

RESPONSE STRATEGY FOR WATER RESOURCES MANAGEMENT



Government of Nepal

Water and Energy Commission Secretariat

Singhadurbar, Kathmandu





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MESSAGE

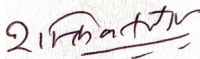
Climate-induced disasters have severely affected hydroelectricity generation, and drinking water and irrigation facilities. In the recent years, extreme weather and intense rain in a short period have increased landslides in the fragile mountains and floods in the Terai and plain areas. Greater volume of water in a short period and long dry season in a year have made the life of the climate vulnerable people painful. Massive effects of climate change on people's livelihood and water resources have been pronounced. As fossil fuel consumption has not reduced, greenhouse gas emission in the atmosphere will continue to increase. This will significantly accelerate climate-induced disasters in Nepal. Water-induced disasters have adversely affected our water resources and development infrastructure. This will continue to adversely impact water using sectors such as for drinking, irrigation, energy, industry, water transport and tourism promotion.



To make water resources management inclusive, environment and climate-friendly, this strategy has been developed through the active participation of multi-stakeholders working on water and climate change. Stakeholders identified several barriers that impede progress in making water resources management inclusive and climate-friendly, and policy implementation, institutional coordination, and data & capacity building were prioritised as key barriers. Multi-stakeholders also identified and prioritised the root causes of each barrier along with actions to address the root causes. I do expect that effective implementation of this strategy would greatly contribute to make water policies, plans, and programmes 'climate-smart' and climate policy

'water-inclusive' and make the water resources development and its sustainable utilisation climate-friendly. Similarly, I expect for continued support of all water stakeholders during the strategy implementation as received in formulating this strategy. Climate-friendly use of water resources would provide clean energy which will expand low carbon emission development process. I do expect that use of clean energy would also significantly reduce consumption of fossil fuel and emissions from drinking water, irrigation and other water using sectors. It will contribute to realise our national needs and international commitments of net-zero emission by 2045. Furthermore, I do expect the adoption of low carbon emission development pathway to help to attaining the sustainable development goals. Implementation of action plan of this strategy would greatly support to build capacity and make the development climate adaptive and resilient. The Government of Nepal expects for active support, involvement, cooperation, and participation of all water communities in implementing this strategy.

I would like to thank the senior government officials for their leadership and coordination during the formulation of this strategy, and appreciate experts, officials, and representatives of the local government, water users, and non-governmental associations, academia and development partners for the support, and utilising knowledge and experience in drafting the strategy.



Shakti Bahadur Basnet

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26 March 2024



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FOREWORD

Climate-induced disaster has accelerated adverse effects on water resources and has added challenges to attain the Sustainable Development Goal 6 - ensure access to water and sanitation for all. To promote inclusive and climate-resilient water resources management in some low and middle-income countries and address increasing challenges of water-induced disasters through water and climate policies and plans, the Global Water Partnership (GWP)



Organisation in collaboration with the UNICEF jointly developed a Global Water Leadership (GWL) Programme with support of the Government of the United Kingdom, and this GWL is under implementation including in Nepal from the last two years. This GWL addresses challenges to make the socio-economic development such as drinking water, sanitation, agriculture production and food security, and clean energy security along with water transport, tourism and industry sectors inclusive, environment and climate friendly through climate-resilient water resources management.

Nepal's greenhouse gas emission is insignificant, but loss and damage of water infrastructure is at dangerous level from climate-induced disasters. Reviewing the existing challenges and mitigation measures, this strategy has been developed for sustainable use of water keeping water resources, drinking water and sanitation at the centre. Developed with the active participation of governmental and non-governmental organisations, water users, academia and development partners engaged in developing, conserving and sustainably utilising water resources and in implementing climate change activities, this strategy is expected to make the water policies and plans 'climate-resilient', and climate policies and plans 'water-inclusive'.

This strategy adopts the integrated water resources management and river basin approaches and has a vision of attaining economic and ecological prosperity through sustainable management and utilisation of water resources.

I do expect that this strategy will contribute to implement water resources policy along with the climate-friendly water resources utilisation programmes as prioritised by the government at all three levels. This will also contribute to generate and institutionalise data and capacity building activities for future policies and plans. Furthermore, I do expect that implementation of this strategy through coordinated efforts would contribute to meeting Nepal's international commitment of net-zero greenhouse gas emission, advancing climate vulnerable people adaptive and resilient, and promoting inclusive and climate-friendly water resources development. I believe climate change negotiation as emphasised in the strategy would help in accessing additional technical and financial resources.

This strategy will positively contribute towards increasing climate adaptive and resilient capacity of the vulnerable people through climate-friendly water resources management and utilisation. I do appreciate the active participation, facilitation, collaboration, and coordination of relevant institutions, private sector, non-governmental organisations, water users, academia and development partners during the formulation of this strategy and expect for their continued support, including of the three-tiers of the government for the effective implementation of this strategy.

I would like to express my sincere appreciation to the former secretaries, joint-secretaries and other officials for their facilitation and coordination during the formulation of this strategy. I would like to take this opportunity to appreciate Dr. Kapil Gnawali, Senior Divisional Hydrologist of this Secretariat for facilitating the implementation of the GWL Programme, as a focal person, right from the beginning to the completion of this strategy. Furthermore, I would like to thank the working group coordinators and members for their hard work in formulating the strategy and reviewers for their inputs to refine the strategy.

At this point of time, let me appreciate and thank FCDO of the United Kingdom for financial assistance, and Global Water Partnership (GWP) Organisation, GWP Nepal/Jalsrot Vikas Sanstha and UNICEF Nepal, including all engaged in this process for their support in preparing this strategy.



Ms. Sarita Dawadi

Secretary

26 March 2024

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ABBREVIATIONS

AEPC	Alternative Energy Promotion Centre
AF	Adaptation Fund
AGWA	Alliance for Global Water Adaptation
BCM	Billion Cubic Metre
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CoP	Conference of the Parties
DHM	Department of Hydrology and Meteorology
DoWRI	Department of Water Resources and Irrigation
DoWSSM	Department of Water Supply and Sewerage Management
DP	Development Partners
EPF	Environment Protection Fund
ESRM	Environmental and Social Risk Management
ESDD	Environmental and Social Due Diligence
FCDO	Foreign, Commonwealth and Development Office, United Kingdom
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GESI	Gender Equality and Social Inclusion
GHGs	Greenhouse Gases
GIS	Geographical Information System
GLOF	Glacier Lake Outburst Flood
GoN	Government of Nepal

GWL	Global Water Leadership
GWP	Global Water Partnership
HKH	Hindu-Kush Himalaya
HLPF	High-Level Political Forum
HMED	Hydrology, Meteorology and Environment Division
ICIMOD	International Centre for Integrated Mountain Development
IMCCCC	Inter-Ministerial Climate Change Coordination Committee
INGO	International Non-Governmental Organisation
IPPAN	Independent Power Producers' Association, Nepal
IWRM	Integrated Water Resources Management
JVS	Jalsrot Vikas Sanstha
KPI	Key Performance Indicator
LDC	Least Developed Country
LDTA	Local Development Training Academy
LISA	Local Institutional Self-Assessment
LMICs	Low- and Medium-Income Countries
MDAC	Ministerial Development Action Committee
MIS	Management Information System
MoCIT	Ministry of Communication and Information Technology
MoEWRI	Ministry of Energy, Water Resources and Irrigation
MoF	Ministry of Finance
MoFA	Ministry of Foreign Affairs
MoFAGA	Ministry of Federal Affairs and General Administration
MoFE	Ministry of Forests and Environment
MoHA	Ministry of Home Affairs
MoHP	Ministry of Health and Population
MoLJPA	Ministry of Law, Justice and Parliamentary Affairs
MoPIT	Ministry of Physical Infrastructure and Transport
MoU	Memorandum of Understanding
MoWS	Ministry of Water Supply
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NARC	National Agriculture Research Council

NAST	Nepal Academy of Science and Technology
NCCSP	Nepal Climate Change Support Programme
NDAC	National Development Action Committee
NDC	Nationally Determined Contribution
NDP	National Data Profile
NEA	Nepal Electricity Authority
NGO	Non-governmental Organisation
NNRFC	National Natural Resources and Fiscal Commission
NPC	National Planning Commission
NSO	National Statistics Office
NWRCC	National Water Resources Coordination Committee
NWSSTC	National Water Supply and Sanitation Training Centre
ODF	Open Defecation Free
PDC	Policy Dialogue Centre
PRI	Policy Research Institute
PSC	Public Service Commission
RBO	River Basin Office
SCCF	Special Climate Change Fund
SDG	Sustainable Development Goal
SEP	Stakeholders Engagement Plan
SOP	Standard Operating Procedure
SWA	Sanitation and Water for All
ToR	Terms of Reference
ToT	Training of Trainers
TWG	Technical Working Group
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
US	Under-Secretary
VRA	Vulnerability and Risk Assessment
WASH	Water, Sanitation and Hygiene
WEC	Water and Energy Commission
WECS	Water and Energy Commission Secretariat

WG	Working Group
WHO	World Health Organisation
WRD	Water Resources Division
WRM	Water Resources Management
WRRDC	Water Resources Research and Development Centre
WRS	Water Resources Strategy
WUA	Water User's Association

EXECUTIVE SUMMARY

Climate-induced disasters will continue to affect water resources and WASH services and will challenge to attain water-related SDGs. Review on progress of SDG6 (sustainable management of water and sanitation for all) urged to take urgent actions on water resources management and WASH services. This encouraged the Global Water Partnership (GWP) Organisation to develop a Global Water Leadership (GWL) Programme in collaboration with the UNICEF and accessed funding from UK's Foreign, Commonwealth and Development Office to support ten countries of Asia and Africa, including Nepal to accelerate climate resilient systematic change by implementing inclusive, climate resilient water policies and strategies.

The GWL Programme will deliver three outputs: (i) strengthen leadership and collaboration in water resources and WASH governance; (ii) analyse data to inform the development of inclusive and resilient policies; and (iii) identify bottlenecks and resource constraints to stimulate government-led collaborative actions. Outcomes of this Programme are: (i) low and medium-income countries (LMICs) implement inclusive and resilient policies and strategies for water management and WASH services; and (ii) more low-income and vulnerable people on LMICs use resilient, safely managed water resources and WASH services.

GWP Nepal, hosted by the Jalsrot Vikas Sanstha, supported the Government of Nepal to achieve the strategic outputs of this Programme on water resources component, and UNICEF supported to implement the WASH-related activities.

The Water and Energy Commission Secretariat (WECS) led this GWL Programme, and the Ministry of Water Supply (MoWS) focused on WASH

services. WECS has constituted a Programme Coordination Committee in March 2022 under the chair of the Secretary of WECS for policy guidance, supervision and coordination to this Programme.

Climate change and extreme weather events have severely affected water resources and WASH services in recent years. Floods, landslides, and droughts are more frequent and intense. The climate-induced and water-related disasters have claimed lives, properties and washed away and damaged several water and road infrastructures, bridges, and buildings. Rise in atmospheric temperature has also accelerated snow melting, formed new glacial lakes, and increased size of existing glacier lakes, posing additional threats of glacier lake outburst floods.

Studies have confirmed that Himalaya will experience hotter by at least 0.3°C to 0.7°C more than other places. If temperature limit is maintained at 1.5°C as per the Paris Agreement, 36 percent of glaciers in the Himalaya will melt by the end of this 21st century. A recent study of ICIMOD predicted glacier mass loss by 65 percent, and overall water availability is expected to decrease by the end of this century. The study calls for more climate actions to address multi-hazards through adaptation strategies and to prepare for an increased dependence on meltwater.

The National Adaptation Plan (NAP, 2021-2050) has mentioned electricity generation decline by 6.9% in 2020/21 than previous year due to reduction in rainfall that affected river discharge. In early August 2023, Nepal's largest hydropower project, the 456 MW Upper Tamakoshi Hydroelectric Project, faced a significant setback in electricity generation due to low water flow and extreme weather condition. The dry season from April to June was notably worse and the project could not supply 50 percent of the contracted energy. The 2021 Vulnerability and Risk Assessment (VRA) study of disaster risk reduction and management, water resources and energy, and WASH sector also provide alarming signals on adverse impacts of climate change on water resources and WASH and increase in water-induced disasters. This alarms to reconsider change in climate system, vulnerabilities and risks, and its ultimate adverse impacts in hydroelectricity generation, irrigation facilities, and drinking water sources.

Review of existing constitutional and legal provisions, and water and climate change policies and plans offer windows to make inclusive and climate-resilient

water resources and WASH services. Results of the application of Water Tracker informs water as a risk, and non-recognition of the role of water in meeting mitigation targets and adaptation goals in climate and water policies and plans. It urges the need for making water policies 'climate-smart' and climate policies 'water-inclusive'.

GWL outcomes based on identified and prioritised key barriers, root causes and solutions, including a finance plan to implement the priority actions offer transformational changes in water resources management and WASH services. The response strategy, developed under the GWL Programme, is expected to contribute for 'water-smart' climate policy, and 'climate-smart' water policy to address the challenges specified above.

The objective of the response strategy is to promote the development of climate resilient and inclusive water resources and WASH policies and plans, and to address climate risks and opportunities on water resources through climate change policies and plans by minimising prioritised barriers and root causes. This strategy has been developed through a multistakeholder consultative process by forming three Working Groups (WGs), one for each of the prioritised barriers - policy implementation, institutional coordination, and data and capacity building. Each WG identified and prioritised the root causes, activities and sub-activities (Table 1). Hence, a total of 7, 12 and 10 actions are prioritised for policy implementation, institutional coordination, and data & capacity building respectively with corresponding 22, 33 and 24 sub-activities. A total of 29 actions and 79 sub-activities have been prioritised (Table 1). The strategy along with barriers, root causes and actions were also presented in the stakeholder consultative workshop organised by WECS in seven provinces in September 2023 to collect inputs on the elements of the river basin master plans. The draft strategy was reviewed by the policy makers and water experts. The strategy was thoroughly discussed at the meeting of the Programme Coordination Committee and validation workshop.

Table 1: Barriers, Root Causes and Primary Activities

Barriers	Root Causes	Primary Activities	Sub-Activities	
Policy implementation	Inadequate political commitment	P1.1: Raise awareness at political level about climate T, IWRM and WASH services	2	
		P1.2: Promote evidence-based water-related planning	3	
	Incoherent approach for policy formulation	P2.1: Align policy with the constitution and international commitment and avoid individualistic approach of policy formulation	3	
		P2.2: Promote multi-stakeholder consultative process in formulating coherent policies	5	
		P2.3: Conduct policy audit and impact evaluation	2	
	Inadequate capacity for policy implementation	P3.1: Ensure policy implementation by enhancing capacity and developing a mechanism for coordination, monitoring, auditing, and reporting	4	
		P3.2: Develop policy coherent laws	3	
	Sub-total	Activities - 7	22	
Institutional Coordination	Unclear and overlapping roles & responsibilities	I1.1: Clarify roles and responsibilities of three-tiers of the government	2	
		I1.2: Avoid cantilever institutions with overlapping roles and responsibilities	2	
	Inadequate Institutional Capacity	I2.1: Assess and prioritise capacity development needs of the institutions	5	
		I2.2: Develop Guideline for WRM (including WASH) at all levels of government	2	
		I2.3: Establish and/or strengthen material testing, water and wastewater laboratory and training centre at federal and province levels	3	
		I2.4: Comply with transfer norms to ensure employee's stability	2	
	Lack of IWRM and River Basin consideration in planning and implementation	I3.1: Adopt IWRM and River Basin approaches as a functional planning tool	4	
	Lack of water resources utilisation tariff, river basin and climate change-related institutions	I4.1: Establish a regulatory mechanism for water utilisation tariff	2	
		I4.2: Reform WECS structure with clear mandate	2	
		I4.3: Establish River Basin offices for major rivers	2	
		I4.4: Establish Climate Change Section in MoEWRI	3	
		I4.5: Involve WECS, MoEWRI and other water institutions in water and climate negotiation process	4	
		Sub-total	Activities - 12	33

Data and capacity building	Data Generation, Management, Sharing and Use		
	Lack of mandate and policy clarity on data generation, validation and sharing	D1.1: Formulate a policy on data collection and management	2
		D1.2: Mandate WECS as central data management institution on water resources	5
		D1.3: Develop a National Data Profile	2
	Limited budget and motivation for data generation and management	D2.1: Ensure necessary budget allocation	1
		D2.2: Develop, train and utilise human resources	2
	Limited coordination amongst different institutions	D3.1: Develop data sharing guidelines	3
	Inadequate human resources & institutional memory	D4.1: Prepare capacity building plan	1
		D4.2: Use Standard Operating Procedure for knowledge management and utilisation	1
	Limited need-based and output-based training	C1.1: Prepare and implement targeted capacity development plan	4
Limited fund/ resources	C2.1: Access & promote partnership for fund generation	3	
Sub-total	Activities - 10	24	
Total	Activities - 29	79	

The strategy includes vision, goal, guiding principles, expected outcomes and strategies on policy implementation, institutional coordination, and data and capacity building (see page ix). Financing and estimated budget is included to implement the strategy and action plan.

A total of US\$ 52.884 million (or NRs 6 Arba and 98 Crores) has been estimated to implement activities and sub-activities prioritised to address three barriers mentioned above and promote inclusive and climate resilient water resources management and WASH services. About 88.5 percent of the total estimated budget should be spent to implement important activities under the institutional coordination. The funding should be borne from domestic resources and development partners. The 'on-budget, on-treasury' fund flow mechanism will be promoted, to the extent possible, for strategy implementation.

Under the implementation arrangement, the strategy has specified the role of the government, existing inter-agency committees, public

participation & private sector, and NGO federations. A National Water Resources Coordination Committee will be established under the chair of the Secretary of WECS with representation from water-related institutions, associations of local governments and NGOs and private sector. The Water Resources Division (WRD) of WECS will function as its secretariat, and will generate, package and repackage knowledge from strategy implementation and share it using appropriate channels. Activities and sub-activities are also proposed for capacity building barrier. Existing training facilities for human resources development have been outlined. Finance being the critical part of the strategy implementation is expected from domestic sources, foreign investments, bilateral and multilateral sources, and through access to climate finance such as LDC Fund, SCCF, AF and GCF. Taking note of increase in climate-induced disasters in recent years, Loss and Damage Fund, established in 2022 and operationalised in 2023, would be an appropriate window to access funding for addressing climate-induced disasters, including sediment disasters.

A response strategy monitoring framework outlines indicators, means of verification, frequency and key assumptions to monitor the goal and outcomes. Evaluation will generate knowledge and learning.

WECS will ensure overall coordination and provide a policy guidance. A reporting mechanism obliges local and provincial levels and water using organisations, including ministries to send updated information to the National Water Resources Coordination Committee through WRD which will later prepare a consolidated report and submit to the Water and Energy Commission, and inform to the National Council on Environment Protection and Climate Change Management, and National Planning Commission Secretariat.

Response Strategy on Policy Implementation, Institutional Coordination and Data & Capacity Building

Vision: Economical and ecological prosperity of the country through sustainable management and utilisation of water resources

Goal: Water resource is sustainably managed and utilised through IWRM and river basin approaches and strategies for policy implementation, institutional coordination and data and capacity building

Guiding Principles: Adopting IWRM and river basin approaches; promoting multipurpose use of water resources by minimising climate change vulnerability and risks; devising water resources tariffs; enhancing private sector and WUA's participation; strengthening role of government in informing, guiding and regulating WRM; mainstreaming GESI in relevant policies & guidelines; strengthening government leadership, and ownership of all stakeholders by enhancing capacity of multistakeholder, and climate-smart water policies, and water-inclusive climate policies.

Expected Outcomes: WRM and WASH services are inclusive, gender-responsive and climate resilient; multiple and optimum use of water resources recognised, and water accounting, allocation and auditing are institutionalised; climate vulnerabilities and risks are reduced, and water infrastructures are adaptive & climate resilient; data generation, storage and sharing are institutionalised & utilised; innovative and sustainable financing mechanisms developed, and funding sources accessed & mobilised, & country capacity is built.

Strategies for Policy Implementation

- 1.1 Promotion of policy advocacy & dialogue among politicians and stakeholders on climate resilient IWRM & WASH services
- 1.2 Development of policy coherent laws
- 1.3 Promotion of partnership with research institutions, academia and civil society for evidence-based IWRM planning with basin-wise approach
- 1.4 Promotion of multistakeholder consultative process in formulating policies coherent with the constitutional provisions, and international commitments and obligations
- 1.5 Conduction of policy audit and impact evaluation for research-based policy formulation and alignment of policies with national needs
- 1.6 Enhancement of capacity and development of coordination, monitoring, auditing and reporting mechanisms for policy implementation

Strategies for Institutional Coordination

- 2.1 Clarifying roles and responsibilities of three tiers of government with coordination mechanism
- 2.2 Assessment of institutional needs for human resources at national and provincial levels
- 2.3 Compliance with transfer norms for employees stability and consistency of their performance
- 2.4 Curtailment of cantilever institutions with overlapping roles and responsibilities
- 2.5 Development of guidelines and manuals for water resources managements at 3 tiers of government
- 2.6 Establishment of material testing laboratory, including for water and wastewater analysis
- 2.7 Adoption of IWRM and basin-wise planning as a functional planning tool for climate resilient and sustainable WRM and WASH services
- 2.8 Reforming WECS's structure, and establishment of River Basin Offices, Water Resources utilisation tariff and Climate Change-related institutions
- 2.9 Involvement of MoEWRI and other water institutions and experts in water and climate change negotiation

Strategies for Data and Capacity Building

- 3.1 Formulation of a policy on data generation, management, sharing and utilisation
- 3.2 Mandate WECS as a central data management body on water resources
- 3.3 Development of a National Data Profile (NDF) by ensuring budget and human resources
- 3.4 Development of a guideline, standard operating procedure & manual for data acquisition, sharing, and knowledge management
- 3.5 Preparation & implementation of capacity building plan for data generation, management and documentation of institutional memories.
- 3.6 Assessment and partnership promotion for human resource development through generation and utilisation of funds
- 3.7 Development of a mechanism for informing data users & relevant stakeholders on availability of data and information



INTRODUCTION

1.1 Background

Climate change has severely affected water resources and water, sanitation and hygiene (WASH) services and will continue to affect them. This will challenge to attain Sustainable Development Goal (SDG)-6 (ensure availability and sustainable management of water and sanitation for all), goal 7 (ensure access to affordable, reliable, sustainable, and modern energy for all—mainly hydroelectricity component). Review on progress of SDG 6 by the High-Level Political Forum (HLPF) urged to take urgent actions on water resources management (WRM) and WASH services.

Political leadership determines the country priorities, explores opportunities, generates and allocates resources to implement activities of local and national interests. It provides guidance to comply with the national and international commitments. To help countries 'build back better' from COVID-19 and support to develop leadership and country capacity, the Global Water Partnership (GWP¹) developed a Global Water Leadership (GWL) Programme to contribute to establish effective, evidence-based policies and strategies, further understand interdependence between water, climate, people and nature, and develop effective financial planning on challenges and opportunities to finance transformation on WRM.

GWP accessed funding from UK's Foreign, Commonwealth and Development Office (FCDO) to implement GWL Programme in seven low and medium-income countries², including Nepal to accelerate climate

1 GWP is a multi-stakeholder action network dedicated to working with countries towards equitable, sustainable, and efficient management of water resources. It comprises of 3,000+ partner organisations in over 180 countries. It has network of 65+ Country Water Partnerships (CWPs) and 13 Regional Water Partnerships (RWPs). It supports to government and non-government actors on water resources management and other sectors.

2 Seven countries are Central African Republic, Malawi, Nepal, Rwanda, State of Palestine, Tanzania, and Uganda. Under this Programme, additional three countries (Madagascar, Chad, and Bangladesh) are supported by the UNICEF to implement WASH services.

resilient systematic change by implementing inclusive, climate-resilient water policies and strategies. The GWL Programme is being implemented through a strategic collaboration between GWP, UNICEF, Sanitation and Water for All (SWA), UNICEF/WHO Joint Monitoring Programme for Water Supply and Sanitation (JMP) and WHO. The Programme was started in May 2021 and ends in March 2024. The Programme will demonstrate socio-economic transformations by making climate resilient and gender transformative water management and WASH services - a political priority. This is an intentional collaboration between water resources and WASH communities to co-identify the impacts of climate change on these sectors and provide comprehensive support to governments to implement impactful and inclusive climate-resilient water policies and strategies as solutions for a changing climate.

