

Environmental and Social Considerations in Detailed Planning Survey (Technical Cooperation for Development Planning)

1. Full title of the Project

Project for Development of Master Plan for Wastewater Management in Pokhara Metropolitan City

2. Type of the study (e.g. Master Plan, Feasibility Study, Detailed Design, etc.)

Master Plan

3. Categorization and its reason

(1) Category: B

(2) Reason:

The Project is not likely to have significant adverse impact on the environment under the JICA Guidelines for Environmental and Social Consideration (April, 2010) in terms of its sectors, characteristics and areas.

4. Agency or institution responsible for the implementation of the Project

Ministry of Water Supply (MoWS) and Pokhara Metropolitan City (PMC)

5. Outline of the Project (objectives, justification, location, proposed activities, and scope of the study)

5.1 Objectives

The purpose of the Project is that the sanitary environment and water environment in PMC is improved by utilizing the master plan (M/P) and the pre-feasibility (Pre-F/S) study of prioritized projects.

5.2. Location

Pokhara Metropolitan City, Nepal

5.3 Scope of the Project

5.3.1 Outputs

- 1) Basic information necessary for formulating the M/P in PMC is surveyed.
- 2) The M/P including centralized, decentralized wastewater treatment and onsite sanitation management system in PMC is formulated.
- 3) The Pre-F/S for projects prioritized in the M/P is implemented.

- 4) A draft monitoring and evaluation plan for wetlands under the Ramsar Convention in PMC is proposed.
- 5) The capacity of wastewater management of MoWS, Department of Water Supply and Sewerage Management (DWSSM) and PMC is enhanced.

5.3.2 Activities

- 1) Basic data collection, current status evaluation and analysis
 - a. Natural and socio-economic conditions in PMC
 - b. Review of relevant plans in PMC
 - c. Water quality of groundwater, rivers and lakes, sources of pollution load in PMC
 - d. Natural environment of wetlands under the Ramsar Convention in PMC
 - e. Laws, regulations, plans and strategies related to wastewater management and faecal sludge management
 - f. Organization and institutional structure related to wastewater management and faecal sludge management
 - g. Existing facilities related to wastewater management and faecal sludge management
 - h. Present conditions and trends of the private sector in decentralized wastewater management and faecal sludge management
 - i. Resource recovery (energy generation, utilization of sewage sludge and faecal sludge, and reuse of treated water, etc.)
 - j. Efforts to raise public awareness of wastewater management and water environment conservation
 - k. Public awareness and willingness to pay for wastewater management and water environment conservation
 - l. Economic and financial analysis of the implementing agency
 - m. Financing methods in the water and wastewater sector
 - n. Issues related to existing sewerage plans
 - o. Issues related to wastewater management
- 2) Formulation of the M/P
 - a. Setting basic policy, objectives, target area and basic planning parameters (demand forecasts by population and wastewater volume)
 - b. Study on sewage collection and treatment methods (zoning of centralized and decentralized wastewater treatment)
 - c. Predictive evaluation of the effect on the improvement of public water bodies through

the development of wastewater treatment facilities, and Formulation of a monitoring plan to evaluate the effect

- d. Formulation of the M/P (long-term plan and medium-term plan), and the implementation plan (3-year action plan)
- e. Analysis of approximate project costs
- f. Study on promotion for sewer connections, and Study on standards and procedures of sewer connections
- g. Study on treatment of industrial wastewater
- h. Study on containment, collection, treatment, reuse and disposal of Faecal sludge for the improvement of faecal sludge management (for onsite sanitation system), and Study on the installation and maintenance of onsite sanitation and faecal sludge treatment facilities
- i. Study on financing methods for the development of wastewater management facilities
- j. Study on operation modalities of wastewater management and faecal sludge management including engagement of private sector and Public Private Partnership
- k. Study on wastewater management fee system and faecal sludge management (onsite sanitation management) fee system
- l. Establishment of institutional development plan, human resource development plan, an operation and maintenance plan and asset management plan
- m. Establishment of economic and financial plan
- n. Study on ordinances, procedures and implementation structures for the implementation of the plans
- o. Study on procedures of review of the M/P (long-term and medium-term plan) and updating the implementation plan (3-year action plan)
- p. Environmental and social consideration survey
- q. Study on promotion of raising public awareness and sanitation safety
- r. Selection of prioritized projects

3) The Pre-F/S for prioritized projects

- a. Collection and arrangement of additional data and information
- b. Topographic and geotechnical survey
- c. Preliminary design
- d. Construction and procurement plan
- e. Operation and maintenance plan
- f. Operation model (Public Private Partnership, water board, private sector etc.)

