



Environment Audit Directives



**Office of the Auditor General
Anamnagar, Kathmandu, Nepal
2023**

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Foreword

It is my immense pleasure to release the Environment Audit Directives of the Office of the Auditor General of Nepal. This directives will be applicable in undertaking respective financial, compliance, performance audits of the entities as per the Audit Act, 2075.

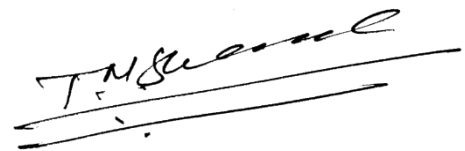
This directives provides a clear picture of methods and approaches to audit that the audit staff is required to comply with in imparting their duties. It has been built around the prevailing Audit Act, Nepal Government Auditing Standards (NGASs), and office policies that require conducting a high-quality audit. Since NGASs are based on INTOSAI framework for Professional Pronouncement (IFPP), this directives seeks to incorporate the Nepal audit practices at par with the international best practices.

This directives provides guidance and direction in all phases of the audit from pre-panning to follow-up including Nepal's environment policy, environment audit steps and process, key sectors of environment audit with necessary annexures which encourages professional judgment where it requires. The directives does not override the legal requirements and conditions of NGASs. Likely, it shall not limit the professionalism of the officials entrusted with the responsibility of conducting audits.

Our knowledge, skill, and experience with auditing practices continue to evolve, and so will this directives. This directives is expected to be updated for the continuous improvement of audit practices to meet legal provisions, audit standards, and practices to address emerging risks.

My special thanks to all staffs who prepared the directives and provided their valuable feedback and comments to make this directives implementable which, I do hope, will be of use to conduct audits efficiently and effectively.

May 15, 2023



Tankamani Sharma, Dangal
Auditor General

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Abbreviations and Acronyms

| | |
|-----------------|---|
| AEPC | Alternative Energy Promotion Centre |
| AG | Auditor General |
| ASOSAI | Guidance on conducting Environment Audit issued by Asian Organization of Supreme Audit Institutions |
| CAAN | Civil Aviation Authority of Nepal |
| CBS | Central Bureau of Statistics |
| CFM | Collaborative Forest Management |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| CO ₂ | Carbon Dioxide |
| CSD | Commission on Sustainable Development |
| DDC | District Development Committee |
| DFRS | Department of Forest Research and Survey |
| DHM | Department of Hydrology and Meteorology |
| DoA | Department of Agriculture |
| DoF | Department of Forests |
| DPR | Department of Plant Resources |
| DSCWM | Department of Soil Conservation and Watershed Management |
| EIA | Environmental Impact Assessment |
| EIA | Environmental Impact Assessment |
| EMS | Environmental Management System |
| FAO | Food and Agriculture Organization |
| FMU | Forest Management Units |
| FUG | Forest User Group |
| GHG | Green House Gas |
| GMO | Genetically Modified Organisms |
| GoN | Government of Nepal |
| ICAN | Institute of Chartered Accountancy of Nepal |
| ICIMOD | International Centre for Integrated Mountain Development |
| IEE | Initial Environmental Examination |
| INGO | International Non-Governmental Organization |
| INTOSAI | International Organization of Supreme Audit Institutions |
| IPAC | International Auditing Practices Committee |
| ISAB | International Accounting Standards Board |
| IUCN | International Union for Conservation of Nature |
| KMC | Kathmandu Metropolitan City |
| KUKL | Kathmandu Upatyaka Khanepani Limited |
| MCCICC | Multi-sectoral Climate Change Initiatives Coordination Committee |
| MDG | Millennium Development Goal |
| MOAD | Ministry of Agriculture Development |
| MOFSC | Ministry of Forest and Soil Conservation |
| MOST | Ministry of Science, Technology and Environment |

| | |
|---------|--|
| MoUD | Ministry of Urban Development |
| NAPA | Nation Adaptation Programme of Action |
| NARC | Nepal Agricultural Research Council |
| NAST | Nepal Academy of Science and Technology |
| NDRA | Natural Calamity (Relief) Act |
| NGO | Non-Governmental Organization |
| NPC | National Planning Commission |
| OAGN | Office of Auditor General of Nepal |
| PAC | Public Accounts Committee |
| PoP | Persistent Organic Pollutants |
| PSAB | Public Sector Accounting Board |
| RWSSFDB | Rural Water Supply and Sanitation Fund Development Board |
| SAI | Supreme Audit Institutions |
| SDG | Sustainable Development Goal |
| SWM | Solid Waste Management |
| SWMA | Solid Waste Management Act |
| SWMTSC | Solid Waste Management Technical Support Centre |
| TDF | Town Development Fund |
| UN | United Nation |
| UN ISDR | United Nations Office for Disaster Reduction |
| UNCED | United Nations Conference on Environment and Development |
| UND | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| UNIDO | United Nations Industrial Development Organization |
| UNISDR | United Nations Office for Disaster Reduction |
| VDC | Village Development Committee |
| WGEA | Working Group on Environmental Auditing |
| WMO | World Meteorological Organization |
| WMO | World Meteorological Organization |
| WS | Working Schemes |
| WWF | World Wide Fund |

About the Environment Audit Directives and the Structure

To conduct environmental audits, the auditors of OAGN must be familiar with environment related subject matter and concept of sustainable development and the approach, methodology, techniques on how to conduct EA under Financial Audit (FA) Compliance Audit (CA) and Performance Audit (PA) based on the benchmarked international best practices contained in International Standards of Supreme Audit Institutions, principles, guidelines, process and procedures. EA Guide aims to equip with OAGN auditors with the essential know how on the concepts of EA and how to conduct EA with FA, CA and PA frameworks.

EA is a specialized audit subject matter distinct. To conduct EA related subject matter, OAGN auditors must know and adapt the best practices to the national context. The auditor must be familiar with the subject matter, methodology, techniques and frameworks with international and national legislations and institutional systems on environment and sustainable development related subject matter. The EA Directives provides guidance for OAGN auditors on how to perform EA related subject matter with essential knowledge, approach and methodology and process in selection of the EA topics, audit planning, conducting, reporting and follow up.

The fundamental auditing principles provided in ISSAI 100 are applied to all audit engagements (FA, CA, PA) to produce quality audit products. In EA, financial audit is limited to provide an opinion on impact of applicable environmental laws, regulations, rules and standards on the financial statements of the entities audited on its assets, liabilities contingent liabilities with suitable comments and disclosure, while conducting annual financial audits and include in the audit opinion.

The Directives has been prepared after studying the existing OAGN's EA guide and retaining the relevant content and updating by incorporating the best practices, methodology and principles contained in applicable ISSAIs, GUIDs.

Note:

1. The fundamental concepts of EA, methodology, process and techniques, and types of EAs remain the same. There is no change. However, as in every audit, while undertaking EA of a subject matter, auditor do proper research at the audit planning stage, must familiarize the subject matter, policy documents, objectives, targets, timeframe, planned outputs, outcome and the benefits of the project and most importantly applicable legislation, rules, procedures and standards issued by the government from time to time. This process is part of the audit planning.

2. Audit scope, audit objectives, audit questions and sub-questions, audit criteria should be derived from the applicable acts, rules, regulations, and procedures. For meeting the emerging environmental issues, the government may issue guidelines and standards like vehicular pollution standards, air quality and water quality standards, regulation to deal with issues such as hazardous waste, hospital waste, e-waste, plastic waste etc. Audit planning and audit checklists must be prepared studying all relevant acts, rules and procedures.

3. EA can be conducted with FA, CA and PA framework, but for EA conducted in FA framework, there will not be separate audit reports; because while certifying financial statements of an entity as per the annual audit plan of OAGN, auditor must assess whether any impact is there on the financial statements due to violation or noncompliance of environmental regulations, what is the impact on assets, liabilities, or contingent liabilities, is there any disclosures required etc. and suitably commented during the FA.

4. In case of EA conducted under CA or PA framework, there will be separate audit reports. Audit planning, execution, and reports are explained in case of EA conducted under CA and PA in this Guide. Audit scope, objectives, methodology, audit criteria, audit design matrix, audit checklists must be prepared during the planning stage based on the specific audit objectives and questions and sub-questions.

5. Auditor must do research to understand the activities of the entity, collect details of the subject matter, activity and applicable regulations on the EA subject matter during the audit planning state. Audit execution, reports, follow up, documentation and quality review and quality assurance will be as per the CA or PA process. There will be separate audit reports for EA done under CA methodology and PA methodology.

Structure of the EA Directives

The first chapter this EA Directives introduces environment and sustainable development concept and the three dimensions, nature of environmental auditing (EA), evolution of EA over the years, types of EAs, issues that can be broadly covered under EA, applicable auditing standards and GUIDs and OAGN's mandate for EA, need and purpose of EA Directives. EA issues cover broadly all environment and sustainable development related subject matter such air, water, waste management, biodiversity including SDGs and disaster management related issues. As per international benchmarked practices contained in ISSAIs and GUIDs, OAGN has also developed separate directives for auditing SDGs and disaster related subject matter, audit of these specialized subjects is handled in the relevant directives. The introductory chapter provides ideas on how EAs are to be conducted using financial, compliance, performance audits.

Note:

Attempting EAs in three distinct types of audits framework viz. FA, CA and PA- is in alignment with OAGN's restructuring and segregation frameworks of FA, CA and PA as per the best international practices contained in ISSAIs and GUIDs issued INTOSAI's International Frameworks of Professional Pronouncements (IFPP).

Chapter 2 focuses on environment and environment change in Nepal. The chapter begins with a note for auditors to keep abreast with the latest updates on the applicable environment related laws, rules and regulations while doing EAs as new issues emerge, and new notifications are issued from time to time to address them. The chapter covers the government of Nepal Environment Policy and Action Plan, sustainable management of natural resources, how to mitigate adverse environment impacts, land management, forest rangeland management, water resource management, urban and industrial development, infrastructure development, government of Nepal Sustainable Development Goals, climate change policy, climate Change budget code. The chapter covers the government of Nepal Environment Policy and Action Plan, sustainable management of natural resources, how to mitigate adverse environment impacts, land management, forest rangeland management, water resource management, urban and industrial development, infrastructure development, government of Nepal Sustainable Development Goals, climate change policy, climate Change budget code

The third chapter of this EA Directives discusses audit cycle covering planning, selection of subject matter, designing EA based on the best practices in line with applicable ISSAIs and GUIDs. Source references help auditors to refer to the original documents and EA case studies for further guidance from INTOSAI WGEA webpage¹ and the Greenline Newsletter². The chapter deals with audit cycle covering planning, conducting, reporting, documentation/working papers and quality review and follow up with audit objectives, approaches criteria etc. for conducting EA with FA, CA and PA frameworks.

¹<http://www.environmental-auditing.org/Home/EnvironmentalAuditsWorldwide/AuditsbyIssue/tabid/125/Default.asp>

²<http://www.environmental-auditing.org/Home/GreenlinesNewsletter/tabid/100/Default.aspx>

In case if FA, the chapter discusses how to deal with cash and accrual accounting while factoring environmental auditing aspects in FA is detailed.

As EA undertaken along with FA, there will be no separate audit reports as environmental aspects/comments are merged in FA. While preparing OAGN's annual audit programme, entities having environmental impacts have to be identified where FAs are to be undertaken so that environmental related comments and impacts can be factored while conducting FA. As EA components must be included in FA of the concerned public entities, there will be no separate audit report of EA with FA framework. The chapter discusses common subject matters of EAs that can be done with CA and PA methodology.

The chapter covers essential elements in audit planning of EA e.g., audit approach, environmental risks identification and factors to be considered to maximize value addition by conducting EAs by OAGN. The specific elements in designing EAs, e.g. methods to obtain knowledge of environmental matters and assesses inherent risks, how laws and regulations are to be for audit criteria are defined, and how to perform substantive auditing procedures. It covers audit questions, audit criteria, sample check lists and data collection, environmental performance indicators and methods for increasing impacts.

Besides, the chapter includes EA with PA methodology on subject matter such as environmental impact systems, environmental management systems, environment reporting procedures and evaluations of environmental policies and programmes and performance of cross-cutting environmental issues impacted by multiple government entities or programmes are explained. It also provides information on governmental reporting on environmental and sustainability issues.

Chapter 4 deals with key sectors of EA: audit of water pollution; air pollution. waste management; biodiversity.

The Directives also includes 4 annexes.

Chapter-1 Introduction

1.1 Understanding Environment

Environment means the interaction and inter-relationship among the components of natural, cultural, and social systems, economic and human activities and their components. Guidance on conducting Environment Audit issued by Asian Organization of Supreme Audit Institutions (ASOSAI) has defined Environment as a complex of physical, chemical, and biotic factors that act upon an organism or an ecological community and ultimately determine its form and survival. It is the combination of different external physical conditions that affect and influence the growth, development, and survival of organisms. Such external conditions include biotic components like plants, animal and other living beings and abiotic components like soil, weather, water, sunlight etc.

Environmental matters are significant for the government of Nepal and all the public entities and users of OAGN audit reports and audited financial statements of the public entities. Environmental matters may have material impacts on the financial statements of some of the public entities. Impact of environmental liabilities on an organization's financial statements may include land assets (valued on the same basis as other property), "environmental assets" - natural assets providing ecosystem services such as habitat or flood and climate control, and other non-economic functions such as aesthetic or health values. The public bodies are accountable not only to their shareholders but also to society for the stewardship of environment. The consideration of environmental assets and environment liabilities is relatively nascent in FA.

1.2 The three dimensions of sustainable development concept

The definition of Sustainable development is described as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".³

Sustainable development is a development concept which calls for a long-term plan for the management of economic and social needs while preserving the environment. The three aspects of economic, social and environmental are interlinked, because the development in one domain inevitably affects the other two aspects. Therefore, the sustainable development decision making, and planning must be based on taking into account these dimensions of development process and it is based on the following two central principles of sustainable development:

- ▶ "Integration of environmental, economic, and social objectives - the "three pillars" of sustainable development into decision-making
- ▶ Consideration of a long-term horizon for decision making on development ensuring sustainability and equity across future generations or "intergenerational equity".

The 2030 Agenda and SDGs is a plan of action for all countries to achieve the 17 SDGs and 169 targets with 232 indicators to measure and monitor progress. The 2030 Agenda and the SDGs have been designed to integrate the three dimensions of sustainable development under the 17 SDGs. The SDGs are interconnected in a web-like manner

³<http://www.un-documents.net/our-common-future.pdf>

with crosscutting elements. The SDGs have to be achieved in their entirety with an integrated and balanced approach of the economic, social and environmental dimensions.

1.3 Understanding Environment Audit (EA)

Environmental audit (EA) is defined “as performance, compliance or financial audit addressing the approach taken by responsible bodies (e.g., government) to a specific environmental problem, or environmental policies, or programmes, as well as their performance in managing environmental issues.”⁴

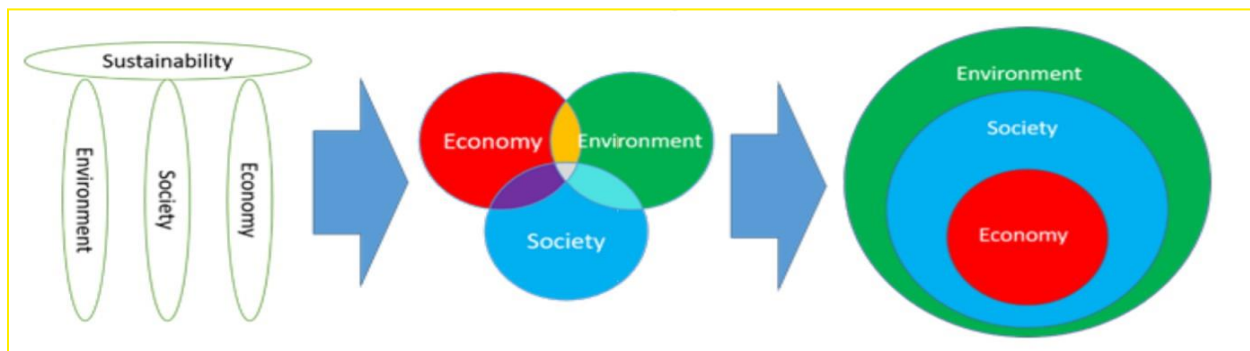
Environment Audit is a systematic audit examination of an environmental issue against applicable environmental policies and regulations to verify to what extent, they conform to specified audit criteria. The criteria may be based on local, national or global environmental treaties, policies, acts, rules, standards and best practices⁵.

EA can be conducted within the framework of all the three types of public sector audits viz. financial audit, compliance audit and performance audit. How EAs are conducted under the three different types of audits are discussed elaborately under the heading types of EA in this chapter.

1.4 Evolution of EA

EA has evolved over the years: The first model is like a three-legged stool, where the three pillars of economy, society and environment support sustainable livelihoods. In this model the economy, society, and the environment are separated and given equal importance. The second model of sustainable development is depicted by a three-overlapping-circles where the three pillars are interconnected. The model indicates that economy can exist independently from environment and society. The third model represents the environment, and its natural resources limit the other aspects of development. So, in sustainable development, economic development cannot exceed the finite limits of the resources that society and the environment can sustain levels⁶.

Figure 2: The illustration of the evolution of three sustainable development models ⁷



⁴ <https://www.issai.org/wp-content/uploads/2019/08/GUID-5201-Environmental-Auditing-in-The-Context-of-Financial-and-Compliance-Audits.pdf>

⁵ <https://www.issai.org/wp-content/uploads/2019/08/GUID-5201-Environmental-Auditing-in-The-Context-of-Financial-and-Compliance-Audits.pdf>

⁶ Giddings, B., Hopwood, B., and O'Brien, G (2002). "Environment, Economy, and Society: Fitting Them Together into Sustainable Development", *Sustainable Development*, 10, 187-196

⁷ https://www.environmental-auditing.org/media/113691/21h-wgea_sdgs_18-sep-2019.pdf

Figure 2: The illustration of the evolution of three sustainable development model ENVIRONMENTAL AUDITS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND THE SDGS P 14

ENVIRONMENTAL AUDITS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND THE SDGs

In line with the early models of sustainable development, EA by SAIs examined the performance of government activities aiming to preserve the environment, focusing on environmental outcomes with less attention to social and economic aspects. The new emphasis on sustainable development and the adoption of the UN SDGs calls for a new approach for EA, adopting sustainable development as a framework for auditing environmental programs/activities requires to factor the economic and social aspects that caused the initial environmental problem or impacted by the environmental program/activity implemented by the government. SAIs can make significant contributions in achieving sustainable development and the SDGs by conducting performance audits on government programmes that support SDGs. To provide beneficial recommendations, the auditor must factor the components of sustainability in conducting EA and formulating recommendations. EA with an SDGs perspective must consider environmental, economic and social aspects. The main challenge of auditing the sustainable development issues referring to ISSAI 5130⁸ is that the scope for performance audit of national and local sustainable development strategies is very wide. The SDGs with targets and indicators allow SAI to audit 3 broad areas:

- ▶ 'an audit of target to see if they are realistic and are based on proper understanding and evidence about what needs to be done,
- ▶ an audit of indicators to see if they are relevant and reliable,
- ▶ or an audit on progress revealed by comparing indicators with the associated targets.

EA with SDGs perspective make the audit scope precise and clearer with 17 Goals, 169 targets and 232 indicators than traditional EA with the perspective of SD in broader context. Those targets and indicators listed on SDGs could be used to specify the audit scope when SAI conducting the sustainable development audit.

Note:

1 - SDGs are specific, clearly defined, with targets and measuring performance indicators. OAGN has the mandate to conduct audit of SDGs and a separate guide for audit of SDGs has been prepared for the at purpose. In the strategic plan and annual audit plan, based on OAGN's priority and resources, subject matters relating SDGs will be included. Auditors must identify and know all the programmes and projects having links with 16 SDGs and accordingly select appropriate subject matter from the SDGs with cross cutting elements for conducting the audit. Though SDGs are a subset of EA, they assume international and national significance and hence it is appropriate to select related subject matter related SDGs for audit. The SDGs Guide provides further details about this audit.

2 - Similarly, disaster management audit can be also considered as subject matter broadly under EA because it is mainly related to global warming, climate change and other anthropogenic consequence. However, as the issue is significant audit subject needing specialized knowledge and expertise and therefore INTOSAI has issued ISSAIs and GUIDs for auditing disaster management related issues. In line with the international best practices, OAGN has prepared a separate audit guide for auditing the subject. The subject matter relating to disaster management is specific as disasters are notified. It may be due to natural causes or manmade. When OAGN prepares the strategic audit plan and annual audit plan, based on the significance, priority and resources, disaster management related subject matter is included in the audit.

⁸ ISSAI 5130 - Sustainable Development: The Role of Supreme Audit Institutions.

The International Organization of Supreme Audit Institutions (INTOSAI) Strategic Plan (2017-2022) included SDGs as a crosscutting audit priority, focusing on environmental auditing.

Some issues to consider for EA of SDGs at the program level by referring to the ISSAI 5130 are:

1. Selecting audit topic for EA

The approach is like selection of audit topics for performance audit. However, in identifying topics, SAIs may look at the High-Level Political Forum (HLPF)⁹.

HLPF sets the priority themes to be undertaken at global level annually and hence HLPF theme can be used as reference in selecting the audit topics. SAI may also select the topics based on the priority of the respective government.

2. Scoping and designing

The audit will also include more entities because of complex environmental problems require crosscutting solutions involving multitude stakeholders. OAGN may decide whether to consider several the organizations as the SDGs involve multi stakeholders with a 'whole of government approach'.

3. Defining the linkage between economic, environment and social aspects.

As the new SD principle has moved from the principle of balance between economic, environment and social dimensions into integration and coherence of three dimensions (nested model).

1.5 Types of Environment Audits in the context of FA, CA and PA frameworks

1.5.1 Conducting EAs with FA, CA and PA frameworks

Environmental issues are complex, having specific characteristics and impacts. EAs have to address social, economic and environmental and sustainable development related future-generation aspects too.

⁹ The HLPF is the main United Nations platform on sustainable development for the follow-up and review of the 2030 Agenda for Sustainable Development the Sustainable Development Goals at the global level.

Three Audit types



INTOSAI



Compliance Audit Subcommittee

EA can be undertaken as Financial Audit, Compliance Audit and Performance Audit

Note:

EA with FA framework is limited to the extent of including the impact of environmental related compliance issues on the financial statements while conducting regular FAs of the government entities under the audit jurisdiction of OAGN as per the strategic audit plan and annual audit planning. When EA is conducted with CA and PA framework on environment related subject matter, separate EA reports must be made.

As EAs are done in any of the three types of audits viz. FA, CA, and PA, it may also be noted that the methodology, techniques and processes are based on the approach, principles, methodology and techniques of FA, CA and PA explained in the relevant ISSAIs and adapted and used in the relevant FA, CA, and PA Guides of OAGN are relevant and current good practices applicable to EA contained in the specific ISAIS and GUIDs applicable to environment related subject matter adapted and incorporated in this EA Guide as well.

1.5.2. EA undertaken as Financial Audit

The International Auditing Practices Committee (IPAC) defines environmental matters in a financial audit as:

- ▶ Initiatives to prevent/abate/remedy damage to the environment or to deal with the conservation of renewable and non-renewable resources. Such initiatives may be required by environmental laws and regulations or by contract, or they may be undertaken voluntarily.
- ▶ Consequences of violating environmental laws and regulations.
- ▶ Consequences of environmental damage done to others or natural resources.
- ▶ Consequences of vicarious liability

Based on these considerations, an audit opinion can be expressed on adequacy of compliance to the various national and adopted international financial regulations. imposed by law. An example could be the present owners being held liable for environmental damage caused by the previous owners.

An audit opinion can be expressed on adequacy of compliance to the various national and adopted international financial regulations.

Financial accounting systems are not designed to consider the risks associated with the biodiversity and ecosystem services and the degradation of these services but poses serious risks to societies and the economies and potential costs. Evaluating impact of ecosystem services might be challenging, but OAGN auditors must take into account the environmental impact in the annual financial reporting.

Impact of environmental matters on financial statements to be seen during FA

FA provides information on the financial position, performance and cash flow of an entity and helps to make decisions about allocation of resources and demonstrates an entity's accountability for its resources.

Generally, financial statements of government entities may avoid environmental issues; but there can be environmental costs, compliance and performance issues associated with environmental policies and obligations impacting the financial statements which should be reflected in FA of the financial statements. FA traditionally deals with financial information and has a direct link with the financial accounting system and is expressed in monetary units.

Information can be material even if it is not presented in monetary terms. Non-financial information can include emission units of greenhouse gases, cubic meters of water consumption or share of eco-labelled products. Non-financial information might not be generally reported as the information might be qualitative in nature. However, non-financial information can be relevant for any audit dealing with the environment, as the objective of an audit of financial statements is to express an opinion on whether the financial statements are prepared, in all material respects, in accordance with an identified financial reporting framework.

Value addition by OAGN during FA by adding impact of environmental matters

The OAGN auditors can add greater transparency and informed decisions about application of resources and environmental outcomes while certifying financial statements during FA. As the environmental costs, liabilities and asset impairments affect the financial statements, auditor must assess the completeness and accuracy of the figures reported. The objective of audit of financial statements is to 'enable the auditor to express an opinion on whether the financial statements are prepared, in all material respects, in accordance with an identified financial reporting framework'. As material respects may relate to environmental costs, obligations, impacts, and outcomes, FA must look into material impact of applicable environmental regulations¹⁰ on financial statements as part of FA and comment suitably.

While conducting FA of financial statements of a public sector entity, the following environmental issues may arise¹¹:

- ▶ initiatives to prevent, abate or remedy damage to the environment,
- ▶ the conservation of renewable and non-renewable resources,

¹⁰ISA 250 Consideration of laws and regulations in an audit of financial statements, paragraph 6 (b)

¹¹International Auditing Practice Statement 1010: The Consideration of Environmental Matters in the Audit of Financial Statements, March 1998

-
- ▶ the consequences of violating environmental laws and regulations; and
 - ▶ the consequences of vicarious liability imposed by the state.

EA with Financial and Compliance Audit framework is concerned with:

- ▶ attestation of financial accountability of accountable entities, involving examination and evaluation of financial records and expression of opinions on financial statements,
- ▶ attestation of financial accountability of the government administration as a whole,
- ▶ audit of financial systems and transactions including an evaluation of compliance with applicable statutes and regulations,
- ▶ audit of internal control and internal audit functions,
- ▶ audit of the probity and propriety of administrative decisions taken within the audited entity; and
- ▶ reporting of any other matters arising from or relating to the audit that the SAI considers should be disclosed.

Cash versus Accrual Accounting

The government of Nepal follows both cash accounting and accrual accounting. The cash basis of accounting recognizes transactions and events when cash (including cash equivalents) is received or paid and measures the overall financial results for the period as the difference between cash received and cash paid. The primary financial statement in this case is the cash flow statement. The accrual basis of accounting recognizes transactions and other events when they occur (not just when cash and its equivalent are received or paid). The financial statement shows assets, liabilities, net assets and equity, revenue and expenses based on accrual accounting principles. OAGN auditors must report the impact of environmental issues on financial statements prepared using cash and accrual accounting methods when auditing financial statements.

Environmental matter impact on financial statements:

Cash accounting

Environmental issues can impact on financial statements prepared on a cash basis of accounting though cash basis focuses on the recognition of impacts during the accounting year in question (through specific payments and, in statements of losses, through special payments). Environmental impacts are not necessarily restricted to specific periods and must be projected by developing a methodology to examine the impacts of activities on environmental issues for periods longer than the accounting year in question. Effective monitoring facilitates an impact examination but for that the objectives and intermediate indicators must be clearly defined. Issues related to environment in FA should be relevant if they have a material effect on the financial statements and the decision makers, as:

- ▶ Whether the assets/liabilities/incomes and expenditure are recognized, measured and presented as required by the appropriate financial reporting framework,
- ▶ Whether there is any risk of material financial consequences if laws/regulations relating to environment are not complied with,
- ▶ Whether all relevant and material financial or non-financial information has been disclosed which could affect the decision makers.

There could be impact on financial reporting where compliance reporting is included in a government financial report.

Example, where the entity is required to comply with environmental laws and regulations, non-compliance must be reported with details adhering to the FA and CA principles.

Accrual accounting

Environmental issues can impact financial statements prepared on an accrual basis in many ways. The international accounting standards address the general principles for recognition, measurement, and disclosure of environmental matters in a financial report¹². Auditing standards must be developed in line with these accounting standards in conjunction with the national accounting bodies of Nepal as explained below:

- ▶ The introduction of environmental laws and regulations may involve an obligation to recognize impairment of assets and consequently a need to write-down the carrying value.
- ▶ Failure to comply with legal requirements concerning environmental matters, such as emissions or waste disposal, may require the accrual of remediation works, compensation, or legal costs, for example a failure to comply with pollution control laws may lead to fines and penalties for an entity¹³.
- ▶ Some annual operating costs are environmental in nature.
- ▶ For example, energy costs can be considered an environmental cost as the use of fossil fuels is a source of carbon dioxide and air pollution.
- ▶ Some entities may need to recognize environmental obligations as provisional liabilities in the financial statements. For example, obligations associated with solid waste landfill closure, and aftercare and restoration obligations associated with mining operations and nuclear decommissioning.
- ▶ An entity may need to disclose a potential environmental obligation as a contingent liability where:
- ▶ the possible obligation depends on the possible occurrence of a future event; or the amount of the present obligation cannot be reasonably estimated; or an outflow of resources to settle the obligation is not probable.
- ▶ While meeting the relevant accounting standard requirements, some additional disclosures in the notes to the financial statements may be required.

Examples include:

- ▶ the industry in which the entity operates and the associated environmental issues,
- ▶ the fair value accounting of biological assets and agriculture products when the asset can be measured reliably,
- ▶ the accounting treatment adopted for environmental costs (i.e., what is included, when items are expensed or capitalized, how items are amortized to income, etc.),
- ▶ fines and penalties which have been incurred under environmental legislation; and
- ▶ environmental restoration liabilities, including measurement uncertainties, nature, and timing.

The accrual accounting recognizes environmental costs as they occur and environmental liabilities, in the long or the short term - for instance, by financial provisions in the balance sheet and by disclosing contingent liabilities in the financial statements. The value of fixed assets may be adjusted - through permanent devaluations to reflect impairments. The international accounting standards recognize environmental issues. OAGN auditors can use these standards to assess the inclusion of environmental issues in the financial statements or the internationally accepted

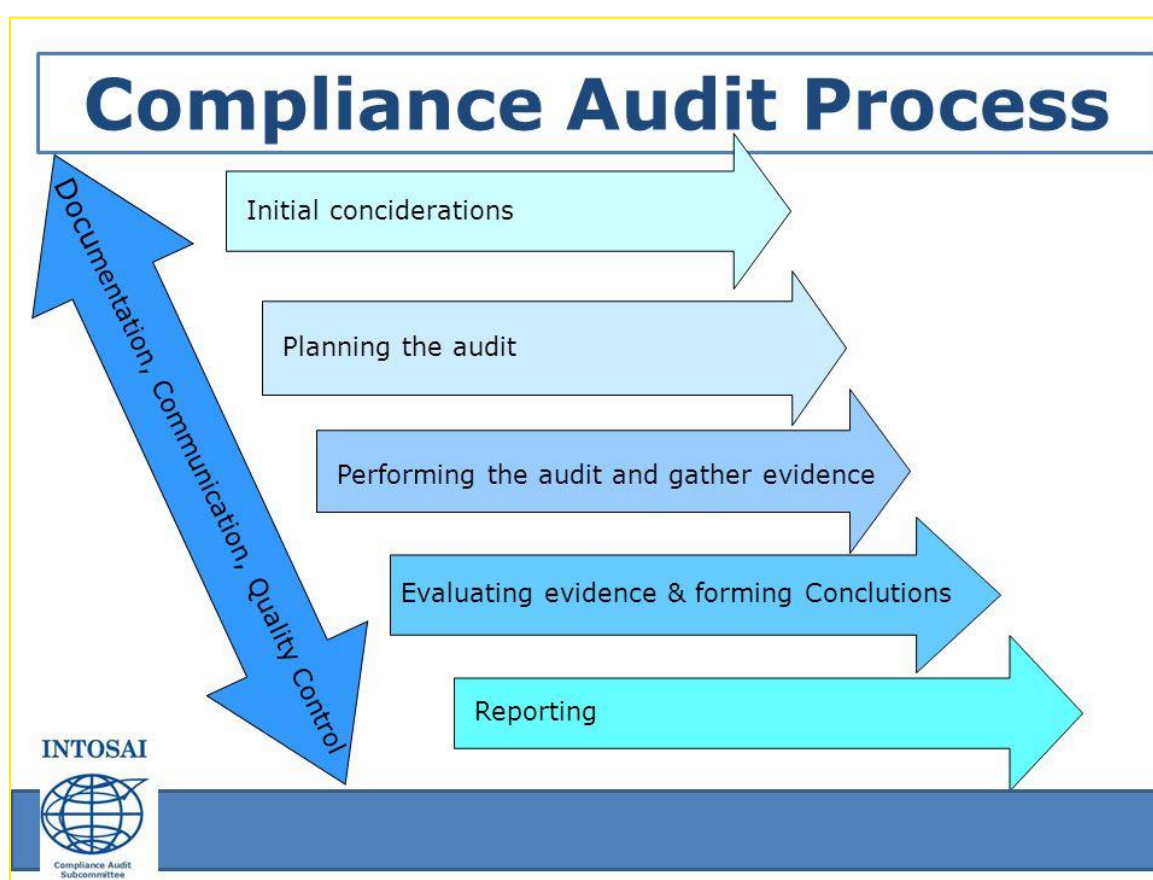
¹²IAS 37: *Provisions, Contingent Liabilities and Contingent Assets* provides general considerations that apply to the recognition and disclosure of provision and contingent losses, including those arising from environmental matters. Examples of environmental liabilities are also provided.

¹³<http://www.ifac.org/system/files/downloads/b007-2010-iaasb-handbook-iaps-1010.pdf>

auditing standards that cover the above-mentioned situations in the absence of national standards to provide reasonable assurance that the accounts are free from material misstatement.

1.5.3 EA undertaken as Compliance Audit:

The scope of audit is restricted to checking compliance of the applicable policies/laws/rules/regulations which are specific to the entity. Compliance audit is an essential part of FA and CA as compliance with mandatory laws, regulations, standards and procedures are essential for all types of audits. However, CA can be chosen as a separate audit subject matter when it focuses on compliance of specific issues defined with audit objectives and scope. FA looks also compliance with applicable accounting and auditing standards in financial statements. PA looks at compliance of 3Es, viz. economy, efficiency and effectiveness. EAs that can be done with CA framework is discussed in detail in the subsequent chapter on EA audit planning, conducting, reporting and follow up.



1.5.4 EA undertaken as Performance Audit¹⁴:

The scope of EA conducted as PA encompasses the following:

¹⁴ ASSOSAI Research Paper <http://iced.cag.gov.in/wp-content/uploads/2013/02/ASOSAI-GUIDANCE-For-ENVIRONMENTAL-AUDITING.pdf>

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- i. Audit of Government's monitoring of compliance with environmental laws: The main aim of such audit is to offer an opinion on the performance of the audit entity with regard to compliance against already established environmental laws.
 - ii. Audit of the performance of Government's environmental programs:
The main aim of such audit is to offer an opinion on the performance of specific environmental programs/projects/strategies already formulated and being implemented by the Government.
 - iii. Audit of the environmental impact of other Government programs:
The main aim of such audit is to offer an opinion on the environmental impact of other programs/projects formulated and implemented by other Ministries/ departments/agencies other than the Ministry/Department of Environment. For example, audit of the impact of mining, building roads/dams, military operations etc., on the environment would fall under this category.
 - iv. Audit of Environmental Management Systems:
The main aim of such audit is to offer an opinion on the implementation of Environmental Management Systems (EMS) of the audit entity and/or ISO 14001 Standards.
 - v. Evaluation of environmental policies and programs:
PA can be undertaken to evaluate environmental policies and programmes with reference to their intended objectives to evaluate whether the planned objectives, targets, outputs, and outcome have been achieved as envisaged in the policies and programmes and to conclude whether the intended beneficiaries are benefited. The main aim of such EA done with PA framework is to offer an opinion on the adequacy or lack of a policy framework governing environmental issues. International best practices can be a source for such comparison. However, adaptability to local conditions should be considered before making such comparisons. The absence of an EMS can also be a source of audit comments

1.6 Issues under Environment Audits (EAs)

OAGN' Annual Audit Plan includes EA subject matter along with other, types of audits. It also indicates whether a subject matter must be treated as EA or SDGs or Disaster Management Audits; for, OAGN is mandated to undertake EAs, audit of SDGs and disaster management issues.

