Road Department
Ministry of Equipment and Transport
The Republic of Djibouti

THE PROJECT FOR IMPROVEMENT OF ROAD MANAGEMENT EQUIPMENT IN THE REPUBLIC OF DJIBOUTI

PREPARATORY SURVEY REPORT

February 2016

JAPAN INTERNATIONAL COOPERATION AGENCY

(JICA)

YACHIYO ENGINEERING CO., LTD.

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PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to Yachiyo Engineering Co., Ltd.

The survey team held a series of discussions with the officials concerned of the Government of Republic of the Djibouti, and conducted field investigations. As a result of further studies in Japan, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Djibouti for their close cooperation extended to the survey team.

February, 2016

Akira NAKAMURA
Director General,
Economic Infrastructure Department
Japan International Cooperation Agency

SUMMARY

① Country Overview

The Republic of Djibouti (herein after referred to as Djibouti) is a small country covering an area of 23,200 square kilometers (approx. 1.3 times the Shikoku Island area) with a population of 900,000 (2012, UNFPA). While it is strategically situated for marine transportation connecting Europe with the Middle East and Asia through the Red Sea and is also geopolitically critically located as a gateway to inland East Africa connecting Africa and the Middle East coastal countries, it has maintained political stability, which is a factor of stability of African Corner. French and US forces are stationed for regional stability and antiterrorism policy and it has also drawn attention from the international community as a base for antipiracy measures in waters off the coast of Somalia. Japanese self-defense forces have been also conducting anti-piracy operations with Djibouti as their base since 2009.

The majority of the national land is covered by desert and agriculture is underdeveloped. Livestock farming by nomads is traditional and noncommercial and the country has little water or underground resources. The development of primary and secondary industries lags behind and the tertiary industry accounts for 74.1% of GDP (2011, AfDB, etc.). The nation depends mainly on income from transportation and port services for exports for Ethiopia, services and lease fees related to French and US forces and foreign assistance. Although recent acceptance of refugees from neighboring countries including Somalia squeezed the economy, trade with Ethiopia and port business are in good condition and its economy has been relatively strong. Investment from Gulf countries is on the rise and infrastructure development, which includes opening of Doraleh container terminal, has been in progress to serve as the distribution base of Africa.

While the economy grows at a solid rate as described above, rural areas are not benefited by the growth and thus the wealth gap between the capital of Djibouti City and rural areas has increased remarkably. In addition, drought damage repeated by the impacts of climate change lowered the agricultural and livestock farming productivity and the living environment is further worsening in rural areas and population flow into the capital is accelerating. As a result, the population in suburban areas is surging and workforce has become saturated to cause competition and the unemployment rate is further rising.

② Background and Outline of the Project

Multiple large-scale infrastructure development projects, including new port and railway construction, have been in progress recently partly thanks to the high economic growth in Djibouti. On the other hand, land transportation by vehicle is the only means of transportation and the rapid traffic increase has deteriorated the artery road conditions. Maintenance work of roads in city center is insufficient due to the shortage of road maintenance equipment for small-scale road works, which is also a factor of deterioration of city traffic.

The Government of Djibouti reorganized and beefed up the organization under the Ministère de

l'Equipement et des Transports and newly established the Agence Djiboutienne des Routes (herein after referred to as ADR) in November 2013 based on the Initiative for Social Development (INSD). Although renovation work is carried out by outsourcing with donor assistance in some areas, it is enhancing a scheme of directly renovating artery, regional and city roads. However, the road maintenance equipment the Agency owns mainly consists of that provided with Japan's grant aid in the 1980s and 1990s and they have become old after the service life. The agency collects toll fees from freight vehicles on the artery road (RN 1) and uses it for fuel and labor cost for road maintenance utilizing the Road Maintenance Fund (Fonds d'Entretien Routier, FER). However, it is not enough to replace all equipment. Although maintenance training was provided for engineers and workers when the equipment was procured with grant aid in the 1990s, their know-how has become outdated as time has passed and they cannot handle current diversifying road maintenance needs.

In response to the abovementioned situation, the Government of Djibouti issued an official request for grant aid for road maintenance equipment to Japan in August 2012.

In response to the request, the Japan International Cooperation Agency conducted the preparatory study for grant aid.

③ Overview of Survey Result and project Contents

JICA dispatched a study team to Djibouti from July 28 to September 1, 2015, as the phase-1 field survey. They confirmed the equipment requests and conducted field survey on the site where the Djiboutian implementing agency, ADR, will perform the road improvement works in the country with its own budget. After returning to Japan, the team conducted analysis based on the field survey results, completed outline design and estimated the project cost. It conducted the survey to explain the outline design from December 12 to 19, 2015, based on the result.

The equipment to be provided in the Project is that necessary for the ADR to carry out renovation works on the project target roads i.e. RNs1, 9, 12 and 16 and Djibouti city roads which total 285.4km in length (See the Location Map at the beginning).

Soft Component is also provided as part of supporting efficient equipment operation and maintenance. It includes improvement of equipment operation and maintenance system, road pilot works, and enhancement of equipment inspection and maintenance capacity and maintenance system.

Table 1 provides a list of equipment to be procured in the Project.

Table 1 Procured Equipment

No.	Equipment	Volume (unit)			
		Balbala Compound	Dikhil Compound	Tadjoura Compound	Total
(1)	Road maintenance equipment				
1-1	Bulldozer	2	-	-	2
1-2	Excavator (Crawler)	3	-	-	3
1-3	Hydraulic breaker	2	-	-	2
1-4	Motor grader	3	-	-	3
1-5	Wheel loader	3	-	-	3
1-6	Vibratory combined roller	3	-	-	3
1-7	Vibratory tandem roller	1	-	-	1
1-8	Tire roller	1	-	-	1
1-9	Hand-guided vibratory roller	1	1	1	3
1-10	Plate compactor	1	1	1	3
1-11	Rammer	1	1	1	3
1-12	Asphalt cutter	1	1	1	3
1-13	Asphalt finisher	1	-	-	1
1-14	Asphalt distributor	1	-	-	1
1-15	Chip spreader	1	-	-	1
1-16	Asphalt hand sprayer	1	1	1	3
1-17	Asphalt burner	1	1	1	3
1-18	Concrete mixer (0.8 m^3)	1	1	-	2
1-19	Concrete mixer (0.5 m^3)	1	1	-	2
1-20	Water bowser	4	-	-	4
1-21	Dump truck	15	-	-	15
1-22	Fuel tanker	1	-	-	1
1-23	Cab-back crane	1	1	-	2
1-24	Mobile workshop	1	1	-	2
1-25	Low bed semi-trailer with tractor head	1	-	-	1
1-26	Inspection vehicle	1	1	1	3
1-27	Line marker	1	1	1	3
1-28	Asphalt plant	-	1	-	1
1-29	Crushing plant	-	1	-	1
1-30	Desktop computer	2	-	-	2
1-31	Database software	2	-	-	2
(2)	Workshop equipment				
2-1	Generator (125kVA)	1	-	-	1
2-2	Generator (80 kVA)	-	1	-	1
2-3	Generator (20 kVA)	-	-	1	1
2-4	Air compressor (17 kW)	1	-	-	1
2-5	Air compressor (2.2 kW)	-	1	1	2
2-6	Electric welder	1	1	1	3
2-7	High-pressure washer	1	1	1	3
2-8	Tool set for mechanics	6	2	2	10
2-9	Starter・alternator test bench	1	-	-	1
2-10	Tire changer	1	-	-	1
2-11	Cut model and supplementary teaching materials	1	-	-	1

④ Project Schedule and Estimated Project Cost

The Project requires 20.5 months including bidding and procurement supervision starting from implementation design based on the Guidelines for Japan's Grant Aid Project

Table 2 Estimated Project Cost

Breakdown	Estimated Project Cost	Note
Japan side	-	
Djibouti side	11,444,800 yen 92,000 USD	Preparation for accepting provided equipment, soft component, banking service fees for opening bank account, etc.

Exchange rate: 1US$=124.40yen

⑤ Project Evaluation

Relevance and effectiveness of the Project are summarized below.

(1) Relevance

Japan has established the following key assistance areas for Djibouti to achieve the overall goal of contributing to the enhancement of the foundation of regional stability and economic society:

Ⅰ. Economic and social infrastructure development for sustainable development

Ⅱ. Capacity building to support economic and social development

Ⅲ. Promotion of efforts for regional stability

The Project is deemed to harmonize with Japan's policy for assistance to Djibouti, meeting the requirement of the above Ⅰ. In addition, as the technical training included in the soft component of this Project will contribute to developing capacity of personnel for management and maintenance of equipment, it meets the above Ⅱ, as well.

Among the target roads, RN1 is ranked as the most important by the Djibouti Government demanding stable trade with Ethiopia. Other national roads are regarded as important by both central and regional governments as they contribute to stable logistic network connecting major cities in the country. As for Djibouti City Roads, improvement and maintenance of main roads is needed to mitigate recent increasing congestion and to enhance serviceability.

As such, improvement and maintenance of the target roads is urgent and prioritized by the Djibouti Government, hence it is concluded that the Project is relevant.

(2) Effectiveness

Expected quantitative effects of the road improvement works in the Project are summarized in the table below.

Table 3 Quantitative Effects of Road improvement

	Road	Length of Targeted Section	Indicator-1			Indicator-2		
			Indicator	Current Value (Year 2015)	Target Value (Year 2020)	Indicator	Current Value (Year 2015)	Target Value (Year 2020)
1	RN1 (Dikhil to Galafi)	100 km	Targeted Length	-	-	Averaged Vehicle Speed not in congested condition	45 km/hour	60 km/hour
2	RN9 (RN1PK51 to Tadjoura)	123 km		-	-		40 km/hour	60 km/hour
3	RN12 (RN9 to Day)	21 km		0 km	21 km		25 km/hour	40 km/hour
4	RN16 (RN14 to Gorriliyita)	40 km		0 km	40 km		30 km/hour	50 km/hour
5	Djibouti City Road	1.4 km		0 km	1.4 km		15 km/hour	30 km/hour

Of the outcome indicators in the table above, the average speed of the target sections is measured by the ADRs that is the implementing agency by actually driving them in the target year.

In addition to the quantitative effects listed above, various qualitative effects, including increased transportation volume of city bus routes and main artery roads, improvement in convenience, local promotion effects of tourism, and improvement in access to medical care, are also expected.

Judging from the analysis presented in this Project Evaluation, it is concluded that this Project is relevant and is expected to be effective.

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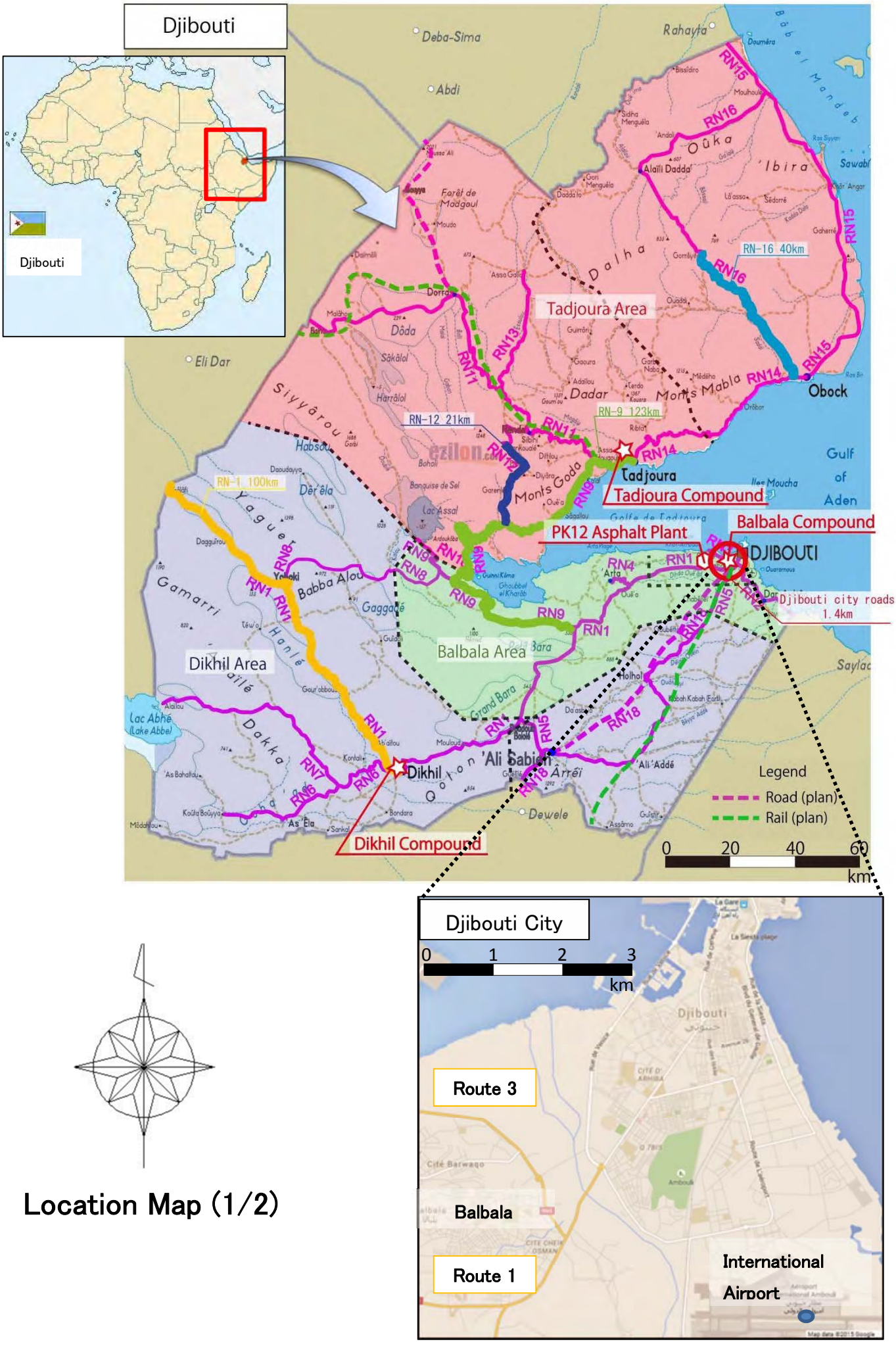
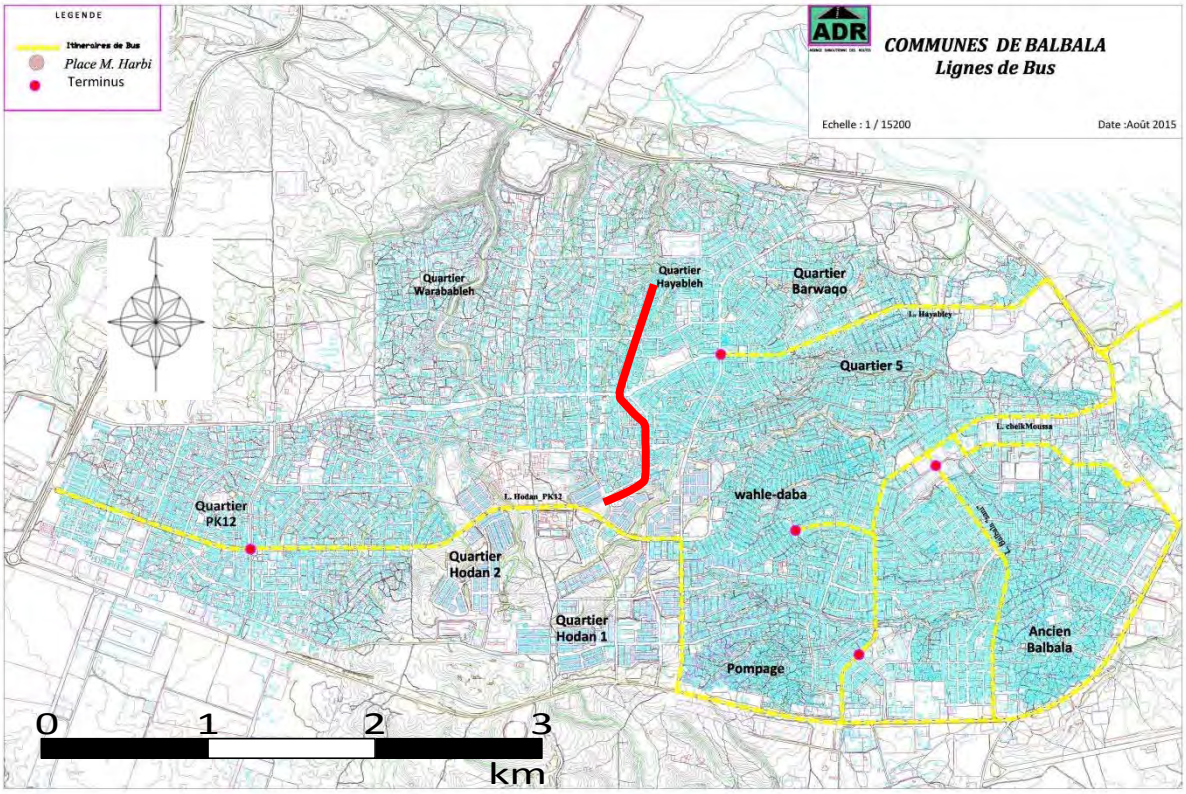
【Appendices】



Location Map (1/2)



：　Djibouti city roads（1.4km：Balbala region）

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ABBREVIATIONS

ADR	Agence Djiboutienne des Routes
AfDB	African Development Bank
CIA	Central Intelligence Agency
DBST	Double Bituminous Surface Treatment
EU	European Union
GDP	Gross Domestic Product
IMF	International Monetary Fund
INDS	Initiative Nationale pour le Développement Social
IOM	International Organization for Migration
JICA	Japan International Cooperation Agency
MET	Ministère de l'Equipement et des Transports
OECD	Organization for Economic Cooperation and Development
OJT	On-the-Job Training
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNFPA	United Nations Population Fund
WFP	World Food Programme

CHAPTER 1

BACKGROUND OF THE PROJECT

Chapter 1 Background of the Project

1-1 Current Conditions and Issues in the Sector

1-1-1 Current Conditions and Issues

Of the total road length (approx. 1,806km) in the Republic of Djibouti (herein after referred to as Djibouti), the paved road accounts for mere 38% (approx. 690km). The pavement ratio is low with the national road at 44% and city road at 28%. It has become a factor of hindering national and regional economic growth, improvement of people's quality of life and access to social services. It also expands the regional gap and hinders social stability, creating a disincentive for domestic and overseas companies to make investments.

Although the Agence Djiboutienne des Routes (herein after referred to as ADR), which is responsible for road maintenance for improving the problem, maintenance work is significantly lags behind due to shortage of road maintenance equipment.

Under the circumstances, efficient road maintenance is important to raise the national growth rate.

