

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

DATE: 9<sup>th</sup> August 2016

**1. Full title of the Project**

Project on Master Plan Formulation for Economic Axis of TaToM (Tananarive-Toamasina, Madagascar) (hereinafter referred to as “the Project”)

**2. Type of the Project**

Master Plan

**3. Categorization and Its Reason**

The Project revises two (2) PUDi (Plan d'Urbanisme Directeur: Urban Master Plan), formulates one (1) transport development plan and one (1) PUDe (Plan d'Urbanisme de Détail: Detailed Urban Plan) in Madagascar.

The Project is categorized as a “Category B” project because of the following reason. The Project is not likely to have significant adverse impact on the environment under the JICA guidelines for environmental and social considerations (April 2010) in terms of its sectors, characteristics and areas.

**4. Agency or Institution Responsible for the Implementation of the Project**

Minister Attached to the Presidency in charge of Presidential Projects, Territorial Planning and Equipment (M2PATE)

**5. Outline of the Project**

(1) Expected Goals which will be attained after implementing the Proposed Plan

The master plans developed by the Project will be validated by the Malagasy Government and properly carried out in collaboration with public and private partners with the aim of strengthening development of the two cities and of connectivity between the two cities toward strong and inclusive national economic growth.

(2) Outputs

- 1) PUDi of the Agglomeration of Antananarivo is revised.
- 2) PUDi of the Agglomeration of Toamasina is revised.

- 3) Antananarivo-Toamasina transport and land development plan is formulated.
- 4) A mechanism for the coordination, monitoring and management of the implementation of the formulated plans is established.

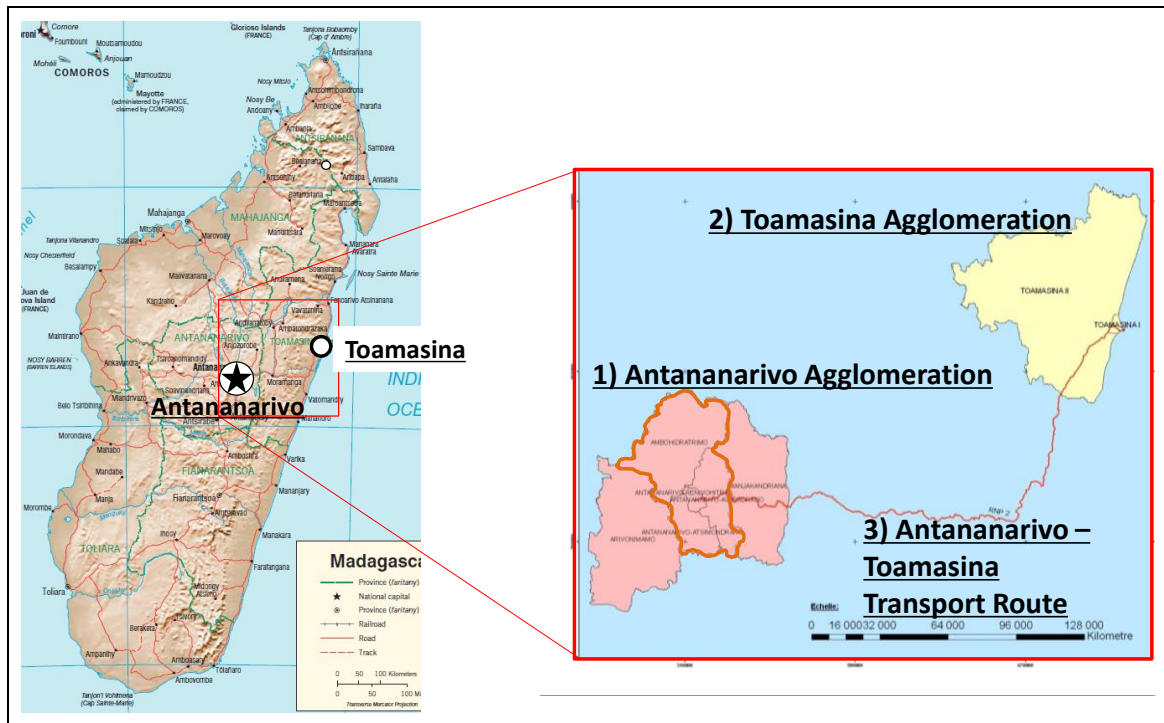
## 6. Description of the Project Site

### (1) Locations of the Project target areas

The Project covers four (4) target areas as follows.

- 1) Antananarivo Agglomeration: Urban area (urbanizing area in the target year) and its periphery of Antananarivo;
- 2) Toamasina Agglomeration: Urban area (urbanizing area in the target year) of Toamasina within the communes of Toamasina suburbane, Antetetzambaro, Amboditandroho, Fanandrana and Urbane Commune of Toamasina;
- 3) Antananarivo – Toamasina Transport Route (about 370 km); and,
- 4) A pilot area in Antananarivo Agglomeration (to be decided during the Project).

Figure 1 shows the locations of three (3) target areas namely Antananarivo and Toamasina Agglomerations and Antananarivo – Toamasina Transport Route.



Sources: The left map is from U.S. Central Intelligence Agency

**Figure 1 Locations of the Project target areas**

(2) Description of the Environments

Table 1 summarizes the natural environment of Madagascar and the target areas.

