates odour and taste problems.

Amphibians: class of cold-blooded vertebrates comprising frogs. They live both in water and on land. Most amphibians have to become temporarily aquatic for the purpose of reproduction.

Angiosperm: flowering plants, which produce one or more seeds enclosed in a fruit.

Aquifer: underground geologic formation, or group of formation, containing ground water that can supply wells and springs.

Bacteria: single-celled micro-organisms. Some are useful in pollution control because they break down the organic matter in water and land. Other bacteria may cause disease.

Barren and uncultivable land : Land which cannot be brought under cultivation unless at high cost, irrespective of whether such land is in isolated blocks or within cultivated holdings.

Baseline: The baseline (or reference) is any datum against which change is measured. It might be a current baseline in which case it presents observable present-day condition. It might also be a future baseline, which is a projected future set of condition excluding the driving factor of interest. Alternative interpretation of the reference conditions can give rise to multiple baseline.

Base Period: the period that provides the weights for an index is described as the base period

Biochemical Oxygen Demand (BOD): the biochemical oxygen demand is the mass of dissolved molecular oxygen, which is needed by micro organisms for the aerobic oxidation of organic substances to CO₂ and water. Generally in water analysis BOD is determined at 20°C with 5 days incubation period. It depends on the amount of organic substances present in water and is useful in expressing stream pollution load. Generally, effluents having BOD value greater than 4 mg/l are not allowed to be discharged into water courses.

Bio-gas: mixture of methane and carbon dioxide in the ratio of 7:3 that is produced by the treatment of animal dung, industrial wastes and crop residues. It is used as an alternative source of energy.

Biodiversity: the range of genetic differences, species difference and ecosystem difference in a given area.

Biomass: total living weight (generally in dry weight) of all living organisms in a particular area or habitat. It is sometimes expressed as weight per unit area of land or per unit volume of water.

Bryophytes: non-vascular and non-flowering plants comprising mosses and liverworts, widely distributed on moist soil and rocks.

Carbon Dioxide (CO₂): It is a chemical compound consisting of one atom of carbon and two atoms of oxygen. A colorless, odorless, non-poisonous gas, which results from fossil fuel combustion and burning of materials, and is normally a part of ambient air.

Carbon Dioxide Equivalent : A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "million metric tons of carbon dioxide equivalents (MMTCO₂Eq)." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.

$MMTCO_2Eq = (\text{million metric tons of a gas}) * (\text{GWP of the gas})$

Carbon Monoxide (CO): It is a chemical compound consisting of one atom of carbon and one atom of oxygen. It is a colorless and odorless gas formed whenever carbon or substances containing carbon are burned with an insufficient air supply (incomplete fuel combustion). It is poisonous to all warm-blooded animals and to many other forms of life. Automobile - exhaust gases contain harmful quantities of carbon monoxide.

Carbon Sequestration: Terrestrial, or biologic, carbon sequestration is the process by which trees and plants absorb carbon dioxide, release the oxygen and store the carbon. Geologic sequestration is one step in the process of carbon capture and sequestration (CCS) and involves injecting carbon dioxide deep underground where it stays permanently.

Catchments Area: area from which rainwater drains into river system, lakes and seas.

Chemical Oxygen Demand (COD): chemical oxygen demand (COD) is used as a measure of the oxygen equivalent of the organic matter content of a sample that is susceptible to oxidation by a strong chemical oxidant. It is a measure of the total amount of oxygen required for oxidation of waste to CO_2 and water and is used to determine pollution or oxidizable material loads quickly.

Chloro-fluorocarbons (CFCs): inert, non-toxic and easily liquefied chemicals used in refrigeration, air-conditioning, packaging and insulation or as solvents and aerosol propellants. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere where their chlorine components destroy ozone. They are also among the greenhouse gases that may affect climate change. See also aerosol propellant.

Climate: Climate in a narrow sense is usually defined as the average weather or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands of millions of years. These quantities are most often surface variables such as temperature, precipitation and wind. Climate in a wider sense is the state including a statistical description of the climate system. The classical period of time is 30 years, as defined the World Meteorological (WMO).

Climate Change: Climate change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer.

Climate change adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Climate change mitigation : Efforts to reduce or prevent greenhouse gas emissions and may involve using new technologies, incorporating and increasing renewable energies, making older equipment more energy efficient and changing management practices or consumer behavior. Protecting natural carbon sinks like forests and oceans, or creating new sinks through silviculture or green agriculture, are also elements of mitigation.