The target roads of the Project involve five of all of six cities of Djibouti, excluding Ali Sabieh. Thus, the pavement work helps improve accessibility in the country and the improved accessibility with the major trading partner of Ethiopia also helps accelerate the economic growth rate.

Table 1-1.1 shows the total road length by road type (national road and city road) under the jurisdiction of the ADR.

Table 1-1.1 Total Road Length Under Jurisdiction of ADR
(as of August 2015)

Pavement type	Road Length (km)			Ratio
	National Road	City Road	Total	
Asphalt Pavement	519	169	688	38%
Macadamized Pavement	675	442	1,117	62%
Total	1,194	612	1,806	100%

Source: ADR

Tables 1-1.2 and 1-1.3 show the total length of roads under the jurisdiction of the ADR by pavement type

Table 1-1.2 Total Length of National Road Under the Jurisdiction of the ADR
(as of August 2015)

Road designation	National Roads (km)					
	Asphalt pavement			Unpaved	Total length	Pavement ratio (%)
	Good	Fair	Total			
RN 1	119.0	100.0	219.0	0.0	219.0	100.0%
RN 2	26.0	0.0	26.0	0.0	26.0	100.0%
RN 3	15.0	0.0	15.0	0.0	15.0	100.0%
RN 4	8.0	0.0	8.0	0.0	8.0	100.0%
RN5	44.0	11.0	55.0	10.0	65.0	84.6%
RN 6	0.0	0.0	0.0	75.0	75.0	0.0%
RN 7	0.0	0.0	0.0	68.0	68.0	0.0%
RN 8	0.0	0.0	0.0	29.0	29.0	0.0%
RN 9	0.0	123.0	123.0	0.0	123.0	100.0%
RN 10	0.0	0.0	0.0	16.0	16.0	0.0%
RN 11	0.0	0.0	0.0	124.0	124.0	0.0%
RN 12	0.0	0.0	0.0	15.0	15.0	0.0%
RN 13	0.0	0.0	0.0	33.0	33.0	0.0%
RN 14	62.0	0.0	62.0	0.0	62.0	100.0%
RN 15	0.0	0.0	0.0	102.0	102.0	0.0%
RN 16	0.0	0.0	0.0	115.0	115.0	0.0%
RN 17	2.0	0.0	2.0	0.0	2.0	100.0%
RN 18	0.0	0.0	0.0	88.0	88.0	0.0%
RN 19	9.0	0.0	9.0	0.0	9.0	100.0%
Total of National Roads	285.0	234.0	519.0	675.0	1,194.0	43.5%

Source: ADR

Table 1-1.3 Total Length of City Road Under the Jurisdiction of the ADR
(as of August 2015)

Region designation		City Roads (km)			
City	District	Asphalt pavement	Unpaved	Total	Pavement Ratio (%)
Djibouti	Ras Dika	38.79	7.30	46.09	84.2%
	Boulaos	113.03	157.52	270.55	41.8%
	Balbala	4.52	244.72	249.24	1.8%
	subtotal	156.34	409.54	565.88	27.6%
Ali Sabieh		1.75	10.58	12.33	14.2%
Dikhil		0.81	6.67	7.48	10.8%
Arta		3.76	7.08	10.84	34.7%
Tadjourah		3.80	3.69	7.49	50.7%
Obock		2.83	4.88	7.71	36.7%
Outside Djibouti subtotal		12.95	32.90	45.85	28.2%
City Road Total		169.29	442.44	611.73	27.7%

Source: ADR

1-1-2 Development Plans

The Government of Djibouti formulated the Initiative for Social Development (INSD) 2008-2012 and implemented it with the four pillar strategies below by the target year.

- To accelerate growth and preserve the major macroeconomic balances.

- To promote universal access to social services.
- To improve social exclusion, vulnerability, and regional gap.
- Good governance promotion

As the successor long-term development plan of the INDS,「Vision Djibouti 2035」began to be formulated in 2011 and four pillars below were decided.

- Good governance promotion
- Competitive diversified economy and balanced national land development
- Human capital development, domestic capacity development and utilization related to expansion of social progress and equal opportunities
- Participation of Djibouti into regional integration and international cooperation

The government established following items as priority action plans by 2015 in the road transportation sector of the Ministère de l'Equipement et des Transports based on the「Vision Djibouti 2035」:

Action plan 1

- Asphalt pavement and expansion of road network
- Road development management and improvement of funding (national and city roads)

Action plan 2

- Improvement of road network development (planning and implementation of expansion of intercity roads)

Action plan 3

- Improvement of funding for road network improvement (stabilization of toll income and installation of vehicle weighing machines)
- Raising toll and expansion of vehicles subject to toll collection
- Raising toll and expansion of vehicles subject to toll collection

Action plan 4

- Improvement of city transportation routes
- Introduction of axle load management
- Improvement of road traffic safety
- Simplification of passage of bonded vehicles

As of 2015, the government formulated a mid-term plan from 2015 to 2019, SCAPE, (tentative plan as of August 2015) to promote the plan as the progress of above-listed priority actions was insufficient.

The ADR of the Ministère de l'Equipement et des Transports decided priority roads to be improved strategically as shown in Table 1-1.4 below based on the above development plan.

Table 1-1.4 Priority Roads to be Improved Strategically by the ADR of the Ministère de l'Equipement et des Transports

Jurisdiction	Road Section	Length	Estimated Project Cost
Ali Sabieh	RN 18 development (new construction)	Approx. 70km	119 million USD
Dikhil	RN 6 (Dikhil -- Lake Abbe)	Approx. 86km	146million USD
Dikhil/Arta	RN 8 (Lake Assal -- Yobiki))	Approx. 54km	91million USD
Arta/Tadjourah	RN 9 (PK51 -- Tadjourah)	Approx. 166km	112million USD
Dikhil	RN 5 (Doudoubbalala -- Ali Sabieh)	Approx. 14km	10million USD
Tadjourah	RN 9 (Tadjourah -- Tadjourah Port)	Approx. 10km	17million USD
Tadjourah	RN 9/10 (around Lake Assal)	Approx. 14km	16million USD
Djibouti	Urban beltway	Approx. 16km	27million USD
Total		Approx. 430km	538million USD

Source: Produced by Study Team based on interview with the ADR

The ADR expects donor assistance to be extended to major road projects that are hard to be implemented with its own fund, while deciding the priority roads as shown in the table above. It intends to continue maintenance of existing roads while improving RNs 12 and 16 as priority roads following the above as directly managed projects.

Against the backdrop, the priority target roads in the Project are consistent with the development plan of the Government of Djibouti.

1-1-3 Social and Economic Conditions

(1) General condition of Republic of Djibouti

Djibouti is a small country covering an area of 23,200 km² (approx. 1.3 times the Shikoku Island Area) with a population of 900,000 (2012, UNFPA data). While it is strategically situated for marine transportation connecting Europe with the Middle East and Asia through the Red Sea and is also geopolitically critically located as a gateway to inland East Africa connecting Africa and the Middle East coastal countries, it has maintained political stability, which is a factor of stability of African Corner. French and US forces are stationed for regional stability and antiterrorism policy and it has also drawn attention from the international community as a base for antipiracy measures in waters off the coast of Somalia. Japanese self-defense forces have been also conducting anti-piracy operations with Djibouti as their base since 2009.

The majority of the national land is covered by desert and agriculture is underdeveloped. Livestock farming by nomads is traditional and noncommercial and the country has little water or

underground resources. The development of primary and secondary industries lags behind and the tertiary industry accounts for 74.1% of GDP (2011, AfDB, etc.). The nation depends mainly on income from transportation and port services for exports for Ethiopia, services and lease fees related to French and US forces and foreign assistance. Table 1-1. 5 provides the ratio of GDP by industry. Although recent acceptance of refugees from neighboring countries including Somalia squeezed the economy, trade with Ethiopia and port business are in good condition and its economy has been relatively strong. Table 1-1.6 provides GDP trend. Investment from Gulf countries is on the rise and infrastructure development, which includes opening of Doraleh container terminal, has been in progress to serve as the distribution base of Africa.

While the economy grows at a solid rate as described above, rural areas are not benefited by the growth and thus the wealth gap between the capital of Djibouti City and rural areas has increased remarkably. In addition, drought damage repeated by the impacts of climate change lowered the agricultural and livestock farming productivity and the living environment is further worsening in rural areas and population flow into the capital is accelerating. As a result, the population in suburban areas is surging and workforce has become saturated to cause competition and the unemployment rate is further rising.

Table 1-1.5 GDP Ratio by Industry

		2006	2011
Primary Industry	Agriculture, forestry, fisheries and hunting	**3.6**	**3.6**
Secondary Industry	Mining	0.2	0.2
	Manufacturing	2.6	2.5
	Electricity, gas and water	5.8	5.3
	Construction	8.2	14.3
	Total of secondary industry	**16.8**	**22.3**
Tertiary Industry	Wholesale, retail, hotel and restaurant	19	18.5
	Transportation, warehousing and telecommunications	26.6	26.6
	Finance and real estate	13.3	14.7
	Public services	18.8	12.7
	Other services	1.9	1.6
	Total of tertiary industry	**79.6**	**74.1**
Total		100	100

Source: AfDB, OECD, UNDP, UNECA "African Economic Outlook 2012"

Table 1-1.6 GDP Trend

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nominal GDP (Million Djiboutian franc)	111,530	118,400	125,939	136,604	150,658	174,801	186,449	200,578	220,222	240,569
Real GDP * (Million Djiboutian franc)	73,375	75,414	77,760	81,463	85,601	90,571	95,127	98,444	102,843	107,822
GDP growth rate (%)	3.19	2.78	3.11	4.76	5.08	5.81	5.03	3.49	4.47	4.84
Inflation rate (%)	1.97	3.12	3.11	3.47	4.97	11.96	1.67	3.95	5.07	3.74

Source: International Monetary Fund, "World Economic Outlook Database 2013"

Note: * : The base year of real GDP is 1990. 1 Djiboutian franc ＝0.68 yen

Table 1-1.7 shows the national fiscal revenues and expenditures.

Although the revenues and expenditures including donations turned into the black in 2012, nearly 20% of the revenues are aid. In the non-tax revenues, land lease for bases of French forces (30 million euro) and US forces (30 million USD) accounts for approx. 10 percent of revenues.

Table 1-1.7 Fiscal Revenues and Expenditures of Djibouti

(Unit: million Djiboutian franc)

	2009	2010	2011	2012
Revenues and donations	68,953	71,124	75,992	86,142
Tax revenues	37,449	40,582	44,630	50,339
Direct tax	17,229	18,726	20,477	22,407
Indirect and other taxes	20,220	21,857	24,153	27,932
Indirect tax	18,330	19,828	21,911	24,906
Other taxes	1,890	2,029	2,242	3,026
Non-tax domestic revenues	9,010	8,872	6,981	9,618
Non-tax overseas revenues	10,546	10,965	10,554	10,268
Donations	11,948	10,705	13,315	15,918
Development projects	9,798	9,831	10,606	12,446
Financial support	2,150	874	2,709	3,472
Annual Expenditures	77,483	72,140	77,515	85,059
Current expenditures	45,362	48,649	53,096	56,968
Salary, etc.	24,058	25,464	27,281	29,009
Salary	21,634	22,911	24,584	26,178
Housing allowance	2,424	2,553	2,697	2,831
Goods and services	13,122	14,359	16,007	16,148
For civilian budget	10,700	11,349	13,347	13,416
For military budget	2,422	3,010	2,660	2,732
Maintenance	650	1,152	1,081	1,474
Transfer	803	745	946	1,085
Interest rate payment	803	745	946	1,085
Current expenditures with overseas funds	1,201	874	932	1,695
Investment	32,121	23,491	24,419	28,091
Investment with domestic fund	10,181	10,068	7,865	8,962
Investment with overseas fund	21,940	13,423	16,554	19,129
Donations	9,798	9,831	10,606	12,446
Loans	12,142	3,592	5,948	6,683
Fiscal Revenues and Expenditures (including donations)	-8,530	-1,016	-1,523	1,083

Source: International Monetary Fund (2013.3) "Djibouti: Sixth Review Under the Extended Credit Facility Arrangement and Request for Waivers of Nonobservance of Performance Criteria—Staff Report"

Note: 1 Djiboutian franc ＝0.68 yen

Table 1-1.8 provides basic social indicators.

Table 1-1.8 Basic Social Indicators

	Indicator	Value	Unit	Source
1	National land	23,200	㎢	2014, World Bank
2	Population	900 000	person	2012, UNFPA
3	Average number of persons per household	5.8	person	2012, Ministry of Health data
4	Adult literacy ratio	68	%	2014, CIA
5	Primary school enrollment ratio	78.5	%	2013, Ministry of Education data
6	Middle school enrollment ratio	57.5	%	2013, Ministry of Education data
7	Infant mortality ratio (aged below 5)	67.8	person/1000persons	2012, Ministry of Health data
8	Unemployment rate	48.2	%	2012, Ministry of Labor data

(2) Politics and administration

Djiboutian politics and administration are led by the president with a five-year term. The state government is comprised of 17 ministries with the Prime Minister at its top. Djibouti is sectioned into six administrative regions and the President appoints governors to assign them to each region and they carry out local administration as state organizations.

The National Assembly of Djibouti consists of 65 members elected from each region that is the electorate. Each region also has regional assembly consisting of members elected by regional residence and the chair is selected by the members.

The regional assembly performs part of local administration entrusted by the governor. It issues residence certificate and poverty certificate and manages family registration of birth, death and marriage, etc. Garbage collection and treatment, construction permit, market management, and management of public land are also supposed to be entrusted with the regional government. However, partly because each region does not have their own fiscal revenues and distribution of funds from the state government is limited, such duties are performed by the national government in reality.

Table 1-1.9 Administrative Regions and Population

Region	Area (㎢)	Regional population (person)	State/Regional Capital	Population of State/regional Capital (person)
Djibouti	500	528,000	Djibouti City (capital)	528,000
Arta	1,100	46,000	Arta City	21,000
Ali Sabieh	1,800	94,000	Ali Sabieh City	31,000
Dikhil	7,200	97,000	Dikhil City	38,000
Tadjourah	7,000	94,000	Tadjourah City	29,000

Region	Area (㎢)	Regional population (person)	State/Regional Capital	Population of State/regional Capital (person)
Obock	5,600	41,000	Obock City	24,000
Total	23,200	900,000		671,000

Source: Direction de la Statistique et des Etudes Démographiques of the Ministère de l'Economie et des Finances (DISED)
Note: Majority of the population of Djibouti Region reside in Djibouti City that covers an area of 170 ㎢.

(3) Health and medical care

There are two general hospitals and two specialized hospitals (tuberculosis and obstetrics) and there are 45 medical doctors in the state capital of Djibouti City. There are also 13 clinics with one or two doctors allocated each, with a total of 64 doctors and 7 ambulance cars in the city.

On the other hand, each region has one central hospital with two medical doctors, 10 to15 nurses, and 1 to 2 ambulance cars each. There are 6 to 10 facilities called health posts with no fulltime doctors and one to two nurses in each region. Table 1-1.10 provides the number of medical doctors per 100,000 of the population.

Table 1-1.10 Number of Medical Doctors per 100,000 Persons

Djibouti Region	Arta Region	Ali Sabieh Region	Dikhil Region	Tadjourah Region	Obock Region	Nationwide	Reference: Japan (2012, Ministry of Health, Labor and Welfare)
12.1	4.3	4.3	3.1	3.2	7.3	8.7	237.8

Source: Produced by the Study Team based on 2015 data of Ministry of Health

In rural areas, doctors visit health posts and drive 4WDs outback to open temporary clinics and gather nomads to see them. Mobile clinics provided by Japan are used actively in areas where road conditions are good. Although emergency patients in rural areas are first sent to regional central hospital, they are then transferred to a hospital in Djibouti City when they require an operation as operations are not performed at regional hospitals. They are transported via RNs 1, 9 and 14. It requires four hours, three hours, two hours, 1.5 hours and 35 minutes from Obock, Tadjourah, Dikhil, Ali Sabieh, and Arta, respectively (Ministry of Health). Public hospitals provide medical services free of charge in principle. However, emergency patients are encouraged to pay 200 francs for each visit if they can afford to pay. They are treated as needed when sent to a hospital. A medical bill is issued after the treatment. However, it is not issued if the patient has a poverty certificate.

The water source is the well in Djibouti. People use well water for drinking and other purposes in both urban and rural areas. Although water is supplied to each household via a waterworks system in city center, private water service providers transport water in plastic tanks with a capacity of 20 to 25 liters from each water supply station to each house in other areas. People in rural areas use donkeys, etc., to transport water. Water in Djibouti City and other areas near the ocean is slightly salty.

Human waste and sewage is stored in a waste collecting pit for each household or group of households in urban areas and it is collected by the local government (ONEA) in Djibouti City and by private collectors in other areas. In rural areas, each household digs a pit near their house for disposal. In Djibouti City, a sewerage treatment plant was completed and began operation in early 2015 in Damerjog. The sewerage system development was launched very recently.

Human garbage is collected and transported to be incinerated and landfilled at the unlined final disposal plant by the government. Djibouti City has become much cleaner with active use of garbage collection vehicles provided by Japan.

(4) Education

Djibouti's school system is comprised of five years of primary school, four years of middle school, three years of high school, and three or four years of university. Primary and middle school education is compulsory. School year starts in October and end in May and schools are closed from June to September. Children who turn six years old by December 31 enroll in a primary school on September 1 of the year. In Djibouti City, there are 66 primary schools (32 are public) and 37 middle schools (15 are public) and primary and middle school students walk to school. Although we could not directly confirm in the preparatory study as it was conducted when the schools were closed, we heard that many high school students are still on the road side even after school starts as buses are too crowded for them to get on in the morning. It is mainly because of concentration of population, shortage in public transportation system, and bad road condition. The University of Djibouti is the only university in the country. It operates school bus on its own.

Nomad communities are dotted even in hinterland remote from major roads in rural areas. They reside in dome-shaped portable dwelling thatched with woven mats of Bakhash tree leaves or stone houses. When school starts, they move to a place relatively near it. As schools often have a well nearby and WFP offers lunch to students at many schools, a village is formed around a school.

However, in some hinterland, there is no primary school to which children can go on foot. There are only two to five middle schools in each region excluding Djibouti City. In such a case, some families have their children stay with their relatives and acquaintances in a village where there is a school. However, it is often the case that they let one child go to school if they have three children and remaining two do not go to school, (according to the first secretary of Tadjourah Regional Assembly).

2013 statistics of the Ministry of Education tell that primary and middle school enrollment rate in Djibouti is 78.5% and 57.5%, respectively, which is much improved from 49.5% and 13.3%, respectively, in 2004. However, the figure depends much on Djibouti City where the population concentrates with a good transportation system and many children are unlikely to enroll even in primary school in rural areas.

