

Date: 8<sup>th</sup> February, 2021

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

1. Full title of the Project

Project for Formulation of Wastewater Treatment Master Plan in Western Division.

2. Type of the study

Studies on the Master Plan Formulation and Pre-Feasibility as Technical Cooperation for Development Planning.

3. Environmental Categorization of the Project in accordance with the JICA Guidelines for Environmental and Social Considerations (April 2010)

The Project is classified as a "Category B" because of the following reasons:

The project is not considered to be a large-scale wastewater treatment project, is not located in a sensitive area, and has none of the sensitive characteristics under the JICA guidelines for environmental and social considerations (April 2010), it is not likely to have a significant adverse impact on the environment.

The Project is formulating Regional Master Plan of Wastewater Treatment in Western Division in Fiji. The project does not involve any construction activities in the area and the impact envisaged subsequently at the implementation of the Master Plan shall be evaluated enabling to be avoided, mitigated and minimized during the project.

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

(1) Lead Executing Agency

Water Authority of Fiji (WAF)

(2) Co Executing Agency

Ministry of Infrastructure and Meteorological Service (MIMS)

5. Study Methodology

In order to establish the Terms of Reference for the Environmental and Social Consideration at the Master Plan Establishment, quick survey was conducted from October to December 2020 as a part of the Detail Planning Survey for the project. At the Master Plan Stage, the Strategic Environmental Assessment(hereinafter referred to as “SEA”) is required to be conducted by the implementation agency for the project in line with the Guidelines for JICA Environmental and Social Considerations(April 2010). As the condition under the world wide pandemic of COVID-19 during detailed planning survey period, the survey was conducted through secondary information review, questionnaire and online interview to the relevant organization in the country as followings:

- a. The questionnaires were elaborated and sent to the relevant organizations prior to the main interview survey to grasp the environmental and social situations in the country. The questionnaires were preliminary developed by the JICA Survey Team and officially delivered and requested to the concerned parties by JICA Fiji Office.
- b. Online interview survey to the relevant organizations were conducted within main study period. Meeting appointments were arranged by JICA Fiji Office. At the interview, answers to the questionnaires were confirmed and relevant information were collected from the relevant organizations.

## 6. Outline of the Project

The outline of the project are:

The purpose of the Project is that “Public health and water environment in the Western Division is improved by formulating a Regional Wastewater M/P and Municipal Sewerage M/P, by utilizing the Pre-F/S of prioritized project(s), and by developing the capacity of Sewerage management of relevant agencies of Fijian side”.

Output 1: A Regional Wastewater M/P that includes centralized and decentralized wastewater treatment systems for the Western Division of Viti Levu Island of Fiji (Wastewater treatment Master Plan in Western Division) will be formulated.

Output 2: Municipal Sewerage M/P in priority cities and/or towns identified in the Regional Wastewater M/P will be formulated.

Output 3: A Pre-F/S including sludge management for priority sewerage project(s) selected in the Municipal Sewerage M/P will be conducted.

Output 4: Capacity on sewerage management of WAF and relevant agencies will be strengthened.

Throughout the entire study in the Master Plan Formulation project, following facilities are

expected to be implemented. Here, the preliminary environmental evaluation in the following section will be considered those major facility development in the area.

**Table 1 Expected Major Facilities to be considered in the Project**

Major Facilities for the project
Off-site
Sewer installation (Trunk, Secondary and house connection, etc.)
Wastewater Treatment Plant
Pumping Station
Sludge Treatment/Recycling Plant
On-site
Small Scale on-site Wastewater Treatment Plant
Septage Treatment/Recycling Plant

Source: JICA Survey Team

## 7. Description of the project site



Source: JICA Survey Team

**Figure 1 Location of Target Area**

The target area for the project is Western Division of Fiji located in Viti Levu Island (Figure 1). The population of the Western Division is 337,071 and 76,235 households are residing in the 6,360 km<sup>2</sup> of land area. The division is divided to 3 provinces namely Ba province, Nadroga-Navosa Province and Ra Province (Table 2)

**Table 2 Population and administration area in provinces in Western Division in Fiji**

Provinces	Population (2017)	Growth rate (2007-2017)	Urban Pop. Rate (Growth rate)	Household	Area(km <sup>2</sup> )
Ba Province	247,708	6.9%	66.8% (36.7%)	56,112	2,634

Nadroga-Navosa Province	58,931	0.9%	17.5% (7.0%)	13,089	2,385
Ra Province	30,432	3.3%	19.7% (20.9%)	7,034	1,341
Total	337,071	-	-	76,235	6,360

Source: GoF (2018) Fiji 2017 Population & Housing Census Administrative Report and Central Table, City Population (<https://www.citypopulation.de/en/fiji/cities/>) (Access in Nov. 2020)

There are thirteen (13) municipalities declared in Fiji (Fiji 2017 Population & Housing Census). Those are 2 cities and 11 towns in the country and 6 out of them are located in Western Division as showing below.

**Table 3 Major Urban area in Western division**

City/Town	Population (2017)	Area(km2)	notes
Lautoka city	52,388	16.1	Vuda Tikina (Pop.: 99,264, Area: 403 km2) in Ba prov.
Nadi town	51,670	7.8	Nadi Tikina (Pop.: 59,717, Area: 172 km2) in Ba prov.
Ba town	11,772	6.5	Ba Tikina (Pop.: 39,372, Area: 330 km2) in Ba prov.
Tavua Town	5,956	N/A	Tavua Tikina (Pop.: 23,269, Area 716 km2) in Ba prov.
Sigatoka town	7,504	N/A	Nasigatoka Tikina (Pop.: 14,338, Area 218 km2) in Nadroga-Navosa Prov.
Rakiraki town	4,296	N/A	Rakiraki Tikina (Pop.: 13,908 Area: 304 km2 ) in Ra Prov.
Total	133,586	-	-

Source: GoF (2018) 2017 Fiji population and housing census: administration report / Fiji Bureau of Statistics, UN habitat (2012) FIJI: NADI TOWN URBAN PROFILE, Homepage of Lautoka City, Homepage of Nadi Town, Homepage of Ba Town Council, Homepage of Sigatoka Town,

General situation of natural and social environment in the country is shown in Table 4. The country is categorized as middle income country located in the Melanesia in South Pacific having tropical marine climate.