EA is a broader term encompassing all 17 SDGs and disaster management subject matter. However, as OAGN's strategic plan and annual audit plan may include certain topics for EAs, some SDGs related subject matter and some disaster management issues based on impact, significance, relevance, visibility, auditability, and other criteria

EAs are undertaken in all the 3 types of audits of subject matter related to environment and sustainable development issues. Sustainable development concept aims at balancing the trade-off between economy, environment and society issues. Economic growth and social development must be balanced to reduce the impairment on environment. 2015 Paris treaty on climate change and many international treaties and UN agencies like UNEP and UNFCCC advance the cause of sustainable development and mitigation of adverse impact on climate change due to global warming and other anthropogenic causes.

- ▶ Water
- ▶ Air
- ▶ Waste

-
- ▶ Biodiversity
 - ▶ Forest
 - ▶ Climate Change
 - ▶ Disasters¹⁵
 - ▶ Sustainable Development Goals¹⁶

The issues of water, air, waste, land and biodiversity issues are discussed in Chapter 2 with reference to Nepal. Issues relating to SDGs and Disaster management are distinct and specialized subjects. Though technically they are under the ambit of broader EA framework, due to enormous significance of SDGs and disaster management, INTOSAI considers them separately for audit purpose. According to the international best practices, OAGN has also prepared separate guide to audit these highly specialized subject matters. The Guide covers the audit steps and methodology covering the selection of audit topics, audit planning, audit execution, reporting, audit documentation and quality review in the subsequent chapters.

As separate Guides for audit of Disasters and Sustainable Development Goals are prepared, these Guides may be used for audit of these issues.

1.7 Applicable Auditing Standards for Environment Audit

The INTOSAI Auditing Standards reflect a consensus of best practices among SAIs. As such, it is clear that the standards codify generally accepted professional practices which are applied in carrying out an independent external audit, which may also encompass the audit of activities with an environmental perspective. 102 It follows from what was agreed at XV INCOSAI that a SAI should – to the full extent appropriate – take the INTOSAI Auditing Standards into account when planning, conducting, and reporting on an environmental audit.

International standards and GUIDs applicable to Environment Audit

INTOSAI issued its first document on environmental audit in 2004 as “Environmental Audit and Regularity Audit” and in 2010 the content was updated and issued as ISSAI 5120. The content of ISSAI 5120 was revised in 2016 with the establishment of the INTOSAI Framework of Professional Pronouncements (IFPP) and renamed as GUID 5201 - Environmental Auditing in the Context of Financial and Compliance Audits. It was further modified with editorial changes in 2019¹⁷. GUID 5200 Activities with and Environmental Perspective has also been adapted to the context of OAGN while designing this OAGN’s EA Guide for enabling the auditors to understand the nature of environmental auditing and related process to conduct effective environmental auditing within the OAGN’s jurisdiction and mandate.

Applicable professional standards, ISSAIs and GUIDs

Adherence to applicable professional standards and guidelines in conducting environmental audits add credibility, quality and professionalism to OAGN’s auditing process and products. The applicable International Standards of Supreme Audit Institutions (ISSAIs) issued by the International Organization of Supreme Audit Institutions (INTOSAI) help independent and effective auditing with professional approach within OAGN’s mandate. The following ISSAIs and GUIDs are relevant for performing EAs:

¹⁵ Please refer to OAGN’s Guide for Audit of Disasters

¹⁶ Please refer to OAGN’s Guide for Audit of SDGs

¹⁷ www.issai.org Environmental Auditing in The Context of Financial and Compliance Audits

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- I. ISSAI 100 - Fundamental Principles of Public Sector Auditing are applicable to all public sector auditing in general.
 - II. ISSAI 200 Financial Audit Principles deal with audit of financial statements in the public sector.
 - III. ISSAI 400 Compliance Audit Principles discuss compliance auditing.
 - IV. ISSAI 2000 to 2899 provide standards for conducting financial audits of public sector entities based on the International Standards on Auditing (ISAs) issued by the International Auditing and Assurance Standards Board (IAASB).
 - V. ISSAI 4000 – Compliance Audit Standard provide guidance on compliance audit.
 - VI. GUID 5201 - Environmental Auditing in the Context of Financial and Compliance Audits on environmental auditing has been developed by the INTOSAI Working Group on Environmental Auditing¹⁸ (WGEA). GUID 5201 contains good practices that can be adapted by OAGN in conducting audits with an environmental focus.
 - VII. ISSAI 3000 - Performance Audit Standard, GUID 3910 Central Concepts for Performance Auditing and GUID 3920 The Performance Auditing Process contain the principles of PA and provide the basis for good PA practices.
 - VIII. GUID 5200 relates to auditing with an environmental perspective developed by the INTOSAI Working Group on Environmental Auditing (WGEA) based on the experiences of the SAs and serves as a tool in conducting EAs.
 - IX. GUID 5202 *Sustainable Development: The Role of Supreme Audit Institutions* provides further information on audit of sustainable development subject matters.

1.8 OAGN's Mandate for Environmental Audit

The Constitution of Nepal entrusts the Auditor General with the responsibility to conduct audit of the constitutional bodies and all government entities. The Audit Act of Nepal provides comprehensive mandate to the AG to conduct the audit of government financial transaction with the perspective of compliance, propriety, economy, efficiency, and effectiveness. This mandate empowers OAGN to conduct audit with an environmental perspective. Financial Procedures Rules 2064 (2007) specifies that in preparing the budget for a development project, such a project must be approved by the Government of Nepal, also considering of the returns from it, on the basis of the feasibility study and financial, technical, environmental and administrative propriety of the proposed project. This rule provision also authorizes OAGN to conduct audit of projects with environmental focus.

1.9 Need and purpose of the Environment Audit Guide

Environment Audit can be conducted under the financial audit, performance audit and compliance audit frameworks. OAGN attempted EA on a few issues such as undertaking the projects without conducting EIAs, poor sanitation, lack of soil conservation, construction of roads by local authorities without considering the environmental aspects etc., in course of financial audit. Government of Nepal has initiated various environmental initiatives and allocating budget for implementation of programs also. Most of the programs are being undertaken under the Ministry of Science, Technology and Environment, Ministry of Forest and Soil Conservation and other government sector entities as well. Similarly, revenue/tax exemption such as, expenditure incurred in environment protection is allowed for exemption by tax laws.

¹⁸ <http://www.environmental-auditing.org/Home/EnvironmentalAuditsWorldwide/AuditsbyIssue/tabid/125/Default.aspx>

Under the various laws there are many provisions related to protection of environment which require coordination for collaborative efforts for implementation of such provision. In last few years, OAGN also conducted EA as part of the performance audit taking various environmental issues such as, water pollution, biodiversity etc., applying financial/compliance audits.

This EA Guide 2020 for OAGN has thus been developed keeping in line with OAGN's statutory and legal mandate, the applicable laws, regulations, and rules while adapting to the context the benchmarked international best practices contained in the relevant ISSAIs and GUID 5200 and GUID 5201. While updating, the contents of the existing OAGN's EA Guide has been reviewed and all the relevant matter has been retained and the content was further modified and updated incorporating and adapting the relevant ISSAIs on public sector auditing and particularly GUID 5200 and GUID 5201 on the subject matter. This EA Guide 2020 has been prepared for OAGN by adapting the principles of financial and compliance auditing introduced in ISSAI 200 and ISSAI 400 and current good practices on environmental auditing. The Guide discusses environmental issues in the context of financial and compliance audits.

OAGN being the supreme audit institution (SAI) of Nepal does not need any specific mandate to conduct environmental audits. OAGN may conduct EA under its present constitutional and legal mandate to do different types of audits. OAGN can conduct EAs under FA/CA/PA framework. This Guide provides background, concepts and nature of EA to be conducted under FA, CA and PA frameworks and how to do EAs based on the best current practices. Auditors can also refer to the case studies given at the INTOSAI WGEA webpage¹⁹ and the Greenline Newsletter²⁰.

Thus, the purpose of a separate EA Guide is to ensure consistency in EA approaches, harmonizing the audit process with international best practices, and promoting professional competence of OAGN staffs.

The Guide needs to be updated periodically when knowledge in the field evolves in future.

¹⁹<http://www.environmental-auditing.org/Home/EnvironmentalAuditsWorldwide/AuditsbyIssue/tabid/125/Default.aspx>

²⁰<http://www.environmental-auditing.org/Home/GreenlinesNewsletter/tabid/100/Default.aspx>

Chapter 2- Nepal's Environment Policy

Note:

- ▶ To do environment audit, auditor must be familiar with all the latest government policies, strategies, plan, the government programs, projects activities, initiatives, and schemes with planned objectives, targets, milestones, outputs, and outcome relating to the selected subject matter.
- ▶ As environmental issues are highly sensitive and dynamic, mapping all the acts, rules framed thereunder, notifications, directives, circulars, bylaws applicable and issued by vrious authorities/government from time-to-time till the date of audit, is important to prepare proper audit planning. As per the emerging requirements, the government of Nepal will be formulating new policies, enact legislations, rules and make needed amendments as per the requirements. In this chapter, some of the significant latest policies and acts are discussed. These are mainly illustrative and not exhaustive, as auditor is required to update his knowledge and familiarize the updated applicable acts, rules and regulations on the subject matter to plan and conduct the audit on a selected subject matter.
- ▶ While all attempts have been made to incorporate the latest legislation in the EA Guidelines, however, rules, regulations, government circulars and notifications may be issued by the government of Nepal from time to time relating to environmental subject matter as and when pressing issues emerge like management of plastic waste, electronic and electrical waste, or hospital waste management. Hence while taking audit of EA subject matter, it is important for the auditor to be familiar with the latest applicable laws, regulations, rules, circulars, and notifications issued by the concerned ministry from time to time while planning the audit.
- ▶ Nepal is sensitive and vulnerable to changes in environment, ecosystem, and climate change. Climate change has wider range of devastating effects to the nation and its people. The Inter-governmental Panel on climate change (IPCC) defines climate change as any change in climate for a long term caused by human activities or natural imbalance. Sustainable livelihood and health are important issues affected by climate change. To mitigate the adverse impact of climate change, the nation must prepare appropriate strategies and plan of action. Fragile topography, the climate-sensitive livelihoods of the people make Nepal highly vulnerable to climate change.
- ▶ Nepal is member to the United Nations Framework on Convention of Climate Change (UNFCCC) and ratified the Paris Agreement, 2015 to mitigate the impacts of climate change. Nepal's greenhouse gas (GHG) emission is about 0.027 percent of total global emissions. Based on the Second National Communication (2015), GHG emissions from the energy sector has been increasing. As an agricultural economy, larger portion of GHGs emissions is from the agricultural sector. Nepal, as a Party to the United Nations Framework Convention on Climate Change (UNFCCC), pursues efforts to limit temperature rise to well below 2°C leading to 1.5°C above pre-industrial levels.
- ▶ The Paris Agreement is legally binding global climate change agreement. According to Article 3 of the Paris Agreement, Nepal made Nationally Determined Contribution (NDC) commitments for the use of renewable sources of energy. The Government of Nepal presented its enhanced NDC for 2021-2030.

Nepal's Long-Term Low Greenhouse Gas Emission Development Strategy

Nepal is determined to achieve socio-economic prosperity by building a climate-resilient society and developed its policy and institutional framework for formulating a long-term low greenhouse gas emission development strategy

by 2021 to achieve net-zero greenhouse gas emission by 2050²¹. NDC was developed through participatory process with consultations at national and provincial levels following the principle of Leave No One Behind (LNOB).

As per the Paris Agreement, Nepal is to submit an adaptation communication, which will include its priorities, implementation, plans and actions through the National Adaptation Plan (NAP). NAP will outline Nepal's contribution. As the country is at high-risk to the effects of climate change, adaptation will be a constant requirement with priorities and actions. The National Climate Change Policy (2019) envisages an integrated approach to cover climate-sensitive sectors. The adaptation priorities cover eight thematic and four cross-cutting areas as listed below:

The thematic areas are:

- I. Agriculture and Food Security,
- II. Forests, Biodiversity and Watershed Conservation,
- III. Water Resources and Energy,
- IV. Rural and Urban Settlements,
- V. Industry, Transport and Physical Infrastructure,
- VI. Tourism, Natural and Cultural Heritage,
- VII. Health, Drinking Water and Sanitation,
- VIII. Disaster Risk Reduction and Management.

The cross-cutting areas are:

- I. Gender Equality and Social Inclusion (GESI), Livelihoods and Governance,
- II. Awareness Raising and Capacity Building,
- III. Research, Technology Development and Extension,
- IV. Climate Finance Management.

Nepal is committed to implement the National Environment Policy (2019), National Climate Change Policy (2019), Environment Protection Act (2019), Environment Protection Regulation (2020), National Adaptation Program of Action (NAPA), Framework on Local Adaptation Plans of Action (LAPA), Disaster Risk Reduction National Strategic Plan of Action 2018 – 2030, Fifteenth Plan, and other national strategies and action plans. The key policy priorities of Nepal have been identified and included in the second NDC, 2020.

The key priorities include that by 2030, all 753 local governments will have to prepare and implement climate-resilient and gender-responsive adaptation plans. The plans will prioritize adaptation and disaster risk reduction and management measures focusing on women, differently abled, children, senior citizens, youth, Indigenous Peoples, poor communities, and people residing in climate-vulnerable geographical areas. The National Adaptation Plan (NAP) will have to be updated every ten years.

A National level Vulnerability and Risk Assessment (VRA) will have to be carried out every five years to inform climate resource allocation policies. By 2025, Nepal is committed to establish institutional mechanisms including Environment Protection and Climate Change Management National Council, Inter-Ministerial Climate Change Coordination Committee (IMCCCC), thematic and cross-cutting working groups (TWGs/CWGs), Climate Change Research Centre, Provincial Climate Change Coordination Committee, and local level institutional structures.

National Climate Change Policy, 2076 (2019)²²

²¹ Second Nationally Determined Contribution (NDC)

²² National Climate Change Policy, 2076 (2019)

Nepal formulated the National Climate Change Policy, 2076 (2019) for socio-economic prosperity of the nation by building a climate resilient society. The Policy covers the following sectoral and inter-sectoral policies, strategies and working policies:

- I. Agriculture and Food Security policy
- II. Forest, Biodiversity and Watershed Conservation
- III. Water Resources and Energy
- IV. Rural and Urban Habitats
- V. Industry, Transport and Physical infrastructure
- VI. Tourism and Natural and Cultural Heritage
- VII. Health, Drinking Water and Sanitation
- VIII. Disaster Risk Reduction and Management
- IX. Gender Equality and Social Inclusion, Livelihoods and Good Governance
- X. Awareness Raising and Capacity Development
- XI. Research, Technology Development and Expansion

Climate Finance

Land and forest management

Land and forest resource play a major role in the livelihood of the people of Nepal. Sustainable land and forest management, biodiversity conservation, integrated watershed management are priorities. The Ministry of Forests and Soil Conservation (MoFSC) made Forest Policy 2015 and the Forestry Sector Strategy (2016-2025). The Forestry Sector Strategy has envisioned eight strategic pillars and identified seven key thematic areas to achieve five major outcomes viz: sustainable production and supply of forest products, improvement of biodiversity conservation, watershed and ecosystem services, increased contribution to national economy, inclusive and accountable forestry sector institutions and organizations, and climate resilient society and ecosystem. Effective implementation of the strategy depends on coordination among the key stakeholders including government institutions, civil societies, and local communities.

In 2019, Nepal formulated National Agroforestry Policy of Nepal. Nepal has been practicing integrated agriculture and forestry. The act of planting trees in agricultural lands was widely followed in Nepal. Various agencies provide seeds, seedlings, and technical support to improve livelihoods of people depending on agriculture land. Agroforestry development has been initiated in some of the districts under the Prime Minister Agriculture Modernization project. The Forestry Sector Strategy (2016 - 2025) aims at management of the private forest and promotion of trees in agricultural sector.

The Agriculture Development Strategy, 2071 (2014) focus on the agroforestry system to increase productivity through integrated management of the agricultural land. The National Forest Policy, 2075 (2018), National Agroforestry Policy 2019 (2076) facilitate development, expansion and promotion of agroforestry including fruits. The programs such as biological diversity programme for Chure and Terai region, forest programme for livelihood, medicinal herbs production programme, and livelihood and food security through agroforestry and community forest programme support development, research, dissemination, and expansion of the agroforestry. Nurseries provide planting material and technical services to plant tree species in agricultural land.

The Ministry of Agriculture and Livestock Development is responsible for implementation, monitoring and evaluation of the National Agroforestry Policy. It will identify problems and prioritize programs; develop strategies and mobilize resources for implementation, monitoring and evaluation. The Agroforestry Inter-Ministerial Coordination Committee shall evaluate National Agroforestry Policy 2019 (2076) on a regular basis. All related Policies, Regulations, Directives and Strategies shall be amended in consistent with this Agro-forestry Policy. The necessary

Acts, Rules, Directives, Procedural Guidelines and Standards will enable effective implementation of the Policy. The Government of Nepal shall review the Policy every fifth year.

Climate Change Health Adaptation Strategies and Action Plans of Nepal (2017-2021)

Key features of Nepal

- ▶ 67 m (Kechanakal, Jhapa) to 8848 m (Mount Everest) within a distance of 193 KM
- ▶ Agriculture sector-the base of livelihood of nearly 80% people and employs about 66% of the labor force of the country
- ▶ Only 21% of land is cultivated of which 54% is irrigated
- ▶ 50% of farmers are small holders cultivating land less than 0.5 hectares
- ▶ 21% of the population are under the poverty line 41% of the population do not get the minimum suggested daily calorie intake
- ▶ 42% of the total population now lives in municipalities
- ▶ 118 ecosystems, 75 vegetation types and 35 forest types
- ▶ 45% of total area is forested, 1.7% annual deforestation rate
- ▶ 40,000 MW hydropower potential
- ▶ 3,808 glaciers covering 4,212 Km²
- ▶ 2323 glacial lakes

Climate Change in Nepal: Key features

- ▶ 0.39% of global population
- ▶ Nepal's contribution to global Greenhouse Gas (GHG) emission: 0.027%
- ▶ Nepal is one of the most vulnerable countries to climate change
- ▶ About 1.8-degree centigrade increase in between 1975 to 2006
- ▶ Annually temperature increasing by 0.06 degree centigrade (MoE, NAPA, 2010)
- ▶ Day and night are warmer ever before
- ▶ Change in raining season and pattern
- ▶ Snow melting and loss of ice caps
- ▶ Increased frequencies, magnitude, and intensity of natural disasters
- ▶ Decreased food production in recent years

Impacts

- ▶ Increase in the presence of agricultural pests and diseases
- ▶ 42 out of 75 districts classified as food insecure 847648 hectares of agricultural land lost due to extreme events
- ▶ Climate change may contribute to a projected 12 % loss in national food production over the next 60 years
- ▶ More than 1.9 million people are highly climate vulnerable, with 10 million people increasingly at risk
- ▶ 21 Glacial Lakes are potentially dangerous
- ▶ Climate Change impacts on agriculture may affect national food security and the livelihoods of over 60% of the population

-
- ▶ Continued melting glaciers and increased runoff will lead to more flood risk, substantial reductions in dry season flow, and will negatively impact downstream agriculture, which relies on this water for irrigation (World Bank, 2013)
 - ▶ Extreme events in Nepal already cost 1.5 -2% of the GDP each year with additional investment of USD 2.4 billion needed to build resilience from now to 2030
 - ▶ Water-induced disasters due to climate change would cost an additional estimated USD 100-200 million (equivalent to 0.6-1.1 % of current GDP) each year till 2050
 - ▶ Climate change-driven events could cause losses of 9.9 % of Nepal's annual GDP by 2100 Decreases in dry season river flows may increase required hydropower investment by USD 2.6 billion until 2050
 - ▶ Key sectors vulnerable to Climate Change
 - ▶ Water Resources and Energy
 - ▶ Forests and Biodiversity
 - ▶ Agriculture and Food Security
 - ▶ Urban Settlements and Infrastructures
 - ▶ Public Health
 - ▶ Climate Induced Hazards
 - ▶ Tourism, Natural and Cultural Heritage

Response to Climate Change Impacts in Nepal

- ▶ Institutional Arrangements
- ▶ Policy Frameworks
- ▶ Programmes and Projects
- ▶ Climate Change Council, 2009

The Kyoto Protocol, 2012

UNFCCC requires countries to limit their GHG emissions. Kyoto Protocol, 2012, is legally binding to reduce GHG emissions compared to the emissions in 1990. It provides a detailed methods and mechanisms for how the emission reductions can be achieved, measured, and verified. All members in UNFCCC did not sign the Kyoto Protocol.

Kyoto Protocol characteristics

Commits Annex 1 countries to reduce GHG emissions by 5.2% by 2012 compared to 1990.

- ▶ Actual commitment period: 2008 - 2012.
- ▶ Individual goals for each country.

3 mechanisms to help countries to reach their commitments

- ▶ ETS - Emissions Trading System
- ▶ CDM - Clean Development Mechanism
- ▶ JI - Joint Implementation

6 greenhouse gases: CO₂, CH₄, N₂O, PFCs, HFCs, SF₆.

Climate Change: Health Adaptation Strategies and Action Plans of Nepal (2017-2021)

Health is an important sector affected by climate change. To mitigate the adverse impacts of climate change on people's health, appropriate strategies are essential. The provision of clean air, water, nutritious food, improvement in infrastructures, pollution free planned cities are critical issues. The commitments made by the Government of Nepal at national and international level, Constitution of Nepal 2015, National Health Policy of Nepal 2014, Health Sector Strategy (2015-2020), National Population Policy 2014 and National Climate Change Policy enabled the country to develop its national climate change health adaptation strategies and National Adaptation Plan. The objective is to protect people from the adverse effects of climate change.

National Healthcare Waste Management Standards and Operating Procedures, 2020

Contamination caused by waste is an environmental issue. If waste is not handled in a satisfactory manner, it poses great danger to humans and animals. Radioactive waste, medical waste hazardous waste cause illness and loss of life. Illegal dumping and mismanaged landfills can contaminate soil and water.

Nepal developed the National Healthcare Waste Management Standards and Operating Procedures, 2020²³ to provide clean and healthy environment. Besides, general waste, there are substantial amount of hazardous waste including laboratory, chemical and pharmaceutical and hospital waste, bio-hazardous waste such as infected lab cultures, body parts, e-waste, plastic waste etc. All health care wastes must be segregated, treated, and safely disposed. National Healthcare Waste Management Standards and Operating Procedures 2020 provide guidance for healthcare waste management system.

Agriculture and Food Security Policy

Food security, nutrition and livelihoods should be improved by adopting climate-resilient agriculture system. Agriculture based adaptation programs help the poor, marginalized, landless, indigenous people and vulnerable households, women, and persons with disability.

Water efficient irrigation technology, crop diversification, protection of agricultural biodiversity and organic farming system are promoted. Traditional knowledge, skill and practice and innovative technologies related to climate-friendly agricultural system, energy efficient technologies for production, collection, processing and storage in agriculture and animal husbandry sector are important priority areas of Nepal.

Forest, Biodiversity and Watershed Conservation Policy

Action plans are framed for management of wetlands that are at risk of climate change to conserve rare and endangered wildlife and plants and sensitive ecosystems. Integrated Watershed Management Program, Epidemic of forest pests and diseases, drought, wildfire, rainwater harvesting for groundwater recharge, use of renewable energy and use of energy efficient technologies, spread of Invasive Alien Species are some of the key issues for Nepal.

Industry, Transport and Physical infrastructure Policy

Climate resilient economic development by developing low carbon technology industry, transport and physical infrastructure from part of strategies and policies. Energy efficient technologies and the use of electrical energy in industry, transport and physical infrastructure sectors are important issues to mitigate climate-induced risk.

National Healthcare Waste Management Standards and Operating Procedures, 2020

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²³ National Healthcare Waste. Management Standards and Operating Procedures, 2020

²⁴ National Healthcare Waste. Management Standards and Operating Procedures, 2020

²⁵ https://npc.gov.np/images/category/SDGs_Report_Final.pdf

Sustainable Development Goals, 2015: Country specific MDGs to SDGs

The Millennium Development Goals (2001- 2015) were successful to a great extent. MDGs were goal oriented and time-bound with effective monitoring. However, the root causes of development were not captured in MDGs. and therefore, in line with the UN's SDGs, the Government of Nepal adopted SDGs. The SDGs assimilated the MDGs in terms of the number of goals and targets and specifically designed to address complex issues like inequality and human rights. They take an integrated and holistic approach to development. The SDGs are consistent with the fundamental rights of the citizens enshrined in the Nepal Constitution and the country's roadmap of transitioning to a more equitable middle-income country²⁵.

Several goals and targets are aspirational and contextualized for Nepal's present development stage. For example, SDG relating to agriculture, include improvements in food & nutrition security of the most disadvantaged groups, strengthening agricultural extension system, expansion of year-round irrigation, improvements in the distribution of seeds and fertilizers, expansion of rural roads, and commercialization of modern agriculture. Forest and ecosystem related SDG interventions include conservation of forests, lakes, wetlands, wildlife, biodiversity, and land integration of ecosystem and biodiversity values into national and local planning, and conservation of watershed.

In water and sanitation, SDG 6 includes universal and equitable access to safe and affordable drinking water and adequate sanitation and hygiene for all, water quality concerns including wastewater treatment and recycling, water efficiency to avoid water scarcity, and improvements in water resource management and protection of ecosystem including mountains, forests, wetlands, rivers, aquifers, and lakes.

The interventions in energy related SDG include the generation of power through large hydro projects, micro hydro off grid, and grid connected solar system, transmission and distribution systems, improvement in energy efficiency, and (iv) O&M expenses to maintain a steady quality of power supply.

SDGs on urban development and housing include safe urban road constructions, storm drainage and sewerage, housing for the poor and slum up-gradation, post-disaster reconstruction and pre-disaster mitigation, and construction of urban utilities like piped water supply and electricity connection.

Climate change related SDG 13 includes building resilience and adaptive capacity, reducing emissions, strengthening data and monitoring of climate change, and climate-proofing Climate change related interventions aim at building resilience and adaptive capacity, reducing emissions, strengthening data and monitoring of climate change, and climate-proofing technology for infrastructure.

SDG 16 aims at promoting inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels

A robust review and monitoring mechanism using credible data is crucial for successful implementation of SDGs. A strong statistical system for measuring progress across of the goals is indispensable.

As MDGs were replaced by SDGs in 2015, the government of Nepal has factored SDGs in its policies, plans and programmes as the nation is committed to achieve them in 2030. OAGN is mandated to audit SDGs. Audit of SDGs are discussed in depth in OAGN's Guide for audit of SDGs. Nepal has been actively participating in the United Nations Framework Conference on Climate Change. Being a party to the Kyoto Protocol, Paris Agreement, Sendai Framework and Sustainable Development Goals, Nepal has been fulfilling the obligations.

²⁵ https://npc.gov.np/images/category/SDGs_Report_Final.pdf

Climate Change Budget Code

The National Planning Commission (NPC) has introduced climate budget code in the national budget. It makes official an analytical framework to calculate government funds channelled for programmes related to climate change.

Climate change brings lasting changes in the ecosystem altering present and future economic activities. Climate change requires lasting solutions with coordinated interventions. The ministries within the government of Nepal have their own development agenda and responsibilities regarding climate change issues. Systemic interventions can address both immediate environmental changes and long-term climate problems. Climate Change Budget Code contributes towards developing ways and means of working with multiple organizations within the government structure. It is the responsibility of the government to generate and share climate change data, information, developing solutions, implementing plans, and above all accessing funds to sustain the climate change programme.

Climate Change Related Activities:

Climate change related activities include the following:

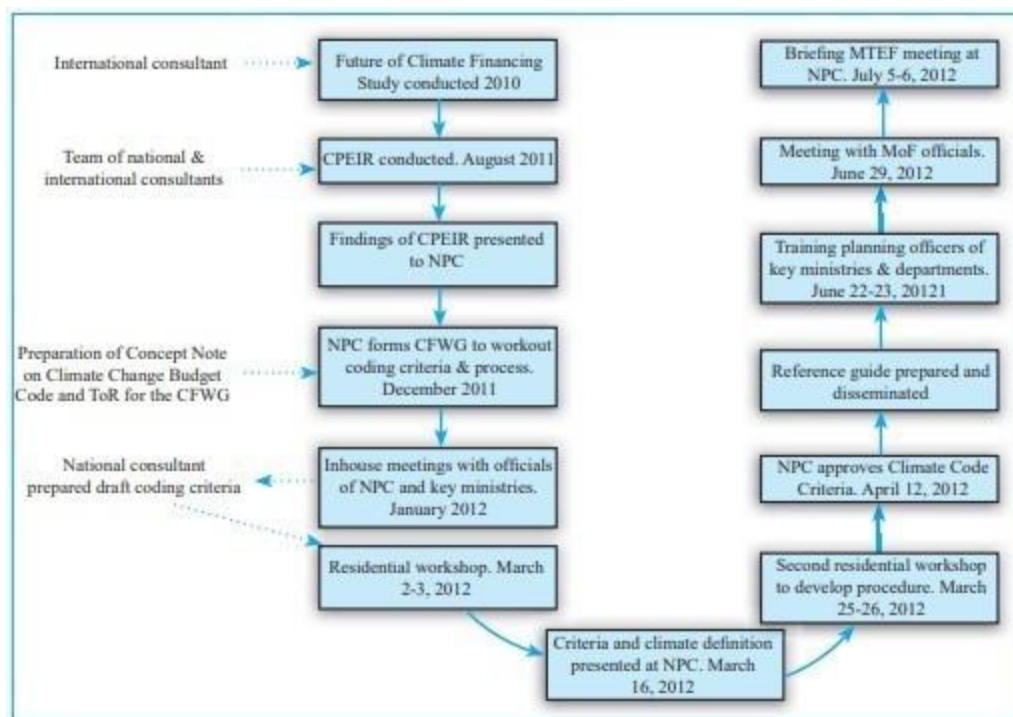
1. Sustainable management of natural resource and greenery promotion.
2. Land use planning and climate resilient infrastructures.
3. Prevention and control of climate change-induced health hazards.
4. Prevention and control of climate change-induced hazards to endangered species and biodiversity.
5. Management of landfill sites and sewage treatment for GHG emissions reduction.
6. Sustainable use of water resource for energy, fishery, irrigation, and safe drinking water.
7. Plan/programmes supporting food safety and security.
8. Promotion of renewable and alternative energy; technology development for emission reduction and low carbon energy use.
9. Preparedness for climate induced disaster risk reduction.
10. Information generation, education, communication, research and development, and creation of data base.
11. Preparation of policy, legislation and plan of action related to climate change.

Climate Change Budget Code

The Climate Change Budget Code was developed by the National Planning Commission (NPC), with support from UNDP/UNEP in 2011. It provides a feasible method for tracking climate expenditure in the public finance system.

Key activities involved in developing climate change budget code

The flow chart shows the key activities in developing climate change budget code:



Reference: <https://www.npc.gov.np/images/category/Climate-change-budget-code.pdf>

The pro-poor budget code and gender responsive budget indicators are given in the boxes below:

Pro-poor Budget Code

Budget allocated to the following sectors are considered as direct budget targeted at poverty alleviation and coded as '1' on the budget form. The poverty neutral budget is coded as '2'.

- Government budget targeted at rural area.
- Programmes targeted at income generating activities of rural areas.
- Skill development programmes at rural areas.
- Government programmes targeted at social mobilization.
- Budget invested at social sectors.
- Programmes on social security.
- Grant allocated for local bodies.
- Government expenditure on poverty eradication.
- Programmes for development and support of various regional and indigenous people.

Source: MoF, 2011

Box 2:

Gender Responsive Budget Indicators

Gender responsive budget coding was initiated in 2007. It uses the following indicator to identify a development programme as gender responsive programme. Each of the following indicators carries 20% weightage. Based on the indicators the development budget is coded as Gender Budget at three levels as 1 (if >50% budget of the program is allocate to the indicated parameters), 2 (if only 20-50% budget is allocated to gender issues), and 3 (if the budget allocated is <20% of the program budget).

- Women's participation in planning, implementation and monitoring.
- Capacity enhancement of women.
- Benefits to and control of women over project outputs and outcomes ensured.
- Promoting employment and income generation for women.
- Qualitative improvement of women's time utilization or reduced workload.

Source: <https://www.npc.gov.np/images/category/Climate-change-budget-code.pdf>

While auditing climate expenditure using budget code, auditor must keep in mind the following:

- ▶ Clearly climate change expenditure: Each category of climate change-related expenditure must be studied. The government of Nepal national budget coding system must be used to track climate change-related expenditure.
- ▶ Delivering climate finance to the local level: Audit must study funding modality to local bodies. National Climate Change Budget Code gives discretion on spending in targeting vulnerable communities and high-risk areas.
- ▶ A sector-led approach needs to be integrated into all aspects of national development. Audit must examine whether each line ministry has taken the lead in integrating a climate change response within its sector policy with financial and human resources for taking climate change-related actions

Note:

1. As in any audit the first step is to obtain all information relating to the subject matter or entity including applicable laws, rules, regulations and laid down procedures. Auditor must do research and collect all relevant policy documents, details of the project or activities selected for EA, objectives, targets, time frame, targeted beneficiaries if any, expected or planned benefits, impacts, outputs, and outcome both qualitative and quantitative parameters. Based on the audit objectives, audit scope and audit questions and sub-questions are framed. Audit criteria must be obtained from applicable laws, regulations, standards, and procedures. Audit design matrix and audit checklists and where to find audit evidence are to be finalized during the audit planning stage.

2. While conducting EA in three types of audits, auditor should keep in mind the latest applicable laws, rules, regulations, notifications, standards, and circulars issued on the subject matter as environmental related rules, standards, procedures, and processes change frequently to cater to address emerging issues. For example, waste management rules may include plastic waste or electric and electronic waste issues, or management hazardous waste may include new substances, air pollution and water pollution standards may be modified over the years. As a thumb rule for conducting EA is to identify the updated applicable authoritative laws, rules, regulations, standards and procedures as criteria for EA are essentially derived from them.

3. It is not feasible to include all the applicable rules, regulations and procedures in the EA Guide. Based on the specific subject matter of EA and type audit, auditor must complete audit planning and execute and prepare the audit reports as per the established procedures of FA, CA, and PA audits.

Chapter-3 Environmental Audit Steps and Process

3.1 Audit planning: general for all types of EA audits

As per the strategic audit plan of OAGN, the annual audit plan can be designed considering all important issues for EAs within the frameworks of FA, CA and PA. For FA, the entities can be identified where EA components are there

while conducting FAs. There will not be no separate audit reports in case of FA as the EA component will be part of FAs.

Audit teams have to be identified for all the different types of audit specifying the number of topics that can be handled and included in the annual audit plan based on available resources, budgetary constraint, trained human resources etc. Once audit personnel and resources are allocated, the following audit procedures as mentioned in detail in the respective OAGN guides can be followed for EA.

Distinct issues and specific steps and points are enumerated below to enable effective EA audits under FA and CA methodologies. These steps and examples are illustrative only and auditors can customize and add more points to enable competent audit process and audit outputs following the steps mentioned for the entire audit cycle planning, conducting, reporting, follow up, documentation/working papers and quality review in the OAGN's respective FA, CA, PA guides.

Steps in auditing

Four steps for EA are:

1. First step: Understanding the problem of environment, its impact on society, economy and environment.
2. Second step: Understanding the response of the government to the problem.
3. Third step: Selection of the audit topic and determining the audit priorities and establishing the audit objectives.
4. Fourth step: Designing the audit.