- g. Cost estimation
- h. Economic and financial analysis
- i. Establishment of an implementation schedule
- j. Support for environmental and social consideration survey
- k. Consultations among stakeholders

4) Proposal of a draft monitoring and evaluation plan for wetlands under the Ramsar Convention in PMC

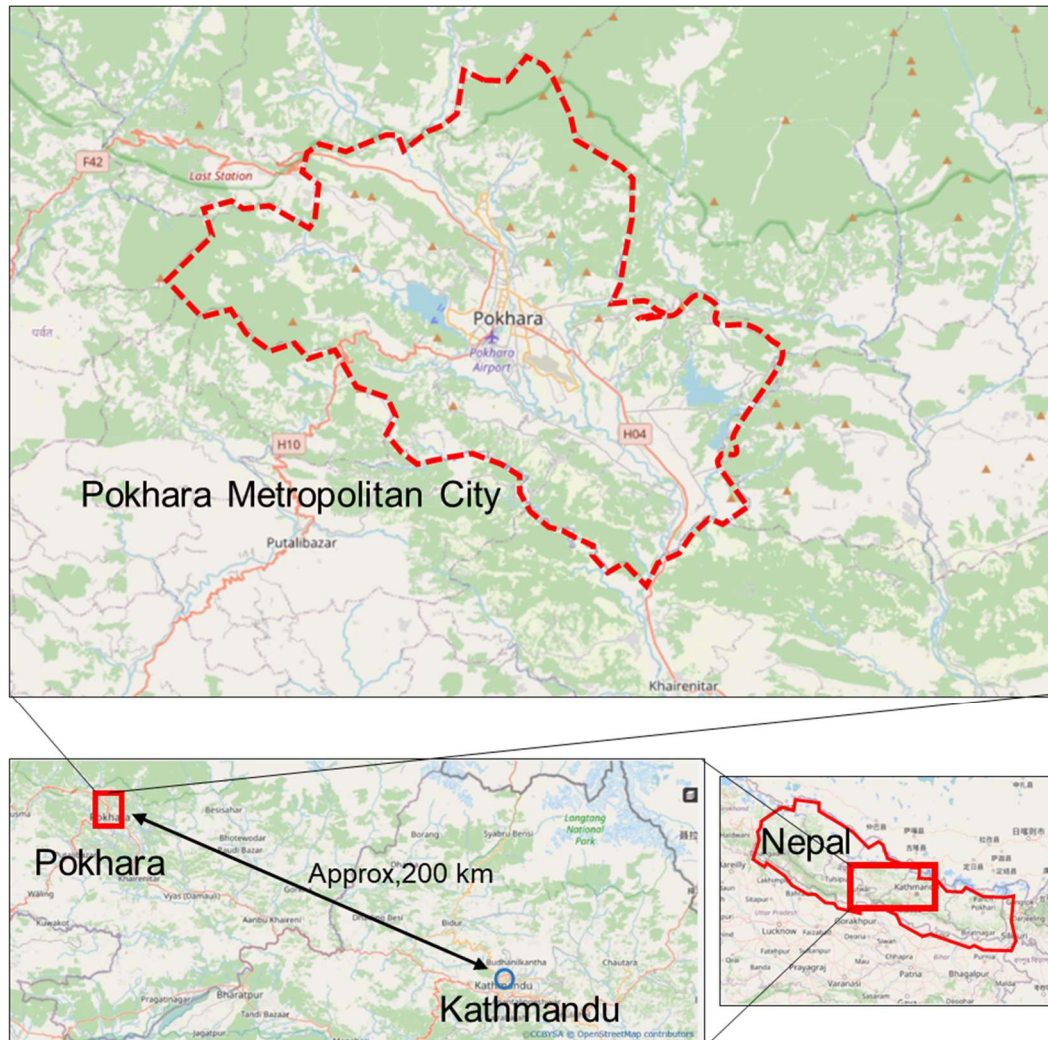
- a. Survey on the water quality in Phewa Lake
- b. Study on adaptive management, monitoring and evaluation
- c. Study on the financing mechanism
- d. Study on raising the public awareness of water environment conservation
- e. Proposal of a draft monitoring and evaluation plan
- f. Study on ordinances and procedures for implementation of the plan
- g. Consultations among stakeholders

5) Capacity Development of counterpart

- a. On-the-job training
- b. Training in Japan and/or third country
- c. Periodical meeting for sharing information
- d. Organizing Workshops

6. Description of the project site (maps, environmental and social condition, current issues, etc.)

6.1 Location Map



6.2 Environmental and Social Condition

(1) Geography and topography

Pokhara, Kaski District, Gandaki Province, is the second biggest city in Nepal, located 200 km west of the capital city of Kathmandu, spreading 20km from south to north, and 30 km from east to west. The city is relatively high at northwest with the altitude of 1,500m, and inclined southeast to the altitude of 800m.