**Table 1 Natural Environment of Madagascar and the target areas**

<b>Antananarivo Agglomeration</b>	<b>Toamasina Agglomeration</b>	<b>Antananarivo – Toamasina Transport Route</b>
<p><b><u>General</u></b>            Madagascar is known as one of the “mega-diversity countries” such as Australia, Brazil and China which have very high biological diversity. Madagascar also has many endemic species. There are many ecosystems in the country such as forests, savanna, steppe, rivers, lakes, wetlands, mangroves, dry lands and coral reefs (1).</p> <p><b><u>Issues</u></b>            Many species have been decreasing dramatically in Madagascar. It has mainly caused by destructive activities by the residents such as the destruction of their habitats (especially forests) and overutilization of natural resources (1).</p> <p><b><u>Conservation measures</u></b>            Establishing a protected area network is one of the most effective measures to conserve the ecosystems and species in a country. There are 186 national protected areas covering 7,092,906 ha. They are under Ministère de l'Environnement, de l'Ecologie et des Forêts (Ministry of Environment, Ecology and Forest). International and national conservation NGOs are helping the ministry to establish and manage these protected areas (2).</p> <p>There are two (2) World Natural Heritage sites (they are also national protected areas) under the World Heritage Convention (3). 10 Ramsar sites (eight of them are national protected areas) under the Ramsar Convention (4).</p> <p>BirdLife International, international bird conservation NGO, has identified 70 Important Bird Areas (IBAs) in the country and recommends to conserve them (some of them are already under the country’s protected area network) (5).</p>		
<p><b><u>Protected areas</u></b></p> <ul style="list-style-type: none"> <li>➤ There are no protected areas other than one (1) Ramsar site (2).</li> <li>➤ The Ramsar site is Parc de Tsarasaotra, a</li> </ul>	<p><b><u>Protected areas</u></b></p> <ul style="list-style-type: none"> <li>➤ There are no protected areas in its proximity (2).</li> <li>➤ There are no IBAs in its proximity (4).</li> </ul>	<p><b><u>Protected areas</u></b></p> <ul style="list-style-type: none"> <li>➤ There are no protected areas along the National Road No.2 in the coastal hilly area (2).</li> <li>➤ Between Antsampanana and Moramanga, there</li> </ul>

Antananarivo Agglomeration	Toamasina Agglomeration	Antananarivo – Toamasina Transport Route
<p>privately owned area, with the area of 5 ha. It is located in Antananarivo Urban Commune. It is an important habitat for 14 species / subspecies of endangered and endemic water birds especially in the hunting season. This is the only breeding ground in the highland for endangered Madagascar Pond Heron <i>Ardeola idea</i> (4).</p> <p>➤ There are two (2) IBAs in the same province, and they are sufficiently far from the agglomeration: Anjozorobe Forest, and Lake Itasy (5).</p> <p><b><u>Ecosystems</u></b></p> <p>➤ A complex of wetlands is found in the northern part of Antananarivo Urban Commune. It is important for aquatic species, and it is also important for the human beings as natural resources and landscape.</p> <p>➤ The details of the ecosystems in the surrounding areas are not surveyed. The surrounding areas of the wetlands are hilly and it seems that their vegetation is poor, which</p>	<p><b><u>Ecosystem</u></b></p> <p>➤ There are two (2) reefs at east side and north side of Toamasina Port. The east one is Point Hasty Reef and the north one is Grand Reef (6).</p> <p>➤ Canal des Pangalanes runs from Toamasina Urban Commune to the south with the length of 600 – 700 km.</p> <p><b><u>Endangered species</u></b></p> <p>➤ No information is collected.</p>	<p>are protected areas along the Road but they are located at some distances from the Road (2).</p> <p>➤ There are three (3) IBAs near Antsampanana and Moramanga: North Pangalanes Wetlands; Torotorofotsy wetlands; and Mantadia National Park and Analamazoatra Special Reserve (5).</p> <p><b><u>Ecosystems</u></b></p> <p>➤ There is a forest belt between Moramanga and Antananarivo Agglomeration. Other areas along the Road are deforested and cultivated, and it seems that there are not any pristine forests left.</p> <p><b><u>Endangered species</u></b></p> <p>➤ No information is collected.</p>

Antananarivo Agglomeration	Toamasina Agglomeration	Antananarivo – Toamasina Transport Route
<p>may mean that soil erosion would be an issue.</p> <p>In the eastern area of the agglomeration, there is a forest belt running from north to south.</p> <p><b><u>Endangered species</u></b></p> <p>➤ No information other than Madagascar Pond Heron is collected.</p>		

Sources: Other information from the following sources is based on the observation by the Detailed Planning Survey Team.

1. Convention on Biological Diversity: Country Profile - Madagascar: <https://www.cbd.int/countries/?country=mg>
2. Information is given by Wildlife Conservation Society on 12<sup>th</sup> May 2016.
3. UNESCO: <http://whc.unesco.org/en/statesparties/mg>
4. Ramsar Convention: <http://www.ramsar.org/wetland/madagascar>
5. Important Bird Areas in Africa and associated islands (BirdLife International, 2001)
6. Report on Detailed Survey on Expansion of Toamasina Port (JICA, 2008, in Japanese)

Table2 summarizes the social environment of Madagascar and the target areas.

**Table 1 Social Environment of Madagascar and the target areas**

Antananarivo Agglomeration	Toamasina Agglomeration	Antananarivo – Toamasina Transport Route
<p><b><u>Political situation</u></b></p> <p>Despite the efforts by the government in the recent years, the country seems to be still politically unstable because of increasing poverty and unemployment, and ongoing tensions between the executive branch and parliament (1).</p> <p><b><u>Economy</u></b></p> <p>The country's inflation rate has been under 10%, but its macroeconomic indicators show that the economy remains still fragile and food insecurity is a concern (1).</p> <p><b><u>Population</u></b></p>		