3.2 Audit Cycle for Conducting EA

As most of the topics for EA is conducted as PA, auditors must follow the six audit steps of audit cycle detailed in OAGN's Performance Audit Guide. These steps are relevant to EA as given below:

- ▶ A: Selection of audit topics
- ▶ B: Planning
- ▶ C: Execution
- ▶ D: Reporting
- ▶ E: Documentation and quality review
- ▶ F: Follow-up

3.2.1 Selection of audit topics for EA

There is no separate selection of EA under FA framework, because EA comments are added to FA comments while doing certification audit and expressing an opinion on the financial statements. There can be impact on assets, liabilities, contingent liabilities, disclosures etc. While conducting FA of the entities as per the OAGN's annual audit programme, environmental impacts must be assessed wherever applicable and suitably commented in the audited financial statements.

Selection of topics for EA to be conducted under CA and PA methodology: The process is similar to any other CA and PA, which is explained in detail in the CA Guide and PA Guide. Based on the OAGN's strategic planning, annual audit plans are prepared taking the inputs from the concerned directorates by PA Directorate. While suggesting topics for PA, EA topics will also be included with detailed justification, size of the budget, significance, auditability, value addition and audit impact etc. The process is exactly similar in case of CA and PA and explained in CA and PA guide

in detail. EA done under CA framework will follow CA guide and EA conducted under PA methodology will follow the process detailed in PA guide.

Auditors should select audit topics from OAGN's strategic planning process by analyzing potential topics with risks assessment. As part of OAGN's strategic planning process, auditors should use their knowledge from previous audits, information from the strategic planning process, significance, impact, auditability of the topic keeping in view OAGN's mandate (ISSAI 300). Professional judgement is important. EA subject matter is chosen taking into account the following:

The entities having impact on EA can be categorized in three groups:

- I. Entities whose operations directly or indirectly affect the environment, whether that be positive or negative - such as by rehabilitation or (conversely) pollution and utilization.
- II. Entities with powers to make or influence environmental policy formulation and regulation - whether internationally, nationally or locally.
- III. Entities which have the power to monitor and control the environmental actions of others.

Topics are selected on the basis of impact, materiality, risk to good audit management, and visibility and significance. Factors such as resource requirement and strategic plans of the OAGN must be looked at during selection of topics. Considering the request to conduct EA from the concerned entity, governmental bodies, PAC, and other oversight bodies, OAGN can select the topics for performing EA. However, the selection of topics should be done without any outside pressure, maintaining the OAG's independence.

The same criteria and matrix mentioned in Performance Audit Guide can be used for topics selection.

3.2.2 Planning

The objectives of audit planning are to provide guidance on the methods and process of implementing audits in an organized manner. Audit planning involves developing a general strategy and a detailed approach for the expected nature, timing and extent of the audit, in order for the audit to be performed effectively.

The first step in planning of the EA is the Review Background Information of the Entity/ topics to be audited. Some of the sources available for gathering background information about the audit entity for compliance, financial and performance related environment audits are:

- ▶ Relevant legislation, regulations and publications
- ▶ Auditee's policies and procedures manual
- ▶ Agency periodic plan
- ▶ Project appraisal/feasibility study
- ▶ Site visits and observations of programme operations
- ▶ Public accounts, departmental and agency annual reports
- ▶ Previous audit files and reports
- ▶ Risk register maintained in the directorate
- ▶ Participating in an auditee's orientation/subject matter training course (if any)
- ▶ Media coverage and external reports
- ▶ The OAG documentation on the auditee
- ▶ Minutes of relevant parliamentary committee

-
- ▶ Formal reports prepared by central agencies, in-house task forces or outside consultants on the operations of the auditee
 - ▶ Photographs or other visual aids taken or prepared by the auditors or obtained from the department and other sources
 - ▶ Management meeting minutes
 - ▶ Interviews with senior personnel of agencies involved in the execution of the project
 - ▶ Interview with senior personnel of central coordinating agency
 - ▶ Reports of independent evaluation agencies like Non-Government Agencies (NGOs)
 - ▶ Peer review reports

The auditors must spend adequate time in planning for better identification of priority areas and potential problems and proper assignment of work.

For planning for successful audit assignments, the auditor needs to understand the auditees' commitments in terms of financial norms, compliance requirements and performance expectations. This would determine what procedure is to be followed (audit methodology) and assignment of qualified staff for the conduct of audit (resource allocation).

Designing the audit

Auditors should plan the audit in a manner that contributes to a high-quality audit to be carried out in economical, efficient, effective and timely manner in accordance with the principles of good project management. In planning EA, it is important to consider:

- ▶ The background knowledge and information for understanding of the audited entities, assessment of the problem and risk, possible sources of evidence, auditability and the significance of the area for audit.
- ▶ The audit objectives, questions, criteria, subject matter and methodology (including techniques to be used for gathering evidence and conducting the audit analysis);
- ▶ The necessary activities, staffing and skills requirements (including the independence of the audit team, human resources, and possible external expertise), the estimated cost of the audit, the key project timeframes and milestones and the main points for control.

Auditors must acquire sufficient knowledge of the subject matter. EA in the context of PA requires audit-specific knowledge before the audit ("pre-study"). When planning the audit, the auditor should design the audit procedures for gathering audit evidence including deciding on the overall audit design (which questions to ask, e.g., explanatory/descriptive/evaluative); determining the level of observation (e.g., looking at a process or individual files); methodology (e.g. full analysis or sample); specific data-collection techniques (e.g. interview or focus group).

Data-collection methods and sampling techniques should be carefully chosen at the planning phase and testing various audit designs and checking whether the necessary data are available. Senior management of OAGN should be fully cognizant of the overall audit design to ensure skills, resources and capacities to address the audit objectives and the audit questions. Planning should allow flexibility, so that the auditors can benefit from insights obtained during the course of the audit. The audit methods must best allow audit data to be gathered in an efficient and effective manner. Auditors should aim to adopt best practices, practical considerations.

ISSAI 300 – Fundamental Principles of Performance Auditing emphasizes the importance of analytical skills in a PA, for example, the audit requires data to be gathered in many different regions or areas or the audit is to be conducted by a large number of auditors where a more detailed audit plan with audit questions and procedures are defined. When planning an audit, auditors should assess the risk of fraud and understand the internal control systems and examine and its effectiveness. Audit may see whether entity has taken appropriate action to recommendations from previous audits. The overall aim at the planning stage is building up knowledge and how best to conduct the audit.

Audit objective

When EA is conducted, the audit objectives need to be identified at the beginning of audit planning and can relate to areas like:

- ▶ Existence of environment policies / laws /strategies and their adequacy.
- ▶ Adequacy of data for evaluating impact on environment.
- ▶ Identifications of risks caused by pollution to health and environment.
- ▶ Allocation of responsibility amongst the various stakeholders involved in pollution control.
- ▶ Adequacy of monitoring and evaluation of environment laws.
- ▶ Adequacy of infrastructure and funding.

Audit objectives should be linked to areas where there are substantial risks and relate to why the audit is being conducted and are based on the audit mandate.

The Audit objectives should be established or assessed by the auditor with a view to defining an audit which has the potential to improve public administration. Performance audits should therefore not only warn against defective practices but also identify and promulgate good practice.

The Audit objectives should be precisely defined or specified. The audit objectives should be achievable, realistic, relevant, specific and meaningful. Audit objectives will provide the information about the expected outcome of audit, such as results achieved or the economy or efficiency in the utilization of resources.

Table Indicating Environment Audit Objectives Under FA, CA & PA

| Audit Type | Suggestive Audit Objective |
|--------------------------|---|
| Financial Audit | To enable the auditor to establish whether the reporting entity has appropriately recognized, valued and reported environmental costs, liabilities (including contingent liabilities), and assets. |
| Compliance Audit | To enable the auditor to establish whether the entity has conducted the environmental activity in compliance with all applicable obligations |
| Performance Audit | To enable the auditor to form an opinion on either or both of: The validity of the performance indicators used by the entity when publicly reporting its performance in conducting the environmental activity. Whether the entity has conducted the environmental activity in an effective, efficient, and economical manner consistent with the applicable governmental policy; and Any other factors affecting the conduct of the activity over which the entity had no control. |

Scope of Environmental Audit

The Audit scope will differ for different kinds of audit, as discussed below:

(a) Financial audit: Environmental matters are becoming significant to an increasing number of governments, entities, and users of financial statements. Some organizations operate in sectors where environmental matters may

have material impacts on the financial statements. International Auditing Practices Committee (IPAC) defines environmental matters in a financial audit as:

initiatives to prevent, abate or remedy damage to the environment or to deal with the conservation of renewable and non-renewable resources (such initiatives may be required by environmental laws and regulations or by contract, or they may be undertaken voluntarily);

- I. consequences of violating environmental laws and regulations.
- II. consequences of environmental damage done to others or to natural resources; and
- III. Consequences of vicarious liability imposed by law (for example, liability for damages caused by previous owners).

(b) Compliance audit: The scope of audit is restricted to checking compliance of the audit entity with respect to policies/laws/ rules/regulations which are related to environment.

(c) Performance audit: The scope could encompass the following:

- I. Audit of Government's monitoring of compliance with environmental laws: The main aim of such audit is to offer an opinion on the performance of the audit entity with regard to compliance against already established environmental laws.
- II. Audit of the performance of Government's environmental programs: The main aim of such audit is to offer an opinion on the performance of specific environmental programs/ projects/strategies already formulated and being implemented by the Government.
- III. Audit of the environmental impact of other Government programs: The main aim of such audit is to offer an opinion on the environmental impact of other programs/projects formulated and implemented by other Ministries/departments/agencies other than the Environment Ministry of Science, Technology and Environment. For example, audit of the impact of mining, building roads/dams/ hydro projects, construction of ropeways etc., on the environment would fall under this category.
- IV. Audit of Environmental Management Systems: The main aim of such audit is to offer an opinion on the implementation of Environmental Management Systems (EMS) of the audit entity and/or ISO 14001 Standards. The absence of an EMS can also be a source of audit comments.
- V. Evaluation of environmental policies and programs: The main aim of such audit is to offer an opinion on the adequacy or lack of a policy framework governing environmental issues. International best practices can be a source for such comparison. However, adaptability to local conditions should be considered before making such comparisons.

Audit Criteria for Environment Audit

A key concern for SAs in carrying out environmental audits is determining the technical criteria against which the audited entities' disclosures or performance will be assessed. Criteria depends on the type of audit to be conducted and the purpose and sources of criteria.

Source of criteria are of two types:

- I. **Authoritative** - This gives the auditor certainty as to the acceptability of the criteria as a sound basis for an audit.
- II. **Non-authoritative** - This gives rise to a risk for the auditor about the acceptability of the criteria as a sound basis for an audit.

The Table below Indicates Authoritative and Non-Authoritative Sources of Criteria for EA

| Audit Type Authoritative Sources of Criteria | |
|---|--|
| Financial Audit | <ul style="list-style-type: none"> ▶ Standards issued by OAGN, ISAB, PSAB ▶ Standards issued by ICAN ▶ Guidance issued by INTOSAI, ASOSAI, etc. ▶ Directives and notifications of Governmental regulatory bodies |
| Compliance Audit | <ul style="list-style-type: none"> ▶ National laws ▶ International agreements ▶ Policy directives. |
| Performance Audit | <ul style="list-style-type: none"> ▶ As the field is still developing, authoritative sources are few or non-existent. ▶ Possible sources could include: ▶ Performance indicators of effectiveness, efficiency, or economy that are prescribed by law; or ▶ specified in the official governmental policy for the activity; or ▶ Otherwise mandatory on the entity. ▶ Generally accepted standards issued by a recognized body. ▶ Codes of professional practice issued by a recognized body |
| Audit Type Non- Authoritative Sources of Criteria | |
| Financial Audit | <ul style="list-style-type: none"> ▶ Guidance issued by ICAN ▶ Academic literature |
| Compliance Audit | <ul style="list-style-type: none"> ▶ A compliance audit ought not to be based on criteria from a non-authoritative source on the assumption that the audited entity is not obliged to comply with them. |
| Performance Audit | <ul style="list-style-type: none"> ▶ Subject to an assessment of the risk, any source that the auditor considers appropriate for the purpose. E.g. - Performance indicators or measures used by similar entities or other entities engaged in similar activities. ▶ Academic literature. ▶ Outside experts. ▶ OAGN itself. |

In case of EA undertaken in the context of PA, the audit process is the same contained in OAGN's PA Guide and hence the process of framing the audit criteria and matrix mentioned in *Audit tool - 2* in Performance Auditing Guide can be used for topics selection with appropriate changes needed for conducting EA with PA framework.

The same audit tools and templates mentioned in Performance Audit Guide may be useful for planning purpose with proper adaptation to meet the EA requirements.

Steps for EAs to be undertaken under FA and CA frameworks

1. First step is to obtain knowledge of environmental matters

Adequate knowledge is essential for the auditor about the business of the entity to be audited and significant risks that can impact the financial statements and the audit report²⁶.

The audit team should have core competence in the subject matter and consider the sector in which the entity operates to identify material environmental liabilities and contingencies. Certain sectors such as, chemical, oil and gas, pharmaceutical, and mining industries, or government agencies with responsibilities for environmental management or regulation are prone to high environmental related risks.

The following questions enable to know the entity:

- ▶ Does/Do the government have any department/industry or agencies with activities that have an environmental impact?
- ▶ How have environmental risks been identified?
- ▶ Who within the department/entity is responsible for management environmental risks?
- ▶ Does/Do the government department/industry or agencies operate in an industry that is exposed to significant environmental risk that may adversely affect the financial results and reports of the entity?
- ▶ Which environmental laws and regulations are applicable to the entity?
- ▶ Are there any substances used in the entity's products or production process that are subject to a particular law or regulations?
- ▶ Do enforcement agencies monitor the entity's compliance with the requirements of environmental laws, regulations, or licenses?
- ▶ Have any regulatory actions been taken, or reports been issued by enforcement agencies that might have a material impact on the entity and its financial results and/or report?
- ▶ Is there a record of penalties and legal proceedings against the entity or its directors in connection with environmental matters? If so, what were the reasons for such actions?
 - Are any legal proceedings pending with regard to compliance with environmental laws and regulations?
 - Are environmental risks/impacts covered by insurance?

2. Second step is to assess the inherent environmental risk, internal control system and the control environment

Auditor must assess the risk of material misstatement in the financial statements. In the context of EA, the environmental risk is misstatement of environmental matters.

Examples of inherent environmental risk can be:

- ▶ costs arising from compliance with legislation.
- ▶ impact of non-compliance with environmental laws and regulations; and
- ▶ significant economic or regulatory changes on the nature of operations of a particular public entity.

The audited entity may adopt different environmental control systems. Entities with high exposure to environmental risks may operate a separate internal control sub-system, such as environmental management system (EMS)²⁷. The auditor should also obtain an understanding of the control environment. Areas include the entity's attitude,

²⁶ ISSAI 2315 *Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment*

²⁷ *Standards for an EMS have been issued by the International Organization for Standardization ISO 14001: Environmental Management System - Specification with Guidance for Use*

awareness, and actions toward internal control. If there is a risk of material misstatement of the financial statements, specific procedures must be performed to address this risk.

3. Third step is to raise audit questions-

The following audit questions can be asked to assess the control environment:

- ▶ 'What is management's philosophy and operating style with respect to environmental control in general?
- ▶ Does the entity's operating structure include assigning responsibility, including segregation of duties, to specified individuals for environmental control?
- ▶ Does the entity maintain an environmental information system, based on requirements by regulators or the entity's own evaluation of environmental risk?
- ▶ Does the entity operate an environmental management system (EMS)?
 - This system may provide, for example, information about physical quantities of emissions and hazardous waste, environmental characteristics of the products and services, or the results of inspections or incidents.
 - Examples of recognized standards for an EMS are the international standard ISO 14001 and the European Commission's Eco-management and Audit Scheme (EMAS).
- ▶ How are anomalies identified and reported to management?
- ▶ Has the entity published an environmental performance report? If so, has it been verified by an independent third party?
- ▶ Are control procedures in place to identify and assess environmental risk, to monitor compliance with environmental laws and regulations, and to monitor possible changes in environmental legislation likely to have an impact on the entity?
- ▶ Is management aware of the existence and the potential impact on the entity's financial reporting?
Examples:
 - any risk of groundwater liabilities arising as a result of contamination of soil, groundwater, or surface water.
 - any risk of liabilities arising as a result of air pollution; or
 - any unresolved complaints about environmental matters from employees or third parties?

4. Fourth step is to define audit criteria

Audit criteria are the standards against which the actual performance of the entity's financial and compliance activities can be evaluated. Audit criteria should be relevant and free from bias. The purpose of the criteria for the environmental aspects of a FA is to establish whether the financial reporting framework is acceptable²⁸ and the reporting entity has appropriately recognized, valued and reported environmental costs, liabilities (including contingent liabilities), and assets.

Sources of audit criteria include:

- ▶ Mandatory standards issued by an authoritative standard setting body.
- ▶ Standards issued by some other recognized body.
- ▶ International standards issued by a recognized body.
- ▶ Guidance issued by a relevant professional body.
- ▶ Academic literature.

²⁸ISSAI 200 Financial Audit Principles

In addition to common authoritative sources, such as laws and regulations, international agreements, applicable standards, contracts and policy directives, relevant plans and Environmental Impact Assessment Reports, approved by the Central government or its representing agencies can be used as audit criteria on environment issues.

The criteria for environmental compliance audit enable the auditor to establish whether the entity has conducted the environmental activity in compliance with applicable obligations which the audited entity must comply. It may be a direct legal obligation or an obligation arising from compliance of policy of a superior executive authority.

Authoritative sources for EA audit criteria include:

- ▶ National environmental related laws - Acts of the legislature and any regulations, rules, orders, notifications issued under Acts having the force of law like air pollution, water pollution, sound pollution, waste management regulating all types of wastes like electronic and electric wastes, hazardous wastes, plastic acts and rules.
- ▶ International agreements, treaties and United Nations Conventions like treaties relating to SDGs, Paris Accord on climate change, treaties with international agencies like UNFCCC, Kyoto protocol commitments etc.
- ▶ Binding standards established by the government of Nepal like vehicle pollution standard, air quality and water quality standards (including techniques, procedures, and qualitative criteria).
- ▶ Contracts, binding commitments and agreements.
- ▶ Policy directives issued by the government of Nepal from time to time.

The criteria should be agreed with the auditee and identified in the audit report. In performing environmental financial and compliance audits, the criteria may differ greatly from audit to audit and, therefore, criteria must be defined for the audit work and conclusions.

Audit check lists and prepare audit programme

Sample general checklists are given below:

- ▶ Does the government have any stated national environmental goals?
 - Who developed them?
 - What do they aim to achieve?
 - Are results measured and reported?
 - Who is responsible for aggregating the results?
 - Do they establish standards or guidelines that must be complied with?
 - Have the standards or guidelines been communicated to those with responsibilities for protection, restoration, and management of the environment?
- ▶ Does the government have any entities or departments that are responsible for the protection, restoration, and management of the environment?
 - What are the departments and their responsibilities?
 - How do they achieve the results (by regulation, policy, or management programmes)?
 - How do they report on their performance?
 - Are there any joint responsibilities between entities or departments?
- ▶ Does the government have relevant accounting standards?
 - Has the government developed legislation designed to protect, restore, and manage the environment?

-
- Are there laws that government departments are responsible for enforcing?
 - Who is responsible for enforcement and how do they enforce them?
 - Are government departments required to comply with the environmental legislation or regulations?
 - Is there any other monitoring function that is responsible for compliance and reporting?
- Does/Do the government have any department/industry or agencies with activities that have an environmental impact?
- How have environmental risks been identified?
 - Who within the department/entity is responsible for management environmental risks?
- Does/Do the government department/industry or agencies operate in an industry that is exposed to significant environmental risk that may adversely affect the financial results and reports of the entity?
- Which environmental laws and regulations are applicable to the entity?
 - Are there any substances used in the entity's products or production process that are subject to a particular law or regulations?
 - Do enforcement agencies monitor the entity's compliance with the requirements of environmental laws, regulations, or licenses?
 - Have any regulatory actions been taken, or reports been issued by enforcement agencies that might have a material impact on the entity and its financial results and/or report?
 - Is there a record of penalties and legal proceedings against the entity or its directors in connection with environmental matters? If so, what were the reasons for such actions?
 - Are any legal proceedings pending with regard to compliance with environmental laws and regulations?
 - Are environmental risks/impacts covered by insurance?
- Some examples for specific CA check lists/questions on Nepal government's agricultural policies can include:
- Are the nation's policy objectives well defined, and can results be expected at farm level?
 - Are there institutional systems to ensure compliance at all government levels, central, provincial and local government levels?
 - Can the legal framework defining cross compliance be effectively implemented are being implemented? What should be as per legal requirements and what is the existing system and how does it compare with what should be? What are the gaps?
 - Are cross compliance and rural development policy adapted to ensure effective compliance at all levels?
 - Are the control and sanction systems effective?
 - Is reporting and monitoring adequate?
 - Are there reliable authentic complete data basis for measuring, reviewing progress and monitoring?
 - If so, to whom are the reports directed?
 - What is management's philosophy and operating style with respect to environmental control in general?
 - Does the entity's operating structure include assigning responsibility, including segregation of duties, to specified individuals for environmental control? Does

- the entity to maintain an environmental information system, based on requirements by regulators or the entity's own evaluation of environmental risk?
- ▶ Does the entity operate an environmental management system (EMS)?
 - This system may provide, for example, information about physical quantities of emissions and hazardous waste, environmental characteristics of the products and services, or the results of inspections or incidents.
 - Examples of recognized standards for an EMS are the international standard ISO 14001 and the European Commission's Eco-management and Audit Scheme (EMAS).
 - How are anomalies identified and reported to management?
 - Has the entity published an environmental performance report? If so, has it been verified by an independent third party?
 - Are control procedures in place to identify and assess environmental risk, to monitor compliance with environmental laws and regulations, and to monitor possible changes in environmental legislation likely to have an impact on the entity?
 - Is management aware of the existence and the potential impact on the entity's financial reporting? of for example:
 - ▶ any risk of groundwater liabilities arising because of contamination of soil, groundwater, or surface water.
 - ▶ any risk of liabilities arising because of air pollution; or
 - ▶ any unresolved complaints about environmental matters from employees or third parties?

Note:

Many of the checklists are common to all types of audits including PA. Auditor must customize the checklists based on the audit subject matter and the type of audit and the audit objectives.

Suppose the audit objective is to assess to what extent targets of the plans for water pollution prevention have been achieved, the audit checklists and main audit criteria can be the government's policies, plans, programs and targets for water pollution prevention of water bodies selected for audit.

3.2.3 Audit planning for EAs under PA framework

Environmental issues are complex in nature. OAGN can adopt innovative methods and techniques developed in other disciplines to plan and carry out high-quality EAs. When planning an audit, various policy areas and organizations having impact on the environment due to the policy, operations and management can be a subject matter for PA29. For instance, an entity whose operations affect the environment positively such as nature protection, or negatively such as polluting activities or unsustainable use of natural resources can be selected for PA.

Depending on the subject matter, the economy, efficiency or effectiveness, i.e. 3Es of governance can be scrutinized in the relevant policy areas. EA is applicable to organizations that collect and produce environmental data and information and have the power to monitor and control the environmental actions of others.

²⁹GUID 3920, section *Selecting an audit topic as part of the strategic planning process.*

From an economic perspective, environmental matters can cause market failures, leading to costs of environmentally damaging activities. It is not easy to determine price on clean air or a beautiful landscape. Auditors must pay attention to the non-direct impacts and non-direct costs related to environmental matters.

For example, before introduction of Sustainable Development Goals in 2015, according to the UN Millennium Ecosystem Assessment, ecosystem services benefits people including food, water, timber and fibre; regulate services that affect climate, floods, disease, and water quality and supporting services, such as soil formation, photosynthesis and nutrient cycling, recreational, aesthetic and spiritual aspects. The monetary value of pollination services must have been estimated by agencies like FAO. Biodiversity is a major source of medications. The Goals of the International Convention on Biological Diversity include how far the related government entity conduct programs and develop tools and models for valuation and applying those models to decision making. These issues are relevant also for all types of audits viz. FA, CA and PA related to nature.

Nepal government has many programmes/activities include maintaining soils in croplands; providing irrigation for agriculture; protecting watersheds; supporting forestry; supporting agriculture; protecting water bodies; conserving biodiversity; improving energy efficiency; preventing pollution; managing urban waste; or protecting and preserving cultural heritage, national parks, heritage buildings, or places of special cultural or scientific value.

- ▶ What resources are the departments using to achieve the required outcomes?
- ▶ Are the resources accurately accounted for and the results accurately reported?
- ▶ What responsibilities does OAGN have with respect to the accounting and reporting of the performance of these programmes?

In order to deal with such environmental externalities, government may introduce environmental taxes, charges and subsidies, cap-and-trade schemes, for instance for carbon dioxide emissions. If these systems are in place, audit can examine the economy, efficiency, and effectiveness of these systems.

In the course of planning, auditors can choose a result-problem-or system-oriented approach, or a combination thereof to facilitate the soundness of audit design³⁰. Auditors should select subject matters with a high environmental, social, economic, or political impact and visibility with the aim of identifying how the aspects, processes or systems under review can be improved.

When planning an audit of an environmental programme, OAGN should take into account the performance and potential risks to achieving economy, efficiency and effectiveness. The audit will examine issues related to the 3Es, or a combination of them, based on the significant environmental risks, their materiality, relevance and auditability. Audit must focus on timeliness at the planning stage of the audit and must consider the possible impact of the report.

Risk assessment

In EA the risk assessment in the planning phase must ensure that the audit covers the most significant environmental risks to maximize value addition. Environmental risks indicate that an activity will lead to environmental and/or health damage accompanied by potential economic, social and environmental consequences. Environmental risks might have long-term impact in the ecosystems.

In public auditing, environmental risks are often related to public authorities' efforts in identifying and reducing the negative consequences by implementing environmental management actions and policies. The risk is that the

³⁰INTOSAI-P 20 Principles of Transparency and Accountability, (principle 8) and ISSAI 300 (paragraph 39)

management actions may be insufficient to deliver an environmental policy or programme economically, efficiently, or effectively. The risks are measured by their potential negative economic, social and environmental impact.

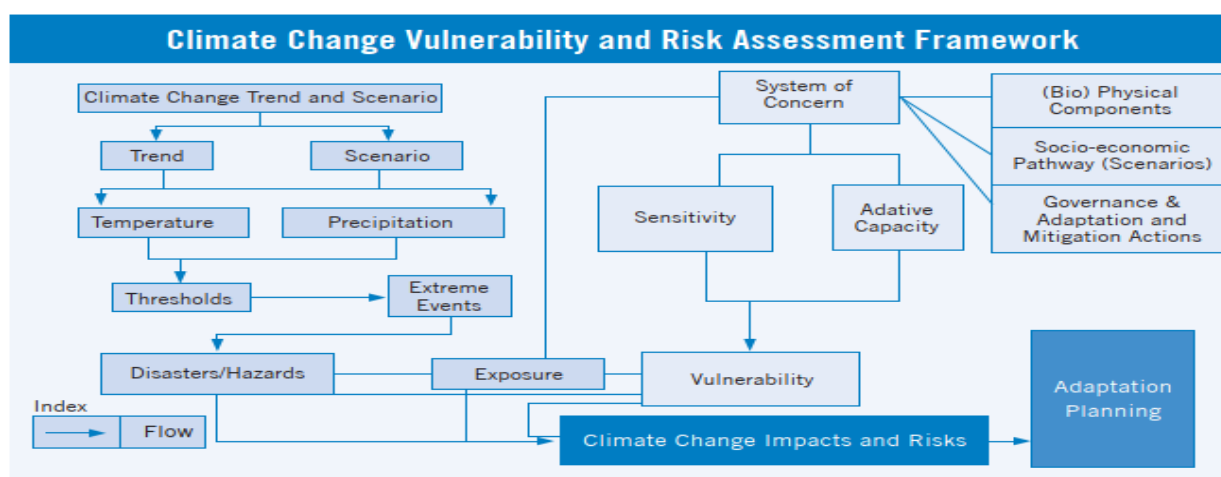
Environmental risk assessment should be based on the knowledge acquired of the audit area leading to audit questions and scope. When assessing the nature and likelihood of the potential environmental effects, governments' responsibilities must be considered and how environmental policy will influence the potential effects and the likelihood of the potential environmental effects.

Difficulties in EA risk assessments include the availability and reliability of environmental data and indicators. Where sufficient quality data exists, maps and graphs can support in identification of gaps.

Many organizations such as OECD, WHO, EEA and ECETOC are involved in environmental risk assessment models.

Risk assessment model for Nepal

Based on the climate change related risks and the adverse impacts, there must be suitable mitigation and adaptation plans as shown in a climate change risk assessment framework for Nepal below³¹:



Climate extreme events:

Climate extreme events can be high temperatures (e.g., heat waves), or extremely heavy rainfall.

► Disaster:

Severe alterations in the functioning of a community/society due to hazards leading to widespread adverse human, material, economic, or environmental effects that require emergency response to satisfy human needs and require external support.

► Exposure:

People, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, economic, social, cultural assets can be adversely exposed and affected.

► Hazard:

The occurrence of a natural/human-induced event that may cause loss of life, injury, or other health impacts, and damage and loss of property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources. Hazard refers to climate-related physical events.

³¹ [https://www.greengrowthknowledge.org/sites/default/files/downloads/policy-database/NEPAL\)%20Vulnerability%20and%20Risk%20Assessment%20Framework%20and%20Indicators%20for%20National%20Adaptation%20Plan%20\(NAP\)%20Formulation%20Process%20in%20Nepal.pdf](https://www.greengrowthknowledge.org/sites/default/files/downloads/policy-database/NEPAL)%20Vulnerability%20and%20Risk%20Assessment%20Framework%20and%20Indicators%20for%20National%20Adaptation%20Plan%20(NAP)%20Formulation%20Process%20in%20Nepal.pdf)

► **Impacts:**

Effects on natural and human systems of extreme weather and climate events and of climate change. Impacts refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to climate changes occurring within a specific time period impacting the exposed society or system. Impacts are consequences and outcomes. The impacts of climate change include floods, droughts, and sea level rise (not directly impacting the landlocked countries like Nepal), are subset of impacts called physical impacts.

► **Risk:**

Something of value is at stake and where the outcome is uncertain. Risk is the probability of occurrence of hazardous events with adverse impacts. Risk results from the interaction of vulnerability, exposure, and hazard. Risk refers to the risk of climate-change impacts.

► **Sensitivity:**

Society suffers adverse consequence and conditions due to a hazard event.

► **Threshold:**

A critical limit within the climate system that induces a response.

► **Vulnerability:**

The propensity to be adversely affected including susceptibility to harm and lack of capacity to cope and adapt.

Subject matter for EA under PA framework

An EA in the context of a performance audit of Government may include in its scope:

- the performance of environmental programmes,
- the environmental impact of other programmes,
- environmental management systems and environmental reporting.
- evaluations of proposed environmental policies and programmes,
- addressing cross-cutting environmental issues.

EA may consider as subject matter elements of compliance with relevant laws and regulations, organization's policies, and systems. EAs under CA and PA are complementary.

i) PA of Environmental programmes

Environmental programmes can be identified from the government plans and annual reports. OAGN can assist accountability through EA reporting of various government policies and programmes. All major environmental concerns affecting Nepal must be identified and list them.

The international agreements on environmental matters committed by the government of Nepal for example, related to the UNFCCC, must be identified along with the programmes established to achieve them. While auditing multilateral environmental agreements, audit must focus its attention on one main policy instrument or on many different policy instruments. Setting objective, audit criteria and reaching convincing audit conclusions are important points to be factored in audit planning. Where few resources are involved but the potential impact of the programme or activity is significant, the scope of the audit must be the effectiveness of the programme in achieving impact. The scope of audit can be narrowed to areas where there is evidence that the planned targets are not being met, or where the results of the audit will have the greatest impact.

The auditor should bear in mind that environmental programmes aim for impacts which:

- are individually small-scale but cumulatively large-scale;
- take a long time to have a noticeable effect;

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- ▶ are affected by significant external factors – such as weather conditions and other activities that also have an impact on the same environment; and;
 - ▶ can be cross-border or even global in nature. The auditor should consider the effects to the extent possible at the planning stage of the audit as oriented towards performance achieved’.

ii) PA of environmental impacts of other programmes

Environmental programmes must be to protect/improve the environment. However, other government activities may affect the environment by use of resources or their consequences.

Some government programmes have significant impacts, positive/e and negative. For example, the objective of road building is to facilitate movement of people or goods; but it can impact land use and ecology of the area. The construction and use of the road may impact air and noise pollution.

Similarly, industrial development programmes aim to develop industries, providing employment and economic activity. Military activities aim to defend national territory and contribute to security and peace. However, such developments can have environmental impacts, from use of non-renewable resources, to pollution and loss of biodiversity.

For identifying impact of government activities on the environment, OAGN must familiarize with the commitments of the government and take them into its policy appraisal. The government should integrate environmental issues into other policies and that public organizations. Environmental Impact Assessment and Strategic Environmental Assessment are conducted.

a) Environmental impact assessment (EIA) for project clearance

Environmental impact assessment of a proposed project aims to evaluate how the environment will be impacted by the project if it is approved, and how the proposed project will impact the environment. At the time of project approval, environmental clearance must be obtained by the concerned from the ministry of environment. The ministry examines the following specific issues at the stage of environmental clearance for a specific project:

- ▶ how the environment will be impacted by the proposed project.
- ▶ whether measures can be taken to mitigate the adverse impact of the project to the environment to an acceptable level
- ▶ if so, what measures are to be taken by the project authority before taking up the project; and
- ▶ if the environmental impact of the proposed project cannot be possible to be mitigated by any systematic and scientific remedial measures to bring it down to an acceptable level in sync with the sustainable development policy of the government of Nepal, such project will not be cleared by the ministry of environment. In that case the project will not be approved by the government of Nepal.

b) Purpose of EA for EIA

EA is tool for providing an account of how well EIA was conducted based on the applicable methodology and procedures; and is as per the norms and criteria; and what happened after the project was cleared and came into operation and the project management has complied with the mitigation measures as suggested in the EIA. EA of EIA focuses on what should have been done as per EIA and what actually has happened; how the project has impacted and what is the actual environmental outcome with reference to the planned targets and criteria; and what should have been done as per EIA and how far the actual implementation deviates from the criteria/norms. The central focus in EA of a project is the effectiveness of EIA in execution and managing the environmental outcome as intended.

Environmental audit is an effective audit methodology and a systematic, independent evaluation to check whether the results of EIA work tallies with the targets. EA also focuses on whether the methods used to achieve goals are effective. Auditor studies the relevant documents and reports to see whether there are any deviations between targets and results. Auditor must interview the key people in the organization to confirm in EA whether or not the environmental targets have been attained.

c) EA methodology

EA questions and criteria can be based on EIA as a process for effectively managing the environmental outcomes of projects that have undergone EIA. EA methodology for determining EIA effectiveness focuses on EIA components: impact prediction; occurrence of actual impacts; and the management of potential and actual environmental impacts.

Environmental impact assessment is the mandatory assessment of the compliance of planned activities, programmes, environmental management plans and projects aiming for environmental protection taking into account the principles of sustainable development. EA focuses on the assessment EIA and the compliance of EIA and performance of an entity with environmental protection requirements with the principles of sustainable development. Environmental auditing is mandatory in cases stipulated by law.

EA must pay particular attention to impact and environmental management outcomes. EA of EIA will have applications for project managers, EIA assessment authorities, policymakers, academics and other stakeholders. Identification and the implementation of environmental management activities must aim at avoiding adverse environmental impacts. Audit focus is an overall assessment of environmental management regime established as a consequence of EIA process.

d) Audit process in EA of EIA

During EA, audit team conducts a comprehensive examination of a plant or other facility to determine whether it is complying with environmental laws and regulations, standards, norms, using checklists, and relying on professional judgment and evaluations of site-inspections and evaluation of actual conditions, and verifies compliance with applicable requirements. Audit team must evaluate the effectiveness of systems in place to manage compliance and assess the environmental risks associated with the facility's operations. EIA documents enable the audit team to learn about environmental monitoring, environmental norms, and environmental standards etc. Environmental monitoring is the systematic observation of the state of the environment and of the factors influencing it. Its main purposes are to forecast changes to the state of the environment and to provide initial data for planning documents, programmes and projects. The procedure of environmental monitoring shall be established by law. Environmental norms are reference figures or use rates of natural resources per production unit established for the quality of the environment, the volume of waste, or per production unit. Environmental standards are documents setting rules, guidelines and numeric values defined by the involved parties, and regulating activities or results of activities which either have or are likely to have impact on the state of the environment.

e) EA questions, scoping, criteria, and checklists

Auditor prepares audit questions and sub questions and checklists with reference to audit objectives and scope. Audit planning must include the baseline study and incorporate most of the data from it to understand which activities of the project is going to affect which environmental aspects in the study area.