Coliform: coli form organisms are defined as Gram-negative, rod-shaped, non- sporing bacteria capable of growing in the presence of bile salts or other surface - active agents and of fermenting lactose within 48 hours at 35-37°C. This group of bacteria includes organisms originating from intestinal tract of warm-blooded animals and also from soil and vegetation. Its presence in water indicates probable contamination from human waste. Recent health related WHO guideline value for drinking water does not permit the presence of even a single coliform bacterium in drinking water.

Consumption: consumption is an activity in which institutional units use up goods or service, consumption can be either intermediate or final

Decibel (dB): unit of sound measurement on a logarithmic scale, with sound approximately doubling in loudness for every increase of 10 decibels.

Deforestation: clearing of tree formations and their replacement by non-forest land uses.

Degraded Land (man made): this refers to the land deteriorated through a reduction in soil depth or quality as a result of deforestation, de-vegetation faulty irrigation system, excessive chemical fertilizers in localized area, unwise use of marginal land, road building in the hills etc. This also excluded land in the process of desertification.

Degraded Land (natural): land deteriorated through a reduction in soil depth or quality as a result of water or wind erosion, landslides or water logging etc. This excludes land in the process of desertification.

Depletion (in natural resource accounting): for renewable resources, the part of the harvest, logging, catch and so forth above the sustainable level of the resource stock; for non-renewable resources, the quantity of resources extracted. In the SNA it is defined as the reduction in value of deposits of subsoil assets, natural forests, fish stocks in the open seas and other non-cultivated biological resources as a result of the physical removal and using up of the assets.

Disasters: Unforeseen and often sudden events that cause great damage, destruction and human suffering. They often exceed local response capacities and require external assistance at the national or international level. Depending on their cause, disasters can be both natural and technological.

Dissolved Oxygen (DO): dissolved oxygen is an important parameter of water quality. The water when comes in contact with air dissolves oxygen depending on, or according to atmospheric pressure, the temperature, and the content of dissolved salts. Its presence is essential to maintain the higher forms of biological life and the effect of a waste discharged on a river is largely determined by the oxygen balance of the system. Aquatic animals require certain amounts of DO depending upon their species, stage of development, level of activity and the water temperature.

Domestic Waste: domestic waste consists of solid and liquid wastes originating from residential, commercial and institutional buildings. These are both biodegradable and non-biodegradable.

Dust: particles light enough to be suspended in air.

Ecological processes: which play an essential part in maintaining ecosystem integrity. Four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy, and biodiversity (as an expression of the process of evolution).

Ecology: totality or pattern of relationships between organisms and their environment.

Eco region / eco-zone: homogeneous area of one or more ecosystems that interact with relatively self-contained human activities.

Ecosystem: a dynamic complex of plant, animal, fungal and microorganism communities unit.

Effluent: liquid waste product (whether treated or untreated) discharged from an industrial process or human activity that is discharged into the environment.

Emission: discharge of pollutants into the atmosphere from stationary sources such as smokestacks, other vents, surface areas of commercial or industrial facilities and mobile sources, for example, motor vehicles, locomotives and aircraft.

Emissions Factor : A unique value for scaling emissions to activity data in terms of a standard rate of emissions per unit of activity (e.g., grams of carbon dioxide emitted per barrel of fossil fuel consumed, or per pound of product produced)

Endemic Disease: disease that is only, or regularly, found among a specified population or in a specified locality.

Enhanced Greenhouse Effect: The concept that the natural greenhouse effect has been enhanced by increased atmospheric concentrations of greenhouse gases (such as CO₂ and methane) emitted as a result of human activities. These added greenhouse gases

Endangered: plant and animal species which are under threat and likely to become extinct if casual factors continue operating. They may be abundant over their range but are endangered because of such factors as habitat deterioration, trade or the onset of disease.

Endemic: plants or animals prevalent in or peculiar to a particular locality, region or people.

Environmental Disease: disease that is, at least in part, caused or aggravated by living conditions, climate and water supply or other environmental conditions. Environmental factors that may affect health include psychological, biological, physical and accident-related factors. Environmental diseases include in particular communicable diseases, such as respiratory diseases, and vector-borne diseases such as malaria, schistosomiasis and onchocerciasis. See also airborne disease and waterborne disease.