The Programme will deliver three outputs: (i) strengthen leadership and collaboration in water resources and WASH governance; (ii) analyse data to inform the development of inclusive and resilient policies; and (iii) identify bottlenecks and resource constraints to stimulate government-led collaborative actions. Two outcomes expected from this Programme are: (i) low and medium-income countries (LMICs) implement inclusive and resilient policies and strategies for water management and WASH services (short-term outcomes); and (ii) more low-income and vulnerable people in LMICs use resilient, safely managed water resources and WASH services (long-term outcomes). This Programme will contribute to improve resilience, health and well-being for low-income and vulnerable people in LMICs (long-term impact).

GWP through the GWP Nepal, hosted by the Jalsrot Vikas Sanstha (JVS³), supports the Government of Nepal (GoN) to achieve the strategic outputs of the Programme on water resources component. The GWP Nepal/JVS promotes to strengthen leadership and collaboration in IWRM and WASH governance at the national, regional, and global level; and supports for inclusive and participatory government-led multi-stakeholder change process to identify bottlenecks in WRM and define strategies to overcome

³ JVS is a Nepali non-governmental organisation registered under the Associations Registration Act (1977) and is dedicated to support the government on water resources management from the last 23 years.

them, including integrated financial policy planning aligned with potential resourcing. GWL will contribute to climate-smart water management, build capacity for accessing climate finance, and also build overall leadership and stewardship in water resources sector. The UNICEF supports the government to implement the WASH related activities.

The Water and Energy Commission Secretariat (WECS) leads this GWL Programme, and the Ministry of Water Supply (MoWS) focuses on WASH component of this Programme. The GWP Nepal/JVS supports on WRM, and UNICEF on WASH activities. WECS constituted a 17-member Programme Coordination Committee in March 2022 under the chair of the Secretary of WECS for policy guidance, supervision, and coordination to ensure effective implementation of this GWL Programme (Annex 1).

1.2 Water Resources and WASH Services in Nepal

Nepal - a land-linked, least developed, and mountainous country - has over 6000 rivers and rivulets which flow from the north to the southern part of the country and extend to India. Four major rivers - Koshi, Gandaki, Karnali and Mahakali - originate in the Himalayas, including the Tibet Autonomous Region of China. Several rivers originate in the Mahabharat and Siwaliks region. Studies inform that 225 billion cubic metres (BCM) of water is available annually in Nepal, and only 15 BCM or nearly 7 percent has been utilized for economic and social purposes. Small and medium rivers are utilised for drinking, while medium and large rivers are utilised for irrigation, and hydropower generation. Water use for industries, tourism or other purposes is yet to be documented.

Extreme weather events are becoming more frequent and intense. Nepal experiences 'too much' water during monsoon and 'too little' water during the dry season. Landslides are common in high and middle mountains and flood claims number of lives and property and increases diseases each year in the valley and plain areas. Drought has severely affected food production. Drying-up of water sources and groundwater decline has been clearly observed in the recent years. Rise in atmospheric temperature has accelerated snow melting, formed new glacial lakes, and increased size of existing glacier lakes, posing additional threats of glacier lake outburst floods (GLOFs).

Annual maximum temperature in Nepal is increasing by 0.056°C/yr (DHM, 2017). The Hindu-Kush-Himalaya (HKH) Assessment report informed that even if temperature limit is maintained at 1.5°C as per the Paris Agreement, Himalaya will get hotter by at least 0.3°C to 0.7°C higher (Wester et al, 2019). If temperature rise is maintained at 1.5°C, 36 percent of glaciers in the Himalaya will melt by the end of this 21st century. This alarming situation calls for taking urgent actions for net zero GHGs emissions and build adaptive capacity and resilience to protect people and life-forms from water- and climate-induced disasters, including sediment disasters.

The 2010 Glacier Inventory of Nepal reported 3,808 glaciers with a total area of 3,902 km², estimated ice reserves of 312 km² and an average area of 1 km² of individual glacier. About 90 percent of the glaciers lie between 4,500 m and 6,500 m altitude. The study informs that total glacier area has decreased by 24 percent between 1997 and 2010, and the estimated ice reserves by 29 percent (129 km²). However, the number of glaciers has increased by 11 percent and glaciers receded on an average by 38 km²/year (Bajracharya et al., 2014).

A recent study of ICIMOD informs with high confidence that glacier monitoring and analysis in HKH region showed glacier mass loss by 65 percent (ICIMOD, 2023). 'Peak water will reach at around the mid-century in most HKH river basins with accelerated glacier melt, and overall water availability is expected to decrease by the end of the century'. Furthermore, the study informs that water sources are important in the high mountains for livelihoods. The study confirms the impact of a changing climate on glaciers, important role of snowmelt for river run-off and decrease in water volume in future. The study calls for more efforts to address multi-hazards through adaptation strategies and to prepare for an increased dependence on meltwater.

ICIMOD has informed little or no snowfall this winter (2024) in the HKH region. This is very unusual. Low snowfall has a direct and severe impact on mountain agriculture due to reduced water availability. Snow-fed moisture content in the mountain soil increases crop production, and mountain livelihood largely depends upon snow. It has been estimated that annual snowmelt contributes on an average of nearly 23 percent of flow of

12 major river basins that originate in the HKH region. This will ultimately affect drinking water, irrigation facilities, and hydroelectricity generation and other sectors that use water.

Snowmelt (April-June) and glacier melt (June-October) will contribute substantially to river and groundwater flows and climate change will impact the hydrological cycle and overall water availability in the HKH region. Over 80 percent of suspended sediment load has flown from HKH headwaters over the past six decades (ICIMOD, 2023). Frequency and magnitude of large avalanches of rock and/or ice will increase under a warmer climate.

Decrease in water availability in rivers will reduce hydroelectricity generation, irrigation, and drinking water. The National Adaptation Plan (NAP, 2021-2050) has mentioned electricity generation decline by 6.9% in 2020/21 as compared to 2019/20 due to reduction in rainfall that affected river discharge (GoN, 2021). In early August 2023, Nepal's largest hydropower project, the 456 MW Upper Tamakoshi Hydroelectric Project, faced a significant setback in electricity generation due to low water flow and extreme weather conditions which resulted in slow snow melting. 'In comparison to previous years, the dry season from April to June was notably worse and the Project could not even supply 50 percent of the contracted energy (Gautam, 2023). It alarms to reconsider change in climate system, vulnerabilities and risks, and its ultimate adverse impacts on hydroelectricity generation.

Few studies inform decrease in river flows in dry season and insufficient water to operate run-of-the-river type hydroelectric projects in Nepal. Less power supply will increase economic loss in multiple sectors. The 2014 study estimated economic cost of climate change on hydroelectricity generation equivalent to average 0.1% of GDP/year, and up to 0.3% of GDP in extremely dry seasons (IDS-Nepal, PAC and GCAP, 2014).

Nepal considers landslides, floods, GLOFs, earthquake, fire, drought, and avalanche (rapid movement of snow and debris flowing down through the mountain slopes) as major risks. Water-induced disasters in particular the landslides in the hills and mountains, and floods in the valley floor and plain areas claim life, property, and livelihoods each year. The 2021 landslides, floods and avalanches have destroyed several water and road infrastructures, buildings

and agriculture land and have pushed Nepal's development back. Rapid degradation of watersheds, wetlands, and farmland associated with landslides and floods has reduced their productivity. Insufficient water availability and prolonged drought during winter are affecting the hydrological cycle which also results to energy and food insecurities.

The 2021 Vulnerability and Risk Assessment (VRA) study for disaster risk reduction and management documents observed impacts of climate-induced disasters (MoFE, 2021). Heavy rainfall and subsequent floods, landslides, and debris flow has greatly affected people, households and livestock, damaged substantial areas of productive agricultural land, infrastructures such as small and large irrigation projects, bridges, hydropower plants, and blocked rivers with substantial financial losses. Most affected sectors were housing, health, education building, agriculture and livestock, irrigation, transport, water and sanitation and energy.

The 2021 VRA report on water resources and energy has identified Dolpa, Humla, Gorkha, Mugu and Kailali as the most drought-prone districts based on annual rainfall. Seven districts namely Bajhang, Bajura, Dolpa, Humla, Jajarkot, Jumla and Mugu are very highly vulnerable based on extreme climate events, overall exposure, and adaptive capacity to climate change (MoFE, 2021). Additional 19 districts have been ranked highly vulnerable and 16 districts are ranked moderately vulnerable. The VRA report informs watersheds of Bagmati, Gandaki, Lumbini, Karnali and Sudur Paschim Provinces highly vulnerable to climate change. Based on climate scenario, Dolpa, Gorkha, Humla, Mahottari, Morang, Sankhuwasabha, Solukhumbhu, and Taplegung are ranked with very high risks on water resources.

The 2030 Agenda for Sustainable Development (SDG 6) provisions for clean water and sanitation for all and emphasises on IWRM. The 2015 earthquake has severely affected drinking water sources, which have shifted from one place to another due to cracks. Inadequate quality WASH services have greatly affected human health. About 97 percent of the total population had access to drinking water in 2019, but access to piped water supply was limited to 55 percent. In September 2019, Nepal was declared an Open Defecation Free (ODF) country. At the national level, 94 percent of the population receives sanitation facilities with 53 percent having septic facility.

As of 2019, 98 percent of the total population had handwashing facilities and 81 percent had handwashing facilities with water and soap (washdata.org).

The 2021 VRA report (WASH) informs impacts of climate change on quantity and quality of WASH, its infrastructures and services, women, poor and marginalised communities due to climate and water-induced diseases. Nepal faces challenges from wastewater and faecal sludge as only 2.1 percent of the waste generated in the country is being treated. The second Nationally Determined Contribution (NDC) aims to treat 380 million litres of wastewater/day and manage 60,000 m³/year of faecal sludge by 2025 (GoN, 2020).

Impacts of climate change are hindering access to sustainable, consistent, and reliable WASH services. Climate-related hazards, including droughts, floods, fires, and landslides are adversely affecting water and sanitation services by damaging infrastructures and contaminating water sources. These climate hazards exacerbate the existing challenges in service delivery. For example, droughts and heat waves reduce water availability towards the end of the dry season, while flooding and landslides disrupt WASH services during the monsoon season. These hazards have far-reaching consequences on people's livelihoods and the environment resulting in displacement, injuries, loss of life, extensive damage to infrastructures, decrease in crop yields, food insecurity, malnutrition, health risks, and the need for reconstruction, thereby increasing climate vulnerability. Consequently, achieving SDG 6 become even more challenging. Hence, increasing trend on adverse impact of climate change on water resources and WASH services calls for urgent action that contribute to develop and implement 'water-smart' climate policy and 'climate-smart' water policy.

1.3 Water Resources and Climate Change Policies and Plans

Review of existing water sector policies and plans formulated and implemented after the 2015 Constitution informs realisation of the adverse impacts of climate change on water resources and WASH services. The Water Resources Policy (2020) urges, inter alia, to manage and utilise water resources based on river basin master plan, adopt integrated water resource management (IWRM) approach, prioritise implementation of multi-purpose water resources projects, and also prioritise integrated watershed

management and climate change adaptation (MoEWRI, 2020). The policy realises the need for arrangement of appropriate institutions to conserve, develop, manage and regulate water resources, clearly defining the roles and responsibilities of three-tiers of the government, establishing research and data related offices under the WECS, and managing integrated data collection and documentation.

The Irrigation Policy (2023) calls for managing irrigation system as per the Irrigation Master Plan which adopts IWRM and river basin approaches. The policy underscores the importance of implementing multipurpose, reservoir-based, inter-basin water transfer projects and it recognises the adverse impacts of climate change in the irrigation sector. It focuses on capacity building of multi-stakeholders involved in developing, managing and sustainably utilising irrigation schemes with realisation on mitigation of adverse impacts and climate adaptation.

The National Drinking Water, Sanitation and Hygiene Policy (2023) considers the need for making WASH infrastructures climate adaptive and disaster management friendly. It has a policy to strengthen sectoral capacity by integrating climate change and risk management aspect into WASH services and by maintaining resilience. The policy has adopted strategies to conserve and develop drinking water sources, conserve watersheds for water supply, promote water reuse, and develop capacity of the Local level and communities to implement adaptation and risk reduction measures to address natural disasters and climate change impacts at national, provincial, and Local levels. The policy has a provision to establish Climate Adaptation and Disaster Management Fund to implement projects affected by climate change and disasters (MoWS, 2023). The policy has also a strategy to adopt measures to minimise losses of WASH infrastructures from climate change and natural disasters. The policy clearly mentions to mobilise domestic financial resources and increase access to bilateral, multilateral, and international financial resources for its implementation. It also mentions to review the policy after 5 years of its implementation.

The National River and Water-Induced Disaster Management Policy (2023) realises floods, landslides, soil erosion and drought as major disasters which are induced from weather extremes and climate change. The policy has a vision and a separate objective to minimise water-induced disasters,

risks, losses, and damages by conserving and managing rivers and watersheds, and by using appropriate technologies. The policy has specified a strategy to advance research and development to make the river and water-induced disaster management activities effective, environment-friendly, and climate change adaptative through the identification, development, and expansion of innovative technologies. To implement this strategy, working policies are specified, inter alia, on adaptation, technology and practices, assessment of loss and damage, environmental study, analysis of climate change risk and use of nature-based solutions and best management practices etc. to conserve watersheds and manage water-induced disasters. The policy also has a strategy to involve disaster affected stakeholders and promote GESI while implementing the disaster risk minimisation and management activities. This policy mentions its review every five year and assess its impacts, if necessary.

WECS's prepared river basin plan identifies a set of water-related interventions to benefit the people of the concerned basin. The strategic planning approach is applied to ensure the interventions implementable, cost beneficial, environmentally and socially acceptable, and time-bound. Specific objectives of the plan are to: (i) help reduce poverty, unemployment, and under-development; (ii) provide people with access to safe and adequate drinking water and sanitation for ensuring health security; (iii) increase agriculture production and productivity; (iv) generate hydropower; (v) supply needs of industries and other sectors; (vi) protect environment and conserve biodiversity; and (vii) prevent and mitigate water-induced disasters. The basin plan has set targets by aligning with the SDGs and has estimated investments for sustainable management and use of water resources.

The draft Irrigation Master Plan (2019) provisions for aligning irrigation projects with river basin planning, increasing investments on inter-basin transfer and groundwater development in the Terai, establishing Irrigation Offices at basin level and strengthening existing organisational set-up to coordinate and monitor irrigation sub-sector with IWRM approaches (DoWRI, 2019). The draft master plan recognises the importance of research to generate data for future planning, and build capacity of agency personnel, water managers and farmers, including Engineers and Water Users Association at national and sub-national levels.

The Water Resources Strategy (2002) adopts the IWRM approach, but its implementation is grossly inadequate. The National Water Plan (2005) emphasised on making the water sector projects environment-friendly, but its partial implementation could not provide better results in making water resources project environment-friendly and sustainable. Recent water resources and WASH policies have considered the adverse impacts of climate change. However, lack of due consideration on climate risk during project planning has severely affected the hydroelectricity and drinking water projects in the recent years due to water- and climate-induced disasters.

The Climate Change Policy (2019) has recognised increasing damages and challenges from climate-induced disasters thereby negatively affecting the livelihood and the national economy. It mentions lack of inter-agency coordination, and lack of studies, research and basic data for planning and mainstreaming climate change aspects into overall development process. It also mentions the dearth of institutional capacity, financial resources, technology and knowledge to address the ongoing and future challenges of climate change. The Policy has objectives, inter alia, of integrating climate change issues into policies, strategies, plans and programmes of development sectors at all levels, enhancing adaptation capacity of individuals and communities, and mainstreaming GESI into climate change mitigation and adaptation programmes, including research. On water resources and WASH sectors, it has a policy to 'ensure energy security by promoting multiple use of water resources and production of low carbon energy', and 'create a healthy living environment by reducing the adverse effects of climate-induced disasters on human health' (MoFE, 2019).

The National Policy for Disaster Risk Reduction (DRR, 2018) has a long-term vision to contribute to sustainable development by making the nation safer, climate adaptive and resilient from disaster risk. The policy has objectives, inter alia, to increase understanding on disaster risk at all levels, and integrate DRR climate change adaptation (CCA) activities in all development processes (MoHA, 2018). It has several policies, including to incorporate DRR into school curriculum, increase awareness and learning, monitor and measure natural and non-natural disasters, develop disaster risk assessment and mapping system, establish National DRR Research and

Training Institute etc. The policy mentions to prepare and implement DRR and management strategic action plan and establish coordination, monitoring, and evaluation mechanisms.

The National Forest Policy (2019) has objectives of, inter alia, conserving water and land through integrated management of watersheds, contributing to reduce carbon emission, rehabilitating degraded forests, and increasing environmental services (MoFE, 2019). The policy emphasises to, inter alia, regulating use of forest area and providing forest area to the national priority projects or projects of national pride, in case of no alternative to the forest area, as per the national law, guideline and procedure. The policy focuses on forest ownership, sustainable, participatory, and responsive management of forests, development of green enterprises, biodiversity conservation, integrated management of watersheds, development of a system for assessing environmental services, including carbon emission reduction and GESI.

In addition, the government has issued the National Adaptation Plan (NAP, 2021), second Nationally Determined Contribution (NDC, 2020), Long-term Strategy for Net-Zero Emission (2021), National Framework on Climate Change-Induced Loss and Damage (2021), SDG: Status and Roadmap (2016-2030), and GESI Strategy and Action Plan on Climate Change (2021-2030). They recognise climate change impacts on water resources and WASH sectors. The government (Council of Ministers) has approved the NDC Implementation Plan in August 2023 which provides opportunities to generate more hydroelectricity and meet NDC targets on clean energy. Nepal has necessary policies and plans to integrate climate change into sector policies and plans to develop and implement programmes to mitigate the adverse impacts of climate change, and to adapt and build resilience to climate change.

In the fall of 2022, WECS facilitated the application of Water Tracker tool in Nepal's climate change and water resources policies and plans. The Alliance for Global Water Adaptation (AGWA) prepared a country report with support from FCDO to inform the Government of Nepal on the results of the application of Water Tracker for National Climate Planning (AGWA, 2023). This study concludes that water sector policies and plans are yet to realise the need for maintaining ecosystem services, promote ecosystem-

based adaptation and nature-based solutions. Water policies and plans emphasise water use mostly for energy generation, irrigation and drinking water. The policies and plans are yet to consider water requirements and allocation for water-dependent industries, livestock, aquaculture, water for recreation and transport or wastewater treatment. Water requirements for human settlements and health sectors are also not reflected in the existing water-related policies and plans. The climate change policies and plans do not recognise the contribution of water in meeting the mitigation targets, except hydroelectricity generation.

Results of the application of Water Tracker tool informs: (i) unclear understanding on funding requirements and allocation to implement existing policies and plans; (ii) water as a risk in many policies and plans and, as a sector and resource in few policies; (iii) non-recognition of water for meeting mitigation targets and adaptation goals; (iv) need for capacity building at national and sub-national levels to implement policies and plans by promoting GESI; and (v) need for mobilising existing coordination mechanisms to expedite water resilient climate action. The reviewed policies and plans do not specify tracking financial allocations and expenditures, and/or safeguarding climate vulnerable people by accessing climate finance for WRM.

The government has issued the concept paper of the 16th Plan (2024/25-2029/30) with the vision of good governance, social justice, and prosperity (NPC, 2023). The concept paper has adopted a policy for rational mobilisation of existing natural resources for structural transformation, and emphasises for environment-friendly, sustainable, and result-oriented infrastructure development without affecting or least affecting the environment. The concept paper approaches for the conservation and sustainable management of forests, clean water and fertile land. The 16th Plan is expected to include periodical policies, strategies and programmes to address impacts of climate change on water resources.

This review calls for developing a mechanism to ensure integration of climate concerns into water sector policies and focusing water on climate change policies. For this, key barriers, root causes and solutions (actions) have been prioritised, including a finance plan to implement the priority actions. A response strategy has been prepared to mitigate root causes of

the barriers - policy implementation, institutional coordination, and data & capacity building - by including appropriate actions and action plan along with a finance plan and its implementation arrangement. The response strategy, developed under the GWL Programme, will contribute to make 'water-smart' climate policy, and 'climate-smart' water policy to address the challenges specified above.

1.4 Constitutional and Legal Provisions on Water Resources and WASH Services

The Constitution of Nepal (2015) is the fundamental law of the country. It includes drinking water, health and clean environment as fundamental rights of each Nepali citizen. Article 30 provides rights to live in a healthy and clean environment and requires to compensating the victim of environmental pollution and degradation. Article 35 has a provision of right to seek basic health care services and right to access to clean water and hygiene (MoLJPA, 2015).

Article 51(g) (2) of the Constitution (directive principles) provisions to prioritising multi-purpose development of water resources for domestic investments. It also provisions for the 'development of a sustainable and reliable irrigation by controlling water-related natural disasters and managing rivers'.

The federal government is empowered to formulate a policy related to the conservation and multiple use of water resources (Schedule 5) while the provincial government will take care of Province level electricity, irrigation and water supply services and navigation (Schedule 6). Local level is empowered to receive 'royalty from natural resources' (Schedule 8). Legal provisions also affect the management and sustainable utilisation of water resources.

The Water Resources Act (1992) prioritises water resources utilisation and accords first priority to drinking and domestic users, followed by irrigation, and agricultural uses such as animal husbandry and fisheries. The fourth priority is given to hydroelectricity generation which follows water allocation to cottage industry, industrial enterprises and mining uses, navigation, and recreational uses. The Act provisions for constituting an autonomous Water Users Association as a corporate body to promote the use of water resources for collective benefits. The Electricity Act (1992) has provisioned for issuing license to generate hydroelectricity.

Sections 23 to 28 of the Environment Protection Act (2019) have provisions to carry out a study to know the adverse impacts of climate change on local communities, ecosystem and biodiversity and make the study report public; prepare and implement adaptation plan; identify GHGs emitting areas and determine their national reference level; issue necessary orders to mitigate adverse impacts and risks of climate change by setting priorities, including development of technologies. The Act empowers the government to participate in carbon trade.

The Disaster Risk Reduction and Management Act (2017) have several provisions to reduce disaster risks, protect human lives and properties, preserve natural and cultural heritage, and keep physical infrastructure safe from natural and non-natural disasters. The Act provisions for the establishment of a National Council for Disaster Risk Reduction and Management (DRR&M) under the chair of the Prime Minister with specific functions, duties, and powers to discharge disaster-related functions effectively. The Act also provisions for the establishment of Executive Committee, expert committee, DRR&M Authority with specific functions and duties, including provincial disaster management council and committee, and district and local disaster management committees. The Act empowers the government to establish a Disaster Management Fund to implement disaster management activities and relief operations. This Fund has been used to support affected people from climate- and water-induced disasters.

The Forest Act (2019) defines forest as an 'area fully or partly covered by trees or plants', and land ownership of the national forest lies with the Government of Nepal. The Act discourages the land-use change of the national forests and has several provisions to regulate the use of forest area, including the construction of water infrastructures. Sections 41 to 43 of the Act provision for providing area of the national forests to development projects, if there is no other alternative to forest areas. The Act empowers the government to establish Forest Development Fund for the protection and promotion of forests and promotional activities.

The Drinking Water and Sanitation Act (2022) reiterates the Constitutional rights of every citizen to clean water and sanitation, specifies rights of the Government of Nepal on water sources and its source protection by controlling floods, landslides, and pollution, and by adopting appropriate measures to protect water and its sources. The Act empowers three-tiers of government to construct, operate and manage drinking water and sanitation-related services. The Act provisions for multipurpose wastewater treatment and management, and inter-basin transfer of natural water. It also provisions, inter alia, for licensing water supply and sanitation services, issuing the drinking water quality and sanitation standards, regulating discharge, or mixing of untreated wastewater or drains into river, stream, lake, reservoir, settlement, and public land, and establishing tariff fixation commission on water supply and sanitation. Existing legislations have provisions on institutional strengthening, coordination mechanisms and capacity building needs.

1.5 Objective of the Response Strategy

The objective of the response strategy is to promote the development of climate-resilient and inclusive water resources and WASH services, address climate vulnerabilities and risks, and explore opportunities to make water resources environment-friendly, and climate-resilient.

Specifically, the response strategy contains actions to minimise barriers and root causes by promoting systematic approaches and ensuring finances that impede progress on WRM and WASH services.

1.6 Strategy Formulation Process

WECS led the strategy formulation process in collaboration with MoWS. GWP Nepal/JVS and UNICEF supported the government in launching the GWL Programme and organising workshops and multi-stakeholder consultations during the formulation of this strategy.

The Launch and Inception Workshop, held on 31 March 2022, informed multi-stakeholders about the GWL Programme components, outputs, and outcomes with key activities and seek their inputs on implementation

approach. About 80 participants attended the launch event, and the inception workshop. Key issues and challenges to resilient and inclusive water management, and WASH services, including results of the stakeholder analysis and GESI study were shared during this workshop.