Antananarivo Agglomeration	Toamasina Agglomeration	Antananarivo – Toamasina Transport Route
<p>The estimated population of the country in 2013 is 21.6 million, and 49.9% of it is female. People under the age of 15 are 42% of the population and 70% of the population live in rural areas (2).</p>		
<p><b><u>Socially vulnerable people</u></b></p>		
<p>The Human Development Index in 2014 (Human Development Report 2015, UNDP) in Madagascar is 0.510 and it shows that the country belongs to Low Human Development Countries. Regarding poverty in the country, 71.5% of the population is categorized as “poverty” by the criterion set by the country (under 535,603 Madagascar Ariary/year). In the capital (Antananarivo), 30.7% of the residents are categorized as “poverty”, and in rural areas 77.3% of the residents are categorized as “poverty” (3). Regarding the gender issue, Gender Development Index in 2014 in Madagascar (Human Development Report 2015) is 0.945. On the other hand, National Strategy for Social Protection (Stratégie Nationale de Protection Sociale: 2016 – 2020) states that 19% of the surveyed women receive psychological and 12.2% of them receive physical violence.</p>		
<p><b><u>Infectious diseases</u></b></p>		
<p>Regarding HIV/AIDS, the prevalence rate of adults aged 15 to 49 in Madagascar is 0.3% comparing with 18.9% in South Africa and 10.6% in Mozambique (4). Tuberculosis (TB) is an infectious disease of which mortality rate without treatment is high. World Health Organization (WHO) categorizes Madagascar one of the high TB/HIV (TB and HIV both positive) burden countries and strongly recommends to take appropriate actions (5).</p>		
<p><b><u>Cultural heritages</u></b></p>		
<p>There are 167 national monuments (cultural and natural) in the country (6), and is one World Cultural Heritage Site (Colline Royale d'Ambohimanga) (7).</p>		
<p><b><u>Greenhouse gases</u></b></p>		
<p>According to the Intended Nationally Determined Contribution to the 21st Conference of Parties of United Nations Framework Convention on Climate Change (UNFCCC) by Madagascar indicates that, in the business-as-usual scenario, until 2020 the absorption amount is bigger than the emission but in 2030 the emission amount becomes bigger than the absorption. The government has decided to reduce greenhouse gases emission in the field of energy, agriculture, forest/land use and waste management. According to the Nationally Appropriate Mitigation Actions in 2010, the government takes actions in the field of transport in addition to the above-mentioned four (4) fields.</p>		
<b><u>Population</u></b>	<b><u>Population</u></b>	<b><u>Population</u></b>

Antananarivo Agglomeration	Toamasina Agglomeration	Antananarivo – Toamasina Transport Route
<p>➤ The population is 2.72 million (estimated in 2014) (8).</p> <p><b><u>Land Tenures</u></b></p> <p>➤ There are issues on land tenures in Madagascar. For example, there is a gap between land tenure and land ownership of the same land.</p> <p><b><u>Energy</u></b></p> <p>➤ It seems that almost all energy sources for cooking are fire woods and/or charcoal.</p> <p><b><u>Cultural heritages</u></b></p> <p>➤ There are national monuments but their details are not surveyed.</p> <p>➤ There is one (1) World Cultural Heritage Site- Colline Royale d'Ambohimanga - located at Ambohimanga Rova (about 20km from the center of Antananarivo) (7).</p>	<p>➤ The estimated population of Toamasina Urban Commune is 0.24 million (8).</p> <p><b><u>Energy</u></b></p> <p>➤ It seems that almost all energy sources for cooking are fire woods and/or charcoal.</p> <p><b><u>Cultural heritages</u></b></p> <p>➤ There are national monuments but their details are not surveyed.</p>	<p>➤ Brickavile: 33,602 (9)</p> <p>➤ Antsampanana: It has been upgraded to a commune in 2016 (10)</p> <p>➤ Moramanga: 32,000 (8)</p> <p><b><u>Poverty</u></b></p> <p>➤ According to the interviews to the Ministry of Population, Social Protection and Promotion of Women (11<sup>th</sup> May) and to World Wide Fund for Nature (WWF, 12<sup>th</sup> May), the poverty situation in rural areas is serious, and they recommend to consider improvement of the rural poverty and public security of women and children (especially girls).</p> <p><b><u>Energy</u></b></p> <p>➤ It seems that almost all energy sources for cooking are fire woods and/or charcoal.</p> <p><b><u>Cultural heritages</u></b></p> <p>➤ There are national monuments but their details are not surveyed.</p>

Sources: Other information from the following sources is based on the observation by the Detailed Survey Team.

1. Africa Economic Outlook 2016 (African Development Bank)
2. Country programme document for Madagascar (UNFPA, 2015)
3. Enquete Nationale sur le Suivi des Objectifs du Millenaire Pour le Developpement a Madagascar - Éliminer l' extrême pauvreté et la faim 2012-2013

4. UNAIDS
5. Global Tuberculosis Control 2011, World Health Organization
6. LES SITES ET MONUMENTS CULTURELS (Direction du Patrimoine Culturel Service des Sites et Monuments, 2012)
7. UNESCO: <http://whc.unesco.org/en/statesparties/mg>
8. JICA Detailed Planning Survey Team
9. Information from the Commune Leader of Brickavile on 10th May 2016.
- 10 Informaiton from the Commune Leader of Antsampanana on 10th May 2016.



## 7. Legal framework of the Environmental and Social Considerations in Madagascar

### (1) Relevant Laws

The latest constitution (Constitution de la IVe Republique, 2010) follows International Bill of Human Rights, rights for children and women, and other international treaties on protection of environment, society, economy, civilians and culture. It also states the protection of environment (Article 95) and the protection of living environment (Article 141).

In 1990, the Environmental Charter was formulated. Considering the situations in the current world, the Charter was revised as “Charte de l’Environnement Malagasy actualisée (Law No. 2015-003) in 2015. The Charter is the basic law on the environmental considerations in Madagascar. In the Article 20, it states both Strategic Environment Assessment (SEA) and Environmental Impact Assessment (EIA) as a key action to guarantee the implementation of good environmental governance by all stakeholders.

Based on the concepts of the Charter, Mise en Compatibilite des Investissements avec l’Environnement (Decree relating to the Compatibility of Investments with the Environment: MECIE, Decree No. 99-954) was formulated. It describes all details of EIA and its related activities in Madagascar.

Table 3 shows other related laws to the environmental considerations in Madagascar.

**Table 3 Related laws to the environmental considerations in Madagascar**

No.	Law (order, decree, act) number	Brief description
1	Law No 98-029 of 20/01/1999	Water utilization and effluent regulation
2	Law No 99-021 of 19/08/1999	Pollution control and policy
3	Order No 18177/04 of 27/09/2004	Sensitive areas in forest
4	Order No 4355/97 of 13/05/1997	Environmental sensitive areas
5	Ordinance No 93-022 of 04/05/1993	Regulations on fishery and fish culture
6	Law No 95-017 of 25/08/1995	Regulations on tourism
7	Decree No 96-1293 of 30/12/1996	Establishment and management of tourism areas
8	Law No 98-026 of 20/01/1999	Road
9	Law No 00-022 of 19/08/1999	Mining
10	Decree No 2000-170 of 18/11/2000	Mining
11	Inter-ministerial Order No 12032/2000 of 06/11/2000	Mining
12	Decree No. 2012-430	Environmental and social protection for mining
13	Act No. 2003-010	Bureau National de Gestion des Risques et des Catastrophes: BNGRC
14	Act No. 2011 -002	Sanitation code
15	Act No. 98-029	Water code

