

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

**1. Full title of the Project**

Project for Updating Dakar Urbanization Master Plan by the Horizon 2025

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

Master Plan and Pre-Feasibility Study for highly prioritized project

**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**

Direction of Urbanization and Architecture, Ministry of Urbanization and Housing

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

**5.1. Objectives**

To contribute to social and economic development in Dakar urban region based on the effective and planned land use by giving technical support for (1) updating Dakar Urbanization Master Plan, (2) making detailed urban plan for prioritized area, and (3) conducting pre-F/S for highly prioritized project(s).

**5.2. Location**

State of Dakar and vicinity area of new airport in outskirts of Dakar.

**5.3. Scope of the Project**

(1) Evaluation of Current Status of Dakar Region

(2) Development of "Development Vision" for Dakar Region

(3) Development of "Development Strategies" for Dakar Region

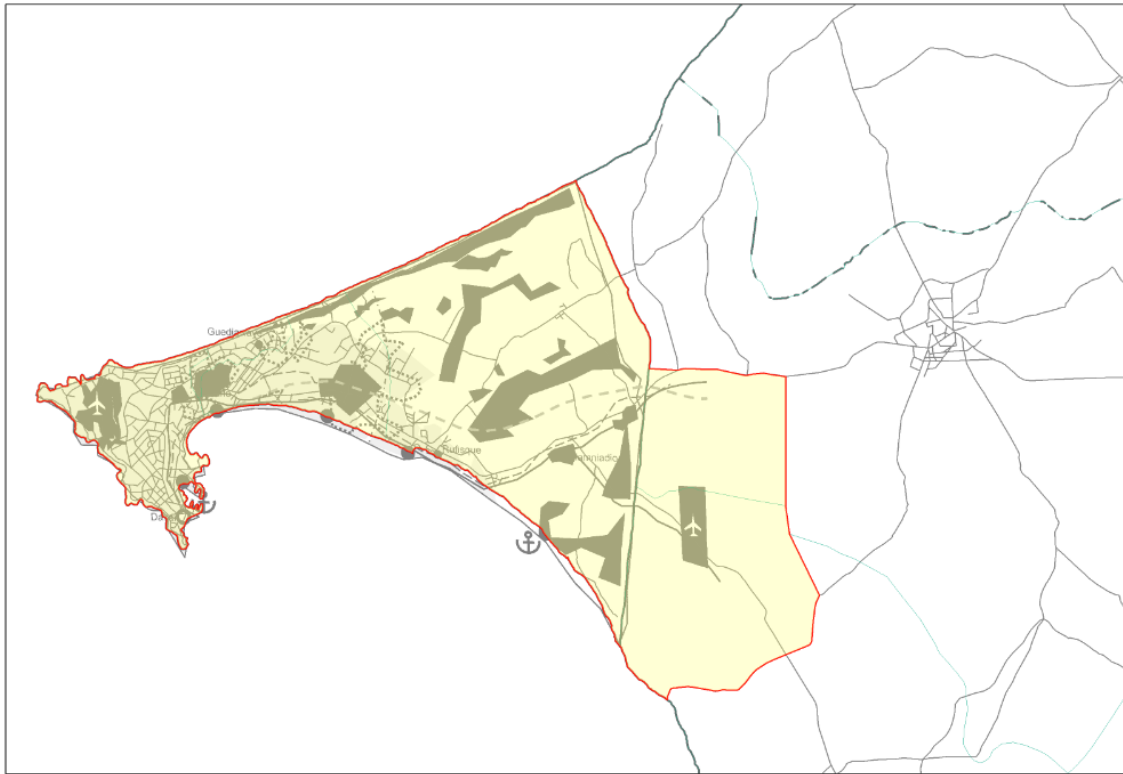
- (4) Development of “Spatial Plan”
- (5) Development of “Master Plan” and “Detailed Urban Plan”
- (6) Implementation of Pre-Feasibility Studies for highly prioritized projects
- (7) Development of “Action Plan”
- (8) Capacity Development of C/P Institution

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

**6.1. Location Map of Project Site**



## Target Area for Master Plan



### 6.2. Environmental condition

Dakar urban area locates at the tip of the westernmost peninsula of Africa. Low sand dunes lies on the northern coastline, and swampland including lakes and ponds are stretched at the area between northern sand dunes and the central watershed terrain of the peninsula. On the other hand, there are no particular sand dunes observed on the southern coastline, though morasses, such as “Mbao” forest are stretched between the central watershed terrain and southern coast as well as northern side.