On 1 July 2022, WECS organised one-day workshop on Multi-stakeholder Change Process on Integrated Water Resources Management (IWRM) and WASH services. A snapshot was presented for context-setting and to inform the current state of IWRM, WASH services, and climate change in Nepal. Participants identified several barriers and prioritised inadequate implementation of existing policies, non-functional institutional coordination, and inadequate data & lack of capacity as the key barriers (bottlenecks) to develop and implement climate resilient and inclusive water resources and WASH policies and plans, and address climate risks on water sectors. A summary of key activities is given in Annex 2.

Initially, four phases were considered to develop the response strategy. They are: (i) root cause analysis; (ii) solution development (identification and prioritisation of actions); (iii) finance plan development; and (iv) development of draft strategy. Fifth phase includes finalisation and validation of the response strategy.

After the prioritisation of three key barriers that impede progress on WRM and WASH services in July 2022, WECS formed three inclusive working groups on: (i) policy implementation; (ii) institutional coordination; and (iii) data and capacity building (Annex 3) and continued multi-stakeholder consultative process. Each WG was coordinated by the senior government official involved in policy formulation, institutional development and coordination, data management and sharing, and building capacity in water resources and WASH services. A total of 67 members representing 39 water-related organisations from national and local governments, federations, NGOs, academia, private sector and inter-governmental organisations were engaged in three WGs. Over one-third of the WGs members were women.

Each WG met several times during June 2022 to October 2023, identified and prioritised root causes, developed and refined actions and action plan, and provided guidance in developing finance plan and response strategies for each barrier. Separate meetings of each WG were organised and results of the meeting were shared in the plenary meeting which largely contributed to minimise duplications on actions. It was useful to save time. Over 85 percent of the WG members attended each meeting and actively participated in this process.

The GWL team shared the key elements of the GWL programme and outcome of the application of the water tracker tool, including impacts of climate change on water resources at workshop on national commitments on climate change and adaptation plan organised by the Ministry of Forests and Environment, Climate Change Management Division in collaboration with the provincial ministries on forests and environment in seven Provinces, under the NDC Partnership Programme between September 2022 and April 2023.

WECS presented the priority actions and elements of the Response Strategy, in a dedicated session on WRM in a changing climate, in the stakeholder's consultative workshops which were organised in all seven Provinces from September to November 2023 to inform stakeholders and collect suggestions on the national river basin plans and hydropower development of master plan, and strategic environmental and social assessment. The provincial workshops were attended by the Chief Minister(s), Minister(s), provincial secretaries and water communities. The response strategy was also reviewed by the policymakers, experts, and coordinators. The strategy formulation process is given below (Figure 1.1).

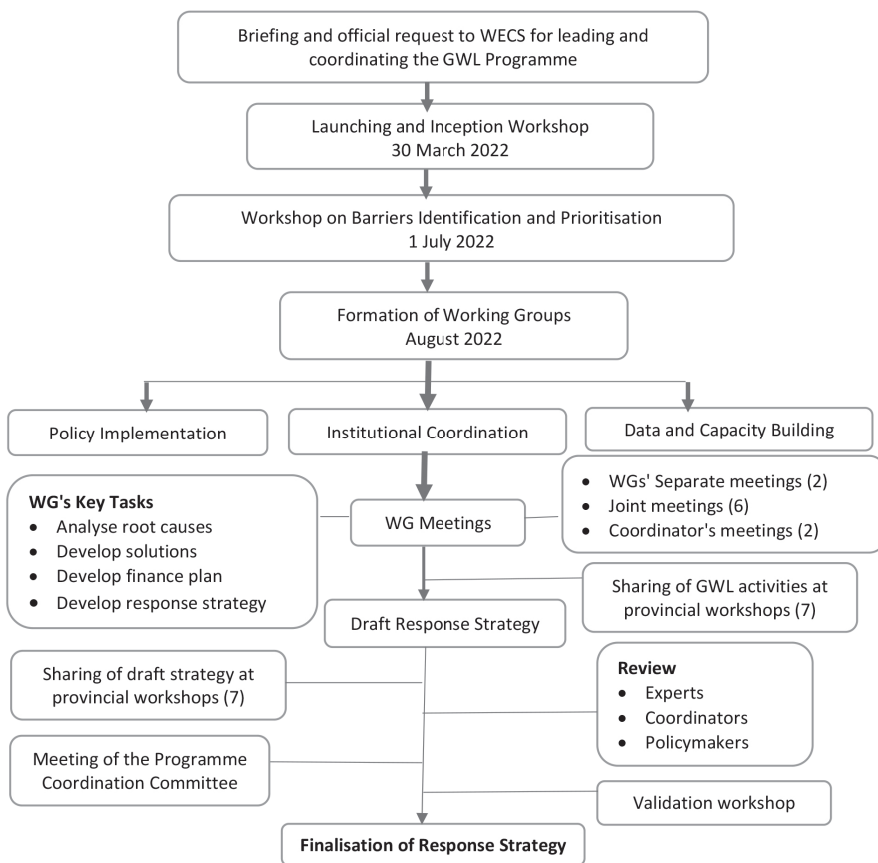


Figure 1.1: Response Strategy Formulation Process

1.7 Responsibility and Beneficiaries

Water resources ministries and departments are the primary actors for promoting sustainable management and use of water resources. Key actors are primarily those who depend upon water for agriculture, livestock, and aquaculture production, industry operations, increasing forest products and advancing watershed-based land-use, and improving health and WASH services. Water is equally used for clean energy generation, transportation, and waste management and drinking water requirements in urban and human settlements. Furthermore, water use is increasing over the recent years in enhancing tourism sector, and in industries and mining sectors. Hence,

improved management of water resource would benefit social and economic sectors. However, ownership over the water resources in geographical areas is unclear and requires clarity for rational planning, management, and sustainable use.

WECS, Ministry of Energy, Water Resources and Irrigation (MoEWRI), and MoWS are the principal actors in water resources management and WASH services. The ministries of Industry and Commerce, Agriculture and Livestock Development, Culture, Tourism and Civil Aviation, Infrastructure and Transportation etc. are considered important water users. In addition, private sectors, non-governmental organisations and academia are equally engaged in utilising water and/or conducting research and development for its sustained use. Water users' associations and private sector are also key actors in utilising and managing water resources.

This response strategy is expected to greatly benefit the government ministries, departments and organisations to integrate climate change into water resources and WASH policies and programmes and provide guidance for its effective implementation at all levels. 'Climate-smart' water policies will contribute to address the needs of the climate vulnerable communities who are greatly and regularly adversely affected by climate- and water-induced disasters, including sediment disasters.

Water is one of the prominent pillars for greenhouse gas emissions reductions (mitigation) and adaptation. As water requirement in sectors is unclear, water-related vulnerabilities and risks should be assessed to increase water-use efficiency and promote nature-based solutions as long-term approach to IWRM and river basin management.

BARRIERS, ROOT CAUSES AND ACTIONS

Water stakeholders at national level, and multi-stakeholders at provincial workshops provided a basis to further understand major bottlenecks to mainstream water concerns into climate change policies and climate provisions into water sector policies and plans.

2.1 Barriers

WECS in collaboration with MoWS and with support from GWP Nepal/JVS organised a multi-stakeholder workshop on 1 July 2022. Participants in group works identified several barriers. A total of nine barriers were initially prioritised. They are: (i) data and information (reliability and accessibility); (ii) policy execution/ implementation; (iii) institutional coordination; (iv) lack of active participation of stakeholders in all phases of project implementation; (v) lack of innovation research and limited use of existing data; (vi) institutional silos; (vii) capacity of local communities and governments; (viii) overlapping responsibilities and duplication; and (ix) lack of knowledge and capacity among the local government about importance of water. Participants further prioritised them into the following three barriers:

- a. Policy implementation
- b. Institutional coordination
- c. Data and capacity building

Considering the interest of the participants to contribute to these areas, WECS formed three working groups (WGs) for further consultations. Each group included around 20 persons, representing governmental and non-governmental organisations, academia, and private sector working on water resources, WASH, and climate change (Annex 3).

2.2 Root Causes

Each WG met three times to identify and prioritise root causes for each barrier. The first meeting was held in August 2022 and further two meetings identified and prioritised the root causes of the barriers. The joint meeting of three WGs helped to map institutions and compile issues before entering to root cause analysis, and advance coordination and linkages with other WGs.

Each WG identified issue-based root causes in one-day workshop held on 9 December 2022. WG members prioritised the root causes in January 2023 using mentimeter (online polling) in the meeting room. Priority root causes were revisited on 23 February 2023 and few actions were proposed. The priority root causes of all three priority barriers identified are mentioned in Table 2.1:

A total of 13 root causes were prioritised for three key barriers. Participants urged for mobilising existing human resources, and utilising data and information to address climate change impacts in water resources and WASH services.

2.3 Actions and Sub-actions

Working Groups discussed and selected appropriate actions to address these root causes. Several actions identified were prioritised through consensus in WG meetings during February to August 2023. Each activity includes sub-activities (Table 2.1). Action plan has been developed for the logical implementation of actions. Working groups have prioritised a total of 29 actions and 79 sub-actions to address three prioritised barriers. Seven activities and 22 sub-activities for policy implementation, 12 activities and 33 sub-activities for institutional coordination, and 10 activities and 24 sub-activities for data and capacity building have been prioritised (Table 2.1) through extensive multi-stakeholder consultative processes.

Table 2.1: Priority Root Causes, Activities and Sub-Activities

Root Causes	Activities	Sub-Activities	Priority
1: Inadequate political commitments	P1.1: Raise awareness at political level about climate resilience, IWRM and WASH services	Barrier A. Policy Implementation	
		a. Sensitise political leaders and elected representative at all levels (3-tiers of government)	High
	P1.2: Promote evidence-based water-related planning (IWRM)	b. Promote policy dialogue, advocacy, and sensitization to related departments of the political parties and the parliamentary committees	Medium
		a. Promote partnership with research academia (represent in Technical WG) and others by establishing research grant	High
		b. Promote and engage civil society organisations for their substantive participation, including of affected population in generating evidence	High
		c. Review and formulate provisions for incentives such as tax reduction to promote the use of appropriate IWRM technologies	High
2: Incoherent Approach for Policy Formulation	P2.1: Align policy with the constitution and international commitments, and avoid individualistic approach of policy formulation	a. Review and analyse constitutional provisions and international, regional or bilateral commitments related to water resources conservation, management, and sustainable use	High
		b. Establish linkages between national priorities and international commitments and obligations	High
		c. Formulate a coherent policy through multi-stakeholder consultative processes	High
	P2.2: Promote multi-stakeholder consultative process in formulating coherent policies	a. Review, analyse and evaluate existing policies to develop evidence	Medium
		b. Promote synergies and reduce trade-off in national relevant sectoral policies	High
		c. Create and functionalize multi-stakeholder policy dialogue mechanism	Medium
		d. Organise public discussion and make stakeholder engagement mandatory	High
		e. Develop and implement coherent policy	High
		a. Conduct policy audits and issue-based interaction	High
P2.3: Conduct policy audit and impact evaluation	b. Conduct an impact evaluation study to further specify national needs and international commitments on water resources and WASH services	High	

3: Inadequate Capacity for Policy Implementation	P3.1: Ensure policy implementation by enhancing capacity and developing mechanisms for coordination, monitoring, auditing, and reporting	a. Develop guidelines, and working procedures, as appropriate, by defining roles and responsibilities of relevant stakeholders	High
		b. Promote knowledge generation and sharing	High
		c. Ensure periodic monitoring and evaluation of the policy provisions	High
		d. Identify funding sources and ensure allocation of necessary financial resources	High
	P3.2: Develop policy coherent laws	a. Review existing water-related policies and laws and identify inconsistencies, also keeping in view to effectively implement existing laws related to coordination amongst the federal, provincial and local levels	High
		b. Formulate water-related bill(s) in consistency with existing policies by ensuring participation of, at least, water utilising organisations	High
		c. Organise multi-stakeholder consultations to get feedback, finalise the bill and submit to the parliament	High
Total	Activities - 7	Sub-activities - 22	
Barrier B. Institutional Coordination			
1: Unclear and overlapping roles & responsibilities of three-tiers of government	II.1: Clarify roles and responsibilities of three-tiers of government	a. Review existing mandates and define roles and responsibilities of three-tiers of government	High
		b. Establish and/or strengthen & operationalize co-ordination mechanism at national, province and local levels	High
	II.2: Avoid 'cantilever' institutions with overlapping roles and responsibilities	a. Conduct organisation and management (O&M) survey of water-related institutions with priority on review of their roles and responsibilities	High
		b. Identify and propose to merge and/or closure of 'cantilever' of water-related institutions	High

<p>2: Inadequate Institutional Capacity for addressing issues and challenges of IWRM & WASH</p>	<p>I2.1: Assess and prioritise capacity needs of the institutions</p>	<p>a. Revise the organogram of local governments with establishment of Water Resource (including WASH) and Environment Section at Local level</p>	High
		<p>b. Prepare recruitment plan and allocation of the human resources at Federal and Province levels</p>	High
		<p>c. Develop ToR and designate focal person for WRM and WASH services</p>	High
		<p>d. Assess capacity needs and prioritise training module</p>	High
		<p>e. Conduct regular training and awareness programme including sharing of best practices for knowledge enhancement at all levels</p>	High
	<p>I2.2: Develop Guideline for WRM (including WASH) at all levels</p>	<p>a. Review and analyse existing policies, guidelines, manuals and working procedures</p>	High
		<p>b. Formulate and implement guidelines, manuals or procedures, as appropriate</p>	High
		<p>a. Review existing testing laboratories and state of operation and propose additional services required</p>	High
	<p>I2.3: Establish and/or strengthen material testing, water and wastewater laboratory and training centre at federal and province levels</p>	<p>b. Conduct O & M survey for new laboratory with required human and financial resources</p>	High
		<p>c. Establish and/or strengthen testing laboratory, as required at different levels</p>	High
		<p>a. Review and update employee transfer norms and standards</p>	High
	<p>I2.4: Compliance of transfer norms to ensure employee's stability</p>	<p>b. Comply with transfer norms and standards while transferring employees</p>	High
		<p>a. Enhance holistic and integrated approach in planning and programming considering climate resilient and sustainable development</p>	Medium
<p>b. Promote evidence-based water related planning and management projects based on IWRM</p>		High	
<p>c. Develop and manage projects in basins/sub-basin level with water use allocation</p>		High	
<p>3: Lack of IWRM and River Basin considerations in planning IMPLEMENTATION</p>	<p>I3.1: Adopt IWRM and River Basin Approach as a functional planning tool</p>	<p>d. Develop and implement key performance indicator (KPI) based monitoring mechanism with incentive and cross-subsidy package for water operators</p>	High

4: Lack of Water Resources utilisation Tariff, River Basin and Climate Change related institutions	I4.1: Establish a regulatory mechanism for water utilisation tariff	a. Review roles and responsibilities of tariff fixation related water organisations	High
		b. Establish regulatory mechanism with tariff fixation for Water Resources, including WASH	High
		a. Revisit WECS structure and provide additional roles and responsibilities	High
	I4.2: Reform WECS structure and mandate	b. Strengthen institutional capacity of WECS and its staff in providing backstopping support to River Basin Offices	High
		a. Establish River Basin Offices in Koshi, Gandaki, Karnali and Mahakali Rivers	High
	I4.3: Establish River Basin offices for major rivers	b. Provide technical backstopping to implement the environment- and climate-friendly water resources plans and programmes in river basins	High
		a. Establish Climate Change Section at MoEWRI and assign at least climate change focal person at province and local levels	High
	I4.4: Establish Climate Change Section in MoEWRI	b. Integrate climate change into national planning and programming of water resources and WASH services	High
		c. Promote action research related to climate change and support to implement research outcomes at local level	Medium
		a. Develop a team of experts in the leadership of WECS for international, regional and bilateral level negotiations	High
	I4.5: Involve, WECS, MoEWRI and other water institutions in water and climate negotiation process	b. Prepare a technical paper on impacts of climate change on water resources in advance of each (UNFCCC) CoP with priority issues for negotiations	High
		c. Prepare policy briefs on impact of climate change on water resources	High
d. Prepare a national paper on water resources for expert dialogue on mountains and climate change to be held in June 2024 and beyond		High	
Total		Sub-activities - 33	
		Activities - 12	

Barrier C. Data and Capacity Building			
Data Generation, Management, Sharing and Use			
<p>1: Lack of mandate and policy clarity on data generation, validation and sharing</p>	<p>D1.1: Formulate a policy on data collection and management</p>	<p>a. Consider the following aspects while formulating the policy use archives and citizen science tools establish linkages with research & academia categorise data and specify data sharing modality adopt designated statistics system designate focal person for data accessibility</p>	High
		<p>b. Conduct policy review and analysis of local, provincial and national policies, gaps and policy interventions with responsibilities</p>	High
	<p>D1.2: Mandate WECS as central data management institution on water resources</p>	<p>a. Review roles and responsibilities of water-related organisations on data collection and management</p>	Medium
		<p>b. Process for mandating WECS as central data management institution on water resources</p>	High
		<p>c. Train and retain/utilise human resources for water resources data management</p>	High
		<p>d. Develop infrastructure (hardware and software) for data management and coordination mechanism</p>	High
		<p>e. Develop a mechanism to ensure flow of water-related data to WECS</p>	High
	<p>D1.3: Develop and update National Data Profile</p>	<p>a. Review data needs and develop and update National Data Profile (NDP)</p>	High
		<p>b. Establish and/or strengthen Statistical Unit in each ministry at all levels</p>	High
	<p>2: Limited budget and motivation for data generation and management</p>	<p>D2.1: Ensure necessary budget allocation</p>	<p>a. Develop and implement a mechanism for result-based grant to local level</p>
<p>D2.2: Develop, train, and mobilise human resources</p>		<p>a. Develop and use Integrated MIS (Management Information System) with dedicated personnel for water sector</p>	High
		<p>b. Develop a mechanism to ensure retention of qualified human resources by providing incentives</p>	Medium

3: Limited coordination amongst different institutions for data generation and management	D3.1: Develop data sharing guidelines	a. Develop guidelines on data sharing by ensuring (data sharing) amongst the federal, provincial and local levels	High
		b. Form technical working group (TWG) with representatives from data-related institution(s) and with ToR	High
		c. Establish coordination mechanism for data acquisition and dissemination at inter- & intra-levels including public and private sector	Medium
4: Inadequate human resources & institutional memory	D4.1: Prepare capacity building plan	a. Conduct governance assessment, including dialogues with LIJA team ¹ and use C1.1 output to prepare a plan, and make effective the existing self-assessment system	High
	D4.2: Use Standard Operating Procedure for knowledge management and utilisation	a. Develop, refine and use Standard Operating Procedure (SOP) and Knowledge management system with integrity and accountability	Medium
Capacity Building			
1: Limited need-based and output-based training	C1.1: Prepare and implement targeted capacity development plan	a. Conduct need assessment on water resources and WASH services	High
		b. Develop training module (for policy, institution, and data management, including data interpretation and use)	High
		c. Develop training calendar and conduct training	High
		d. Designate focal person	High
2: Limited fund/resources for capacity development	C2.1: Access and promote partnership for fund generation	a. Collaborate with other national, regional and international institutions to access funding for knowledge management and human resources development	Medium
		b. Inform data users and relevant stakeholders about the availability of respective data	Medium
		c. Categorise/classify data generation and management cost for its accessibility	Medium
Total	Activities - 10	Sub-activities - 24	
Total	Activities - 29	Total Sub-activities - 79	

1 MofAGA LIJA (Local Institutional Self-Assessment) should be a part of the TWG (Activity 3.4)

2.4 Action Plan

The detail action plan is given Annex 4. As mentioned above, a total of 7, 12 and 10 actions are prioritised to address three barriers namely policy implementation, institutional coordination, and data & capacity building respectively with corresponding 22, 33 and 23 sub-activities. A total of 29 actions and 79 sub-activities have been prioritised out of which 67 sub-activities are ranked high priority. Actions are categorised into short-term, medium term and long-term with preliminary budget estimates and institutions/sections with main and supporting responsibilities (Annex 4). The short-term activities will be implemented within 3 years (1-3 years). Medium-term activities will be implemented within 5 years (3 to 5 years) and activities requiring more than 5 years or to be implemented continuously are categorised as long-term activities.

RESPONSE STRATEGY

Water is a critical resource for sustainable development of water-dependent sectors such as agriculture (crop production, livestock, and aquaculture development), industry and mines, waste management and wastewater treatment. Water is tremendously used for recreation and transportation purposes. However, water use is greatly confined to drinking water, irrigation, and hydro-electricity generation in Nepal. Recent policies and plans have prioritised for multipurpose and sustainable use of water.

Climate change has greatly impacted the water infrastructures, particularly of the hydropower and drinking water sources in the hills and mountains. As mentioned in the previous chapters, existing climate policies open avenues to start activities to make water infrastructure and WASH services environment and climate-friendly.

Existing policies and plans have greatly realised inadequate coordination, and technical and financial resources for their implementation. Concerted efforts are required to implement existing policies, generate knowledge, and document learnings. Inadequate essential data and information to assess climate vulnerability and risk and urgency for enhancing capacity at institutional and individual levels are of national priority, requiring urgent interventions. Existing policies also provision for establishing river basin offices and strengthen institutions both for WRM and WASH Services.

To address these concerns and emerging threats of climate change on water resources and WASH services, WECS constituted multistakeholder working groups have identified key barriers (policy implementation, institutional coordination, data & capacity building) and prioritised root causes and actions for each of these barriers. Water stakeholders agreed on the following strategic approaches to overcome the prioritised barriers:

3.1 Vision

Economical and ecological prosperity through sustainable management and utilisation of water

3.2 Goal

Water resource is sustainably managed and utilised through an integrated water resource management and river basin approaches by strategies for policy implementation, institutional coordination, and data and capacity building.

3.3 Guiding Principles

This response strategy recognises the importance and benefits of:

- a. Adopting IWRM and a river basin approach for the conservation, development, management and sustainable use of water resources;
- b. Promoting multipurpose use of water resources by ensuring environmental sustainability and minimising climate change vulnerability and risks;
- c. Devising a system for water resources tariffs
- d. Enhancing private sector's participation in generating clean energy and Water Users Associations in conserving, managing and utilising water for other purposes;
- e. Strengthening the roles of the government organisations in informing, guiding and regulating water resources conservation, management and sustainable utilisation and promoting WASH services;
- f. Mainstreaming gender equality and social inclusion (GESI) in relevant policies and guidelines for water resources management and WASH services at all levels;
- g. Strengthening government leadership, and ownership of all stakeholders by enhancing multistakeholder capacities and consultations; and
- h. Integrating climate change into water resources policies and plans (climate-smart water policies), and water sector into climate change policies and plans (water-inclusive climate policies).

3.4 Expected Outcomes

Actions and action plans for each of the barriers were finalised through multi-stakeholder consultative processes. Actions related to policy implementation would largely contribute to formulate a 'climate-smart' water policies & plans, and 'water-inclusive' climate policies and plans. Actions proposed for institutional coordination and data, information and knowledge generation would largely create a conducive environment to establish and/or strengthen relevant institutions and develop a mechanism for mobilisation of existing institutions with sharing of experiences and learnings through access and mobilisation of financial resources.

Actions would contribute to revisit existing water sector and climate change policies to bridge gaps between water and climate change priorities. Implementation of actions is expected to address climate vulnerability and risk and needs of climate vulnerable communities and would also contribute to inclusive and resilient water resources and WASH services.

Major outcomes expected from the effective implementation of this response strategy and action plan (on policy implementation, institutional coordination, and data & capacity building) are:

- a. WRM and WASH services are inclusive, gender-responsive¹ and climate resilient.
- b. Multiple and optimal use of water resource is recognised, and water accounting and allocation (to water-dependent sectors) and auditing are institutionalised.
- c. Climate vulnerabilities and risks are reduced, and water infrastructures are adaptive and resilient to climate change, taking into account the early warning facilities.
- e. Data generation, management, storage and sharing are institutionalised and utilised in planning, programming and decision-making processes.
- f. Innovative and sustainable financing mechanisms are developed, and funding sources are accessed and mobilised and country capacity is built.

1 Recognises differences between men and women, addresses their specific needs and priorities and ensures their equal representations and benefits.

3.5 Strategies

Twenty-two strategies for actions and sub-actions (Table 2.1) have been developed to mitigate three barriers prioritised for WRM and WASH services.