No.	Law (order, decree, act) number	Brief description
16	Act No. 2003 - 044 of 28/07/2004	Labor code
17	Decree No. 2003/464 of 15/04/03	Effluent standard
18	Law No. 96-025 of 30/09/1996	Natural resources
19	Law No. 2005-018 of 17/10/ 2005 on the International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Law regarding CITES
20	Ordinance No. 60-127 of 3/10/1960 Ordinances No. 62-127 of 1/10/1962 and No 75-128 of 22/10/ 1975	Prevention of wild fire
21	Law No. 2001-005 11/02/ 2003	Protected areas
22	Ordinance: No. 82-029 of 06/11/1982	Protection of national monuments
23	Law No. 2005-006 of 14/07/2005	Policy on culture

Sources: From 1 to 12: Handbook on Environmental Assessment Legislation in the SADC Region (Development Bank of Southern Africa, 2007); From 13 to 16: PROJET DE FILETSSOCIAUX DE SECURITE FONDS D' INTERVENTION POUR LE DEVELOPPEMENT - CADRE POLITIQUE DE REINSTALLATION (FONDS D' INTERVENTION POUR LE DEVELOPPEMENT, 2015); and from 17 to 23: The Detailed Planning Survey Team collects during its survey.

Table 4 shows the relevant international conventions which Madagascar has ratified.

**Table 4 Relevant international conventions**

No.	Name of convention
1	Convention on Wetlands of International Importance especially as Waterfowl Habitat
2	Convention Concerning the Protection of the World Cultural and Natural Heritage
3	Convention on International Trade in Endangered Species of Wild Fauna and Flora
4	Convention on the Conservation of Migratory Species of Wild Animals
5	Convention on Biological Diversity
6	United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa
7	International Covenant on Economic, Social, and Cultural Rights
8	International Covenant on Civil and Political Rights
9	Convention on the Elimination of All Forms of Discrimination against Women
10	Minimum Age Convention
11	Worst Forms of Child Labour Convention
12	Convention on Rights of the Child
13	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

Sources: From the website of Ministry of Foreign Affairs, Japan. No. 5 is from the web site of the convention.

Regarding standards of environmental conditions, there is only effluent standard - Portant Classification des Eaux de Surface et Réglementation des Rejets d'Effluents Liquides (Classification of Surface Water and Regulation on Liquid Effluent; Décret N° 2003-464 de la 15/04/03). In other fields, international standards for atmosphere, water, noise and vibration under relevant organizations of United Nations are applied.

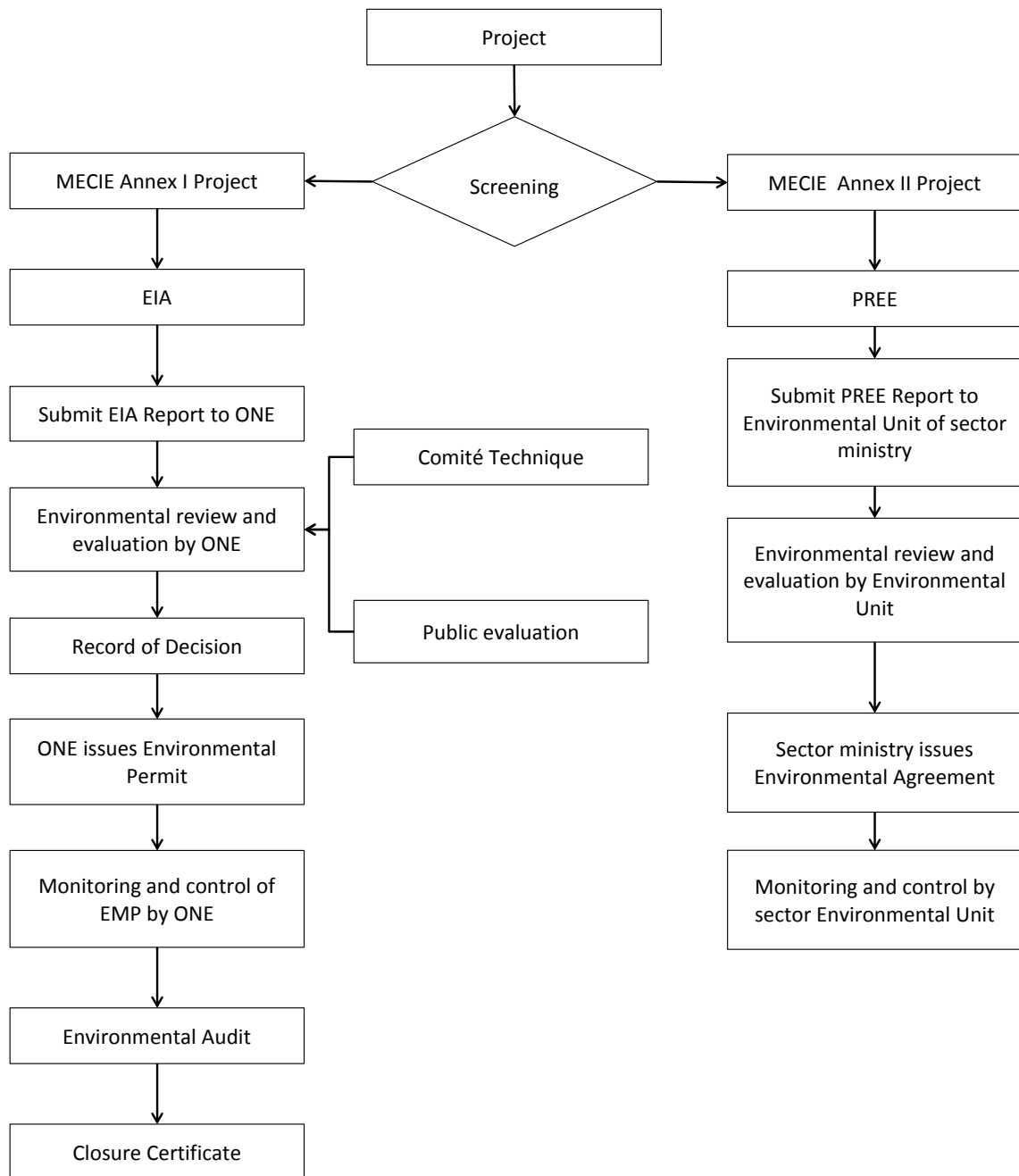
(2) Environmental Impact Assessment

1) Competent authorities

Office National de l'Environnement (National Office of Environment: ONE) under Ministère de l'Environnement, de l'Ecologie et des Forêts is in charge of EIA implementation. Environmental Unit of each ministry is in charge of Programme d'Engagement Environnemental (Environment Engagement Programme: PREE) implementation. They conduct EIA and PREE under MECIE.