(2) Geological features

Pokhara is situated in a valley formulated by crustal deformation between Himalaya Mountains and Mahabharat Mountains with gravelly soil. Seti River with deep canyons,

its tributaries, and Phewa Lake are major water bodies. Geologically, Pokhara area is composed by Quaternary deposits, combined deposits, and rocks.

(3) Meteorology

Pokhara experiences more rainfall than other area in Nepal. The average temperature of Pokhara is 25 C from June to September, and 15 C from December to January in 2018. Annual participation is approximately 3,000mm with maximum rainfall of more than 500mm per month in Monsoon season (from July to September).

(4) Protected areas

Pokhara is located within the Ramsar site “Lake Cluster of Pokhara Valley.” The site is designated in 2016 to protect the regional biodiversity and to maintain natural resources for tourism. Table 1 shows species whose presence relates to the international importance of the site. Ministry of Forest and Environment (MoFE) developed “Integrated Lake Basin Management Plan of Lake Cluster of Pokhara Valley, Nepal 2018-2023” in 2018 for the Ramsar site conservation.

Table 1 Important species at the site

Species	Common name	Scientific name	IUCN Red List	Other status
Plant	Hornwort	<i>Ceratophyllum demersum</i>	LC	Monogeneric plant
	Wild Rice	<i>Oryza rufipogon</i>	LC	This Site is very important for producing wild rice.
	Water Chestnut	<i>Trapa natans</i>	LC	
	Lesser Bulrush	<i>Typha angustifolia</i>	LC	
Aves	Steppe Eagle	<i>Aquila nipalensis</i>	EN	
	Baer's Pochard	<i>Aythya baeri</i>	CR	
	Common Pochard	<i>Aythya ferina</i>	VU	
	Ferruginous Duck	<i>Aythya nyroca</i>	NT	Nationally Vulnerable
	Woolly-necked Stork	<i>Ciconia episcopus</i>	VU	
	White-rumped Vulture	<i>Gyps bengalensis</i>	CR	
	Indian Vulture	<i>Gyps indicus</i>	CR	
	Egyptian Vulture	<i>Neophron Percnopterus</i>	EN	
	Red-breasted Parakeet	<i>Psittacula Alexandri</i>	NT	
	Red-headed Vulture	<i>Sarcogyps Calvus</i>	CR	
	Comb Duck; Knob-billed Duck	<i>Sarkidiornis Melanotos</i>	LC	Nationally Endangered
Fish	Chaguni	<i>Chagunius chagunio</i>	LC	
	Katle	<i>Neolissochilus hexagonolepis</i>	NT	
	Putitor Mahseer	<i>Tor putitora</i>	EN	
	Mahseer	<i>Tor tor</i>	NT	
Mammal	European Otter	<i>Lutra lutra</i>	NT	
	Smooth-coated Otter	<i>Lutrogale perspicillata</i>	VU	
	Rhesus Macaque; Rhesus Monkey	<i>Macaca mulatta</i>	LC	Nationally Vulnerable
	Indian Pangolin	<i>Manis crassicaudata</i>	EN	

Species	Common name	Scientific name	IUCN Red List	Other status
	Clouded Leopard	<i>Neofelis nebulosa</i>	VU	
	Leopard	<i>Panthera pardus</i>	NT	
	Large Indian Civet	<i>Viverra zibetha</i>	NT	
	Bengal Fox	<i>Vulpes bengalensis</i>	LC	Nationally Vulnerable
Reptile	Tricarinate hill turtle	<i>Melanochelys tricarinata</i>	VU	

IUCN Red List Categories

CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: Near Threatened, LC: Least Concern

Reference: Information Sheet on Ramsar Wetlands, 2016

(5) Population and Ethnicity

The population of Pokhara is approximately 500,000 (projected). The downtown of the city lies between the east of Phewa Lake and Seti River area with high population density over 80 persons/ha.

The local population is composed of 101 caste/ethnic groups. Brahmins have the highest population, followed by Gurungs and Chhetris. Hinduism and Buddhism are the major religions practiced here. Jalaris, one of the ethnic groups who live near Phewa Lake and Begnas Lake, depend on traditional fishery and aquaculture for their livelihood.

(6) Cultural Heritage

Pokhara is known worldwide as a tourist destination, and various famous cultural and historical heritages such as Barahi Mandir and Bindyabasini Mandir (Hindu temples) are found in the city. The candidate sites for future wastewater treatment plants proposed by PMC are located more than 10 km from these heritages, but locally valuable heritages including small Hindu temples and pagodas need to be investigated during the Project.