3.5.1 Policy implementation

Inadequate political commitments, incoherent approach for policy formulation, and inadequate capacity for policy implementation are three root causes related to policy implementation. A total of 7 activities and 22 sub-activities have been identified to address this barrier. The following six strategies have been agreed through multi-stakeholder process to mitigate the root causes and make water resources and WASH services inclusive, gender-responsive and climate resilient:

Strategy 1.1 : Promotion of policy advocacy and dialogue among politicians and stakeholders on climate-resilient IWRM and WASH services

Policies and plans are prepared to respond the political commitments, local and national needs and international commitments and obligations. Raising awareness at political level about the present status of inclusiveness and climate change impacts on water resources and WASH services provide multiple opportunities to develop a sense of high responsibility to advance climate resilient IWRM and WASH services. The multi-stakeholder consultations have prioritised to raise and/or enhance awareness at political level and organise dialogue among the politicians and stakeholders about climate change adaptation, resilience, IWRM and river basin approaches, and WASH services to understand and communicate in a similar way, and implement the following activities:

- Sensitise political leaders and elected representative at all levels
- Promote policy dialogue, advocacy and sensitization to relevant departments of the political parties and the parliamentary committees

Strategy 1.2 : Development of policy coherent laws

Policies being the guidance document of the government sometimes contradicts with the legal instruments. The government formulates new policies as per the needs and demands with a view to improve the socio-

economic condition of the people, ensure natural resource management, empower people and facilitate infrastructure development etc. New policies might not be inconsistent with the existing laws and hence new laws are required to administer water resources. In the present context, development of policy coherent laws is of great importance due to: (i) new constitution (2015); (ii) Nepal's international commitments including on water management and climate change; (iii) being a Party to several international conventions, protocols and agreements, and bilateral and/or multilateral memorandum of understandings (MoUs); (iv) present practice of formulating policies with limited group of people or non-participation of major stakeholders; (v) individualistic approach in formulating policies; and (vi) need for comprehensive and non-biased laws to be acceptable to water community and people at large, the working groups proposed to develop policy coherent laws by implementing the following actions:

- Review constitutional provisions and international, regional or bilateral commitments related to water resources conservation, management, and sustainable use
- Establish linkages between national priorities and international commitments and obligations
- Formulate policy coherent laws through multi-stakeholder consultative processes

Strategy 1.3 : Promotion of partnership with research institutions, academia and civil society for evidence based IWRM planning with basin wise approach

The Water Resources Strategy (2002) and National Water Plan (2005) called for adopting IWRM approach but its adoption and implementation did not materialise as envisaged during the last two decades. The National Water Resources Policy (2020), Irrigation Policy (2023), River and Water-Induced Disaster Management Policy (2023), and the draft Irrigation Master Plan (2019) have prioritised IWRM for water resources conservation, development, management and sustainable use, and to reduce climate and water-induced disasters, including sediment disasters. The Water Resources Policy has emphasised to adopt basin wise approach and the government is formulating river basin master plan. With due consideration on IWRM and

basin wise approaches, the multistakeholder change process has prioritised the need for promoting effective participation of research and academic institutions, and civil society groups to advance evidence-based water-related IWRM and basin wise planning by implementing the following activities:

- Promote partnership with research and academic institutions and ensure their participation in Technical Working Group
- Establish and mobilise research grant for adopting innovative approaches and generating knowledge on IWRM planning
- Encourage and engage civil society organisations for their substantive participation
- Also engage affected population in generating evidences

Strategy 1.4 : Promotion of multistakeholder consultative process in formulating coherent policies with the constitutional provisions and international commitments and obligations

Several water sector policies and plans have been formulated for the conservation, management, and sustainable utilisation of water resources and for the promotion of WASH services. Sector policies have been implemented for several years. For example, the Hydropower Development Policy (2001) has been implemented for the last two decades. In addition, time-bound policies, strategies and working policies are formulated for the plan period.

The Constitution of Nepal (2015) provides provisions for the conservation of water resources through the three-tiers of the government. Nepal has also been engaged in adopting and ratifying and/or accessing water and climate-related conventions, protocols and agreements. Any commitments and obligations require effective implementation through national policies and programmes. In recent years, efforts are made to ensure participation of concerned stakeholders, and make the draft policy public for suggestions. However, incoherencies in the policies and plans exist and create complications and difficulties in their implementation. This is one of the major reasons that existing policies are not implemented effectively. Frequent changes in the government and bureaucracy have also questioned 'ownership' on existing policies. To mitigate this challenge, and develop a sense of ownership over the policy and plan implementation, the following activities have been proposed

that will promote multi-stakeholder consultative process in formulating coherent policies and enhance 'ownership':

- Review, analyse and evaluate existing policies to generate evidences
- Promote synergies and reduce trade-off in relevant sectoral policies
- Create and functionalize multi-stakeholder policy dialogue mechanism
- Organise public discussion and make stakeholder engagement mandatory
- Develop and implement coherent policy

Strategy 1.5 : Conduction of policy audit and impact evaluation for research-based policy formulation, and alignment of policies with national needs

A set process is generally followed for policy formulation. The Policy Research Institute (PRI) considers 11 steps for policy formulation. They are: (i) identification of issues for policy formulation; (ii) analysis and prioritisation of the issues; (iii) preliminary drafting of policy; (iv) public debate on preliminary draft; (v) amending preliminary draft; (vi) expert review and feedback on amended draft; (vii) open to public feedback; (viii) final draft of policy; (ix) approval from concerned authority; (x) implementation of policy; and (xi) evaluation for revision or amendment of a policy. This process may also encourage to formulate a new policy to respond new challenges, threats or risks.

Few studies are sometimes carried out to understand the nature of the problems and focus to address the ongoing and emerging challenges in water resources and WASH sectors. In several cases, a committee, or a task force is formed to draft a policy. The draft policy is opened for comments and suggestions and/or discussed in a larger group. Official inputs from the concerned agencies contribute to finalise the policy and propose for approval to the Council of Ministers. Nepal has yet to internalise a practice for conducting audit, and align with national needs, priorities, and regional and international commitments. Implementation of the following activities is expected to contribute for effective implementation of this strategy:

- Conduct policy audits and issue-based interactions
- Conduct a study to further specify national needs and international commitments on water resources and WASH services

- Revise or amend a policy and/or formulate a new policy by aligning with national priorities and international and regional commitments

Strategy 1.6 : Enhancement of capacity and development of coordination, monitoring, auditing and reporting mechanisms for policy implementation

A clear understanding is required on what, how and when to implement the policy and what would be the implications and outcomes. Sector approach on policy formulation, inadequate consultative process, non-adoption of 'leave-no-one-behind' approach, and non-involvement in implementation of those engaged in policy drafting has made many policies unimplemented and re-interpreted or sometime mis-interpreted. Furthermore, monitoring, auditing and reporting mechanisms on policy implementation is non-existent or weak in Nepal. Some provisions of a policy also require adequate coordination amongst relevant sectors. With this general understanding, the multistakeholder change process recognised the urgency for enhancing both institutional and individual capacity and adopt a systemic approach to effectively implement policies and institutionalise monitoring, auditing, and reporting mechanisms for sustained implementation and desired outcomes. The following activities would contribute to enhancing capacity, coordination, and monitoring of policy implementation:

- Develop guidelines, and working procedures, as appropriate, by defining roles and responsibilities of relevant stakeholders
- Enact required legislations to facilitate policy implementation
- Promote knowledge generation and sharing
- Ensure periodic monitoring and evaluation of the policy provisions
- Identify funding sources and ensure allocation of necessary financial resources
- Institutionalise reporting mechanism to share knowledge and learning

Implementation of above activities as short-term priorities is expected to contribute to implement existing policies and revise or develop a new policy with monitoring and auditing of the existing ones. It will also develop a process for extensive multistakeholder interactive processes during policy formulation and implementation.

3.5.2 Institutional coordination

Duplication of functions and duties is a common occurrence within service providing entities across various sectors, including those involved in water resources and WASH services. Unclarity on institutional functions sometime creates challenges in delivering services to people and promote conservation, development, management, and sustainable use of water resources. As mentioned in Table 2.1., four critical root causes are prioritised for ineffective institutional coordination. They are: (i) unclear and overlapping roles and responsibilities of three-tiers of government due to inadequate detailing of their responsibilities; (ii) inadequate institutional capacity; (iii) lack of IWRM consideration in planning and implementation; and (iv) lack of proper institutions to look after for water resources tariff, river basins and climate change. The following nine strategies have been agreed to address these root causes and eliminate the barrier:

Strategy 2.1 : Clarifying roles and responsibilities of three tiers of government with coordination mechanism

The 2015 Constitution of Nepal has made three-tiers of government responsible for the conservation, development, management and sustainable use of water resources and delivery of WASH services. The national government is empowered to formulate policies and implement large projects, central and provincial governments will implement medium-level projects and the local governments implement small level water resources-related projects and provide water supply services. Local governments receive royalty from hydroelectric projects. These roles and responsibilities are not adequate in conserving, managing, and utilising water resources and addressing inter-province, inter-basins, or inter-watershed water issues in a comprehensive manner. As an example, disputes are already arising in the inter-basin water transfer in the Kaligandaki-Tinau water diversion project. Taking note of existing work detailing and practices, the multistakeholder consultations have realised the urgency for undertaking the following actions for implementation to eliminate the barrier by addressing the root causes:

- Review existing mandates and redefine roles and responsibilities of three-tiers of government
- Strengthen and/or establish and operationalize co-ordination and collaborative mechanisms at national, province and local levels

Strategy 2.2 : Assessment of human resources needs at national, provincial and local level institutions

The assessment of human resource needs at national, provincial, and local level institutions involves evaluating the staffing requirements and skills necessary for governmental entities to effectively carry out their functions. This assessment helps identify gaps in personnel, qualifications, and expertise, ensuring that the right individuals are in place to meet the specific needs and objectives of each level of government. It's a crucial step in efficient resource allocation and planning for the effective delivery of public services and governance at various administrative levels.

Implementation of existing policies and plans requires knowledge-based and skilled manpower and a dedicated institution to discharge its functions timely and effectively. As mentioned above, water resources and WASH services are greatly affected by climate change effects and adverse impacts will continue to increase due to rise in atmospheric temperature. Climate trends and scenarios clearly indicate high rate of snow melting and glaciers retreat, resulting to increase in amount of river flow till 2050s and then reduced flow at the end of the 21st century, making most of the hydroelectricity and irrigation projects non-functional and possibility of drying-up of drinking water sources. Hence, it is urgently required to assess the specific needs of knowledge-based human resources in water-related institutions, required to assess climate vulnerability and risks and implement the required interventions for risk reduction. The strategy opens avenues to assess the needs of water-related institutions at different levels, including of private sector. The following actions are required to develop human resources for creating and/or enhancing knowledge and skill:

- Revise the organogram of local governments with establishment of water resource (including WASH) and environment section at local level
- Prepare recruitment plan and allocation of the human resources at federal & Province levels
- Develop ToR and designate focal person for water resources management and WASH services at local levels
- Conduct regular training and awareness programme including sharing of good practices for knowledge and skill enhancement

Strategy 2.3 : Compliance with transfer norms for employee stability and consistency of their performance

Government has established norms and practices to transfer its employees. It is natural and is necessary for cross-idea and experience sharing for productive outputs. Knowledge-based human resources should be continuously engaged to reduce climate vulnerabilities and risks, assess impacts, build adaptive capacity, and make water resources climate-resilient. Necessary policies, strategies and programmes should be formulated and implemented to address climate-induced events and disasters. In recent years, frequent transfer of the employees along with the change in the government has greatly affected employee stability and has been a major bottleneck for timely and quality outputs. Implementation of the following activities would ensure employee stability, develop knowledge-based human resources through further study and training or exposure visits, and ensure their rational mobilisation:

- Review and update employee transfer norms and standards
- Comply with transfer norms and standards while transferring employees

Strategy 2.4 : Curtailment of cantilever institutions with overlapping roles and responsibilities

Several organisations have been established to conserve and manage water resources. Merging and fragmentation of institutions are regularly done through 'hit-and-trial' approach. For example, Ministry of Water Resources was dissolved, and three separate ministries namely the Ministry of Energy, Ministry of Irrigation, and Ministry of Water Supply (MoWS) were established. Later, the government merged energy and irrigation, and formed the Ministry of Energy, Water Resources and Irrigation. MoWS functions separately. This has overlapped jurisdiction over water resources and creates confusions frequently on water resources development, conservation, management and sustainable utilisation. To overcome such ongoing establishment and merging of new organisations, working groups have suggested to implement the following activities with a view to regulate such initiatives along with the change in the government:

- Conduct organisation and management (O&M) survey of water-related institutions with priority on review of their roles and responsibilities

- Identify and propose to merge and/or closure of 'cantilever' of water-related institutions

Strategy 2.5 : Development of guidelines and manuals for water resources development and management at three tiers of government

Some policies require additional interpretation from those engaged in drafting the policies to clearly understand its spirit and outcome. Policies and plans require explanatory notes, guidelines, manuals or procedures which help to elaborate ways to implement policy provisions effectively. This strategy calls for developing appropriate water resource-centric guidelines and procedures or manuals, as appropriate to assist three-tiers of governments to meet their institutional commitments and constitutional responsibilities by implementing the following actions:

- Review and analyse existing policies, guidelines, manuals and working procedures
- Formulate or update and implement guidelines, manuals or procedures, as appropriate

Strategy 2.6 : Establishment of material testing laboratory, including for water and wastewater analysis

Quality control deserves special attention while developing water infrastructures of any type and size in any geographical areas. Some infrastructures are related to water and wastewater treatment which needs to meet national standards. Material and water testing laboratories are normally established at national level. Taking note of roles and responsibilities of the local governments and the nature and size of the water infrastructures under construction, or planned for construction, it is necessary to establish such laboratories at local levels. In addition, persons deputed in such laboratories require basic and refresher training frequently. Hence, three-tiers of government may establish material testing laboratories as per their needs, develop human resources and upgrade skills frequently by implementing the following actions:

- Review existing testing laboratories and status of operation and propose additional services required
- Conduct O&M survey for new laboratory with required human and financial resources

- Establish and/or strengthen testing laboratory, as required at different levels
- Assess capacity needs, develop need-based training module, and organise training at different levels

Strategy 2.7 : Adoption of IWRM and basin wise planning as a functional planning tool for climate resilient, sustainable water resources and WASH services

Nearly two decades back, the government made a strong commitment to implement IWRM through Water Resources Strategy (WRS, 2002) and make water resources development environment-friendly and sustainable. The 2002 Strategy could not address the potential risks of climate change on water resources which might be related to the lack of data and information on climate change impacts at national and sub-national levels. The National Water Plan (NWP, 2005) recognised IWRM an important tool for the formulation and implementation of appropriate water policies and laws, and strengthening of institutions with defined roles and responsibilities at all levels. The Plan followed three pillars of sustainable development - social development, economic development, and environment conservation. Under SDG6, IWRM action plan focuses on, inter alia, promulgation of an umbrella policy on IWRM, harmonisation of existing national policies and laws on natural resources with focus on IWRM, develop and implement IWRM plan by the local government etc.

Importance of IWRM has been realised as an appropriate planning tool for climate resilient water management. The multistakeholder process further recognised it and urged to take IWRM a functional planning tool by implementing the following activities:

- Enhance holistic and integrated approach in planning and programming considering climate resilient and sustainable development
- Promote evidence-based water-related planning, and IWRM projects
- Develop and manage river basins/sub-basin level projects with water use allocation and distribution provision
- Develop and implement KPIs (key performance indicators) based monitoring mechanism with incentive and cross-subsidy package for water operators

Strategy 2.8 : Restructuring WECS, and establishment of River Basin Offices, Water Resources utilisation Tariff and Climate Change related institutions

The National Water Resources Policy (2020) emphasises to adopt river basin approach for the conservation, development, management, and sustainable use of water resources. WECS is given the responsibility for promoting river basin and IWRM approaches. However, institutional responsibilities should be tied-up with human resources and funding allocation. This proposal requires to revisit the organisational strengths, human resources and absorption of WECS products by other competent government ministries and departments. Hence, one of the strategies is to reform WECS structure and its mandate by:

- Revisiting the WECS' structure, roles and responsibilities, and existing human resources
- Providing additional roles and responsibilities, if necessary

As per the government priority, WECS is engaged in preparing river basin master plans of major rivers to bring a transformative change in water resources management. WECS is finalising the master plan by collecting suggestions from provincial multistakeholder consultations and expert reviews. The following activities are expected to facilitate implementation of the river basin master plans:

- Strengthen institutional capacity of WECS and its staff in providing backstopping support to River Basin Offices
- Establish River Basin offices for major rivers namely in Koshi, Gandaki, Karnali and Mahakali rivers
- Promote implementation of, and provide technical backstopping to implement, environment- and climate-friendly water resources plans and programmes in the river basins

Water resource is commonly used as 'free natural resource' and water tariff is developed for drinking water. Water Users Associations are engaged in collecting tariff for irrigation water. In few touristic lakes such as Phewa Lake, local government has contracted through bidding process and minimum tariff is collected and used for local development. As per the Intergovernmental Fiscal Arrangement Act (2017, Schedule 4), fifty percent

of royalty obtained from hydropower goes to the Government of Nepal, 25 % to the concerned Provincial government and remaining 25% to the concerned Local government. In this context, it is important to establish a regulatory body that ensures resource generation and promotes its utilisation for the conservation, development and management of water resources. For this, the following activities would contribute to develop a system on tariff:

- Conduct O & M survey with details on organisational structure and human resources
- Establish regulatory mechanism for fixing and mobilising tariff for water resources management, including WASH services
- Develop ToR for the regulatory body that regularly reviews tariff based on water allocation and use

Sporadic studies and consultations provide evidence on the adverse impacts of climate change on water resources and WASH services. Climate trends and scenario provide information on higher rate of snow melting and adequate availability of river water flow till the mid-centuries and water deficiencies for hydroelectricity generation and may be for irrigation and drinking water by the end of this century.

Water- and climate-induced disasters, including sediment disasters have been increased in the recent years due to unpredicted floods, landslides, and droughts. This calls for urgent action to deal with ongoing and emerging threats and risks of climate change. For this, the multistakeholder consultation process recognised the urgency for addressing it through institutional strengthening with provisions for additional roles and responsibilities, development of human resources, and allocation of necessary financial resources. For this, the following activities are considered important to initiate this process of institutional development and strengthening:

- Establish Climate Change Section at federal ministries and designate at least focal person at province and local levels
- Integrate climate change into national planning and programming of water resource and WASH services
- Promote action research related to climate change and support to implement research outcomes at local level

Strategy 2.9 : Involvement of MoEWRI and water institutions and experts in water and climate change negotiation

As mentioned above, climate change has adversely affected water resources and WASH services. Nepal has included water sector right from the preparation of the National Adaptation Programme of Action (NAPA) in 2010 and WASH sub-sector is included in the National Adaptation Plan (NAP) in 2021. Two thematic working groups formed for NAP formulation process focussed on water resources and WASH services and have included number of adaptation programmes in the NAP. Contribution of water resources in climate change adaptation and mitigation is yet to recognise at functional levels. Furthermore, water resources ministries and departments are poorly represented in the climate negotiation processes.

The 27th session of the Conference of the Parties (CoP 27) to the UN Framework Convention on Climate Change (UNFCCC) has recognised 'the critical role of protecting, conserving, and restoring water and water-related ecosystems in delivering climate adaptation benefits and co-benefits, while ensuring social and environmental safeguards'. Water was, for the first time, included in the final declaration in the climate negotiations process in 2022. Outcome of the first global stocktake adopted by the fifth session of CoP serving as the meeting of the Parties to the Paris Agreement at United Arab Emirates (30 November to 12 December 2023) reiterated its recognition the critical role of water and urged Parties to 'increase ambition and enhance adaptation action and support' to achieve 2030 targets, inter alia, on 'significantly reducing climate-induced water scarcity and enhancing climate resilience to water-related hazards towards a climate-resilient water supply, climate-resilient sanitation and access to safe and affordable potable water for all'. Parties requested the 'Chair of the Subsidiary Body for Scientific and Technological Advice to hold an expert dialogue on mountains and climate change at its 60th session (June 2024)'. It also targets to reduce climate impacts on water ecosystems and accelerate the use of ecosystem-based adaptation and nature-based solutions. It is expected to open avenues to draw the attention of the international community about the increasing adverse impacts of climate change on the Himalayas, including water resources.

Realising the greater impact of climate change on water resources and WASH services, recognition of the critical role of water in climate

adaptation benefits and co-benefits and increasing interest of the water sector institutions to engage in climate negotiation processes for national benefits, the following activities are expected to contribute to integrate climate into water sector and water into climate negotiation processes at national, regional and international levels:

- Develop a team of experts under the coordination of WECS for international, regional and bilateral level negotiations
- Prepare a technical paper on impacts of climate change on water resources in advance of each (UNFCCC) CoP with clearly defined issues and evidences for negotiations
- Prepare policy briefs on impact of climate change on water resources for negotiators
- Prepare a national paper on water resources for expert dialogue on mountains and climate change to be held in June 2024 and beyond

3.5.3 Data and capacity building

Updated, user-friendly and accurate data and information are extremely necessary for policy formulation, planning, programming, and informed decision-making. Several organisations are involved in generating, managing, sharing, and utilising data and information. However, Nepal lacks policies, guidelines and procedure for data management and sharing. Four root causes are prioritised on data generation, validation, management, sharing and utilisation. They are: (i) lack of a mandate and policy clarity; (ii) limited budget and motivation; (iii) limited coordination amongst different institutions; and (iv) inadequate human resources, and institutional memory on data generation and management.

Capacity building is a continuous process. Basic and refresher training and orientation programmes should be regularly organised to build and enhance capacity for planning, designing, implementing, monitoring, and service delivery. Two root causes namely limited need-based and output-based training, and limited fund and resources are prioritised for capacity building. The following seven strategies are expected to minimise the prioritised root causes in data and capacity building:

Strategy 3.1 : Formulation of a policy on data generation, management, sharing and utilisation

Data and information are the backbone for 'informed' water resources and WASH planning, programming and decision-making. Inadequate and scattered data and information with their authenticity and validity creates challenges in programme planning and decision-making of major water resources infrastructure and service delivery projects. It might be attributed to the general perception of, and on the lack of data or non-consideration of available data and information and/or less understanding on the importance of data generation, management, sharing and their utilisation.

Effective policies regarding data generation, management, sharing, use and capacity building are essential for informed decision-making, rational planning and implementation. The policy review informs need for data and capacity building. Data generators are encouraged to adopt emerging technologies for data generation such as remote sensing, open data, geographical information system (GIS), and use of Tablet and Mobile for data collection. Experiences and learning of National WASH Management Information System (MIS) under the Department of Water Supply and Sewerage Management (DoWSSM) would be useful in the policy formulation process.

The multistakeholder consultation has recognised data as a key barrier for planning and programming of water resources and WASH services and proposed to implement the following activities to establish a system for data generation, management and use for water resources and WASH planning and decision-making processes:

- Conduct a policy review and analysis of local, provincial and national policies, identify gaps and responsibilities, taking into account the technological advancement and evolving challenges on WRM and WASH services, on: (i) data collection, methodologies and standardisation; (ii) data management including storage, processing, quality control and archiving mechanisms; and (iii) policies governing data sharing practices among different stakeholders, emphasizing inter-agency collaboration, public-private partnerships and international cooperation
- Evaluate the adequacy of data generation efforts to capture key aspects of WRM and WASH, such as water availability, quality, use

- patterns, and sanitation coverage, including data collection from relevant stakeholders, including government agencies, researchers, non-governmental organizations, and the public and private sectors
- Evaluate the use of data management systems, databases and information sharing platforms to ensure efficient data utilization and transparency
 - Identify barriers to data sharing and use, including legal, technical, and institutional challenges and propose strategies to overcome them
 - Develop standardized data collection protocols to ensure consistency and comparability
 - Formulate a policy on data management by: (i) using archives and citizen science tools; (ii) developing motivation models for citizen science; (iii) establishing linkages with research & academia; (iv) categorising data and specifying data sharing modality; (v) adopting designated statistics system; and (vi) designating focal person for data accessibility

Strategy 3.2 : Mandate WECS as a central data management body on water resources

Organisations are engaged in generating and storing several data. Most of the data are projectized and once the project is over, data are not stored for future use. This has created difficulties in developing appropriate programmes to address the problems and challenges in several sectors. Water is used such as for drinking, food production with irrigation facilities, energy generation, transportation, recreation, and industrial processing. These sectors and sub-sectors require different nature of data and information for the development of sector-specific plans and programmes. As WECS is a coordinating agency and is engaged in developing water-related policies, plans and programmes since the last four decades, data need and its authenticity has been clearly noticed over the years. Hence, working groups realised the need for developing a data management body on water resources at the central level and implement the following sub-activities to develop WECS as a central repository and data management body on water resources:

- Review roles and responsibilities of water-related organisations on data collection and management

- Process for mandating WECS as central data management institution on water resources
- Train and retain/utilise human resources for WR data management
- Develop infrastructure (hardware and software) for data management and coordination mechanism
- Develop a mechanism to ensure flow of water-related data to WECS

Strategy 3.3 : Development of a National Data Profile (NDP) by ensuring budget and human resources

The National Data Profile (NDP) provides a platform to keep and update necessary and important data and information related to geography, natural resources, environment, demography, social, economic and governance etc. to support data-led decision-making and monitoring. The National Statistics Office (NSO) initiated the NDP for SDG planning and programming. The multistakeholder consultation process has realised the need for developing a NDP for water resources, water infrastructures, water availability and allocation, and WASH services. The NDP portal aims to promote transparency and accountability in government operations and facilitate evidence-based decision-making. Water resource and WASH services should be one of the thematic areas in the NDP.