2) Process of EIA and PREE

Figure 2 shows the flow of EIA and PREE process. The screening criteria for EIA and PREE are described in Annex I and II of MECIE.



Source: Handbook on Environmental Assessment Legislation in the SADC Region (Development Bank of Southern Africa, 2007) and Report on Detailed Survey on Expansion of Toamasina Port (JICA, 2008, in Japanese)

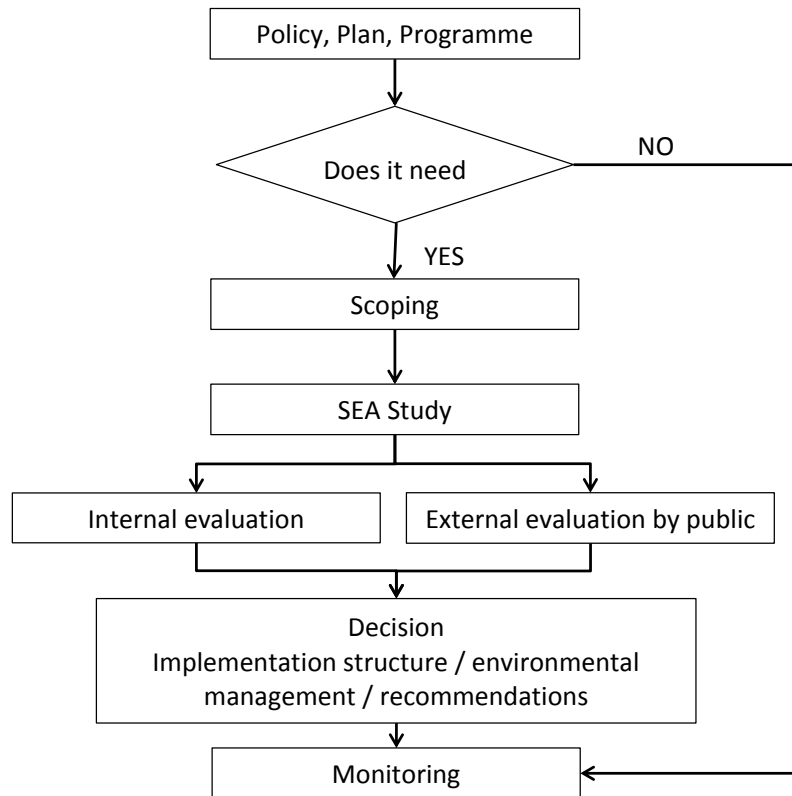
**Figure 2 Flowchart of EIA and PREE Process**

(2) Strategic Environmental Assessment

1) Legislation

There is no legislation regarding the implementation of SEA in Madagascar. However, ONE developed guidelines of SEA implementation (Evaluation Environnementale Strategique: Guide General) in 2008, and they have conducted several SEAs.

Figure 3 shows the flow of SEA process according to the guidelines.