6.3 Current issues

(1) Water pollution

In Pokhara, there is neither wastewater treatment system nor proper sewage treatment system in place. Eutrophication of the lake thus becomes problem caused by organic contaminants and faecal *E. coli*. According to the water quality study in 2019, high concentration of Color, BOD, COD_{Cr}, total Nitrogen, total Phosphorus were observed in treated water discharged from the existing faecal sludge treatment plant to Seti River. 10²-10³ MPN/100ml of faecal *E. coli* was detected at Seti River, and groundwater which is sometimes used as drinking water was also found contaminated with faecal *E. coli*. Relatively high concentration of total Nitrogen and total Phosphorous are also detected at Phewa Lake.

(2) Other issues

In the Ramsar site, especially at Phewa Lake area, in addition to the water quality issue, various environmental issues are revealed associated with the regional economic growth, such as waste flow-in and drifting at lakeshore, sedimentation and siltation, illegal construction at the lakeside.

7. Legal Framework of Environmental and Social Considerations

7.1 Laws, Regulations and Relative agencies and institutions

(1) Laws and Regulations

Major Nepali laws and regulations related to environmental and social considerations are listed in Table 2. After promulgation of the constitution in 2015 and the subsequent government reform, many laws and regulations have been updated. In 2019, National Environmental Policy was formulated as a basis of national environmental conservation. The policy aims to lessen and prevent environment pollutions, manage wastes, expand parks and greenery, and ensure environment justice to the pollution affected population. The policy also specifies special measures including setup of effective systems to reduce pollution, encouragement for the use of environment-friendly technology, regulation of harmful pesticides, and protection of human health. To tackle water pollution, installation of environment-friendly technology in industries is to be promoted. MoFE is responsible for the policy and will be reviewed every five years.

Table 2 Laws and regulations related to environmental and social considerations

Document name	Year
The Constitution of Nepal	2015
Policies and plans	
National Environmental Policy	2019
National Forest Policy	2018
National Ramsar Strategy and Action Plan (2018-2024)	2018
Integrated Lake Basin Management Plan of Lake Cluster of Pokhara Valley, Nepal (2018-2023)	2018
National Ramsar Strategy and Action Plan (2018-2024)	2018
Nature Conservation National Strategic Framework for Sustainable Development (2015-2030)	2015
National Biodiversity Strategy and Action Plan 2014-2020	2014
National Wetland Policy	2012
Water Resources Strategy	2002
Laws and regulations	
Environment Protection Rules	2020
Environment Protection Act	2019
Labour Act	2017
Control of International Trade of Endangered Wild Fauna and Flora Act	2017
Solid Waste Management Rules	2013

Document name	Year
Solid Waste Management Act	2011
Child Labour (Prohibition and Regulation) Rules	2006
Child Labour (Prohibition and Regulation) Act	2000
Forest Rules	1995 (amended 2005)
Forest Act	1993 (amended 2019)
Water Resources Rules	1993
Water Resources Act	1992
Soil and Watershed Conservation Act	1982
Tourism Act	1978 (amended 1997)
National Parks and Wildlife Conservation Act	1973 (amended 1992)
Aquatic Animals Protection Act	1960 (amended 1997)

In 2019, MoFE developed “National Ramsar Strategy and Action Plan 2018-2014” and “Integrated Lake Basin Management Plan of Lake Cluster of Pokhara Valley 2018-2023” (ILBM). The ILBM has proposed environmental management activities at each lake and its budgets, highlighting eight thematic areas (A: Empowered Governance System, B: Biodiversity and Ecosystem Service Conservation, C: Socio-Economic Prosperity, D: Gender and Social Inclusion, E: Environmentally-friendly ‘Green’ Infrastructure, F: Climate Change and Disaster Reduction, G: Monitoring and Knowledge Management System, and H: Financial Sustainability). PMC is generally responsible for implementation of the ILBM under support and supervision of Gandaki Province.

(2) Environmental standards

Effluent from industries to inland water or public sewer, and from wastewater treatment facility to inland water have been regulated by MoFE. On the other hands, ambient water quality guidelines for irrigation, aquaculture, recreation, livestock, and aquatic ecosystem were gazetted by the Ministry of Energy, Water Resources and Irrigation.

(3) Related agencies and institutions

MoFE is the main government organization with the responsibility for looking after national-level policy, law and standards, international environmental treaties, coordination with other organizations, and related works for environmental protection and management.