(5) Socioeconomic conditions along target roads

[RN 1]

The population between Dikhil and Galafi is approx. 42,000 and 38,000 of them live in Dikhil. In

Yoboki that is the second biggest town in Dikhil Region and Galafi that is on the national border, there are restaurants, stores and rest areas for drivers along the road and people live outside it. Nomads also live in the hinterland outside the towns and they form small communities in areas where there are wells and schools. Hanlé Community in Yoboki District is situated 2 kilometers away from RN 1 and they irrigate field with well water to grow mango and tomato and ship part of the produce to the town. Although RN 1 is not a community road, it is the transportation route of backup materials and serves as the lifeline for local residents for doctors to visit to see them and transport emergency patients.

[RN 9]

The population along the road is approx. 31,000 and 29,000 of them reside in the regional capital of Tadjourah. There are many areas with no well in the highland area in Arta Region and the government and UNICEF supply water in cooperation to the water tanks installed along the road for nomads. The road runs along the coast from the border between Arta and Tadjourah regions to Tadjourah. Near the regional border, development of plants for refining salt from Lake Assal and special port for its exportation is in progress. New Tadjourah port construction is also underway with Arab Fund as a new export port of goods to Ethiopia. Although there are many stores along the road in Tadjourah City, there is almost no dwelling with nomads living outside it.

RN 9 is connected with RNs 14 and 1, connecting regional capital of Obock, Tadjourah an Arta cities to RN 1. The project target section is not only transportation route of backup materials to Obock and Tadjourah regions but is an access road from regional central hospitals to emergency medical services in Djibouti City.

[RN 12]

The population along the road is approx. 1,100. Mt. Day with the elevation of 1,799 meters lies east of the road and the surrounding area is a nature preserve. President’s villa, Djiboutian military facilities, school, medical facility, and protection facility for albino (albino patients are sometimes persecuted due to magical superstition in East Africa) in Day Villages situated at the north end of the target road section. It is also popular as summer resort and there are accommodation facilities because of the cool climate. However, the road is unpaved and access is bad. There are some areas where well water is put in elevated area using the pump.

[RN 16]

The road is unpaved and desert spreads along it. The first village appears 10km inland from RN 14. Local people are nomadic and irrigate the land with well water via a pipe to cultivate small farms. They grow date, mango and tomato. Although they consume most of them by themselves, they sell part of it in Obock.

[Djibouti City roads]

Djibouti City is densely populated with 530,000 residents in an area of 170 ㎢. In the eastern part projecting like a peninsula, there are port and transportation facilities along the coast on the west from the Djibouti Port to Doraleh Port and eastern coastline is the industrial zone. There are many

government buildings and embassies at the northern edge and the small area in its immediate south is called City Center crowded with banks, restaurants and entertainment district.

On the other hand, the western part of the city is called Balbala where approx. 50% of the city population reside. Thus, during the morning commuting hours, a large volume of people move from the west to the City Center. Ordinary people mainly take bus with 15 to 35 seats. Although buses are operated unremittingly, it is still insufficient. Bus route roads are damaged and the pavement of the bus terminal in the City Center is completely removed and dusty. The living environment is very poor in Balbala as it is crowded with humble dwelling built by people from rural areas to turn into a slam and no garbage or sewage treatment service is provided.

1-1-4 Natural Conditions

Djibouti is located to the south of Strait of Bab el Mandeb which is the entrance to the Red Sea.

The land having the area of 23,100 km^2 is surrounded by Eritea to the north, Ethiopia to the west and south and Somali to the southeast. Majority of the land is volcanic desert with steep ascents and descents as altitude of northern part of the country varies between 700 m to 2,010 m and the south between 500 m to 1,280 m above the Sea Level. There is Lake Assal on the east sea side at -157 m and Lake Abbe near the border to Ethiopia at 220m above the Sea Level.

The climate of Djibouti comprises characteristic dry season (May to Sep) and the rainy season (Oct to Apr). Temperature varies between 25 ℃ and 35 ℃ In the dry season, highest temperature exceeds 30 ℃ in many days and sometimes reaches 50 ℃ with humidity 45% to 55%. In the rainy season, humidity is around 70% and the temperature comes down to the lowest in December and January. Annual precipitation had been as little as about 150 mm until 2006, but it has further decreased to the level of 50mm since 2007 causing drought.

The nature of the soil of Djibouti is decomposed basalt containing basaltic rocks in mountainous area while calcareous soil is dominant in plains along the seashore where fractured coral and shells are observed together with sediment in wadi.

1-1-5 Environmental and Social Consideration

The Project is provision of construction equipment, which is not in the sector nor is in the region where adverse effect on the environment is likely to be caused, thus impact to the environment is envisaged to be minimum. The works for improvement of road will be carried out in accordance with the laws of Djibouti.

There is a register system for land ownership in Djibouti. In case the Government expropriates the registered land, compensation proceeds in accordance with the Law “Loi no. 172/AN/91/2eme L”. It will however not apply to The Project which is just improvement of existing road and no additional land will be expropriated. Although there are some areas where nomads built there houses along roads, they are distant from the road and will not be affected by the works.

1-2 Background to and Outline of the Grant Aid

Multiple large-scale infrastructure development projects, including new port and railway construction, have been in progress recently partly thanks to the high economic growth in Djibouti. On the other hand, land transportation by vehicle is the only means of transportation and the rapid traffic increase has deteriorated the artery road conditions. Maintenance work of roads in city center is insufficient due to the shortage of road maintenance equipment for small-scale road works, which is also a factor of deterioration of city traffic.

The Government of Djibouti reorganized and beefed up the organization under the Ministère de l'Equipement et des Transports and newly established the ADR in November 2013 based on the Initiative for Social Development (INSD). Although renovation work is carried out by outsourcing with donor assistance in some areas, it is enhancing a scheme of directly renovating artery, regional and city roads. However, the road maintenance equipment the Agency owns mainly consists of that provided with Japan's grant aid in the 1980s and 1990s and they have become old after the service life. The agency collects toll fees from freight vehicles on the artery road (RN 1) and uses it for fuel and labor cost for road maintenance utilizing the Road Maintenance Fund (Fonds d'Entretien Routier, FER). However, it is not enough to replace all equipment. Although maintenance training was provided for engineers and workers when the equipment was procured with grant aid in the 1990s, their know-how has become outdated as time has passed and they cannot handle current diversifying road maintenance needs.

In response to the abovementioned situation, the Government of Djibouti issued an official request for grant aid for road maintenance equipment to Japan in August 2012.

In response to the request, the Japan International Cooperation Agency conducted the preparatory study for grant aid.

1-3 Trends of Japanese Assistance

(1) Japan's Assistance Policy

Djibouti is strategically situated for marine transportation connecting Asia, Africa and Europe. Even in the unstable African Corner, it has maintained stability since the peacebuilding in 2001 and it has good foreign relations with Japan and other countries. The Djibouti Port is also one of distribution bases in East Africa to Ethiopia and South Sudan and other neighboring nations and the country plays a critical role for continuing steady economic growth in East Africa that promotes economic integration and partnership.

Japan regards ODA to the country is significant as it will help solve the various domestic challenge, promote stability and development, and contribute to stable development of international economy including East Africa and Japan, as the country is a distribution base in East Africa and actively tackling such international challenges as antipiracy measures. Japan takes the following three areas as the focal areas:

① Economic and social infrastructure development for sustainable development

② Capacity building to support economic and social development

③ Promotion of efforts for regional stability

The Project coincides with ① economic and social infrastructure development for sustainable growth among the three focal areas above.

(2) Related Assistance Plans by Japan

Table 1-3.1 below provides a summary of past projects similar to this one.

Table 1-3.1 Similar Projects Japan Have Extended

Project Title	Fiscal Year (Project Cost)	Implementing Agency	Project Summary	Note
Road Equipment improvement Project in the Djibouti (tentative tile) (ordinary grant aid)	FY 1984 (approx. 300 million yen)	Unknown	・Procurement of road maintenance equipment (bulldozers, wheel loaders, motor graders, tire rollers, vibratory rollers, water trucks, dump trucks, concrete mixers, etc.)	Sources of information on the left are project reports in FY1993 and 1996 to 1998.
Road Equipment improvement Project in the Djibouti (tentative tile) (ordinary grant aid)	FY1988 (approx. 300 million yen	Unknown	・Procurement of road maintenance equipment (motor graders, tire rollers, dump trucks, water trucks, fuel tankers, stone crushers, asphalt plants, asphalt finishers, etc.)	Sources of information on the left are project reports in FY1993 and 1996 to 1998.
Road Equipment improvement Project in the Djibouti (tentative tile) (ordinary grant aid)	FY1993 (approx. 620 million yen	Ministry of Public Works, Urban Planning and Housing	・Procurement of road maintenance equipment (bulldozers, wheel loaders, motor graders, dump trucks, tandem rollers, concrete mixers, high pressure wash water pumps, etc.)	Target of road equipment improvement: road maintenance, gravel road maintenance, and drainage and sewer maintenance in urban area implemented by Public Works Agency
Road Network Improvement Project in the Djibouti (ordinary grant aid)	FY 1996 to 1998 (approx. 2.06 billion yen	Ministry of Public Works, Urban Planning and Housing	・Road improvement (roads in urban areas in Djibouti City [RN 1 and RN 2]) ・Procurement of road maintenance equipment (vibrating rollers, water bowsers, workshop tools, supply parts)	Total length of roads subject to improvement (13.63km [RN 1: 5.1km; RN 2: 8.53km])

1-4 Assistance Trends of Other Donors

The target area of the Project is across Djibouti and main activities in the road and transportation sector of other donors are summarized in the table below.

Table 1-4.1 Activities of Other Donors and International Organizations (Road and Transportation Sector)

Organization	Target Area	Summary
World Bank	In Djibouti City	Infrastructure renovation project including roads in District 7 in Djibouti City. It is currently underway to be completed in 2019.
EU	RN (Arta -- Mouloud)	Road improvement project of a section of approx.50km of RN 1 between Arta and Mouloud (junction with RN5). It is completed. The pavement condition in the section is good in RN 1.
Arab Fund for Economic and Social Development	Tadjourah Region (southern part)	Part construction along RN 9 is underway. RN 11 improvement project is also underway as an international corridor that connects the port with Ethiopia. It is completed to Randa.
China	Tadjourah Region(eastern part)	There is a RN 15 improvement plan from Obock to the national border with Eritrea. There is also a resort development plan accompanying it.
China	Southern Djibouti	Railway rehabilitation project to Ethiopia is underway. The railway operation is suspended due to its ageing. There is a plan of expressway development to Ethiopia as a new national road.

CHAPTER 2

CONTENTS OF THE PROJECT

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

2-1-1 Superior Objective and Project Goals

Of the total road length (approx. 1,806km) in Djibouti, the paved road accounts for mere 38 percent (approx. 690km). The pavement ratio is low with the national road at 44% and city road at 28%. It has become a factor of hindering national and regional economic growth, improvement of people's quality of life and access to social services. It also expands the regional gap and hinders social stability, creating a disincentive for domestic and overseas companies to make investments.

Under the circumstances, the Government of Djibouti plans to be engaged in improvement and maintenance of national and city roads strategically based on the nation's long-term development plan, Vision Djibouti 2035, and a mid-term plan from 2015 to 2019, SCAPE. The ADR Djiboutienne des Routes of the Ministère de l'Equipement et des Transports is playing the leading role in accordance with the plan until the target year.

The Project is to provide construction equipment for maintenance of national and city roads, which are high among national priorities, to promote improvement and maintenance of roads that are the country's key infrastructure to contribute to the achievement of overall goals, thereby contributing to regional development and improvement people's living standards in the target region and improving the accessibility with Ethiopia that is a major trade partner of the country.

It also aims to contribute to quick and proper inspection and improvement of construction equipment and enhance the organizational structure and improve the technical standards of the equipment maintenance section of the ADR by providing necessary workshop equipment for its maintenance compounds.

2-1-2 Outline of the Project

The Project is to procure road maintenance equipment and workshop equipment necessary for the ADR that is the executing agency of the recipient country to directly conduct road works, aiming to promote improvement and maintenance of target roads (See the locational map at the beginning.), and carry out the soft component activities that are described in detail in 2-3-1-7 Soft Component Plan as part of the assistance for efficient equipment operation and maintenance in order to achieve the project objectives described above.

The contents of equipment procurement in the Project are shown in Table 2-1.1.

Table 2-1.1 Amount of Equipment to be Procured

No.	Equipment	Quantity
(1) Road Maintenance Equipment		
1-1	Bulldozer	2
1-2	Excavator (Crawler)	3
1-3	Hydraulic Breaker	2
1-4	Motor Grader	3
1-5	Wheel Loader	3
1-6	Vibratory Combined Roller	3
1-7	Vibratory Tandem Roller	1
1-8	Tire Roller	1
1-9	Hand-guided Vibratory Roller	3
1-10	Plate Compactor	3
1-11	Rammer	3
1-12	Asphalt Cutter	3
1-13	Asphalt Finisher	1
1-14	Bitumen Distributor	1
1-15	Chip Spreader	1
1-16	Asphalt Hand Sprayer	3
1-17	Asphalt Burner (Torch)	3
1-18	Concrete Mixer ($0.8m^3$)	2
1-19	Concrete Mixer ($0.5m^3$)	2
1-20	Water Bowser (Tanker)	4
1-21	Dump Truck	15
1-22	Fuel Tanker	1
1-23	Cab-back Crane	2
1-24	Mobile Workshop	2
1-25	Low Bed Semi-trailer with Tractor Head	1
1-26	Inspection Vehicle	3
1-27	Line Marker	3
1-28	Asphalt Plant	1
1-29	Crushing and Screening Plant	1
1-30	Desktop Computer	2
1-31	Database Software	2
(2) Workshop Equipment		
2-1	Generator (125 kVA)	1
2-2	Generator (80 kVA)	1
2-3	Generator (20 kVA)	1
2-4	Air Compressor (17 kW)	1
2-5	Air Compressor (2.2 kW)	2
2-6	Arc Welder	3
2-7	High Pressure Washer	3
2-8	Mechanic Tool Set	10
2-9	Starter Generator Tester	1
2-10	Tire Changer	1
2-11	Cutaway Models and Teaching Aids for Mechanic Training	1

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

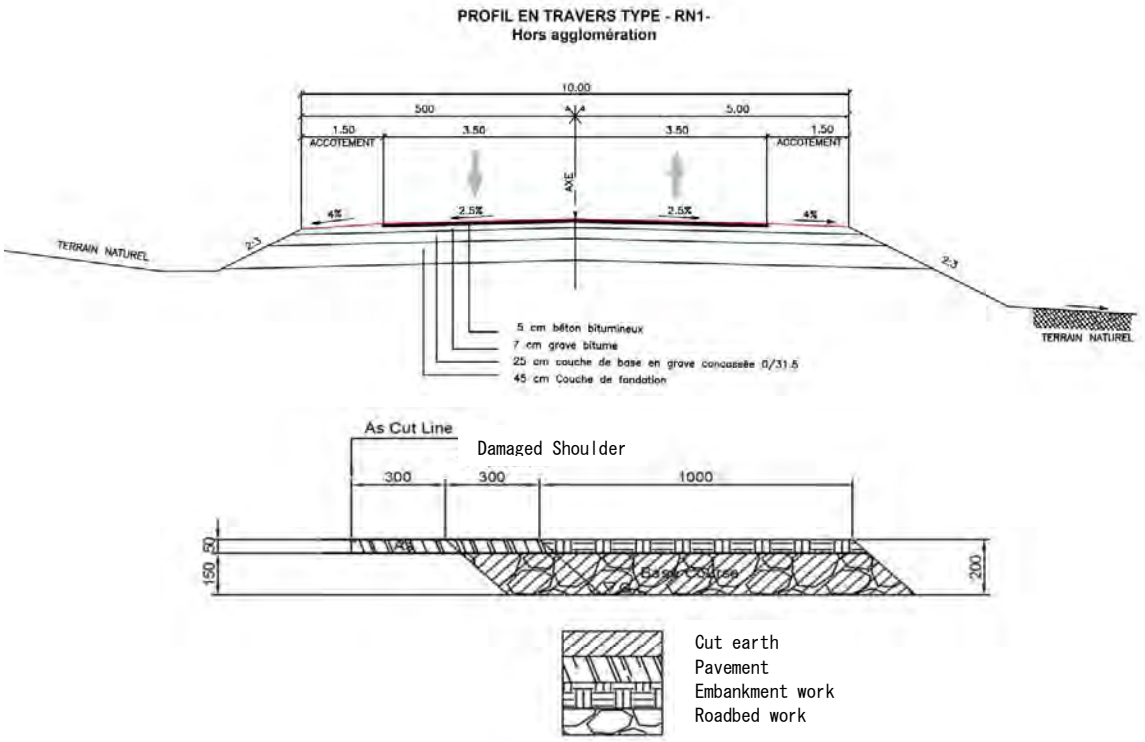
(1) Basic Policy

The basic policy is to procure road maintenance equipment and workshop equipment necessary for ADR (the implementing agency in Djibouti) to construct and maintain the targeted roads shown in Table 2-2.1.

Table 2-2.1 Target Road Section of the Project

Project Area	Target Section	Length	Construction sections	Construction contents
Route 1	PK118 (Dikhil) ～ PK218 (Galafi)	100km	General- and small-scale works (maintenance and repair)	Repair of existing pavement (pothole patching, repair of damaged road shoulder) and complete pavement replacement of certain sections
Route 9	Route 1 ～ Tadjourah	123km	Small-scale works (maintenance and repair)	Repair of existing pavement (pothole patching, repair of damaged road shoulder) and surface replacement of some water crossing section
Route 12	Route 9 ～ Day	21km	General-scale works	Cut earth, embankment work, roadbed work, simple pavement (DBST (double-layer bituminous surface treatment))
Route 16	Route 14 ～ Gorriliyita	40km	General-scale works	Cut earth and embankment work for road surface leveling
Djibouti city roads	Major regional roads including the following route: - Major road in Balbala region Bus routes, etc.	1.4km	General-scale works	Cut earth, embankment work, roadbed work, simple pavement (DBST) of the 1.4km-long section of a major road in Balbala region Repair of existing pavement of bus routes, etc.

Figure 2-2.1 shows typical cross sections planned for target roads.



Source: Prepared by the Survey Team using ADR documents provided

Figure 2-2.1 Typical Cross Section for Target Roads
(Upper: General- scale Works, Lower: Small-scale Work)

(2) Policy regarding Selection of Equipment

In the selection of the equipment to be procured in this project, it should be considered the actual situations of the project site and requirements that enabling the ADR to carry out road maintenance works on the target routes (see project site map in the opening page), the total length of 285.4 km.