- The following activities have been identified to develop and update national system on NDP:
- Develop and update national data profile by reviewing data needs
- Ensure budget allocation for data generation and management by developing a mechanism for result-based grant for local level
- Develop and use integrated MIS with dedicated personnel for water sector
- Ensure retention of qualified human resources for NDP operation

Strategy 3.4 : Development of guidelines, standard operating procedures and/or manuals for data acquisition, sharing and knowledge management

Policy provides a guidance to facilitate data generation, storage, management and sharing. To make it practical and operational (easy to implement), the multistakeholder consultation has recognised the needs for a guideline, procedures or a manual, as appropriate, for data acquisition and

sharing. It was also realised the need for establishing a Technical Working Group (TWG) with representation from institutions involved in data generation, management and sharing to provide suggestions on technical aspects of data generation and sharing. The guideline should consider necessary ingredients for data acquisition, knowledge management and dissemination. The following activities will contribute to effectively implement this strategy and address the barrier:

- Develop prerequisites for data acquisition and sharing
- Develop a guideline on data acquisition and sharing
- Form a TWG with representatives from data-related institution(s), including experts
- Establish a coordination mechanism for data acquisition and dissemination at inter- and intra-levels including public and private sectors

Strategy 3.5 : Preparation and implementation of capacity development plan for data generation, management, and documentation of institutional memories

Capacity building is essential to make the system functioning to the desired level. Depending upon the nature of challenges, it would be necessary to develop technical, institutional and/or community capacity at both individual and institutional levels. To build and/or enhance skills and knowledge of the professionals, technical capacity can be built through training on topics such as water supply and sanitation system, WRM, hydrology, and water quality monitoring etc. Similarly, institutional capacity should be strengthened with provisions of knowledge-based and skilled manpower. Institutional capacity could be enhanced through training on project management, financial management, procurement, and monitoring and evaluation.

To deliver services, community capacity can focus on empowering local communities to participate in and contribute to the development and management of water and sanitation systems. Training on community mobilization, hygiene promotion, water source protection, and water conservation would help to build capacity. However, orientation and/or training on policy development, strategic planning, and stakeholder engagement would contribute to build governance and leadership. It can be developed through

diverse learning approaches by mobilising financial resources, developing and sharing training materials, and providing technical assistance.

The multistakeholder consultation has realised the need for preparing and implementing capacity building plan by implementing the following activities:

- Conduct governance assessment, including dialogues with LISA² team
- Conduct capacity needs assessment on water resources and WASH services
- Develop training module (for policy, institution, and data management, including interpretation and use), and conduct training
- Designate a focal person and document institutional memories on data acquisition and sharing
- Develop and use Standard Operating Procedure (SOP) for knowledge management system with integrity and accountability

Strategy 3.6 : Assessment and partnership promotion for human resource development through generation and utilisation of funds

Partnerships and collaborations are essential to build capacity at individual and institutional levels by pulling and best utilising resources among government agencies, private sector, I/NGOs, and academic institutions. This will promote to share resources, expertise, experiences, and good practices on data generation, management and sharing. The multistakeholder consultations have recognised the importance of sharing resources for better results and wider ownership, and agreed the following activities to develop human resources:

- Identify partners and assess their areas of expertise and good practices in data acquisition and sharing
- Access and promote partnership for fund generation
- Collaborate with other national, regional and international institutions to access funding for knowledge management and human resources development
- Encourage data sharing among stakeholders through the establishment of clear guidelines, data-sharing agreements and MoU

² MoFAGA LISA (Local Institutional Self-Assessment) should also be a part of the TWG (Strategy 3.4)

Strategy 3.7 : Development of a mechanism for informing data users and relevant stakeholders about the nature and availability of data and information

Data management and sharing requires an easy-to-understand mechanism to facilitate wider sharing and use. Knowledge on data generators and nature of available data provides multiple opportunities to maximise utilisation of data and quantified information. At some point of time, some mechanisms would be required for quality control and reduce misinterpretation of data and information. In this context, the multistakeholder consultation has realised the need for a mechanism for informing data users by implementing the following activities:

- Categorise/classify data for open access and requiring cost for its accessibility
- Establish data management system to ensure data integrity, accessibility and inter-operationability utilizing modern data storage and sharing platforms
- Inform data users and relevant stakeholders about the availability of respective data
- Prepare and share an annual report on data use and type of data accessed

The guideline that will be developed for data acquisition, management and dissemination may include regulatory pre-requisites to facilitate data users to further utilise data and information for better planning, programming and decision-making. Available data could also provide a basis for monitoring, evaluation, and water accounting.

3.6 Cross-sectoral strategies

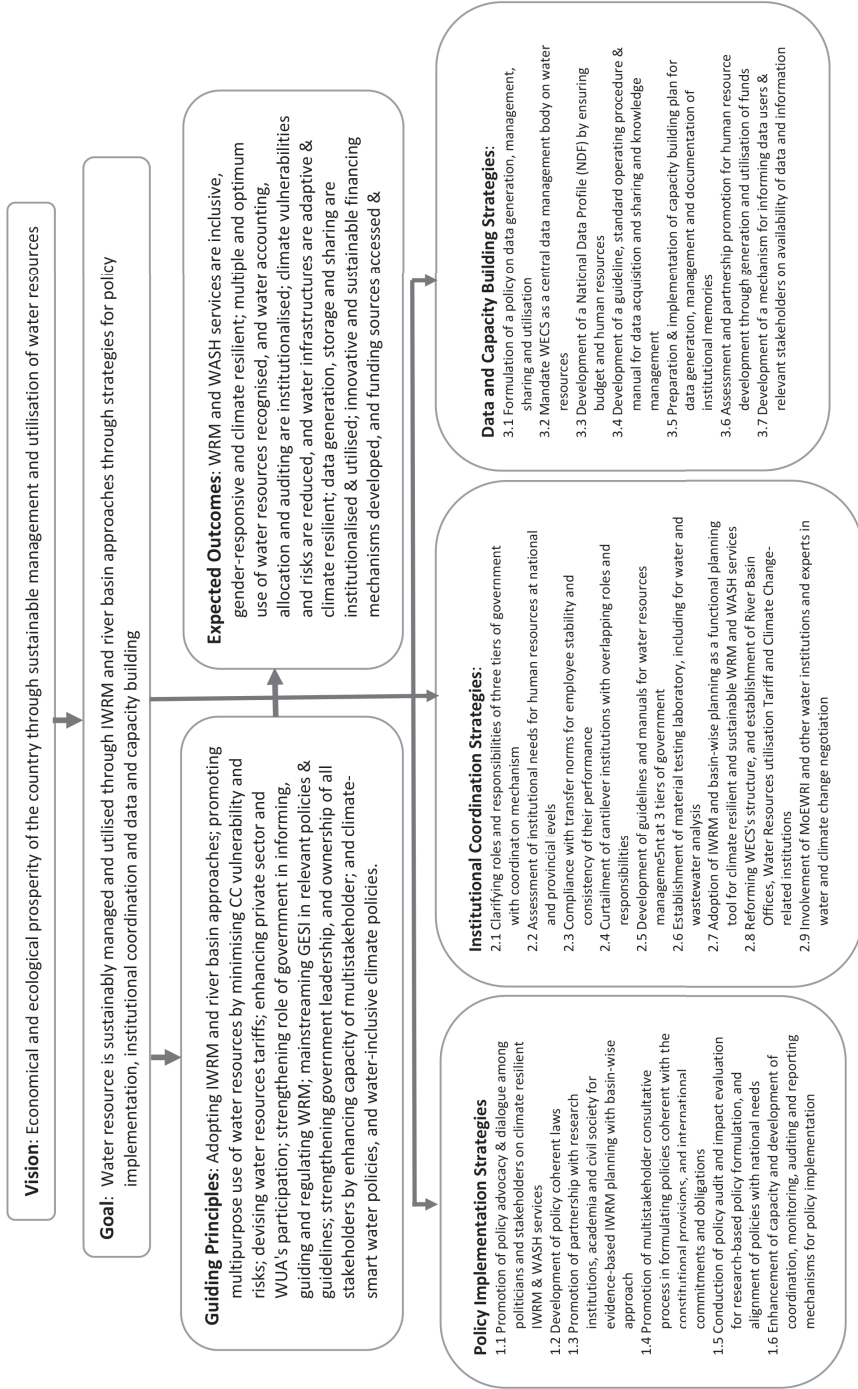
WRM and WASH services are broad areas and would require support from several organisations for water conservation, management and sustainable use. As mentioned above, water resources are primarily used for drinking purposes, irrigating land for crop production, livestock and fishery development, hydroelectricity generation, industry operation and so on. Hence, multi-stakeholders such as people, farmers, livestock rearing community, industrialists or tourism promoters or wastewater managers would have multiple engagement in water resources utilisation. Enabling

conditions need adequate consideration to implement specific strategies. Hence, the following cross-sectoral strategies would help to better manage and utilise water resources and promote timely delivery of WASH services:

1. Promote IWRM and WASH service delivery with participation of local people and private sector;
2. Strengthen existing and/or establish coordination mechanism with clear responsibilities;
3. Support for research and technology development on WRM and WASH services;
4. Ensure and regulate environmental assessment, environmental monitoring and auditing as per the legal provisions and make public the monitoring and auditing results;
5. Promote gender-responsive policies and strengthen engagement of women, poor and marginalised communities in planning, programming and decision-making processes by creating awareness, developing skills and implementing GESI provisions in WRM and WASH services;
6. Initiate targeted activities to strengthen economic and social upliftment of women, marginalised and disadvantaged communities;
7. Institutionalise studies on climate change vulnerability and risks in major WRM programmes, and WASH services and ensure risk management in all water resources plans, programmes, and projects; and
8. Enhance understanding and develop capacity of government staff on climate change adaptation and mitigation through targeted training and orientation programmes.

These cross-cutting strategies are expected to bolster effective implementation of the response strategy on policy implementation, institutional coordination and data & capacity building. A summary of response strategy is given Figure 3.1.

Figure 3.1.: Response Strategy on Policy Implementation, Institutional Coordination and Data & Capacity Building



FINANCING FOR STRATEGY IMPLEMENTATION

4.1 Activity-based funds

WG members intensively worked on budget estimates for each activity and sub-activity on 18-19 August and 06 October 2023 applying unitary cost or lumpsum amount for estimation, expenditure practices in recent years. As per the estimation of the WG members, the estimated total cost for all activities of all barriers totals to US\$ 52.884 million. Summation of estimated cost of each sub-activity to the activity level informs the need for allocation of USD 1.9 million for the effective implementation of activities to overcome policy implementation barrier (Table 4.1).

Table 4.1: Estimated Cost for Priority Activities

Activities ¹	Est. Cost (NRs. '000)	Funding Source	Responsibility (Lead)
Barrier A. Policy Implementation			
Root Cause 1: Inadequate political commitment			
P1.1: Raise awareness at political level about climate resilience, IWRM and WASH services	89,600	GoN, DPs	WECS
P1.2: Promote evidence-based water-related planning (IWRM)	22,600	MoF, DPs & NGO	WECS, MoWS
Activity cost for root cause 1	112,200		
Root Cause 2: Incoherent approach for policy formulation			
P2.1: Align policy with the constitution and international commitment and avoid individualistic approach of policy formulation	1,500		
P2.2: Promote multi-stakeholder consultative process in formulating coherent policies	98,500	GoN, DPs	WECS & NPC

1 Each activity includes more than 1 sub-activity, and lead agency is proposed for each sub-activity. Hence, more than one lead agency may appear in the strategy.

P2.3: Conduct policy audit and impact evaluation	6,000	GoN, DPs	NPC and MoEWRI
Activity cost for root cause 2	106,000		
Root Cause 3: Inadequate capacity for policy implementation			
P3.1: Ensure policy implementation by enhancing capacity and developing mechanisms for coordination, monitoring, auditing & reporting	39,300	GoN, DPs	WECS, MoWS & MoFAGA
P3.2: Develop policy coherent laws	5,000		
Activity cost for root cause 3	44,300		
Sub-total	262,500	1.989 million, @ 1USD=NRs 132	
B. Institutional Coordination			
Root Cause 4: Unclear and overlapping roles and responsibilities of 3-tiers of government			
I1.1: Clarify roles and responsibilities of three-tiers of government	14,000	GoN	MoEWRI & WECS
I1.2: Avoid cantilever institutions with overlapping roles and responsibilities	1,000		
Activity cost for root cause 4	15,000		
Root Cause 5: Inadequate institutional capacity			
I2.1: Assess and prioritise capacity needs of the institutions	116,000	GoN & DPs	Local level, MoFAGA
I2.2: Develop Guideline regarding WRM (including WASH) at all levels	100,000	DPs	WECS, relevant ministries
I2.3: Establish and/or strengthen material testing, water and wastewater laboratory and training centre at federal and province levels	510,000	DPs	MoEWRI & MoWS
I2.4: Compliance of transfer norms to ensure employee's stability	1,400		
Activity cost for root cause 5	727,400		
Root Cause 6: Lack of IWRM and River Basin considerations in planning & implementation			
I3.1: Adopt IWRM and River Basin Approach as a functional planning tool	136,400	GoN, DPs	MoEWRI & MoWS
Activity cost for root cause 6	136,400		
Root Cause 7: Lack of Water Resources Tariff, River Basin and Climate Change-related Institutions			
I4.1: Establish a regulatory mechanism for water tariff	20,000	GoN, DPs	MoEWRI & MoWS
I4.2: Reform WECS structure and mandate	10,000	GoN	WECS
I4.3: Establish River Basin offices for major rivers	5,120,000	GoN & DPs	WECS & MoEWRT
I4.4: Establish Climate Change Section under Environment Division in MoEWRI	139,000	GoN	WECS & MoEWRT

I4.5: Involve MoEWRI and other water institutions in water and climate negotiation process	13,000	GoN & DPs	WECS, MoWS & MoEWRI
Activity cost for root cause 7	5,302,000		
Sub-total	6,180,800	USD 46.824 million, @ 1USD=NRs 132	
C. Data and Capacity Building			
Root Cause 8: Lack of mandate and policy clarity for data generation and management			
D1.1: Formulate a policy on data management	27,400	GoN	WECS
D1.2: Mandate WECS as central data management institution on water resources	17,000		
D1.3: Develop a National Data Profile	105,000	GoN & DPs	NSO
Activity cost for root cause 8	149,400		
Root Cause 9: Limited budget and motivation for data generation and management			
D2.1: Ensure budget allocation	8,000	GoN	NNRFC
D2.2: Develop, train and utilise human resources	60,000	GoN	WECS & local level
Activity cost for root cause 9	68,000		
Root Cause 10: Limited coordination amongst different institutions			
D3.1: Develop data sharing guidelines	60,000	GoN & DPs	WECS, & MoEWRI
Activity cost for root cause 10	60,000		
Root Cause 11: Inadequate human resources and institutional memory			
D4.1: Prepare capacity building plan	100,000	GoN & DPs	Respective ministries
D4.2: Use Standard Operating Procedure for knowledge management	30,000	GoN & DPs	Respective ministries
Activity cost for root cause 11	130,000		
Root Cause 12: Limited need- and output-based training			
C1.1: Prepare & implement capacity development plan	90,000	GoN & DPs	Training Institutes
Activity cost for root cause 12	90,000		
Root Cause 13: Limited resources for capacity development			
C2.1: Access and promote partnership for fund generation	40,000	GoN & DPs	Respective ministries
Activity cost for root cause 13	40,000		
Sub-total	537,400	USD 4.071 million, @ 1USD=NRs 132	
Total	6,980,700	USD 52.884 million, @ 1USD=NRs 132	

Note: Importance level of activities related to raising awareness, developing human resources, sharing data, and preparing, developing and implementing capacity building plan and partnership promotion for fund generation are rated 'quite important' and other activities are 'very important'. Most of the activities are one-off and some should be implemented for longer period.

US\$ forty-six million and eight hundred twenty-four thousand have been estimated for activities that contribute to minimise the effects of barrier, an institutional coordination. The government has planned to establish the River Basin Offices (RBOs) and estimated cost for proposed offices includes cost for human resources, buildings and programme implementation that would require significant amount of budget initially. Furthermore, cost for human resource development and IWRM adoption as a planning tool at provincial and local levels would also require significant chunk of funding. About US\$ 4.1 million has been estimated for the implementation of prioritised activities to resolve data and capacity building barrier. Significant amount of fund would be required to implement capacity development plan as it is a continuous process. Budget estimate for addressing key barriers for inclusive and climate-resilient WRM and WASH services totals to over US\$ 52.884 million (NRs. 6.98 Arba).

Eighty-eight percent of the total estimated budget is allocated for institutional coordination, including establishment of RBOs and implementation of activities (Table 4.2). About 3.7 percent of the total estimated budget would streamline policy implementation that resolves several barriers, affecting water resources development, conservation, management, and sustainable utilisation. And about 7.7 percent is estimated for generating, analysing, managing, storing and sharing data, and building and/or enhancing individual capacity to implement the activities and sub-activities.

Table 4.2: Summary of Barriers-based Estimated Cost

SN	Barriers	Estimated Cost		Percentage of Total
		In NRs ('000)	In US \$ ('000)	
1	Policy implementation	262,500	1,989	3.76
2	Institutional coordination	6,180,800	46,824	88.54
3	Data and capacity building	537,400	4,071	7.70
	Total	6,980,700	52,884	100

Note: 1 US\$ = NRs 132

The finance report has grouped actions into short-term, medium-term, short-medium term, short-long-term, medium-long-term and long-term. In terms of timing, about 37 and 39 percent of the estimated cost for activities prioritised under policy implementation barrier would be required for short-

term and long-term activities respectively. The study confirms only about 5 percent of the estimated funding highly certain for short-term activities.

As per the finance report, about 62 percent of the total estimated cost is proposed to receive from development partners. The government is expected to allocate and spend about 27 percent of the total cost for activities prioritised for the institutional coordination. About 7.7 percent of the total budget is estimated for activities prioritised to resolve data and capacity building barrier. The government is expected to allocate and spend nearly half of the total estimated cost for several activities related to data generation, management, storage and sharing, and capacity building. About 37 percent of the estimated budget on data and capacity building would be required for short-term activities. Based on finance report, about 14 percent of the total estimated funding is categorised highly certain and 84 percent is of medium level of funding certainty.

Mapping of water-related projects under implementation, and priority activities selected to address three barriers provide some hope for complementary funding, particularly for policy formulation, institutional building and/or strengthening and capacity building of the three-tiers of the government. The complementary funding is expected from the ongoing projects, taking into consideration the nature of activities, funding amount, and remaining time left for implementation.

4.2 Sources of fundings

As most of the activities are related to policy implementation and establishment and strengthening of institutions, WG members emphasised to mobilising government funding for programme implementation and accessing development partners for technical and additional financial resources.

Nepal is receiving financial resources from friendly countries and multilateral agencies, and dedicated climate change funds. However, WGs have broadly identified development partners without specifying any funding institutions for necessary technical and financial supports. This demands to identify funding agencies, understand their funding priorities and criteria, and develop, submit and negotiate activity-based proposal(s) for strategy implementation.

4.3 Fund flow mechanism

Fund flow largely depends upon the nature and sources of funding. Domestic resources are channelled through the central treasury. The Ministry of Finance (MoF) allocates funding to the programmes based on established national budgetary process. In general, the National Development Council evaluates the development plans, provides planning directives to the NPC, and identifies national priority projects. The NPC Resource Committee informs the concerned ministry the budget ceiling for the new fiscal year. Each ministry prepares and submits annual budget by following NPC guidelines. MoF oversees the revenues and expenditures, mobilises and allocates resources, formulates annual estimates of income and expenditures and finally submits the proposal to the cabinet for approval. The Minister for Finance makes a budget speech in the parliament on 29 May of each year. The Parliament approves the annual programmes with budget. New fiscal year starts from mid-July.

The government receives financial supports from bilateral and multilateral sources, and climate finance. The fund flow mechanism varies from project to project. The bilateral funding may be directly provided to the government as budgetary support as well. The supporting country may fund for specific activities through the national or international agencies. The fund flow from climate finance may vary from project to project. In case of LDC Fund, Special Climate Change Fund or GEF resources, the government can access fund through the GEF implementing agencies (see # 5.6 in Chapter 5). Funds received may be used through: (i) on-budget, on-treasury; (ii) on-budget, off-treasury; and (iii) off-budget, off-treasury approaches. Most of the climate funds are accessed through GEF IAs and/or accredited delivery partners.

National institutions should be empowered and strengthened in accessing and mobilising financial resources to develop country capacity. Nepal Climate Change Support Programme (NCCSP) adopted a 'on-budget, on-treasury' approach since its first stage in 2013 and is continued in its second phase. This approach is working perfectly and is strengthening the capacity of the local governments. The government has informed organisations willing to access climate finance to follow this 'on-budget, on-treasury' approach.

In NCCSP, the Programme Steering Committee approved annual programmes, provided guidance and ensured coordination. The Project

Executive Board made decisions for the overall management and implementation of the programme. In NCCSP phase I, the funding agency provided funds to the Ministry of Finance which transferred it to the then Ministry of Environment. Parts of the funds was transferred to the UNDP for providing the technical assistance. The Ministry of Environment transferred the fund directly to the District Coordination Committee (DCC) through the Programme's central office. DDCs later transferred fund to the district line agencies, community user groups, and service providers (Figure 4.1). It worked well, and it is continued in its second phase.

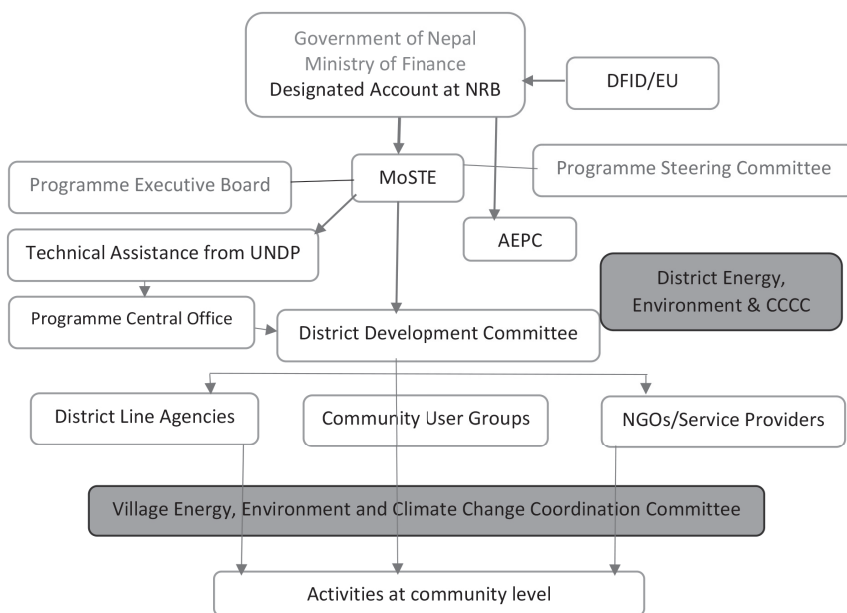


Figure 4.1 NCCSP Fund Flow Mechanism (Dixit et al, 2016)

Note: MoSTE - Ministry of Science, Technology and Environment (then); AEPC - Alternative Energy Promotion Centre; CCCC - Climate Change Coordination Committee; NRB - Nepal Rastra Bank, and DDC - District Development Committee (then); DfID - Department for International Development; and EU - European Union

The fund flow mechanism for the implementation of this response strategy is proposed as follows, taking note of funds received from bilateral and multilateral agencies (development partners) and climate finance through the GEF implementing agencies and/or accredited delivery entities (Figure 4.2).