The audit team makes a checklist of the relationship between the activity and the all the aspects it will impact.

Key environmental issues of Nepal

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- ▶ Sedimentation and discharge of industrial effluents cause water pollution. The burning of wood for fuel is a source of indoor air pollution and respiratory problems in Nepal.
 - ▶ Vehicular and industrial emissions cause air pollution in urban areas.
 - ▶ Deforestation and land degradation adversely impact economic growth and individuals' livelihoods.
 - ▶ Forest loss and land erosion have contributed to floods, soil fertility, and stagnant agricultural output.
 - ▶ Agricultural holdings are rendered uncultivable as a result of soil erosion and flooding.

The government of Nepal have been trying to address these problems, but policies are hampered by lack of adequate funding, insufficient understanding of Nepal's mountain ecosystems, bureaucratic inefficiency, and lack of understanding between the government and local communities. Fast growth of the population results in demand for fuel wood, timber, fodder and land to grow more food.

Mountain biodiversity is facing ecological fragility and instability due to deforestation, poor management of natural resources, and inappropriate farming practices. Agro biodiversity is under threat due to use of high yielding varieties, destruction of natural habitat, overgrazing, land fragmentation, commercialization of agriculture and the extension of modern high yielding varieties, indiscriminate use of pesticides, population growth and urbanization, and changes in farmer's priorities and unsuitable agricultural practices.

Environment impact due to overpopulation

A major threat to the environment is the growing Nepalese population. More than half of the population face poverty. Poverty contributes to environmental impact deforestation and land deterioration. Rapid population growth has led to an increase in demand for fuel wood, timber, fodder and land to grow more food.

Nepal is a mountainous country surrounded by India to the south, east, and west and China to the north. Forest is a major natural resource of Nepal. There are about 35 major forest types in Nepal, but they change due to changes in topography, and climate changes. Forests are the source of livelihoods of millions of rural communities. Deforestation is a major environmental issue in Nepal. Deforestation is there throughout Nepal but are strongly felt in Tarai and Churia. High dependency on forest resources, unsustainable harvesting practices, illegal harvest of forest products, infrastructure development, forest fire, natural calamities, encroachment, overgrazing, lack of good governance, and ambiguous policy cause deforestation, which impacts the local population in terms of fuel scarcity, reduced supply of fodder, and leaf-litter manure. The unpredicted erosion, landslide, and lowland flooding, due to deforestation, are major concerns in Nepal. Attempts to control the deforestation and have mixed results. The government focuses on good forest governance. Community forestry and protected areas systems in Nepal have contributed to forest conservation. Since the fuelwood is still the major energy source, unless alternative sources of energy are provided on a subsidized basis throughout the country, the dependency on forests will continue. Public awareness about the importance of forests and the adverse consequences of deforestation are important to control deforestation.

Impact of mining including sandmining

- ▶ The sand mining or other mining and drilling will impact the physical properties of the soil.
- ▶ (In case of oil drilling or mining related activities including drilling, the drilling fluid can alter the chemical and physical properties of the environment potentially impacting the flora, fauna and microorganisms living there.
- ▶ The drilling will send vibrations deep into the earth impacting the soil and life in the soil and areas around.
- ▶ The drilling fluid can interact with groundwater, polluting it and impact the populations depending on this groundwater source for their water needs.
- ▶ Drilling will cause noise pollution.

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- ▶ Seismicity due to drilling can impact possible faults below the point of origin potentially triggering earthquakes and landslides.

During the preparation of checklists, it is important to consider the different levels of impact caused by an activity.

For example, a change in site run-off can affect the hydrology in the watershed (primary impact); it can also affect the fishes living in the river (secondary impact). Certain effects are temporary, while others are long-term. Both form of effects must be identified and specified. Intermittent effects caused by accidents or abnormal natural events should also be considered. All effects should be viewed individually and cumulatively and the impacts on the environment must be examined.

In preparing an audit checklist, first, a list of activities is drawn up. Then, the possible areas within the project area affected by the activity must be identified and the environmental impacts within the area must be included for preparation of the checklist.

Once a list of all possible impacts and their duration is specified, audit team must compile the list into significant and less significant impacts. The significant impacts must need immediate attention.

OAGN audit should consider the government's own assessment of the likely environmental impacts³² and review the adequacy of:

- ▶ the description of the programme or activity, its environment
- ▶ the baseline conditions,
- ▶ the completeness of the range of key impacts identified,
- ▶ the data used to assess the likelihood of the impacts and their expected scale; and
- ▶ any proposals for measures to counter the impacts.

The auditor must assess with the assistance of experts and interest groups the likely type and scale of impacts of a government activity on the environment, and any values that can be placed on the costs and benefits. Environmental regulation applies to government activities. The government department/agency charged with monitoring compliance with the regulations has primary responsibility for testing compliance. Auditor must evaluate compliance against the regulations in agreement and audit performance of the supervisory agency. The government programmes may identify measures to counter environmental impacts. Audit must examine whether these measures:

- ▶ have been put in place and are in accordance with best practice or Best Available Technology Not Entailing Excessive Cost (BATNEEC); and
- ▶ have had the preventive effect intended, and, if not, what actions the government has taken instead.

In some cases, the countermeasures dealing with low-risk may have major-impact such as release of radioactive substances. Accident/incident procedures must be in operation in case of need. Audit must review:

- ▶ the procedures,
- ▶ the dimensioning,
- ▶ the training of any staff involved,
- ▶ the frequency of testing the procedures; and
- ▶ whether any arrangements required with third parties (suppliers, emergency services, etc.) are up to date.

³²<http://ec.europa.eu/environment/eia/sea-support.htm>

While auditing environmental impacts, auditor must consider how to reflect impacts against the costs and benefits of the programme's primary objective.

iii) Environmental Management Systems (EMS)

EMS are tools for organizations to set policies and continually improve environmental performance. Voluntary accreditation schemes have been introduced to enable organizations to obtain external confirmation of the adequacy of the EMS compared to the International Standard for Environmental Management Systems, ISO 14001, certified by an external auditor. Here, EA is part of the accreditation and the scope is limited compared to EAs of OAGN.

EMS enables organizations to set targets for continuous improvement in performance and to monitor achievements. Audit should examine and report on the actual performance with reference to targets and the process by which the targets were set, how the entity's targets compare with practices elsewhere and with the government's commitments to international agreements.

Audit may consider audit of the government monitoring of departments' environmental management systems and reporting of environmental performance to the legislature and the public for meeting key performance targets and to identify the level of performance and reasons for non-achievement of targets as well as the quality of environmental risk assessments.

Besides internal management systems, reporting about organisation's environmental performance to the stakeholders is important. Environmental reporting and sustainability and corporate social responsibility reports cover significant environmental and social issues.

OAGN audit may assess the effectiveness of the reporting frameworks at government level or a single organization. The role of organizations varies as some departments undertake industrial processes which have a significant impact on environment, while others have less. Audit must look at how well environmental aspects are assessed and taken into consideration in policy making and legislative work.

iv) Auditing on environmental policies and programmes

OAGN may be asked to provide opinions on proposed policies/programmes to meet the statutory requirements, modifications to make the programme cost-effective. The proposed policies/programmes may require skills normally associated with auditing disciplines. The use of the regulatory impact analysis tool may be useful to examine planned policies and programmes³³.

Even with the assistance of experts, such analyses carry risks as it can be viewed as taking sides and in conducting audits of the programme. Audit must decline if the risk is unacceptable. Audit can provide factual and analytical information on the impacts of alternative policy directions rather than recommend a specific alternative. The proposed policy alternatives involve speculative assumptions about the future rates of economic growth, technical factors such as how ecosystems respond to various pollution-related stresses. Audit finds useful to evaluate other studies' assumptions, findings, and conclusions rather than directly involving in such analyses.

Auditors do not provide comments on policy as it is the legislators' prerogative to make policy and laws. However, auditor examines implementation of the environmental project, program or scheme and analyses its strengths and weaknesses, implementation issues and challenges and highlights them in the audit report. The relevant data, information, and records will be analysed in audit brining in inadequate planning, implementation, and control

³³INTOSAI WGEA research paper on How to increase the quality and impact of environmental audits

deficiencies. The audit analysis of the project will provide valuable insights to the policy formulators to correct and revise the policy and develop essential database and controls for effective management of the projects in future.

What audit does is showing the inadequacies of policies while implementing or addressing a specific issue selected in the audit.

v) Addressing cross cutting environmental issues

EA may include in its scope the governance of environmental topics which interact in various policy areas, programmes and projects with cross-cutting issues. Such issues include sustainable development, national capacities to address environmental policies, programming and planning, cost-benefit analysis of environmental regulations and interventions, and mainstreaming climate change and themes in water and energy resource management, environmental impact, and performance criteria in resource allocation systems and procurement policies. Auditing such issues provide valuable information to policymakers to make cost-effective and optimal use of resources. For example, audit of soil degradation prevention management programmes as a cross-sectoral issue.

Designing EA under PA framework

Audit procedures for PA must be followed to gather sufficient appropriate audit evidence. PA process must be followed while framing audit questions, sampling, and data collection techniques, etc.

Audit questions, methods, and techniques

Sufficient knowledge of the area and set of topics can be the starting point for developing the audit questions. Desk research, meetings and brainstorming sessions help. The purpose of the main audit question is to provide the audit focus and scope to design the audit.

Examples of audit questions include:

Economy:

- ▶ Is there potential for equitably reducing the cost of energy production? (auditing performance directly).
- ▶ Does the management of the cotton production aid scheme include consideration?
- ▶ and monitoring of the costs, including those of the consumers? (auditing control systems).

Efficiency:

- ▶ Is the governance of the government's response to apply the policy for mitigating climate change efficient? (auditing performance directly).
- ▶ Has the government addressed the need for climate change action in the most vulnerable sectors and areas? (auditing control systems).

Effectiveness:

- ▶ Have the infrastructure projects contributed to the reducing emissions flow while reducing journey times and improving safety? (auditing performance directly).
- ▶ Has the Agency set up and properly implemented suitable measures to monitor and mitigate environmental impact in the sugar sector? (auditing control systems)'.

While choosing the techniques the auditor must be guided by the purpose of the audit and the specific questions to be answered. Clear, robust and practical methods should be identified to obtain sufficient, relevant and reliable audit evidence.

Some audit methodology used in EA done in PA frameworks

Interviews or focus groups

Interviews or focus groups are used in PA to supplement the documentary reviews. Talking to stakeholders (authorities and other affected parties) helps to gather facts that is not officially documented. Audit must visit sites to assess how effectively public funds have been spent, how well environmental regulatory activities are working, and where improvements can be made. A questionnaire or survey is useful if a large number of organizations/individuals are to be contacted or to quantify information.

Auditors must examine environmental issues concerning a large number of entities such as toxic waste sites, chemical storage facilities and drinking water supply systems. Audit must gather the data and information from a valid statistical sample of the entities in question and draw conclusions about the overall population. Even where detailed information exists only at an overall level, statistical sampling can be applied to give assurance on its accuracy, so the audit focuses on the overall outcome.

Geographic information system (GIS)

Geographic information system (GIS) is a powerful tool to analyse and present spatial and geographical data and differences of environmental problems, presenting them in a visual way. GIS information on natural disasters, such as increased landslide risks on highlands and hill slopes is reliable for selecting samples and as an audit analysis tool. Other tools include spatial web dossier, counterfactual analyses, use of micro and macro-economic models, or vignette surveys. EUROSAT WGEA has collected these methods in their website³⁴, which can be referred. Audit may use innovative sources of information, such as social media in gathering wider public opinions. Using focus groups and surveys on specific topics can help in identifying possible audit topics. Planning should assure flexibility and a combination of various methods and topics must be scrutinized carefully from multiple perspectives.

Establishing audit criteria for EA in the context of PA

Auditors should assess whether audited entities have used appropriate techniques and methodologies to assess whether reasonable and valid environmental performance measures. Audit must develop relevant, complete, understandable, and reliable audit criteria, against which the audited entities' performance will be measured. Criteria depend on the type of audit to be performed (ISSAI 300 & 400), and the subject matter and sources and the broad audit objective.

While different types of audit are recognized they do not have to be carried out separately. CA may form part of PA on environmental issues. The audit criteria can be qualitative or quantitative defining what the audited entity will be assessed against. The criteria may be general or specific, focusing on what should be according to laws, regulations or objectives; what is expected, according to sound principles, scientific knowledge and best practice; or what could be expected under better conditions (ISSAI 300, paragraph 27).

The general concepts of economy, efficiency and effectiveness must be interpreted in relation to the subject matter. Audit criteria will vary from one environmental audit to another. Authentic sources of audit criteria are legislation, regulations, international agreements and binding standards issued by recognized authorities (ISSAI 400 - *Compliance Audit Principles* paragraph 13 and GUID 5201 paragraph 60).

³⁴<http://www.eurosaiwgea.org/auditingtools/>

The other main sources of criteria for environmental audits in PA are the measures and commitments adopted by the audited entity, including specific targets or requirements set by the relevant authorities.

Where the entity has adopted measures like Environmental Impact Assessments, Strategic Environmental Assessments, Life Cycle Assessments, or environmental performance indicators for assessing its own performance, audit should review to ensure that they are reasonable and complete³⁵.

Generally accepted criteria can be obtained from sources such as professional associations, recognized bodies of experts, and academic literature.

If criteria are not available from the above sources, the auditor can focus on performance achieved in comparable organizations, best practices, benchmarking or consultation or criteria developed by the auditor through an analysis of activities.

Where criteria are not self-evident and are capable of dispute by the audited entity, their relevance and acceptability must be agreed by the entity audited. If suitable criteria cannot be determined, the detailed audit question must be reconsidered. In the event of disagreement, the audit report must explain the audit criteria used and why it was appropriate for the audit.

Performance indicators in EA based on PA framework

The environmental indicators help comparability, continuity, clarity, timeliness and balanced presentation and show changes in environmental performance, based on the same criteria measured over comparable time periods and in comparable units. Consequently, indicators must be updated frequently to allow action to present balance between problematic and prospective areas.

Examples of sources from which environmental performance criteria can be derived include current and past performance; legal requirements; recognized codes, standards and best practices; performance data and information developed by industrial and other sector organizations; management reviews and audits; the views of interested parties and other stakeholders and scientific research.

Environmental indicators

Environmental indicators are used for evaluating and reporting the environmental performance of an organization. The following categories of environmental indicators are used in EA:

key performance indicators measuring air pollution and other emissions, waste, water, biodiversity and ecosystem services, etc.

Undertaking appropriate measures to ensure the management of environmental aspects by applying Management Performance Indicators (MPIs) for example, can be used to track the implementation and effectiveness of various environmental management programmes and management actions addressing the environmental performance of the organization's operations and the condition of the environment such as ISO Environmental Management Standards, i.e. Environmental Management Systems (ISO 14001 updated current version); Life Cycle Assessment (ISO 14040; ISO 14044), etc.

Operational performance indicators (OPIs) provide management with information on the environmental performance of the organization's operations (see ISO 14031). OPIs relate to:

³⁵ISO 14044: *Environmental management -- Life cycle assessment - Requirements and guidelines*

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- ▶ inputs (materials, e.g. processed, recycled, reused or raw materials; natural resources), energy and services;
 - ▶ supply of inputs to the organisation's operations.
 - ▶ the design, installation, operation (including emergency events and non-routine operation), and maintenance of the physical facilities and equipment of the organisation;
 - ▶ outputs: products (e.g. main products, by-products, recycled and reused materials), services, wastes (e.g. solid, liquid, hazardous, non-hazardous, recyclable, reusable), and emissions (e.g. emissions to air, effluents to water or land, noise, vibration, heat, radiation, light) resulting from the organisation's operations;
 - ▶ the delivery of outputs resulting from the organisation's operations

Importance of collecting data and information

The data to support audit findings and conclusions must be collected from corroborative sources, i.e. supplementary evidence provided to strengthen or confirm the principal evidence. The auditor must use information from databases or rely on the results of the work of others, in assessing compliance with regulatory requirements, or in evaluating the effectiveness of corrective measures. Such data can be an efficient primary source of information for audit findings to perform data collection and analysis.

Any conclusions drawn from databases are only as good as the quality of the data. The audited entity has primary responsibility for ensuring management information systems in place to collect data on its operations. For example, suppose OAGN audits have detected major flaws in the information systems used to track environmental compliance,

It is essential to establish the reliability of the data used. The flawed information system can become a subject of the audit. The quality and completeness of data on environmental conditions (e.g. pollutant levels of bodies of water; trends in fish populations) may be problematic. It is the responsibility of the audited entity to have reliable database. Audit must evaluate the problem with measures to control it. Incomplete or poor-quality data does not preclude the auditor from providing a useful analysis and information.

Auditors look for books of accounts, linking with relevant vouchers, data, and information. Many of the government policies and programmes are based on inadequate data basis; for example, while developing a climate change related programme, all essential and relevant information, and scientific assessment may not be available. Insufficient database is an issue and a challenge while formulating environmental programs, projects, and schemes. While conducting EA of such programs or projects, auditors will be able to highlight data and information gaps in formulating policies, planning, implementation, and monitoring. While preparing the audit report of the project, these issues will be highlighted in the audit reports. The deficiencies in the systems highlighted in the audit reports enable the policy makers to correct and revise the policy, projects, and programmes.

INTOSAI WGEA's 2013 paper discusses how OAGN can use environmental data and sources of environmental data when high-quality environmental data is lacking. Case studies include examples on audit on mining activities in Colombia and SAI of Bhutan' using interviews when the data from the waste management records of municipalities were incomplete.

The government data is becoming available to the public. Open data provide preconditions for interested individuals and groups to get involved in following government spending. Audit must ensure added value.

Associating external experts

EA may involve external experts to assist in designing and carrying out the audit. External environmental experts are required to include in the audit party when the environmental issue is complex and difficult to follow by the OAGN

auditor. Environmental experts can examine the issue scientifically and help the environment audit team with its findings to be incorporated in the report. For instance, experts can assist in finding out scientific evidence, obtaining data, completing data analysis, identifying evaluation methodologies. Environmental Impact Assessment (EIA) of a project can be better understood with the help of an environmental expert who can provide valuable inputs to be included in the audit report. The audit team should have competence in the subject matter in question, but auditors are not environmental experts, their knowledge and skills are limited. When a complex subject is taken for EA such as adverse impact of deforestation or sand mining, causes of forest fire or risk of earthquake assessment, auditors' knowledge must be updated with audit skills and analysis appropriate to the topic. Unless and until relevant, competent environmental experts are included in the audit team and their opinion is included suitably in the audit findings, the EA reports will be lacking credibility and scientific backing for some of the complex environmental issues like climate impact due to environmental damage, impact of glacier melting to flooding in rivers of Nepal.

Experts can be academics in a relevant field, scientists or an established well known institution, key stakeholders such as resident groups in the area who are knowledgeable and competent and affected by the activity, key environmental interest groups, and non-governmental organisations in the field. Audit must assess the quality of the data³⁶, opinions, and judgements obtained from each of these different parties as the source can have an interest in the outcome of the audit. For a road project, if the quality of a road condition or flyover, or bridge is to be commented, there must be engineering expert in the audit team. Or else audit must find a proper expert reports to be quoted in the audit report which has authenticity and relevance to the subject matter.

A panel of experts, including experts from industry, government and environmental organisations can be used to help in identifying environmental audit priorities, developing audit approaches on specific issues and collecting information. Experts can help in specific tasks and in specific advice. As an example, SAI Finland invited leading Finnish climate policy scientists to a focus group discussion to help in scoping the audit on climate strategy³⁷. SAI, Sweden contracted a professor in law to clarify the relationship between Swedish and EU law when conducting a fisheries audit³⁸. In its final report of the audit strategy Sustainable development – climate, SAI Sweden contracted a professor of economics and a former professor of political science. Experts of good repute add credibility to audit report.

Environmental audit is a specialized subject. Most of the INTOSAI countries do hire external experts wherever deemed necessary. INTOAI best practices encourage taking the inputs from experts in PA when the SAI feels the necessity of hiring an expert. Instead of hiring individual experts, it is advisable to take the help of an accredited institute in the field required. SAI, India had taken the inputs from external experts in its PA including EA. There is no hard and fast rule. When OAGN finds it is essential to take the help of an external environmental expert in conducting the EA of the selected topic, it is desirable to evaluate the best possible institution to contribute in the audit subject.

Co-operatives audits

Co-operation between auditors in two or more countries may be adopted in certain cases as coordinated audits of specific matters can be fruitful because of cross-border environmental problems. International agreements have

³⁶ISSAI 140 - Quality Control for SAIs; Appendix 6 of ISSAI 3000

³⁷3 NAOF (2012). *Finnish Climate Change Policies – A Summary of Audits (2012)*. http://www.e-julkaisu.fi/vtv/Finnish_climate_change_policies

³⁸Riksräkningen (2008). *The central Government's actions for sustainable fisheries*. http://www.riksrevisionen.se/PageFiles/14080/RIR%202008_23%20The%20central%20Goverments%20actions%20for%20....pdf

signatory parties who can form audit framework for the common audit approach and audit criteria³⁹. INTOSAI WGEA published with UNEP a primer about auditing the implementation of Multilateral Environmental Agreements.

A number of cooperative audits were done by SAls around the world. European countries conducted a cooperative audit on the EU Waste Shipment Regulation, Russia and Estonia conducted a parallel audit of conservation activities concerning Lake Peipus belonging to both countries. There are global coordinated audits about climate change⁴⁰. In the Pacific Region, in 2013, nine SAls finished their third cooperative audit. It dealt with sustainable fisheries, especially tuna⁴¹. IDI conducts many cooperative audits using INTOSAI countries for EA. OAGN can always participate in cooperative audits conducted by IDI for enhancing competence of the audit team by sharing and exchanging knowledge and expertise among the participating countries.

In 2011, National Audit Office of China (CNAO) as the Chair of ASOSAI WGEA, conducted a survey on environmental auditing to understand cooperative environmental audit plans. Asian countries paid much more attention to the environmental auditing. SAls have adequate knowledge about cooperative environmental audit, however, only some of them did such audits. SAls of China, India, Korea and Malaysia conducted cooperative environmental audits. The fields of cooperative environmental audit are limited as trans-country forest protection, the control and prevention of sandstorm, etc. Parallel audit is more suitable, because of varied languages, methodology and technology. INTOSAI WGEA encourages regional working groups to actively carry out cooperative environmental audit. SAls who conducted cooperative environmental audits share relevant experiences with others SAls to promote cooperative environmental auditing in Asia.

The IDI/WGEA conducted a Trans-regional capacity building Program on Performance Audit of Environmental Issues in Forestry (2010-2012). In the program, 7 Asian countries, namely Nepal, Bangladesh, Bhutan, China, Indonesia, Malaysia, and Thailand participated.

COVID 19: Cooperative audit of strong and resilient national public health systems (linked to SDG target 3.d).

As the entire world is facing an unprecedented health, humanitarian and economic crisis due to the global outbreak of COVID-19, there is crucial role played by national public health systems. Relevance of resilient public health systems with an integrated approach require SAI to examine government efforts to strengthen capacities for early warning, risk reduction and management of national and global health risks (SDG target 3.d).

INTOSAI Development Initiative (IDI), INTOSAI Knowledge Sharing Committee (KSC) and INTOSAI Regions (ASOSAI, ARABOSAI and CAROSAI) had agreed to partner with other key stakeholders to support a cooperative audit of resilient national public health systems (linked to SDG target 3.d).

Objective

³⁹GUID 5203 - Cooperation on Audits

⁴⁰Coordinated international audit on climate change (2010). [http://www.environmental-auditing.org/Home/](http://www.environmental-auditing.org/Home/FocusonClimateChange/GlobalAuditonClimateChange/tabid/245/Default.aspx)

[FocusonClimateChange/GlobalAuditonClimateChange/tabid/245/Default.aspx](http://www.environmental-auditing.org/Portals/0/AuditFiles/regional_report_sustainable_fisheries.pdf)

⁴¹Pacific Regional Report of the Cooperative Performance Audit: Managing Sustainable Fisheries (2013) http://www.environmental-auditing.org/Portals/0/AuditFiles/regional_report_sustainable_fisheries.pdf

The main objective of the audit is to contribute to resilient national public health systems for the wellbeing for all. One of the key outcomes would be to see more equitable access to public health systems and prioritization of vulnerable sections e.g. women, people with disabilities, the poor, etc.

Participating SAls

ASOSAI: Nepal, Bangladesh, Bhutan, Indonesia, Lao PDR, Malaysia, Mongolia, Myanmar, Pakistan, Philippine, Sri Lanka, Tajikistan, Thailand, Vietnam

PASAI: Fiji, Tonga

ARABOSAI: Algeria, Egypt, Iraq, Palestine, Libya, Morocco, Oman, Syria, Tunisia, Sudan

CAROSAI: Aruba, Bahamas, British Virgin Islands, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, Saint Lucia, Saint Vincent & the Grenadines, Turks & Caicos Islands, Trinidad and Tobago

OLACEFS: Peru

Partners

INTOSAI KSC, ASOSAI, ARABOSAI, CAROSAI, GIZ, WHO, WORLD BANK

3.2.4 Execution

The purpose of the audit execution is to implement the work plan, conduct the audit and produce a high-quality audit report. Carrying out an audit may be seen as both an analytical and a substantive test procedure. In the analytical process, data are collected, interpreted, and analysed. The substantive test process begins to different findings, arguments and perspectives are assessed, and continue until the report has been finalized. Audit examination work takes place on the basis of audit planning already undertaken, and as per the developed planning documents, Audits should be performed with due care, with an objective state of mind, and with appropriate supervision.

Entry meeting

Before executing audit plan, auditor should communicate audit objectives, scope and audit questions to the auditee management by organizing entry meeting. Generally, such meeting can be organized in the premises of the auditee, in which all the responsible departmental or section head will participate. Minutes of the meeting will be prepared and signed by both parties. The feedbacks of the entry meeting if necessary, should be consider and adjusted in the audit plan subsequently.

Audit Evidence

Audit evidence is information collected and used to answer the audit question and develop audit findings. Such evidence forms the basis of audit conclusions and recommendations and is a central concern from the planning to the completion of the audit. The types of evidence to be obtained should be explainable and justifiable in terms of sufficiency, validity, reliability, relevance, and reasonableness. All audit findings and conclusions must be supported by audit evidence. The Auditing Standards state that 'Competent, relevant and reasonable evidence should be obtained to support the auditor's judgment and conclusion regarding the organization, program, activity or function under audit.

Obtaining evidence, findings and conclusions

Auditors should obtain sufficient appropriate audit evidence to establish audit findings, reach conclusions in response to the audit objectives and questions and issue recommendations. All audit findings and conclusions must be supported by sufficient appropriate evidence placed in context with all relevant arguments, pros and cons and different perspectives to draw the conclusions determined by the subject matter, the audit objective and the audit questions. The auditor should evaluate the evidence to obtain audit findings and exercise professional judgement to reach a conclusion. Findings and conclusions are the results of analysis in response to the audit objectives and should provide answers to the audit questions. Conclusions can be based on quantitative evidence using scientific methods or sampling techniques. Conclusions may require judgement and interpretation to answer the audit questions as audit evidence may be persuasive rather than conclusive ("right/wrong"). Senior management of OAGN must involve in analytical processes. Combining and comparing data from different sources to draw preliminary conclusions and compiling findings to build hypotheses that can be tested against additional data help in drafting the audit report. Auditors must be goal-oriented and work systematically and with due care and objectivity.

Conducting EAs with FA and CA frameworks

Substantive procedures

The auditor must obtain evidence to support the environmental disclosures made in the financial statements from the management. If the entity has internal auditing which examines environmental aspects of the entity's operations, the OAGN auditor should use that work if it can be relied on. In certain cases, an environmental expert may be required to assess outcome to be disclosed in the financial statements, such as quantifying a contamination, alternative methods of site restoration, etc. In such cases, the auditor should use the expert's work on the financial statements based on the professional competence of the environmental expert.

Another aspect the auditor may consider is the use of any income that an entity may be collecting under the "polluter pays" model. The auditor may examine the financial systems and controls around the collection of such funds, the procedures designed to assess the quantification relating to environmental issues, and whether the funds are being used for the intended purposes.

The possible questions can be asked on governmental programmes/activities on the following issues:

- ▶ maintaining soils in croplands.
- ▶ providing irrigation for agriculture.
- ▶ protecting watersheds.
- ▶ supporting forestry.
- ▶ supporting agriculture.
- ▶ protecting water bodies.
- ▶ conserving biodiversity.
- ▶ improving energy efficiency.
- ▶ preventing pollution.
- ▶ managing urban waste; or
- ▶ protecting and preserving cultural heritage, national parks, heritage buildings, or places of special cultural or scientific value.

Besides, the following questions can be asked to the entity:

- ▶ What resources are the departments using to achieve the required outcomes?
- ▶ Are the resources accurately accounted for and the results accurately reported?

-
- What responsibilities does the SAI have with respect to the accounting and reporting of the performance of these programmes?

3.2.5 Reporting

At the end of audit, the audit team shall prepare a written report, setting out the finding in an appropriate form; its content should be easy to understand and free from vagueness or ambiguity, include only information which is supported by competent and relevant audit evidence and be independent, objective fair and constructive. Audit report should be prepared keeping view on the audit objective.

Reporting Process

After confirming significant issues, the audit team should draft audit report incorporating the criteria, condition, cause and effect and consequences, conclusions and recommendations in the audit issue papers, should be reviewed by the Audit Director and the Assistant Auditor General of OAGN before being presented to the appropriate level of management a few days prior to the exit conference.

Before issuing audit report, the auditee involved should always be given the opportunity to examine its content. The draft report provides the first opportunity for the auditee to see the full context of audit findings, conclusions and recommendations in written form. Where responses provide new information, the auditor should assess this and be willing to modify the draft report.

Exit Conference

Exit conference is held between audit team members and the entity's management group. Exit conference is carried out to discuss audit findings conclusion and recommendation and to validate the accuracy and completeness of information included in the draft report. The exit conference should be noted and signed by both the parties.

Preliminary Audit Report

The purpose of preparation of the preliminary audit report is to seek formal response of the audited entity. The preliminary report should be forwarded to the audited entities. Copies of the report should also be forwarded to concerned departments and secretary of line ministry; it should be communicated to the responsible party that the response should be received in writing within 35 days. In the event this is not the case, the issues will be incorporated into the final report as it is, with mention that no response has been received. The response should address the issues raised in the audit report and include specific action plans with regards to implementing corrective action.

Final Report

The auditor should review each response received to determine that timely corrective action and adequate detail have been provided for each finding of the report. Once the management comments are analysed, the more important issues should be identified to be included in the final report. The final report should have clarity and focus on the subject matter after incorporating the responses from the audited entity.

The Audit Director shall review the audit files again to ensure that the evidence, working papers and other documents are sufficient to support the final report.

Reporting Content of the report

Auditors should strive to provide audit reports which are comprehensive, convincing, timely, reader-friendly and balanced. A report should include all the information needed to address the audit objective and audit questions, sufficiently detailed to provide an understanding of the subject matter and the findings and conclusions. Report should be logically structured and present a clear relationship between the audit objective, criteria, findings, conclusions and recommendations. All relevant arguments should be addressed. In an EA in the context of PA, auditors should report their findings on the economy, efficiency and effectiveness with resources are used to achieve the objectives and outcome.

The report should include information about the audit objective, audit questions and answers to those questions, the subject matter, criteria, methodology, sources of data, any limitations to the data used, and audit findings answering the audit questions. Alternatively, the auditors should reformulate the audit questions to fit the evidence to arrive at audit findings and conclusions. EA undertaken in PA methodology must have recommendations for improvements to performance. Recommendations should be constructive highlighting improvements. Recommendations should be well-founded, adding value and address the causes of problems without encroaching on the management's responsibilities. Recommendations should be practical, and the entity must have competence for implementing them. Recommendations should be clear and presented in a logical and reasoned fashion linked to the audit objectives, findings and conclusions convincing the reader that they improve the conduct of government operations and programmes, e.g. by lowering costs and simplifying administration, enhancing the quality and volume of services, or improving effectiveness, impact or the benefits to society.

Reporting on environmental issues

Environmental and sustainability reports are tools for communicating with stakeholders and managing business reputation. Environmental reporting can help an organization to improve its risk management and save resources and money.

Environmental and sustainability reporting were developed in private sector companies first and now public sector entities are also preparing such reports. The auditor must provide assurance that these reports reflect the actual results, risks and relevant issues.

Demand for public accountability of persons/entities managing public resources has increased. All major risks that will impact on entity's fulfilment of its objectives must be reported. Environmental performance must be included in FAs, as CA or PA reports.

The government entities can be categorized into three groups:

- ▶ entities whose operations directly or indirectly affect the environment, whether positively or negatively – such as by rehabilitation or utilization and pollution.
- ▶ entities with powers to make or influence environmental policy and regulations – whether internationally, nationally, or locally; and
- ▶ entities with the power to monitor and control the environmental actions of others.

If any government entity under the audit jurisdiction of OAGN has is required to produce a statement of service performance for environmental outputs or outcomes, the entity's financial statements must reflect it. Audit can review each year the achievement compared to the previous year's statements as part of FA. The FA report can be a tool for annual monitoring of the progress toward the desired environmental outcomes.

Sustainability reporting

Environmental reporting has developed through corporate social responsibility reporting. There are holistic sustainability reports that include environmental, social, and economic concerns. Finally, there is integrated reporting, presenting them in one annual report along with financial information instead of publishing separate environmental or sustainability reports. Auditors must look at the entities' accountabilities and how to present the issues to improve their environmental reporting.

INTOSAI WGEA publication "Sustainability reporting: Concepts, Frameworks and the Role of Supreme Audit Institutions" discusses best practices for sustainability reporting. The guide focuses on six key operational areas namely, energy, ICT, waste, water, travel, and property management and provides guidance case studies, checklists, and performance indicators.

Reporting and communicating

The audit's results must reach to its audience to maximize the audit impact. The guidance on increasing the impact of Eas⁴² suggests that audit reports must help to answer the following questions:

- ▶ "What?" – Identify the problems and their underlying conditions uncovered by the audit.
- ▶ "So what?" – Explain why the reader should care about the audit findings.
- ▶ "Why so?" – Identify the root cause of problems or observations.
- ▶ "What next?" – Highlight the recommendations or solutions proposed.

EA may address non-financial/intangible problems that may arise after certain time span. Communicating well assumes importance in such cases. The consequences of environmental incidents can be visualized with photos as photos can make audit reports more attractive and interesting. Poor quality of photographs adds no value except to show that the auditors were there. To achieve the best effect by using photos, the auditor should ensure that:

- ▶ The photo is illustrative, depicting the exact problem or incident described. Because of this, the auditor must consider at an early stage in the audit –even before on the spot visits – how to obtain the photo.
- ▶ The caption text guides the reader by explaining exactly what the photo illustrates.
- ▶ The SAI has the rights to publish the photo and ensures that appropriate attribution is given.

Effective communication with stakeholders reinforces the audit messages and the impacts of audit work. As the ultimate beneficiaries of public funds, citizens of Nepal are the most important stakeholders of OAGN. Audit results can be communicated by presentations, conferences, parliamentary committees, articles, social media, etc. addressing to the stakeholders, including academics, lobbyists, NGOs, government agencies and think tanks. OAGN has a communication strategy which can be reviewed to improve the outreach based on the emerging cutting-edge technology to increase audit outcome by generating debates and interest in the audit results. Promoting stakeholder participation such as parliament, CSOs, media can help in improving public administration, environmental compliance, and good governance.

Ensuring impact of EA

⁴²How to increase the impact of environmental performance audits. http://www.ccaf-fcvi.com/index.php?option=com_content&view=article&id=1161%3Ahow-to-increase-the-impact-of-environmental-performance-audits-a-discussion-paper&catid=120%3Aperformance-audit-gpublications&Itemid=535&lang=en

To ensure impact of EA, the reports must provide recommendations as explained in ISSAI 3000 linked to the audit objectives, findings and conclusions. Recommendations should be constructive, realistic, feasible and likely to contribute significantly to addressing the problems. The recommendations must be discussed with experts and the entity to ensure acceptability. Recommendations must concern for instance government operations lowering costs and simplifying administration, improving risk management, enhancing the quality and volume of services, or improving effectiveness, impact, or the benefits to society.