In examining the composition of equipment, the types, specifications and quantities of equipment will be determined in view of the local conditions based on the following conditions:

- Geographical conditions, geological conditions and meteorological conditions around the area of the target roads
- Current road conditions of the target roads
- Types, methods, scale and implementation schedule of road improvement
- Situation regarding development of the equipment acceptance, operation and maintenance setup (organization, personnel, facilities, equipment, budget)
- Contents and conditions of existing equipment
- Situations of Djibouti in connection with import of equipment, for example, current conditions of harbor facilities and equipment, etc.
- Conditions of inland transportation of equipment, for example, transport routes and weight limitations, etc.
- Current conditions and setup of local private operators involved in after-sale services

following the handover of equipment

Workshop equipment shall be swiftly inspected and diagnosed when some abnormalities occur and necessary models shall be selected for proper repair in order to reduce the risk of occurrences of serious trouble of road maintenance equipment.

(3) Policy regarding Natural Environmental Conditions

The project site of Djibouti has two seasons—dry season from May to September and wet season from October to April. However, the annual rainfalls are extremely small around 150 millimeters and thus the project implementation will not be affected by the climate in the wet season. However, it is very hot in July and August and the road improvement and maintenance work to be executed by the ADR is suspended unless it is urgent repair work. In consideration of such natural conditions, the improvement works of the target roads shall be planned to be executed for 10 months annually excluding July and August.

Table 2-2.2 Average Monthly Temperature

Unit: ℃

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Average High	29.8	31.0	32.2	34.2	38.2	41.7	43.9	43.3	39.3	35.1	32.2	30.7
Average Low	21.6	22.5	24.0	25.5	27.1	29.4	31.2	30.7	28.9	25.7	23.1	21.7
Average Temperature	25.1	25.6	27.0	28.8	31.0	33.6	36.0	35.1	32.6	29.3	26.9	25.6

Source: Data of National Meteorological Observatory in Djibouti Airport (2002 to 2012)

(4) Policy regarding Construction and Procurement Conditions

Some arterial road improvement projects are implemented in Djibouti by contractors that are overseas private companies (Yemen, etc.) supported by donors. However, in general, the ADR that is responsible for road administration is to perform road maintenance directly. The target project road is also to be improved by the agency with its own budge, workforce and construction materials.

Crushed stones are one of main materials necessary for the target road improvement. As there are quarries sufficiently along the road, they can be easily obtained locally. Construction materials can be procured as needed as asphalt and other imported products can be easily purchased.

(5) Policy regarding Utilization of Local Contractors

As described in the “Construction affairs and policy on procurement” in the previous paragraph, some arterial road improvement projects are implemented in Djibouti by contractors that are overseas private companies supported by donors and they generally have high technical capabilities. However, in general, the ADR that is responsible for road administration is to perform road maintenance directly.

(6) Policy regarding Operation and Maintenance

Guidance concerning the initial operation and maintenance of the Project equipment will be conducted in OJT by instructors from manufacturers according to operation and maintenance manuals when handing over the equipment. In addition to this guidance, the Soft Component aimed at introducing a computerized and efficient equipment control system will be planned to ensure the

sustainable operation and maintenance of the equipment after handover.

(7) Policy regarding the Grade of Equipment

In determining the equipment for the project, preconditions based on the field survey result are given below.

- The total length of the target route is 285.4 km.
  - Route No.1: 100 km
  - Route No.9: 123 km
  - Route No.12: 21 km
  - Route:No.16: 40 km
  - Djibouti city road: 1.4 km
- The duration of the construction work is three (3) years.
- In Djibouti, period of the site operation is limited to ten (10) months per year, owing to the extreme heat in July and August.
- In the mountain area of route No.12 and route No. 16, where the surface of whole area is covered by stones and rocks, it is necessary that the excavation works to be carried out by combination of 40 ton class bulldozer, excavator and hydraulic breaker.
- Type of the construction works for each target route is identified as follows;
  - Route No.1: Repairing pavement and shoulder of the road. (replacement of entire pavement is needed at a part near the Ethiopian border)
  - Route No.9: Small scale repairing work for the pavement, repairing and clearing deposits for Ford crossings in the wadi.
  - Route No.12: DBST, between the junction with route No.9 and Day.
  - Route No.16: Clearing and leveling of earth road, between the junction with route No.14 and Gorriliyta.
  - Djibouti city road: Repairing pavement
- ADR intends to carry out the construction work on the target routes with the formation of two (2) categories, small scale repair work for pavement, and improvement work for none paved road which require large volume of earth works.
- In order to secure a supply of paving materials, production facility for paving materials to be included in the equipment to be procured in the Project. Paving material production facilities should be mobile (transferable) type which can shift its location with the progress of construction work.

As a result of taking the above conditions into consideration, it is considered that the construction machinery for this Project should be composed of minimum required earth moving machines and equipment/facilities for asphalt paving work which are necessary to carry out road construction work in the target routes, and a support equipment such as mobile workshop and heavy equipment transporter to support the operation of the core machines. The minimum amount of workshop equipment necessary for inspection and diagnosis and repair of road maintenance equipment is added.

(8) Policy regarding Implementation Schedule

Table 2-2.3 provides the estimated volume of main works on the project roads.

Table 2-2.3 Estimated Volume of Main Works

Category	Work Type	Specifications	Unit	National Rt. 1	National Rt. 9	National Rt. 12	National Rt. 16	Djibouti city roads	Total
General- scale works	Cut earth	-	m^3	0	0	60,000	80,000	7,000	147,000
	Embankment work	-	m^3	0	0	35,000	63,000	2,000	100,000
	Roadbed work	t =15cm	m^2	20,500	0	136,500	0	9,450	166,450
			m^3	3,100	0	20,500	0	1,400	25,000
	Asphalt removal	t =5cm	m^3	820	0	0	0	0	820
	Asphalt pavement	t =5cm	m^2	20,500	0	0	0	0	20,500
			m^3	1,000	0	0	0	0	1,000
	DBST (double bituminous surface treatment)	t =2cm	m^2	0	0	136,500	0	9,450	145,950
			m^3	0	0	2,700	0	200	2,900
	Base leveling	-	m^2	20,500	0	136,500	260,000	9,450	426,450
	Road bed surface	-	m^2	20,500	0	136,500	0	9,450	166,450
	Watering amount	25ℓ/m^2	m^3	510	0	3,410	0	240	4,160
Small-scale works (maintenance and repair)	Excavation	roadbed excavation and excavation for foundation included	m^3	4,000	460	0	0	0	4,460
	Backfilling	-	m^3	0	120	0	0	0	120
	Road shoulder	-	m^3	840	80	0	0	0	920
	As cut	t =5cm	m	18,460	1,520	0	0	0	19,980
	As destruction	t =5cm	m^3	450	60	0	0	0	510
	Roadbed work	t =15cm	m^2	26,670	2,730	0	0	0	29,400
			m^3	4,000	410	0	0	0	4,410
	Emulsion spraying	Prime coat 1.2ℓ/m^2	ℓ	36,630	950	0	0	0	37,580
			m^2	30,500	800	0	0	0	31,300
	Asphalt pavement	t=15cm	m^2	10,240	910	0	0	0	11,150
			m^3	510	50	0	0	0	560
	Gabion	1.0m x 1.0m	m^3	0	740	0	0	0	740

Source: Prepared by the Survey Team

The ADR shall implement road improvement and maintenance projects of the above estimated volume of main works in three years after the delivery of equipment to be procured in the Project.

2-2-2 Basic Plan

(1) Overall Plan

The equipment owned by the ADR is under integrated management at Balbala Compound in Djibouti. The compound is the upper-level compound (base compound) that controls Dikhil Compound and Tadjoura Compound in regional areas and it is the only compound with workshop for maintenance of mid- or larger-scale equipment. The two regional compounds have simple workshop to perform necessary minimum daily maintenance.

In consideration of the above, the survey team studied the place of delivery of the project equipment with focus on such factors as efficiency and easiness of transportation of equipment to the target roads, facility capacity as equipment storage (area of the premises, facility and availability of spare parts storage, etc.), storage place, and surrounding safety. The survey team concluded that the following places are most appropriate as the place of delivery after discussions with the ADR as well as field survey with its relevant facilities as the target:

① Balbala Compound (location: Balbala ward in Djibouti City)
② Dikhil Compound (location: Dikhil City)
③ Tadjoura Compound (location: Tadjourah City)

Table 2-2.4 shows the place of delivery of procured equipment.

Table 2-2.4 Place of Delivery and Quantity of Procured Equipment

No.	Equipment	Quantity			
		Balbala Compound	Dikhil Compound	Tadjoura Compound	Total
(1)	Road Maintenance Equipment				
1-1	Bulldozer	2	-	-	2
1-2	Excavator (Crawler)	3	-	-	3
1-3	Hydraulic Breaker	2	-	-	2
1-4	Motor Grader	3	-	-	3
1-5	Wheel Loader	3	-	-	3
1-6	Vibratory Combined Roller	3	-	-	3
1-7	Vibratory Tandem Roller	1	-	-	1
1-8	Tire Roller	1	-	-	1
1-9	Hand-guided Vibratory Roller	1	1	1	3
1-10	Plate Compactor	1	1	1	3
1-11	Rammer	1	1	1	3
1-12	Asphalt Cutter	1	1	1	3
1-13	Asphalt Finisher	1	-	-	1
1-14	Bitumen Distributor	1	-	-	1
1-15	Chip Spreader	1	-	-	1
1-16	Asphalt Hand Sprayer	1	1	1	3
1-17	Asphalt Burner (Torch)	1	1	1	3
1-18	Concrete Mixer ($0.8m^3$)	1	1	-	2
1-19	Concrete Mixer ($0.5m^3$)	1	1	-	2
1-20	Water Bowser (Tanker)	4	-	-	4
1-21	Dump Truck	15	-	-	15
1-22	Fuel Tanker	1	-	-	1
1-23	Cab-back Crane	1	1	-	2
1-24	Mobile Workshop	1	1	-	2
1-25	Low Bed Semi-trailer with Tractor Head	1	-	-	1
1-26	Inspection Vehicle	1	1	1	3
1-27	Line Marker	1	1	1	3
1-28	Asphalt Plant	-	1	-	1
1-29	Crushing and Screening Plant	-	1	-	1
1-30	Desktop Computer	2	-	-	2
1-31	Database Software	2	-	-	2
(2)	Workshop Equipment				
2-1	Generator (125 kVA)	1	-	-	1
2-2	Generator (80 kVA)	-	1	-	1
2-3	Generator (20 kVA)	-	-	1	1
2-4	Air Compressor (17 kW)	1	-	-	1
2-5	Air Compressor (2.2 kW)	-	1	1	2
2-6	Arc Welder	1	1	1	3
2-7	High Pressure Washer	1	1	1	3
2-8	Mechanic Tool Set	6	2	2	10
2-9	Starter Generator Tester	1	-	-	1
2-10	Tire Changer	1	-	-	1
2-11	Cutaway Models and Teaching Aids for Mechanic Training	1	-	-	1

Note) The asphalt plant is situated near Dikhil Compound and it is on land with flat and sufficiently spacious premises. (See Figure 2-2.6.)

Spare parts of the equipment to be procured in the Project are all delivered to the storage of Balbala Compound to be managed there integratedly and delivered to regional compounds as needed.

Figure 2-2.2 shows the overall locational map of Djibouti with the places of equipment delivery.

Source: Prepared by the Survey Team

Figure 2-2.2 Location Map of Delivery Point for Equipment

Figure 2-2.3 to Figure 2-2.5 also provides a layout of each place of delivery.

Source: Prepared by the Survey Team

Figure 2-2.3 Layout of Balbala Compound

Source: Prepared by the Survey Team

Figure 2-2.4 Location Map of Dikhil Compound

Tadjoura Compound

Source: Prepared by the Survey Team

Figure 2-2.5 Layout of Tadjoura Compound

Figure 2-2.6 provides the planned site of asphalt plant adjacent to Dikhil Compound.

Source: Prepared by the Survey Team

Figure 2-2.6 Location Map of Dikhil Compound

The ADR shall take necessary safety measures including installation of fence on the site where the asphalt plant is planned to be constructed (See 2-3-1-3 Scope of Works).

(2) Equipment Plan

Construction equipment and workshop equipment required in the Project are shown as below.

1) Construction Equipment

Construction equipment to be procured in the Project is composed of a excavator, loader, compactor, paving machine, asphalt plant, paving machine for repair work and trucks, etc. which are general equipment necessary to carry out road construction works. Also, a mobile workshop which is useful for maintenance of equipment at sites, an equipment transporter, etc. will be comprised in the Project equipment.

In determining the quantity and specification of each construction equipment, the following conditions are taken into consideration.

- The equipment should have a capacity and fully equipped to carry out road construction works in the target road efficiently.
- The number of equipment should be sufficient to carry out road construction works in the target road efficiently.
- Size and weight of the equipment should be suited to the conditions in the construction site.
- The equipment can be safely operated
- The equipment can be operated in agreeable environment without harming operator's health.
- Specification of the equipment should be suited to the natural environment in the construction site.
- Operating cost or maintenance cost of the equipment does not impose a heavy burden on the Public Works.
- Equipment should have mobility adequate to carry out the road construction work

The types, quantities, purpose of use, and required basic specifications of the selected road construction equipment for this project are shown as below.

Table 2-2.5 Construction Equipment of the Project, Purpose of Use and Basic Requirement

No.	Name of Equipment	Specification	Quantity	Purpose of Use (Upper) Basic Requirements (Lower)
1	Bulldozer	Operation weight: 37,000 ~ 42,000 kg Engine output: not less than 220 kW Blade capacity: not less than 8.5 m^3 Width: not less than 3,900 mm, Height: not less than 1,650 mm	2	Excavation/dozing/spreading/ hauling/compacting soil The machine should be equipped with ripper, and have engine output adequate to carry out the work, and have an operation weight suitable for clearing rocks
2	Excavator (crawler)	Operation weight: 24,000 ~ 27,000 kg Engine output: not less than 120 kW Bucket capacity: not less than 1.0m^3 (Equip-able with hydraulic breaker)	3	Excavating/stockpiling/loading/ha uling/removing soil, trimming slope face The machine should be equipped with a favorable size and type of bucket, boom, and arm that is suitable to use in the project site, and have engine output adequate to carry out the work
3	Hydraulic Breaker	Working Weight: 1,600 ~ 2,000 kg Chisel Diameter: 135 mm Length: Not less than 2,000mm	2	Excavating earth and breaking rock The machine should have a capacity to excavating rocky earth and breaking rock
4	Motor Grader	Operation weight: not less than 14000 kg Engine output: not less than130 kW Blade length: 3,700 ~ 4,100 mm Blade height: 500 ~ 800mm	3	Spreading fill soil, leveling, finishing sub-base course/base curse, The machine should be equipped with the blade, which length matches with the width of the target road, and have engine output adequate to carry out the work
5	Wheel Loader	Operation weight: less than 16,000 kg Engine output: not less than 115 kW Bucket capacity: not less than 2.5m^3 Dumping clearance: not less than 2,600 mm	3	stockpiling/loading/hauling /removing soil, Bucket size and working range should suit the size of the dump truck for loading material, and the machine should have engine output adequate to carry out the work
6	Vibratory Combined Roller	Operation weight: not less than 10,000 kg Engine output: not less than 80 kW Dimension of the Roll (width): Approx. 2,100 mm Centrifugal Force: 150/200 kN and over	3	Compacting base course /sub-base course The machine should be equipped with smooth drum, and have compaction capacity equivalent to 25 ton class macadam roller
7	Vibratory Tandem Roller	Operation weight: 4,000 ~ 4,200 kg Engine output: not less than 19 kW Dimension of the Roll (width): Approx. 1,300 mm Centrifugal Force: not less than 24 kN	1	Compacting / sub-base course /surface course The size and the capacity of the machine should be suitable for both embankment work and paving work
8	Tyre Roller	Operation weight: not less than 15,000 kg (including ballasts) Engine output: not less than 65 kW Compaction Width: not less than 2,000 mm	1	Compacting / sub-base course /surface course The size and the capacity of the machine should be suitable for both embankment work and paving work
9	Hand-guide Roller	Operation weight: 500 ~ 650 kg Engine output: not less than 4 kW Centrifugal Force: not less than 9.5 kN	3	Compacting narrow part To ensure operability, convenience and compactness
10	Plate Compactor	Operation weight: 50 ~ 75 kg Engine output: not less than 1.5 kW Frequency: not less than 90 Hz Centrifugal Force: not less than 8 kN	3	Compacting narrow part To ensure operability, convenience and compactness

No.	Name of Equipment	Specification	Quantity	Purpose of Use (Upper) Basic Requirements (Lower)
11	Rammer	Petrol Engine Operation weight: 55 ~ 75 kg Max. impact force: not less than 8 kN/blow	3	Compacting narrow part To ensure operability, convenience and compactness
12	Asphalt Cutter	Petrol Engine Dry type Max. Cutting Depth: not less than 100 mm	3	Cutting asphalt pavement To ensure operability, and have adequate cutting depth
13	Asphalt Finisher	Crawler type Paving width: Approx. 2.3 ~ 6.0 m (infinitely variable) Paving Thickness: 10 ~ 200 mm or more Travel Speed: Approx. 1.5 ~ 20 m/min. Hopper capacity: not less than 10,000 kg	1	Asphalt Paving To have adequate paving width, thickness, speed, and hopper capacity
14	Bitumen Distributor	Tank Capacity: 4,000 ℓ Engine output: not less than 115 kW Pumping Capacity: 300 ℓ/min. or more Spray width: not less than 3,600 mm	1	Spraying asphalt The machine should have an control device for spraying width and spraying amount, which can be adjusted by simple operation To give consideration to the mobility of the machine
15	Chip Spreader	Max. Spreading Material Sizes: Approx.50mm Spreading width: 200 mm ~ 2,400 mm	1	Spreading aggregate / sand for pavement work Spreading width should be adjustable according to the asphalt spray width
16	Asphalt Hand Sprayer	Hand-cart mounted type Spray capacity: 23 ℓ/min. (fan shape spray), 10 ℓ/min. (round shape spray)	3	Spraying asphalt for small-scale repair work of the asphalt pavement The machine should have heating and pumping devices to spray the straight asphalt, spraying capacity to be suitable for small-scale repairing work for the asphalt pavement
17	Asphalt Burner	LPG Gas Burner Max. flame temperature: Approx. 1,200℃ Length of the Burner Handle (Lance): Approx. 1.0m	3	Heating asphalt pavement for repair To have adequate flame temperature and flame size
18	Concrete Mixer ($0.8\ m^3$)	Electric Motor driven Reversible Drum or Tilting-drum Drum capacity: Approx. $0.75\ m^3$	2	Production of cold mix asphalt mixture To have adequate mixing capacity
19	Concrete Mixer ($0.5\ m^3$)	Diesel engine driven Reversible Drum or Tilting-drum Drum capacity: Approx. $0.4\ m^3$	2	Mixing of concrete To have adequate mixing capacity and mobility for small scale concrete work
20	Water Bowser (Tanker)	Operation Weight (GVW): less than 23,000 kg Payload: 10,000 ℓ Engine output: not less than150 kW Left-hand Steering	4	Watering for embankment or to supply water for concrete work The specification of the machine should be suitable to use in earth works for watering road surface, and have a function of water tanker to supply water for concrete works
21	Dump Truck	Operation Weight (GVW): less than 26,000 kg Max. Payload: not less than 14,000 kg Engine output: not less than 190 kW Left-hand Steering	15	Hauling the road construction materials Considering the conditions of the construction site and amount of work volume, this machine should have at least 14000 kg payload capacity with vessel volume of 10 m^3, and have engine output adequate to carry out the work