The climate of the project area is a semi-arid with 100 ~ 1,000 mm annual rainfall. The dry season is from November to June while rainy season starts in July and end in October.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
High Temp(°C)	24.5	24.0	23.6	23.7	24.6	27.3	28.6	28.5	28.5	29.5	28.2	26.4	25.7
Average Temp(°C)	21.3	21.5	21.6	21.9	23.2	25.9	27.6	27.5	27.9	28.1	26.3	24.0	24.7
Low Temp(°C)	18.7	19.7	20.2	20.2	21.4	24.4	26.5	23.7	27.0	26.9	23.2	22.3	23.7
High Humidity (%)	77.0	83.5	80.0	83.0	81.0	82.0	82.5	85.5	85.5	81.0	82.0	75.5	78.0
Average Humidity (%)	66.4	70.8	74.1	78.8	79.1	78.4	77.0	80.3	81.5	78.1	69.9	65.6	75.0
Low Humidity (%)	51.0	58.6	66.1	74.1	75.1	74.0	73.3	77.5	72.0	74.5	61.0	54.5	73.0
Max. Precipitation (mm)	34.8	3.9	1.0	0.0	6.9	92.3	173.8	356.5	260.9	94.6	3.6	19.1	1047.4
Aver. Precipitation(mm)	1.9	0.5	0.1	0.0	0.4	14.1	58.2	162.6	128.5	24.8	0.2	0.8	392.0
Min. Precipitation(mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.7	70.2	40.2	0.0	0.0	0.0	111.1

With regard to flora, eucalyptus, baobab tree, mango etc. can be seen. Major protected forest areas in Dakar and its surrounding area are (1) forests located on the northern coastline to protect the agriculture from wind and sand from dunes, (2) Mbao forest located on the south side of peninsula, which includes wetland, and (3) forests on the east side of Diamniadio. In addition, to the east side of new airport there also exist protected forests.

### **6.3. Current issues**

In recent years, Pikine department (882.000 inhabitants, over a total area of 7,943 ha) and Guediawaye department (297.000 inhabitants, over a total area of 1,352ha) suffered from floods caused by urban expansion to swampy lands which were inappropriate for human settlement. Because rainwater drainage system has not been enough developed in Dakar and its suburban area, and due to poor sanitary conditions caused by stagnant waters and infectious disease deteriorated the living conditions of the population living in those areas. Therefore, flood control has become a national priority.

The government of Senegal with the “Dakar Urbanization Master Plan by the Horizon 2025” has started various projects on urban development, and for now a construction of Dakar-Diamniadio highway which connects the old downtown and the suburban area is finished, and a development plan, which includes commercial, governmental facilities and housing, for Dakar region area is being studied in order to develop a new pole of the city. The new international airport is also under construction in the outskirts of Dakar.

However, the above-mentioned Master Plan lacks in a vision for development, which should have been formed in a participative way, and spatial planning as well as demand forecast or integrity with social and economic policies, are not sufficient.

In terms of social and economic infrastructure in Dakar region and adjacent area, development plans in several sectors, such as transportation, sewage, flood control etc., have been formulated with cooperation of donors. However, these sector plans are not necessarily consistent with Master Plan and coordination among the relevant ministries to enforce Master Plan does not work efficiently.