**Table 4 General Situation of the Natural and Social Environment**

Countries	Natural Environment	Social Environment
<b>Fiji</b> <b>Republic of the Fiji</b>	<p><b>Total Area:</b> 18,274sq km <b>Capital:</b> Suva Fiji is one of the countries in Oceania located in south Pacific. Land use of the country is Agricultural land 23.3%(Arable land 9%; Permanent crops 4.7%; permanent pasture 9.6%) ; forest 55.7% And other 21% (2011 est.).</p> <p>The country administratively consists of 4 divisions and subdivided, 14 provinces and 1 dependency (Rotuma). The country has a tropical marine climate having only slight seasonal temperature variation.</p>	<p><b>Population:</b> 935,974 (July 2020 est.) <b>GDP per Capita:</b> \$9,800 (2017 est.) <b>Language:</b> English(official), Fijian(official) and Hindustani <b>Ethnic group:</b> iTaukei 56.8%, Indo-Fijian 37.5%, Rotuman 1.2 %, others 4.5 % (European, other Pacific Islander and Chinese) <b>Urban population:</b> 57.2% of total population (2020) <b>Literacy (definition: age 15 and over can read and write):</b> Total population: 99.1% (male: 99.1%, female: 99.1% (2018 est.)) <b>Population below poverty line:</b> 31.0% (2009 est.)</p>

		<b>Net migration rate(Immigrant: Come - Emigrants: Out):</b> -6.2 migrant(s)/1,000 population (2020 est.)
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Source: CIA, World Factbook, The World Bank Climate Change Knowledge Portal

(1) Social Environment Related Information

a. Land Tenure system in Fiji

There generally 3 types of the land tenure types in Fiji and those are Native Land (iTaukei), Freehold Land and State Land (Crown Land). Approximately 83% of the land is Native Land, 10% of land is Freehold Land and 7% of land is State Land. The native land belongs to village groups or “land owning unit” such as “Tokatoka” (families), “Mataqali”, (clans) “Yabusa” (tribes) and “Vanua” (federations). Leases of Native Land are available through the iTaukei Land Trust Board (TLTB), a statutory authority which administers all such lands on behalf of the Fijian owners. Freehold Land can be purchased, transferred, or leased, subject to the conditions of the Land Sales Act. The State Land is owned by the state administered by the Department of Lands in Ministry of Land and Mineral Resources.

**Table 5 Situation of the Land Tenure in Fiji**

Type of Land	Approximate rate (%)
Native Land( iTaukei Land)	83
Freehold Land	10
State Land(Crown Land)	7

Source: Department of Town Country Planning

b. Issues on the Informal settler

Fijian government has an issue of Informal settlers who live in the Native land without proper process with the TLTB in urban areas. In the MP, the situation of those settlers/settlements should be considered consulting to town/city councils. Because the use of Native land is required registration process in the TLTB, peoples lives in Native land without proper process with TLTB also called as “informal settlers” in Fiji. At the compensation on the land acquisition, they may lose entitlement in usual cases (not compensated). For the native land, agreement between user and TLTB will be required to be compensated in usual cases in Fiji. In census 2017, 8,067 out of 191,910 households (4.2%) are residing the status of “occupy iTaukei Land with informal (vakavanua) arrangement”.

### c. Gender Related issues

In the 2020 Global Gender Gap Report (2020) by the World Economic Forum, the Gender Gap Index(GGI) which shows the gender gap between male and female in Fiji, is 0.678, ranking 103rd out of 153 countries (1st is Iceland with 0.877 of the index, and Japan is ranked 121st with 0.652). The four factors that make up the GGI of Fiji are economy (0.584 of score, 123rd of ranking), education (0.997 of score, 51 of ranking), health (0.979 of score, 41 of ranking), and politics (0.150 of score, 97 of ranking), respectively, in terms of education and health. Although equality is high in education and health, women's participation in politics and economics still tends to be low.

The Department of Women in the Ministry of Women, Social Welfare and Poverty Alleviation (MWSWPA) is the jurisdiction agency for the gender related matters. Under the National Development Plan (2017-2036), the ministry is currently moving on the institutional capacity development initiatives to aims the goal of strengthening government capacity at complete gender mainstreaming. It contains gender assessment, gender analysis and gender responsible programing including budgeting for cross multiple sectors. The ministry also working with the other focal ministries such as Ministry of Waterways and Environment (MoWE). The ministry assists MoWE at the public consultation related to the EIA.

Related to the Sewerage development project in Fiji, the work for the consensus building is very crucial and should be go through the formal governmental structures. In cases of the EIA study, the project may need to consult to the village as a part of the social environmental study. If the project intend to involve the women's opinion, it is better to obtain the support of the different governmental bodies such as Ministry of iTaukei Affairs and local governments such as divisional commissioner, provincial government in local level. In case of the MWSWPA, they have divisional office and district office. And those resource can be cooperated at the project implementation collaborating with the Divisional commissioner in Western Division.

## (2) Natural Environment Related Information

### a. Protected Area in Fiji and in target area

According to the National Biodiversity Strategy and Action Plan for Fiji 2020–2025(GoF 2020), there are 36 designated Protected Area in the country. There are 23 existing terrestrial protected areas in Fiji, covering 50,000 ha and this accounts for just 2.7% of Fiji's land mass. Approximately 35,000 ha of this is on Viti Levu and the remaining 15,000 ha on Vanua Levu and Taveuni. Besides of the terrestrial protected area, 11 marine

Protected Areas are protected. In case of Fiji, the proposed Protected Areas are similarly taken account for environmental impact assessment as described in the clause 1(n) in Environmental Management Act 2005 and 9 Areas are proposed status in 2017.

In Western division (Ba, Ra and Nadroga-Navosa province), there are 7 designated terrestrial protected area, 2 designated marine protected area and 4 proposed protected areas are conserved.