After decentralization of power based on the new constitution in 2015, the Ministry of Industry, Tourism, Forests, and Environment (MoITFE) of Gandaki Province, and PMC

have responsible for environmental conservation in their jurisdictions. In 2019, MoITFE set up Lake Conservation Development Authority (LCDA) to oversee conservation and management of the lake basins including the Pokhara Valley Ramsar site. Similarly, PMC recently established an environmental bylaw, and now is working on strengthening its function of environmental management. However, lake conservation activities by LCDA or PMC have not been yet in place.

(4) Land acquisition and involuntary resettlement

Land acquisition in Nepal is regulated by Land Acquisition Act, and the procedure differs depending on whether it's public- or private-owned. Land Acquisition, Resettlement and Rehabilitation Policy for Infrastructure Development Projects, formulated in 2015 with ADB's support, states to carry out social impact assessment, and to include the cost associated with implementation of land acquisition, compensation, and resettlement in overall project cost.

7.2 Procedures of EIA, stakeholder participation and information disclosure

(1) Strategic Environmental Assessment (SEA)

Environmental Protection Act amended in 2019 stipulates to carry out SEA for policy, program, and project specified by the Government of Nepal. According to MoFE, up to now, there is no project that the SEA under the Act is applied to, and the procedure and content detail have not been developed yet. Although it is very unlikely that the SEA under the Act is applied to the Project, MoFE and MoWS further need to confirm if the SEA under the Act is applied to the Project. In any case, it is agreed that the Project will conduct SEA in accordance with JICA's Guidelines.

(2) Environmental Impact Assessment (EIA)

EIA system in Nepal does not show significant gaps with World Bank's safeguards and JICA's Guidelines. The Environmental Protection Rules amended in 2020 specifies projects that require IEE and EIA, and its approval authority, i.e. MoFE, concerned ministry, province, or local government, depending on project characteristics. The EIA and IEE procedure is shown in Figure 1.