Distribution of the report

Auditors should make the reports widely accessible to promote the credibility of the audit function. Reports should be distributed to the audited entities, the executive and/or the legislature and to the general public through the media and interested stakeholders.

3.2.6 Documentation and quality review

Audit files support reports issued. The Audit Director should ensure that audit files exist, contain appropriate and sufficient evidence, and are complete and easily retrievable. Working papers should be prepared in sufficient detail to enable an experienced auditor with no previous connection with the audit to ascertain what work has been performed to support the findings and conclusions

The overall review process should be done by the Assistant Auditor General, to ensure that all conclusions made are consistent with each other, are relevant, logical, constructive and supportive.

3.2.7 Follow Up

Follow-up is an important and final stage of environment audit process. A systematic review should be carried out by the Office of the Auditor General on the action taken by the management of an auditee on the recommendations/audit observations made by Office of the Auditor General or Public Accounts Committee (PAC) of the Parliament. The OAG should report on results of follow-up reviews to the Parliament and/or management, as appropriate.

Auditors should follow up previous audit findings and recommendations. Follow-up should be reported appropriately to provide feedback to the legislature with the conclusions and impacts of corrective action. Follow-up refers to the auditors' examination of corrective action taken by the audited entity on the basis performance audit. It increases the value of the audit process by strengthening the impact of the audit. Follow-up is not restricted to the implementation of recommendations but focuses on whether the audited entity has adequately addressed the problems and remedied the underlying situation after a reasonable period. Follow-up results may be reported individually or as a consolidated report with an analysis highlighting common trends and themes across several reporting areas.

Follow-up audits after some years of the audit of the entities can improve implementation of recommendations. EA reports may provide long term recommendations taking several years. So, following up audit on the OAGN's EA recommendations must be after reasonable time span.

Chapter -4 Key Sectors of Environment Audit

Note:

- ▶ When EA is done as FA, or CA or PA, corresponding OAGN's Guides/Guidelines/Manuals will be applicable.
- ▶ Detailed procedures for selection of subject matter based on the selection criteria like materiality, significance, auditability, OAGN mandate, impact, risk mitigation etc.,
- ▶ formation of audit team,
- ▶ inclusion of external experts in the audit team depending on the subject matter, ethical declaration,
- ▶ design of audit and preparation of audit plan with budget, resources, duration, familiarization of subject matter, obtaining relevant policy, laws, rules etc. defining audit objective, audit questions and sub-questions, scope, audit criteria, design matrix, checklists, audit program with identification of field audits, conducting audit, reporting, follow up, documentation, Quality Control and Quality Assurance, etc., are explained in detail in the respective FA/CA/PA Guidelines and hence mentioned briefly in this Guide.
- ▶ In this chapter some important EA topics are discussed in detail with audit process and with audit checklists including EA of Forest and Climate change subject matters.

A. Audit of Water Pollution

Agenda 21 of the World Commission on Sustainable Development in June 1992 recognized that the objective of water management is to maintain adequate supplies of water of a good quality for the entire population, while preserving the hydrological, biological and chemical functions of ecosystems, adapting human activities within the capacity limits of nature and combating vectors of water-related diseases. Agenda 21 has identified the following key action areas for the freshwater sector.

- ▶ Drinking water supply and sanitation for urban and rural development.
- ▶ Water for sustainable food production.
- ▶ Protection of water resources, water quality and aquatic ecosystems.
- ▶ Water resource assessment including evaluation of impacts of climate change on water resources.
- ▶ Integrated water resources development and management

Water is one of the essential elements for survival. In recent years been a major issue in Nepal. Because of the importance of water for the process of economic development, for public health, and for the quality of the ecosystems, a government has the responsibility to see that basic services are provided, and a balance of competing interests is maintained. Since all governments need to deal with the issues at hand, all SAIs have an interest as well. SAIs can contribute to the quality of water policy by providing recommendations for improvement to the bodies they audit.

Note:

In this chapter, EA subject matter relating to water, air, waste management, biodiversity, forest, and climate change has been discussed at length. While conducting EA in three types of audits, auditor should study the latest applicable laws, rules, regulations, notifications, standards and circulars issued on the subject matter; as environmental related updated applicable rules, standards, procedures and processes change frequently to cater to address emerging issues.

For example, waste management rules may include plastic waste or electric and electronic waste issues, or management hazardous waste may include new substances, air pollution and water pollution standards may be modified in over the years.

As a thumb rule for conducting EA is that auditor must identify all the updated relevant applicable authoritative laws, rules, regulations, standards and procedures during the audit planning process as criteria and checklists for Eas are essentially derived from them.

Major audit Issues

The audit topics vary from region to region, depending on the specific problems that are encountered. Water quality, Rivers and lakes, Flooding, drinking water and sanitation, Nature and biodiversity aquatic environment etc. are the subjects that are most frequently audited.

Some of the major audit issues relating to water pollution are:

- ▶ Data about sources and extent of water pollution.
- ▶ Recognition of threats to health and environment posed by water pollution.
- ▶ Existence of policy/laws/rules for the control of water pollution.
- ▶ Existence and adherence to water quality criteria.
- ▶ Penalties for violation of water pollution quality criteria.
- ▶ Programs/strategies to reduce water pollution.
- ▶ Compliance to programs/strategies to reduce water pollution.
- ▶ Monitoring of compliance to programs/strategies to reduce water pollution.
- ▶ Adequacy of infrastructure to control water pollution

Compliance with Legal Matters governing the Water issues in Nepal:

Checking the Compliance with the acts, rules and legislation relating to prevention of water pollution is a major part of audit exercise. Various enactments have been made in Nepal regarding water issues, which are as follows:

| Acts or Regulation | Areas Addressed |
|---|---|
| Drinking Water Regulation, 1998 (2055 B.S.) | <ul style="list-style-type: none">▶ Regulates the use of drinking water.▶ Establishes system of formation of Drinking Water User Association (consumer organization).▶ Sets out provisions on licensing of use drinking water.▶ Deals with maintenance of quality standards for drinking water and control of water pollution.▶ Sets out provisions relating to service utilization by consumers. |
| Electricity Act, 1992 (2049 B.S.) | <ul style="list-style-type: none">▶ Administers the use of water for hydropower generation.▶ Establishes provisions on licensing.▶ Sets out the powers, functions, and duties of a license holder.▶ Provides certain pecuniary incentives for license holders.▶ Sets out the powers of the government. |

| | |
|---|--|
| Electricity Regulation 1993, (2050 B.S.) | <ul style="list-style-type: none"> ▶ Sets out the requirement of analysis of environmental effect at the time of application of license for production and transmission of electricity |
| The Environment Protection Act, 2019 (2076 B. S.) | <ul style="list-style-type: none"> ▶ Requires proponent (certain persons/bodies) to conduct an Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) ▶ Deals with the prevention and control of pollution. |
| Environment Protection Act 2019 (English) Environment Protection Regulation 2077 (B.S.) | <ul style="list-style-type: none"> ▶ Lists out the water related proposals required to conduct an IEE or EIA. ▶ Provides for prevention and control of water pollution and provisions for provisional or permanent pollution control certificate. |
| Essential Commodity Protection Act, 1955 (2012 B.S.) | <ul style="list-style-type: none"> ▶ Reckons drinking water an indispensable commodity and strictly protects drinking water. ▶ Prohibits any unauthorized use or misuse, stealing, damaging, leakage etc. of drinking water. |
| Income Tax Act, 2058 (2002) | <ul style="list-style-type: none"> ▶ Provides for deduction of pollution control expenses to the extent incurred in the operation of that business in that year |
| Industrial Enterprises Act, 1992 (2049 B.S.) | <ul style="list-style-type: none"> ▶ Requires permission for the extension and diversification of environmentally sensitive industries. ▶ Provides pecuniary incentives for industrial enterprises that contribute in minimizing harmful effects on the environment. |
| Irrigation Regulation, 2000 (2056 B.S.) Irrigation (First Amendment) Rules, 2060 (2004) 2060.11.11 (2004.2.23) Preamble: In exercise of the power conferred by Section 24 of Water Resources Act | <ul style="list-style-type: none"> ▶ Deals with Irrigation Water User Associations and project handover to Irrigation Water User Associations. ▶ Sets out provisions on service utilization. ▶ Sets out the responsibilities of user of irrigation and provides for service charges. ▶ Provides for a joint management system by GON and Irrigation Water User Association. ▶ Deals with Irrigation and River Control Committee. ▶ Provides for protection, repair, and maintenance of irrigation systems. |
| Local Government Operation Act, 2074 | <ul style="list-style-type: none"> ▶ Establishes a decentralized governance structure. ▶ Establishes powers, functions, and duties of the Rural Municipality and Municipality in relation to water resources and sanitation. ▶ Sets out list of natural resources which are assets of local bodies and empowers local bodies to levy natural resources utilization tax. |
| Local Government Operation Act, 2074 | <ul style="list-style-type: none"> ▶ Establishes powers, functions, and duties of the Rural Municipality and Municipality in relation to water resources and sanitation. ▶ Sets out the procedure for the formulation of water related plans and projects and their implementation. |

| | |
|---|---|
| The Muluki Ain (General Code), 2019 | <ul style="list-style-type: none"> ▶ Sets out the order of priority of use of water for irrigation. ▶ Regulates traditional farmer managed irrigation systems. |
| Nepal Water Supply Corporation Act 1989 (2046 B.S.) | <ul style="list-style-type: none"> ▶ Establishes the Nepal Water Supply Corporation as the perpetual, autonomous government-controlled corporation responsible for the supply of drinking water. ▶ Prohibits certain acts and sets out penalties/punishment for infringement. |
| Solid Waste (Management and Resource Mobilization) Act 1987 (2044 B.S.) | <ul style="list-style-type: none"> ▶ Establishes the Solid Waste Management and Resource Mobilization Centre as the responsible authority for the management of solid waste and mobilization of resources related thereto. ▶ Makes arrangements for the prevention of water pollution from solid waste. |
| Solid Waste (Management and Resource Mobilization) Regulation, 1989 (2046 B.S.) | <ul style="list-style-type: none"> ▶ Deals with the collection, transportation, and disposal of solid waste. ▶ Sets out provision of public toilets and bath houses. |
| The Constitution Nepal, 2015 (2072 B.S.) | <ul style="list-style-type: none"> ▶ Assures right to life and property. |
| Water Resource Act, 1992 (2049 BS) | <ul style="list-style-type: none"> ▶ The umbrella Act governing management of water resources. ▶ Vests ownership of water resources in the State. ▶ Provides for the formation of Water Users Association and establishes provisions on licensing. ▶ Sets out the priority order on the utilization of water resources. ▶ Establishes quality standard of water resources. ▶ Prohibits water pollution. |
| Water Resource Regulation, 1993 (2050 BS) | <ul style="list-style-type: none"> ▶ The umbrella Regulation governing management of water resources. ▶ Sets out the procedure to register Water User Association and to acquire a license. ▶ Establishes the District Water Resource Committee. ▶ Sets out the rights and duties of Water User Associations and license holders. ▶ Deals with the acquisition (utilization) of house and land and compensation. |
| Water Tax Act, 2023 (BS), 1966 | <ul style="list-style-type: none"> ▶ Manages modus operandi of recovering the amount of the water tax levied pursuant to the prevailing Nepal law |
| Irrigation policy 2070 (BS) | <ul style="list-style-type: none"> ▶ It aims to provide round the year irrigation facility to the irrigation suitable land by effective utilization of the current water resources of the country and to develop institutional capability of Water Users for sustainable management of existing system. User's participation in irrigation management in the policy helps to enhance agricultural productivity. |

B. Performance audit on water pollution

A checklist comprising of major audit themes, audit objectives and audit questions relating to control of water pollution has been listed below. Such a list would act as guidance for the audit of water pollution related issues:

| Objective | Main Questions |
|--|--|
| Theme 1: Existence of database and identification of risks | |
| 1. Whether database of the sources and quantum of pollution of rivers/lakes/water sources has been created and has the risks to the river and health been assessed for the control of pollution. | ▶ Whether all causes/sources of pollution to the rivers/lakes/ground water/water sources have been identified. |
| | ▶ Whether the contribution of each source of pollution has been quantified. |
| | ▶ Whether risks to the health as a result of pollution to rivers/lakes/ground water/water sources have been identified. |
| | ▶ Whether risks to the environment as a result of pollution to rivers/lakes/ground water/water sources have been identified. |
| Theme 2: Effective planning for the control of water pollution | |
| 2. Whether planning for control of pollution was effective and took into account data and identification of risks. | ▶ Whether planning for the control of pollution was based on accurate/ recent/reliable data. |
| | ▶ Whether planning for the control of pollution was based on assessment of risk. |
| | ▶ Whether planning for the control of pollution was based on assessment of requirement/ availability of funds |
| Theme 3: Clear allocation of responsibility and accountability | |
| 3. Whether various agencies involved in the control of pollution have been allocated clear responsibility and accountability for planning, implementation, and monitoring. | ▶ Whether there was allocation of responsibility and accountability to agencies for planning. |
| | ▶ Whether there was clear delineation of responsibility and accountability to agencies implementing the programs for the control of pollution. |

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| | <ul style="list-style-type: none"> ▶ Whether there was clear delineation of agencies for monitoring (including monitoring of infrastructure for the control of pollution). |
| | <ul style="list-style-type: none"> ▶ Whether there was clear delineation of regulatory agencies for measurement and setting of standards for the control of water pollution. |
| Theme 4: Effective implementation of measures to control water pollution Guidance on Conducting Environment Audit, ASOSAI | |
| 4. Whether implementation of the program for the control of pollution resulted in the creation of the infrastructure envisaged under the program and were these functioning as envisaged. | <ul style="list-style-type: none"> ▶ Whether infrastructure for the control of pollution created under the program for the control of pollution as envisaged. |
| | <ul style="list-style-type: none"> ▶ Whether infrastructure created for the control of pollution was being utilized and maintained as envisaged. |
| Theme 5: Monitoring | |
| 5. Whether monitoring of implementation of the program for the control of pollution took place effectively and whether monitoring was undertaken to ensure operation of the pollution control measures after they were created. | Whether effective monitoring of program implementation took place to ensure that the program objectives were met. |
| | <ul style="list-style-type: none"> ▶ Whether the infrastructure created under the program for the control of pollution was effectively monitored to ensure that it met set/designed performance parameters. |
| | <ul style="list-style-type: none"> ▶ Whether regular and effective monitoring of pollution levels of rivers/lakes/ground water/water sources took place. |
| Theme 6: Utilization of funds | |
| 6. Whether funds were utilized in an efficient and economic manner to further the aim of reducing pollution from the rivers/lakes/ ground water/water sources. | <ul style="list-style-type: none"> ▶ Whether funds allocated to the states under the program for the control of pollution were released timely to the implementing agencies. ▶ Whether the funds were utilized economically and efficiently. |
| Theme 7: Impact analysis | |

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| 7. Whether the program for the control of pollution had succeeded in reducing pollution levels in rivers/lakes/ground water/water sources and restoring water quality. | <ul style="list-style-type: none"> ▶ Whether there was improvement in water quality as a result of implementation of the program for the control of pollution. |
| | <ul style="list-style-type: none"> ▶ Whether external evaluation of the program for the control of pollution was done. |
| | <ul style="list-style-type: none"> ▶ Whether performance of the infrastructure created for the control of water pollution was as per set/designed performance parameters. |

C. Audit of Air Pollution

Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution. Pollutants of major public health concern include particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulphur dioxide. Outdoor and indoor air pollution cause respiratory and other diseases, which can be fatal.

Some major issues in the audit of air pollution are:

- ▶ Data about sources and extent of air pollution.
- ▶ Recognition of threats to health and environment posed by air pollution.
- ▶ Existence of policy/ laws/rules for the control of air pollution.
- ▶ Existence and adherence to air quality criteria.
- ▶ Penalties for violation of air quality criteria.
- ▶ Programs /strategies to reduce air pollution.
- ▶ Compliance to programs /strategies to reduce air pollution.
- ▶ Monitoring of compliance to programs /strategies to reduce air pollution.
- ▶ Adequacy of infrastructure to control air pollution.

Compliance with Legal Matters governing the Air issues in Nepal:

Checking the Compliance with the acts, rules and legislation relating to prevention of air pollution is a major part of audit exercise. Various enactments have been made in Nepal regarding air issues, which are as follows:

| Acts, Rules and Regulations | Areas addressed |
|--|---|
| The Environment Protection Act, 2019 (2076 BS) | <ul style="list-style-type: none"> ▶ Grants powers to Government of Nepal to frame necessary Rules governing the matters related to air pollution and control. |
| The Environment Protection Act, 2019 (2076 BS) | <ul style="list-style-type: none"> ▶ Determines the scope of Environmental Impact Assessment. ▶ Grants approval to those projects which propose to comply within the environmental standards ▶ Monitoring and evaluation of impact of implementation of proposal on the environment. |

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| | <ul style="list-style-type: none"> ▶ Conducting inspections regarding the state of vehicles. |
| Nepal Vehicle Mass Emission Standard, 2069 BS (2012) | <ul style="list-style-type: none"> ▶ Assigns the limits on types of engines used in the vehicles i.e.- approving the Positive Ignition Engines. ▶ Assigns the limits on types of engines operated by diesel power and determining the limits of production using fuels. ▶ Sets the standards to verify the exhaust emissions and conduct Opacity Smoke Tests. |
| Civil Aviation Act, 2073 BS (2017) | <ul style="list-style-type: none"> ▶ Empowers government to frame regulations to regulate, prevent and control air pollution from aircraft |
| Nepal Mines & Minerals Act, 1985 (2042 BS) | <ul style="list-style-type: none"> ▶ Ensures that the mining activities are performed without jeopardizing the interest of the local people |
| Nepal Petroleum Products Act, 1983 (2040 BS) | <ul style="list-style-type: none"> ▶ Provides special consideration to security of life and property of people and without damaging forests, natural heritage and causing environmental pollution |
| Industrial Enterprises Act, 2076 BS | <ul style="list-style-type: none"> ▶ the Government of Nepal may make special provisions in relation to incentives, exemptions, facilities, or concessions for industries 40 established in an industrial zone, product specific zone and industrial village; (l) the Government of Nepal may provide additional incentives, exemptions, facilities, or concessions to industries established in the least developed, undeveloped, and underdeveloped regions. 30. Provisions relating to land: (1) The concerned entrepreneurial purchase such land under the prevailing law on his or her own as is necessary for an industry registered under this Act or the prevailing law. |
| Income tax Act 2058 BS (2002) | <ul style="list-style-type: none"> ▶ Provides for deduction of pollution control expenses to the extent incurred in the operation of that business in that year |
| Nepal is signatory to various international accords on prevention of air pollution, some of these are as follows: | |
| Vienna Convention for The Protection of the Ozone Layer, 1955 (2012) | <ul style="list-style-type: none"> ▶ Serves as a framework for efforts to protect the globe's ozone layer |

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| London Amendment to the Montreal Protocol on Substance that Deplete the Ozone Layer, 1990 (2047) | <ul style="list-style-type: none"> ▶ Protects the ozone layer by taking precautionary measures to control equitably total global emissions of substances that deplete it, with the ultimate objective of their elimination on the basis of developments in scientific knowledge, taking into account technical and economic considerations and bearing in mind the developmental needs of developing countries |
| Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997 (2054) | <ul style="list-style-type: none"> ▶ Sets the quantified limitation and reduction objectives within the specified timeframes for their anthropogenic emissions by sources and removal of greenhouse gases. |
| EURO III Emission Standard | <ul style="list-style-type: none"> ▶ Bans the import of vehicles which do not comply with the EURO III standards. |

D. Performance audit on air pollution

A checklist comprising of major audit themes, audit objectives and audit questions relating to control of air pollution has been listed below. Such a list would act as guidance for the audit of air pollution related issues:

| Objective | Main Questions |
|--|---|
| Theme 1: Assessment of the levels of air pollution and its hazards | |
| 1. Whether quantum of air pollution has been accurately assessed and the risks to human health, ecosystem and environment have been studied. | <ul style="list-style-type: none"> ▶ Has an assessment of quantum of each kind of air pollutant (particulates, Sulphur dioxide, nitrogen dioxide, carbon monoxide, hydrocarbons, ozone, lead etc.) been made at the macro level as well as at the micro level? Have the sources contributing to air pollution like power plants, municipal waste incinerators, burning woods, oil refineries, manufacturing facilities (like synthetic, organic, agricultural, chemical, pharmaceutical, paints, aerosol, electrical appliances, refrigeration & air conditioning), landfills, commercial automobiles, privately owned automobiles, locomotives and aircrafts, been identified, and whether the quantum of air pollution by each source has been assessed. |
| | <ul style="list-style-type: none"> ▶ Has an identification and analysis of the expected parameters of significance for air pollution like increase in air pollution due to increase in population, seasonal changes, greater economic growth, increase in the number of private vehicles, etc., been done? |
| | <ul style="list-style-type: none"> ▶ Has the government identified risks to environment (on air quality) as a result of air pollution? |
| | <ul style="list-style-type: none"> ▶ Has the government identified risks to human health caused by air? ▶ 8 Guidance on Conducting Environment Audit, ASOSAI |
| Theme 2: Existence of rules and regulations pertaining to air pollution | |

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| <p>2. Whether clear rules and regulations/action plan/strategies have been enacted to control air pollution and whether clear responsibility and penalty for violation has been incorporated in the legislations already enacted.</p> | <ul style="list-style-type: none"> ▶ Whether a separate law/rule has been enacted to control air pollution and whether these laws/rules are adequate to effectively control air pollution. ▶ Whether all sources of air pollution like from power plants, municipal waste incinerators, burning woods, oil refineries, manufacturing facilities (like synthetic, organic, agricultural, chemical, pharmaceutical, paints, aerosol, electrical appliances, refrigeration & air conditioning, landfills, commercial automobiles, privately owned automobiles, locomotive and aircraft,) have been taken into account while framing laws/rules for control of air pollution. ▶ Whether the government has defined acceptable levels for each kind of pollutant and do these levels vary with international standards. ▶ Whether the laws/rules incorporate responsibility and penalty for violation of air pollution control laws/rules. ▶ Has the Government made any strategy/action plan with clear timelines and commitment for reduction of quantities for air pollution? ▶ Has the Government framed policies/ strategies/ action plans for air pollution reduction and have these been communicated to all stakeholders? ▶ Has the suitable technology been adopted to minimize the environmental and health hazards caused by air pollution? |
| Theme 3: Allocation of responsibility for control of air pollution | |
| <p>3. Whether the various agencies involved in the process of control of air pollution have been clearly identified and whether clear responsibility and accountability for air pollution management has been allocated among them and whether there is a mismatch/gap/overlap among the responsibility centres.</p> | <ul style="list-style-type: none"> ▶ Has a nodal body for control of air pollution been identified both at the macro and the micro levels? ▶ Has the primary agency for making policy/legislation/strategy for control of air pollution been identified at the macro as well as micro levels? ▶ Have bodies been created and entrusted responsibility for the implementation of laws/ rules on air pollution? ▶ Have bodies been created and entrusted responsibility for the monitoring of laws/ rules on air pollution? ▶ Has a regulatory agency being created for measuring air pollution, setting acceptable levels of air pollution, and revising it regularly to ensure better control? |

| Theme 4: Compliance of air pollution rules and regulations | |
|---|---|
| 4. To ascertain the level of compliance to air pollution rules and regulations already in existence. | <ul style="list-style-type: none"> ▶ Are all the entities causing air pollution acting in accordance with the compliance criteria and procedures laid down in law? |
| Theme 5: Monitoring | |
| 5. Whether effective monitoring was done to ensure compliance to defined acceptable levels for each kind of pollutant. | <ul style="list-style-type: none"> ▶ Whether monitoring mechanism was effective in checking non-compliance with the provisions of air pollution control laws/rules. |
| | <ul style="list-style-type: none"> ▶ Whether a system was in place for regular and sustained monitoring. |
| | <ul style="list-style-type: none"> ▶ Whether penalty was imposed, when required, on a regular basis as a result of monitoring of levels of air pollution. |
| | <ul style="list-style-type: none"> ▶ Whether any independent review/evaluation been carried out regarding implementation of these laws/rules. |
| Theme 6: Adequacy of funding and infrastructure | |
| 6. Whether funding and infrastructure was adequate to ensure effective compliance and monitoring of air pollution control programs. | <ul style="list-style-type: none"> ▶ Are funds being provided at the macro level by the government for implementation of air pollution prevention rules? |
| | <ul style="list-style-type: none"> ▶ Are funds being provided at the micro level by local bodies for implementation of air pollution prevention rules? |
| | <ul style="list-style-type: none"> ▶ Whether need assessment for manpower to implement and monitor air pollution prevention programs has been made and has the manpower been deployed effectively. |

E. Audit of Waste management

Solid Waste means domestic waste, industrial waste, chemical waste, health institution related waste or harmful waste and this word shall also mean the materials which cannot be used presently, thrown away or in rotten stage or in solid, liquid, gaseous, thick liquid, smoke, or dust form emitted out damaging the environment or materials and equipment used for electrical or information technology or any other materials of such nature or posters, pamphlets posted unauthorized at public places or other substances prescribed as solid waste through publication of notice in the Nepal Gazette by the Government of Nepal from time to time.

As per the United Nations Statistics Division, waste are materials that are not prime products (that is, products produced for the market) for which the generator has no further use in terms of his/her own purposes of production, transformation, or consumption, and of which he/she wants to dispose. Wastes may be generated during the extraction of raw materials, the processing of raw materials into intermediate and final products, the consumption of final products, and other human activities.

Kinds of waste

Urban living creates substantial quantity of waste. The different kinds of waste can be:

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- ▶ **Municipal waste:** Waste generated by households consisting of paper, plastic, packaging, organic waste, metals etc.
 - ▶ **Industrial and hazardous waste:** Consists of waste generated during the manufacturing process
 - ▶ **Biomedical waste:** Waste generated by hospitals and other health providers consisting of discarded drugs, waste sharps, microbiology and biotechnology waste, human anatomical waste, animal waste etc.
 - ▶ **Construction and demolition waste:** Waste arising from activities such as the construction and demolition of buildings, creation of infrastructure such as road planning and maintenance etc.
 - ▶ **Mining waste:** Waste arising from prospecting, extraction, treatment, and storage of minerals.
 - ▶ **E- waste:** This consists of end-of-life products and comprises of a range of electrical and electronic items such as information technology and telecommunication equipment like computers and printers, electrical and electronic tools, washing machines, medical equipment, refrigerators, televisions etc.
 - ▶ **Radioactive waste:** Waste that contains a concentration of radio nuclides greater than those deemed safe by national authorities and for which no use is foreseen. Because of the wide variety of nuclear applications, the amounts, types and even physical forms of radioactive waste vary considerably. Some of these wastes remain radioactive for hundreds or thousands of years, while others may require storage for only a short period, while they decay, prior to conventional disposal.
 - ▶ **Other waste:** These include end-of-life vehicles, packaging waste, types, batteries, agricultural waste, waste from forestry etc.

Problems caused by waste

- ▶ Unsatisfactory handling of waste can lead to contamination of soil, air, and water. Some of the examples are:
 - ▶ Soil can be contaminated with toxic components,
 - ▶ Leachate from waste can pollute surface water and groundwater
 - ▶ Uncontrolled burning of waste produces toxic and carcinogenic gases
 - ▶ Leaks of radioactive substances can contaminate the air and soil
 - ▶ The transmission of diseases and infections by rodents, vector insects, etc.
 - ▶ Birth defects caused by exposure to polluted drinking water
 - ▶ Cancer caused by radiation exposure
 - ▶ Respiratory problems caused by waste sorting, uncontrolled burning of waste, etc.
 - ▶ Odour, littering, unsightliness, noise, etc.
 - ▶ Waste crime

Waste Stream

Eight steps have been identified through which a waste pass through. Knowledge of these steps aids an auditor in gaining an overview of the waste management process. These stages are as follows:

- i. Prevention** - It is linked more to waste policy than to actual waste handling

ii. Generation - Main generators of waste are households, industry, hospitals, commercial businesses, and public entities

iii. Recycle, Reuse and Recover (3Rs) - These are approaches to waste treatment and may occur internally within the activities of the waste generator or organized externally after the collection and transport stages. Reusing and recycling are ways of recovering material.

iv. Collection – It applies only to some of the waste that is generated, depending on the producers, and applies mainly to waste from households and commercial business.

v. Transport and export– The waste generators that are not users of the collection of waste, such as large businesses, industries, and hospitals, need to transport their waste to a site for safe treatment. The collected waste also needs to be transported. Some types of waste might be exported.

vi. Treatment and disposal - This is the preferred end station for the waste, and secure handling here is of paramount importance. Thermal destruction, chemical treatment and neutralization are the approaches to eliminate hazardous properties of waste.

vii. Illegal Dumping – It occurs at waste disposal sites, on private or public land or in the rivers. This may involve the large-scale dumping of inert wastes, such as medical waste or chemicals, or litter in the form of small quantities of non-hazardous waste.

viii. Contaminates Sites - If the disposal of waste is not conducted properly the result will be contaminated sites.

Solid Waste Management in Nepal

Rapid and uncontrolled urbanization, lack of public awareness, and poor management by municipalities have intensified environmental problems in towns in Nepal, including unsanitary waste management and disposal.

Major audit issues in management of waste are

- ▶ Existence of database regarding waste.
- ▶ Recognition of threats to health and environment posed by waste.
- ▶ Existence of waste policy/ laws/rules governing waste management.
- ▶ Strategies to reduce, reuse and recycle waste.
- ▶ Collection and segregation of waste.
- ▶ Processing of waste/recovery of energy from waste.
- ▶ Proper waste disposal.
- ▶ Proper accountability mechanisms.
- ▶ Compliance to waste policies/laws/rules.
- ▶ Monitoring of compliance to waste policies/laws/rules.
- ▶ Adequacy of infrastructure for waste management.

Compliance Audit

Acts, Rules, Regulations and Conventions

Areas addressed

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| Solid Waste Management Act, 2011 (B.S. 2068) and Solid Waste Management Rules, 2013 (B.S. 2070) | <ul style="list-style-type: none"> ▶ Provides for management of the solid waste in a systematic and effective way by reducing at its source, re-use, processing or discharge and for maintaining a clean and healthy environment through the reduction of adverse effects that may be caused to the public health and environment by amending and consolidating the laws relating to the management of solid waste like most essential services laws ▶ Vests the responsibility of management of solid waste to local bodies ▶ Issues license to national or foreign company, body, or organization to carry out management of solid waste |
| Environment Protection Act 2019 (B.S. 2076) Environmental Protection Rule, 2020 (B.S. 2077) | <ul style="list-style-type: none"> ▶ Umbrella legislation for protection of environment ▶ Prohibits the carrying out of an act which creates pollution through generation of waste |
| Local Government Operation Act 2017 (B.S. 2074) | <ul style="list-style-type: none"> ▶ Confers power on the Ward Committee to arrange for disposal of wastes ▶ Provides for punishment and fine in case a person dumps solid wastes at places other than the designated area ▶ Provides imposition of service charges for solid wastes management |
| Basel Convention on the control of trans-boundary movements of Hazardous Waste and their disposal | <ul style="list-style-type: none"> ▶ Provides for minimization of quantity and hazard of wastes generated ▶ Reduces trans-boundary movements of hazardous waste |
| The Labour Act, 2017 (B.S. 2074) | <ul style="list-style-type: none"> ▶ Also deals with health and safety of workers and provides for removal and disposal of solid waste during production process The functions, duties and powers of the safety and health committee formed pursuant to the act ensures: “(a) To give advice to the employer regularly on the arrangement on safety and health required to be made in the workplace and on making such an arrangement effective, (b) To evaluate the arrangement on safety and health made in the workplace, and draw the attention of the employer for making such an arrangement more effective (c) In the event of failure to do the act in spite of the attention drawn pursuant to clause (b), to give information thereof to the Office, |

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| | <p>(d) To review each year the safety and health policy formulated pursuant to Section 68,</p> <p>(e) To perform such other functions as prescribed”</p> |
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Performance Audit

A checklist comprising of major audit themes, audit objectives and audit questions relating to control of waste pollution has been listed below. Such a list would act as guidance for the audit of waste pollution related issues:

| Objective | Main questions |
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| Theme 1: Assessment of the quantum of waste and risks associated with it | |
| 1. Whether the quantum of waste being generated has been accurately assessed and whether risks to environment and health posed by waste have been identified. | <p>▶ Has an assessment of quantum of each kind of waste been made at the macro as well as micro level according to waste sources (like industries, households, hospitals etc.) amounts and types (municipal solid waste, bio-medical waste, hazardous waste, e-waste etc.) to get an accurate picture of the waste being generated in the country and states.</p> |
| | <p>▶ Has an identification and analysis of the expected parameters of significance for waste generation like increase in waste due to increase in population, greater economic growth, increase in demand for consumer goods, changes in manufacturing methods etc., and the composition of waste been done.</p> |
| | <p>▶ Has an assessment been made about the current capacity to handle waste and whether more capacity needs to be created based on the quantity of waste being generated?</p> |
| | <p>▶ Has any entity/government identified the risks to environment as a result of improper management of waste and waste accumulation?</p> |
| | <p>▶ Has the government identified risks to human health as a result of improper management of waste?</p> |
| Theme 2: Recognition of waste as a cause of environmental degradation | |
| 2. Whether waste has been adequately recognized as a cause of environmental degradation by environmental legislations and planning authorities | <p>▶ Does the legislation on protection of environment recognize waste as one of the threats to the environment?</p> |
| | <p>▶ Do planning documents recognize the management of waste as a priority area for sustainable development?</p> |
| Theme 3: Theme 3: Government policies on waste minimization and waste reduction | |
| 3. Whether policies on waste management reflect the priority of waste reduction and waste minimization in preference to waste disposal. | <p>▶ Has the government enacted a separate policy for waste management and does the waste policy define the hierarchy governing waste management?</p> |
| | <p>▶ Has the government prepared an action plan for the reduction of each kind of waste?</p> |
| | <p>▶ Has the government put in place waste prevention, reduction, and reuse and recycle strategies which will reduce the waste being generated in the country.</p> |

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| | <ul style="list-style-type: none"> ▶ Has the government taken any action on consumer information and education to promote waste minimization, specifically reduction, reuse, and recycling? ▶ Does an environment labelling program exist and has it succeeded in its objective of promoting the use of environmentally friendly products? |
| Theme 4: Existence of legislations for disposal of all kinds of waste | |
| 4. Whether environmental legislations dealing with disposal of each kind of waste exists and whether clear responsibility and penalty for violation has been incorporated in the legislations already enacted. | <ul style="list-style-type: none"> ▶ Do legislations /rules exist for the disposal of all types of waste? ▶ Do all the legislation/rules for the management of waste exist in a framework in one place for easy understanding and implementation? ▶ Whether the laws/rules incorporate responsibility and penalty for violation (polluter pays principle) of waste laws. |
| Theme 5: Allocation of responsibility for the management of waste | |
| 5. Whether the various agencies involved in the process have been identified and allocated clear responsibility and accountability for waste management and whether a mismatch/gap/overlap exists among the responsibility centres. | <ul style="list-style-type: none"> ▶ Has a nodal agency regarding waste management issues been identified? ▶ Have policy making bodies for each kind of waste been created. ▶ Have bodies for implementation of waste laws and rules been created? ▶ Have bodies been created and entrusted responsibility for monitoring the implementation of laws/ rules on waste. ▶ Have regulatory bodies been set up to fix standards for emissions and effluents generated by waste. ▶ Is there a body to assess the pollution being caused by the different types of wastes? |
| Theme 6: Compliance to and monitoring of rules governing waste management | |
| 6. Whether compliance to laws relating to waste is taking place and whether the monitoring mechanism is effective in checking non-compliance. | <p>6.1 Are the municipal authorities managing and handling solid waste in accordance with the compliance criteria and procedure laid down in law.</p> <p>6.2 Is municipal solid waste being collected as envisaged under law?</p> <p>6.3 Is segregation of municipal waste taking place as envisaged under law?</p> <p>6.4 Have municipal authorities established and maintained storage facilities in such a manner so that they do not create unhygienic and unsanitary conditions around it.</p> <p>6.5 Is the transportation of municipal solid waste taking place as envisaged under the law?</p> <p>6.6 Is the processing of municipal solid waste done as envisaged under the law?</p> <p>6.7 Is the disposal of municipal solid waste being done as envisaged in the law?</p> <p>6.8 Is the management of bio-medical waste being done in accordance with the law?</p> <p>6.9 Has the segregation and labelling of bio-medical waste prior to storage, transportation, treatment and disposal been done as per the law.</p> <p>6.10 Is the disposal of plastic waste being done as per the law?</p> |

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| | 6.11 Is the disposal of industrial waste being done as per the law? |
| | 6.12 Is the disposal of hazardous waste being done as per the law? |
| | 6.13 Is the disposal of any other kind of waste for which laws have been enacted, disposed as per the laws? |
| | 6.14 Whether monitoring mechanism was effective in checking non-compliance with the provisions of laws governing waste management. |
| Theme 7: Evaluation and feedback mechanism | |
| 7. Whether a sound system for taking effective action on the collected feedback has been evolved? | 7.1 Have any evaluation studies been carried out regarding implementation of these laws. |
| | 7.2 Have the recommendations made by the independent evaluation agencies been incorporated in the Acts/rules. |
| Theme 8: Adequacy of funding and infrastructure | |
| 8. Whether funding and infrastructure was adequate for the implementation of rules on waste management and whether the funds/infrastructure has been used economically, efficiently, and effectively. | 8.1 Are funds being provided for implementation of waste management laws/rules? |
| | 8.2 Is the funding adequate for waste management activities? |
| | 8.3 Whether need assessment for technically qualified manpower to implement and monitor waste management has been made and have these been deployed effectively. |
| | 8.4 Whether facilities to monitor pollution and environmental degradation as a result of waste exists with the pollution monitoring agency. |

Sewerage treatment:

Rehabilitation and expansion of sewerage network in Nepal includes rehabilitation and construction of interceptors along the streams, rehabilitation and construction of wastewater treatment plants and energy generation of through sludge digestion and gasification.