Environmental Expenditures: capital and current expenditures related to characteristic activities and facilities specified in classifications of environmental protection activities.

Environmental Impact: direct effect of socio-economic activities and natural events on the components of the environment.

Environmental Impact Assessment (EIA): analytical process that systematically examines the possible environmental consequences of the implementation of projects, programmes and policies.

Environmental Indicator: Parameter or a value derived from parameters that points to, provides information about and/or describes the state of the environment, and has a significance extending beyond that directly associated with any given parametric value. The term may encompass indicators of environmental pressures, conditions and responses (OECD, 1994).

Environmental indices: Composite or more complex measures that combine and synthesize more than one environmental indicator or statistic and are weighted according to different methods.

Epidemic: widespread outbreak of a disease that affects a large number of individuals at a particular time.

Erosion: wearing away of the land by running water, rainfall, wind, ice or other geological agents, including such processes as detachment, entrainment, suspension, transportation and mass movement. Geologically, erosion is defined as the process that slowly shapes hillsides, allowing the formation of soil cover from the weathering of rocks and from alluvial and colluvial deposits. Erosion is often intensified by land-clearing human activities related to farming, resident and industrial development and it has as effect increasing run-offs, decline of arable layers, siltation in lakes, lagoons and oceans.

Eutrophication: when water bodies like lakes, reservoirs streams, & estuaries receive effluents rich in nutrients (phosphorous and nitrogen) growth of water plants (algae) is stimulated as a result of which deoxygenating of the water, major ecological changes, increase in turbidity, increase in rate of sedimentation occur. An insidious form of water pollution that causes progressive deterioration of water resources on a wide scale by the overabundance of plant life as a result of over enrichment with the nutrients is known as Eutrophication.

Extinct Species: the endangered or threatened plant and animal species lost for ever because of their habitat being destroyed through a change in land use or some use for them resulted in mass slaughter/over use or export.

Extreme events: Events that are rare within their statistical reference distribution at a particular location. An extreme event is normally as rare as or rarer than the 10th or 90th percentile.

Faecal Coliform: faecal coli forms are that part of the coli form group which is present in the intestines and faeces of warm-blooded animals. These bacteria are capable of producing gas from lactose and form blue colonies within 24 hours when incubated at $44.5^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ on M-FC medium. It should be nil in potable water according to WHO guideline.

Fauna: all of the animals found in a given area.

Flora: all of the plants found in a given area.

Fungi: simple plants including moulds and mushrooms with thread like cells and without green chlorophyll. Fungi have no roots, stem, or leaves like flowering plants and ferns.

Glacier: A multi-year surplus accumulation of snowfall in excess of snowmelt on land and resulting in a mass of ice at least 0.1 km² in area that shows some evidence of movement in response to gravity. A glacier may terminate on

land or in water. Glacier ice is the largest reservoir of fresh water on Earth and second only to the oceans as the largest reservoir of total water.

Global Warming: phenomenon believed to occur as a result of the build-up of carbon dioxide and other greenhouse gases. It has been identified by many scientists as a major global environmental threat. See also greenhouse effect.

Greenhouse Effect: warming of the earth's atmosphere caused by a build-up of carbon dioxide and other greenhouse or trace gases that act like a pane of glass in a greenhouse, allowing sunlight to pass through and heat the earth but preventing a counterbalancing loss of heat radiation.

Gross Domestic Product (GDP): gross domestic product is a measure of net aggregate of the total value of output produced within the boundary of a country or territory in a specified period of time.

Gymnosperm: Plants that have naked seeds, which form an intermediate group between the cryptogams and the angiosperms. Examples: cicadas and conifers. They are primitive seed plants with many fossil representatives.

Habitat: the place of site where an organism naturally occurs.

Hazardous Waste: hazardous wastes include toxic chemicals, biological and medical wastes, flammable wastes, corrosive wastes, radioactive wastes, and explosives. They usually are produced in industrial operations or in technical institutions.

Heat Waves: A prolonged period of excessive heat often combined with excessive humidity.

Herbs: plant with soft stem that dies down to the ground after each season's growth, as distinguished from shrubs and trees. Also any plant used as a medicine or seasoning, e.g. thyme, surpentine.