## **7. Legal Framework of Environmental and Social Considerations**

### **7.1. Laws, Regulations and Relative agencies and institutions**

Environment and social issues are prescribed by Environmental law (No.200-01)

which was established in 2001 and Presidential Degree published in the same year. Items covered by the Environmental law are as follows;

Contain		Chapter	
Contain I	General provisions	Chapter I	Definitions
		Chapter II	Basic principles
		Chapter III	Instruments of environmental protection
Contain II	Prevention and control of pollution and nuisances	Chapter I	Installations classified for environmental protection
		Chapter II	Human settlements
		Chapter III	Waste management
		Chapter IV	Harmful and dangerous chemical substances
		Chapter V	Impact study
		Chapter VI	Establishment of emergency plan
Contain III	Protection and development of the receiving mediums	Chapter I	Water pollution
		Chapter II	Unpleasant air pollution and odors
		Chapter III	Basement and pollution and impoverishment of the soil
		Chapter IV	Sound pollution
Contain IV	Various sanctions and provisions	Chapter I	Penal sanctions
		Chapter II	Administrative sanctions
		Chapter III	Various provisions

DEEC (Direction de l'Environnement et des Etablissements Classées) under the Ministry of Environment and Sustainable Development (MESD) is in charge of supervision and approval of Environmental Impact Assessment (EIA). Public consultation and information disclosure are recommended at the initial stage of EIA process based on the Presidential degree and a ministerial ordinance (No. 9468 MJEHP/DEEC 28 Nov. 01).

## 7.2. Procedures of EIA, stakeholder participation and information disclosure

The Environmental law and its enforcement orders make impact studies obligatory and set out their scope and content as well as the public consultation process. Projects are classified into two categories:

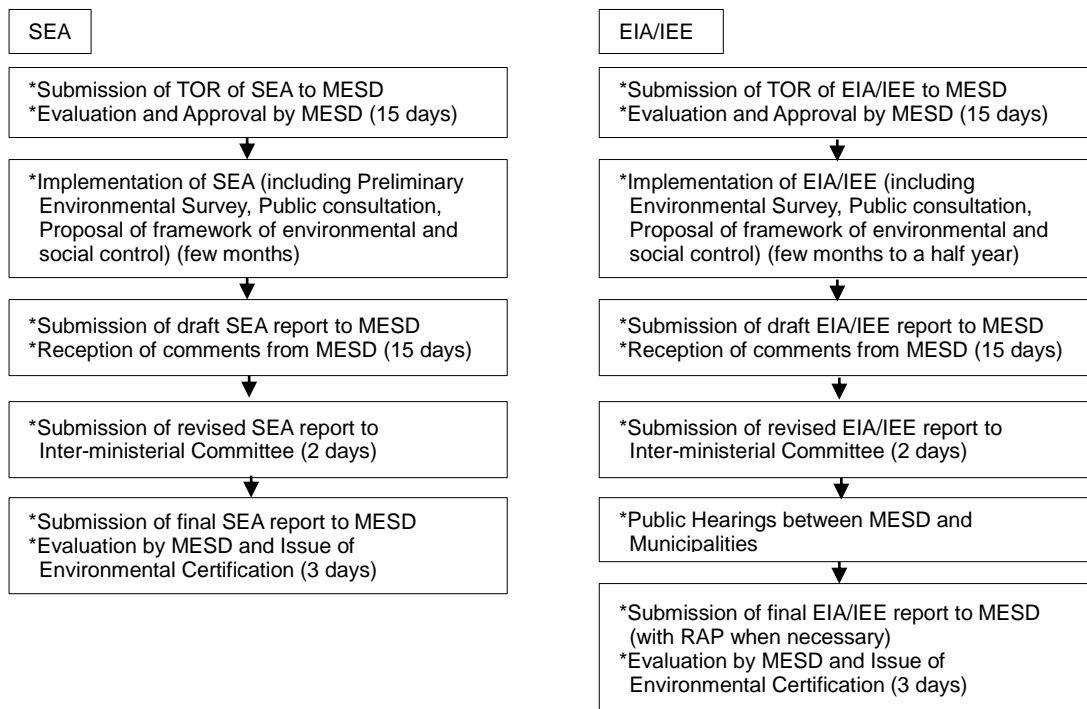
### Category 1:

The projects which are likely to have significant impacts on the environment; a study on the evaluation of the environmental impacts will allow to integrate the environmental considerations in the economic and financial analysis of the project; this category requires a thorough environmental evaluation.