No.	Name of Equipment	Specification	Quantity	Purpose of Use (Upper) Basic Requirements (Lower)
22	Fuel Tanker	Operation Weight (GVW): less than 23,000 kg Capacity: 10,000 ℓ Engine output: not less than150 kW Left-hand Steering	1	Transporting fuel to the construction site To have adequate tank capacity and mobility
23	Cab-back Crane	Operation Weight (GVW): not more than 25,000 kg (excluding Cargo Crane) Max. Payload: 10,000 kg Engine output: not less than 190 kW Lifting capacity: Approx. 5,000 kg Left-hand Steering	2	Loading and unloading, and to transport the construction materials The specification of the machine should be suitable to loading/unloading and transport the road construction materials and equipment
24	Mobile Workshop	Max. Lifting Capacity (Cargo Crane): Approx. 4,900 kg Engine output: not less than 200 kW Equipped with maintenance equipment and tools: (1) Engine generator-cum-welder (2) Arc welding outfit (3) Gas welding and cutting outfit (4) Other mechanic tools	2	Repairing / maintaining the construction machines at the construction site The carrier should be 6 x 4 drive, box-bodied truck, equipped with crane, set of workshop equipment, and tools necessary to carry out repair / maintenance work for the construction machines at the construction site
25	Low Bed Semi-trailer with Tractor Head	Max. Payload (on Fifth Wheel): 45,000 kg Tractor Head Engine output: not less than 275 kW GCM rating: not less than 60,000 kg	1	Transport heavy equipment Trailer should have an adequate payload capacity to carry the heaviest equipment among the equipment to be provided to the project safely Tractor head should have adequate pulling power to transport those equipment safely
26	Inspection Vehicle	4 x 4 drive, double-cab pickup truck Engine output: not less than 70 kW	3	Going round the road construction sites for inspection and supervision The specification of this machine should be fit with the road conditions and the natural environment in the project area
27	Line Marker	Flow-painting type, manually operated Line Width: 50～200 mm Coating speed: Approx. 100 m/5~10 min. Coating Distance: 300 ~ 400 m/20 ℓ (line width: 100 mm)	3	Painting traffic line for pavement To have simple mechanism /structure, and portable
28	Asphalt Plant	Mobile, batch type Capacity: Approx.30 t/h	1	Production of hot mix asphalt mixture The machine should be mobile (transferable) type, and have adequate production capacity
29	Crushing & Screening Plant	Crawler mounted self-propelled type Output Capacity a) 20 ~ 13mm, 13 ~ 5mm, 5 ~ 0 mm: Approx. 30 ~ 40 t/h b) 40 ~ 20mm, 20 ~ 5 mm, 5 ~ 0mm : Approx. 40 ~ 50 t/h	1	Production of aggregate for asphalt mixture and concrete The machine should be mobile (transferable) type, and have adequate production capacity

2) Workshop Equipment

We also studied whether workshop equipment required for repair and maintenance of equipment to be procured in the Project needs to be procured in addition to the construction equipment for road improvement and maintenance. The details (basic specifications and volume to be procured) as well

as the purpose of the use of minimum necessary workshop equipment for repair and maintenance of road maintenance equipment to be procured are summarized in Table 2-2.6.

Table 2-2.6 Workshop Equipment of the Project, Purpose of Use and Basic Requirement

No.	Name of Equipment	Specification	Quantity	Purpose of Use (Upper) Basic Requirements (Lower)
1	Generator (125 kVA)	Diesel Engine Driven Rated output: 380/415 V (3-phase/4-Wire), 50 Hz, 125 kVA	1	Emergency power for Balbala Compound workshop Output specifications compatible with workshop equipment
2	Generator (80 kVA)	Diesel Engine Driven Rated output: 380/415 V (3-phase/4-Wire), 50 Hz, 80 kVA	1	Emergency power for Dikhil Compound workshop Output specifications compatible with workshop equipment
3	Generator (20kVA)	Diesel Engine Driven Rated output: 380/415 V (3-phase/4-Wire), 50 Hz, 20 kVA	1	Emergency power for Tadjoura Compound workshop Output specifications compatible with workshop equipment
4	Air Compressor (17 kW)	Screw type Air pressure: not less than 1.3 MPa Power source: 380/415 V (3-phase), 50 Hz Motor output: not less than 17 kW	1	Compressor for Balbala Compound workshop Specifications with capacity to send sufficient amount of compressed air to workshop equipment and tools
5	Air Compressor (2.2 kW)	Horizontal Tank Mount type Air pressure: not less than 0.85 MPa Power source: 380/415 V (3-phase), 50 Hz Motor output: not less than 2.2 kW	2	Compressor for Dikhil and Tadjoura compound workshop Specifications with capacity to send sufficient amount of compressed air to workshop equipment and tools
6	Portable Welding Machine	Welding Current: not less than 100~500 A Power Source: 380/415 V (3-phase), 50 Hz	3	Welder for equipment maintenance Specifications with capacity for repair and maintenance of construction equipment
7	Electric High Pressure Washer	Water Discharge Pressure: not less than 7 MPa Water Discharge Volume: Approx. 900 ℓ/h Power Source: 380/415V (3-phase), 50 Hz Water Tank Capacity: 2 m^3	3	Equipment washer Specifications with water pressure and discharge rate necessary for washing grease buildup, etc., of equipment
8	Mechanic Tool Set	70 pcs/set (Approx.)	10	Equipment repair and maintenance Contains tools necessary for repair and maintenance of heavy machinery
9	Starter Generator Tester	Power Source: 380/415V (3-phase) Accessories: drive motor, ammeter, voltmeter, tachometer, battery	1	Tester of starter motor and alternator Specifications with capacity to test and diagnose failure of starter motor and alternator
10	Tire Changer	Electric Motor driven hydraulically operated type Wheel Size: 14 ~ 46 inch Maximum Tire Diameter: not less than 2,200 mm Power Source: 380/415V (3-phase), 50 Hz	1	Repair of large vehicles and tires for heavy machinery Specifications with performance and capacity to change tires for heavy machinery
11	Cutaway Models and Teaching Aids for Mechanic Training	Training Aids (CD-ROM) (Automobile Maintenance Tools, Alternator, Starter Motor) Cutaway Models (Alternator, Starter Motor, Hydraulic Cylinder)	1	Mechanic training Supplementary basic training aids of equipment maintenance for mechanics

(3) Equipment Procurement Quantities

The estimated civil engineering and paving work volume to calculate the volume of main road maintenance equipment to be procured in the Project is provided in Table 2-2.7. It is estimated based on the estimated volume of main works in Table 2-2.3.

Table 2-2.7 Estimated Volume of Civil Engineering and Paving Works

Equipment	Amount of work	unit	Description of work
Bulldozer	312,943	m^3	Clearing/grubbing/excavation of natural ground, and carrying/levelling of earth
Excavator (Crawler)	151,179	m^3	Excavation of natural ground, loading of earth, and breaking rock
Hydraulic Breaker	7,640	m^3	Excavation of natural ground, and breaking rock
Motor Grader	251,334	m^3	Levelling of road bed and base course
Wheel Loader	154,458	m^3	Loading of road construction materials, and removing earth
Vibratory Combined Roller	426,450	m^2	Compacting road bed and base course
Vibratory Tandem Roller	64,940	m^2	Compacting base course, and pavement
Tire Roller	59,392	m^2	Compacting base course, and pavement
Asphalt Finisher	31,650	m^2	Paving with asphalt
Bitumen Distributor	208,900	m^2	DBST and paving with asphalt
Water Bowser	22,160	m^3	drawing, transporting and sprinkling of water
Dump Truck	310,283	m^3	Transporting road construction materials
Asphalt Plant	3,947	ton	The production of asphalt mixture
Crushing and Screening Plant	61,907	ton	The production of aggregate

The necessary volume of road maintenance equipment to be procured in the Project is estimated based on the estimated volume of civil engineering and paving works and by taking the organizational structure of the ADR at three locations (Balbala, Dikhil and Tadjoura) in the country into account.

The grounds for the estimated volume of road maintenance equipment are given in Table 2-2-8.

Table 2-2.8 Bases for Calculating Required Number of Equipment

1. Bulldozer (estimated quantity: 2 units)

Basis of Calculation	Numerical Value	Remarks
Dozing (hauling) distance	30 m	
Cycle time	1.34 min.	
Effective Capacity of dozer blade	3.8 m^3	Blade size: W:3.9 m、H:1.6 m
Quantity of work/machine/h	41 m^3/h	
Quantity of work/machine/day (1)	205 m^3/day	5 hours/machine/day
Working days/year	250 days	25 days/month× 10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-volume (2)	312,943 m^3	Estimated work-volume
Work period	3 years	
Required working days to complete the work (3)	750 days	Excavation / dozing (hauling) / spreading
Required earthwork-volume/day (4) = (2) ÷ (3)	417 m^3/day	
Required number of machines = (4) ÷ (1)	2 units	

2. Excavator (crawler) (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
Bucket capacity	0.8 m^3	
Cycle time	90 sec.	Swing angle: 135°
Quantity of work/machine/h	15 m^3/h	Excavation and loading
Quantity of work/machine/day (1)	75 m^3/day	8 hours/machine/day
Working days/year	250 days	25 days/month× 10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-volume (2)	151,179 m^3	Estimated work-volume of excavation, loading, breaking rock, and gathering stone for crushing plant
Work period	3 years	
Required working days to complete the work (3)	750 days	
Required earthwork-volume/day (4) = (2)÷ 3)	219 m3/day	
Required number of machines = (4) ÷ (1)	3 units	

3. Hydraulic Breaker (estimated quantity: 2 units)

Basis of Calculation	Numerical Value	Remarks
Quantity of work/machine/h	8 m^3/h	Excavation/breaking rocks
Quantity of work/machine/day (1)	40 m^3/day	5 hours/machine/day
Working days/year	50 days	10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-volume (2)	7,350 m^3	Estimated work-volume
Work period	2 years	
Required working days to complete the work (3)	100 days	
Required work-volume/day (4) = (2)÷ 3)	74 m^3/day	
Required number of machines = (4) ÷ (1)	2 units	

4. Motor Grader (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
Blade width	3.7 m	
Quantity of work/machine/h	21 m^3/h	Spreading and levelling
Quantity of work/machine/day (1)	105 m^3/day	5 hours/machine/day
Working days/year	250 days	25 days/month× 10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-volume (2)	251,334 m^3	Estimated earthwork-volume,
Work period	3 years	
Required working days to complete the work (3)	750 days	
Required work-volume/day (4) = (2) ÷ (3)	335 m^3/day	
Required number of machines = (4) ÷ (1)	3 units	

5. Wheel Loader (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
Bucket capacity	2.4 m^3	
Cycle time	180 sec.	Average cycle time for loading/removing soil, gravel and rook
Quantity of work/machine/h	14 m^3/h	Loading and hauling
Quantity of work/machine/day (1)	70 m^3/day	5 hours/machine/day
Working days/year (embankment material)	250 days	25 days/month× 10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-volume (2)	154,458 m^3	Estimated earthwork-volume,
Work period	3 years	
Required working days to complete the work (3)	750 days	Loading/hauling materials for embankment and paving
Required earthwork-volume/day (4) = (2) ÷ (3)	205 m^3/day	
Required number of machines = (4) ÷ (1)	3 units	

6. Vibratory Combined Roller (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
Quantity of work/machine/h	66 m^2/h	
Quantity of work/machine/day (1)	330 m^2/day	8 hours/machine/day
Working days/year	150 days	10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-area (2)	426,450 m^2	Estimated compaction work-area,
Work period	3 years	
Required working days to complete the work (3)	450 days	
Required work-area/day (4) = (2) ÷ (3)	948 m^2/day	
Required number of machines = (4) ÷ (1)	3 units	

7. Vibratory Tandem Roller (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed at Balbala Compound as an element to form a set of equipment for asphalt paving work		
Quantity of work/machine/h	50 m^2/h	
Quantity of work/machine/day (1)	200 m^2/day	4 hours/machine/day
Working days/year	100 days	10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-area (2)	59,392 m^2	Estimated work-area
Work period	3 years	
Required working days to complete the work (3)	300 days	
Required work-area/day (4) = (2) ÷ (3)	198 m^2/day	
Required number of machines = (4) ÷ (1)	1 units	

8. Tyre Roller (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed at Balbala Compound as an element to form a set of equipment for asphalt paving work		
Quantity of work/machine/h	72 m^2/h	
Quantity of work/machine/day (1)	288 m^2/day	4 hours/machine/day
Working days/year	100 days	10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-area (2)	64,900 m^2	Estimated work-area
Work period	3 years	
Required working days to complete the work (3)	300 days	Effective working days
Required work-area/day (4) = (2) ÷ (3)	216 m^2/day	
Required number of machines = (4) ÷ (1)	1 units	

9. Hand-guided Vibratory Roller (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for compacting narrow place in a small-scale repair work
Balbala Compound	1	
Dikhil Compound	1 units	
Tadjoura Compound	1 units	
Required number of machines	3 units	

10. Plate Compactor (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for compacting narrow place in a small-scale repair work
Balbala Compound	1	
Dikhil Compound	1 units	
Tadjoura Compound	1 units	
Required number of machines	3 units	

11. Rammer (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for compacting narrow place in a small-scale repair work
Balbala Compound	1 units	
Dikhil Compound	1 units	
Tadjoura Compound	1 units	
Required number of machines	3 units	

12. Asphalt Cutter (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for cutting asphalt pavement in a small-scale repair work
Balbala Compound	1 units	
Dikhil Compound	1 units	
Tadjoura Compound	1 units	
Required number of machines	3 units	

13. Asphalt Finisher (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed at Balbala Compound as an element to form a set of equipment for asphalt paving work		
Quantity of work/machine/h	221 m^2/h	
Quantity of work/machine/day (1)	663 m^2/day	3 hours/machine/day
Working days/year	50 days	10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-area (2)	31,650 m^2	Estimated work-area, after delivery of the construction machines
Work period	3 years	
Required working days to complete the work (3)	150 days	Effective working days
Required work-area/day (4) = (2) ÷ (3)	211 m^2/day	
Required number of machines = (4) ÷ (1)	1 units	

14. Bitumen Distributor (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed at Balbala Compound as an element to form a set of equipment for asphalt paving work, and a equipment for DBST work		
Quantity of work/machine/h	1,620 m^2/h	
Quantity of work/machine/day (1)	3,240 m^2/day	2 hours/machine/day
Working days/year	50 days	10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-area (2)	208,900 m^2	Estimated work-area, after delivery of the construction machines
Work period	3 years	
Required working days to complete the work (3)	150 days	Effective working days
Required work-area/day (4) = (2) ÷ (3)	1,393 m^2/day	
Required number of machines = (4) ÷ (1)	1 units	

15. Chip Spreader (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed as an element to form a set of equipment for asphalt paving work, and a equipment for DBST work		
Balbala Compound	1 unit	
Required number of machines	1 units	

16. Asphalt Hand Sprayer (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for small-scale repair work of the asphalt pavement
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Tadjoura Compound	1 unit	
Required number of machines	3 units	

17. Asphalt Burner (Torch) (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for small-scale repair work of the asphalt pavement
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Tadjoura Compound	1 unit	
Required number of machines	3 units	

18. Concrete Mixer (0.8 m^3) (estimated quantity: 2 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed to Balbala Compound and Dikhil Compound, one (1) unit each		Equipment to be used in small-scale repair work of the asphalt pavement for mixing cold mix asphalt
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Required number of machines	2 units	

19. Concrete Mixer (0.5 m^3) (estimated quantity: 2 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed to Balbala Compound and Dikhil Compound, one (1) unit each		Equipment to be used for small-scale repair work of the concrete structures
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Required number of machines	2 units	

20. Water Bowser (Tanker) (estimated quantity: 4 units)

Basis of Calculation	Numerical Value	Remarks
Hauling distance	80 km	An average distance for a round trip, between construction site and well or water storage tank where water is drawn
Traveling (driving) speed	10 km/h	Estimated travel speed in the project site
Hauling capacity/machine/h	1.04 m^3/h	
Hauling capacity/machine/day (1)	8.32 m^3/day	8 hours/machine/day
Working days/year (transporting earth)	250 days	25 days/month× 10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-volume (2)	22,160 m^3	
Work period	3 years	
Required working days to complete the work (3)	750 days	
Required hauling-volume/day (4) = (2) ÷ (3)	30 m^3	
Required number of machines = (4) ÷ (1)	4 units	

21. Dump Truck (estimated quantity: 15 units)

Basis of Calculation	Numerical Value	Remarks
Hauling distance	20 km	An average distance for a round trip, between construction site and stockpile or quarry
Traveling (driving) speed	10 km/h	Estimated travel speed in the project site
Hauling capacity/machine/h	3.5 m^3/h	
Hauling capacity/machine/day (1)	28 m^3/day	8 hours/machine/day
Working days/year	250 days	25 days/month× 10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work-volume (2)	310,283 m^3	Estimated earthwork-volume, after delivery of the construction machines
Work period	3 years	
Required working days to complete the work (3)	750 days	
Required hauling-volume/day (4) = (2) ÷ (3)	414 m^3	
Required number of machines = (4) ÷ (1)	15 units	

22. Fuel Tanker (estimated quantity: 1unit)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed at Balbala Compound in Djibouti, where the fuel depot is located		This equipment is used for transporting/delivering fuel to the construction sites
Balbala Compound	1 unit	
Required number of machines	1 unit	

23. Cab-back Crane (estimated quantity: 2 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be deployed to Balbala Compound and Dikhil Compound, one (1) unit each		Equipment to loading and unloading, and to transport the construction materials
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Required number of machines	2 units	

24. Mobile Workshop (estimated quantity: 2 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed at Balbala Compound and Dikhil Compound where the main equipment are deployed		Carrying out repair and maintenance works for the road construction machines at the construction site
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Required number of machines	2 units	

25. Low Bed Semi-trailer with Tractor Head (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
This equipment to be stationed at Balbala Compound in Djibouti, where the transportation of the heavy equipment is controlled		Transporter for heavy equipment
Balbala Compound	1 unit	
Required number of machines	1 unit	

26. Inspection Vehicle (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for going round the road construction sites for inspection and supervision
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Tadjoura Compound	1 unit	
Required number of machines	3 units	