Human Settlements: Refer to the totality of the human community, whether people live in large cities, towns or villages. They encompass the human population that resides in a settlement, the physical elements (e.g., shelter and infrastructure), services (e.g., water, sanitation, waste removal, energy and transport) and the exposure of humans to potentially deleterious environmental conditions.

Incinerator: furnace for burning wastes under controlled conditions.

Industrial Wastes: solid, liquid and gaseous wastes originating from the manufacture of specific products.

Infrared Radiation: Infrared radiation consists of light whose wavelength is longer than the red color in the visible part of the spectrum, but shorter than microwave radiation. Infrared radiation can be perceived as heat. The Earth's surface, the atmosphere and clouds all emit infrared radiation, which is also known as terrestrial or long-wave radiation. In contrast, solar radiation is mainly short-wave radiation because of the temperature of the Sun.

Intergovernmental Panel on Climate Change (IPCC): The IPCC was established jointly by the United Nations Environment Programme and the World Meteorological Organization in 1988. The purpose of the IPCC is to assess information in the scientific and technical literature related to all significant components of the issue of climate change. The IPCC draws upon hundreds of the world's expert scientists as authors and thousands as expert reviewers. Leading experts on climate change and environmental, social and economic sciences from some 60 nations have helped the IPCC to prepare periodic assessments of the scientific underpinnings for understanding global climate change and its consequences. With its capacity for reporting on climate change, its consequences and the viability of adaptation and mitigation measures, the IPCC is also looked to as the official advisory body to the world's governments on the state of the science of the climate change issue. For example, the IPCC organized the development of internationally accepted methods for conducting national greenhouse gas emission inventories.

Inundation: Submergence of land by water, particularly in a coastal setting.

Land Affected by Desertification (man made): the area of land which is in the degrading process by the removal of forest vegetation, grassland vegetation and other natural resources.

Land Degradation: reduction or loss of the biological or economic productivity and complexity of rain-fed cropland, irrigated cropland, or range, pasture, forest or woodlands resulting from natural processes, land uses or other

human activities and habitation patterns such as land contamination, soil erosion and the destruction of the vegetation cover.

Landslide: downward mass movement of earth or rock on unstable slopes.

Land Use / Classification: land categories, reflecting quality classes, capability classes or grade, depending upon the characteristics of the land and/or its potential for agricultural use

Lead (Pb): a heavy metal whose compounds are highly poisonous to health. It is used enormous quantities in storage batteries, paints, sheathing electric cables, lining pipes etc. Lead compound is the chief constituent of gasoline and is considered a significant contributor to air pollution.

Lichens: species formed from the symbiotic association of algae and fungi. Commonly occur on tree - trunks, old walls, on the ground, exposed rocks. They are the primary colonizers of bare areas.

Methane (CH₄): colorless and odorless gas composed of one atom of carbon and four atoms of hydrogen. It is non-poisonous and flammable gaseous hydrocarbon created by anaerobic decomposition of organic compounds. It occurs in natural gas, as fire damp in coal mines, and as a product of decomposition in swamps.

Mercury: heavy metal that can accumulate in the environment and is highly toxic if breathed or swallowed.

Mitigation: A human intervention to reduce the human impact on the climate system; it includes strategies to reduce greenhouse gas sources and emissions and enhancing greenhouse gas sinks.

National Park: A legally established area for the conservation, management and utilization of flora and fauna, and landscape, together with natural environment.

Natural Disaster: sudden calamitous such as earthquakes, tsunamis, floods, volcanic eruptions, cyclones and landslide, of ongoing misfortune as in conditions of processes such as drought and desertification.

Natural Resources: natural assets (raw materials) occurring in nature that can be used for economic production or consumption. See also renewable natural resources and non-renewable natural resources.

Nitrates: already cover in Water Resources component. In the context of soil, it is nitrogenous fertilizer in the form of nitrate.

Nitrogen Oxides (Nox): these are compounds of nitrogen and oxygen combined in various ratios. The major human-caused source of NO₂ is fuel combustion in motor vehicles, utility and industrial boilers. The gas is toxic in high concentrations, a lung irritant and lowering resistance to respiratory infection. It is a major contributor to acid deposition and the formation of ground level ozone in troposphere.

Noise: audible sound from traffic, construction and so on that may generate unpleasant and harmful effects (hearing loss). It is measured in decibels.