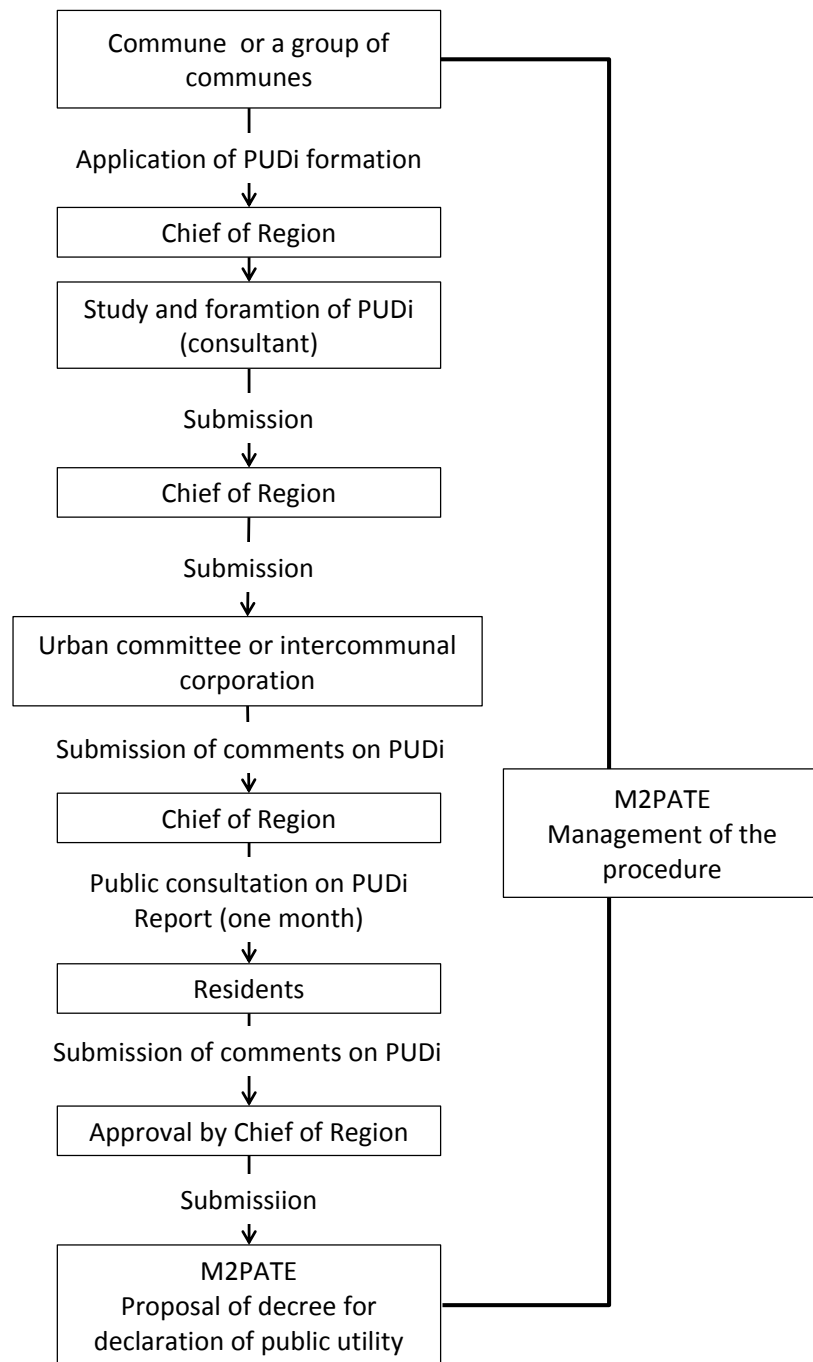
**Figure 3 Flowchart of SEA Process**

In terms of stakeholders, ONE regards only relevant and local authorities including commune leaders as stakeholders. ONE recommends the following flow for organizing meetings in SEA, which is not stated in the guidelines. ONE requests a project proponent to prepare a summary report in Malagasy to explain contents of SEA in the last public consultation stage.

- (a) Launching Stage: To explain a project to related residents
- (b) Orientation Stage: 1<sup>st</sup> Stakeholders Meeting
- (c) Validation Stage: 2<sup>nd</sup> Stakeholders Meeting
- (d) Implementation Stage: To explain contents of the SEA

(3) Formulation of PUDi

PUDi is formulated according to the law on Urban Planning and Housing (Loi Relative à l'Urbanisme et à l'Habitat, Loi No.2015-052), and the law describes public involvement in the formulation process as Figure 4.



**Figure 4 Flowchart of PUDi formulation**

(4) Land Acquisition

Land acquisition for public project is conducted based on the following four (4) laws - No. 60-023, No. 60-106, No.62-023 and No.63-030.

According to MECIE, a project involving involuntary resettlement over 500 persons is required

to conduct an EIA. Although the above-mentioned laws do not follow the World Bank's OP 4.12 (Involuntary resettlement), and guidelines were formulated to follow the OP 4.12 which includes payment of replacement cost.

#### **8. Provisional Scoping**

A provisional scoping is conducted for PUDi revisions for Antananarivo and Toamasina Agglomerations, and a transport and land development plan between Antananarivo and Toamasina. The results are shown in Table 5.

PUDe for a pilot area in Antananarivo Agglomeration is also formulated in the Project. The pilot area has not been selected, and thus the provisional scoping for Antananarivo Agglomeration is temporarily used for the PUDe. A scoping for the PUDe shall be conducted when it is selected.

**Table 5 Provisional Scoping of the Project**

Category	No.	Environmental Item	Explanation on impacts  AN: Antananarivo TO: Toamasina TR: Transport Development Plan	Evaluation Planning and construction stages / Operation & monitoring stage (O/M)		
				Antananarivo PUDi	Toamasina PUDi	Transport Development Plan
Pollution Control	1	Air quality	Adverse impacts because of traffic congestion are expected during the construction stage.	B-/A+	B-/A+	B-/A+, C
	2	Water quality	AN: Water contamination in the wetlands would be expected because of reclamation of the wetlands, flood control and drainage.	C/C, A+	C/C, A+	C/D
	3	Wastes	AN: The existing landfill area is almost full and a new landfill area is necessary. However, the residents near the planned landfill area are against the plan.	B-/A+	C/A+	C/D
	4	Soil contamination	Some adverse impacts would be expected during the construction stage but the details of them are unknown.	C/D	C/D	C/D
	5	Noise and vibration	Adverse impacts because of traffic congestion are expected during the construction stage.	B-/D	B-/D	C/C
	6	Subsidence	No impacts are expected.	D/D	D/D	D/D
	7	Odor	Details of impacts are unknown.	C/A+	C/A+	C/D
	8	Sediment	AN: Some adverse impacts to the wetlands would be expected because of reclamation of the wetlands, flood	C/C	C/C	C/D



Category	No.	Environmental Item	Explanation on impacts  AN: Antananarivo TO: Toamasina TR: Transport Development Plan	Evaluation Planning and construction stages / Operation & monitoring stage (O/M)		
				Antananarivo PUDi	Toamasina PUDi	Transport Development Plan
			control and drainage. <b>TO:</b> Some adverse impacts in the coastal marine area would be expected because of drainage.			
Natural Environment	9	Protected areas	<b>AN:</b> There are no protected areas in its proximity except for one (1) Ramsar Site (Parc de Tsarasaotra) in Antananarivo Urban Commune. A special attention should be paid to the conservation of the site. <b>TO:</b> There are no protected areas in its proximity. <b>TR:</b> No direct negative impacts to protected areas are expected but it is recommended to check the boundaries of protected areas and IBAs at the beginning of the Project.	C/C	D/D	C/C
	10	Ecosystem	<b>AN:</b> It is necessary to pay attentions to wetland ecosystems, especially their water circulation systems. <b>TO:</b> It is necessary to pay attentions to coastal marine ecosystems and Canal des Pangalanes.	C/C	C/C	C/D
	11	Hydrology	<b>AN:</b> Some hydrological changes in the wetlands would be expected because of reclamation of the wetlands, flood	C/C	C/C	D/D

Category	No.	Environmental Item	Explanation on impacts  AN: Antananarivo TO: Toamasina TR: Transport Development Plan	Evaluation		
				Planning and construction stages / Operation & monitoring stage (O/M)		
				Antananarivo PUDi	Toamasina PUDi	Transport Development Plan
			control and drainage. If dams for hydroelectric power are planned, hydrological changes are to be examined. <b>TR:</b> Some hydrological changes would be expected because of drainage.			
	12	Topography and geology	In the hilly areas, some adverse impacts would be expected due to soil erosion, but the details are unknown.	C/D	C/D	C/D
Social Environment	13	Involuntary resettlement	Involuntary resettlement basically should be avoided as much as possible. Land tenure issues are closely related to this item, which needs a special attention. Details of impacts are unknown.	C/D	C/D	C/D
	14	Poor people	The situation of poor people especially in rural areas ( <b>TO</b> and <b>TR</b> ) is serious according to the statistics of the government and the interviews during the Detailed Planning Survey. Although necessary considerations are given to the poor people, details of impacts are unknown.	C/C	C/C	C/C
	15	Indigenous or ethnic	No impacts are expected.	D/D	D/D	D/D