**Table 6 Protected Area in Fiji and Western Division**

Protected Area	Fiji	Western Div.
Terrestrial Protected Area(Designated)	23	7
Marine Protected Area(Designated)	13	2
Proposed Protected Area(Not Designated)	9	4
Total	45	13

Source: GoF (2020) National Biodiversity Strategy and Action Plan for Fiji 2020–2025

Under the international convention, there are 2 Ramsar sites and 1 designated World Heritages (with 3 tentative sites) are conserved in the country. In the Western Division, the Sigatoka Sand Dune National Park is in the tentative list for the World Heritage.

Besides those protected area, 47 sites of Wetland Sites of National Significance, 105 of shallow water special, unique sites and 20 of Deep water special unique areas, 32 Important Bird Areas, 5 Area of Zero Extinction Sites, 32 Key Biodiversity Areas and 5 Ecologically or Biologically Significant Areas are recognized those importance to be protected in Fiji.

b. Status of the Fiji's Biodiversity:

There are approximately 900 plant species, 27 Bird species, 1 mammal species, 2 amphibians and 12 reptiles and 11 freshwater fish in terrestrial and 14 fish species in marine environment are identified as native endemic species in Fiji (GoF 2013, Fiji's State of Environment Report 2013).

Although large number of species are observed in Fiji, endemic species are very limited. 278 species are listed in the IUCN Red list (GoF 2020 National Biodiversity Strategy and Action Plan 2020–2025, Suva, Fiji). Those are 65 plant, 14 bird, 6 mammal, 14 reptiles, 1 amphibians, 7 bony fish and 6 Cartilaginous fish species.

**Table 7 Endangered Species in Fiji**

Taxonomic Group	Sub-group	No. of species listed in IUCN Red list
Plant	-	65

Vertebrates	Birds	14
	Mammals	6
	Reptiles	14
	Amphibians	1
	Bony fish (freshwater and marine)	7
	Cartilaginous fish	6
	Sub-total	48
Invertebrates	-	165
Total		278

Source: GoF 2020 National Biodiversity Strategy and Action Plan 2020–2025, Suva, Fiji

### c. Climate Change

Fiji was the first country to ratify the Paris Climate Change Agreement on 22 April, 2016 and committed net-zero global GHG emissions by 2050. Also, Fiji became the first island country to chair at COP 23 of UNFCCC in Bonn in 2017 and proposed the "Basic Design of Talanoa Dialogue" that encourages inclusive, participatory, and transparent dialogue among participating countries, as a process to fill the difference in actual emissions (emission gap<sup>1</sup>). In Fiji, the effects of climate change include an increase in the incidence of diseases due to an increase in average temperature, marine warming, an increase in storms due to changes in weather patterns, and damage to existing farmland due to saltwater run-up, resulting in significant economic damage.

National Climate Change Policy was issued in 2012 in Fiji. Potential impact on wastewater treatment and storm-water drainage are anticipated as below. Failure of the sewerage network during or after an extreme weather event may result in sewage overflows, which may increase the spread of diseases and infections and put fresh water and food sources at risk by polluting waterways. As the adaptation for the climate change in wastewater, the report emphasize that the sewerage infrastructure must be resilient to the projected increases in extreme weather events.

### (3) Pollution Control related Information

#### a. Waste and Wastewater treatment in Western Division

There are 4 wastewater treatment plants in Western Division. Those are 3 in Ba province and 1 in Nadroga / Navosa province. Among 76,235 of total households in the division, 18.7% of the households are using piped sewer system, 65.1% of the households are using septic tank system and 16.1% are using other systems such Pit latrine and shared toilet according to the Census 2017.

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<sup>1</sup> Emissions gap: The difference between the greenhouse gas emission levels consistent with a specific probability of limiting the mean global temperature rise to below 2°C or 1.5°C in 2100 above pre-industrial levels and the GHG emission levels consistent with the global effect of the NDCs, assuming full implementation from 2020.



The Naboro Sanitary Landfill in Central Division is the only sanitary landfill in Fiji. There have been limited operational improvements on dumpsites including Lautoka, Labasa, Rakiraki, and Sigatoka, however, other than Lautoka these sites still lack data recording and segregation procedures for recyclables and hazardous wastes and in many instances waste is still burnt. Waste collection service for the city/town area is responsible of the local government, i.e., city/town council. Major disposal sites in the western division are Vunato Disposal Site (Lautoka), Ba Dump site, Sigatoka Dump site and Rakiraki Dump site. Other small communities outside of the town areas, there are small dumping sites managed by the communities.

## 8. Legal Framework of Environmental and Social Considerations

### (1) Legislation related to the Environmental Impact Assessment

The Environmental Management Act 2005((EMA 2005) provides a legal framework for environmental impact assessment (EIA), and comprehensive management practice for natural resources, waste management and anti-pollution measures. For regulation of this law, Environment Management (EIA Process) Regulations 2007 and Environment Management (Waste Disposal & Recycling) Regulations 2007 were established in January 2008 and many types of environmental management procedures have been prescribed.

The competent authority of Environmental impact Assessment in the country is the Department of Environment (DoE) in Ministry of Waterways and Environment (MoWE). For providing detail process on the Environmental Impact Assessment, DoE prepared Environmental Impact Assessment Guidelines in 2008.

EIA required projects are listed in the Schedule 2 in the EMA 2005. In case of the Sewerage related projects, the projects requires to submit the proposal to the EIA Administrator described as “(q) a proposal for the construction of a landfill facility, composting plant, marine outfall or wastewater treatment plant” in the Schedule 2. Hens, in case of the wastewater treatment plant construction, EIA process will be required in accordance with the Fijian environmental legislation as mentioned above.

**Table 8 Major Regulation of the Environmental Assessment**

Legislation	Description
The Environmental Management Act 2005	The Government of Fiji has provided a legal framework for the EIA process through the Environment Management Act (EMA) in 2005. This is an Act for the protection of the natural resources and for the control and management of developments, waste management and pollution control and for the establishment of a National Environment Council and for related matters.