Sewerage treatment covers the following:

- ▶ The cleaning of existing sewers
 - ▶ New sanitary sewer and storm water drain
 - ▶ New laying replacing brick sewer
 - ▶ The cleaning of existing sewers
 - ▶ Rehabilitation of existing combined sewer
 - ▶ The separation by laying new sanitary sewer
 - ▶ The cleaning of existing sewers
 - ▶ Rehabilitation of existing combined sewer
 - ▶ New storm water drains in the Industrial area
 - ▶ Cleaning of existing sewers
 - ▶ Rehabilitation of existing combined sewer
 - ▶ The separation by laying new storm water drain
- Targets and Planned Activities

Note:

The wastewater management in Nepal water supply and sanitation sector target Indicators and achievements of Nepal with regulatory framework for wastewater management policy and legislative frameworks have been shown in the annexure:

F. Audit of Biodiversity

‘Biological diversity’ (biodiversity) means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.

Brief Overview of Nepal’s Biodiversity

Nepal possesses a disproportionately rich diversity of flora and fauna at ecosystem, species, and genetic levels. A total of 118 ecosystems and 75 vegetation types have been recognized in the country. The majority of the ecosystems are reported to be found in the Mid-Mountains (52) and High Mountain (38), regions (Dobremez, 1976) (2032). The forest ecosystems of the country, which have been classified into 35 forest types by Stainton (1972) (2028), are of international importance both in view of the number of globally threatened wildlife and floral elements as well as the diversity of ecosystems represented within these areas (Bhuju et al., 2007) (2063). Rangeland ecosystems, comprising of grasslands, pastures, scrublands and forests, and wetland ecosystems, comprising of both the natural and man-made, are other important ecosystems found in the country.

Nepal also has a high degree of agro-ecological diversity. The country’s major agro-ecosystems consists of rice, maize, wheat, millet and potatoes as the principal crops followed by sugarcane, jute, cotton, tea, barley, legumes, vegetables, and fruit (MOFSC, 2002) (2058). There are differences in traditional cropping and animal husbandry systems across the country along with the variations in climatic and physiographic conditions. These traditional farming systems, which use local indigenous knowledge and experiences, have great role in maintaining the agricultural diversity in the country. Diversity of horticultural systems is another important component of agro-ecosystem, which is not well documented in Nepal.

Nepal harbours around three percent and one percent of the world’s floral and faunal species, respectively. This includes over three percent of Angiosperms, five percent of Gymnosperms, six percent of Bryophytes, and nearly five percent of Pteridophytes. The country also holds proportionately high number of faunal species, including 181 species (4.5% of the world’s total) mammals, and 861 species (9.5%) of birds, 123 species of reptiles (1.9%), 182 species of fishes (1%), 50 species of amphibians (1.2%), 661 species of butterflies (0.6%) and 3,958 (3.6%) of moths.

Over 400 species of agro-horticultural crops are believed to be found in Nepal of which 250 species of plants are believed to be currently under cultivation. Over 500 species wild relatives of cultivated flowering plants, including about 120 wild relatives of the commonly cultivated food plants, are estimated to exist in the country (Shrestha and Shrestha, 1999) (2055). The list includes at least five wild species of rice, 10 wild relatives of wheat and 38 wild relatives of grain legume. The high agricultural biodiversity (both crop and animal) of the country is largely associated with the hills and mountains (MOFSC, 2002) (2058). The country’s wetlands that harbour about 25 percent of the country’s biodiversity including 172 species of major wetland plants and 193 species of wetland-dependent birds are other important reservoirs of species diversity (IUCN, 1996) (2052).

The available information indicates that a broad genetic base of livestock breeds exists in the country. This includes about 24 breeds of indigenous genotypes of cattle (such as yak, lulu, kirko, achhame, lime and parkote), many indigenous breeds of goats (such as chyangra, bhyanglung, sinhal and khari) and sheep (such as bhyanglung, baruwal, dorel and kage).

The country's unique geography with rapid change in altitudinal gradient and associated variability in the eco-climatic conditions is the most important local factor contributing to the rich biological diversity in the country. Other important climatic factors influencing biodiversity and the composition of flora and fauna in the country include rainfall, winter snowfall, temperature, and aspect. Besides these local factors, the country's standing at the crossroads of two major bio-geographic regions of the world (the Indo-Malayan in the south and the Palearctic in the north) has made Nepal a mixing place of species originating in both the regions (Stainton, 1972) (2028).

A total of 399 flowering plants and 160 animal species are considered endemic to Nepal. Similarly, eight species of fish, 29 species of butterflies, nine species of amphibians, 108 species of spiders, two species of birds and one species of mammal are reported to be endemic to the country (Shrestha and Joshi, 1996) (2052). Reported endemism of higher species is relatively low as compared to invertebrates.

Several plant and animal species in the country are considered endangered, threatened, or rare. Thirty-four plant species from Nepal are listed in the IUCN Red List. The list includes several valuable medicinal and aromatic plants, including *Aconitum bisma*, *Alstonia scholaris*, *Ophiocordyceps sinensis*, *Dactylorhiza hatagirea*, *Neo-picrorhiza scrophulariifolia*, *Podophyllum hexandrum*, and *Raulfia serpentina* are endangered in the country (IUCN, 2006a).

A total of 59 mammals and 34 fish species are considered as threatened animals (BPP, 1995a). Similarly, an alarming proportion (i.e. 16%) of bird species of Nepal's is considered threatened and around 72 bird species are thought to be critically threatened or endangered (Baral and Inskipp, 2004). Moreover, some 56 species of mammals (31% of the total reported species), 226 species of birds (27%), 25 species of reptiles (25%), nine species of amphibians (21%), 35 species of fishes (19%), and 142 species of butterflies (22%) are believed to be vulnerable through habitat destruction (MOFSC, 2002) (2058).

Several indigenous cattle breeds are now at risk of extinction in the country. Among them, pure siri have become extinct and lulu and achhame cattle are on the verge of extinction (Neupane and Pokhrel, 2005) (2061). At least one breed of buffalo (i.e. lime) is speculated to be endangered and two sheep breeds (lampuchhre and kage) are identified to be at risk (MOFSC, 2002) (2058).

Biological diversity in Nepal is closely linked to the people's livelihoods. Diversity of crops and animals is particularly vital to the country's marginalized mountain communities for maintaining their food security. Millions of rural people directly depend on forests for meeting their daily subsistence livelihoods requirements. Livelihoods of many ethnic groups are directly dependent on wetlands. The country's reservoirs of biodiversity including, agricultural lands, wetlands, forests, and protected areas, are also directly related to the overall economic well-being of the country.

This variety and diversity will make the task of the environmental auditor fascinating as well as challenging.

Main threats to biodiversity

The threat to biodiversity and their causes and consequences can be depicted in the following chart.

| Threat to Biodiversity | | | Causes | Consequences |
|------------------------|------|-----|---|---|
| Habitat | Loss | and | Change in land-use and transformation caused by agriculture, urbanization, forestry, physical modification of river courses or water withdrawal from rivers, and damage to riverbeds due to trawling. | Decline in distribution, size, and genetic diversity of species |
| Fragmentation | | | | |

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|--------------------------------------|---|--|
| Invasive alien species: Bio-invasion | Introduction of (non-native) alien species (intentional and accidental dispersal by human activities) | Native species threatened or extinct through predation, competition, parasitism, and hybridization |
| Overexploitation of resources | Increased demand and harvesting above or near maximum sustainable levels. Unsustainable management of ecosystem. Illegal practices (logging, fishing, and poaching) | Collapse of fisheries and other resources Auditing Biodiversity: Guidance for Supreme Audit Institutions, INTOSAI |

| Threat to Biodiversity | Causes | Consequences |
|---------------------------------------|---|--|
| Pollution and Nutrient Loading | Discharge and Run-off from agriculture and industry. | Pollutants: disease or death of aquatic populations. Nutrient loading: algal blooms and dense flora leading to oxygen depletion and mass mortality of fish and bottom-dwelling organisms |
| Climate Change and Global Warming | Changes in human population, lifestyle, and consumption pattern | Changes in the distribution of species, population size, and reproduction timing or migration events and an increase in the frequency of pest and disease outbreaks. Major episodes of coral reefs being bleached due to higher water temperatures at surface level |
| Illegal Trade of Species | Trade of some species for economic benefits | Many species are threatened and are on the blink of extinction |
| Biotechnology | Genetically modified organisms (GMO): <ul style="list-style-type: none"> ▶ accidental release ▶ cross-border trade | Potential adverse effects of GMOs on wild species Potential adverse effects on biodiversity if GMOs are released into the environment (for example, GMOs commingling with native species) |
| Agriculture and aquaculture practices | Human may use agricultural and aquaculture practices that do not respect biological diversity | Some species can be threatened |

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|-----------------|--|--|
| Desertification | Overgrazing, Deforestation, and climatic change | Decrease ability to support biodiversity. |
| Biopiracy | Foreign entities using indigenous biomedical knowledge without offering compensation | Lack of incentive for the conservation and sustainable use of biodiversity resources |

Steps for conducting biodiversity audits

A biodiversity auditor first identifies the country's biodiversity and threats to it. Then he/she understands the government's responses to these threats and the relevant players. After that the audit topics and priorities are chosen. Finally, the audit approach: audit objectives and lines of enquiry are decided.

Major audit issues in the audit of biodiversity can be:

- ▶ Government programs for the protection of biodiversity and protection of animals like tigers, elephants, turtles, alligators etc.
- ▶ Government programs to preserve biodiversity such as programs for eradication of plant species that have a negative impact on biodiversity.
- ▶ Audit of the government's performance of the implementation of international accords on biodiversity like:

Convention of Biological Diversity (1993) which seeks to ensure

- ▶ conservation of biological diversity
 - ▶ sustainable use of its components and
 - ▶ promotion of fair and equitable sharing of the benefits arising out of the utilization of genetic resources.
- Through international co-operation, the convention also seeks to ensure that the international trade in species of wild fauna and flora does not threaten survival, in the wild, of the concerned species. The Cartagena Protocol on Biosafety is an international treaty governing the movements of living modified organisms resulting from modern biotechnology from one country to another. It was adopted as a supplementary agreement in the year 2000 to the Convention on Biological Diversity.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) which seeks to ensure, through international co-operation, that the international trade in species of wild fauna and flora does not threaten survival in the wild of the species concerned.

Convention on Wetlands or RAMSAR Convention which seeks the conservation and wise use of wetlands by national action and international co-operation as a means to achieve sustainable development throughout the world.

Convention to Combat Desertification is a convention to combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements

Compliance with Legal Matters governing Biodiversity issues in Nepal:

Checking the Compliance with the acts, rules and legislation relating to biodiversity issues is a major part of audit exercise. Various enactments have been made in Nepal regarding biodiversity issues, which are as follows:

Acts, Rules, Regulations and Conventions

Areas addressed

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| Plant Protection Act (2007) (2064 B.S.) | Prohibits import of any plant or plant parts from any country without prior approval of the government. The provisions in the Act prevent the introduction, establishment, prevalence and spread of pests while importing and exporting plants and plant products. It promotes trade in plants and plant products by adopting appropriate measures for their effective control. |
| Soil and Watershed Conservation Act (1982) (2039 B.S.) | The government can declare any area as the protected watershed and specify the type of conservation activities that can be implemented in such areas. |
| National Trust for Nature Conservation Act (1982) (2039 B.S.) | Includes provisions for: (i) the protection, development and management of wildlife and other natural resources, (ii) making necessary arrangements for the development of national parks and wildlife reserves, and (iii) conducting scientific studies and research on wildlife and other natural resources. |
| Seed Act (1988) (2045 B.S.) | Relates to formulation and implementation of seed policy, regulating seed quality, approval and registration of new seeds, determining seed standards etc. The act intends to maintain the convenience and economic interest of the public by providing the Seeds of quality-standards in a well-planned manner by producing, processing, and testing. The Seeds of high quality-standards will enhance production of different crops. |
| The Environment Protection Act, 2019 (2076 B.S.) and Environmental Protection Rules, 2077 (B.S.) | <ul style="list-style-type: none"> ▶ The government can declare and maintain any place of extreme importance from viewpoint of environment protection, as an environment protection area. ▶ Performing of EIA as a mandatory step for implementation of development projects. <p>To conduct EIA, auditor must study EIA reports by the experts and the provisions of the application acts and rules and latest notifications issued if any. Audit criteria are based on the provisions of the act and audit finding is essentially to evaluate how far the entity complies with the provisions of the regulations and what is the deviation from the mandatory regulations.</p> |
| Local Government Operation Act B.S. 2074 BS (2017 A.D) | Give each district council, VDC and municipality several responsibilities and authority with regard to biodiversity, forest, and environment. The Act envisages that development projects and programs must be properly planned, standardized, monitored, implemented. There should be coordination, facilitation, and support in federal, provincial, and local governments' levels. Local businesses must be promoted. Agriculture, livestock, production, and management must be taken up. Slaughter-house management and monitoring must be undertaken. Audit must study the provisions of the act and find out how far the provisions are complied with by the entity audited and what are the deviations with root causes and suggestions for improvements. |
| Bio-safety Guidelines (2005) (2061) | GMO to be released step by step only after assessing the potential adverse effects it causes and making sure that it will not have adverse effects on human health and the environment. |

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| Aquatic Animals Protection Act (1960) (2017 BS) with amendment in 1998) (2054 BS) | Bans introduction of poison, electric current and explosives in water body for the purpose of catching or killing aquatic animals. |
| National Parks and Wildlife Conservation Act (1973) (2029 BS); with four amendments) and National Parks and Wildlife Conservation Regulations (1974) (2030 BS); with amendments) | Basis for establishment and management of national parks and wildlife reserves for the conservation of wildlife and their habitat. Protects and manages the sites of special scientific and environmental importance. Identifies and lists protected plant and animal species. |
| Nepal Agriculture Research Council Act (1991) (2048 BS) | Basis for the establishment of Nepal Agriculture Research Council the main agency involved in conducting agricultural research. |
| Water Resources Act (1992) (2049 BS) | Protects of water sources from pollution. |
| Forest Act (1993) (2050 BS) and Forest Regulations (1995) (2052 BS) | Provides for management of different categories of forests. Strengthens Forest User Groups (FUGs) in forest management. The government can delineate part of national forest with special scientific, environmental, and cultural importance as protected forest. |
| Buffer Zone Management Regulations (1996) (2053 BS) and Buffer Zone Management Guidelines (1999) (2053 BS) | Provides for a work plan for the management of buffer zone areas. Provisions for buffer zone community forest. Lists out the activities that are prohibited within the buffer zone. |
| Community Forestry Guidelines (1996) (2053) with revision in 2002) (2058 BS) | Provides a framework and operational guideline for implementation of the Community Forestry program. |
| Plant Protection Convention, 1951 (2007 BS) | <ul style="list-style-type: none"> ▶ Inspects areas under cultivation and consignments of plants in international traffic for existence or outbreak of plant pests or diseases. ▶ Issues certificates relating to the phytosanitary condition and origin of plants and plant products. ▶ Carry out research in the field of plant protection. |

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| Convention on Wetland of International Importance Especially as Waterfowl Habitat, 1972 (2028 BS) | Establishes wetland reserves, cooperates in the exchange of information and trains personnel for wetland management. |
| Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972 (2028 BS) | Provides necessary legal, scientific, administrative, and financial steps to protect the natural heritage. |
| Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (2029 BS) | Controls the export/import of endangered species of plants and animals. |
| Convention on Biological Diversity, 1992 (2049 BS) | Conserves biodiversity, promotes the sustainable use of its components, and encourages equitable sharing of the benefits arising out of the utilization of genetic resources. |
| National Conservation Strategy, 1988 (2044 BS) | <ul style="list-style-type: none"> ▶ It defines policies, plans, organization, and action, whereby the sustainability of natural resource may be integrated with every aspect of Nepal's social and economic development. ▶ Its objective is to ensure the sustainable use of Nepal's natural resources, Preserve the genetic diversity of Nepal, to maintain essential ecological process and life support systems etc. |
| National Biodiversity Strategy and Action Plan, 2014-2020 (2070-2076 BS) | <p>It is aimed to provide a strategic framework for the conservation of Nepal's biodiversity.</p> <p>It has been prepared to meet the national needs for managing biodiversity on a sustainable basis for the benefit of present and future generations, and to fulfill the country's international obligations.</p> |
| National Wetlands Policy, 2059 BS (2003) | <p>It was prepared in conformity with the Article 3 (1) of the Ramsar Treaty 1971</p> <p>The major objective of the policy is to involve local people in the management of Nepal's wetlands and conserve wetlands biodiversity with wise use of wetlands resources.</p> |
| National Action Program on Land Degradation and Desertification, 2004 (2060) | <p>Identifies factors contributing to land degradation and drought</p> <p>It intends to identify and implement preventive and rehabilitative measures necessary to combat land degradation, desertification and mitigate the effects of drought and alleviate poverty</p> |
| Biotechnology Policy (2006) (2063 BS) | <p>Encourages research and development of biotechnology contributing for developing the forests, agriculture and food sectors in an internationally competitive and environmentally sustainable manner.</p> <p>Reduces environmental degradation and protect natural resources and means</p> |

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| National Bio-safety Framework, 2007 (2063 BS) | It is applicable to the development, production, contained use, field test, intentional introduction into the environment, and import and export of genetically modified organism (GMO) that may have an adverse effect on the conservation and sustainable use of biological diversity, and environment taking also into account the risks to human health |
| National Agricultural Policy (2004) (2061 BS) | <p>Envisions improving the standard of living through a sustainable agricultural development to be achieved by transforming the current subsistence-oriented farming system into a commercial and competitive farming system.</p> <p>The restructuring of the agriculture sector in Nepal has changed the overall governance system. The three tiers of governments have established institutions, and are formulating policies, as per the constitutional authority. There is lack of coordination between the three levels of the governments. The deficit in institutional arrangements are established at Province level for several functions - such as the standardization of quality, implementation of regulations, and supply and management of seeds, fertilizers and pesticides.</p> |
| <p>Rhino Conservation Action Plan (2006-2011) (2062-2067 BS)</p> <p>The Greater One-horned Rhinoceros Conservation Action Plan for Nepal (2017-2021)</p> | <p>The purpose of this Action Plan is primarily to emphasis on in-situ conservation or what needs to be done to preserve the species Rhinoceros unicorns in perpetuity and reinforce the continuing recovery of rhinoceros populations in Nepal.</p> <p>The Greater One-horned Rhinoceros Conservation Action Plan for Nepal (2017-2021) envisions three viable populations of rhinoceros in Nepal as meta-population. The plan identifies the following seven strategic objectives:</p> <ul style="list-style-type: none"> ▶ Strengthen national and local institutional capacity to curb poaching and illegal trade of rhinoceros ▶ Minimize habitat loss, degradation, and fragmentation ▶ Manage human rhinoceros' conflict through community engagements ▶ Policy advocacy to safeguard prime rhinoceros' habitats from large infrastructure development and urbanization ▶ Strengthen support and cooperation for rhinoceros' conservation at national and international level Executive Summary 8 The Greater One-horned Rhinoceros Conservation Action Plan for Nepal (2017-2021) ▶ Enhance research, monitoring and documentation ▶ Manage rhinoceros' populations in a meta-population approach This plan further outlines priority outcomes for each of the objectives and then translates these conservation objectives and desirable outcomes into actions, measurable indicators and realistic time-frames." <p>The success is that the rhino populations in Nepal continue to grow by 5% per annum. Department of National Parks and Wildlife Conservation and Department of Forests under the Ministry of Forests and Soil Conservation of the Government of Nepal have the</p> |

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| | responsibility of implementing the actions in collaboration with conservation partners and local communities. |
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| Agro-biodiversity Promotion Policy (2007) (2063 BS) | <p>The Agro-biodiversity Policy of Nepal envisages to conserve and sustainable use of agricultural genetic resources and traditional knowledge with the participation of the stakeholders of present and future generations. Agrobiodiversity is integral of biodiversity and international treaties/agreements for social, economic and environmental benefits to the Nepalese people.</p> <p>The objectives are:</p> <ul style="list-style-type: none"> ▶ To enhance agricultural growth and ensure food security by conserving, promoting and sustainably using agro-biodiversity. ▶ To protect and promote the rights and welfare of the farming communities for their indigenous knowledge, skills, and techniques (IKT). ▶ To develop options for a fair and equitable sharing of benefits arising from the access and use of agricultural genetic resources and materials. ▶ To create effective management, commercialization and use of agricultural genetic resources in the present context of exploiting local national and international markets and in international regulations on trade. ▶ To contribute maintaining sustainable ecological balances (ecosystems services) over time. ▶ To promote the conservation and use of agrobiodiversity in the contexts of national seed, food quality and safety, and product marketing regulations. ▶ To promote inter-ministerial, inter-sectoral consultation, problem identification and regulation-development as far as agrobiodiversity is concerned. |
| <p>CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)</p> <p>CITES Regulation, 2076 (B.S)</p> | <p>CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. It is a multilateral treaty to protect endangered plants and animals. adopted in 1963. CITES entered into force on 1 July 1975.</p> |

Performance biodiversity audit

A checklist comprising of major audit themes, audit objectives and audit questions relating to biodiversity audit has been listed below. Such a list would act as guidance for the audit of biodiversity related issues:

| Objective | Main Questions |
|--|---|
| Theme 1: Identification of the main threats to biodiversity of a country | |
| 1. To assess whether the government has assessed the country's biodiversity and threats to it. | 1.1 Has the government assessed the biological resources available in the country? |
| | 1.2 Has the government identified the primary threats to each of these resources and its diversity? |

| Theme 2: Government's role in mitigating threats to biodiversity | |
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| 2. To assess the government's efforts in mitigating threats to biodiversity. | 2.1 Has the government signed and ratified any international convention and treaty for the protection of biodiversity. |
| | 2.2 Has the government enacted legislation and regulations for the protection of all kinds of biodiversity, especially those that are facing threats? |
| | 2.3 Has the government introduced specific programs for the protection of biodiversity, especially those that are threatened? |
| | 2.4 Has the government devised any economic tool and incentives to protect biodiversity? |
| | 2.5 Has the government made it mandatory to get environmental impact assessments conducted for projects to mitigate threats to biodiversity? |
| Theme 3: Allocation of responsibility and accountability | |
| 3. Has the government allocated responsibility and accountability to agencies for protection of biodiversity. | 3.1 Has the government allocated responsibility to any agency for defining environmental policies dealing with the protection of biodiversity? |
| | 3.2 Has the government allocated responsibility to any agency for ensuring that environmental laws are being enforced by public and private entities? |
| | 3.3 Has the government allocated responsibility to any agency for preparing environmental standards relating to biodiversity issues? |
| | 3.4 Has the government allocated responsibility to any agency for issuing licenses to limit the volume or concentration of pollutants discharged into the environment for the purpose of protecting biodiversity? |
| | 3.5 Has the government allocated responsibility to any agency for monitoring potential environmental damage and applying penalties when laws are violated? |
| Theme 4: Monitoring of government programs for the protection of biodiversity | |
| 4. To ascertain whether monitoring and evaluation mechanism helped in effective implementation of the program. | 4.1 Whether there was any system of regular and sustained monitoring of implementation of government programs for protection of biodiversity. |
| | 4.2 Whether there was any system of reporting and accountability. |
| | 4.3 Whether there was any system of independent (third party) evaluation of implementation of programs and whether feedback from independent evaluation was used to improve the programs. |

Theme 5: Adequacy of funding and infrastructure

5. Whether funding and infrastructure was adequate to ensure effective compliance and monitoring for government programs for the protection of biodiversity.

5.1 Were adequate funds being provided timely to concerned agencies for implementing government programs for protection of biodiversity?

5.2 Whether need assessment for manpower to implement and monitor programs for protection of biodiversity has been made and has the manpower been deployed effectively.

G. EA of Forests**Relevance of the subject matter:****a) Forestry is an important subject matter for EA.**

Forests offer diverse habitats for plants, animals, and micro-organisms. Forest biodiversity provides variety of goods and services, including timber and non-timber resources. Forest helps to mitigate climate change, provides livelihood, and plays economic, social, and cultural roles in the lives of local communities. Forest biodiversity is impacted due to the rapid deforestation, fragmentation, and degradation of all forest types. Human activity cause the decline of forests and their biodiversity, including conversion of forests into agricultural land, overgrazing, unsustainable forest management, illegal logging, introduction of invasive alien species, infrastructure (roads, hydroelectric development, and urban sprawl), mining, forest fires, pollution and climate change. Tree planting, landscape restoration, and the natural expansion of forests can offset the loss of primary forest area.

b) Nepal has the following legislation regarding forests:

- ▶ Forest Act, 2049 BS (1993)
- ▶ Forest (First Amendment) Act, 2055 BS (1999)

The Act was made for proper management and conservation of forests. The objective a is to promote a healthy environment, by conservation of forest and proper utilization of forest products. It envisages managing the national forest in the form of government managed forest, protected forest, community forest, leasehold forest, and religious forest. While conducting EA on the subject matter, all directives, notifications, and circulars issued on the subject matter must be studied to familiarize the topic, understanding the up-to-date knowledge and status as well as deriving appropriate audit criteria based on the applicable regulations,

Auditor must note that existence of forest laws, acts, policies, and rules must be supplemented by actions. OAGN has an important role in assessing data gaps by examining implementation, compliances and effectiveness of acts, laws, policies, and rules and make recommendations for improvement. EA can identify the best practices in policy and implementation to policy makers.

c) The constraints in EA of the forestry sector include the following:

- ▶ lack of adequate awareness roles and benefits of forests and their relevance to poverty alleviation and sustainable development.
- ▶ low priority for forestry in national planning process.
- ▶ slow pace of policy reforms and inadequate implementation of regulatory mechanisms.
- ▶ over-emphasis on government control and involvement, and difficult administrative procedures.
- ▶ weak forestry information system rendering decision-making difficult.

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- ▶ inadequate investment in forestry.
 - ▶ inadequate private participation.
 - ▶ lack of people's participation.
 - ▶ inadequate research and studies.
 - ▶ inadequate frontline staff.
 - ▶ less emphasis on forestry research.
 - ▶ lack of on-job training and capacity building for forest officers and the frontline staff.
 - ▶ lack of supportive land use policy.

d) EA on the subject matter will focus on the following:

whether government of Nepal has enacted appropriate legislation and rules and ensured their effective enforcement by providing adequate and timely funding, strengthening research and data gathering mechanisms and capacity building and creating awareness among the stakeholders.

e) Audit methodology

Regularity (financial and compliance) audits or performance audits of the environmental aspects relating to forests can be undertaken by OAGN following the applicable Auditing Standards.

f) Audit objectives

Audit of forests from the perspective of environment and climate change must be carried out with the objective of assessing whether:

- ▶ provisions of the Acts, laws, policies rules and instructions issued thereunder are adequate for conserving forests and maintaining the environmental stability by examining the implementation and analysing the gaps;
- ▶ the decisions of the judiciary to preserve the environment are being complied with properly;
- ▶ management plans were prepared and implemented for conserving the natural heritage by preserving the forests with the flora and fauna
- ▶ adequate and timely initiative was taken for increasing sustainability of the forests/tree cover through massive afforestation and social forestry programmes on all denuded, degraded, and unproductive lands;
- ▶ periodical surveys of the forests were carried out;
- ▶ mechanism for adequate supervision and monitoring of conservation measures including internal control exists.

g) Audit criteria

Audit criteria must be derived from the applicable legislation and regulations. Audit must evaluate how far the regulations are enforced. The forest policies include the sustainable use of forest resources. The government grams dealing forest resources must be studied. For example, there may be specific programs on sustainable exploitation of timber resources, reforestation of degraded areas, creation and maintenance of protected areas, prevention and mitigation of invasive species, protection of endangered species in forest habitats, and public education on deforestation and burning. EA must focus on forestry products, organizations dealing with them such as pulp and paper companies. Traditional communities that use forests resources for their survival are key players in ensuring the preservation of forests habitats.

Audit criteria must be developed from the following:

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- ▶ Provision of the Forest Act, Forest Policy, forest programmes, policies, orders, rules and instructions of the Government of Nepal and provincial Governments;
 - ▶ The decisions of the Court to preserve the environment;
 - ▶ Priorities fixed for conservation and protection of forest;
 - ▶ Management plans prepared and implemented for preserving environmental stability

h) Audit checks

- ▶ Audit checks encompass the compliance, financial and performance of the Government programmes/schemes.
- ▶ Compliance audit would check whether the Government has enacted legislation in pursuance of its international commitments and whether the audited entity is complying with the various policies/laws/rules/regulations relating to protection and conservation of natural heritage framed by Ministry of Environment and Forests and other Ministries such as Agriculture, Health, and Water Resources, and other departments at the federal and provincial levels. The compliance framework will examine whether it provides adherence to statutory legislation.
- ▶ Financial audit must cover the issues like deforestation which have material impact on the financial statements. Steps initiated to prevent/abate/remedy damage to the environment must be investigated. Consequences of environmental damage to natural resources must be examined.
- ▶ The performance audit must focus on Government's monitoring of compliance with forest conservation and environment laws.
- ▶ The performance of specific programme/projects/strategies to preserve flora and fauna by adding value to the management by way of reliable, objective, and independent information highlighting the shortcomings in performance planning, implementation, information systems affecting the outputs and outcomes specifically and quality of expenditure or management generally.

i) Audit Check lists - Some of the specific areas for audit examination and the audit checks are indicated below. The checklist is however not exhaustive.

- ▶ Assessment of the forest resources of Nepal and identification of the threats to it.
- ▶ Has the government of Nepal assessed the country's forest biodiversity?
- ▶ Does a mechanism exist for carrying out surveys of the natural resources of flora and fauna for mapping the country's natural diversity?
- ▶ Has a national database with a uniform format for collection, collation, storage, retrieval, and dissemination of data relating to the country's fauna been created?
- ▶ Has the government of Nepal identified the primary threats to forest resources and its diversity?
- ▶ Has the government assessed the long-term implications of these threats on sustainable economic development?
- ▶ Has the government factored findings from the studies conducted by other agencies while planning for managing and mitigating identified threats?
- ▶ Has the government has tapped the traditional knowledge available with the local communities for increasing its knowledge of ecosystem functions?

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- ▶ Government of Nepal's role in mitigating threats to forest ecosystems will be the following:
 - ▶ Has the government of Nepal signed and ratified any international conventions and treaties for the protection of forests?
 - ▶ What is the extent of implementation of obligations under the international accords to which Nepal is a signatory?
 - ▶ Has legislation been enacted in pursuance of these international conventions?
 - ▶ What steps have been taken to enhance international cooperation and prevent banned international trade in forest products under CITES?
 - ▶ Are the legislations/regulations/policies/programs adequate to address the identified threats? Though deficiencies in the policies are not directly criticized in audit, the implementation gaps will provide sufficient inputs for the policy makers to frame appropriate policies to rectify the lacuna. Audit probe may indicate the following areas to bring in practical recommendations in EA.
 - ▶ Does the government of Nepal's program help to protect biodiversity and increase the green cover?
 - ▶ Have long term and short-term goals been clearly defined, milestones set, and clear performance indicators established?
 - ▶ Has the government introduced specific programs for forest conservation, especially for protection of flora which are threatened?
 - ▶ Has the protected area (national parks, conservation areas, and sanctuaries) network been created?
 - ▶ Has the government of Nepal established and implemented recovery plans for endangered flora and fauna?
 - ▶ Has the government taken steps to control and eradicate invasive species?
 - ▶ Have steps for land-use planning been established?
 - ▶ How has the government addressed the issue of access to biological resources and associated traditional knowledge to ensure equitable sharing of benefits arising out of their use to the country and its people?
 - ▶ Have the planners and policy makers identified the areas of concern regarding the environment with remedies and interventions as may be required at institutional, regulatory, and ultimately policy and implementation level?
 - ▶ Have the policies, laws, orders, and rules been designed/formulated to protect and improve the environment and to safeguard the forests, flora and fauna in Nepal to secure the biotechnological capacity building of the country for realizing the actual and potential value of biodiversity?
 - ▶ Are the policies, laws, act, orders, and rules in consonance with the natural system of the country or the state for the achievement of the objective/ goals?
 - ▶ Are the government's programs prepared based on accurate/reliable data and after identification of risks and the level of threat perception to flora and fauna?
 - ▶ Was the planning based on assessment of the requirement/ availability of funds?

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- ▶ Have the policies been formulated by taking into account the stakeholder's perceptions for their implementation in the correct perspective?
 - ▶ Are the environment appraisal and impact assessment reports supportive?
 - ▶ Have the policies that lead to the degradation of forest resources and the conversion of forest ecosystem to other less valuable uses been identified, and corrective action taken by suitably modifying the policies?
 - ▶ Forest law enforcement and governance.
 - ▶ Has the government allocated responsibility to any agency for defining environmental policies dealing with the protection of forests?
 - ▶ Have judicial decisions on compensatory afforestation, net present value, temporary working permits, ecologically sensitive areas, and mining in forest areas been suitably enforced?
 - ▶ Has the total forest area been legally classified as Reserved Forests, Demarcated Protected Forests and Undermarketed forests and necessary notifications issued for the purpose?
 - ▶ Have settlement operations been carried out and demarcation of boundaries done?
 - ▶ Have rationalization and re-organization of boundaries of areas of adequate ecological, floral, faunal, natural, and zoological significance been made and included as reserved forest area by issuing notification for the purpose?
 - ▶ Are stringent laws and administrative measures in place to control illicit felling and illegal timber trade and other forest offences such as unauthorized grazing, cutting of grass, collection of medicinal produce, and other minor forest produce etc.?
 - ▶ Has the government allocated responsibility to any agency for ensuring that environmental laws are being enforced by private and public entities?
 - ▶ Has the government allocated responsibility to any agency for preparing environmental standards relating to biodiversity issues?
 - ▶ Has the government allocated responsibility to any agency for issuing licences to limit the volume or concentration of pollutants discharged into the environment for the purpose of protecting forests?
 - ▶ Has the government allocated responsibility to any agency for monitoring potential environmental damage and applying penalties when laws are violated?
 - ▶ What is the role of the Federal and Provincial Pollution Control Boards in preventing forest degradation?
 - ▶ Was water cess, fines, etc. levied on users for damage to forests?
 - ▶ Are companies being made to pay for ecological damages caused due to illegal mining in forest area?
 - ▶ Were contains penal provisions to combat measures such as poaching, illicit felling of trees, illegal mining, etc strictly enforced?
 - ▶ Did the forest department have adequate and appropriate resources at its disposal to carry out its assigned responsibilities?