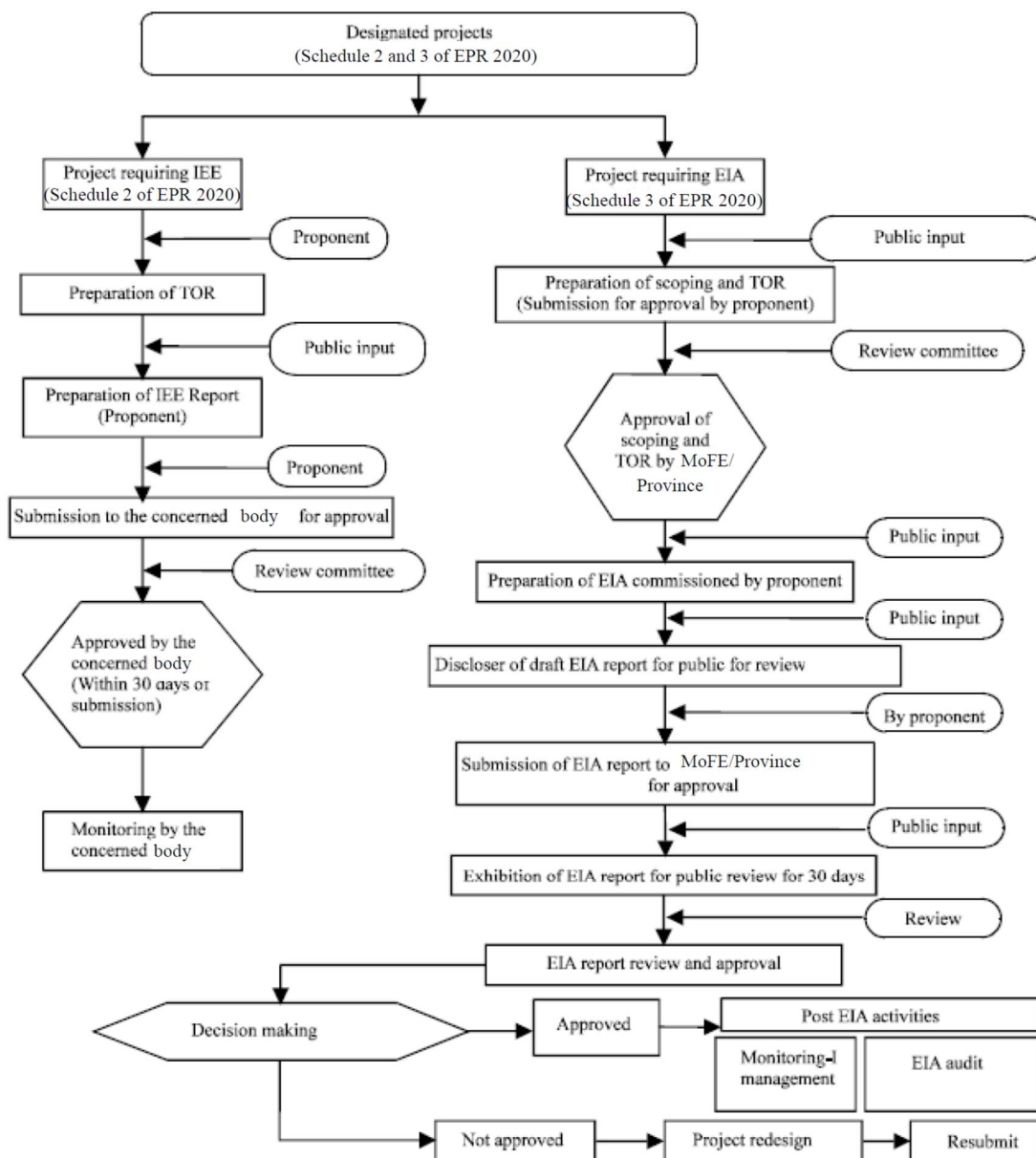


Figure 1 EIA/IEE Process in Nepal

8. Provisional Scoping (types and magnitudes of possible adverse impacts and mitigation measures)

The provisional scoping on possible environmental and social impacts for wastewater management projects to be planned in the master plan is shown below.

Table 2 Provisional Scoping Matrix for wastewater management projects

Item				Scoping result					Reasons
				Sewage treatment plant	Faecal sludge treatment plant	On-site treatment facility	Pump station	Sewer	
Pollution control	1	Air pollution	Before/during construction	B-	B-	B-	B-	B-	During construction: Exhaust gas from construction vehicles and heavy equipment and dust may temporarily increase. During operation: Pumps and motors at the facilities are normally ran with commercial power, so no impact is expected.
			During operation	D	D	D	D	D	
	2	Water pollution	Before/during construction	B-	B-	B-	B-	B-	During construction: Wastewater load will increase due to construction and earth work. During operation: Wastewater treatment at the facilities will contribute to improvement of ambient water quality. On the other hand, discharged water from the treatment facility may give adverse effect on ambient water quality locally.
			During operation	B+/-	B+/-	B+/-	D	D	
	3	Waste	Before/during construction	B-	B-	B-	B-	B-	During construction: Construction waste and related municipal solid waste will be generated. During operation: Other than solid waste generated by operators, sludge will be generated from the facilities.
			During operation	B-	B-	B-	D	D	
	4	Soil and groundwater Contamination	Before/during construction	B-	B-	B-	B-	B-	During construction: Soil contamination may occur due to machine oil or other chemical spillage. During operation: Leakage of raw
			During operation	B-	B-	B-	B-	B-	

Item				Scoping result					Reasons
				Sewage treatment plant	Faecal sludge treatment plant	On-site treatment facility	Pump station	Sewer	
									water before the treatment and sludge may cause soil and groundwater contamination.
	5	Noise and Vibration	Before/during construction	B-	B-	B-	B-	B-	During construction: Construction machinery and vehicles will produce noise and vibration. During operation: Pumps and motors at the treatment facilities will produce noise and vibration.
			During operation	B-	B-	B-	B-	D	
	6	Ground Subsidence	Before/during construction	D	D	D	D	D	No activities which may induce ground subsidence is expected.
			During operation	D	D	D	D	D	
	7	Offensive Odor	Before/during construction	D	D	D	D	D	During operation: Offensive odor may be produced around the treatment facilities.
			During operation	B-	B-	B-	D	D	
	8	Bottom Sediment	Before/during construction	B-	B-	B-	B-	B-	During construction: Earth works may cause sedimentation and siltation at rivers and lakes. During operation: Proper wastewater treatment may contribute to improvement of the bottom sediment environment at rivers and lakes. On the other hand, discharged water from the treatment facility may give adverse effect on bottom sediment locally.
			During operation	B+/-	B+/-	B+/-	D	D	
Natural Environment	9	Protected Areas	Before/during construction	B-	B-	B-	B-	B-	The target area is located within Ramsar site.
			During operation	B+	B+	B+	D	D	During construction: Construction and land reclamation may cause degradation of the wetlands and biodiversity. During operation: Proper wastewater treatment will contribute to improvement of natural environment at the wetlands and lakes.