Legislation	Description
Environment Management (EIA Process) Regulations 2007	The Environment Management (EIA Process) Regulations 2007 outlines the principles of the main components of the EIA process under the EMA 2005. The Regulations provide the environmental impact assessment procedures. They specify (a) what information must be contained in the application form when a development proposal is submitted for screening; (b) how the approving authority is to screen proposals to decide whether they need an EIA report; (c) how development proposals are to be submitted to the approving authority for EIA processing; (d) if a report is needed, how the terms of reference for the report are drawn up, and what needs to go into the report; (e) how the EIA report is published and reviewed; and (f) how approval of the report is granted or refused. The Regulations also make detailed rules about site inspections and the registration of EIA consultants.
Environment Management (Waste Disposal & Recycling) Regulations 2007	The purpose of Waste Disposal and Recycling Regulations 2007 is to prevent the pollution of the environment by controlling the discharge of solid waste from development activities and structures, the discharge of liquid wastes, the emissions of polluting gases, smoke, steam and dust, and handling, storage and disposal of wastes and hazardous substances generally. The Regulations state that a development sites need waste permits for discharging significant amounts of liquid waste into waters, and emission of air pollution.
Environmental Impact Assessment Guidelines in 2008 and revised second edition in 2012	In 2008, Department of Environment prepared the EIA Guidelines to explain the EIA procedures that must be followed once an application is received for development by the Department, the Approving Authorities and the Environmental Management Units. It is similar to that which appears in the Regulations but is more specific, and states the process step by step in a simpler format and language. The latest version of guidelines was revised and issued in 2012 as Edition 2.
Endangered And Protected Species Act 2002	This is an Act to regulate and control the international trade, domestic trade, possession and transportation of species protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and for related matters. This Act concerns the control of international and domestic trade and related activities in endangered species of wild fauna and flora. The Act consists of 34 sections divided into 8 Parts: Preliminary (I); Field of application (II); Establishment of the Fiji Islands CITES Management Authority and the Fiji Islands CITES Scientific Council (III); Permits (IV); Transit and Transshipment (V); Registration of Traders, etc. (VI); Enforcement (VII); and Miscellaneous (VIII).

Source: JICA Survey Team

Amongst above mentioned Environmental Regulation in the country, there is no particular regulation applied the Strategic Environmental Assessment (SEA).

In “the Environment Impact Assessment (EIA) Guidelines” prepared by Department of Environment (2008), the SEA is presented a kind of the higher plan which includes the projects. In guideline, the project is defined as “A development activity or proposal which has or is likely to have an impact on the environment. This encompasses policies, plans and programs or strategic environmental assessment as well as technology and other categories of activities. (P-53)”

There are several Experience of the SEA in Fiji and those are;

- Ministry of Forestry (2019) FCPF Readiness Project Fiji Strategic Environmental Social Assessment (SESA)
- JICA (2016) The Project For The Planning Of The Nadi River Flood Control Structures Final Report, Volume II Main Report, Part I : Master Plan Study
- ADB (2003) A Strategic Environmental Assessment of Fiji's Tourism Development Plan

(2) Legislation related to the Social Environment

Related to the Project Implementation in future, legislations regarding the land acquisition at the public projects in the country are shown below. All land acquisition for government purpose is generally undertaken by Director of Land (DoL) in Ministry of Land and Mineral Resources (MoLMR). However, some institutions operate as statutory organizations such as Water Authority of Fiji (WAF) and Fiji Roads Authority (FRA). These organizations do their own acquisition. Only if Native/iTaukei Lands is acquired outright then they approach DoL for land acquisition.

**Table 9 Legislations related to Social Environment in the country.**

Legislation	Description
State Land Act (132)	Law on use and maintenance of State Land An Act relating to the control, administration and disposal of Crown land. The Act relates to the control, administration and disposal of Crown land. The Act is divided into 7 Parts: Preliminary (I); Land acquired or leased by the Crown (II); Crown grants (III); Leases and licenses of Crown lands (IV); Special provisions relating to foreshore land and soil under waters of Fiji (V); Special provisions related to licenses for laying down tramlines, etc. (VI); and General (VII).
Native Land Act (133)	Law regulating Native Land owned by Fijian
Native Land Trust Act (134)	Law on land lease through TLTB and authority of TLTB
State Acquisition of Lands Act (135)	Law on use of land owned by government for public purpose
Town Planning Act (139)	Law regulating all lands and building developments, land subdivision, on-site operations and activities defined as development
Subdivision of Land Act (140)	This Act regulates and controls the subdivisions of lands. This is applied to all lands except those listed in section 2 in the Act (public land related to road), subdivision of the land requires approval of the Director of Town and Country Planning.
Rotuma Lands Act	Law on use and maintenance of Rotuma An Act to Provide for a Land Commission in Rotuma, the registration and dealing with and transmission of land and matters incidental thereto
Land Transfer Act	Law on use, maintenance and trade of Free Hold Land An Act to amend the law relating to the transfer of land and to the registration of title to land. This Act provides for a wide variety of matters relating to land, land use rights, transfer of land, etc. All land subject to the provisions of the Land (Transfer and Registration) Ordinance and every estate or interest therein and all instruments and dealings affecting any such land, estate or interest shall from the commencement of this Act be deemed to be subject to the provisions of this Act.

Source: JICA Survey Team

(3) Relative agencies and institutions

Department of Environment (DoE) in Ministry of Waterways and Environment (MoWE) is the responsible agency for the Environmental Assessment.

At the planning stage, Strategic Environmental Assessment(SEA) is required to be conducted by the implementation agency, i.e., Water Authority of Fiji, for the project in line with the Guidelines for JICA Environmental and Social Considerations(April 2010) and

regulation which provide Environmental Assessment in country as mentioned above.

## 9. Provisional Preliminary Project Impact Scoping

### (1) Screening

Based on the study, the preliminary Evaluation of the expected projects at screening level was conducted are shown below (Table 9). Current Proposing Project is focusing the formulation of Regional Master Plan and any large adverse impacts are not envisaged.