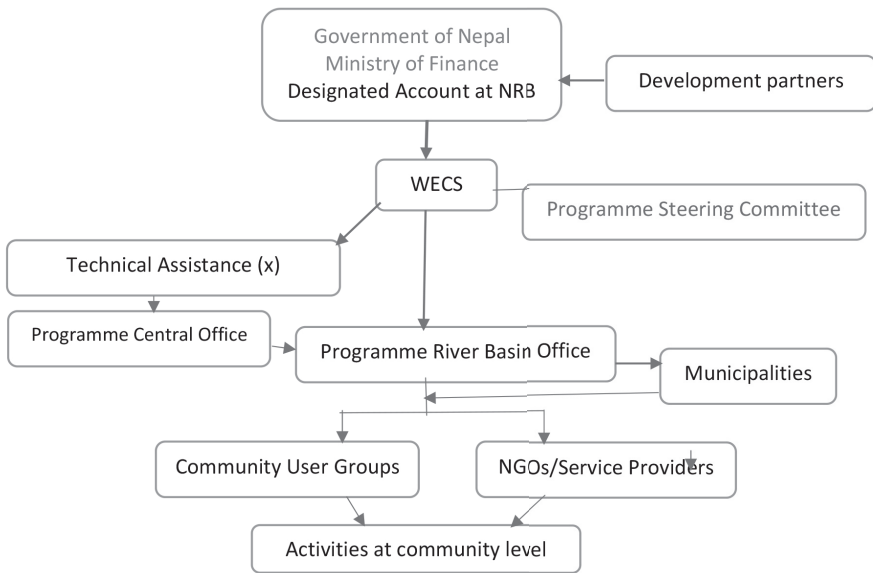


Figure 4.2 Fund Flow Mechanism for the Response Strategy

IMPLEMENTATION ARRANGEMENTS

5.1 The Role of Government

WECS formulates policies and strategies and provide guidelines to enact necessary laws for water resources and energy sector. It assists, inter alia, in formulating water sector policies, perspective and periodic plans, and provides guidance to the multipurpose water resources projects and protection of the environment. The Secretariat conducts study, survey, research, and analysis on various aspects of water resources. It also analyses and cause to analyse bilateral and multilateral projects, including coordination among national and sectoral policies on water resources. WECS along with RBOs will play a vital role in inter-governmental/sectoral coordination, monitoring, regulating and data management for IWRM.

MoEWRI formulates, implements, monitors, and regulates policies, laws and standards on water resources sector; promotes, inter alia, hydroelectricity generation, year-round irrigation supply, groundwater assessment, development and monitoring, and watershed conservation, including weather forecasting and river water flow. The ministry is responsible for managing river basins, promoting multipurpose and inter-basin water transfer projects for water security, and contributing to reduce climate-induced disasters to ensure climate-resilient water resources development.

MoWS has a mandate to ensure delivery of water supply and sanitation-related quality services in an effective and sustainable manner, and to formulate, implement, monitor, and regulate policies, laws and standards to develop water supply and sanitation sector. The ministry integrates climate change adaptation and resilient concerns into drinking water and sanitation services, including water source protection.

The Ministry of Forests and Environment (MoFE) promotes the conservation, management and sustainable utilisation of forests and watershed resources, and contribute to make development environment-friendly and climate-resilient. The ministry formulates, implements, monitors and regulates policies, laws and standards related to forests, protected areas, watersheds, environment and climate change. The ministry is also responsible to integrate water security concerns in climate change policy, promote climate change adaptation in water resources sector, and reduce water pollution through regulatory processes.

Actions prioritised for resolving root causes of each barrier (policy implementation, institutional coordination, data and capacity building) require longer time perennial interventions. To ensure constant interventions and necessary budget and human resources, WECS will contribute to integrate these strategies into national policies, plans and programmes, including activities in the annual plans and provide guidance for integration into provincial policies and plans.

WECS will continue to lead and drive the strategy implementation process, and ensure accessing and mobilising technical and financial resources. WECS will develop monitoring and reporting mechanisms and will share the status of the implementation of the action plan and the response strategy as prescribed. In addition to the ministries, WECS will enhance coordination, and collaboration and will ensure integration of climate change right from policy and strategy formulation processes in a coordinated manner.

5.2 Inter-agency Committees

The government establishes coordination mechanisms, inter-agency committees and thematic groups as and when necessary to promote and ensure coordination, cooperation and collaboration. The committees are considered effective in addressing theme-based cross-cutting challenges. Existing coordination mechanisms at national level on water resources and climate change are briefly described below:

Parliamentary Committee: As per the constitutional provisions and Rule 173 of the House of Representatives Rules (2022), ten thematic (subject) Committees have been formed. The Infrastructure Development

Committee looks after water resources activities carried out by the Ministry of Energy, Water Resources and Irrigation, and Ministry of Water Supply. The Agriculture, Cooperatives and Natural Resource Committee may also look after water use for irrigation purposes. Similarly, Finance Committee looks after the Ministry of Finance, National Natural Resources and Finance Commission, Investment Board and so on. The general function, duty and power of the Committee are related, inter alia, to: (i) discuss on bill(s) and prepare a report; (ii) evaluate policy and programme, resource mobilisation, management and other activities, revenue and expenditure, and issue directives, including preparation of an annual report with comments, recommendations and directives; (iii) study the initiatives of the government to fulfil the commitments of the Minister and issue directives to concerned agencies; and (iv) conduct monitoring and evaluation of the status of implementation of the Committee's directives and submit a report to the House of Representatives. The Committee may further realise the adverse impacts of climate change on water resources and include provisions in the relevant bills to implement policies through legal measures.

National Council on Environment Protection and Climate Change Management: This Council has been established under the chair of the Rt. Hon'ble Prime Minister as per Section 32 of the Environment Protection Act (2019) (Annex 5). The Council provides, inter alia, direction to integrate environment and climate change into long-term policies, plans and programmes; offers policy guidance to the Provincial and Local levels regarding environment protection and climate change; and manages economic resources for environment protection and climate change.

The Provincial Environment Protection Act (of most of the Provinces) also provisions to constitute provincial council on environment and climate change under the chair of the Chief Minister.

Water and Energy Commission: The government has established this Commission in 1975 to develop water and energy resources in an integrated and accelerated manner. The Commission is chaired by the Hon'ble Minister for Energy, Water Resources and Irrigation. The Commission has mostly ex-officio members such as member of the National Planning Commission (water resources), secretaries of 11 ministries, and representatives from

relevant institutions (Annex 6). Secretary of the Government of Nepal at WECS functions as its Member-Secretary. Its permanent secretariat was established in 1981 to assist the government in formulating policies and plans on water resources.

Inter-Ministerial Committee: The government has established the Inter-Ministerial Climate Change Coordination Committee under the chair of the Secretary of the Ministry of Forests and Environment (Annex 7). The Committee serves as the primary national platform for climate change coordination; facilitates engagement of the provincial and local-level governments and institutions in climate change-related programmes, planning and implementation; supervises technical undertakings related to climate change; promotes adapt and mitigate the risks associated with climate change impacts; and contributes to integrating climate change programmes into the current and future policies and strategies.

Each Province has formed Provincial Climate Change Coordination Committee (PC4) to support the formulation and implementation of climate change policies, strategies, laws, guidelines, and working procedures.

Thematic Working Groups: Nepal adopted thematic working group (TWG) approach in formulating climate change plans and programmes. In 2009, the then Ministry of Environment established six TWGs (agriculture and food security, climate-induced disaster, urban settlement and infrastructure, public health, forests and biodiversity, and water resources and energy) to formulate the National Adaptation Programme of Action (NAPA). Two cross-cutting themes were livelihoods and governance, and gender and social inclusion. The Water Resources and Energy TWG was coordinated by the Ministry of Energy, Water Resources and Irrigation.

During the formulation of the National Adaptation Plan (NAP), the government formed nine thematic groups [(i) agriculture and food security; (ii) disaster risk reduction and management; (iii) rural and urban settlements; (iv) health, drinking water and sanitation; (v) forests, biodiversity and watershed conservation; (vi) water resources and energy; (vii) tourism, natural and cultural heritage; (viii) industry, transport and physical infrastructure; and (ix) gender equality and social inclusion, livelihoods and good governance]. It also formed three cross-cutting groups namely: (i) awareness raising and

capacity development; (ii) research, technology development and expansion; and (iii) climate finance management. The Climate Change Policy (2019) has also recognised these thematic areas, including on water resources and drinking water and sanitation.

The adaptation programmes related to water resources and WASH services were developed and finalised by two TWGs coordinated by two separate ministries - MoEWRI and MoWS (Annex 8). Each thematic group was coordinated by the Joint-Secretary of the respective ministry. The Joint-Secretary of each ministry is represented in the Inter-Ministerial Climate Change Coordination Committee (Annex 7).

The National Water Resources Policy (2020) commits to arranging institutions at national, provincial and local levels for the utilisation, development, management and conservation of water resources. It provisions for establishing a committee at the national level. The Policy has made WECS and MoEWRI responsible for monitoring and evaluation of policy implementation. The province and local levels would also monitor policy implementation within their jurisdiction. Several organisations are engaged in providing water supply and irrigation facility, generating electricity, or promoting water transportation and water use for industries and wastewater treatment.

Existing coordination mechanisms provide opportunities to flag issues and/or process to integrate water into climate change policies, and climate change into water sector policies.

5.3 Public Participation, Private sector and Federations

Public participation has been an integral part of water resources management in Nepal. The National Planning Commission Secretariat has published a project-specific Stakeholder Engagement Plan (SEP) in April 2021 which calls for meaningful consultations with the stakeholders in designing and implementing the project activities. SEP provides a broad guidance to identify and engage stakeholders, including those who are affected, and who have interests in the project and to establish a systematic approach to stakeholder engagement.

Several policies, plans and programmes have provisions to ensure engagement of people and local communities through interaction, information

sharing and feedback in programme planning and implementation. Relevant multi-stakeholders, private sector, target groups and local communities, including women and marginalised and disadvantaged people will be involved in implementing the response strategies. The government provides 25 percent of its royalty to local level governments to further encourage to conserve, manage watersheds and sustainably utilise water resources. Empowerment and mobilisation of women and formation and participation of user group is deeply rooted in Nepal's development planning process and this strength will be fully capitalised during the implementation of the response strategies.

Established as a non-governmental autonomous organisation in 2001, Independent Power Producers' Association, Nepal (IPPAN) promotes private sector involvement in hydroelectricity generation in Nepal. IPPAN assists to exchange technology, expertise, knowledge, financial and management information to independent power producers of the country.

Several NGOs are working in water sector and are active in mobilising users' associations. National Federation of Irrigation Water User's Association coordinates irrigation associations and advocates for year-round irrigation facilities. The Federation of Drinking Water and Sanitation Users facilitates the delivery of WASH services to communities and communicates and advocates for water and sanitation for all. The Farmers Managed Irrigation Scheme Trust promotes local communities in irrigation water supply and management. Such organisations are recognised at policy and decision-making levels and are engaged while formulating and implementing policies, plans, programmes and projects.

Research and development should be an integral part of the implementation of the response strategy. Several academic and research institutes are involved in target specific research and technology development. WECS and MoWS will encourage Nepal Academy of Science and Technology (NAST) and water resources stream of the Tribhuvan University and Kathmandu University and other academic and research institutes in conducting research and development in water resources and WASH services. In addition, National Agriculture Research Council (NARC) could inform on crop-based water requirement that may facilitate water allocation for agriculture production. In addition, Water Resources Research and Development Centre (WRRDC)

is also conducting the research in the water sector with the objective of promoting sustainable water resource management practices and supporting informed policy decisions for the responsible use and conservation of water resources in Nepal. Hence, implementation of this strategy would be effective through collaborative and joint efforts of the government, private sector, NGOs, academic and research organisations.

5.4 Coordination Mechanism

As mentioned above, WECS established a coordination mechanism to coordinate, supervise, and provide guidance on GWL programme (Annex 1). In view of the nature of response strategies and water use sectors and sub-sectors, a National Water Resources Coordination Committee (NWRCC) will be established under the chair of the Secretary of the Government of Nepal at WECS, comprising of one senior level representative from relevant ministries, local government associations, private sector and user groups. The Committee will provide coordination and operational guidance for the implementation of the response strategy. The Committee will meet twice a year and report to the Water and Energy Commission on the status of strategy implementation. WECS will depute a senior officer for day-to-day works.

The composition of the Committee is as follows:

1. Secretary, Water and Energy Commission Secretariat (WECS)	Chairperson
2. Joint-Secretary, National Planning Commission Secretariat	Member
3. Joint-Secretary, Ministry of Energy, Water Resources and Irrigation	Member
4. Joint-Secretary, Ministry of Water Supply	Member
5. Joint-Secretary, Ministry of Forests and Environment (Climate Change Management Division)	Member
7. Joint-Secretary, Ministry of Health and Population	Member
8. Joint-Secretary, Ministry of Agriculture and Livestock Development	Member
9. Joint-Secretary, Ministry of Industry and Commerce	Member
10. Joint-Secretary, Ministry of Tourism, Culture and Civil Aviation	Member
11. Joint-Secretary, Ministry of Physical Infrastructure and Transport	Member
12. Joint-Secretary, Ministry of Federal Affairs and General Administration	Member
13. Joint-Secretary, Ministry of Urban Development	Member
14. Joint-Secretary, Ministry of Finance	Member
15. Joint-Secretary, National Statistics Office, Office of the Prime Minister	Member

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| 16. President, Municipality Association of Nepal | Member |
| 17. President, National Association of Rural Municipalities in Nepal | Member |
| 18. Representative, Federation of Nepalese Chambers of Commerce & Industry | Member |
| 19. Chair, Independent Power Producer Association, Nepal | Member |
| 20. President, National Federation of Irrigation Water Users' Association, Nepal | Member |
| 21. President, Federation of Drinking Water and Sanitation Users, Nepal | Member |
| 22. Joint-Secretary, Water and Energy Commission Secretariat | Member-Secretary |

The Committee may form sub-committees with specific terms of reference to provide technical guidance and support in resource generation and capacity building as and when required. The Water Resources Division of WECS will function as its secretariat and a coordinating unit for implementation of this Response Strategy.

As also mentioned above, the Constitution of Nepal (2015) provides guidance on policies relating to the protection, promotion, and use of natural resources [Article 51 (g)] and provisions for promoting multi-purpose development of water resources through the coordinated efforts of the three-tiers of government. A clear understanding on the roles and responsibilities amongst three-tiers of government and functional coordination would greatly contribute to conserving, managing and sustainably utilising water resources. To ensure interconnectivity amongst the three-tiers of government, province and local levels are encouraged to implement relevant strategies and actions of this response strategy by integrating them into their policies and programmes. The strategy and actions should be implemented and monitored by the Province and Local levels. The Local level should raise public awareness on the impacts of climate change on water resources, carry out monitoring, evaluation and documentation of activities conducted within its jurisdiction. The Provincial Ministry, responsible for water resources management, will function as a 'bridge' between the national and local levels to implement the strategic actions.

At Province level, a multi-stakeholder coordination committee may be constituted under the chair of the Secretary of the Ministry, responsible for water resources. Alternatively, existing coordination mechanisms may be mobilised for coordination, collaboration, and guidance. If necessary, the Local level may use the existing coordination mechanisms to discuss and

make decisions for the conservation, management and utilisation of water resources within its jurisdiction.

5.5 Capacity Building

The response strategy addresses capacity building needs to implement policies, coordinate relevant institutions, and generate, manage and share data and information. The implementing agency (of the response strategy) will be engaged in assessing capacity needs, building and enhancing institutional and individual capacity through awareness raising, orientation programmes and workshops or targeted training. The government will enhance its capacity, including of the private sector about the adverse impacts of climate change, vulnerabilities, and risks to drinking water sources, hydroelectricity generation, and irrigation facilities, and users' associations in delivering irrigation facilities and WASH services.

The Water Resources Research and Development Centre (WRRDC), a research wing of the Government of Nepal on water resources, has the objectives of, inter alia, providing long-term training to the government employees, and carrying out studies and action-oriented research related to water resources, environment protection and climate change. WRRDC will be involved in collecting, packaging, repackaging, and sharing knowledge, experiences, and lessons on water resources and climate change impacts, including impacts mitigation, and building capacity to adapt to and build resilience to climate change. The budget speech of the Minister for Finance in this FY 2023/204 informs the merging of this Centre in WECS which will later be a technical wing under WECS for action-oriented research, technology development and capacity enhancement in water resources sector.

The Department of Water Supply and Sewerage Management builds and enhances capacities of its staff for planning, programming, resource mobilisation, implementation, and monitoring of water supply and sanitation activities through its National Water Supply and Sanitation Training Centre (NWSSTC). The Centre emphasises to enhance skills of WASH stakeholders and capacitates managers, engineers, sociologists, programme officers, sub-engineers, technicians, women workers, social mobilisers, sanitation volunteers, teachers, WASH user committee members etc. The Centre is

engaged in assessing training needs, gaps and effectiveness, and in preparing capacity development master plan and training manuals. This Centre will be engaged in human resource development to implement the response strategy on WASH services.

Recalling the impacts of climate change on water infrastructures and hydroelectricity generation due to low river water flow in the recent years, Nepal Electricity Authority (NEA) and private sector may wish to develop their capacity to reduce climate vulnerabilities and risks and increase economic returns from water sector projects. Efforts would also be required to build and enhance capacity of the private sector involved in hydroelectricity generation in meeting the banks' requirements to comply with the provisions of the Guidelines on Environmental and Social Risk Management (ESRM) for Banks and Financial Institutions (2022) issued by the Central Bank of Nepal. In addition, some specific training would be required to develop and use technologies as specified in the action plan.

5.6 Financial Resources

Several policies and plans on water resources and WASH services do not specify the financial resources for their implementation. The National Water Resources Policy (2020) is unclear on financial resources that would be required for its implementation. It includes policies on climate change but does not clearly specify accessing climate finance. In practice, private sector engaged in hydroelectricity generation are financed from the banks and they need to comply with the ESRM Guideline to address environmental, social and climate risks.

The Climate Change Policy (2019) provisions to access funding for adaptation programme, mostly from LDC Fund, Green Climate Fund, Adaptation Fund, and bilateral and multilateral resources. The policy encourages private sector to mobilise finance through green bond, blended finance, result-based financing, carbon offset and corporate social responsibility. Some policies focus to mobilising national resources and access multilateral international financing mechanisms. Access to available multilateral funding in the form of technical assistance and loan is understood but use of additional windows on climate finance is unclear in water sector policies and plans.

Section 31 of the Environment Protection Act (2019) has provisioned for the establishment of the Environment Protection Fund (EPF) for the protection of environment, prevention and control of pollution, management of climate change, and protection of the national heritages. The sources of the Fund are amount received from the government, any native person or organisation, and any foreign government or international organisation. Hence, additional financial resources should be explored and mobilised to implement this response strategy and the government may access and mobilise finance, inter alia, from the following sources.

Domestic Sources: The government generates financial resources through, inter alia, tax, revenue, royalty, and donations and allocates funding for several activities. The government imposes tax for specific purposes. It has introduced a tax to generate resources for pollution control in the Kathmandu Valley by charging NRs. 50 paisa per litre of petrol to be sold in the Valley. During the last two and half decades, a significant amount of pollution tax has been collected but it is yet to spend for pollution control and other environmental management programmes in the Valley.

The government has collected significant amount of financial resources from infrastructure tax imposed on petroleum products during the last 8 years (since FY 2015/16). Nepal Oil Corporation pays tax at the custom point while importing fuel. Initially, the government has imposed NRs 5/ litre on petroleum products for the construction of 1200MW Budhi Gandaki Hydroelectricity Project. The government changed the tax rate and is collecting NRs 10/litre as infrastructure development tax. Similarly, road tax is imposed to maintain targeted roads. Local governments are also imposing taxes in utilising local resources. Tax on petroleum products provides opportunities to generate financial resources at the national level for specific activities.

The Hydropower Development Policy (2001), Electricity Act (1992) and its Rules (1993) and the Water Resources Act (1992) and its Rules (1993) encourage private sector to generate hydropower. Private sector is investing finances in this sector with support from Banks. As mentioned above, Nepal Rastra Bank has issued a ESRM Guideline for Banks and Financial Institutions in February 2022. The Guideline urges to check environmental and social safeguards, including climate change and institutionalise

Environmental and Social Due Diligence (ESSD) and report back to the Centre Bank annually on its compliance.

Understanding on national finances such as government treasury, banks, insurers, asset managers and non-governmental organisations or businesses, domestic resources should be explored for strategy implementation, including for technical and financial resources.

Foreign Investment: The Foreign Investment and Technology Transfer Act (2019) facilitates foreign investment and technology transfer in water resources management and WASH services as well. The Act commits not to limit investment of foreign investors. The Act empowers the government to promote, facilitate and regulate the foreign investment and intends to provide 'one window' services. In addition, Public Private Partnership and Investment Act (2019) also opens number of avenues to attract investment in hydropower sector to generate clean energy. Private sector involvement would also open windows for sustainable use of water resources, data generation and capacity building.

Bilateral and Multilateral Finance: Nepal will continue to receive technical and financial support from its friendly countries and development partners, mainly the multilateral agencies, UN and other bodies in planning, designing, implementing and monitoring of water resources programmes and for WASH services. Nepal is receiving support from the governments of China, Japan, India, Norway, United Kingdom, USA, and member countries of the European Union, including others. The World Bank and the Asian Development Bank provide technical assistance to develop human resources and enabling environment, and loans to construct water infrastructures. Nepal has also tapped other funds which are established to support the developing and least developed countries (LDCs).

Knowledge on sources of finance, availability of funds, pre-requisites, funding priorities and allocations of friendly countries and multilateral agencies would greatly contribute to access required resources. It is equally important to understand financier's strategic priorities and investment criteria along with the national investment principles to access funding for water resources management and WASH services.

Climate finance: Response strategy advocates for making 'water-inclusive climate policy' and 'climate-smart water policy' and opens avenues to access climate finance. At present, five funds are established to support developing countries to implement climate change programmes, particularly the mitigation and adaptation interventions. As a Party to the UN Framework Convention on Climate Change (UNFCCC), Kyoto Protocol (KP) and the Paris Agreement (PA), Nepal could access funding from LDC fund, Special Climate Change Fund (SCCF), Adaptation Fund (AF), Green Climate Fund (GCF) and newly established Loss and Damage (L&D) Fund. Article 4.9 of the UNFCCC states 'The Parties shall take full account of the specific needs and special situations of the least developed countries in their actions with regard to funding and transfer of technology'. Nature of fund and process to access these funds is briefly described below:

- a. **LDC Fund:** Established in 2001 by the decision of the 7th session of the Conference of the Parties to the UNFCCC held at Marrakech, Morocco, LDC Fund, dedicated to the LDCs, was established to support the LDC work programme, including NAPA preparation and implementation. It has adopted 'equal access approach' and it can be accessed only through the Global Environment Facility (GEF) Implementing Agencies (IAs). This Fund helps the LDCs to build adaptive capacity, implement most urgent and immediate adaptation actions, and reduce climate vulnerability.
- b. **Special Climate Change Fund:** This SCCF was also established at Marrakech in 2001 to finance projects relating to adaptation, technology transfer and capacity building; and mitigation related projects from energy, transport, industry, agriculture, forestry and waste management sectors, and promote economic diversification in developing countries. This Fund supports to create climate-resilient economies and communities. All developing countries can access this Fund to address their specific needs through GEF IAs. This Fund supports short- to long-term adaptation activities in water resources management, land management, agriculture, health, infrastructure development, fragile ecosystems, including mountainous ecosystems.

The GEF has adopted programme strategies to reduce vulnerability and increase resilience through innovations and technology transfer, mainstream climate change adaptation and resilience for systematic impacts, and foster enabling conditions for effective and integrated climate change adaptation.

- c. **Adaptation Fund:** Established in 2001 under the Kyoto Protocol, this Fund finances concrete adaptation programmes and projects in developing countries that are Parties to the Kyoto Protocol. It has a perennial source of resources and receives 2 percent share of proceeds of the certified emission reductions (CERs) under the Clean Development Mechanism (CDM) and other sources of funding such as voluntary contributions. As per the decision, Adaptation Fund will receive a levy of 5 percent from Article 6, paragraph 4 of the Paris Agreement to assist climate vulnerable developing countries. It will also receive a monetary contribution to be set by the Advisory Body of the Article 6.4, and other funds.
- d. **Green Climate Fund:** The GCF is the largest climate fund and is mandated to support developing countries towards low-emissions and climate resilient pathways. It has adopted four-pronged approaches - transformational planning and programming, catalysing climate innovation, de-risking investment to mobilise finance at scale, and mainstreaming climate risks and opportunities into investment decision-making to align finance with sustainable development. It has also adopted 'direct access approach' and GCF has accredited delivery entities. In Nepal, Alternative Energy Promotion Centre (AEPC) and National Trust for Nature Conservation (NTNC) are the GCF accredited delivery entities for direct access to the Fund. The GCF's main impact areas are low emission energy access and power generation, low-emission transport, energy efficient building, cities and industries, sustainable land use and forest management, and enhanced livelihoods of the most vulnerable people and communities with the ultimate objectives of reducing emissions and enhancing sinks of greenhouse gases to reduce climate vulnerability.