Item			Scoping result					Reasons	
			Sewage treatment plant	Faecal sludge treatment plant	On-site treatment facility	Pump station	Sewer		
	10	Biodiversity	Before/during construction	B-	B-	B-	B-	B-	The target area is located within Ramsar site.
			During operation	B+	B+	B+	D	D	During construction: Construction and land reclamation may cause degradation of the wetlands and biodiversity. During operation: Proper wastewater treatment will contribute to improvement of natural environment at the wetlands and lakes.
	11	Hydrology	Before/during construction	D	D	D	D	D	During operation: Hydrological change may occur depending on the flow volume of the receiving water body.
			During operation	C	C	D	D	D	
	12	Topography and Geographical Features	Before/during construction	B-	B-	B-	B-	B-	During construction: Topographical change may occur due to earth work.
			During operation	D	D	D	D	D	
Social environment	13	Involuntary Resettlement and Land Acquisition	Before/during construction	C	C	C	C	C	During construction: To avoid resettlement, the project should select vacant land or public land. If resettlement and private land acquisition is unavoidable, the project should provide sufficient information and compensation (including livelihood restoration) to affected people.
			During operation	D	D	D	D	D	
	14	Poverty	Before/during construction	C	C	C	C	C	A group of Jalari, who lives near the lake, operates traditional fishery as means of their livelihood. This group may be considered as the poor, and the project should avoid giving negative impacts to the group.
			During operation	C	C	C	C	C	
	15	Minority and Indigenous Peoples	Before/during construction	C	C	C	C	C	Various ethnic groups live in Pokhara, but level of the impacts on minority and indigenous people are unknown at this moment. The
			During operation	C	C	C	C	C	

Item				Scoping result					Reasons
				Sewage treatment plant	Faecal sludge treatment plant	On-site treatment facility	Pump station	Sewer	
									project should take the minority and indigenous people in special consideration if necessary.
16	Local Economy (Employment, Livelihood etc.)	Before/during construction	C	C	C	C	C	C	During construction: Work opportunity for construction companies, and employment opportunity for local people is expected associated with local economy growth, but level of the impacts is unknown. During operation: Employment opportunity at the facilities is expected. The treated water discharge may affect the fishermen's livelihood.
		During operation	B+/-	B+/-	B+/-	B+	B+	B+	
17	Land Use and Utilization of Local Resources	Before/during construction	C	C	D	D	D	D	Negative impacts on local resources which local people use (e.g. excessive logging, fish population decrease) should be avoided, and minimized during construction and operation of the facilities. If it is unavoidable, compensation should be applied based on regional socio-economic survey.
		During operation	C	C	D	D	D	D	
18	Water Use	Before/during construction	D	D	D	D	D	D	During operation: Improvement of ambient water quality at rivers and lakes will give positive impacts on local people's living environment.
		During operation	B+	B+	B+	D	D	D	
19	Existing Social Infrastructure and Services	Before/during construction	D	D	D	D	D	B-	During construction: When sewage pipelines are constructed under roads, road traffic will be disturbed. During operation: Increased generation of sludge may burden capacity of the existing landfill site, but level of the impact is unknown.
		During operation	C	C	C	D	D	D	
20	Social Institutions such as Local Decision Making	Before/during construction	B+	B+	B+	B+	B+	B+	Pokhara, especially Phewa Lake area, is famous for tourism.
		During	B+	B+	B+	B+	B+	B+	Through stakeholder meeting in the

Item				Scoping result					Reasons
				Sewage treatment plant	Faecal sludge treatment plant	On-site treatment facility	Pump station	Sewer	
		Institutions	operation						master plan development process, it is expected that NGO and citizen's groups become active, and mutual communication for lake conservation is enhanced.
21	Misdistribution of Benefit and Damage	Before/during construction	C	C	C	C	C	C	During construction: Although the project aims at improvement of water environment, affected people due to involuntary resettlement, land acquisition may receive adverse impacts including loss of livelihood and/or house. During operation: At areas that experience system change from conventional onsite treatment to new wastewater management system, the project might give pressure on sewage treatment business. Areal difference of the system may also induce misdistribution of the benefit.
		During operation	B-	B-	B-	B-	B-	B-	
22	Local Conflict of Interest	Before/during construction	C	C	C	C	C	C	During construction and operation: Local conflict may occur between those who benefit from the wastewater system development and those not or less. However, level of the impact is unknown.
		During operation	C	C	C	C	C	C	
23	Cultural Heritage	Before/during construction	C	C	C	C	C	C	During construction: Construction work may occur near cultural heritages and locally valuable heritages but level of the impact is unknown.
		During operation	D	D	D	D	D	D	
24	Landscape	Before/during construction	C	C	C	C	C	C	There are various tourist spots in Pokhara. During construction: Depending on the facility locations, construction work may affect local landscape. During operation: The facility installation may differ landscape,
		During operation	C	C	C	C	C	D	