27. Line Marker (estimated quantity: 3 units)

Basis of Calculation	Numerical Value	Remarks
This equipment to be distributed, one (1) unit to each station		Equipment to be used for drawing traffic line of the roads
Balbala Compound	1 unit	
Dikhil Compound	1 unit	
Tadjoura Compound	1 unit	
Required number of machines	3 units	

28. Asphalt Plant (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
Quantity of work/machine/h	30 t/h	
Quantity of work/machine/day (1)	150 t/day	5 hours/machine/day
Working days/year	50 days	10 month
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work (2)	3,947 t	Estimated amount of work
Work period	3 years	
Required working days to complete the work (3)	150 days	
Required hauling-volume/day (4) = (2) ÷ (3)	26 t/day	
Required number of machines = (4) ÷ (1)	1 units	

29. Crushing & Screening Plant (estimated quantity: 1 unit)

Basis of Calculation	Numerical Value	Remarks
Quantity of work/machine/h	20 t/h	
Quantity of work/machine/day (1)	100 t/day	5 hours/machine/day
Working days/year	250 days	25 days/month× 10 months
Estimated period of the construction work	3 years	After delivery of the construction machines
Estimated amount of work (2)	61,907 t	Estimated amount of work
Work period	3 years	
Required working days to complete the work (3)	750 days	
Required hauling-volume/day (4) = (2) ÷ (3)	82 t/day	
Required number of machines = (4) ÷ (1)	1 units	

2-2-3 Outline Design Drawings

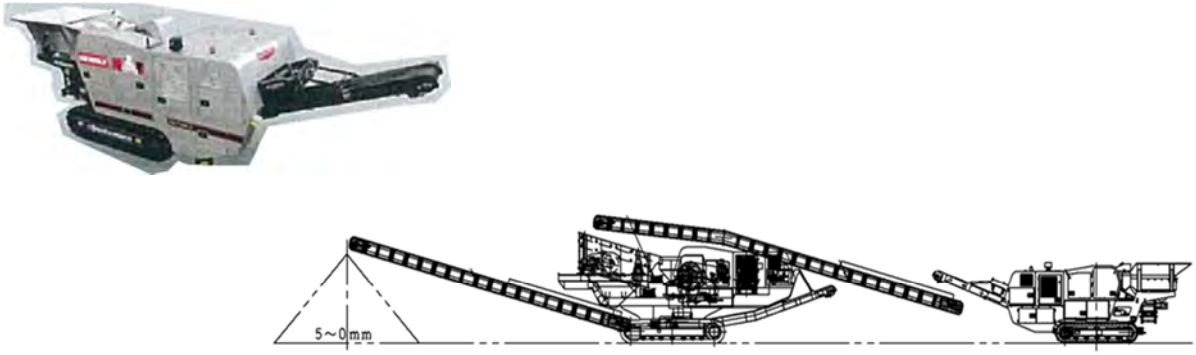
Reference drawings of main construction equipment in the Project are indicated below.

Table 2-2.9 Reference Drawings of Main Construction Equipment

1-1. Bulldozer	1-2. Excavator (Crawler)
	
1-3. Hydraulic Breaker	1-4. Motor Grader
	
1-5. Wheel Loader	1-6. Vibratory Combined Roller
	
1-7. Vibratory Tandem Roller	1-8. Tire Roller
	

1-9. Hand-guided Vibratory Roller	1-10. Plate Compactor
	
1-11. Rammer	1-12. Asphalt Cutter
	
1-13. Asphalt Finisher	14. Bitumen Distributor
	
1-15. Chip Spreader	1-16. Asphalt Hand Sprayer
	
1-17. Asphalt Burner	1-18. Concrete Mixer (0.8 m^3)
	

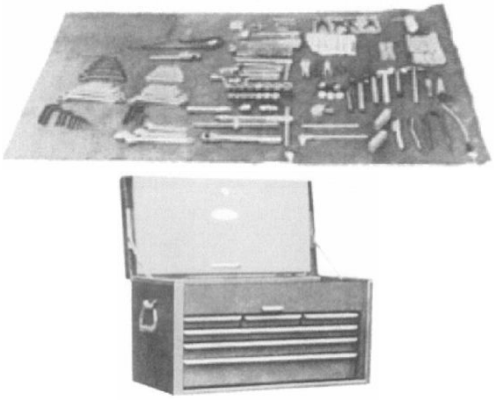
1-19. Concrete Mixer (0.5 m^3)	1-20. Water Bowser (Tanker)
	
1-21. Dump Truck	1-22. Fuel Tanker
	
1-23. Cab-back Crane	1-24. Mobile Workshop
	
1-25. Low Bed Semi-trailer with Tractor Head	1-26. Inspection Vehicle
	
1-27. Line Marker	1-28. Asphalt Plant
	

1-29. Crushing & Screening Plant


Reference drawings of workshop equipment in the Project are indicated below.

Table 2-2.10 Reference Drawings of Workshop Equipment

2-1. Generator(125 kVA)	2-2. Generator(80 kVA)
	
2-3. Generator(20 kVA)	2-4. Air Compressor & Receiver Tank
	
2-5. Air Compressor	2-6. Portable ARC Welding Machine
	

2-7. Electric High Pressure Washer	2-8. Mechanic Tool Set
	
2-9. Alternator Starter Tester	2-10. Tire Changer
	
2-11. Cutaway Model and Training Aids	
	

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

The Plan will be implemented based on the Government of Japan's Grant Aid scheme. According to this, the Project will receive approval by the Government of Japan, and the two countries' governments will sign the Exchange of Notes (E/N) and the Grant Agreement (G/A). The Japanese Consultant, recommended by the Japan International Cooperation Agency (JICA), will bind a contract with the implementing agency in Djibouti concerning execution of work for the tender and supervision of construction and maintenance equipment procurement. The Consultant will supervise the main work component to ensure that the Project is executed smoothly and appropriately. Below is indicated the basic items and points that require particular consideration in the event of Project implementation.

(1) Project Implementing Entities

The responsible and supervisory agency on the Djibouti side will be the Ministère de l'Equipement et des Transports, and the implementing agency will be ADR under the said ministry. Also, following handover of the construction and maintenance equipment, ADR will be in charge of the appropriate operation and maintenance of the said equipment.

(2) Consultant

In order to supervise preparation of the tender specifications and the procurement and installation of the construction and maintenance equipment in the Project, the Djibouti side will bind a consultant supervision agreement with the Consultant that is recommended by the Japan International Cooperation Agency (JICA). Moreover, the Consultant will also implement the Soft Component in order to ensure the appropriate operation and maintenance of construction and maintenance equipment and strengthening of spare parts management and to improve the capacity for construction works using the Project equipment.

(3) Supplier

In accordance with the framework of Japan's Grant Aid scheme, the procurement agent that has been selected in competitive tender will implement the procurement, transportation, on-site assembly, initial operation training and maintenance guidance, etc. of the Project equipment.

Following completion of the Project, since it will be necessary to continue supplying spare parts and conducting post-installation service to resolve breakdowns and so on, it will be necessary for the procurement agent to conduct liaison and coordination after the handover of equipment.

Accordingly, a procurement agent that possesses a local office or other base of activities in Djibouti or neighboring countries will be selected.

2-2-4-2 Implementation Conditions

(1) Suppliers

Because the construction and maintenance equipment scheduled for procurement in the Project is not manufactured or produced in Djibouti, equipment made by Japanese manufacturers will be selected. However, since some Japanese equipment and vehicle makers, etc. have suspended domestic manufacturing and transferred their production and manufacturing bases to overseas plants, equipment that have been produced at domestic, overseas plants (Thailand, Brazil, etc.) by Japanese makers or foreign makers (Asphalt plant) will be procured, and the port of lading will be determined appropriately.

Table 2-2.11 Country of Procurement for Construction Equipment

No.	Equipment	Procured from		
		Japan	Djibouti	Third Countries
1	Bulldozer	○		○
2	Excavator (Crawler)	○		
3	Hydraulic Breaker	○		
4	Motor Grader	○		○
5	Wheel Loader	○		
6	Vibratory Combined Roller	○		
7	Vibratory Tandem Roller	○		
8	Tire Roller	○		
9	Hand-guided Vibratory Roller	○		
10	Plate Compactor	○		
11	Rammer	○		
12	Asphalt Cutter	○		
13	Asphalt Finisher	○		
14	Bitumen Distributor	○		
15	Chip Spreader	○		
16	Asphalt Hand Sprayer	○		
17	Asphalt Burner (Torch)	○		
18	Concrete Mixer ($0.8m^3$)	○		
19	Concrete Mixer ($0.5m^3$)	○		
20	Water Bowser (Tanker)	○		
21	Dump Truck	○		
22	Fuel Tanker	○		
23	Cab-back Crane	○		
24	Mobile Workshop	○		
25	Low Bed Semi-trailer with Tractor Head	○		
26	Inspection Vehicle			○
27	Line Marker	○		
28	Asphalt Plant			○
29	Crushing and Screening Plant	○		
30	Desktop Computer		○	
31	Database Software	○		

Table 2-2.12 Country of Procurement for Construction Equipment

No.	Equipment	Procured from		
		Japan	Djibouti	Third Countries
1	Generator (125 kVA)	○		
2	Generator (80 kVA)	○		
3	Generator (20 kVA)	○		
4	Air Compressor (17 kW)	○		
5	Air Compressor (2.2 kW)	○		
6	Arc Welder	○		
7	High Pressure Washer	○		
8	Mechanic Tool Set	○		
9	Starter Generator Tester	○		
10	Tire Changer	○		
11	Cutaway Models and Teaching Aids for Mechanic Training	○		

(2) Implementation Planning Conditions

The following issues should be noted in relation to the work plan:

- When equipment to be procured is transported inland, it may stick out of the body of the transportation vehicle in some cases. The roads in Djibouti are two-lane roads excluding those in Djibouti City and road width is narrow in some sections as the road shoulder was washed out even on national roads that are to be the transportation route of the equipment. When two large vehicles pass each other from opposite directions, one needs to stop temporarily at a place where there is ample width. Thus, it is important to take such safety measures as having a leading car to guide the traffic of vehicles coming from the opposite direction and on the same lane when transporting large equipment.
- Earth and sand deposit on the water crossing section of the dry river when it rains several times a year in the country and it prevents vehicles from crossing it. Thus, it is also important to take such safety measures as having the leading car checking the condition of the water crossing section prior to transporting equipment particularly in the wet season.

2-2-4-3 Scope of Works

The Japanese side will be responsible for the inland transportation of equipment from the port of landing to the ADR facility where the equipment will be handed over, and the Djibouti side will be responsible for transporting equipment from there to each target site. Moreover, the Djibouti side will procure the construction materials and personnel necessary for constructing the target road.

Moreover, Table 2-3.5 shows the detailed scope of works on the Japanese and Djibouti sides.

Table 2-2.13 Scope of Works

No.	Item	Scope		Remarks
		Japan	Djibouti	
1	Securing of storage area for construction and maintenance equipment and expendable parts		○	
2	Securing of site office		○	As the need arises
3	Manufacture and procurement of the Project equipment	○		
4	Inland transportation of the Project equipment	○		Between a manufacturer's factory and a port in Japan
5	Marine transportation, customs clearance and handling of taxes	-	-	
	(1) Responsibility for marine/air transportation of the Project equipment to Djibouti	○		
	(2) Tax exemption and customs clearance at the port of disembarkation		○	
	(3) Inland transportation of the Project equipment from the port of disembarkation to the delivery point	○		
6	Appropriate operation and management of the Project equipment and spare parts		○	
7	Procedures and measures necessary for acquiring the following permits: Registration of equipment ■ Registration of equipment ■ Permits necessary for the passage of heavy vehicles ■ Permission for access to restricted areas ■ Permission for entry by Japanese nationals		○	
8	Assembly and adjustment of construction and maintenance equipment	○		
9	Handover inspection, operation training and maintenance guidance for the Project equipment	○		Djibouti side will secure and assign the personnel to participate in the said training and guidance.
10	Enhancement of such personnel as equipment operators and their allocation to initial operation training		○	
11	Dispatching trainers for soft component	○		
12	Deployment of trainees for soft component		○	
13	Implementation of works for improvement and maintenance of the target roads		○	
14	Bearing all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		○	
15	Bearing the following commissions paid to the Japanese bank for banking services based upon the Banking Arrangement (B/A): ■ Cost of opening an account in a Japanese certified foreign exchange bank ■ Payment commission		○	

Note: "○" Indicates the scope of responsibility regarding each item

2-2-4-4 Consultant Supervision

Based on the Government of Japan's Grant Aid scheme, the Djibouti side will bind an agreement for consulting services with the Consultant that is recommended by JICA and strive to ensure the smooth implementation of a detailed design and procurement supervision.

Moreover, where necessary, it will dispatch specialist engineers to witness the factory inspections and pre-shipment inspections of the Project equipment, and conduct supervision in order to prevent the occurrence of troubles after the equipment has been brought onto sites.

(1) Basic Policy of Consultant Supervision

As the basic policy of supervision, the Consultant will supervise progress of the overall plan to ensure the Project finishes on schedule, and it will conduct supervision and guidance of the procurement agent under cooperation with the Djibouti side to ensure that the quality specified in the contract is secured and the Project is safely implemented.

The major points to bear in mind in the procurement supervision are described as below.

1) Schedule control

The Consultant will compare progress with the implementation schedule decided by the procurement agent in the contract every month or every week in order to adhere to the delivery deadline given in the contract. In cases where delays are predicted, the Consultant will warn the procurement agent, demand the submission and implementation of a plan of countermeasures, and offer guidance to ensure the Project is finished on schedule.

- Confirmation of work performance in manufacture and procurement of the Project equipment
- Confirmation of shipping arrangement and inland transportation methods for transporting the Project equipment
- Confirmation of the assignment of personnel concerned with assembly of the Project equipment and the initial operation training, etc.

2) Quality control

The Consultant will implement supervision to determine whether the quality of the Project equipment stated in the contract documents (technical specifications, approved design drawings, etc.) based on the following items:

In cases where doubts arise over quality, the Consultant will demand that the procurement agent make amendments, revisions or corrections.

- Checking of shop drawings and specifications of the Project equipment
- Attendance of factory inspections of the Project equipment, or checking of factory inspection results
- Checking of packing, transportation and temporary storage methods on site
- Checking of guidelines for trial operation, adjustment and inspection
- Supervision of the site assembly of the Project equipment and witnessing of trial operation,

adjustment and inspection

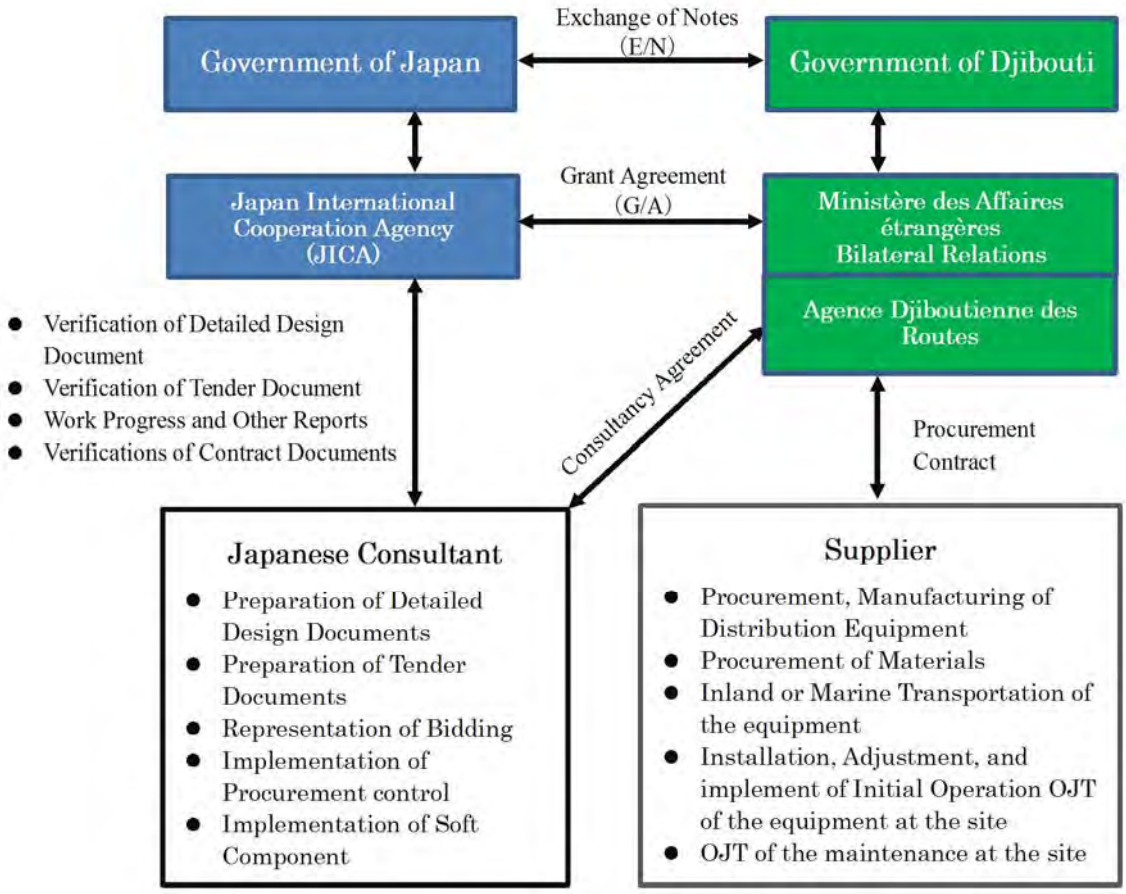
3) Safety control

Discussions will be held and cooperation will be sought with the procurement agent and supervision will be conducted during the Project implementation period in order to prevent the occurrence of industrial accidents or other incidents. Important points to consider in safety control on the ground are as follows.

- Establishment of safety control rules and appointment of safety manager
- Prevention of accidents through inspection of safety devices on work tools and equipment, etc.
- Operation training including safety instructions for safe operation of construction equipment
- Planning of inland transportation routes, enforcement of slow driving and prevention of load collapse
- Wearing of safety gear (helmets, safety shoes, gloves, etc.)

(2) Overall relationships for Project implementation

Figure 2-3.1 shows the relationships between the Project implementing parties including the consultant supervision.



Source: Prepared by the Survey Team

Figure 2-2.7 Project Implementation Relationships

(3) Procurement supervisor

The procurement agent will procure and assemble the construction and maintenance equipment and implement the initial operational guidance, etc. based on the contract with the Djibouti side. It will also conduct schedule control, quality control and safety control during the work, although the Consultant's procurement supervisor will instruct and supervise the procurement agent.

2-2-4-5 Quality Control Plan

The Consultant will implement supervision to determine whether the quality of the Project equipment stated in the contract documents (technical specifications, approved design drawings, etc.) based on the following items:

In cases where doubts arise over quality, the Consultant will demand that the procurement agent make amendments, revisions or corrections.