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- ▶ What was the requirement vis-à-vis the adequacy of trained /skilled manpower?
 - ▶ Was there effective deployment of trained manpower?
 - ▶ What was the age-mix of those deployed in field duties against the established norms?
 - ▶ Was infrastructure such as vehicles, and communication facilities like handheld radios and arms and ammunition provided to personnel engaged in preventive and enforcement activities?
 - ▶ Is a wildfire prevention strategy laying down principles, standards and guidelines that apply to fire management on forest land in place to ensure effective, efficient, and safe measures?
 - ▶ Have adequate precautionary measures i.e., managing the threat and occurrence of wildfires especially during the fire season, and the use of controlled burning been taken to control the forest fires?
 - ▶ Have the causes/reasons for forest fires been analysed and remedial measures taken?
 - ▶ Has any forest area been encroached for construction of roads, buildings, projects, agriculture, horticulture, and other purposes etc.? Have any of these encroachments been regularized?
 - ▶ Have effective steps been taken to remove existing encroachments and prevent fresh ones?
 - ▶ Has grazing fees been levied to discourage people in forest areas from maintaining large herds of non-essential livestock?
 - ▶ Have the forest areas been protected from the problems of biotic and human interferences? Rights and concessions to the Right holders Having regard to the symbiotic relationship between the tribal people and forests, a primary task of all agencies responsible for forest management, including the forest development corporations should be to associate the tribal people closely in the protection, regeneration and development of forests as well as to provide gainful employment to people living in and around the forest, while also safeguarding the customary rights and interests of such people,
 - ▶ Have studies been made about the carrying capacity of forests?
 - ▶ Was the carrying capacity optimized by increased investment, silvicultural research. and development of the area?
 - ▶ Have rights and concessions been restricted to the carrying capacities of forests and accorded to the right holders?
 - ▶ Were the holders of customary rights and concessions in forest areas should be motivated to identify themselves with the protection and development of forests from which they derive benefits?
 - ▶ Has suitable legislation been enacted for right holders/ village communities towards their obligation to upkeep and protect forests and were non-performers deprived of their rights on forests?
 - ▶ Have integrated area development programmes been undertaken to meet the needs of the tribal economy in and around the forest areas, including the provision of alternative sources of domestic energy on a subsidized basis, to reduce pressure on the existing forest areas?
 - ▶ Has livestock management through shift in practices of free grazing by livestock to stall feeding been developed to avoid soil erosion and damages to the forests and natural plantations by livestock population?

- ▶ Has desirable composition of grasses, legumes and fodder trees which are potable and high in protein content been introduced?
- ▶ Has fodder development been done through people's participation in grazing land and livestock management? • Were the requirements of the tribal and other poor living within and near forests which could not be met by the rights and concessions determined by law, met by development of social forestry outside the reserved forests?
- ▶ Were the domestic requirements of fuelwood, fodder, minor forest produce and construction timber of the tribal made available through conveniently located depots at reasonable prices?
- ▶ Has the government taken proactive steps to stop degradation of forest by illegal felling and removal by contractors and their Labour by replacing contractors with institutions such as tribal cooperatives, Labour cooperatives, government corporations, etc.?

H. EA of Climate Change

Relevance of the subject matter:

Climate change gives enormous stress to Nepal. The people of Nepal are highly vulnerable to climatic conditions. Nepal's rank is 14 among the countries impacted by climate change. After CoP 2009 in Copenhagen, Nepal started developing climate-related policies, plans and acts, though there are gaps. The climate change policy 2011 states that 80 per cent of the fund allocated for climate change should reach the community level. This needs adequate mechanisms to monitor and implement. Nepal's efforts towards adaptation planning through participation of stakeholders and mechanism to incorporate scientific knowledge into the planning process are key issues. Nepal's commitment to addressing climate change is evident from its reports to the UNFCCC of its nationally determined contributions, though there are not target for reducing the emission of greenhouse gases.

There are several government agencies responsible for climate governance such as National Planning Commission (NPC), Ministry of Finance MoF), Ministry of Forest and Environment MoFE), Ministry of Federal Affairs and General Administration (MOFAGA), and other sectoral departments along with provincial and local governments. There is need for effective coordination and cooperation among these organizations. Nepal has been implementing large-scale adaptation interventions since 2014. They are supported by bilateral and multilateral agencies and implemented through government agencies, local governments, and development organizations. Inter-ministerial coordination is a must for effective action as many issues are crosscutting.

The Government of Nepal including local governments may need to involve civil society organizations (CSOs), and donors to make substantial improvements in the implementation domain. Measures are needed for regular monitoring.

Civil society organizations should be encouraged to proactively disclose information and data on climate change related impacts and in decision making. The government agencies and donors need to pay attention to the target groups and ensure adequate funds in the budgetary system. Climate finance governance is an important factor at the conceptual and operational levels. Periodical reviews, monitoring, reporting, and taking corrective and preventive actions and providing adequate budgetary resources are pre-requisites for strengthening climate resilient responses. An effective governance framework for climate change, related action must be put into practice.

Role of Alternative Energy Promotion Centre (AEPIC)

AEPC is a government institution established in 1996, under the Ministry of Science and Technology with the objective of promoting renewable/alternative energy technologies in Nepal. Now, AEPC is under the Ministry of Energy, Water Resources and Irrigation. It functions independently. An eleven members board with representatives from the government sector, industry sector and non-governmental organizations given AEPC. Its mission is to mainstream renewable energy resource through increased access, knowledge, and adaptability for achieving improved living conditions of people in Nepal. Promoting large-scale use of renewable energy is recognized for promoting climate resilient response in the country.

AEPC undertook Clean Development Mechanism (CDM) projects on biogas (Biogas Support Program-Nepal Activity-1 and Biogas Support Program-Nepal Activity-2). Being an apex institution for renewable energy promotion in Nepal, it focuses on climate change related activities. A Climate and Carbon Unit (CCU) was established with financial support from UK Department for International Development (DFID) and the technical assistance of SNV Nepal. CCU implements the carbon projects/programs in RE sector and supports District Development Committees to implement the District Climate and Energy Plans (DCEP) with the following objectives:

- ▶ To develop AEPC as knowledge centre of climate change mitigation and adaptation,
- ▶ To provide support to the ministry on climate change negotiations, policy/strategy and CDM
- ▶ Further leverage the carbon mitigation and climate change adaptation potential of existing and future AEPC programmes/technologies,
- ▶ To institutionalize and mainstream climate change mitigation and adaptation in the RET sector.
- ▶ National Rural and Renewable Energy Programme (NRREP) has been drawn since 2012, NRREP ensures that CDM and carbon market instruments function and generate revenue to achieve the following output.
- ▶ Update knowledge of evolving rules and regulations in different carbon markets;
- ▶ Develop a well-diversified portfolio of projects using different instruments;
- ▶ Put in place quality and performance assurance systems and monitor continuously; and
- ▶ Support external monitoring and verification in an effective manner.
- ▶ Manage the work of formulating Low Carbon Economic Development Strategy for Nepal.
- ▶ Coordinate with other agencies to implement Nepal Climate Change Support Program (NCCSP) .

Audit objectives, audit questions and sub questions, audit scope must be developed for conducting EA based on the specific subject matter/agency/climate resilient program or project. All the procedures relating to familiarization of the subject matter/entity and documentation relating to audit planning must be completed as in case of any EA.

Audit criteria

Audit criteria must be developed from the applicable regulations on the subject to assessing the performance of the entity with reference to the laid down rules, norms, standards and performance indicators and benchmarks. Climate change criteria must be designed from Nepal's climate change policy/law and regulations or in certain cases international, where Nepal had signed and ratified international treaties like UNFCCC/Kyoto Protocol.

Audit criteria must be able to assess governance and management. As climate change action needs to be taken by different ministries /agencies of the federal and provincial government, coordination and transparency in decision making are vital.

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- ▶ International agreements engaged with UNFCCC is the main global response to the challenge of climate change. UNFCCC and its Kyoto Protocol spell out commitments for Parties. Audit criteria must be developed suitably with reference to the specific commitment of Nepal.
 - ▶ Annex I Parties must take more responsibility than the non-Annex I Parties:
 - ▶ firstly, they shall help developing countries to meet their commitments and, secondly, they shall take the first steps towards reducing GHG emissions; this second point was included in the Kyoto Protocol.
 - ▶ The commitments under the Convention are largely nonbinding, but the country-specific and time-bound and Nepal is required to report progress to the UNFCCC secretariat.
 - ▶ The emission targets established by the Kyoto Protocol are binding on all Annex I Parties which have ratified the Protocol. The Protocol specifies emission targets for each Party with a set time frame:
 - ▶ Mitigation commitments The Convention commits all parties to adopt programmes containing measures to reduce anthropogenic emissions of GHGs and enhance and maintain sinks. The Kyoto Protocol has a short-term and measurable legally binding emissions targets (for industrialised countries). The non-Annex I Parties like Nepal do not have any binding emission level reductions; for non-Annex I parties, emission reduction is purely voluntary. protection and enhancement of sinks of GHGs, promotion of sustainable forms of agriculture, development of new technologies, phasing out of market imperfections in all GHG-emitting sectors, limitation of GHG emissions from the transport sector and the limitation of methane emissions. The market determines the price of one ton of CO₂. There are certain procedures and rules to be used as audit criteria. If Nepal decides to use these mechanisms, there should be supplementary domestic action.
 - ▶ Conditions to be fulfilled for the accreditation of a CDM project include:
 - Investment in a CDM project must be additional to the financing and technology transfer Commitments of Annex II Parties.
 - A CDM project cannot be profitable without the investment of an Annex I Party.
 - GHG emissions after the CDM project must be lower than they would have been without the project.
 - 2% of the CERs generated must go to an Adaptation Fund .
 - Requirements for additionality and contribution to sustainable development .
 - The Joint Implementation (JI) mechanism works in a similar way to CDM,. It offers an opportunity for Annex I countries to invest.
 - The legislation and rules framed by Nepal apply under the Kyoto Protocol. These rules include provisions for verification and control. Audit criteria for Nepal must be developed form them:
 - Emission reduction targets set by the government of Nepal;
 - Plans and programmes devised by the government of Nepal to mitigate climate change;
 - Whether any projects sanctioned under CDM and whether the criteria governing CDM projects are satisfied.
 - ▶ Monitoring and reporting commitments for mitigation.
 - All Parties shall submit national communications containing information about GHG emissions and implementation activities.

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- Annex I Parties shall submit annual GHG inventories. All Parties must follow the reporting requirements of the Convention. The Kyoto reporting plies to the Annex I Parties which have ratified the protocol.
 - Non-Annex I Party reporting requirements depend on the resource situation and financial assistance from Annex II Parties.
 - Adaptation Commitments.
 - The obligations in international climate change agreements with respect to adaptation are fewer and less specific than those concerning mitigation. Member nations to the Convention have no legally binding commitments. However, the Nairobi Work Programme (NWP) formulated by the UNFCCC can be used as a good practice for national adaptation strategies. The Nairobi Work Programme helps to assess impacts of climate change to make adaptation measures. Key actions include impact assessment, data collection and analysis, modelling and adaptation assessment. Adaptation strategies should be based on a scientific, technical, and socio-economic basis, domestic experience, and experience from other countries.
 - Annex II Parties to the Convention shall help developing countries to prepare National Action Plans for Adaptation (NAPAs) focusing on adaptation needs. Funding for adaptation identified through the NAPAs is channelled through the Global Environment Facility's (GEF) Least-Developed Countries Fund.

Commitments on technology, funding, and research

- ▶ The UNFCCC commits all Parties to cooperate on developing and transferring technology to control GHG emissions. Furthermore, the developed countries shall take steps to promote, facilitate and finance the transfer of environmentally sound technologies. The developed and developing countries must cooperate to ensure that technologies are transferred and accessible.
- ▶ The development and transfer of technology is part of the Marrakesh Accords. A framework was established to assess the technology needs, establishment of an information system, technology transfer and capacity building. Scientific research is related to climatology on understanding climatic change; and environmental science to measure impacts and changes in ecosystems and human systems.
- ▶ Article 5 of the Convention stipulates activities members shall carry out to fulfil their commitments related to scientific research, to conduct, assess and finance, research, data collection, observation, strengthening research capabilities.
- ▶ Annex II Parties to the Convention are obliged to provide financial assistance to the developing and the least-developed countries. Funds can be provided through multilateral channels as development assistance.
- ▶ National Plans
- ▶ These are adaptation and mitigation plan of the Government of Nepal and include NAPCC and initiatives taken. This is a source of audit criteria.

Criteria for good governance

- ▶ Many aspects of good governance can be used as standards for auditing as evaluation tools for adaptation issues.
- ▶ Effective accountability arrangements between government departments and public entities.

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- ▶ Climate change policy involves a wide range of sectors with potential for conflicting objectives/ targets. Coordination is essential to make the policy effective. One audit criterion is whether the government has acted on climate change. The government of Nepal must overview the agencies involved with responsibility. Procedures for coordination must be documented.
 - ▶ Secondly, the efforts of the different parties must be complementary. There must be coordination in practice. There are many risks.
 - ▶ Transparency in decision-making: Transparency in decision-making is important. Lack of transparency may lead to fraud risk.
 - ▶ Involving the public/stakeholders: To succeed in climate change policy, relevant knowledge, and communication with external parties are important.
 - ▶ Management by objectives and results : Nepal has international and national targets for mitigation, adaptation with implementation by federal, provincial, and local government.
 - ▶ The parliament of Nepal may set requirements for the government including:
 - ▶ Define objectives and expected results: The ministry in charge of climate change policy must communicate what is expected of government agencies/ministries involved. The objectives and targets must be operationalized in all sectors and at all levels. Targets should be specific, measurable, attainable, relevant, and time-bound (SMART). National objectives, sector targets and indicators should be communicated to bodies, government and/or administration. This may include intra-state treaties with targets, and responsibilities.
 - ▶ Develop implementation strategies: Audit must assess
 - whether the objectives and planned results were achieved,
 - whether the resources were used effectively,
 - whether the entity complies with laws, regulations, and standards,
 - whether the entity developed plans and programmes to meet the obligations and targets,
 - what are the risks involved in achieving them, and,
 - whether actions needed to meet the commitments was taken,
 - whether activities were identified to minimize the risks,
 - whether cost-benefit analyses were done.
 - Whether the nodal ministry followed up the bodies to achieve the target.
 - ▶ Provide the information needed to assess efficiency and goal achievement:
 - Whether the government of Nepal provide the information necessary for decision making.
 - Reliable information is important in planning stage before implementing climate change policies and evaluating the cost effectiveness of the policy instruments.
 - ▶ Monitor performance:

Whether monitoring of the performance is done periodically to achieve the target.

Monitoring and reporting are established as commitments under the Convention and the Protocol. The communications of Nepal government to the UNFCCC secretariat must be examined to suggest suitable recommendations, Collecting information:

- Collecting right information is an ongoing process:
- Is the required information available on time?
- Is the information current, accurate and accessible?)

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- ▶ Risk management:
 - Risks indicate the happening that impact on achievement of the objectives. Risk management aims to balance between opportunities for gains while minimizing losses.
 - Has the entity undertaken risk management as an ongoing process, renewed and updated frequently?
 - Are there risk of not attaining the targets, inefficient use of money and resources, corruption and fraud?
 - ▶ Criteria for good management: internal control systems:
 - Is there an internal control system to control activities to attain the goals by all the entities involved, government bodies and private partners?
 - For example, entities buying or selling emission allowances must have an internal control system. Well defined targets and effective structure are critical for an efficient internal control system to ensure that the system works as intended.
 - ▶ Audit criteria for internal control systems based on an INTOSAI model has the following five components:
 - Control environment: The organization structure, authority, responsibility, and human resources must be capable to manage the risks.
 - Risk assessment: Identifying the entities' objectives and targets.
 - Identifying risks-- external and internal factors that impact on the achievement of the objectives and targets; and
 - Priority-setting as to how they will impact on the objectives and target achievement.
 - Control activities: : Control activities are established to address risks and to achieve the entity's objectives including authorization and approval procedures, segregation of duties, controls of access to resources and records, reviews of operations and so on.
 - Corrective actions can complement control activities, and detective and preventive control activities are necessary.
 - Information and communication: Information about performance in relation to the management of established risks must be communicated to provide feedback by reconsidering risk management.
 - Monitoring: The ongoing monitoring process is a system to assess whether the implemented activities lead to the entities' defined objectives.

Major compliance audit issues audit of climate change

Compliance audit is the first step in evaluating whether the acts/rules framed by the government of Nepal to mitigate climate change impact are complied with. Nepal has no law to control emissions. Only strategies, plans of action like NAPCC and sectoral strategies exist for climate change. Nepal does not have any commitments to reduce emissions under the UNFCCC. However, under the Kyoto Protocol, Nepal has been the recipient of many CDM projects. Hence, compliance audit can be used to study adherence to targets/plans of action laid out under NAPCC and project objectives based on criteria under CDM.

Checklist for EA of climate change:

| Objective | Main Questions |
|--|---|
| Theme 1: Existence of data about climate change and identification of risks | |
| 1. To assess whether the government identified and quantified the sources of emissions and has the effect on climate change on health. | 1.1 Has the government identified the main sources of GHG emissions in the country? 1.2 Has the government quantified emissions from sources like energy production, transport, buildings, industry, agriculture, forestry, waste etc? 1.3 What are the trends of projections of GHG emissions in the country? 1.4 Has the government assessed the major vulnerabilities, environment of the country been assessed. sectors most likely to be affected) to climate change? 1.5 Has the government assessed risks to public health because of climate change? |
| Theme 2: Government's response to climate change | |
| 2. To assess whether the government has responded effectively to the challenges posed by climate change | 2.1 If the government does not have any international mitigation or adaptation commitments, has it set any national commitments? 2.2 Has the government defined any effective policy for climate change and for controlling GHG emissions? 2.3 Have any national targets for mitigation and adaptation been set and are they realistic, practical, and effective? 2.4 Has the government defined any policy instruments for reducing GHG emissions, adaptation, and mitigation? 2.5 Has responsibility and accountability been assigned to different ministries/agencies of the government in the climate change process, especially for adaptation and mitigation? |
| Theme 3: Implementation of plans for mitigation and adaptation | |
| 3. To assess the effectiveness of government's adaptation and mitigation programs relating to climate change | 3.1 Have extensive consultation with all agencies and stakeholders in the climate change agencies done before introduction of the plan? 3.2 Have the sectors contributing most to climate change been identified and have these been included in the national plan? 3.3 Have clearly defined targets and timelines for implementation been laid down in the plan? 3.4 Whether emission trends and projections are in line with targets set in the plan? 3.5 Whether coordination of relevant ministries being done as envisaged? 3.6 Have research activities taken place as envisaged in the plan? 3.7 Whether adequate financial resources are made available for implementation of the plan and are they being spent wisely? 3.8 Whether the plan has led to achievement of objectives and targets. |
| Theme 4: Effective implementation CDM projects | |

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|---|--|
| 4. To assess whether effective implementation of CDM projects is taking place in the country? | 4.1 Whether any targets for implementation of CDM projects been set? 4.2 Whether the criteria for approval, eligibility, sustainable development targets etc are being met by the CDM projects. 4.3 Whether CDM projects are achieving their stated targets? |
| Theme 5: Monitoring | |
| 5. To assess whether effective monitoring of national plans was taking place | 5.1 Whether these was allocation of responsibility for overall monitoring of the plan was done? 5.2 Was monitoring taking place as envisaged? 5.3 Were international commitments on reporting met by the government? |
| Theme 6: Impact analysis | |
| 6. To assess whether the government's plans actually led to reduction of emissions | 6.1 Did the plan meet the mitigation and adaptation commitments of the country? 6.2 Did the plan lead to reduction of GHG emissions? |

Annexures

Annexure1: National and International agencies engaged in environmental protection

National agencies engaged in environment protection in Nepal are as follows:

1. **Ministry of Forests and Environment** is responsible for the conservation of forests and managing the environment in Nepal. The main purpose is to enhance sustainable growth of the forest and water sectors and to manage the biodiversity, flora, fauna and also to increase the development of forest related enterprises. The ministry functions through various departments/ offices under it. Some of the departments engaged in environmental matters are as follows:

- i. **Department of Hydrology and Meteorology**

The Department has a mandate from Government of Nepal to monitor all the hydrological and meteorological activities in Nepal. No agency is entitled to carry out such activities without a proper liaison with Department of Hydrology and Meteorology (DHM). The scope of work includes the monitoring of river hydrology, climate, agro-meteorology, sediment, air quality, water quality, limnology, snow hydrology, glaciology, and wind and solar energy. General and aviation weather forecasts are the regular services provided by DHM. As a member of the World Meteorological Organization (WMO), DHM contributes to the global exchange of meteorological data on a regular basis.

Government of Nepal started hydrological and meteorological activities in 1962 as a section under the Department of Electricity, later transferred to the Department of Irrigation and upgraded to Department of Hydrology and Meteorology (DHM) in 1988, under the Ministry of Energy, Water Resources and Irrigation. The department has four regional offices namely Office of Hydrology and Meteorology in Dharan, Pokhara, Bhairahawa and Kohalpur respectively. The regional office in Pokhara has field office called Narayani Basin Field Office, Narayanghat which looks into the hydrometric network of Trishuli and East Rapti River system; the regional office in Kohalpur has field office called Mahakali Basin Field Office, Dhangadi which looks into the hydrometric network of Mahakali River and Mohana River system respectively.

The objective of DHM is to collect hydrological and meteorological data throughout Nepal, process the data, and disseminate the data to users such as water resource planners, developers, researchers and to support overall development of water resources of Nepal. DHM generates information of extreme hydrological and meteorological events to save life and property of people. DHM monitors all the hydrological and meteorological activities in Nepal. Its scope of work includes monitoring of river hydrology, water quality, sediment, limnology, snow hydrology, glaciology, weather, climate, agro-meteorology, air quality and solar energy and General and Aviation Weather Forecast regularly. The department generate Agrometeorological Notice for Agriculture Management and Information System (AMIS) and helps in Flood Forecasting and Early Warning to public and related agencies during the period of Monsoon Season.

Being a member of the World Meteorological Organization (WMO), DHM contributes to the global exchange of meteorological data on a regular basis and actively participates in the programs of relevant international organizations, like the UNESCO's International Hydrological Program (IHP) and WMO's Operational Hydrology Program (OHP). DHM had hosted several regional and international workshops, symposia, seminars and meetings on meteorology, hydrology, sediment, water quality and snow hydrology. The department is a focal point for the Intergovernmental Panel on Climate Change (IPCC) and for the meteorological activities of the

South Asian Association for Regional Co-operation (SAARC). The International Civil Aviation Organization (ICAO) has recognized DHM as an authority to provide meteorological services for international flights.

The principal activities of DHM includes the following:

1. “Collect and disseminate hydrological and meteorological data and information for water resources, agriculture, energy, and other development activities.
2. Issue hydrological and meteorological forecasts for public, mountaineering expedition, civil aviation, and for the mitigation of natural disasters.
3. Mitigate weather, flood and drought induced disaster by providing early warning services to the concerned communities.
4. Conduct special studies required for the policy makers and for the development of hydrological and meteorological sciences in the region.
5. Promote relationship with national and international organizations in the field of hydrology and meteorology.”

2. Environment Protection Act, 2076 (2019)

The Parliament of Nepal enacted the Environment Protection Act, 2076 (2019), repealing the earlier Environment Protection Act, 2053 (1997).

i. Applicability and Scope

The Act ensures that the implementation of the Project does not harm the environment. “Pollution” has been redefined to include waste, chemical, heat, sound, electronic, electronic magnetic or radioactive radiation that significantly degrade, damage the environment, or harm the beneficial or useful purpose of the environment by changing the environment directly or indirectly.

It authorizes the Government of Nepal to set standards to reduce and regulate emission, hazardous waste, pollution emitted by vehicles, equipment, industries, hotels, restaurants and other institutions or activities. The Act regulates manufacturing and distribution of harmful substances. “Harmful substances” is defined to include harmful waste transported through the borders, harmful substances as per the Basel Convention, 1989, explosives that harm the environment and human health, product that are flammable, perpetually lasting or corrosive in nature and leftover of the raw material that has been processed for the first time. The Act also addresses the concern of climate change and control of greenhouse gasses and other gasses. The Act envisages provisions pertaining to carbon trading, protection of national heritage sites, mountains and hills and waste management, by widening regulatory regime in Nepal.

ii. Regulating Authorities

The Regulating Authorities under the Act include the following authorities:

1. Government of Nepal;
2. Environmental Examiner;
3. Environment Protection Council;
4. Department of Environment and
5. Ministry of Forests and Environment

iii. Project Developer must adhere to:

As per the present Act, a Project Developer needs to comply with the following compliances while developing a Project:

iii (a) Environmental Study Report includes the following:

- a. Summary Environmental Study
- b. Initial Environment Examination
- c. Environmental Impact Assessment

The Environment Protection Rules 2054 lays down the terms and conditions that needs to be entailed in the report. It contains the budget, social and economic impact, cultural and physical impact, chemical and biological impact the project. If the Environmental Study Report is not as per the Act, then the Project Developer will not be allowed till five years.

iii (b) Environmental Management Plan will cover all probable solutions to be adopted by the Project Developer to safeguard the environment.

iii (c) Environmental Assessment Report must be submitted after two years of initiation of the proposal entailing the impact of the project on the environment and efforts undertaken to mitigate such impacts.

iii (d) Supplementary Environmental Impact Assessment is required in some cases where Proposals are involved in activities capacity building and modification of the Proposal.

iv. Environmental Fund

The Act prescribes formation of an Environmental Fund to protect the environment, control Pollution, protect national heritage and maintain quality of air and water. Prior, permission from the Government of Nepal or the Ministry of Forests and Environment is required to make any payment in the environmental fund. Environmental Fund will constitute amounts received from the following authorities:

1. The Government of Nepal, State Government and Local Bodies.
2. Nepali nationals and institutions.
3. Foreign government or international institutions.

v. Carbon Trading

Unlike the 1997 Act, designed to combat carbon emissions, the Act empowers the Government of Nepal to engage in carbon trading with foreign government and institutions. The concept of carbon trading originated in Kyoto Protocol, 1997 (the “**Kyoto Protocol**”). Nepal ratified the Kyoto Protocol on December 14th, 2005. As per the protocol, a high carbon emission country can purchase the right to release more carbon from the countries that have lower carbon emission.

vi. Responsibility of the Government

The Act attributes responsibility to the Government of Nepal to:

1. “Stop any Proposal in contravention to the Act.
2. Control and regulate Pollution in the country.
3. Initiate plans to protect the environment.
4. Prepare a yearly report on subject matter including the change in the quality of air and water.”

vii. Prohibitions under the Act

“Certain activities are prohibited under the Act including:

1. Any kind of Pollution that will hamper environment and living beings in it.
2. Hampering the quality of mountain and hills in Nepal is also prohibited.

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3. The Act puts restriction on export of harmful substances. Harmful substances can only be produced in Nepal after getting prior approval from the concerned Regulating Authority.”

viii. Complaint Mechanism

The Act envisages an elaborate complain mechanism. Anyone can make a complaint to the Regulating Authorities about someone who may violate the provisions under the Act. Anyone aggrieved by the decision taken by the Regulating Authorities can file an appeal within thirty-five days to:

1. The District Court if the decision was taken by the local authorities.
2. The High Court if the decision was taken by the Central or State Government.

Anyone aggrieved by the decision taken by the Regulating Authority can file an appeal within thirty-five days to the High Court.

Environment Protection Rules, 2054 (1997)

The Rules stipulate that the following safeguards may be adopted:

- ▶ To install within the stated time the equipment required to reduce or control pollution,
- ▶ To properly use the installed equipment of pollution control,
- ▶ To operate the industry only at stated time,
- ▶ To take specific measures to control such activities carried out in the premises of any industry which generate pollution,
- ▶ To take specific measures to control the activities of any industry which generate pollution outside the premise of the industry,
- ▶ To make available the equipment necessary for the monitoring activities at the fixed time,
- ▶ To work as per other conditions prescribed and defended necessary by the concerned body in view of the nature of industry.

3. **Alternative Energy Promotion Centre (AEPC)** is a government institution established in 1996 with the objective of developing and promoting renewable/alternative energy technologies in Nepal. It functions independently with a board having representatives from the government sector, industry sector and non-governmental organizations. The mission of AEPC is to make renewable energy mainstream resource.

It is an institution recognized as a regional/international example of promoting large-scale use of renewable energy sustainable and a national focal point for resource mobilization. The objectives of AEPC are as follows:

- ▶ To popularize and promote the use of alternative/renewable energy technology.
- ▶ To raise the living standard of the rural people.
- ▶ To protect the environment.
- ▶ To develop the commercially viable alternative energy industries in the country.

AEPC registered its first Clean Development Mechanism (CDM) project in 2005 with two bundle CDM projects on biogas (Biogas Support Program-Nepal Activity-1 and Biogas Support Program-Nepal Activity-2). In 2010, it established the Climate and Carbon Unit (CCU) with financial support from UK Department for International Development (DFID) and the technical assistance of SNV Nepal. CCU implements the carbon projects/programs in RE sector:

- ▶ To develop AEPC as knowledge centre of climate change mitigation and adaptation,
- ▶ To provide support to Ministry of Science, Technology and Environment (MoSTE) on climate change negotiations, policy/strategy and CDM
- ▶ Further leverage the carbon mitigation and climate change adaptation potential of existing and future AEPC programmes/technologies,

-
- ▶ To institutionalize and mainstream climate change mitigation and adaptation in the RET sector.

With the introduction of National Rural and Renewable Energy Programme (NRREP) since July 2012, the Climate and Carbon activities are dealt by a dedicated Climate and Carbon Unit under the Technical Assistance Component. The major output of CCU as defined by NRREP is “CDM and other carbon market instruments are functional and generate revenue”. The following activities are defined to achieve the output of the CCU as defined by NRREP.

- ▶ Update knowledge of evolving rules and regulations in different carbon markets;
- ▶ Develop a well-diversified portfolio of projects using different instruments;
- ▶ Put in place quality and performance assurance systems and monitor continuously; and
- ▶ Support external monitoring and verification in an effective manner

On top up NRREP activities CCU provides technical support to MoSTE on following two areas:

- ▶ Manage the work of formulating Low Carbon Economic Development Strategy for Nepal
- ▶ Coordinate with DEECCS/DDC to implement Nepal Climate Change Support Program (NCCSP) in 14 districts

4. The Ministry of Forests and Environment

The Ministry of Forests and Environment is responsible for the conservation of forests and management of environment in Nepal, The Ministry focuses on sustainable growth of the forest and water sectors and management of the biodiversity, flora and fauna and development of forest related enterprises.

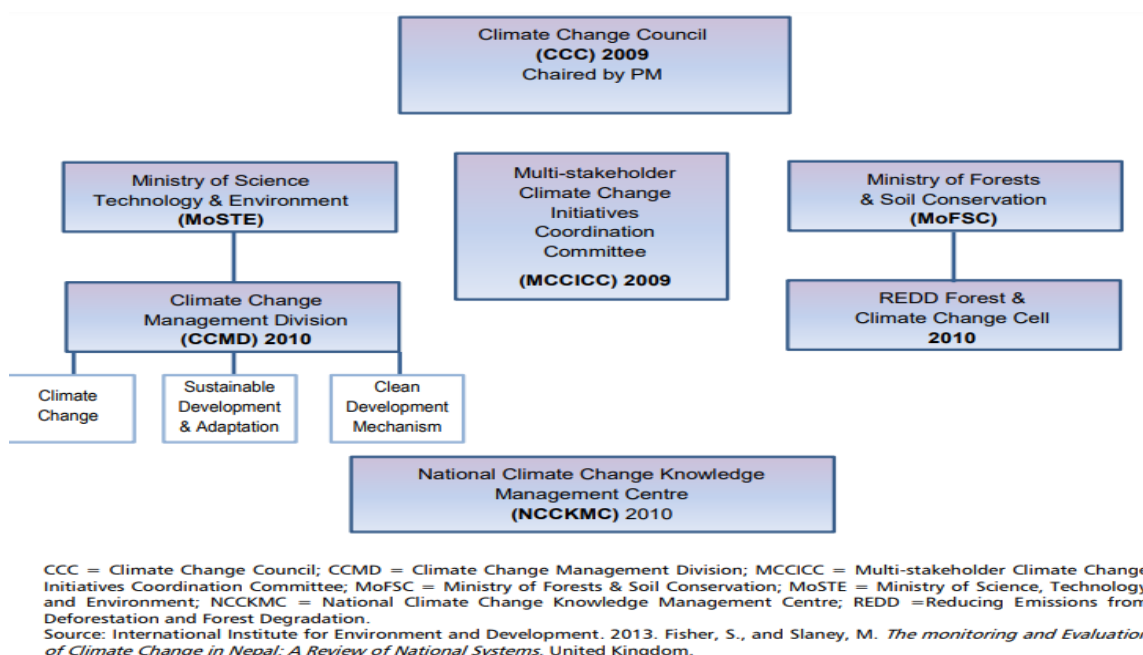
Two departments under the ministry implement its work:

- ▶ Department of National Parks and Wildlife Conservation
- ▶ Department of Forests

5. Environmental protection and climate change management national council

The Environmental Protection Act, 2076 envisages an environmental protection and climate change management national council chaired by the Prime Minister, for environmental protection and climate change. The council shall consist of Prime Minister as Chairperson, Minister for Forest and Environment, Government of Nepal -Member, three Ministers of the Government of Nepal designated by the Prime Minister as members; Chief Ministers of all Provinces etc.

6. Multi-sectoral Climate Change Initiatives Coordination Committee (MCCICC)



Source: db.org/sites/default/files/linked-documents/Linked-Document-4c-ADB-Support-for-Climate-Change-Adaptation-and-Mitigation-in-NEP.pdf

MCCICC is the key national platform for ensuring regular dialogue and consultations on climate change related policies, plans, finance, programmes /projects, and activities. The committee will:
Establish and /or improve communication mechanism amongst institutions concerned with and working in the field of climate change,

- ▶ Coordinate climate change responses at programmatic level to foster synergy and avoid duplication of efforts, and optimize benefits from existing programs, and coordinate activities related to policies, plans, strategies, financing programmes and projects;
- ▶ Provide inputs for developing consensus on climate related issues under international climate change negotiation; and
- ▶ Provide inputs for financing in order to effectively implement, monitor and evaluate the adaptation actions including those identified in the NAPA (Nation Adaptation Programme of Action) process

7. **The Ministry of Forests and Environment** is responsible for the conservation of forests and managing the environment and to enhance sustainable growth of the forest and water sectors and biodiversity, flora and fauna and also to increase the development of forest related enterprises in Nepal.

The Ministry discharges its functions through the following departments:

- i. **Department of Forests (DoF)**

The main function of DoF is to manage the country's forest resources for the conservation of the natural environment. It is also entrusted for protection, management and utilization of forests and conservation of natural resources. It also increases people's participation in forest management,

particularly in plantation and resource conservation in forests. It is also concerned with improvement of the livelihood of the community through implementation of effective forestry programs.

ii. **Department of Plant Resources (DPR)**

The Department of Plant Resources under the Ministry of Forest and Environment (formerly known as Department of Medicinal Plants) was established in 1960 A.D. It conducts research and development of plant resources in Nepal. Resource survey and collection of plant materials and preservation of the specimens in the National Herbarium and Plant Laboratories is its main objective.

DPR is a multidisciplinary organization under the Ministry of Forest and environment, comprising mainly of botanists, chemists, and pharmacists. It is mandated to conduct resource survey and collection of plant materials and preservation of the specimens in the National Herbarium and Plant Laboratories and maintenance of Botanical Gardens in various parts of the country. It also conducts chemical and biological research for the utilization of medicinal, aromatic and other valuable plants. It also disseminates information through publications on various aspects of Nepalese plant resources. It is also involved in bio-prospecting of plants of economic value.

iii. **Department of National Parks and Wildlife Conservation**

The Department of National Parks and Wildlife Conservation is one of five departments of the ministry assigned with the responsibilities of conserving the wildlife and managing the protected areas of Nepal, including national parks and conservation areas. The department is also part of the REDD+ Group. The Department of National Parks and Wild Life Conservation supports people living within the boundaries of those parks as well as their buffer zones and promotes ecotourism and carries out surveys including annual censuses of endangered species, such as the Bengal tiger.