Item				Scoping result					Reasons
				Sewage treatment plant	Faecal sludge treatment plant	On-site treatment facility	Pump station	Sewer	
									but level of the impact is unknown.
25	Gender	Before/during construction	B+	B+	B+	B+	B+	B+	Women's group inclusion should be promoted for the master plan development and water conservation at Phewa Lake, and their activities will be prospered.
		During operation	B+	B+	B+	B+	B+	B+	
26	Children Right	Before/during construction	C	C	C	C	C	C	During construction: Construction work may block Children's commute to school, and noise from construction work may affect children during class if the construction site is close to school. During operation: Improvement of wastewater treatment system will make children's living environment.
		During operation	B+	B+	B+	B+	B+	B+	
27	Sanitation and Infectious Diseases (HIV/AIDS)	Before/during construction	C	C	C	C	C	C	During construction: Inflow of workforce may cause increase of infectious diseases such as HIV/AIDS. During operation: Proper wastewater treatment will reduce water-borne diseases.
		During operation	B+	B+	B+	B+	B+	B+	
28	Work environment (including occupational safety)	Before/during construction	B-	B-	B-	B-	B-	B-	During construction: Work environment for construction workers should be considered. During operation: Gas poisoning and oxygen deficiency may occur during maintenance, so working environment for the operators should be considered.
		During operation	B-	B-	B-	B-	B-	B-	
29	Accidents	Before/during construction	B-	B-	B-	B-	B-	B-	During construction: Accidents associated with construction work may happen. During operation: Accidents associated with the facility operation (accidents caused by equipment failure, accidental fall etc.) may happen.
		During operation	B-	B-	B-	B-	B-	B-	

Item				Scoping result					Reasons
				Sewage treatment plant	Faecal sludge treatment plant	On-site treatment facility	Pump station	Sewer	
Others	30	Global Warming	Before/during construction	B-	B-	B-	B-	B-	During construction: CO2 emission from heavy equipment for construction work is expected. During operation: GHG (CH4 and CO) will be generated from the treatment process.
			During operation	B-	B-	B-	D	D	

A+/-: Significant positive/negative impact is expected

B+/-: Positive/negative impact is expected to some extent.

C: Extent of positive/negative impact is unknown. (A future examination is needed, and the impact could be clarified as the study progresses.)

D: No impact is expected.

9. Alternatives to the project activities including “without project” option

The Project is to re-examine the current situation and problems in wastewater management in Pokhara, and formulate the master plan based on the re-examination results. Alternative scenarios of the wastewater treatment strategy, including “zero option,” will be studied at master plan study stage.

10. Result of the consultation with recipient government on environmental and social consideration including roles and responsibilities.

MoWS and PMC agreed to abide “JICA guidelines for Environmental and Social Considerations (April 2010)” in order to ensure that appropriate considerations will be made for the environmental and social impacts of the Project.

11. Terms of Reference for Environmental and Social Considerations

- (1) Review of existing development policies, plans, projects, studies, and public private investment;
- (2) Identification and analysis of development constraints and factors promoting development;
- (3) Analysis of alternatives for achieving the goals of the Project;
- (4) Consideration of the contents of the M/P;
- (5) Conducting baseline surveys for Environmental and Social Considerations, including;
 - 1) Existing environmental and social conditions of the target area (land use,

environmental pollution, natural environment, socio-economic situation, socio-cultural environment, lifestyle of indigenous people and communities etc.)

- 2) Laws, regulations, and standards related to environmental and social considerations (environmental impact assessment, resettlement and land acquisition, public participation, information disclosure, and others);
- 3) Strategic Environmental Assessment (SEA) study reports conducted for development projects in Nepal, and other relevant information;
- 4) Gaps between the JICA Guidelines and the legal framework of Nepal on environmental and social considerations;
- 5) Review of relevant organizations responsible for implementation of projects and their roles on environmental and social considerations including Environmental Impact Assessment (EIA) and SEA;
- (6) Scoping on possible environmental and social impacts and its evaluation methods at the time of decision-making of the projects proposed by the M/P;
- (7) Prediction of likely impacts of the proposed projects under the M/P based on the scoping;
- (8) Evaluation of likely impacts of the plans and comparative analysis of alternative proposed plans, including the 'without project' option and 'zero' option;
- (9) Examination of the mitigation measures (to be avoided, minimized, and compensated);
- (10) Examination of the monitoring methods (monitoring items, frequencies, and methods);
- (11) Support to hold stakeholder meetings in order to provide wide-open opportunities to local residents and individuals / groups having wide knowledge and opinions;
- (12) Preparation of scoping for prioritized projects on items for environmental and social considerations (alternatives which would be considered and the scope for important items on likely environmental and social impacts as well as draft prediction and evaluation methods); and
- (13) Perform other duties deemed necessary.