**Table 10 Environmental items to be considered at the project screening (Preliminary)**

Environmental Items	Sub-items	Situation
Environmentally Sensitive items	Involuntary resettlement Large scale groundwater pumping Large scale Land reclamation, land development, and/or land-clearing Large scale Logging	For the MP formulation, no any impacts is anticipated. In the MP, construction of onsite and offsite wastewater treatment in the area will be considered. In case of the new wastewater treatment, land acquisition may be involved. Incorporation of the opinions of stakeholder may require to avoid misunderstanding in later and to obtain basic agreement. The impact to the households such involuntary resettlement and land acquisition should be avoided as much as possible considering the structure and location of the facilities.
Environmentally sensitive area	< Natural Environment > 1) Protected Area (National Parks, etc.) 2) Primary forests or natural forests in tropical areas 3) Habitats with important ecological value (coral reefs, mangrove wetlands, tidal flats, etc.) 4) Habitats of rare species that require protection under domestic legislation, international treaties, etc. 5) Areas in danger of large-scale salt accumulation or soil erosion 6) Areas with a remarkable tendency towards desertification	For the MP formulation, no any impacts is anticipated at the time. In Western division (Ba, Ra and Nadroga-Navosa province), there are 7 designated terrestrial protected areas, 2 designated marine protected area and 4 proposed protected areas. Besides those protected area, 47 sites of Wetland Sites of National Significance, 105 of shallow water special, unique sites and 20 of Deep water special unique areas, 32 Important Bird Areas, 5 Area of Zero Extinction Sites, 32 Key Biodiversity Areas and 5 Ecologically or Biologically Significant Areas are recognized those importance to be conserved in Fiji. Later stage at the treatment plant site selection, these should be considered to be avoided.
	< Social Environment > 1) Areas with unique archaeological, historical, or cultural value 2) Areas inhabited by ethnic minorities, indigenous peoples, or nomadic peoples with traditional ways of life, and other areas with special social value.	No particular impact is anticipated at the time for formulating Master Plan. One of the world heritage tentative listed site, Sigatoka Sand dune is recognized as a cultural heritage as well and should be avoided impacts. Related to the indigenous land tenure system in the country, Fijian government has an issue of Informal settlers who live in the Native land without proper process with the TLTB in urban areas. In the MP, situation of those settlers/settlements should be considered consulting to town/city councils.
Permits and Explanation		SEA will be applied at the MP formulation. The SEA is stated only its definition in the EIA guideline issued by DoE. Prior to the MP formulation, at the concept development stage, the requirement of the process should be confirmed Department of Environment (DoE) in Ministry of Waterways and Environmental (MoWE).

Source: JICA Survey Team

### (2) Preliminary Environmental Evaluation

Environmental evaluation at preliminary scoping on the proposed project was conducted

based on the survey at the detail planning. The impact for the Master Plan Formulation and the potential projects subsequently implemented after the Master Plan was qualitatively evaluated.

**Table 11 Preliminary Environmental Evaluation for the Project**

Classification	No.	Items	Reason and Description	Rating
Social Environment	1	Involuntary resettlement	<b><u>Planning phase and Construction phase :</u></b> No any Involuntary resettlement are expected for the Master Plan formulation. Wastewater Treatment Plant, Sewerage, Pump stations development for the off-site treatment and Sewerage and Septic tank development for on-site treatment are likely anticipated in later implementation stage of the MP. The construction of the facilities are sometimes associated with the involuntary resettlement or Land acquisition depending on the public land availabilities. For development of the plan, resettlement and land acquisition should be avoided as much as possible comparing alternative plans.	C
	2	Local economy such as employment and livelihood, etc.	<b><u>Planning phase, Construction phase:</u></b> The comprehensive development plan in the Western Division may affect positively local economy for encouraging local economic activities. The project is expected to increase working opportunity for construction of facilities. <b><u>Operation phase:</u></b> The project is expected to increase income of the people in the area through improvement of the sewerage facilities. (expected to improve livelihood of the people through reducing the health risks) Livelihood of the Informal settlers in urban areas, mainly live in the Native land will be improved.	B+
	3	Land use and utilization of local resources	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> Land use pattern by the government and private in sewerage covered area may be changed based on the Master Plan to be much efficiently.	B+
	4	Social institutions	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> The project activities in the Master Plan include Institutional strengthening of related organization to sewerage planning and operation. The activities are expected to improve the management capacities of those organizations in the country.	B+
	5	Existing social infrastructures and services	<b><u>Construction phase:</u></b> Construction of sewerage sometimes are associated with the traffic disturbance and that may affect user's access to the infrastructures even temporally without any consideration for adequate mitigation measures such as the detour routs and traffic controls. <b><u>Operation phase:</u></b> The project is expected to improve the accessibility to the wastewater treatment facilities by the residents in the target area.	B- B+
	6	The poor, indigenous and ethnic people	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> No particular negative impacts are expected for the Master Plan development. The sewer developments is expected to enhance economic growth positively in the Western Division. Drastic change may affect the lifestyle of the local peoples. Enforcement of the social security networks system should be considered. New sewer coverage area expansion may involve development of informal settlements that most urban areas in Fiji are facing similarly and the impact should be considered in the study.	B+ C
	7	Misdistribution of	<b><u>Planning phase, Construction phase, Operation phase:</u></b>	C