### Category 2:

The projects which have impacts limited on the environment or the impacts; they can be attenuated by applying measurements or changes in their design; this category is the object of an initial environmental analysis.

Procedures of SEA and EIA/IEE are as follows;



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

The provisional scoping on possible environmental and social impacts related to the formulation of the urban development master plan is shown below.

Provisional Scoping Table

		Item	Possible Impacts		Description
			Construction Phase	Operation Phase	
Pollution	1	Air Pollution	B-	C/B-	Construction Phase : If infrastructure or facility development/improvement is implemented, exhaust gas from construction equipment and vehicles, and the dust caused by construction works may increase temporarily during construction period Operation Phase : Growth in traffic volume due to increase of social/economic activities and flow of goods may generate more exhaust gas and give negative impact.
	2	Water Pollution	B-	B-	Construction Phase : If infrastructure or facility development/improvement is implemented, discharge of dirty water, mud, oil, etc. from the

	Item	Possible Impacts		Description
		Construction Phase	Operation Phase	
				construction site, heavy vehicles, and dormitory for workers may cause water pollution. Operation Phase : If dirty water from urban development area is not handled properly, it may cause water pollution.
	3 Waste	B-	B-	Construction Phase : Infrastructure or facility development/improvement may generate wastes. Operation Phase : If wastes from urban development area is not handled properly, it may cause scattering of wastes.
	4 Soil Contamination	B-	B-	Construction Phase : If infrastructure or facility development/improvement is implemented, discharge of dirty water, mud, oil, etc. from the construction site, heavy vehicles, and dormitory for workers may cause soil contamination. Operation Phase : If wastes from urban development area is not handled properly, it may cause soil contamination.
	5 Noise and Vibration	B-	C	Construction Phase : Infrastructure or facility development/improvement may generate noise and vibration. Operation Phase : Increase of traffic may generate noise and vibration.
	6 Ground Subsidence	D	C	Construction Phase : Ground subsidence by infrastructure or facility development/improvement is not foreseen. Operation Phase : Excessive pumping of ground water in urban development area may cause ground subsidence.
	7 Offensive Odor	D	C	Construction Phase : Offensive odor by infrastructure or facility development/improvement is not foreseen. Operation Phase : If dirty water, industrial effluent, and wastes from urban development area is not handled properly, it may cause offensive odor
	8 Bottom Sediment	D	C	Construction Phase : Adverse effect on bottom sediment by infrastructure or facility development/improvement is not foreseen. Operation Phase : If dirty water, industrial effluent, and wastes from urban development area is not handled properly, they may inflow into rivers and cause negative impact on bottom sediment.
Natural Environment	9 Protected Areas	B-	B-	Protected areas are seen on the northern coast as well as Mbao forest. Protected forest is also situated to the East of Diamniadio
	10 Flora, Fauna and Biodiversity	B-	B	Negative impact on flora and fauna, such as loss of habitat for wildlife and loss of existing vegetation, may be caused in construction phase as well as operation phase.
	11 Hydrology and	C	C	Construction Phase : Minor changes of the flow