All these funds are pledge-based and developed countries Parties to the UNFCCC provide financial resources to replenish them in accordance with the provisions of the Convention, Kyoto Protocol, and the Paris Agreement.

- e. **Loss and Damage Fund:** Parties to the UNFCCC at CoP27 and CMA.4 in November 2022 at Sharm el-Sheikh, Egypt decided to establish a Loss and Damage Fund to mobilise new and additional resources for assisting developing countries that are particularly vulnerable to the adverse effects of climate change to focus on addressing loss and damage. Parties established a Transitional Committee to recommend for the operationalisation of this new funding arrangements with focus on, inter alia, institutional arrangements, modalities, structure, and governance, including identifying and expanding sources of funding. Taking note of the recommendations of this Committee, CMA5 adopted a decision to operationalise this Fund on 30 November 2023 during CoP28 at UAE, Dubai. Nepal may access it to recover from water- and climate-induced disasters, including sediment disasters and GLOF impacts.

Additional initiatives are on progress to reduce climate vulnerability and promote resilience. Concept of green financing has been emerged to encourage financing institutions and business communities to make their efforts for 'zero emission' in investments and lending portfolios and/or to promote low-emission growth path.

As mentioned above, the Climate Change Policy (2019) urges to access bilateral, multilateral and international financial resources, including from GCF, GEF, Adaptation Fund, Climate Investment Fund, and carbon trade. It commits to mobilise at least 80 percent of the total amount for programme implementation at local level by reducing administrative expenses, mobilising and institutionalising climate change Budget Code.

MONITORING AND REPORTING MECHANISMS

6.1 Monitoring

The action plan has specified the activities with implementing agencies. As actions are related to policy implementation, institutional coordination, data generation, storage, management and sharing and capacity building, central level organisations will be responsible to implement them. During implementation, baseline monitoring indicators will be developed by specifying methods for data collection and analysis as and when necessary. Two types of monitoring would be appropriate for the proposed actions - performance or compliance monitoring, and outcome and impact monitoring. Compliance monitoring will simply record the full or partial or non-implementation of actions whereas the impact monitoring will provide information on the effectiveness of actions to resolve the root causes.

Effective implementation of actions is expected to ensure inclusive, gender-responsive and climate resilient water resources and WASH services, promote multiple use of water resources along with water accounting and allocation, reduce climate vulnerabilities and risks to water infrastructures, share appropriate data and information, and develop sustainable financing by accessing and mobilising funds and by building country capacity. During implementation of actions, a template of monitoring format will be developed for monitoring activities. Each implementing agency will adjust the format to accommodate activity-based requirements and use for performance monitoring of actions. WECS will conduct outcome and impact monitoring every three years. A monitoring framework is as follows:

Table 6.1: Response Strategy Monitoring Framework

Description of Summary	Indicators	Means of Verification	Frequency	Key assumptions
Vision: Economical and ecological prosperity through sustainable management and utilisation of water				
Goal: Water resource is sustainably managed and utilised through an IWRM and river basin approaches by strategies for policy implementation, institutional coordination and data and capacity building.	Formulation of IWRM policy	IWRM policy in place	Once	A standalone IWRM policy or IWRM integration in relevant policies ensured
	No. of river basin offices (RBOs) established	Four RBOs established with staff, annual programme and budget	Establishment of RBOs & staff once Programme & budget annual	River basin master plans approved and 4 RBOs established and operated
	No. of coordination committee(s) or sub-committee(s) established	Decision on Committee establishment, and meeting of coordination mechanism in government lead agency	Decision on Committee establishment once Meeting as per needs	Government constitutes an inter-agency coordinating body under the leadership of WECS
	No. of knowledge products generated	Publication or online knowledge products	five	Dedicated officials at WECS assigned for preparation & sharing of knowledge products frequently
	Amount of water allocated to water-dependent sectors	Water auditing reports	Annually	A mechanism for water allocation, reporting and auditing is in place
	No. of policies revised or formulated	Inclusion of climate concerns in water policy & water concerns in climate policy	Annually	Water is realised as a resource and risk to climate change impacts
Outcome 1: WRM and WASH services are inclusive, gender-responsive and climate resilient	No. of policy, strategy and plan in water resources having priority on GESI and climate change	Review report of water sector policies, strategies and Plans	Every three year	Greater realisation of stakeholders in mainstreaming GESI & climate change into water and water into climate policies
	No. of policy, strategy and plan in WASH sub-sector having priority on GESI and climate change	Review of WASH related policies, strategies and Plans	Every three year	Greater realisation of stakeholders in mainstreaming GESI & climate change into WASH and WASH into climate policies

Outcome 2: Multiple use of water resources is recognised, and water accounting and allocation (to water-dependent sectors) are institutionalised	No. of multiuse projects designed and implemented with focus on climate risks	Review report of Project design document	Annually	Policy related to development and implementation of multipurpose project is implemented by considering climate vulnerabilities and risks
	No. of institutions involved in water allocation and accounting	Review of institutional mandates	Once in five years	Government has mandated water institutions for allocations & accounting periodically
	Development of a framework on water allocation and accounting	Issuance of a framework	Once	WECS develops a framework to institutionalise water allocation & accounting
Outcome 3: Climate vulnerabilities and risks are reduced, and water infrastructures are adaptive and resilient to climate change along with early warning facilities	No. of river basins identified facing climate risks	Vulnerability and risk assessment (VRA) report of river basins	Once in five years*	Vulnerability and risk reassessed based on VRA reports of water resources & energy, and WASH (2021) prepared for NAP
	No. of water infrastructures considering climate vulnerabilities and risks	Project documents and implementation plan	Once in three years	Government is implementing the NAP and NDC effectively by considering climate risks
	No. of water infrastructures having climate adaptation and resilience actions	Project documents	Once before the start of implementation	Institutional efforts with budgetary and human resources provisions for climate change adaptation and resilient in place.
Outcome 4: Data generation, storage and sharing are institutionalised and utilised in planning, programming, and decision-making processes	No. of NAP prioritised projects implemented	Project design & monitoring reports	Annually	Government starts implementation of NAP programmes
	Formulation of a policy on data generation, management and sharing	Data Management and Sharing Policy in place	Once	Government lead prepares a policy for data generation and sharing policy with multistakeholder consultations.
	Integration of data collection and management provisions to each water sector bodies	Annual report	Annually	Water partners collect and share data

Outcome 5: Innovative and sustainable financing mechanisms are developed, and funding sources are accessed and mobilised, and country capacity is built	A financing mechanism for water resources and WASH services developed	A framework of financing mechanism	Once	A financing mechanism is adopted to allocate domestic resources and access climate finance for water resources & WASH services
	Domestic resources mobilised for water infrastructures	Annual programme and budget	Annually	Government allocates funding through annual programmes and budgeting
	No. of projects implemented by accessing climate finance	Project documents	Annually	Proposals developed to access funding and designated authority facilitated the process.

* Second Nationally Determined Contribution (NDC, 2020) has a target to carry out national level VRA every five years to inform climate resource allocation policies.

WECS will conduct evaluation to generate knowledge and document learning. Evaluation will be done every three years to understand the effectiveness of actions implemented. Organisations responsible for activity implementation will also conduct self-monitoring and evaluation as and when required.

6.2 Knowledge Management

One of the priority cluster of actions is on data collection, analysis, storage, management and sharing. This cluster activity would be an important basis to develop knowledge and learning documents. Activity implementation partners will record and share data, information and learning with WECS. Existing Management Information System (MIS) at WECS and activity implementing agencies will also be engaged in data storage and management and knowledge generation.

The Water Resources Division (WRD) of WECS will facilitate to maintaining data related to policy implementation and institutional coordination, and number of theme-specific trainees will be trained. The WRD will coordinate packaging and repackaging of knowledge generated and learning documented and share them through web-based platform and/or other appropriate means.

6.3 Reporting Mechanism

WECS will ensure overall coordination and policy guidance for the effective implementation of this response strategy. An inter-agency Coordination Committee will be established to provide guidance and coordination for the implementation of the action plan. Several institutions and individuals will be engaged in this process. The Coordination Committee may form a theme-based sub-committee or a task force to address specific challenges for the implementation of action plan and strategies. To inform stakeholders on the state of implementation, knowledge generated and learning documented, a reporting mechanism will be established to prepare a consolidated national report.

The national report will be submitted to the Water and Energy Commission (WEC) for information and directives to promote climate-resilient water resources management. This will also contribute to other national reports prepared for other organisations such as UNFCCC Secretariat to inform about support required, received and effectiveness of the support in addressing climate change impacts in the spirit of the Paris Agreement. This regular feed-back would hopefully develop country capacity in designing projects, accessing funding, implementing actions and monitoring. A simple vertical reporting mechanism will be as follows:

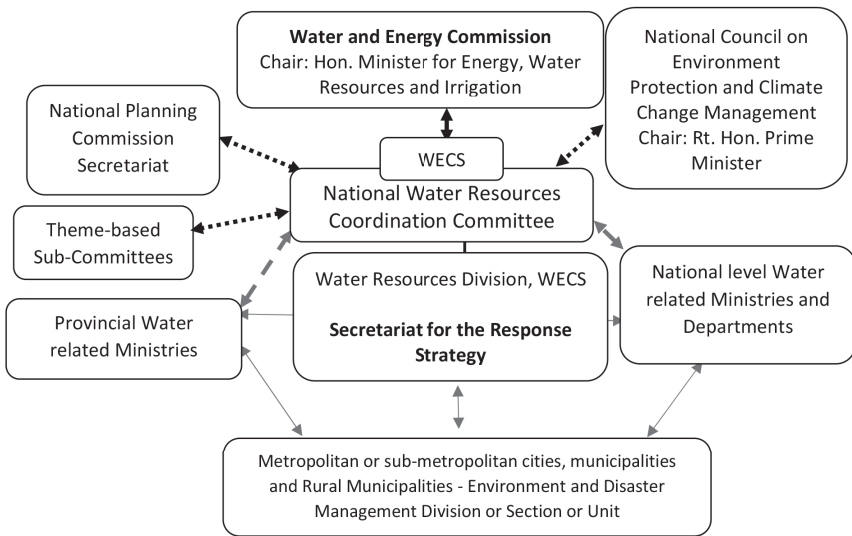


Figure 6.1: An Outline for Reporting Mechanism

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Annex 1

Composition of the Programme Coordination Committee for Global Water Leadership (GWL) Programme

1. Secretary, Water and Energy Commission Secretariat (WECS)	Chair
2. Joint-Secretary, National Planning Commission Secretariat	Member
3. Joint-Secretary, Ministry of Water Supply	Member
4. Joint-Secretary, Ministry of Energy, Water Resources and Irrigation	Member
5. Joint-Secretary, Ministry of Forests and Environment	Member
6. Joint-Secretary, Ministry of Health and Population	Member
7. Joint-Secretary, Ministry of Agriculture and Livestock Development	Member
8. Director-General, Department of Water Resources and Irrigation	Member
9. Director-General, Department of Water Supply and Sewerage	Member
10. Director-General, Department of Electricity Development	Member
11. Executive Director, Water Resources Research and Development Centre	Member
12. Representative, Foreign, Commonwealth & Development Office, British Embassy	Member
13. Chief, International Water Management Institute	Member
14. Representative, UNICEF Nepal Office	Member
15. Representative, Jalsrot Vikas Sanstha/GWP Nepal	Member
16. Chair/Chief Executive Officer, Sambridi Urja Limited (Private Sector)	Member
17. Joint-Secretary, Water and Energy Commission Secretariat	Member-Secretary

Focal Person: Dr. Kapil Gwyawali, Senior Division Engineer, WECS

Note: Date of Decision: 11 March 2022 (BS 2078.11.27), Friday

Annex 2

Key Activities Performed for the Formulation of the Response Strategy

1. GWP Nepal/JVS and UNICEF jointly requested the government of Nepal/ WECS to lead the GWL Programme in early March 2022
2. A 17-member Programme Coordination Committee was established in March 2022 under the chair of the Secretary of WECS for policy guidance, supervision, and coordination.
3. WECS launched the GWL Programme and organised an Inception Workshop on 31 March 2022 with the launching statement from the Secretary of WECS. This programme was organised to inform multi-stakeholders about the GWL Programme, its vision, components, outputs, outcomes, and key activities. Other objectives of the workshop were to: (i) sensitise stakeholders, implementing partners and inform on implementation arrangement of the GWL Programme; and (ii) seek inputs on implementation approach to contribute for inclusive and climate-resilient policies, plans and programmes on WRM and WASH services. During the inception workshop, key issues on water resources and WASH services, outcomes of the gender study and stakeholder mapping were shared. The workshop was also attended by the regional coordinator of GWP South Asia, and a representative of the UNICEF Regional Office in Kathmandu.
4. WECS organised a workshop on 'multi-stakeholder change process on IWRM (Integrated Water Resources Management) and WASH Services on 1 July 2022 where a snapshot on IWRM was shared. Participants identified and prioritised three key barriers namely: (a) policy implementation; (b) institutional coordination; and (c) data and capacity building. Secretary of the Government of Nepal at WECS provided guidance for future activities.
5. WECS formed three multi-stakeholder Working Groups to work on three prioritised barriers in August 2022, considering the interests of the participants of the workshop held on 1 July 2022.
6. First meeting of each Working Group (WG) was held in August 2022 which basically discussed on working modality of the WGs and need for joint meeting quarterly to map issues and advance coordination and linkages with other groups. From September to November, WGs could not meet due to Dashain, Tihar and Chhat festivals and election code of conduct (election of the federal and provincial parliamentarians).

7. Each WG focused on four phases: (i) root cause analysis; (b) solution development (with actions); (c) finance plan development; and (d) response strategy development to address the barriers prioritised.
8. As per the WG's recommendations, a joint workshop of the WGs was held on 9 December 2022 which identified the root causes of each barrier mentioned above (4). Secretary of the Government of Nepal at WECS chaired the final plenary session for updates on WG's activities and provided guidance for future activities.
9. Second meeting of each WG was held in January 2023 to prioritise the root causes. WG members used mentimeter for prioritisation of identified root causes.
10. A joint meeting of the WGs was organised on 23 February 2023 to further identify and prioritise the actions to address the root causes through multi-stakeholder interactive process. This was followed by a high-level meeting with the FCDO mission where WECS shared a barriers-based root causes and preliminary actions. Two secretaries of the Government of Nepal (from WECS and MoEWRI) and four Joint-Secretaries, including from the Ministry of Water Supply attended the meeting.
11. A residential joint meeting of 3 WGs was organised for further identification and prioritisation of actions for root causes and formulation of action plan on 28-29 April 2023. The joint meeting (i) identified additional actions for each prioritised root cause of each barrier and prioritise proposed actions; and (ii) formulated action plan for each prioritised action using '4W & H' approach (what, where, when, how and who, including indicative budget - at what cost) to implement the actions. Secretary of WECS also participated in the presentation on the priority actions and advised to make them consistent with the government priorities, policies and plans.
12. Highlights of the GWL programme along with the outcomes of the application of the Water Tracker tool on 14 water resources and climate change policies and plans were shared at the provincial workshops on National Commitments on Climate Change and Adaptation Plan organised by the Government of Nepal, Ministry of Forests and Environment, Climate Change Management Division in collaboration with the provincial ministries having mandates on forests, environment, climate change and soil conservation, under the NDC Partnership Support programme. The provincial workshops were organised on: (i) 10-11 September 2022 at Sauraha, Bagmati Province; (ii) 16 December 2022 at Butwal, Lumbini Province; (iii) 21 December 2022 at Pokhara, Gandaki Province; (iv) 03 January 2023 at Janakpur, Madhesh Province; (v) 14 March 2023 at Biratnagar, Koshi Province; (vi) 04 April 2023 at Dhangadhi, Sudurpaschim Province; and (vii) 06 April 2023 at Birendranagar, Surkhet, Karnali Province. A total of 307 participants attended these seven workshops.
13. The outcome of the residential joint meeting was discussed in the WG coordinators' meeting on 14 May 2023 which advised to organise a joint meeting to finalise

- the actionable actions and action plan. Accordingly, a joint meeting 3 WGs was organised on 15 June 2023 to revisit and finalise the actions and action plan of each WG.
14. Outcome of the 15 June meeting was synthesised and revisited to minimise duplications and add relevant activities (as per WGs' advice), taking note of government priorities, minimise duplications of activities, and make them consistent with national policies and plans on water resources and WASH services. WG coordinators met on 24 July 2023 to revisit the prioritised actions. Coordinators finalised the priority actions for each WG to move forward in developing finance plan and drafting response strategy for the priority actions. Coordinators also provided guidance and preliminary outline to draft the response strategy.
 15. Final actions and draft strategy were shared with the senior government officials and WG members during the residential workshop (Joint meeting) held on 18-19 August 2023 at Godavari. Based on guidance, the draft strategy was revised.
 16. GWL focal person at WECS or WECS's senior officer introduced the GWL programme and presented the barriers, root causes, actions and response strategies during the Provincial Stakeholder's Consultative Workshop organised to present the summary of the National River Basin Plans, Hydropower Development of Master Plan, and Strategic Environmental and Social Assessment at: (i) Biratnagar, Koshi Province on 03 September; (ii) Janakpur, Madhesh Province on 05 September; (iii) Hetauda, Bagmati Province on 07 September; (iv) Birendranagar, Surkhet, Karnali Province on 24 September; (v) Lamahi, Dang, Lumbini Province on 26 September; (vi) Pokhara, Gandaki Province on 29 September; and (vii) Dhangadhi, Sudur Paschim Province on 09 November 2023. Dhangadi workshop was related more with climate adaptation. A total of 437 participants, mostly from water resources stream, attended these seven workshops.
 17. The draft strategy was shared with the members of the Programme Coordination Committee during a meeting held on 20 December 2023 under the chair of Ms. Sarita Dawadi, Secretary at WECS and chair of the Committee. Sixteen members (of a 17-member Committee) attended the meeting and provided inputs to the strategy.
 18. A strategy validation workshop was held on 09 January 2024 under the chair of Ms. Sarita Dawadi, Secretary at WECS. Elements of the response strategy were presented in detail and opened for discussion. About 70 participants representing over 55 organisations attended the workshop and validated the response strategy.
 19. The Government of Nepal (Hon. Minister Level) approved the Response Strategy on 22 March 2024.

Annex 3

Members of the Working Groups with Designation and Institutions

GWL Programme

Focal Person : Dr. Kapil Gnawali, Senior Divisional Hydrologist, WECS

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Dr. Yogendra Mishra - Institutional Coordination

Dr. Rajit Ojha and Sushil Sharma - Data and Capacity Building

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Annex 4

Actions and Action Plan for each Working Group

SN	What (Actions & Sub-Actions)	Priority	Timing	Where	How (Method)	Who (Responsibility)	
						Lead	Supporting
Barrier 1: Policy Implementation							
<i>Root cause Pt: Inadequate political commitment</i>							
Priority Action P1.1: Raise awareness at political level about climate resilience, IWRM and WASH services							
P1.1.1	Sensitise political leaders & elected representative at all levels	High	Short-term	All three levels (central, province and district levels)	Workshops, sensitization programmes, media, publication	MoEWRI	WECS, MoWS & Provincial Ministry, MUAN, NARMIN
P1.1.2	Promote policy dialogue, advocacy & sensitization to sector departments of political parties and parliamentary committee	Medium	Medium-term	National level	Workshops and sensitization programmes	WECS	MoEWRI, MoWS, MoCIT, Provincial Ministry
Priority Action P1.2: Promote evidence-based water-related planning (Integrated Water Resources Management, IWRM)							
P1.2.1	Promote partnership with research academia (to represent in TWG) and establish research grant	High	Long-term	All 3 levels	Consultation Coordination Agreement/MoU	Respective ministries	Relevant departments and units at 3 levels, academics institutions, stakeholders
P1.2.2	Promote and engage civil society with substantive participation, including of affected population in generating evidence	High	Medium-term	All 3 levels	Advocacy campaign, sensitization programmes, media through documentary and brochure	WECS	Users' Federations

P1.2.3	Review and formulate provisions for incentives such as tax reduction to promote the use of appropriate IWRM technologies	High	Medium-term	Central level	Study and consultation	MoEWRI	WECS, MoF
<i>Root cause P2: Incoherent Approach for Policy Formulation</i>							
P2.1 Align policy with the constitution and international commitments, and avoid individualistic approach of policy formulation							
P2.1.1	Review constitutional provisions and international, regional or bilateral commitments related to water resources conservation, management, and sustainable use	High	Short-term	National level	Review and analysis	WECS	MoEWRI, MoWS and MoFE
P2.1.2	Establish linkages between national priorities and international commitments and obligations	High	Short-term	National level	Review and consultations	WECS	MoEWRI, MoWS and MoFE
P2.1.3	Formulate a coherent policy through multi-stakeholder consultative processes	High	Short-term	National level	Drafting and consultations	WECS	MoEWRI, MoWS, MoFE & other water-related organisations

Priority Action P2.2 Promote multi-stakeholder consultative process in formulating coherent policies									
P2.2.1	Review, analyse and evaluate existing policies to develop evidence (review of WRS, 2002 & NWP, 2005)	Medium	Short term	National level	Consultations	WECS	Sectoral ministries and departments		
P2.2.2	Promote synergies and reduce trade-off in national relevant sectoral policies	High	Long-term	All 3 levels	Policy audits, workshops & sensitization programmes	NPC and PDC	WECS and sectoral ministries and department, MDAC and NDAC		
P2.2.3	Create and functionalize multi-stakeholder policy dialogue mechanism	Medium	Long-term	National and Province	Multistakeholder platform	NPC and WECS	Sectoral ministries and departments		
P2.2.4	Organise public discussion and make stakeholder engagement mandatory	High	Long-term	All 3 levels	Workshops, media, Policy forum, and online discussion portal	WECS	National & Provincial ministries, civil societies		
P2.2.5	Develop and implement coherent policy	High	Medium-term	National level	Drafting, consultations and official inputs	WECS	MoEWRI, MoWS, MoFE & other water-related organisations		
Priority Action P2.3: Conduct policy audit and impact evaluation									
P2.3.1	Conduct policy audits and issue-based interaction	High	Long-term	National level	Policy audits (with SDGs and Conventions)	NPC and WECS	PR and sectoral ministries		
P2.3.2	Conduct an impact evaluation study to further specify national needs and international commitments on water resources and WASH services	High	Long-term	National level	Policy dialogue and evaluation	NPC and WECS	Sectoral ministries and NGOs		

<i>Root cause P3: Inadequate Capacity for Policy Implementation</i>									
Priority Action P3.1: Ensure policy implementation by enhancing capacity and developing mechanisms for coordination, monitoring, auditing, and reporting									
P3.1.1	Develop guidelines, and working procedures, as appropriate, by defining roles and responsibilities of relevant stakeholders	High	Medium-term	National and Provincial levels	Studies and consultations	WECS	Sectoral ministries, research and implementing organisations,		
P3.1.2	Promote knowledge generation and sharing	High	Medium-term	All 3 levels	Generate knowledge, document learning and organise training and workshop for sharing of experiences and learnings	MoFAGA	Staff College, LDTA, PCCG, academia, local government associations		
P3.1.3	Ensure periodic monitoring and evaluation of the policy provisions	High	Long term	All 3 levels	National monitoring guidelines and consultation	NPC and Province Planning Commission	Sectoral ministries, WECS, provincial ministries & departments, and third party		
P3.1.4	Identify funding sources and ensure allocation of necessary financial resources	High	Long-term	National level	Regular dialogue and meetings with development partners and funding areas prioritization from sectoral ministries	WECS	MoF, MoEWRI, MoWS and development partners		
P3.2 Develop policy coherent laws									
P3.2.1	Review existing policies and water-related laws and identify inconsistencies	High	Medium-term	National level	Review and analysis	WECS	MoEWRI, MoWS, MoFE & other water-related organisations		
P3.2.2	Formulate water related bill(s) in consistence with existing policies by ensuring participation of, at least, water utilising organisations	High	Short-term	National level	Drafting	WECS	MoEWRI, MoWS, MoFE and MolJPA		