The Department has the overall goal of the Department is to conserve and manage the rich and diverse biological diversity of Nepal with much emphasis on wildlife and protected areas. The primary objectives of the Department are to conserve the country's major representative ecosystems and give protection to the valuable and endangered wildlife species and encourages scientific research for the preservation of wild genetic diversity.

8. Ministry of Agriculture Development

Agriculture and Environment are intricately linked. One of the major arms of GoN concerned with agriculture is the Ministry of Agriculture Development (MOAD). It has far-ranging mandate covering policy matters, research, development and promotion of cash crops, agricultural engineering, agro nursery, agricultural communication, animal husbandry, cattle breeding cattle food, pastureland, veterinary science, bee keeping, sericulture, carbonic, organic and chemical fertilizers, quarantine determination of quality of breed, food security, agro-environment and pesticide management, organic farming and organic authentication etc.

i. **Department of Agriculture (DoA)**

The DoA has been entrusted with to support and help achieve food security and poverty alleviation by the transformation of agriculture through diversification and commercialization. It also strikes balance between agricultural development and conservation.

Agriculture is a major sector of the Nepal economy providing employment to 65 percent of the total population and contributes about 27 percent to GDP. Therefore, it is important for the development of the agricultural sector. Agriculture and Livestock Development is responsible for the development and prosperity of the region and formulating and implementing agricultural development policy.

The Ministry has the following departments:

-
- Department of Livestock Production**
- I. It works as technical authority in the field of livestock production, pasture and animal feed development and livestock quality management.
- Department of Livestock Services**
- II. The Department was established with the objective of improving livestock production and productivity and to eliminate the problem of malnutrition.
- Directorate of Animal Health**
- III. It is the national focal point of Veterinary Services in Nepal and it works as a National Veterinary Authority representing Government of Nepal, Ministry of Agriculture Development, and Department of Livestock Services. It also extends disease control services for security and conservation of livestock and public health. It also assists in the production of livestock and products which are exportable and import substitutable. It also identifies, conserves, promotes, and develops the indigenous livestock breed which are about to be extinct.
- Vegetable Development Directorate**
- IV. Vegetable Development Directorate serves as a vegetable sub-sector focal point for national and international level institute of related fields. It helps Department of Agriculture and Ministry of Agricultural Development in formulating national policy, strategy, periodic plan, and annual program. It also prepares guidelines for the implementation of program. It supervises and monitors the district level vegetable program and gives technical backstops to the districts and resource centres in solving their problems especially in technical aspects. It also maintains the necessary information required for vegetable sub sector and maintains national level data base of vegetable sub-sector.
- Nepal Agricultural Research Council (NARC)**
- V. NARC is an autonomous organization under “Nepal Agricultural Research Council Act 1991 (2048) “to conduct agricultural research in the country to uplift the economic level of the people.
- VI. Crop Development Directorate focuses on optimum use of available resources to increase production and productivity of cereals, pulses, oilseeds and industrial crops by increasing cropping intensity and diversification. National Industrial Crop Development Program and Regional Seed Testing Laboratories in five development regions work under this directorate.
- Agribusiness Promotion and Marketing Development Directorate**
- VII. It is entrusted with carrying out various activities relating to agribusiness promotion and marketing of agricultural products.
- Plant Protection Directorate**
- VIII. The Directorate is responsible for national level programme - the Office of the Registrar of Pesticides, the Plant Quarantine Programme and Regional Plant Protection Laboratories for implementation of the programme. It also coordinates with Pesticide Registration and Management Unit.
- Post-Harvest Management Directorate**

-
- IX. It is responsible for post-harvest technology generation, verification, improvements, dissemination, and adoption.

Seed Quality Control Service Centre

- X. It is an autonomous body under MOAD. Its objective is to ensure the availability of quality seed by enforcing the quality control mechanisms to the farmers, to increase the income of farmers through seed production and distribution in the national as well as in the international markets, to substitute import of seed from abroad and to assure supply of quality seed in the market

Office of the Prime Minister and Council of Ministers

- XI. The office is mandated to provide up-to-date information of disaster management and issue direction thereto. It is also involved in the operation of Prime-minister Natural Disaster/ Assistance Fund Operation.

9. Ministry of Energy

One of the major functions of Ministry of Energy is formulation, implementation, monitoring and evaluation of policy, plan and programmes relating to the energy production, management, use, safety, promotion and development. It is also concerned with business relating to Water and its utilization and energy which do not fall under the other ministries.

“Electricity Development Centre (EDC) was established in 1993 (2050 under the then Ministry of Water Resources to develop and promote electricity sector and to improve financial effectiveness of this sector at the national level by attracting private sector investment. It was later renamed as Department of Electricity Development (DOED) in 2000 and is responsible for assisting the Ministry in implementation of overall government policies related to power/electricity sector. The functions of the Department include transparency of regulatory framework, accommodate, promote and facilitate private sector's participation in power sector by providing "One Window" service and license to power projects.

Department of Water Resources and Irrigation (DWRI) is responsible to plan, develop, maintain, operate, manage and monitor different modes of environmentally sustainable and socially acceptable Irrigation Projects both surface and ground water or projects of water resources with irrigation as major component, particularly larger in size. DWRI works in the field of water induced disaster management through its river management projects, landslides management projects and catchment management projects.

Government of Nepal started **hydrological and meteorological** activities in an organized way since 1962. The activities were initiated as a section under the Department of Electricity. The section was subsequently transferred to the Department of Irrigation and was ultimately upgraded to Department of Hydrology and Meteorology (DHM) in the year 1988. Recently, DHM is under the Ministry of Energy, Water Resources and Irrigation. The department has its headquarter in Babarmahal, Kathmandu and has four regional offices namely Office of Hydrology and Meteorology in Dharan, Pokhara, Bhairahawa and Kohalpur respectively. The regional office in Pokhara has field office called Narayani Basin Field Office, Narayanghat which looks into the hydrometric network of Trishuli and East Rapti River system. Similarly, the regional office in Kohalpur has field office called Mahakali Basin Field Office, Dhangadi which looks into the hydrometric network of Mahakali River and Mohana River system respectively.”

10. Ministry of Home Affairs

The Ministry of Home Affairs is the apex body in relation to disaster management in Nepal. The ministry has a separate Disaster Management Division. The Division functions through Disaster Research and Study Section, Disaster Risk Reduction and Recovering Section and National Emergency Operation Centre. The Chief District Officers, under the Ministry of Home Affairs, act as the crisis managers at the time of natural disasters.

11. Ministry of Defence

The Nepalese Army under the Ministry of Defence is also involved in development activities and co-operation in rescue operations. It is also mandated for protection of national parks and preservation of wildlife.

12. Ministry of Culture, Tourism and Civil Aviation

The ministry works in the area of formulation, implementation, monitoring and evaluation of the policy, plan and programmes relating to culture, tourism and air transportation development.

13. Rural Water Supply and Sanitation Fund Development Board (RWSSFDB)

RWSSFDB was established to promote sustainable and cost-effective demand-led rural water supply and sanitation services in facilitation of Non-governmental and Private Organizations with full emphasis on community ownership in conformity with the Government's Plan.

14. Kathmandu Upatyaka Khanepani Limited (KUKL)

KUKL is responsible for the operation and management of water and wastewater services in the Kathmandu Valley. It operates the water supply and wastewater services under a License and Lease Agreement with the Kathmandu Valley Water Supply Management Board 30 years.

15. Town Development Fund

TDF supports Municipalities, Water Users and Sanitation Committees of Second Small Towns Water Supply and Sanitation Sector Project, Hospital and Health Centres through long term financing on social infrastructure and income generating Projects in the form of Loan, soft loan and grant within strict financial rule and regulations.

16. High Power Committee for Integrated Development of Bagmati Civilization

The main objective of this High-powered Committee is to keep Bagmati River and its tributaries clean by preventing the direct discharge of solid and liquid wastes to the river and to conserve the river system within the Kathmandu.

17. Solid Waste Management Act

The Government of Nepal enacted the Solid Waste Management Act of 2011 for maintaining a clean and healthy environment by minimizing the adverse effects of solid waste on public health and the environment. The local bodies have been made responsible for the construction, operation, and management of infrastructure for collection, treatment, and final disposal of MSW. The act mandates local bodies to take the necessary steps to promote reduce, reuse, and recycle (3R), including segregation of MSW at source and provides for the involvement of the private sector, community-based organizations (CBOs), and nongovernment organizations (NGOs) in SWM through competitive bidding. It also authorizes the local bodies to formulate rules, by-laws, and guidelines, with the approval of the municipal board. As provisioned in the act, the SWM Technical Support Center (SWMTSC) under the Ministry of Urban Development shall provide technical support to all local bodies for effective and sustainable SWM and advance research and development in this sector.

The Central Bureau of Statistics (CBS) maintains systematic and comprehensive data and information on state of solid waste management (SWM), including the categorization of quantity and composition of the municipal solid waste (MSW) collected by the municipalities, executed this waste management baseline survey in the municipalities of Nepal. The survey was conducted in 2019/20 and has covered 271 municipalities of Nepal. The survey found the overall average human resource available in the municipalities to be 114 per municipality, with the higher number (477) in the metropolitan cities and the lower (99) in the municipalities. The average number of human resources assigned for waste management was 118 per metropolitan city, followed by 59 and 12 in the sub-metropolitan cities and municipalities, respectively. The survey revealed very limited technical human resources in the municipalities. The survey revealed three broad categories of wastes generated from the municipalities. These were: organic waste, inorganic waste and other waste.

18. Ministry of Irrigation

The mandate of the Ministry of Irrigation is formulation, implementation, monitoring and evaluation of policy, plan and programmes relating to development, protection, management, control and utilization of irrigation sector. It is also involved in flood and stream/river control. It also conducts study, research, survey and implementation of activities relating to water resources.

19. Department of Water Induced Disaster Prevention

The Department works in the area of minimizing human casualties and damages of infrastructures due to water induced disasters by the appropriate management and conservation of rivers and river basins of Nepal. It is also involved in emergency works, point control works, and long-term mitigation works through the preparation of master plans that are implemented against the water-induced disasters such as floods, landslides & debris flows under this activity.

20. International organization involved in environment sector in Nepal

Environment has become a global issue. Environmental auditors must be abreast with international bodies dealing with environment also. Some of these are as follows:

ii. United Nation and specialized agencies

The United Nations is an international organization founded in 1945 (2002). The UN Family are also concerned with matters relating to sustainable development, delivering humanitarian aid etc. Some of the bodies/ agencies in the UN Family are as follows:

1. United Nations Development Programme (UNDP)

UNDP is a global organization that focuses on sustainable development, democratic governance and peace building and climate and disaster resilience. It is also actively involved in Nepal.

2. United Nations Environment Programme

The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.

UNEP has 7 cross cutting thematic priorities

- ▶ Climate Change
- ▶ Disaster and Conflicts
- ▶ Ecosystem Management
- ▶ Environmental Governance

-
- ▶ Chemical and Wastes
 - ▶ Resource Efficiency
 - ▶ Environment Under Review

3. United Nations Human Settlements Programme

UN-Habitat is a United Nations agency working towards a better urban future. Its mission is to promote socially and environmentally sustainable human settlements development and the achievement of adequate shelter for all.

iii. The other UN bodies.

1. High-level Political Forum on Sustainable Development

The High-Level Political Forum on Sustainable Development was established to follow-up the outcome of the 2012 UN Conference on Sustainable Development (Rio+20) as a subsidiary of the Economic and Social Council and General Assembly

2. Commission on Sustainable Development (CSD)

The Commission on Sustainable Development (CSD) is a subsidiary of ECOSOC with responsibility for environmental questions

3. Intergovernmental Panel on Climate Change (IPCC)

The Intergovernmental Panel on Climate Change is a specialized expert body to review scientific research and report to policy makers.

4. UN Forum on Forests (UNFF)

UNFF was established to promote the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end.

iv. World Bank Group

The World Bank Group consists of five affiliates working in poverty reduction through an inclusive and sustainable globalization. The World Bank Group agencies are as follows:

- ▶ International Bank for Reconstruction and Development
- ▶ International Finance Corporation
- ▶ International Development
- ▶ International Centre for Settlement of Investment
- ▶ Multilateral Investment Guarantee Agency

v. Food and Agriculture Organization (FAO)

The main effort of FAO is food security for all. This is to be achieved through the goals of: the eradication of hunger, food insecurity and malnutrition; the elimination of poverty and the driving forward of economic and social progress for all; and, the sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations.

vi. World Meteorological Organization (WMO)

WMO is a UN agency and is its authoritative voice for meteorology (weather and climate), operational hydrology and related geophysical sciences.

vii. United Nations Industrial Development Organization (UNIDO)

The primary objective of UNIDO is the promotion and acceleration of industrial development in developing countries. One of the thematic areas of UNIDO is energy and environment.

viii. United Nations Office for Disaster Reduction (UNISDR)

UNISDR serves as the focal point in the United Nations system for the coordination of disaster reduction and to ensure synergies among the disaster reduction activities of the United Nations system and regional organizations and activities in socio-economic and humanitarian fields.

ix. United Nations Commission on Sustainable Development

The United Nations Commission on Sustainable Development (CSD) was established by the UN General Assembly in December 1992 (2049) to ensure effective follow-up of United Nations Conference on Environment and Development (UNCED). Its role is to elaborate policy guidance and options for future activities, to achieve sustainable development and to promote dialogue and build partnerships for sustainable development with governments.

x. Worldwide Fund for Nature (WWF)

WWF is an international agency working in the field of conservation of wildlife. It organizes its work around six key areas: forests, marine, freshwater, wildlife, food and climate.

xi. International Union for Conservation of Nature (IUCN)

IUCN's work focuses on valuing and conserving nature, ensuring effective and equitable governance of its use, and deploying nature-based solutions to global challenges in climate, food and development. Conserving biodiversity is central to the mission of IUCN.

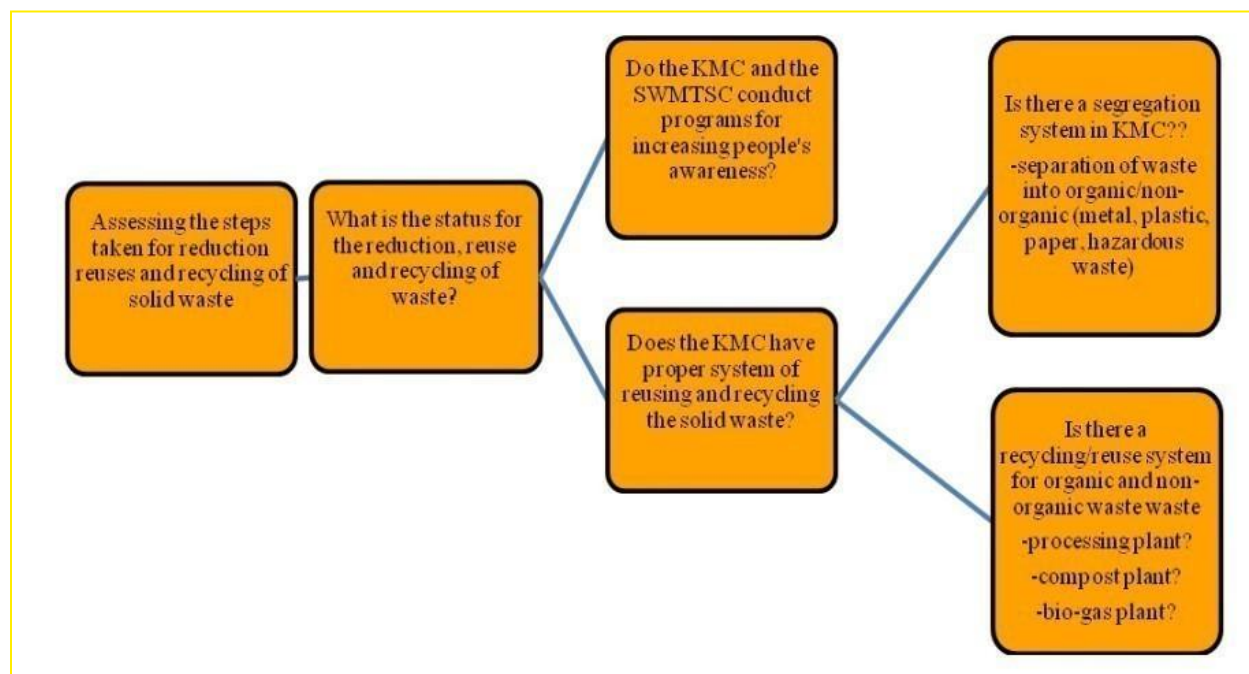
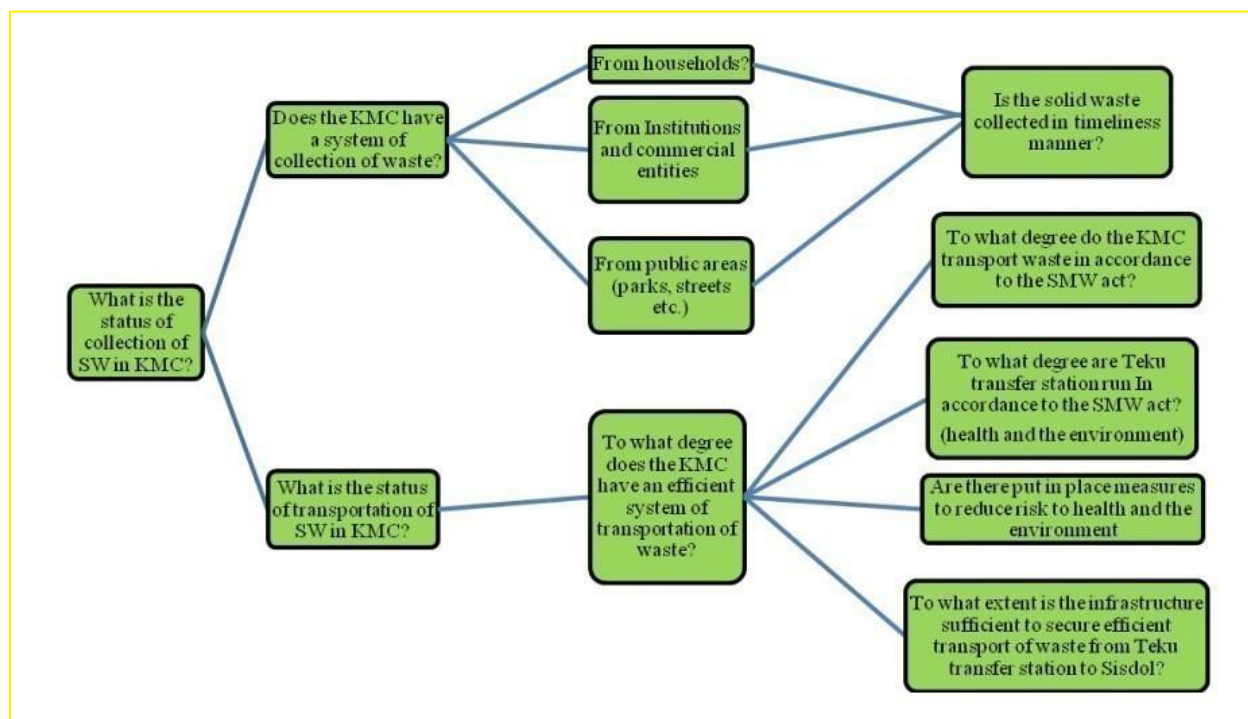
Annexure 2: Question Tree

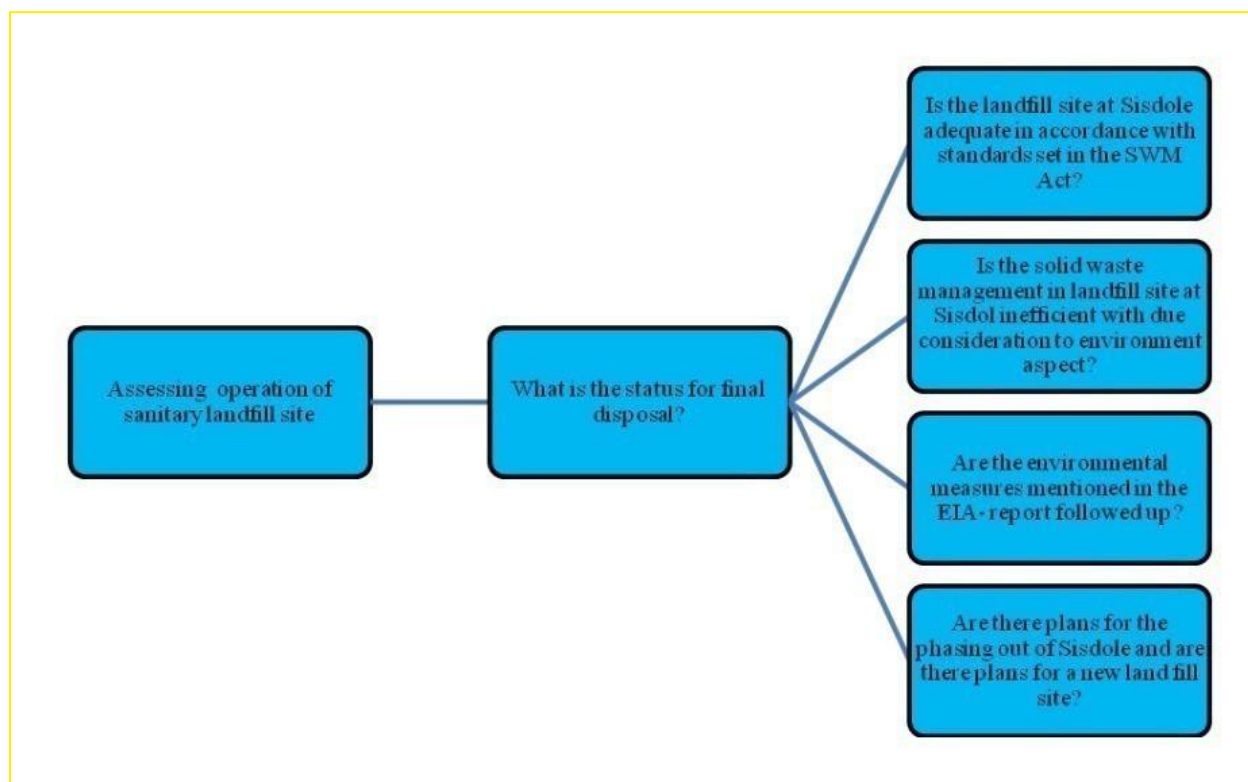
Question tree related to audit by OAGN to assess the efficiency and effectiveness of SWM works carried out by KMC and SWMTSC

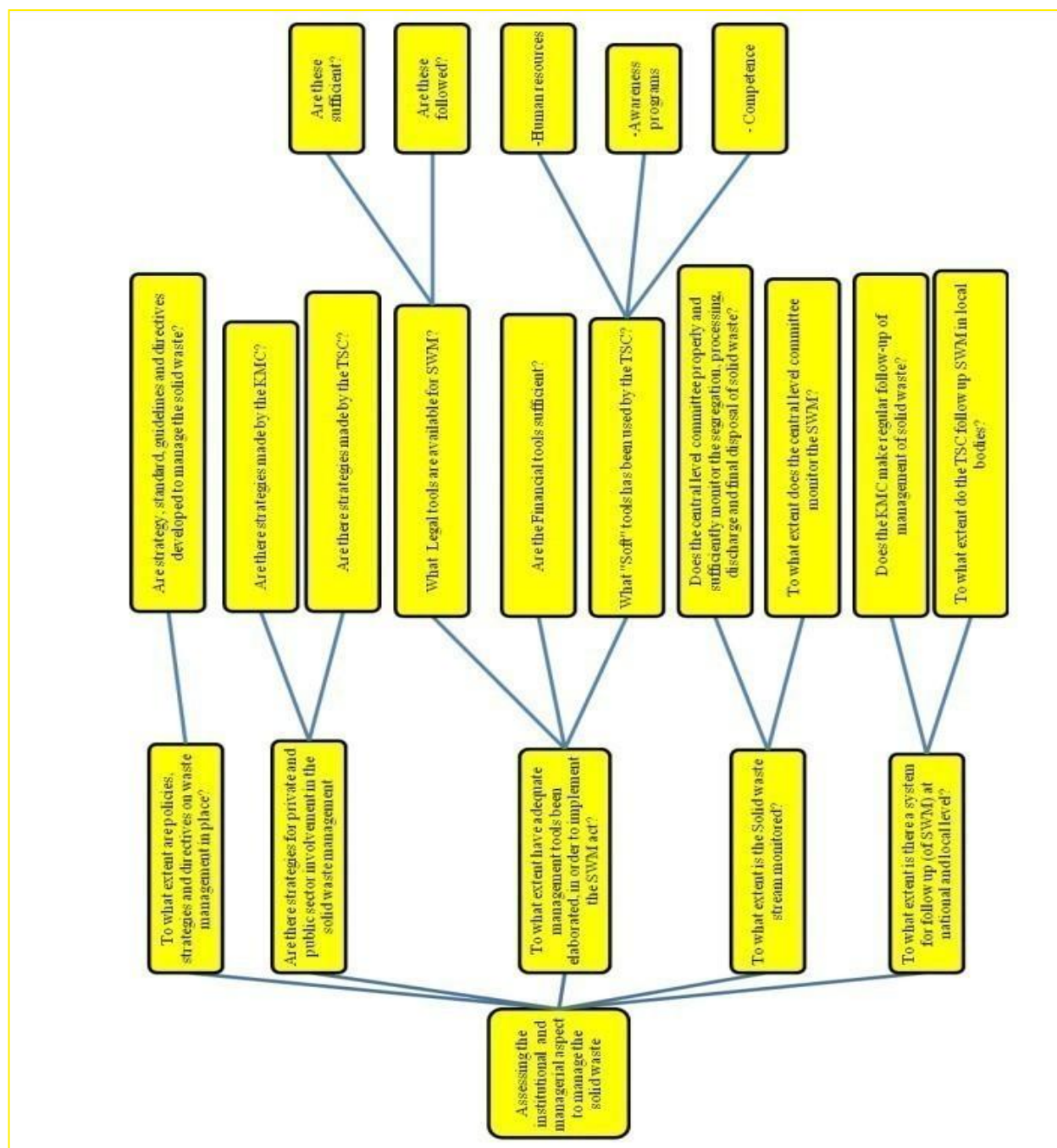
Water Supply and Sanitation Sector Target Indicators and Achievements of Nepal:

| Water Supply and Sanitation Sector Target Indicators and Achievements | | | | | | Long-term Vision 2042 | |
|---|--|--|--|--|--|------------------------------------|------------------|
| | | | | | | Sustainable Development Goals 2030 | Long-term Vision |
| | | | | | | Indicators | Long-term Vision |
| | | | | | | High and Medium level Water Supply | 95% |
| | | | | | | Indicators | SDG Target |
| | | | | | | Basic level Water Supply | 100% |
| | | | | | | High and Medium level Water Supply | 90% |
| | | | | | | Basic level Sanitation Service | 100% |
| | | | | | | Sewerage System with Treatment | 50% |
| | | | | | | Indicators | Target |
| | | | | | | Basic level Water Supply | 99% |
| | | | | | | High and Medium level Water Supply | 40% |
| | | | | | | Basic level Sanitation Service | 100% |
| | | | | | | Sewerage System with Treatment | 20% |
| | | | | | | Indicators | Target |
| | | | | | | Basic level Water Supply | 94% |
| | | | | | | High and Medium level Water Supply | 32% |
| | | | | | | Basic level Sanitation Service | 100% |
| | | | | | | Sewerage System with Treatment | 3% |
| | | | | | | Indicators | Target |
| | | | | | | Basic level Water Supply | 91% |
| | | | | | | High and Medium level Water Supply | 23% |
| | | | | | | Basic level Sanitation Service | 100% |
| | | | | | | Sewerage System with Treatment | 2.1% |

Source: http://wepa-db.net/pdf/meeting/20210301/09_Nepal.pdf







Annexure 3: Regulatory Framework for Wastewater Management in Nepal

Regulatory Framework for Wastewater Management in Nepal:

Water and Environment Related Provisions in The Constitution of Nepal 2072 (2015):

| SN | Articles & Schedules | Provisions |
|-----|--|---|
| 1 | Article 30 (1) | Every citizen shall have the right to live in a clean and healthy environment. |
| 2 | Article (30 (2) | Victim of environmental pollution shall be entitled the right to compensation from the polluter. |
| 3 | Article 35 (4) | Every citizen shall have the right to access to basic clean drinking water and sanitation services. |
| 4 | Article 56 (2) | The exercise of Nepal's State power shall be used by Federation, States and Local units. |
| 5 | Schedule 5: List of Federal Power | |
| 5.1 | No. 11 | Policies relating to conservation and multiple uses of water resources |
| 6 | Schedule 6: List of State Power | |
| 6.1 | No. 7 | State level electricity, irrigation and water supply service, Navigation |
| 6.2 | No. 19 | Use of forests and waters and management of environment within the State |
| 7 | Schedule 7: List of Concurrent Powers of Federation and State | |
| 7.1 | No. 18 | Tourism, water supply and sanitation |
| 8 | Schedule 8: List of Local Level Power | |
| 8.2 | No. 9 | Basic health and sanitation |
| 8.3 | No. 19 | Water supply, small hydropower projects, alternative energy |
| 9 | Schedule 9: List of Concurrent Powers of Federation, State and Local Level | |
| 9.1 | No. 5 | Services such as electricity, water supply, irrigation |
| 9.2 | No. 14 | Royalty from natural resources |

Source: http://wepa-db.net/pdf/meeting/20210301/09_Nepal.pdf

Regulatory Framework for Wastewater Management in Nepal:

ii. Policy and Legislative Frameworks:

| Name | Category | Year | Purpose |
|---|-----------|------------------|--|
| Water Resources Act | Act | 1992 | The umbrella Act governing water resource management and declares the order of priority of water use. |
| Water Resources Rules | Rule | 1993 | The umbrella Rules governing water resource management, Sets out the procedure to register a Water User Association and to obtain a license. |
| Drinking Water Service Charge Rules | Rule | 1994 | Details the procedures for Tap connection and hole change and ownership of Taps and its transfer. |
| National Solid Waste Management Policy | Policy | 1996 | Waste management by Local Bodies; mobilize wastes as resources and reduce wastes at sources. |
| Drinking Water Rules | Rules | 1998 | Regulates the use of drinking water; provides for the formation of Drinking Water User Associations and sets out the procedure for registration. |
| Drinking Water Quality Standards | Standards | 2005 | Sets standards for water quality; Service Providers responsible for monitoring; Local level offices. |
| Environment Protection Act | Act | 2019 | The umbrella Act governing over all environmental protection of the country. |
| National Environment Policy 2019 | Policy | 2019 | The policy was framed to guide the implementation of environment related laws and other thematic laws, realize international commitment and enable collaboration between all concerned government agencies and non-government organizations on environmental management actions. |
| Integrated National Water Resources Policy | Policy | 2020 | The draft policy is aimed to cover all aspects of water resources development and management based on the Integrated Water Resources Management (IWRM) principle and newly restructured three tiers of government. |
| Environment Protection Rules | Rule | 2020 | This Rule is based on the new Environment Protection Act 2019 |
| Water Supply and Sanitation Act | Act | Under Parliament | This Act governs all water supply and sanitation protection of the country. |
| Integrated National Water Resources Act (Draft) | Act | Under drafting | The draft Act will be the new water resources act for the execution of new policy which covers all aspects of water resources development and management. |

Source: http://wepa-db.net/pdf/meeting/20210301/09_Nepal.pdf

Annexure 4: Audit Design Matrix

Audit objective: To access the efficiency and effectiveness of SWM works carried out by KMC and SWMTSC and provide commendations for the remedy of weaknesses find out during the course of audit.

| Researchable Question (s) (RQ) | Sub Researchable Question (s) (SRQ) | Sub questions (SsRQ) | Audit Criteria | Audit Evidence (information Required and Sources) | Audit Methodology | Limitation | What This Analysis Will Likely Allow Auditors to Say |
|-----------------------------------|---|--|--|--|---|--|--|
| What is the status of SWM in KMC? | What is the status of collection of SWM in KMC? | Does the KMC have a system of collection of waste? -from households? -from Institutions and commercial entities - from public areas (parks, streets etc.) | The local body (KMC) shall be responsible for the management of solid waste by construction and operation of infrastructure like transfer station, landfill site, processing plant, compost plant, biogas-plant and also collection of waste, final disposal and processing. (3.1) | Evidence: Types of existing collection service, Number of collection Centre, Transfer centre, landfill site and other processing plants e.g., compost plant, biogas plant etc., collection coverage and frequency. Sources: The KMC &SWMTSC. Other evidence: Field visit report Photos Interview Entry and exit meeting papers? Other published documents. | Collection of data and information, verification, comparison, analysis are the main methodologies we will apply. For that purpose, we will use interview, questionnaire and field visit as and when required. | Unavailability of core data and information is the limitation because the concerned entity may be reluctant to give such data and information. | Through the analysis of available data and information we will be able to get findings in relation to the SQ and SRQ. In this way we will also be able to give some suggestions for improvement. |



महालेखापरीक्षकको कार्यालय Office of the Auditor General

बबरमहल, काठमाडौं, नेपाल
Babar Mahal, Kathmandu, Nepal

नीति योजना तथा जनशक्ति विकास महानिर्देशनालय

पत्र संख्या २०७७/७८ च नं ०३



विषय नेपाल सरकारी लेखापरीक्षण मानको कार्यान्वयन सम्बन्धमा

नेपाल
२०१६



मिति २०७७/१४/१६

श्री सबै विभागहरु

श्री सबै महानिर्देशनालयहरु

श्री सबै निर्देशनालयहरु

महालेखापरीक्षकको कार्यालय ।

उपरोक्त सम्बन्धमा लेखापरीक्षण ऐन, २०७५ को दफा २९ ले दिएको अधिकार प्रयोग गरी महालेखापरीक्षकले गर्ने लेखापरीक्षणलाई वस्तुपरक, विश्वसनीय र भरपर्दो बनाई लेखापरीक्षणको गुणस्तर अभिवृद्धि गर्न साविकमा स्वीकृत भएका सरकारी लेखापरीक्षण मानदण्ड एवं सरकारी लेखापरीक्षण नीति मानदण्ड खारेज गरी सर्वोच्च लेखापरीक्षण संस्थाहरुको अन्तर्राष्ट्रिय संगठनले जारी गरेका अन्तर्राष्ट्रिय लेखापरीक्षण मान (INTOSAI Framework for Professional Pronouncements, IFPP) मा आधारित "नेपाल सरकारी लेखापरीक्षण मान" (Nepal Government Auditing Standards, NGAS) २०७७/१४/१६ मा स्वीकृत गरिएको छ । अतः कार्यालयबाट यस वर्षदेखि लेखापरीक्षण गर्दा तपसीलका नेपाल सरकारी लेखापरीक्षण मानको कार्यान्वयन गर्नु हुन अनुरोध छ ।

तपसील

| NGAS नम्बर | नेपाल सरकारी लेखापरीक्षणमानको नाम |
|-----------------|---|
| INTOSAI-P 1 | The Lima Declaration |
| INTOSAI-P 10 | Mexico Declaration on SAI Independence |
| INTOSAI-P 12 | The Value and Benefits of Supreme Audit Institutions- making a difference in a life of citizens |
| INTOSAI-P 20 | Principles of Transparency and Accountability |
| ISSAI 100 | Fundamental Principles of Public-Sector Auditing |
| ISSAI 130 | Code of Ethics |
| ISSAI 140 | Quality Control for SAIs |
| ISSAI 200-299 | Financial Audit Principles |
| ISSAI 300-399 | Performance Audit Principles |
| ISSAI 400-499 | Compliance Audit Principles |
| ISSAI 2000-2899 | Financial Audit Standards |
| ISSAI 3000-3899 | Performance Audit Standards |
| ISSAI 4000-4899 | Compliance Audit Standards |

जानकारीको लागि

माननीय महालेखापरीक्षकज्यू ।

भवदीय

(घनश्याम पराजुली)

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"जनहितका लागि जवाफदेहिता, पारदर्शिता र निष्ठा प्रवर्धनमा विश्वसनीय लेखापरीक्षण संस्था"