Category	No.	Environmental Item	Explanation on impacts  AN: Antananarivo TO: Toamasina TR: Transport Development Plan	Evaluation		
				Planning and construction stages / Operation & monitoring stage (O/M)		
				Antananarivo PUDi	Toamasina PUDi	Transport Development Plan
		minority				
	16	Local economies, such as employment, livelihood	Some positive impacts to the economy of Madagascar are expected, and their ripple effects to local economies are also expected.	C/C	C/C	C/C
	17	Land use and utilization of local resources	Details of impacts are unknown.	C/C	C/C	C/C
	18	Water usage	AN: Water usage especially by local residents around the wetlands would be changed because of reclamation of the wetlands, flood control and drainage. TO: Water usage would be changed because of drainage.	C/C	C/C	D/D
	19	Existing social infrastructures and services	Details of impacts are unknown.	C/C	C/C	C/C
	20	Social institutions such as social infrastructure and local decision-making	Details of impacts are unknown.	C/C	C/C	C/C

Category	No.	Environmental Item	Explanation on impacts  AN: Antananarivo TO: Toamasina TR: Transport Development Plan	Evaluation		
				Planning and construction stages / Operation & monitoring stage (O/M)		
				Antananarivo PUDi	Toamasina PUDi	Transport Development Plan
		institutions				
	21	Misdistribution of benefits and damages	Details of impacts are unknown.	C/C	C/C	C/C
	22	Local conflicts of interest	Details of impacts are unknown.	C/C	C/C	C/C
	23	Cultural heritages	There is one (1) World Cultural Heritage Site (Colline Royale d'Ambohimanga) in AN, and are national monuments in all target areas. An attention should be paid to the conservation of them. Details of impacts are unknown.	C/C	C/C	C/C
	24	Landscape	AN: A wetland landscape is an important component of the area and it is necessary to pay attention. AN and TO: An attention should be paid to the conservation of the old towns.	C/C	C/C	C/C
	25	Gender	The gender issues especially in rural areas (TO and TR) need special attentions, which is suggested by Ministry of Population, Social Protection and Promotion of Women. The issues seem to be closely linked with the conditions of	C/C	C/C	C/C

Category	No.	Environmental Item	Explanation on impacts  AN: Antananarivo TO: Toamasina TR: Transport Development Plan	Evaluation		
				Planning and construction stages / Operation & monitoring stage (O/M)		
				Antananarivo PUDi	Toamasina PUDi	Transport Development Plan
			poverty. Details of impacts are unknown.			
	26	Children's rights	The issues on children's rights especially in rural areas ( <b>TO</b> and <b>TR</b> ) need special attentions, which is suggested by Ministry of Population, Social Protection and Promotion of Women. The issues seem to be closely linked with the conditions of poverty. Details of impacts are unknown.	C/C	C/C	C/C
	27	Infectious diseases such as HIV/AIDS	It is necessary to pay attention to TB/HIV patients.	C/C	C/C	C/C
	28	Labor conditions	Child labor should be strictly prohibited.	C/D	C/D	C/D
Others	29	Accidents	It is necessary to pay attentions to accidents in and around sites.	B-/D	B-/D	B-/D
	30	Trans-boundary impacts / global warming	The Project is expected to reduce greenhouse gases.	D/A+	D/A+	D/A+

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 progress.

D: No impact is expected.

The provisional scoping shows that there is no significant negative impact by the Project. However there are many items which show “C”. This is because contents of the Project are not decided yet and the Detailed Planning Survey stage cannot cover all relevant information. Based on the interviews and observations by the Survey Team, the following environmental items are especially found to need special attentions and further investigations. Recommendations on them are described in “12 (2) Natural Environment” and “12 (3) Social Environment”.

- Natural Environment: ecosystem (including landscape) and hydrology
- Social Environment: involuntary resettlement (including land tenure issue), poverty, water usage, gender and children’s right

#### **9. Alternative to the Project Activities including “Zero (without project)” Option**

Alternatives to the project activities will be studied in the Project.

#### **10. Result of the Consultation with the Recipient Government on the Environmental and Social Considerations including Roles and Responsibilities**

The Detailed Planning Survey Team explains that the Study shall comply with the national laws and guidelines and the “JICA Guidelines for Environmental and Social Considerations (2010)”. Both parties agree on the compliance to ensure that appropriate considerations shall be implemented for the environmental and social impacts expected by the Project. The Team also explains that a Strategic Environmental Assessment (SEA) shall be conducted in the Study as a master plan study, and it shall involve related stakeholders.

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

##### **(1) Rationale**

The Project consists of formulation of four (4) master plans, and it is required to conduct a Strategic Environmental Assessment (SEA) as the Environmental and Social Considerations for the Project. The SEA is required by the following guidelines.

- Guidelines on Strategic Environmental Assessment (2008), ONE; and
- JICA Guidelines for Environmental and Social Considerations (2010).

Also, Law No. 2015- 052 relating to Urban Planning and Housing and Law No. 2015-011 relating to orientation of territory planning serve as the mandatory legal framework for the implementation of the Project, including the required provisions for close public consultations

which is an important element in implementation of SEA.

(2) Description of the SEA

1) Objectives

The objectives are;

- (a) To identify and assess potential impacts induced by the Project in the four (4) target areas;
- (b) To avoid, reduce and mitigate these impacts;
- (c) To collect comments from stakeholders and reflect them to options proposed by the Project;
- (d) To evaluate the options from the technical, financial and environmental points of view; and,
- (e) To select the optimal option for the Project.

2) Study areas of the SEA

TaToM (Tananarive-Toamasina, Madagascar) area:

- (a) PUDi target area in Antananarivo,
- (b) PUDi target area in Toamasina,
- (c) Antananarivo – Toamasina transport route, and
- (d) PUDé target area in Antananarivo.