Classification	No.	Items	Reason and Description	Rating
		benefit and damage	Adequate benefit sharing among the peoples should be considered at the project development. The project covers entire area of the Western Division connecting economically potential areas in the region and misdistribution of the benefit might affect economical balance in the division through the migration. Adequate benefit sharing among the peoples should be considered at the operation based on baseline survey.	
	8	Historical and cultural heritage	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> No particular large negative impact is identified at the moment for development of MP. At the Master Plan Development stage, those potential positive and negative impact should be identified in the survey and stakeholder's opinions should be obtained to incorporate within the Master Plan.	C
	9	Local conflict of interests	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> No particular large negative impact is identified at the moment for development of MP. However, at the Master Plan Development stage, those potential positive and negative impact should be identified and stakeholder's opinions should be obtained to incorporate within the Master Plan.	B-
	10	Water usage or water rights and rights of common	<b><u>Planning phase &amp; Construction phase:</u></b> No particular large negative impact is identified at the moment for development of the Master Plan. <b><u>Operation phase:</u></b> WWTP is expect to improve water quality in surrounding environment of discharge points of WWTP.	B+ B+
	11	Sanitation	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> The project is expected to improve the health environment in the area through improving sanitation facilities in Western Division in Fiji through capacity development of the management agency at planning and construction phase and practical local health environment at operation phase.	B+
	12	Hazardous (risk) infectious diseases such as HIV/AIDS	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> Republic of Fiji is recognized the one of the vulnerable areas in natural environment related disasters such floods and windstorms caused by cyclone/monsoon activities. The risk of infectious disease is increase at the disaster, such water born disease in flood situation due to overflow of the wastewater and infectious disease un-preferable 3Cs (crowded, closed, confined) conditions at the shelter. The Master Plan is expected to consider the situations of the disaster in the area. <b><u>Construction phase:</u></b> A movement of migrant labor in the region may increase the risk of sexual transmitted diseases and also Covid-19, etc.	B+ B-
Natural Environment	13	Topography and geographic features	<b><u>Planning phase &amp; Construction phase:</u></b> No significant modification on the topography and geological feature is envisaged at the moment of the Master Plan establishment. Depending on the proposed projects in Master Plan, the impact to the topography will be considered.	C
	14	Groundwater	<b><u>Planning phase:</u></b> No particular large negative impact is identified at the moment for development of MP. Use of groundwater should be confirmed at the designing of individual project implementation. <b><u>Construction phase:</u></b> Contamination of the groundwater should be avoided on the new treatment site selection. <b><u>Operation phase:</u></b> Improvement/Replacement of damaged existing sewer pipeline is expect to alter	D B- B+

Classification	No.	Items	Reason and Description	Rating
			the groundwater quality.	
	15	Soil erosion	<b><u>Planning phase:</u></b> No large soil erosion is anticipated at the moment for development of the Master Plan. <b><u>Construction phase:</u></b> There is a hilly slope in the center of the Viti Levu island and At the construction phase (depending on the selected projects) some construction works may associate with the earth works in undulating topographic feature requiring the adequate erosion protection	B- B-
	16	Hydrological situation	<b><u>Planning phase &amp; Construction phase:</u></b> No particular large negative impact is identified at the moment for development of the Master Plan.	D
	17	Coastal zone	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> No particular large negative impact is identified at the moment for development of MP. At the Master Plan Development stage, those potential positive and negative impact should be identified in the survey and stakeholder's opinions should be obtained to incorporate within the Master Plan. Water discharge should be considered not to affect coastal environment where the coastal protected area located close to the town such as Sigatoka Sand Dunes.	B-
	18	Fauna and flora and biodiversity	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> No particular negative impacts are expected for the Master Plan development. However, depending on the selection of the projects some protected areas may be affected at the construction and operation stage of the sewerage development. Improvement of the sewer system in the area is expected to improve surrounding natural environment.	B- B+
	19	Protected Area	<b><u>Planning phase, Construction phase &amp; Operation phase:</u></b> At the development of the Master Plan, no particular impact is envisaged. However, there are 9 sites of designated (7 terrestrial and 2 marine) and 4 sites of planned legally protected area in Western Division, impact to protected area should be avoided at the project planning.	C
	20	Meteorology	No particular impact is identified at the moment.	D
	21	Landscape	<b><u>Planning phase, Construction phase</u></b> No particular impact is identified at the moment. However, at the Master Plan Development stage, those potential positive and negative impact should be identified in the survey and stakeholder's opinions should be obtained to incorporate within the Master Plan.	D
	22	Global warming	No particular impact is identified at the moment.	D
Pollution	23	Air pollution	<b><u>Planning phase:</u></b> For development of Master Plan, no particular impact is envisaged. <b><u>Construction phase:</u></b> During construction, the suspended dust and gas emission from the construction machinery is expected even it may be in limited area. <b><u>Operation phase:</u></b> Air pollution is not envisaged at the operation of sewer system.	D B- D
	24	Water contamination	<b><u>Planning phase:</u></b> For implementing Master Plan, no particular impact is envisaged. <b><u>Construction phase:</u></b> Associated with earthwork in the construction of sewerage facilities, turbidity of the water will be likely increased at the downstream even temporally. <b><u>Operation phase:</u></b> WWTP is expect to improve water quality in surrounding environment of	D B- B+

Classification	No.	Items	Reason and Description	Rating
			discharge points of WWTP.	
	25	Soil contamination	<p><b>Planning phase:</b> For implementing Master Plan, no particular impact is envisaged.</p> <p><b>Construction phase:</b> During construction, accidental spillage of toxic chemicals such as fuel, lubricants, and solvents may cause soil contamination even it may be in limited area.</p>	D B-
	26	Waste	<p><b>Planning phase:</b> For implementing Master Plan, no particular impact is envisaged.</p> <p><b>Construction phase:</b> During construction and operation, industrial waste such demolished old facilities and general waste from the workers camps may be generated.</p> <p><b>Operation phase:</b> At the operation sludge from the WWTP may be generated to be handled requiring adequate dumping site.</p>	D B- B-
	27	Noise and vibration	<p><b>Planning phase:</b> No particular large negative impact is identified at the moment for development of MP.</p> <p><b>Construction phase and Operation phase:</b> During construction period noise pollution will be generated by the use of vehicles, stone crushing, generators etc.</p>	D B-
	28	Ground subsidence	<p><b>Planning phase, Construction phase &amp; Operation phase:</b> No particular large negative impact is identified at the moment for development of MP.</p>	D
	29	Offensive odor	<p><b>Planning phase:</b> No particular large negative impact is identified at the moment for development of MP.</p> <p><b>Construction phase:</b> At the construction of the new facilities, the associated with disturbance of the existing facilities such as excavation and foundation works on the existing wastewater treatment plant and replacement of sewer, offensive odor may be generated.</p> <p><b>Operation phase:</b> Sludge treatment at the operation of WWTP may generate the offensive odor. The odor at the surrounding area of existing ditches and lagoon may be improved at the operation of WWTP.</p>	D B- B-/+
	30	Bottom sediment	<p><b>Planning phase:</b> No particular large negative impact is identified at the moment for development of MP.</p> <p><b>Construction phase:</b> At the construction phase, river works which cause the temporal disturbance of bottom sediment may associate with the effluent facility installation. The impact should be confirmed at design for the actual facilities.</p> <p><b>Operation phase:</b> Quality of the bottom sediment is expected to be improved through the improvement of water quality of the discharged water from existing WWTP.</p>	D B- B+
	31	Accidents	<p><b>Construction phase &amp; Operation phase:</b> During construction, operation of heavy vehicles and machineries may increase risk of traffic accidents of residents and labors in and around the proposed project sites.</p>	B-