- Checking of shop drawings and specifications of the Project equipment
- Attendance of factory inspections of the Project equipment, or checking of factory inspection results
- Checking of packing, transportation and temporary storage methods on site
- Checking of guidelines for trial operation, adjustment and inspection
- Supervision of the site assembly of the Project equipment and witnessing of trial operation, adjustment and inspection

2-2-4-6 Procurement Plan

Because the construction and maintenance equipment scheduled for procurement in the Project is not manufactured or produced in Djibouti, equipment made by Japanese manufacturers will be selected. However, since some Japanese equipment and vehicle makers, etc. have suspended domestic manufacturing and transferred their production and manufacturing bases to overseas plants, equipment that have been produced at domestic, overseas plants (Thailand, Brazil, etc.) by Japanese makers or foreign makers (Asphalt plant) will be procured, and the port of lading will be determined appropriately.

Irrespective of the country of procurement, all the procured equipment will have the Government of Japan ODA symbol applied either by paint or by sticker.

2-2-4-7 Operational Guidance Plan

Guidance concerning the initial operation and maintenance of the Project equipment will be conducted in OJT by instructors from manufacturers according to operation and maintenance manuals when handing over the equipment. In order to smoothly advance this guidance plan, ADR will need to conduct close liaison and discussion with the Consultant and equipment procurement agent and appoint specialist engineers to participate in the OJT. The appointed ADR engineers will need to horizontally extend the technology to other employees who couldn't participate in the Project, and thereby cooperate in improving the maintenance capability of ADR Works. Moreover, since expert engineers of makers who possess a certain level of expertise will need to operate and

adjust the procured road construction and maintenance equipment and it will be difficult to utilize local firms for this purpose, it will be necessary to dispatch engineers from Japan to conduct the technical guidance.

2-2-4-8 Soft Component (Technical Assistance) Plan

(1) Background of the Soft Component

The soft component in the Project is provided based on equipment procurement in order to enhance the capacity of the ADR of ① proper operation and maintenance of road maintenance equipment, ② proper maintenance of inspection and maintenance equipment, ③ proper allocation and use of latest maintenance equipment in road improvement, and ④ road maintenance. Reasons for the need for the soft component are described below.

Japan expended grant aid projects to Djibouti to supply construction equipment for road improvement in 1983, 1986, 1992 and 1996. However, the preparatory survey was decided to be performed because there is still much need for the ADR to perform road improvement and maintenance and such equipment needs to be procured.

Existing equipment the ADR owns is managed integratedly at Balbala Compound (in Djibouti City) that is the central equipment operation and maintenance organization and the compound also has workshop for equipment inspection and maintenance on its premises. There are two regional compounds (Dikhil Compound and Tadjoura Compound) under the Balbala Compound and they are responsible for simple road maintenance and equipment maintenance in their jurisdictional area. Balbala Compound is responsible for road maintenance equipment allocation and procurement of equipment and their parts and they are allocated to regional compounds as needed. Although Balbala Compound that is the central organization has introduced computers for entering and dispatching from warehouse of equipment and parts, it has not established a system to accumulate and manage written data. Under the circumstances, it is important to improve the current equipment management system in order to properly manage the maintenance time and spare part replacement time based on equipment operation condition and operation hours so that the road maintenance equipment to be procured in the Project will be operated and maintained efficiently. Although each compound has mechanics and electric engineers in charge of equipment inspection and maintenance at their workshop, their function as the workshop has deteriorated as the facility has become old. The workshop function needs to be improved using inspection and maintenance equipment (alternator, starter tester and mobile workshop) and maintenance and inspection techniques for their sound operation for a long time also need to be acquired in order to ensure the performance of routine maintenance and failure diagnosis and repair of equipment to be procured.

Equipment needs to be allocated properly and proper techniques of equipment operation need to be acquired in accordance with the work contents and procedures for the road maintenance equipment to be procured in the Project to fully exert its latest performance and realize safe and quality road maintenance using the equipment management system described above. In consideration of this, it is very important to conduct pilot works in a section of the target maintenance road for the engineers

of the ADR in charge of the works to improve their works management capacity and skills. The pilot works are effective for training of practical works techniques in accordance with the conditions of the construction site and it is also usable as the place for practical training of the equipment management system. Thus, the personnel in charge of equipment management are expected to improve their skills to continue efficient operation of the system through the pilot works.

The ADR that is responsible for road administration of the country has various problems, which include ① road inspection is not performed regularly, ② no systematic road inspection and maintenance system is established, ③ inspection and repair record is in written document and not in data and thus it is difficult to sum up and search it, and ④ no road facility report including pavement is compiled, and thus no process from the inspection to works completion is established, although it is responsible for maintenance of existing National Route 1 and roads in Djibouti City. Against the backdrop, it is important to create data of road information and system to maintain it at the latest condition in order to promote the compilation of a book of the volume, specifications and assets of structures and attached facilities, understand them correctly and manage the assets efficiently and rationally. Thus, it is necessary to create a system to manage the data integratedly and update information on new construction, inspection and repair work as needed.

(2) Objectives of Soft Component

Against the backdrop described above, objectives listed below are set for the emergence of project effects and sustainability.

Objective ①

Construction equipment to be procured in the Project is efficiently operated and maintained together with existing equipment and spare parts.

Objective ②

Construction equipment to be procured in the Project is properly maintained through the use of inspection and maintenance equipment (alternator starter tester and mobile container workshop) that is also to be procured.

Objective ③

Construction equipment to be procured in the Project is allocated properly for road maintenance and their performance is fully delivered.

Objective ④

Main roads under the jurisdiction of the ADR are maintained systematically and efficiently.

(3) Outcomes of Soft Component

Direct outcomes at the completion of the soft component of the Project are summarized below.

Outcome 1: An equipment management system to control and manage the operation and spare part inventory of equipment to be procured in the Project is created and the employees of the ADR can understand the need and urgency of equipment maintenance and promptly respond to failures by

enhancing a systematic communication structure among compounds.
(Outcome of Objective-1 in "2. Objectives of soft component")

Outcome 2: Proper failure diagnosis is performed with the alternator starter tester and quick maintenance is performed with the mobile container workshop, both of which are to be procured in the Project, to reduce the trouble of construction equipment.
(Outcome of Objective-2 in "2. Objectives of soft component")

Outcome 3: The road construction management capacity of the employees of the ADR is improved and their skills to enable the equipment to be procured in the Project to fully deliver their performance are acquired.
(Outcome of Objective-3 in "2. Objectives of soft component")

Outcome 4: The employees of the ADR understand the importance of systematic routine inspections in road maintenance and it is reflected on maintenance and repair plans based on the accumulation of inspection results.
(Outcome of Objective-4 in "2. Objectives of soft component")

(4) Soft Component Activities

Four items listed below are planned as soft component activities of the Project to achieve the outcomes in (3) above.

Table 2-2.14 Soft Component Activities

Activity Item	Target Organization of Executing Agency	Applicable Outcome
(1) Improvement of equipment management system	Service parc Matériels and Service des Régions, Direction des Travaux	Outcome 1
(2) Equipment inspection and maintenance capacity enhancement	Service parc Matériels and Service des Régions, Direction des Travaux	Outcome 2
(3) Pilot works	Service des Régions and Service parc Matériels, Direction des Travaux	Outcome 3
(4) Enhancement of road maintenance system	Service des Régions, Direction des Travaux	Outcome 4

The soft component of the Project is direct assistance type by the order-receiving consultant for the target organization above and the contents of activities to achieve the outcomes are described in 1) to 4) below.

1) Improvement of equipment management system

Table 2-2.15 Contents of Soft Component Activities
(Improvement of Equipment Management System)

Item	Contents
Objective	Improvement of equipment management system for equipment to be procured in the Project
Place	Balbala Compound (Djibouti City)
Target trainee	Equipment managers and mechanics of Balbala Compound, Dikhil Compound and Tadjoura Compound (total of 15 trainees)
Training aids	- Manual for construction equipment operation record (operation record) * in French - Manual for construction equipment operation and maintenance record (spare part management record) * in French
Equipment to be used	- 2 desktop computers - Management database (general-purpose software)
Activity	The training is carried out in two sessions of practical training and evaluation and follow-up so that trainees will acquire the efficient operation know-how of equipment to be procured over a long time.

2) Equipment inspection and maintenance capacity enhancement

Table 2-2.16 Contents of Soft Component Activities
(Equipment Inspection and Maintenance Capacity Enhancement)

Item	Contents
Objective	Improvement of inspection, diagnosis and maintenance capacity using the equipment to be procured
Place	Balbala Compound (Djibouti City)
Target trainee	Mechanics (mechanics and electric engineers) of Balbala Compound, Dikhil Compound and Tadjoura Compound (total of 15 trainees)
Training aids	- CD aid (hydraulic pressure, electricity and equipment) * in English (French translation attached)
Equipment to be used	- Inspection and maintenance equipment to be procured in the Project (alternator starter tester, and mobile container workshop) - Equipment to be procured in the Project (excavator, cut model and training aids for training)
Activity	The training is carried out in two sessions of practical training and evaluation and follow-up so that trainees will acquire the efficient operation know-how of equipment to be procured over a long time.

3) Pilot works

Table 2-2.17 Contents of Soft Component Activities

Item	Contents
Objective	Improvement of work capacity through the pilot works using the equipment to be procured in the Project and practical utilization capacity of equipment record management system
Place	A 400-meter-long section of target maintenance road
Target trainee	Work team (including equipment operators)
Training aids	- Materials on road work procedures
Equipment to be used	- Road maintenance equipment to be procured in the Project
Activity	The pilot works are to select a 200-meter section of asphalt paving and a 200-meter section of simple paving (DBST) (total of 400 meters) of target roads and execute the works based on the understanding that the works contents of the target roads are the two types of works. It is carried out in two sessions of preparation and on-site work training.

4) Enhancement of road maintenance system

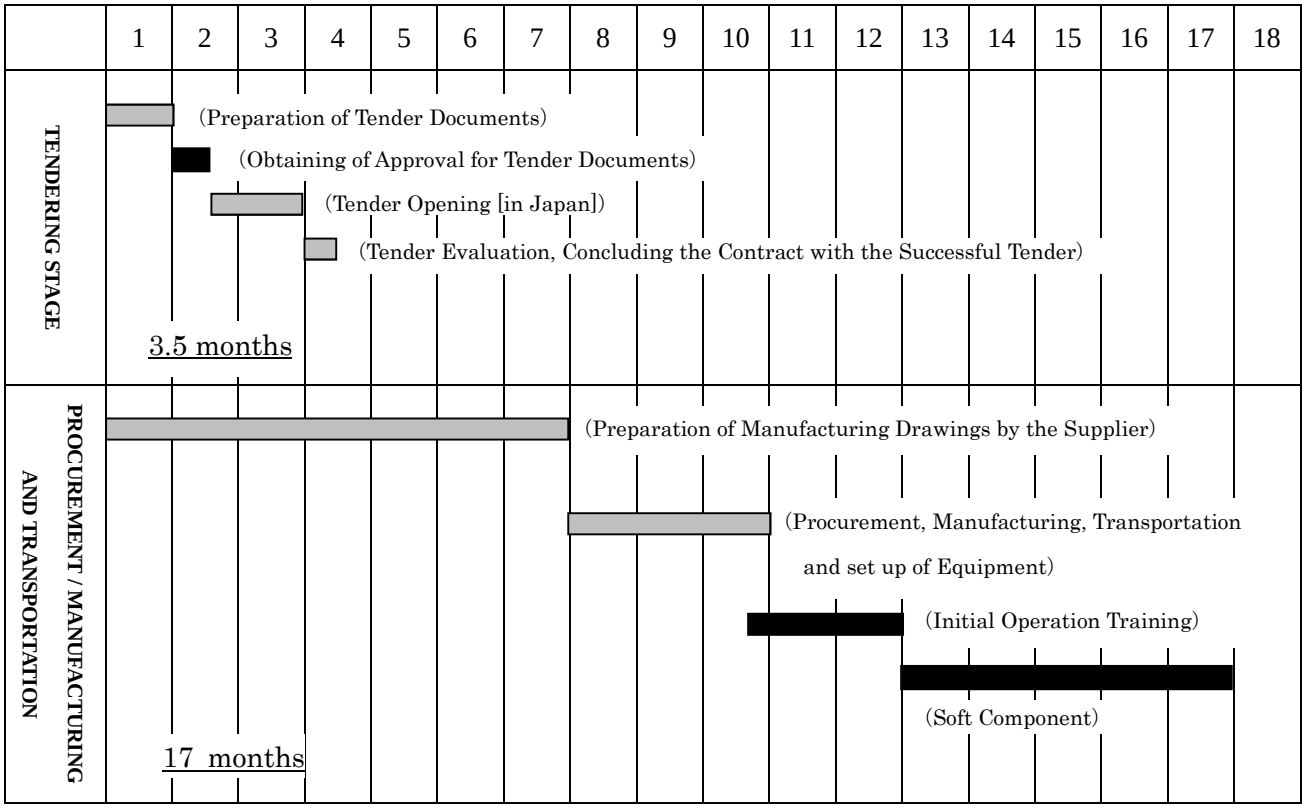
Table 2-2.18 Contents of Soft Component Activities
(Enhancement of Road Maintenance System)

Item	Contents
Objective	Improvement of routine inspection and maintenance capacity of existing roads
Place	Balbala Compound (Djibouti City) National Rt. 1
Target trainee	Work team
Training aids	- Road inspection handbook * in French - Road record and inspection report * in French
Equipment to be used	- Road record and inspection report * in French
Activity	The training includes works in Japan for preparing training aids and practical on-site training.

2-2-4-9 Implementation Schedule

The implementation schedule for the detail design and procurement supervision to be conducted by the Japanese side is set in Table 2-3.11.

Table 2-2.19 Implementation Schedule



2-3 Obligations of Recipient Country

Following the conclusion of the E/N, the Djibouti side will implement the following tasks based on cooperation of the responsible agency and each implementing agency.

- Following conclusion of the E/N, it will immediately open an account with a Japanese bank. Moreover, the Djibouti side will bear any costs incurred in opening the account.
- With respect to Project officials (Japanese and third country nationals), it will take steps to ensure the entry to Djibouti, stay therein and safety.
- It will exempt or bear any tariffs and domestic taxes that would otherwise be levied on the services, equipment and materials and Japanese nationals related to the Project.
- In the case where authorization needs to be secured from government offices, it will apply for and secure the necessary authorization.
- It will secure sites to safely store the equipment and spare parts procured in the Project and implement appropriate operation and maintenance.
- It will secure the budget, personnel and materials needed to conduct the Soft Component.
- It will secure the budget, personnel and materials needed for the target road construction and promptly start work following the handover of equipment.
- In the case where additional road area needs to be secured for constructing and maintaining the target road in the Project, it will certainly secure the necessary land according to Djiboutian laws to ensure that the works can be started without delay.
- It will operate and surely maintain the roads that are constructed under Japan's Grant Aid.
- It will bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project.

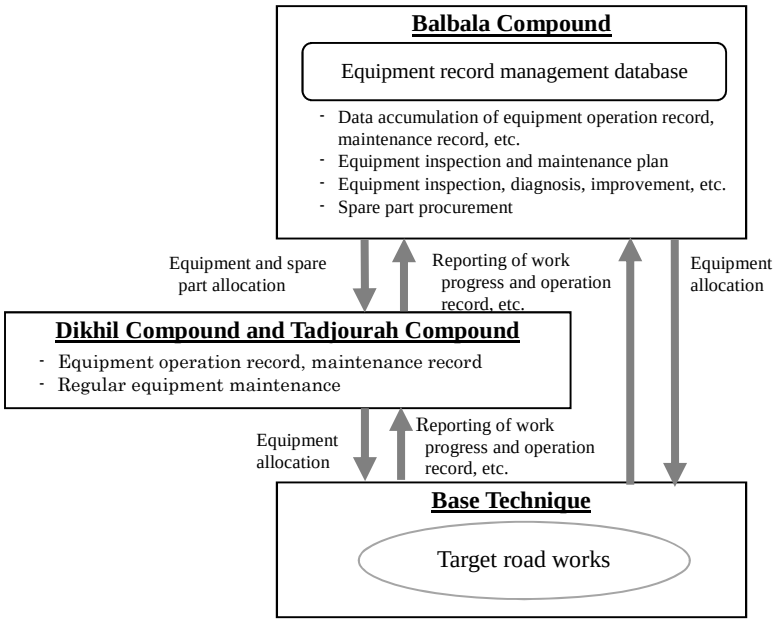
ADR, the implementing agency, has the capacity to allocate budget and personnel to conduct road construction and maintenance following the handover of equipment. Moreover, since it has been confirmed in site survey that the storage site for the procured equipment has already been secured, it is deemed that the Djibouti side can fulfill its obligations.

2-4 Project Operation and Maintenance Plan

The target road improvement and maintenance is led by the Direction des Travaux of the ADR after the delivery of equipment to be procured in the Project. Personnel in charge of works shall communicate and report the routine operation record of the road maintenance equipment and work progress to their senior officers as needed.

Balbala Compound that integratedly manages the equipment of the ADR is responsible for the operation and maintenance of road maintenance equipment to be procured in the Project. Compound employees in charge of equipment management shall receive the report on regular operation record of road maintenance equipment from each compound (Dikhil and Tadjoura) and accumulate it as data in equipment record database to be introduced as a project soft component. Balbala Compound will properly understand when equipment inspection and maintenance is performed based on various records in the database and operate and maintain equipment efficiently, which includes preparation of a right amount of spare part inventory. Spare parts can be purchased from local agents, etc.

Figure 2-5.1 gives the communication and reporting structure about above-mentioned equipment operation and maintenance.



Source: Prepared by the Survey Team

Figure 2-4.1 Operation and Maintenance Structure of Executing Agency

Proper operation and maintenance of the equipment to be procured in the Project by the ADR requires workforce in accordance with its scale. The Direction des Travaux of the agency owns a total of 33 units of construction equipment (7 of them are portable) and it requires a total of 37 workers: 21 vehicle drivers and 16 operators of construction machines (as of August 2015). Meanwhile, the main equipment to be procured in the Project is estimated to require the workforce in Table 2-5.1. Thus, the agency needs to hire additional drivers and operators and have them

acquire knowledge and skills through the initial operation training and soft component to be provided in the Project before the delivery of equipment to be procured (by around October 2017).