	Item	Possible Impacts		Description
		Construction Phase	Operation Phase	
	Groundwater			path of the rivers may be necessary for infrastructure or facility development/improvement. Operation Phase : If the roads pass through lake, marsh, and rivers, and piers of bridges are constructed under water, structures may cause the change of flow path of rivers.
	12 Topography and Geographical Features	D	D	Minor excavation or filling for the construction of facilities may be anticipated, but significant impact on the geographical or geological features is not foreseen..
Social Environment	13 Involuntary Resettlement	C	D	Construction Phase : It is foreseen that Involuntary resettlement caused by infrastructure of facility development/improvement is minimum.
	14 The Poor	B+	B+	Construction Phase : Urban development may generate employment, including the non-skilled workers, and benefit the poor. Operation Phase : Urban development and improvement of related transportation infrastructures may give positive influences on the poor by increasing job opportunity, accessibility to social/economic services, such as school, hospitals, and markets.
	15 Minority and Indigenous Peoples	C	C	Existence of minority and indigenous peoples needs to be confirmed by further survey.
	16 Local Economy (Employment, Livelihood etc.)	B+	B+	Construction Phase : Infrastructure or facility development/improvement may generate employment. Operation Phase : Economic activities may generate more employment
	17 Land Use and Utilization of Local Resources	B-	B-	Construction Phase : Reduction of farm land is foreseen with urban development and related infrastructures. Operation Phase: Urban development may induce the development of surrounding areas, and cause the reduction of farm land.
	18 Water Use	B-	B-	Construction Phase : If infrastructure or facility development/improvement consume much water, It might cause negative impact on existing water use. Operation Phase : If provision of water for urban development are is not sufficient, it may cause negative impact on existing water use.
	19 Existing Infrastructure and Social Services	B-	B-	Construction Phase : Infrastructure or facility development/improvement may cause traffic jam. Operation Phase : If transportation infrastructure is not provided sufficiently, it may cause traffic jam. With an influx of population to urban development, social infrastructure/service m(housing, school, hospitals may be deteriorated.
	20 Social Institutions such as Local Decision Making	D	D	Impact on social institutions is not foreseen.



	Item	Possible Impacts		Description
		Construction Phase	Operation Phase	
	Institutions			
	21 Misdistribution of Benefit and Damage	B-	B-	Construction Phase : Although the loss of assets are limited to local residents, negative impact can be mitigated by making appropriate compensation. Loss of assets is offset to a certain extent since local residents are employed during construction, but equitable distribution of benefits is difficult in practice. Operation Phase : The chance for local residents to be employed in urban development area is increased. However, since jobs for non-skilled workers are limited, the benefit received by local residents may also be limited.
	22 Local Conflict of Interest	A-	A-	Population which influx into urban development area share the resources with local residents and may cause conflict of interest with such residents.
	23 Cultural Heritage	B-	B-	Buildings, which are designated as historical or cultural heritage, are not observed in the project area or its surrounding areas. However, increased traffic during construction as well as operation phase may cause negative impact on temples and churches.
	24 Landscape	A	D	Construction Phase : Infrastructure or facility development/improvement may cause scattering of wastes or loss of existing vegetation and deteriorate landscape. Operation Phase : With the project, new landscape will be created in urban development area, and no negative impact is expected.
	25 Gender	B-	B-	Gender issues are not likely to arise by urban development by the project. However, a large influx of workers into the city may cause the influence on gender issues.
	26 Children Right	C	C	No negative impact on children right is observed with the project.
	27 Sanitation and Infectious Disease (HIV/AIDS)	B-	B-	An influx of large number of workers during construction phase as well as operation phase may cause infectious disease.
Others	28 Accidents and Safety	B-	B-	Construction Phase : Infrastructure or facility development/improvement may cause accidents. Operation Phase : Accidents may increase with the increase of traffic.
	29 Global Warming	B-	B-	The effects of climate change can be minimized by performing the appropriate measures to air pollution. The possibility of air pollution and wastewater cross the border to neighboring countries is small.

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 further 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.**

Since the Project aims at master plan formulation, alternatives will be examined in the Project during the process of developing the master plan by use of Strategic Environmental Assessment.

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

Senegalese side agreed with JICA Study Team that environment and social consideration based on JICA guidelines for environmental and social considerations (April, 1st, 2010) is carried out through the Project.

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

- (1) Scoping on possible environmental and social impacts of the Master Plan
- (2) Study on current environmental and social status of areas covered by the Master Plan
- (3) Study on institutional framework of Senegal regarding environmental and social considerations
- (4) Analysis on alternatives, including zero-option scenario, through the implementation of Strategic Environmental Assessment
- (5) Elaboration of mitigation measures
- (6) Elaboration of draft of environmental management plan and monitoring plan
- (7) Scoping on possible environmental and social impacts of the prioritized projects (including mitigation measures and monitoring method)
- (8) Implementation of stakeholder consultation meeting

End