Rating: A-: Serious impact is expected, if any measure is not implemented to the impact; B-: Some impact is expected, if any measure is not implemented to the impact; C: Extent of impact is unknown (Examination is needed. Impact may become clear as study progresses.); D: No impact is expected; A+: Remarkable effect is expected due to the project implementation itself and environmental improvement caused by the project. B+: Some effect is expected due to the project implementation itself and



environmental improvement caused by the project.  
Source: JICA Survey Team

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

Related to the project, consultation regarding environmental point of view are confirmed to the relevant government authorities.

**Table 12 Result of the interview to the government agencies**

Agencies	Result of the consultation with recipient government
Ministry of Infrastructure and Meteorological Service (MIMS)	<p>The Ministry does not have any experience in SEA implementation recently. Only experience in EIA, but the study are usually conducted by WAF. MIMS is Regulatory and monitoring body and WAF is an implementation body. MIMS does not directly work for the projects in Sewerage. They work only monitoring and supervising implementation agency such as WAF. In case of sewerage project, WAF conducts environmental study and process directly to the DOE in MoWE.</p> <p>At the Master Plan formulation as SEA, MIMS assists WAF for the consensus building. At the planning phase, Stake holder committees may be established. MIMS will be a part of the committees or assist to establish committee.</p>
Water Authority Fiji	<p>According to the ADB, "Urban Water Supply and Wastewater Management Investment Program" was involved concept of the SEA. Besides the project, WAF has not implemented the SEA.</p> <p>There are Environmental Unit in WAF head office and WAF Western Division to handle environmental matter. The environmental report is usually prepared by the WAF Head Office under national legislation.</p> <p>The land acquisition is handled by Head Office in WAF, Land Acquisition Unit in the head office of WAF in Suva(Only if iTaukei Lands is acquired outright then WAF approach Director of Lands for land acquisition).</p>
Department of Environment(DoE) in Ministry of Waterways and Environment (MoWE)	<p>No particular changes in EIA related legislations recently. Regarding the "Endangered And Protected Species Act 2002", DoE is working on the revision and it is expected within this year. To meet current situation (updated information), the species list in the Act may be revised.</p> <p>In "the Environment Impact Assessment (EIA) Guidelines" prepared by Department of Environment (2008), "A development activity or proposal which has or is likely to have an impact on the environment. This encompasses policies, plans and programs or strategic environmental assessment as well as technology and other categories of activities. (P-53)" Besides the description there is no written guidelines.</p>
Asian Development Bank (ADB)	<p>ADB implemented the SEA with WAF for the "Urban Water Supply and Wastewater Management Investment Program". Besides the project, WAF has not implemented the SEA.</p> <p>Related to the Fijian legislation, some legal GAP on the safeguard policy on compensation and mitigation measure on the environmental conservation became issues in the other projects. Also, The timeframe for the process on the land acquisition should be considered. The land acquisition process in the country sometime takes time due to unique land tenure system.</p> <p>Regarding the Gender issue, ADB has some programs in the country and pacific region regarding Gender. For the above mentioned current project, Gender Action Plan was prepared and the situation may be referred at project implementation.</p> <p>Aspects of the climate change will be considered in the planning of the new sewer project. For the Wastewater project, the planning stage is still ongoing and further discussion with the GoF is still needed.</p>
Ministry of Women, Social Welfare and Poverty Alleviation (MWSWPA)	<p>The ministry is currently moving on the institutional capacity development initiatives to aims the goal of capacity strengthening government capacity at complete gender mainstreaming. It contains gender assessment, gender analysis and gender responsible programing including budgeting cross multiple sectors. Fiji has</p>

	<p>“Women’s Plan of Action (WPA 2010- 2019) and the after the period, the ministry is mainly working for the National Development Plan(NDP) and preparation of 5 years strategic development plan in department in line with the NDP.</p> <p>At the MP formulation, different perspectives should be included encouraging female participation to the decision making. If you intend to involve the women’s opinion, better obtain the support of the different governmental bodies such as Ministry of iTaukei Affairs and local governments such as divisional commissioner, provincial government in local level. In case of the MWSWPA, they have divisional office and district office. And those resource can be cooperated at the project implementation.</p>
Ministry of Land and Mineral Resources(MoLMR)	<p>No large change in the legislation recently. Related to the public works such sewer project, State Acquisition of Lands Act (135) will be the most relevant. All land acquisition for government is undertaken by Director of Land (MoLMR). Some institutions operate as Statutory organizations such as Water Authority of Fiji and Fiji Roads Authority. The organizations do their own acquisition. Only if iTaukei Lands is acquired outright then they approach Director of Lands for land acquisition.</p> <p>There are 3 types of the lands in Fiji, State (Crown) land, Free hold and Native Land. The ministry will handle all 3 types of the land. In case of Native land, the land will be acquired negotiating with the TLTB. Land acquisition law for all types of land, process vary slightly in leased state and iTaukei Lands.</p> <p>The calculation is made based on the international valuation standards (IVS). Valuation methodology focusses on current market value for land acquisition. Because the use of Native land is required registration process in the TLTB, peoples who live in Native land without proper process with TLTB also called as “informal settlers” in Fiji. At the compensation on the land acquisition, they may lose entitlement in usual cases (not compensated). For the native land, agreement between user and TLTB will be required to be compensated in usual cases in Fiji.</p>
Situation of the Provincial government Ba Province, Nadroga-Navosa Province Ra Province	<p>The province is the highest governmental bodies next to the central government corresponding to the customary administration of “Yasana”. For the coordination between those provinces, the central government (Ministry of Rural and Maritime Development) appoints the Divisional Commissioners. There are 3 provinces in Western Division and information on the provincial government was confirmed through interview survey.</p> <p>The provinces are geographically “Tikinas” based on the customary land tenure (administrative) system and those recognized as bases of the census survey units in the country.</p> <p>City/Town Planning Areas are designated time to time by the central government as provided in the Town Planning Act. The city/town areas are limited only urban area. The city/town councils manage only limited area as urban area in city/town.</p> <p>For the rural area, district officers are appointed, there are 5 officers in Ba province, 2 officers (including 1 assistant officer) in Ra province and 2 officers (including 1 assistant officer). Sometimes these administration areas are called as districts and other areas of tikinas are called as districts.</p> <p>Under the districts, there are villages/wards corresponding to the customary administration unit of “koro”.</p>
Situation of the City/Town Lautoka City Nadi Town Sigatoka Town Ba Town	<p>There are thirteen (13) town/cities in Fiji (Fiji 2017 Population &amp; Housing Census). Those are 2 cities and 11 towns in the country and 6 out of them are located in Western Division. Those are Lautoka city, Nadi town, Ba town and Tavua Town in Ba province, Sigatoka town in Nadroga-Navosa province and Rakiraki town in Ra province.</p> <p>Administration area of the City/Town council only limited their urban areas such approx. 16km<sup>2</sup> in Lautoka city and approx. 8 km<sup>2</sup> in Nadi town. The city area is administrated by the LCC but outside of the city, under town and country planning in Ministry health department. Hence, the sewer cover ratio in the town areas comparatively high, e.g., About 97 % of the town area is covered by sewer system already in Nadi town, About 95% of Lautoka city area and 60 % of Ba Town.</p> <p>Lautoka city and Nadi town have some expansion plan for the city/town areas in a few years.</p> <p>There are issues on the informal settlement where people lives in Native land without proper process with TLTB. About 170 households in Nadi town and are living under</p>