P3.2.3	Organise multi-stakeholder consultations to get feedback, finalise the bill and submit to the parliament	High	Short-term	National and Province levels	Consultations	WECS OPMCM	Province water-related ministry
Root causes - 3; Priority Actions - 7 and Sub-actions - 22							
Barrier 2: Institutional Coordination							
Root cause I1: Unclear and overlapping roles & responsibilities of three-tiers of government (Work detailing)							
Priority Action I1.1 Clarify roles and responsibilities of three-tiers of government							
I1.1.1	Review existing mandates and define roles and responsibilities of three-tiers of government	High	Short-term	At three-tiers of government	Consultation and legal reforms	MoEWRI	Provincial ministries responsible for water
I1.1.2	Establish & operationalize coordination mechanism at national, province and local level (by ensuring collaboration amongst 3-tiers of government)	High	Short to mid-term	At all levels (as guided by national coordination mechanism)	Formation of Coordination Committee, and identification of Focal Person	MoEWRI & WECS	NPC, MoWS, NPC, MoFAGA, Province & Local Governments, Development Partners, and NGO
I1.2: Avoid cantilever institutions with overlapping roles and responsibilities							
I1.2.1	Conduct organisation and management (O&M) survey of water-related institutions with priority on review of their roles and responsibilities	High	Short-term	National level	Study and review	MoEWRI	WECS and MoWS
I1.2.2	Identify and propose to merge and/or closure of cantilever of water-related institutions	High	Short-term	National level	Consultation, report preparation & decision	MoEWRI & OPMCM	WECS, MoWS and MoF

<i>Root cause 12: Inadequate Institutional Capacity</i>									
Priority Action 12.1: Assess and prioritise capacity needs of the institutions									
12.1.1	Revise the organogram of local governments with establishment of Water Resource (including WASH) and Environment Section at Local level	High	Short to medium (2 to 5 years)	Local level	O & M survey	Local level	MoFAGA and MoF		
12.1.2	Prepare recruitment plan and allocation of the human resources at federal & province levels	High	Medium-term	National and Province levels	Recruitment process	MoFAGA	MoEWRI, MoWS, PSC, MoF, Province Government		
12.1.3	Develop ToR and designate focal person for Water Resources Management and WASH services	High	Short term (within a year)	All 3 levels	O & M survey	WECS	MoWS and MoFAGA, relevant provincial ministries and departments at 3 levels		
12.1.4	Assess capacity needs and prioritise training module	High	Short-term	Province and local levels	Consultations and consulting services	MoEWRI	WECS, MoWS, MoFAGA, Province & local governments, DP, & I/NGOs		
12.1.5	Conduct regular training and awareness programme including sharing of best practices for knowledge enhancement	High	Continuous	All 3 levels	ToT, Training, Workshop, field visit and advocacy	WRRDC & NWSSTC	WECS, MoEWRI, MoWS, MoFAGA, DoWRI, DoWSSM, Province and local governments, DP, I/NGOs		

Priority Action 12.2: Develop Guidelines regarding water resource development (including WASH) and management at 3-tiers of Government							
12.2.1	Review and analyse existing policies, guidelines, manuals and working procedures	High	Short-term	All 3 levels, first at national level	Workshop and consultations	WECS	MoEWRI, MoWS, NPC, MoFAGA, Province & local governments, DP & I/ NGOs
12.2.2	Formulate and implement guidelines, manuals or procedures, as appropriate	High	Short-term	National level	Drafting and consultations	MoEWRI	WECS, MoWS and other water-related organisations
Priority Action 12.3: Establish and/or strengthen material testing, water and wastewater laboratory and training centre at federal and province levels							
12.3.1	Review existing testing laboratories and state of operation and propose additional services required	High	Short to mid-term	National and Province levels	Capacity strengthening of existing institutions like WRRDC/ MoWS Laboratories	MoEWRI & MoWS	MoFAGA, Province government, DP & I/ NGOs
12.3.2	Conduct O&M survey for new laboratory with required human and financial resources	High	Medium-term	Province and local levels	Review and consultations	Province & Local levels	National water-related institutions
12.3.3	Establish and/or strengthen testing laboratory, as required at different levels	High	Medium-term	Province and local levels	Decision and human resources allocation	Province & Local levels	National water-related institutions
Priority Action 12.4: Compliance of transfer norms to ensure employee's stability							
12.4.1	Review and update employee transfer norms and standards	High	Short-term	National and Province levels	Review and consultations	MoEWRI	WECS, MoWS and MoFAGA
12.4.2	Comply with transfer norms and standards while transferring employees	High	Short-term	National and Province levels	Review and consultations	MoEWRI	WECS, MoWS and MoFAGA

<i>Root cause 13: Lack of IWRM and River Basin consideration in planning and implementation</i>									
Priority Action 13.1: Adopt IWRM and River Basin Approach as a functional planning tool									
I3.1.1	Enhance holistic and integrated approach in planning & programming considering climate resilient and sustainable development	Medium	Mid-term	All 3 levels	Task Force or coordination committee (of sectoral ministries)	MoEWRI & MoWS	MoPT, NPC, Provincial Planning Commission		
I3.1.2	Promote evidence-based water related planning and management projects based on IWRM	High	Continuous	All 3 levels	Guidelines, manuals, training, ToT etc.	WECS & WRRDC	MoEWRI, MoWS, MoFE, MoFAGA, Province and local governments		
I3.1.3	Develop and manage projects in Basins/Sub-basin level with water use allocation	High	Continuous	All 3 levels	Reform of WECS structure & and Basin Plan implementation	WECS	MoEWRI, MoWS, MoFAGA, MoF, Province and local governments		
I3.1.4	Develop and implement KPI (key performance indicators) based monitoring mechanism with incentive and cross-subsidy package for water operators	High	Short to mid-term	National and Province levels	Guidelines, standards, and institutional set-up	MoEWRI & MoWS	MoF, NNRF, provincial and local governments and DP		
<i>Root cause 14: Lack of Water Resources Tariff, River Basin and Climate Change related institutions</i>									
Priority Action: 14.1: Establish a regulatory mechanism for water tariff									
I4.1.1	Review roles and responsibilities of tariff fixation related water organisations	High	Medium-level	National level	Review, study and consultations	MoEWRI	WECS, MoWS and MoFAGA		

I4.1.2	Establish regulatory mechanism with tariff fixation for Water Resources, including WASH	High	Mid-term	National and Province levels	Through legislation	MoEWRI & MoWS	OPMCM, MoFAGA, MoF and MoLJPA
Priority Action 14.2: Reform WECS structure and mandate							
I4.2.1	Revisit WECS structure and provide additional roles and responsibilities	High	Short-term	National level	O & M survey	WECS	MOFAGA, MoF and Council of Ministers
I4.2.2	Strengthen institutional capacity of WECS and its staff in providing backstopping support River Basin Offices	High	Mid-term	National level	Training, ToT and information sharing	WECS	Relevant ministries and departments
Priority Action 14.3: Establish River Basin offices for major rivers							
I4.3.1	Establish River Basin Offices in Koshi, Gandaki, Karnali and Mahakali rivers	High	Short-term	Basin level at Province	O & M survey	WECS	MOFAGA, MoF and Council of Ministers
I4.3.2	Provide technical backstopping to implement the environment- and climate-friendly water resources plans and programmes in river basins	High	Long-term	Basin level	Project design, water allocation/approval and implementation	Basin offices	WECS, NPC & MoF

Priority Action I4.4: Establish Climate Change Section under Environment Division in MoEWRI							
I4.4.1	Establish Climate Change Section at federal ministries (MoEWRI) and assign at least focal person at province and local levels	High	Short to Medium-term	National and Provincial water resources ministries	O & M Survey	WECS, MoEWRI & MoWS	MoF, MoFAGA, Council of Ministers and Province Water Resources Ministry
I4.4.2	Integrate climate change into national planning and programming of water resources and WASH services	High	Medium to Long-term	National & Provincial ministries and NPC & Provincial Planning Commissions	Concept paper (with approaches)	WECS, MoEWRI & MoWS	NPC, Provincial ministry and Planning Commission
I4.4.3	Promote action research related to climate change and support to implement research outcomes at local level	Medium	Continuous	Universities, WRRDC & WECS	Research, Conferences and Seminars	WECS, WRRDC & Universities	MoEWRI, MoFE, MoF and NPC including water related departments
Priority Action I4.5: Involve MoEWRI and other water institutions in water and climate negotiation process							
I4.5.1	Develop a team of experts on the leadership of WECS for international, regional and bilateral level negotiations	High	Long-term	National level	Capacity buildings (on theme and issue-based negotiations)	MoEWRI	MoFA, MoFE and Policy Dialogue Centre
I4.5.2	Prepare a technical paper on impacts of climate change on water resources in advance of each (UNFCCC) CoP with issues for negotiations	High	Long-term	National level	Refresher events to negotiators	WECS, MoEWRI & MoWS	MoFE and MoFA
I4.5.3	Prepare policy briefs on impact of climate change on water resources	High	Long-term	National level	Consultations	WECS	MoEWRI, MoWS, MoFE, MoFA

I4.5.4	Prepare a national paper on water resources for expert dialogue on mountains and climate change to be held in June 2024 and beyond	High	Short-term	National level	Drafting by an Expert and consultations	WECS	MoEWRI, MoWS and other water organisations
Root causes - 4, total actions - 12, and total sub-actions - 33							
Barrier 3: Data and Capacity Building							
Data Generation, Management, Sharing and Use							
<i>Root cause D1: Lack of mandate and policy clarity on data generation, validation and sharing</i>							
Priority Action D1.1: Formulate a data management policy							
D1.1.1	<ul style="list-style-type: none"> Consider following aspects while formulating the policy - form TWG - use archives and citizen science tools - establish linkages with research & academia - categorise data and specify data sharing modality - adopt designated statistics system - designate focal person for data accessibility 	High	Short-term	All 3 Levels	Formation of TWG, drafting, stakeholder consultations, and expert opinion	WECS	NSO, NPC, MoEWRI, MoWS, other relevant ministries and departments, private and public sectors and DP
D1.1.2	Conduct policy review and analysis of local, provincial and national policies, gaps and policy interventions with responsibilities (to identify relevant policies)	High	Short-term	All 3 levels	Sectoral assessment and stakeholder consultations	WECS	NSO, NPC, MoEWRI, MoWS, other relevant ministries, and departments

Priority Action D1.2: Mandate WECS as central data management institution on water resources							
D1.2.1	Review roles and responsibilities of water-related organisations on data collection and management	Medium	Short-term	National level	Review and study	WECS	MoEWRI, MoWS, NSO and MoFAGA
D1.2.2	Process for mandating WECS as central data management institution on water resources	High	Short-term	National level	Review and decisions	WECS	MoEWRI, MoWS, NSO, MoFAGA & MoF
D1.2.3	Train and retain/utilise human resources for WR data management	High	Long-term	National and Province levels	Modules development and training & workshops	WRRDC & DoWSSM	MoEWRI, MoFAGA, NSO, Staff College
D1.2.4	Develop infrastructure (hardware and software) for data management and coordination mechanism	High	Long-term	National levels	Needs assessment, purchase and installation	WECS	MoEWRI, MoWS, NSO, MoFAGA and MoF
D1.2.5	Develop a mechanism to ensure flow of water-related data to WECS	High	Short-term	National level	Drafting mechanism and decision	WECS	MoEWRI, MoWS and NSO
Priority Action D1.3: Develop and update National Data Profile							
D1.2.1	Review data needs and develop and update National Data Profile (NDP)	High	Mid-term	National Level	Statistical Unit in each ministry and department at national level	NSO	Relevant national ministries
D1.2.2	Establish and/or strengthen Statistical Unit in each ministry at all levels	Medium	Mid-term	National level	Strengthening of statistical unit	NSO	Relevant national ministries

<i>Root cause D2: Limited budget and motivation for data generation and management</i>						
Priority Action D2.1: Ensure budget allocation						
D2.1.1	Develop a mechanism for result-based grant to local level	High	Short-term	Local level	Assessment criteria	NNRFC Relevant ministries, WECS and IMCCCC
Priority Action D2.2: Develop, train and mobilise human resources						
D2.2.1	Develop and use Integrated MIS (Management Information System) with dedicated personnel for water sector	High	Continuous (Long-term)	All 3 levels	Mera data center at WECS with facility for data security	WECS MoEWRI, MOWS, concerned Province ministry and local governments
D2.2.2	Develop a mechanism to ensure retention of qualified human resources	Medium	Continuous	Province and Local levels	Additional incentives where applicable	Province & Local levels MoFAGA and water related institutions
<i>Root cause D3: Limited coordination amongst different institutions</i>						
Priority Action D3.1 Develop data sharing guidelines						
D3.1.1	Develop guidelines on data sharing	High	Short-term	All 3 levels	Expert consultations	WECS Relevant ministries and departments
D3.1.2	Form TWG with representatives from data-related institution(s)	High	Short-term (within 1 year)	All 3 Level	Working procedure and ToR	WECS Relevant ministries and departments
D3.1.3	Establish coordination mechanism for data acquisition and dissemination at inter- & intra-levels including public and private sector	Medium	Continuous	All 3 levels	Mandates and working procedures	WECS MoEWRI, MoWS, MoFE, Province ministries and private sector

<i>Root cause D4: Inadequate human resources for institutional memory</i>						
Priority Action D4.1: Prepare capacity building plan						
D4.1.1	Conduct governance assessment, including data collection and dialogues with LISA team ⁴ and use C1.1.1 output to prepare a plan	High	Medium-term	National level	Data collection, software, consultations, including with TWG	Relevant ministries NSO, NPC, relevant departments at 3 levels and academic institutions
Priority Action D4.2: Use Standard Operating Procedure for knowledge management						
D4.2.1	Develop, refine and use Standard Operating Procedure (SOP) and Knowledge management system with integrity and accountability	Medium	Medium-term	National	Data collection, software, consultations including with TWG	Relevant ministries NSO, NPC, relevant departments, and academia
Root causes - 4; total actions - 7; and total sub-actions - 13						
Capacity Building						
<i>Root cause C1: Limited need-based and output-based training</i>						
Priority Action C1.1: Prepare and implement capacity development plan						
C1.1.1	Conduct need assessment on water resources and WASH services	High	Short-term	All 3 levels	Gap assessment and stakeholder consultations	Relevant departments and units at 3 levels, academic institutions, stakeholders
C1.1.2	Develop training module (for policy, institution, and data management, including interpretation and use)	High	Short-term	All 3 levels	Expert, trainer and consultations	Relevant training institutions

1 MoFAGA LISA (Local Institutional Self-Assessment) should be a part of the TWG (Activity 3.4)

C1.1.3	Develop training calendar and conduct training	High	Medium-term	All 3 levels	Resource person and expert	Relevant agencies at 3 levels	Academia and training institutes
C1.1.4	Designate focal person	High	Short-term	All 3 levels	Sharing decision	Relevant agencies	MoFAGA
<i>Root cause C2: Limited fund/ resources</i>							
Priority Action C2.1: Access and promote partnership for fund generation							
C2.1.1	Collaborate with other national, regional, and international institutions to access funding for knowledge management and human resources development	Medium	Long-term	All 3 levels	Consultations & workshop, coordination, MoU, exposure visit and knowledge management forum	Respective ministries	Relevant departments and units at 3 levels, academic institutions and stakeholders
C2.1.2	Inform data users and relevant stakeholders about the availability of respective data	Medium	Long-term	All 3 levels	Consultations and workshop, coordination, media and exposure visit(s)	Respective ministries	MoCIT, MoHA, relevant departments and units at 3 levels, academic institutions, and stakeholders
C2.1.3	Categorise and classify data generation and management cost for its accessibility	Medium	Short-term	Agencies having data for sharing at all 3 levels	Decision and its sharing	Data depositors	NSO and DHM
Total root causes - 2; total actions - 10; and total sub-actions - 24							
Total barriers - 3; root causes - 13; priority actions - 29; and sub-actions - 79							

Note:

1. Short-term = 1-3 years; medium-term = 3-5 years; and long-term = > 5 years (long-term activity also starts from the very beginning)
2. DHM - Department of Hydrology and Meteorology; DoWRI - Department of Water Resources and Irrigation; DoWSSM - Department of Water Supply and Sewerage Management; DP - Development Partners; IMCCCC - Inter-Ministerial Climate Change Coordination Committee; I/N-NGO - International/ National Non-Governmental Organisation; LTDA - Local Development Training Academy; MDAC - Ministerial Development Action Committee; MoCIT - Ministry of Communication and Information Technology; MoEWRI - Ministry of Energy, Water Resources and Irrigation; MoF - Ministry

of Finance; MoFA - Ministry of Foreign Affairs; MoFAGA - Ministry of Federal Affairs and General Administration; MoFE - Ministry of Forests and Environment; MoHA - Ministry of Home Affairs; MoLJPA - Ministry of Law, Justice and Parliamentary Affairs; MoPIT - Ministry of Physical Infrastructure and Transport; MoU - Memorandum of Understanding; MoWS - Ministry of Water Supply; MUAN - Municipality Association of Nepal; NARMIN - National Association of Rural Municipalities; NDAC- National Development Action Committee; NNRFC - National Natural Resources and Fiscal Commission; NPC - National Planning Commission; NSO - National Statistics Office; OPMCM - Office of the Prime Minister and Council of Ministers; PCGG - Provincial Centre for Good Governance, PDC - Policy Dialogue Centre; PRI - Policy Research Institute; PSC - Public Service Commission; SDG - Sustainable Development Goal; ToR - Terms of Reference; ToT - Training of Trainers; TWG - Technical Working Group; WECS - Water and Energy Commission Secretariat; and WRRDC - Water Resources Research and Development Centre

Annex 5

National Council on Environment Protection and Climate Change Management

(As per Section 32 of the Environment Protection Act, 2019)

- | | |
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| 1. Rt. Hon'ble Prime Minister | Chairperson |
| 2. Hon'ble Minister for Forests and Environment, Government of Nepal | Member |
| 3. Three Ministers of the Government of Nepal designated by
the Prime Minister | Member |
| 4. Chief Ministers of all Provinces | Member |
| 5. Member of the National Planning Commission (environment) | Member |
| 6. Two persons, including one woman nominated by the chairperson
among Professors in forests and environmental science | Member |
| 7. Three persons including two women nominated by the chairperson
with expertise in the field of environment and climate change | Member |
| 8. Secretary, Ministry of Forests and Environment | Member-Secretary |

Note: The chairperson may designate one Minister as the Vice-Chairperson. Tenures of the nominated persons shall be three years, unless removed from the member. The Council has been constituted in 2021 and two meetings have been organised as of June 2023.

Annex 6

Composition of the Water and Energy Commission

1. Hon'ble Minister for Energy, Water Resources and Irrigation	Chairperson
2. Member, National Planning Commission (water resources)	Member
3. Secretary, Ministry Energy, Water Resources and Irrigation (Energy-1, and Water Resources and Irrigation-1)	Member
4. Secretary, Ministry of Finance	Member
5. Secretary, Ministry Urban Development	Member
6. Secretary, National Planning Commission Secretariat	Member
7. Secretary, Ministry of Law, Justice and Parliamentary Affairs	Member
8. Secretary, Ministry of Federal Affairs and General Administration	Member
9. Secretary, Ministry of Foreign Affairs	Member
10. Secretary, Ministry of Industry, Commerce and Supplies	Member
11. Secretary, Ministry of Agriculture and Livestock Development (Agriculture-1, and Livestock Development-1)	Member
12. Secretary, Ministry of Water Supply	Member
13. Secretary, Ministry Forests and Environment	Member
14. Dean, Institute of Engineering, Tribhuvan University	Member
15. Chairperson, Nepal Engineers Association	Member
16. Representative, Federation of Nepalese Chambers of Commerce & Industry	Member
17. Two well-known water resources and energy specialists, nominated by GoN	Member
18. Secretary, Water and Energy Commission Secretariat	Member-Secretary

Annex 7

Composition of the Inter-Ministerial Climate Change Coordination Committee

1. Secretary, Ministry of Forests and Environment	Chairperson
2. Joint-Secretary, Office of the Prime Minister, and the Council of Ministers	Member
3. Joint-Secretary, National Planning Commission Secretariat	Member
4. Joint-Secretary, Ministry of Home Affairs	Member
5. Joint-Secretary, Ministry of Defense	Member
6. Joint-Secretary, Ministry of Foreign Affairs	Member
7. Joint-Secretary, Ministry of Federal Affairs and General Administration	Member
8. Joint-Secretary, Ministry of Education, Science and Technology	Member
9. Joint-Secretary, Ministry of Energy, Water Resources and Irrigation	Member
10. Joint-Secretary, Ministry of Agriculture and Livestock Development	Member
11. Joint-Secretary, Ministry of Health and Population	Member
12. Joint-Secretary, Ministry of Law, Justice and Parliamentary Affairs	Member
13. Joint-Secretary, Ministry of Industry, Commerce and Supplies	Member
14. Joint-Secretary, Ministry of Culture, Tourism and Civil Aviation	Member
15. Joint-Secretary, Ministry of Labour, Employment and Social Security	Member
16. Joint-Secretary, Ministry of Finance	Member
17. Joint-Secretary, Ministry of Youth and Sports	Member
18. Joint-Secretary, Ministry of Communication and Information Technology	Member
19. Joint-Secretary, Ministry of Urban Development	Member
20. Joint-Secretary, Ministry of Land Management, Cooperative and Poverty Alleviation	Member
21. Joint-Secretary, Ministry of Water Supply	Member
22. Joint-Secretary, Ministry of Physical Infrastructure and Transport	Member
23. Joint-Secretary, Ministry of Women, Children and Senior Citizen	Member
24. Senior Officer, Nepal Academy of Science and Technology (NAST)	Member
25. Executive Chief/Senior Officer, Nepal Agriculture Research Council	Member
26. Executive Chief/Senior Officer, Alternative Energy Promotion Centre	Member
27. Chief, Climate Change Management Division, MoFE	Member-Secretary

Note: The Committee was established on 05 February 2020.

The chairperson may invite representative(s) or individual(s) to attend the Committee meeting from the Government, donors, development partners, project managers, civil society & NGOs as invitees.

Annex 8

Composition of the Thematic Working Group for the Formulation of National Adaptation Plan

(This TWG is expected to continue for NDC and NAP implementation)

Water Resources and Energy

1. Joint-Secretary, Hydrology, Meteorology and Environment Division (HMED)
Ministry of Energy, Water Resources and Irrigation (MoEWRI) Coordinator
2. Under-Secretary, MoEWRI, Joint-Coordinator
3. Section Heads - Irrigation Section and Water-induced Disaster Section,
Water Resources Division, Hydrology and Meteorology Section, Snow
River, and Climate Change and Environment Section, HMED, MoEWRI Members
4. Representative, Water and Energy Commission Secretariat Member
5. Representative, Department of Electricity Development Member
6. Representative, Department of Water Resources and Irrigation Member
7. Representative, Department of Hydrology and Meteorology Member
8. Representative, Groundwater Development Board Member
9. Representative, Water Resources Research and Development Centre Member
10. Representative, Alternative Energy Promotion Centre Member
11. Representative, Nepal Electricity Authority Member
12. Representative, Independent Power Producers Association, Nepal Member
13. Representative, Institute of Engineering Member
14. Representative, Kathmandu University Member
15. Representative, Jalsrot Vikas Sanstha (JVS) Member
16. Independent Experts (as nominated) Member

Health, Drinking Water and Sanitation

1. Chief, Health Coordination Division, Ministry of Health and Population Coordinator
2. Under-Secretary (designated by the Ministry of Water Supply) Joint-Coordinator
3. Chiefs, Multi-Disciplinary Coordination Section, and Policy
and Planning Section, Ministry of Health and Population Members
4. Representative, [at least Under-Secretary (US) level], National Health
Education, Information and Communication Centre Member

- | | |
|---|------------|
| 5. Representative, (at least US level), National Health Training Centre | Member |
| 6. Chief, Disease Surveillance and Research Section, Epidemiology and Disease Control Division, Department of Health Services | Member |
| 7. Chief, Environmental Health and Health-related Waste Management Section, Department of Health Services | Membership |
| 8. Chief (related to quality control designated by Department of Water Supply and Sewerage Management | Member |
| 9. Representative, Nepal Health Research Council | Member |
| 10. Prof. Bandana Pradhan, Subject Matter Expert | Member |
| 11. Representative, World Health Organisation | Member |
| 12. Representative, UNDP/UNICEF | Member |
| 13. Representative of NGOs (nominated by the coordinator) | Member |
| 14. Officer, Multi-Disciplinary Coordination Section, MoHP | Member |

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