Noise Pollution: sound of excessive levels that may be detrimental to human health.

N.P.K. Content in Soil: N.P.K. stands for nitrogen, phosphorous and potassium compounds, which are also called nutrients as these compounds are essential for growing crops and, hence, are added to soil in the form of fertilizers.

Nutrient: substance, element or compound necessary for the growth and development of plants and animals.

Nutrients: Nutrients include phosphorous, nitrogen, carbon, and silica in their various chemical forms. The degree of eutrophication in lakes is dependent largely on nutrient concentrations in the lake waters.

Organic Constituents: there are the substances found in water which have originated from organic sources or which have organic nature (e.g. hydrocarbons, pesticides etc.).

Organism: any living plant, animal or human being.

Other Lands: this refers to his land type which is catch-all for other uses of land and may include rocky areas, lakes, ponds, water ways or settlements etc.

Ozone (O₃): pungent, colorless, toxic gas that contains three atoms of oxygen in each molecule. It occurs naturally at a concentration of about 0.01 parts per million (p.p.m.) of air. Levels of 0.1 p.p.m. are considered to be toxic. In the stratosphere, ozone provides a protective layer shielding the earth from the harmful effects of ultraviolet radiation on human beings and other biota. In the troposphere, it is a major component of photochemical smog, which seriously affects the human respiratory system.

Ozone Depletion: destruction of ozone in the stratosphere, where it shields the earth from harmful ultraviolet radiation. Its destruction is caused by chemical reactions in which oxides of hydrogen, nitrogen, chlorine and bromine act as catalysts.

Pesticide: any substance or mixture of substances that is used to prevent, destroy or control pests - including vectors of human or animal disease, and unwanted species of plants or animals. Pesticides may cause harm during, or otherwise interfere with, the production, processing, storage, transport or marketing of food, agricultural commodities, wood and wood products or animal feedstuffs - or that may be administered to animals so as to control insects, arachnids or other pests in or on their bodies.

pH: It is used as a measuring unit of the intensity of acidity or alkalinity of a sample. In other words, the pH is defined as the negative logarithm of molar hydrogen-ion activity or hydrogen-ion concentration (in dilute solutions).

pH Value: measure of the acidity or alkalinity of a liquid. A pH value in the range of 0 to 7 indicates acidity, a pH value in the range of 7 to 14 indicates alkalinity, and a pH value of 7 signifies neutrality.

Pollutant: substance that is present in concentrations that may harm organisms (humans, plants and animals) or exceed an environmental quality standard.

Pollution: 1. presence of substances and heat in environmental media (air, water, land) whose nature, location, or quantity produces undesirable environmental effects; 2. activity that generates pollutants.

Population Density: total number of inhabitants per square unit of surface area.

Population-land ratio: a measure to express population pressure on land i.e. population divided by land area (sq. km.).

Protected Area: a legally established area for achieving specific conservation objectives.

Pteridophytes: non-flowering vascular plants with root stem and leave e.g. ferns, horsetails. Widely distributed group attaining its development in the tropics.

Rare Species: species occurring in small populations throughout its range. They are sparsely distributed over a large area. They may be endangered or threatened with extinction if their regeneration or reproduction is slow.

Red Data Book: a document containing information on threatened, rare or endangered species in a given habitat.

Relative Humidity: It is defined as a ratio of actual water vapor pressure to the saturation vapor pressure and is expressed in percentage. It is the measure of the water vapor content in the air.

Residual: amount of a pollutant that remains in the environment after a natural or technological process has taken place.

Richter scale: scale with a range extending from 0 to 10 for measuring the strength of an earthquake.

Sanitation: improvement of environmental conditions in households that affect human health by means of drainage and disposal of sewage and refuse.

Sewage: organic wastes and wastes water produce by residential and commercial establishments.

Shrub: low, perennial woody plants with several permanent stems branching from or near ground rather than single trunk, usually less than 6 m high at maturity.

Slums : Residential areas where dwellings are unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements and design of such buildings, narrowness or faulty arrangement of street, lack of ventilation, light, or sanitation facilities or any combination of these factors which are detrimental to the safety and health.

Soil pH: Already covered in Water Resources component. pH is measured in the aqueous extract of the soil.