	limited public service and they are using septic tank system. In Lautoka city, there are many informal settlements who do not have appropriate toilet system. In smaller town of Ba town also is facing the issue on the informal settlement. Formalizing assistances are provided by government but still remained the problems of informal settlements in 3 wards out of total 5 wards in town.
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Source: JICA Survey Team

## 11. Terms of Reference for Environmental and Social Considerations

According to the JICA's GUIDELINES FOR ENVIRONMENTAL AND SOCIAL CONSIDERATIONS(April 2010), for a Master Plan establishment, a Strategic Environmental Assessment (SEA) is supposed to be applied to ensure environmental and social considerations from an early stage to a monitoring stage. An Initial Environmental Survey (IEE) level study involves, reviewing the content of policies and plans, scoping, confirming the situation of the environmental society as the baseline, predicting and evaluating the impact, considering alternatives including avoidance, mitigation and measure of the project impacts, disclose information and support stakeholder consultation.

### (1) Objectives of the environmental study (SEA study):

- To Identify and assess potential impacts associated with the project from planning to operation;
- To avoid, reduce and mitigate those impacts;
- To collect comments from stakeholders and reflect them to options proposed by the projects;
- To evaluate the options from technical, financial and environmental points of view;
- To select the optimal option for the projects

### (2) Study Areas of the SEA

- a. Mater Plan Formulation: Entire area of the Western Division of the Republic of Fiji consists of three (3) provinces, i.e., Ba, Nadroga-Navosa and Ra Provinces.
- b. The Urban Sewerage Development Plan in priority cities formulation: 2 municipalities (city, town or district)
- c. Pre-F/S Formulation: Target area for the Priority Project selected by the Urban Sewerage Development Plant.

**Table 13 TOR for the Environmental Study at the Master Plan Establishment (Draft)**

1) <b>Legal background:</b> Reviewing the legislation related to Environmental and Social Consideration in the country (Policy, Law, Guideline for Environmental assessment and resettlement, Gaps between natural legislation and the JICA guidelines, People participation, information disclosure etc.)
2) <b>Project Description:</b> Reviewing the available information on the project

3) <b>Methodology:</b> Establishment of the Terms of Reference (TOR) for the Strategic Environmental Assessment (SEA) and develop the SEA frameworks for the project with the relevant authority on the applicable legislation.
4) <b>Description of MP:</b> Reviewing Development Plan/Program in the MP(Objectives of the project and environmental study)
5) <b>Project Component :</b> Reviewing proposed project component (Environmental analysis of proposed alternative on the project)
6) <b>Environmental Scoping on the Project:</b> Organize the environmental items required for further study on the project and propose an evaluation method.
7) <b>Baseline information:</b> Environmental baseline survey in IEE level (Data Collection and Analysis for Environmental items related to Natural Environment, Social Environment and Pollution control to grasp the environmental situation of project area and to contribute the evaluation of JICA Checklist on the 15. WasteWater Treatment (Refer the JICA Web page of <a href="https://www.jica.go.jp/english/our_work/social_environmental/guideline/ref.html">https://www.jica.go.jp/english/our_work/social_environmental/guideline/ref.html</a> )
8) <b>Environmental analysis on the project:</b> Analyze collected information to be utilize for the evaluation
9) <b>Impact Evaluation and Alternative analysis:</b> Evaluate the environmental impact based on the survey results (Policy and Project goal level, program level, etc.). Compare alternatives including without project and zero option scenario.
10) Mitigation measures: Propose mitigation measures to avoid, minimize and compensate negative impacts.(if necessary)
11) Monitoring methodology: Propose monitoring items, frequencies and methods.(if necessary)
12) Scoping of the priority project: Propose alternatives to be considered, significant environmental and social impacts expected (scoping matrix) and formulation of TOR for study to examine the impacts.
13) Assistance to the implementation agency to hold Stakeholder Meeting in a view point of the Environmental and Social Considerations
14) Assistance to the implementation agency to compile SEA Report

Source: JICA Survey Team

Following the Master Plan, the Pre-Feasibility Study will be implemented. The environmental study should be considered within the scheme consulting to Department of Environment in Ministry of Waterways and Environment in the country in line with the relevant legislation in the country and JICA GL.

## 12. Other relevant information

None

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