3) Methodology and the flow of the implementation of the SEA

A SEA is conducted in each target area separately.

- (a) It is necessary to decide consistent and clear environmental objectives of the Study.
- (b) Baseline surveys are conducted on the environmental and social conditions of the Study areas and the country. The following items should be well surveyed.
  - Laws and regulations (including standards) of Madagascar related to the environmental and social considerations (including SEA and Environmental Impact Assessment);
  - Protected areas such as a national park and internationally recognized important habitats;
  - Endangered species; and
  - Social conditions of the survey area and Madagascar.
- (c) Planning the options with which potential negative impacts on the social and natural environments are avoided, reduced and mitigated as much as possible.
- (d) A scoping for the options is conducted.
- (e) Based on the results of the scoping, social and environmental surveys are conducted to collect more information.
- (f) Impacts of the options are analyzed and evaluated, and an evaluation is conducted with the

technical, financial and environmental points of view.

- (g) A monitoring system of the selected option is recommended.
- (h) Comments from stakeholders are collected and reflected in the process of developing the options and selecting the optimal option. It is therefore required to hold stakeholders meetings.
- (i) The stakeholders are considered to be the following groups and individuals:
  - Consultation Groups organized by M2PATE; and
  - Local people especially the vulnerable.

(3) Implementation Organizations of the SEA Study

The SEA Study is conducted by M2PATE and the JICA Study Team as part of the Project.

## **12. Other relevant information**

There are recommendations for the implementation of the Project.

(1) Implementation of the SEAs

1) Consistent implementation of the SEAs under the guidelines and the law

PUDi are formulated under the law on Urban Planning and Housing (No. 2015-052), and the SEAs of the Project are implemented under the Malagasy SEA Guidelines and the JICA Guidelines (2010). PUDe is expected to be formulated under the same law. It is necessary to investigate a law which regulates the formulation of a transport development plan at the beginning of the Project.

Regarding public consultation, ONE recommends to take four steps to involve stakeholders to collect their comments during the implementation of SEA. The law on Urban Planning and Housing secures public consultation by public inspection of PUDi.

At the early stage of the Project, it is necessary to hold meetings among M2PATE, ONE and the JICA Study Team to agree on procedures of the SEAs of the Project and to implement the SEAs in a consistent manner under these law and guidelines.

2) Smooth implementation of the SEAs

Four (4) masterplans are formulated under the Project, and three of them (Antananarivo, Toamasina Agglomerations PUDi and a transport development plan) are formulated at almost the same time. SEAs are applied for all of them, and it is required to simultaneously conduct many tasks such as data collection, analysis and holding stakeholders meetings. At the moment, there is little information on the capacity of local environment consultants, who are expected to conduct these tasks on the ground.

It is therefore necessary to plan and prepare the SEAs especially for the three masterplans at the



early stage of the Project for the smooth implementation of the SEAs.

(2) Natural Environment

1) Wetlands in Antananarivo Agglomeration

The wetlands in the northern part of the Antananarivo Urban Commune have many functions and roles such flood control, water supply, natural resources supply, landscape and habitats for endangered species. For example, the flood control is important for disaster prevention which is vital for the residents and the government. Once these functions and roles are lost, it is difficult to recover them, and some of them are lost forever.

It is therefore necessary to consider the coexistence with the wetlands and keep their functions and roles as much as possible.

2) Secondary impacts on the surrounding ecosystems

Secondary impacts on the surrounding ecosystems would be caused by the expansion of the Antananarivo Agglomeration in the future. For example, the residents consume fire woods and charcoals for cooking and the amount of them is expected to increase, which may lead further destruction of forests close to the Antananarivo Agglomeration. The destruction of forests is one of the major threats to the ecosystems in Madagascar.

Regarding the Toamasina Agglomeration, its population is smaller than the one of the Antananarivo Agglomeration, and its secondary impacts are expected smaller and it is a less urgent issue.

Although it is expected that the Project does not give direct and immediate impacts to the surrounding ecosystems, it is required to consider these secondary impacts of the Project.

3) Avoidance, reduction and mitigation of cumulative impacts

Many big infrastructure construction projects are implemented and planned by donors and the government especially in the Antananarivo Agglomeration. All of them require EIA and the impacts are to be avoided, reduced and mitigated by their environmental management plans. However, it is difficult to understand cumulative impacts caused by them as a whole, and to assess them and take appropriate actions.

The Project should review the existing and planned projects by other donors and the government to consider cumulative impacts and to take appropriate actions to avoid, reduce and mitigate the impacts.

(3) Social Environment

1) Issues on land tenures, and land acquisition and involuntary resettlement

There are issues on land tenures in Madagascar and in the three target areas. For example, a person who lives on a site do not actually possess the land tenure neither rent the land. But details of the issues are not well surveyed. The Project does not intend to solve the issues but it is necessary to study the issues and well understand the situations for formulating land utilization plans.

Land acquisition and involuntary resettlement are closely linked to the land tenure issues. Without knowing the details of the issues, it is difficult to take appropriate actions to implement land acquisition and involuntary resettlement especially in Antananarivo and Toamasina Agglomerations. It is therefore recommended to avoid the land acquisition and involuntary resettlement as much as possible until the situations are well understood.

## 2) Poverty and gender issue

### (a) Poverty in rural areas

According to the study by the government, the poverty rate in the capital is 30.7% and in rural areas is 77.3%. In Atsinanana Region to which Toamasina Agglomeration and Antsampanana belong, the poverty rate is 65%.

The Project plans a transport development plan in Atsinanana Region, and it is recommended to understand the situation of poverty in the region and consider future rural development plans to improve livelihood of them.

### (b) Gender and rights of children

Regarding the gender issue, Gender Development Index in 2014 in Madagascar (Human Development Report 2015) is 0.945. On the other hand, Stratégie Nationale de Protection Sociale (2016 – 2020) states that 19% of the surveyed women receive psychological and 12.2% of them receive physical violence. The issue seems to have several aspects. Regarding the children's right, in rural areas, child labor seems to be an issue.

It is important to study the issues and to recommend appropriate actions in the plans.

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