Solid Waste: useless and sometimes hazardous material with low liquid content. Solid wastes include municipal garbage, industrial and commercial waste, sewage sludge, wastes resulting from agricultural and animal husbandry operations and other connected activities, demolition wastes and mining residues.

Solid Waste Disposal: ultimate disposition or placement of refuse that is not salvaged or recycled.

Solid Waste Management: supervised handling of waste material from generation at the source through the recovery processes to disposal.

Species: a group of organisms capable of interbreeding freely with each other but not with members of other species.

Sulphate (SO₄): sulphate ion consists of one atom of sulphur and four atoms of oxygen and carries two negative charge. Sulphur dioxide in the atmosphere ultimately gets converted into sulphate particles, and it combines with moisture in the air to form sulphuric acid (precursor to acid rain).

Sulphur Dioxide (SO₂): A heavy, pungent with suffocating odour, colourless gas formed primarily by the combustion of fossil fuels such as gas, petroleum and coal. It constitutes one of the most troublesome air pollutants. In moist air it is slowly oxidized to sulphuric acid. It is harmful to human beings and vegetation and contributes to acidity in rain. It may be responsible for the decay of buildings and monuments.

Suspended Solid Particles or Suspended Particulate Matter: It consists of particles of a wide range of sizes varying from greater than 100 m to less than 0.1 m. Particles larger than 10 m mainly consists of dust, coarse dirt and fly ashes which settle rapidly. Small particles less than 10 m remain much longer in the air as Suspended Particulate Matter (SPM). Human - caused sources include a variety of combustion sources (vehicles, dryers), wood stoves, field burning, and dusts from mining, roads and construction. It causes breathing and respiratory symptoms (diseases) and premature mortality. Other effects are soiling and corrosion of building materials.

Sustainable Development: development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). It assumes the conservation of natural assets for future growth and development

System of integrated Environmental and Economic Accounting (SEEA): satellite system of the System of National Accounts (SNA) proposed by the United Nations (1993a) for the incorporation of environment concerns (environmental costs, benefits and assets) into national accounts.

Threatened species: species having low fecundity (offspring production rate) or prone to extinction in human-dominated landscapes.

Tolerance: 1. ability of an organism to endure unfavorable environmental conditions; 2. amount of a chemical in food considered safe for humans or animals.

Toxic Substances: substances, which cause adverse effects on living organisms (e. g. pesticides, arsenic, mercury etc.)

Turbidity: the presence of suspended and /or colloidal substance give liquid a cloudy appearance, which is, known as turbidity. No health based guidance value for turbidity has been proposed but it makes the water unattractive and possibly harmful.

United Nations Framework Convention on Climate Change (UNFCCC): The Convention on Climate Change, which entered into force on 21 March 1994, sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 189 countries having ratified. Under the Convention, governments:

- gather and share information on greenhouse gas emissions, national policies and best practices
- launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries
- cooperate in preparing for adaptation to the impacts of climate change

Vulnerable: Species believed likely to move into the endangered category in the near future if the causal factors continue operating. Included are species of which most or all the populations are decreasing because of overexploitation, extensive destruction of habitat or other environmental disturbance; species with populations that have been seriously depleted and whose ultimate security is not yet assured; and species with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Vulnerable Species: taxa of various types, including (a) taxa believed likely to move into the "endangered" category in the near future if the relevant causal factors continue to operate. These factors may include overexploitation, extensive destruction of habitat and other environmental disturbances, (b) taxa with populations that have been seriously depleted and whose ultimate security has not yet been assured and (c) taxa with populations that are still abundant but are under threat from severe adverse factors throughout their range.

Vulnerability: Degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.

Waste-water Treatment: process to render waste water fit to meet environmental standards or other quality norms. Three broad types of treatment may be distinguished.

Water Quality: physical, chemical, biological and organoleptic (taste-related) properties of water.

Water Quality Index: weighted average of selected ambient concentrations of pollutants usually linked to water quality classes.

Weather: day-to-day or sometimes even instantaneous changes of atmospheric conditions over a given place or area. In contrast, climate encompasses the statistical ensemble of all weather conditions during a long period of time over that place or area. Atmospheric conditions are measured by the meteorological parameters of air temperature, barometric pressure, wind velocity, humidity, clouds and precipitation.

Wetland: area of low-lying land where the water table is at or near the surface most of the time. Wetlands include swamps, bogs, fens, marshes and estuaries.