Table 2-4.1 Necessary Drivers and Operators

No.	Name of Equipment	Number of machines (e)	Personal needed (p.)
1	Bulldozer (crawler)	2	2
2	Excavator (Crawler)	3	3
3	Hydraulic Breaker	2	-
4	Motor Grader	3	3
5	Wheel Loader	3	3
6	Vibratory Combined Roller	3	3
7	Vibratory Tandem Roller	1	1
8	Tire Roller	1	1
9	Hand-guided Vibratory Roller	3	-
10	Plate Compactor	3	-
11	Rammer	3	-
12	Asphalt Cutter	3	-
13	Asphalt Finisher	1	1
14	Bitumen Distributor	1	1
15	Chip Spreader	1	-
16	Asphalt Hand Sprayer	3	-
17	Asphalt Burner (Torch)	3	-
18	Concrete Mixer (0.8 m^3)	2	2
19	Concrete Mixer (0.5 m^3)	2	2
20	Water Bowser	4	4
21	Dump Truck	15	15
22	Fuel Tanker	1	1
23	Cab-back Crane	2	2
24	Mobile Workshop	2	2
25	Low Bed Semi-trailer with Tractor Head	1	1
26	Inspection Vehicle	3	-
27	Line Marker	3	-
28	Asphalt Plant	1	5
29	Crushing and Screening Plant	1	3
		Total	55

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

(1) Cost Japan needs to bear

This chapter is closed due to the confidentiality.

(2) Cost Djibouti needs to bear

The cost to be borne by the Government of Djibouti is listed below.

Approximately USD 92,000

Item		Cost Amount（USD）
Preparation for the delivery of equipment	Securing equipment yards and a storage for spare parts	2,000
	Securing workshop facilities for workshop equipment	20,000
Soft Component	Pilot road construction	60,000
Commissions to the bank based on Banking Arrangement		10,000

The Djibouti side is supposed to provide the budget of approximately USD 4.8 million in order to implement the target roads construction and maintenance in the year 2018 to 2020. In addition, the Djibouti side secures employment costs to increase operators needed before the delivery of equipment.

(3) Estimation conditions

1. Time of estimation : September 2015
2. Exchange rate : 1 US dollar = 124.40 yen
3. Procurement period : The procurement period is in accordance with the implementation schedule in “2-2-4-9 Implementation Schedule.”
4. Miscellaneous : The cost is estimated based on the grant aid scheme of the Government of Japan.

2-5-2 Operation and Maintenance Cost

It is essential for the ADR to maintain the construction equipment to be procured in the Project sustainably for its efficient operation by Djibouti. Thus, its government needs to allocate a necessary budget based on an efficient operation and maintenance plan and properly maintain it. The equipment maintenance and fuel cost to be borne by Djibouti is described below.

(1) Equipment maintenance cost

The annual maintenance cost (regular maintenance and on-site repair, etc.) for the road maintenance equipment to be procured in the Project is estimated to be 2,837,550 Djibouti francs in the target road maintenance period of approx. three years after its delivery (See Table 2-5.1). This is mainly the cost of improvement and maintenance with the spare parts (some 3,000 hours of operation) to be

procured in the Project and it is equivalent to 1.8 percent of the equipment purchase and actual annual average maintenance cost for the last three years of the ADR. The agency needs to properly inject the maintenance budget.

Table 2-5.1 Estimated Equipment Maintenance Cost

	Name of Equipment	Estimated Value of Equipment (DJF) (a)	Machine's life span (years) (b)	Mainte. cost Rate (in life span) (%) (c)	Av. mainte. cost/year (DJF) (d) = equipment price×(c/100)÷b	Number of machines (e)	Maintenance costs for equipment in initial 3 years		
							Cost rate (%) (f)	Cost/unit (DJF) (g) = d×(f/100)	Annual expenditure (DJF) (h) = e×g
1	Bulldozer (crawler)	82,431,000	10	50	4,121,550	2	5	206,078	412,155
2	Excavator (Crawler)	32,972,400	10	40	1,318,896	3	5	65,945	197,834
3	Hydraulic Breaker	2,722,140	7.5	25	90,738	2	5	4,537	9,074
4	Motor Grader	4,204,620	11	35	133,783	3	5	6,689	20,068
5	Wheel Loader	31,950,000	10	60	1,917,000	3	5	95,850	287,550
6	Vibratory Combined Roller	19,766,400	13	30	456,148	3	5	22,807	68,422
7	Vibratory Tandem Roller	8,156,480	13	30	188,226	1	5	9,411	9,411
8	Tire Roller	14,995,200	15	40	399,872	1	5	19,994	19,994
9	Hand-guided Vibratory Roller	1,363,200	13	30	31,458	3	5	1,573	4,719
10	Plate Compactor	156,200	6	50	13,017	3	5	651	1,953
11	Rammer	269,800	6	40	17,987	3	5	899	2,698
12	Asphalt Cutter	191,700	11	40	6,971	3	5	349	1,046
13	Asphalt Finisher	43,736,000	11	40	1,590,400	1	5	79,520	79,520
14	Bitumen Distributor	16,805,700	11	50	763,895	1	5	38,195	38,195
15	Chip Spreader	4,907,520	7	50	350,537	1	5	17,527	17,527
16	Asphalt Hand Sprayer	757,712	7	50	54,122	3	5	2,706	8,118
17	Asphalt Burner (Torch)	98,832	11		0	3	5	0	0
18	Concrete Mixer (0.8 m^3)	9,156,160	10	80	732,493	2	5	36,625	73,249
19	Concrete Mixer (0.5 m^3)	5,680,000	10	80	454,400	2	5	22,720	45,440
20	Water Bowser	12,309,511	12	40	410,317	4	5	20,516	82,063
21	Dump Truck	12,652,626	10	50	632,631	15	5	31,632	474,473
22	Fuel Tanker	13,009,117	12	40	433,637	1	5	21,682	21,682
23	Cab-back Crane	15,336,000	12	30	383,400	2	5	19,170	38,340
24	Mobile Workshop	33,115,224	12	50	1,379,801	2	5	68,990	137,980
25	Low Bed Semi-trailer with Tractor Head	31,835,946	12	50	1,326,498	1	5	66,325	66,325
26	Inspection Vehicle	4,098,234	12	40	136,608	3	5	6,830	20,491
27	Line Marker	1,965,280	11	45	80,398	3	5	4,020	12,060
28	Asphalt Plant	221,516,592	10	40	8,860,664	1	5	443,033	443,033
29	Crushing and Screening Plant	115,406,950	13	55	4,882,602	1	5	244,130	244,130
	Estimated annual expenditure for machinery maintenance in initial three years								2,837,550
	Average annual expenditure for machinery maintenance in ADR (for the last four years , 2012-2015)								159,408,351
	The rate of increase in expenditure for machinery maintenance based on the average annual expenditure for last three years (%)								1.8

Exchange rate: 1 US dollar - 177.7 Djibouti francs (as of August 2015)
Source: Prepared by the Survey Team

The ADR also needs to procure additional spare parts continuingly during the useful life of the equipment after the parts to be procured in the Project are all used and it needs to perform proper maintenance including heavy maintenance. The annual maintenance cost after the use of spare parts for some 3,000 hours of operation mentioned above is estimated to be 37,442,748 Djibouti francs (See Table 2-5.2).

Table 2-5.2 Estimated Maintenance Cost Three Years after Delivery

	Name of Equipment	Parts supply throught the Project	Periodic maintenance cost rate of the Project	Average maintenance cost/year from 3 years after until the end of service life	Average maintenance cost/year until end of service life
				(m) = (c-j-k)÷(b-3)	(DIF)
		(j) (%)	(k) = 5 ×3 (%)	(%)	(n) =equipment price×e×(m/100)
1	Bulldozer (crawler)	10	15	3.6	5,887,929
2	Excavator (Crawler)	10	15	2.1	2,119,654
3	Hydraulic Breaker	10	15	0.0	0
4	Motor Grader	10	15	1.3	157,673
5	Wheel Loader	10	15	5.0	4,792,500
6	Vibratory Combined Roller	10	15	0.5	296,496
7	Vibratory Tandem Roller	10	15	0.5	40,782
8	Tire Roller	10	15	1.3	187,440
9	Hand-guided Vibratory Roller	3	15	1.2	49,075
10	Plate Compactor	3	15	10.7	49,984
11	Rammer	3	15	7.3	59,356
12	Asphalt Cutter	3	15	2.8	15,815
13	Asphalt Finisher	10	15	1.9	820,050
14	Bitumen Distributor	10	15	3.1	525,178
15	Chip Spreader	3	15	8.0	392,602
16	Asphalt Hand Sprayer	3	15	8.0	181,851
17	Asphalt Burner (Torch)				0
18	Concrete Mixer (0.8 m^3)	5	15	8.6	1,569,627
19	Concrete Mixer (0.5 m^3)	5	15	8.6	973,714
20	Water Bowser	10	15	1.7	820,634
21	Dump Truck	10	15	3.6	6,778,193
22	Fuel Tanker	10	15	1.7	216,819
23	Cab-back Crane	10	15	0.6	170,400
24	Mobile Workshop	10	15	2.8	1,839,735
25	Low Bed Semi-trailer with Tractor Head	10	15	2.8	884,332
26	Inspection Vehicle	10	15	1.7	204,912
27	Line Marker	3	15	3.4	198,985
28	Asphalt Plant	10	15	2.1	4,746,784
29	Crushing and Screening Plant	10	15	3.0	3,462,209
		Annual maintenance cost after the achievment of the Project (Estimation)			37,442,728
		Ratio (%) of repair and maintenance cost of equipment supplied on annual average equipement repair and maintenance cost of Bureau of Public Roads			23.49

Exchange rate: 1 US dollar - 177.7 Djibouti francs (as of August 2015)
Source: Prepared by the Survey Team

As shown in the above table, the annual maintenance cost until the end of the useful life is approx. 23 percent of the equipment maintenance budget of the last three years and thus it should be sufficiently affordable. The ADR needs to secure the budget for proper operation and maintenance of equipment to be procured and for steady promotion of target road improvement.

In the Soft Component of the Project, it is planning the introduction of database to the management of construction equipment in the ADR, in order to improve its capacity to administer operation and maintenance of construction equipment properly and efficiently. Management of machines' operation control and maintenance/repair management, as well as spare parts stock control can be easily, efficiently and systematically performed by using database to unitarily manage each

machine's data (inventory, operation, maintenance/repair, and parts control data). The introduction of database will enable the ADR to estimate the time of heavy repair (engine overhaul etc.) for each machine, and to make a plan for procurement of spare parts, and to secure budget allocation for equipment maintenance.

(2) Fuel Cost

The fuel cost required for the construction of roads directly operated by the ADR is provided in Table 2-5.3. The agency needs to secure the budget to promote target road improvement and maintenance more steadily using the equipment to be procured.

Table 2-5.3 Estimated Fuel Cost for Target Road Maintenance

	Name of Equipment	Engine Output (kW) (a)	Fuel Consumption Rate (ℓ/kW·h) (b)	Fuel Consumption Rate (ℓ/h) (c) = a×b	Working Hrs. (hrs./year) (d)	Number of Machines (e)	Fuel Consumption (ℓ/year) (f) = c×d×e	Fuel Price (DJF/ℓ) (g)	Fuel Costs/year (DJF×1000) (h) = f ×g
1	Bulldozer (crawler)	230	0.175	40.3	1250	2	100,625	195	19,622
2	Excavator (Crawler)	120	0.175	21.0	1250	3	78,750	195	15,356
3	Hydraulic Breaker					2			
4	Motor Grader	130	0.133	17.3	1250	3	64,838	195	12,643
5	Wheel Loader	115	0.153	17.6	1250	3	65,981	195	12,866
6	Vibratory Combined Roller	80	0.152	12.2	750	3	27,360	195	5,335
7	Vibratory Tandem Roller	19	0.152	2.9	400	1	1,155	195	225
8	Tire Roller	65	0.100	6.5	400	1	2,600	195	507
9	Hand-guided Vibratory Roller	4.0	0.201	0.8	400	3	965	195	188
10	Plate Compactor	1.5	0.301	0.5	300	3	406	301	122
11	Rammer	1.5	0.301	0.5	100	3	135	301	41
12	Asphalt Cutter	2.5	0.227	0.6	300	3	511	301	154
13	Asphalt Finisher	90	0.152	13.7	150	1	2,052	195	400
14	Bitumen Distributor	115	0.090	10.4	100	1	1,035	195	202
	(Sub Engine)	10	0.090	0.9	300	1	270	195	53
15	Chip Spreader	2.5	0.185	0.5	200	1	93	301	28
16	Asphalt Hand Sprayer	2.5	0.040	0.1	600	3	180	301	54
17	Asphalt Burner (Torch)					3			
18	Concrete Mixer (0.8 m^3)	7.5	0.495	3.7	500	2	3,713	195	724
19	Concrete Mixer (0.5 m^3)	5	0.495	2.5	500	2	2,475	195	483
20	Water Bowser	150	0.040	6.0	2000	4	48,000	195	9,360
21	Dump Truck	190	0.050	9.5	2000	15	285,000	195	55,575
22	Fuel Tanker	150	0.040	6.0	2000	1	12,000	195	2,340
23	Cab-back Crane	190	0.050	9.5	500	2	9,500	195	1,853
24	Mobile Workshop	200	0.050	10.0	500	2	10,000	195	1,950
25	Low Bed Semi-trailer with Tractor Head	275	0.075	20.6	800	1	16,500	195	3,218
26	Inspection Vehicle	70	0.047	3.3	700	3	6,909	195	1,347
27	Line Marker					3			
28	Asphalt Plant	200	0.170	34.0	250	1	8,500	195	1,658
29	Crushing and Screening Plant	200	0.170	34.0	1250	1	42,500	195	8,288
							Estimated annual expenditure for fuel		154,591

Exchange rate: 1 US dollar - 177.7 Djibouti francs (as of August 2015)
Fuel price per liter: light oil: 195 Djibouti francs; gasoline: 301 Djibouti francs (as of August 2015)
Source: Prepared by the Survey Team

CHAPTER 3

PROJECT EVALUATION

Chapter 3 Project Evaluation

3-1 Preconditions

Djibouti is required to perform the following for the project implementation:

- To ensure import tax exemption, customs clearance and smooth domestic transportation of the provided equipment.
- To bear customs duties, domestic taxes and other fiscal levies which may be imposed in Djibouti with respect to the purchase of the products.
- To take legal measures necessary for Japanese citizens to be engaged in the Project enter Djibouti and stay there.
- To ensure proper operation and maintenance of provided equipment.
- To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project.
- To bear banking service fees for the bank account to be opened in Japan in relation to the Project

3-2 Necessary Inputs by Recipient Country

The Government of Djibouti shall be responsible for the following items to achieve the overall plan of the Project:

- To secure the place of delivery of equipment (preparation for workshop facility).
- To secure spare part storage.
- To launch road improvement works of target roads swiftly after equipment procurement.
- Domestic transportation of equipment to construction sites of the above target roads
- Allocation of engineers and operators necessary for the above road improvement work
- To acquire land for road necessary for the above road improvement works
- Proper operation and maintenance (O&M) of equipment to be procured in the Project and allocation of engineers necessary for it
- Proper and sustainable operation of equipment (desktop computer) procured for the Soft Component of the Project and equipment control system acquired in it
- Road improvement plan considering commuting students and other passers-by
- Sufficient explanation to local residents about the road improvement schedule and matters to which attention should be paid when implementing road improvement work

3-3 External Conditions

Border disputes occurred between Djiboutian and Eritrean forces in 1990 and 2008. However, there is no special move and the country is in stable condition. US and French forces and Japanese

self-defense forces are stationed as antipiracy measures and warships of Germany, Italy and other Western countries call at the port frequently as a weight.

A civil war broke out in 1991 in Djibouti among ethnic groups and it ended in 2001. The Afar mainly resides in the northern region and the Somali-Issa mainly live in the southern region. However, the President is elected directly by the citizens and members of the National Assembly members are elected from each region to maintain national uniformity and the nation is currently in stable condition. No survey about the ethnicity is conducted in demographic statistics. However, as the presidential election is planned in April 2016, attention needs to be paid to confusion to be caused by it, personnel reshuffle and handling of necessary inputs by the recipient country in the case of regime change.

3-4 Project Evaluation

3-4-1 Relevance

Japan has established the following key assistance areas for Djibouti to achieve the overall goal of contributing to the enhancement of the foundation of regional stability and economic society:

Ⅰ. Economic and social infrastructure development for sustainable development
Ⅱ. Capacity building to support economic and social development
Ⅲ. Promotion of efforts for regional stability

The Project is deemed to harmonize with Japan's policy for assistance to Djibouti, meeting the requirement of the above Ⅰ. In addition, as the technical training included in the soft component of this Project will contribute to developing capacity of personnel for management and maintenance of equipment, it meets the above Ⅱ, as well.

Among the target roads, RN1 is ranked as the most important by the Djibouti Government demanding stable trade with Ethiopia. Other national roads are regarded as important by both central and regional governments as they contribute to stable logistic network connecting major cities in the country. As for Djibouti City Roads, improvement and maintenance of main roads is needed to mitigate recent increasing congestion and to enhance serviceability.

As such, improvement and maintenance of the target roads is urgent and prioritized by the Djibouti Government, hence it is concluded that the Project is relevant.

3-4-2 Effectiveness

(1) Quantitative effects

Expected quantitative effects of the road improvement works in the Project are summarized in the table below.

Table 3-4.1 Quantitative Effects of Road improvement

	Road	Length of Targeted Section	Indicator-1			Indicator-2		
			Indicator	Current Value (Year 2015)	Target Value (Year 2020)	Indicator	Current Value (Year 2015)	Target Value (Year 2020)
1	RN1 (Dikhil to Galafi)	100 km	Targeted Length	-	-	Averaged Vehicle Speed not in congested condition	45 km/hour	60 km/hour
2	RN9 (RN1PK51 to Tadjoura)	123 km		-	-		40 km/hour	60 km/hour
3	RN12 (RN9 to Day)	21 km		0 km	21 km		25 km/hour	40 km/hour
4	RN16 (RN14 to Gorriliyita)	40 km		0 km	40 km		30 km/hour	50 km/hour
5	Djibouti City Road	1.4 km		0 km	1.4 km		15 km/hour	30 km/hour

(2) Qualitative effects

Expected qualitative effect as the result of road improvement by this Project is summarized in the table below.

Table 3-4.2 Qualitative Effects of Road Improvement

Current Status and Problems	Countermeasures to be Taken under the Project	Effect and Degree of Improvement
1. RN1 (Dikhil -- Galafi) RN1 is the international freight route connecting the inland East African countries and Djibouti port. The target section is important, as well, for the people in Dikhil to be transferred to Djibouti for emergency medical care. Although traffic runs smoothly in general now as ADR makes effort to repair damaged parts, deterioration is observed in a wide range. There is a risk of disruption of traffic if maintenance and repair is not exercised soon.	Not to mention repairing pot holes, it is necessary to replace pavement where cracks spread before it is completely broken and to restore lost shoulders. Appropriate equipment will be provided for those works.	To maintain the freight traffic on RN1, which is one of Djibouti's financial foundations. At the same time the maintenance of RN1 will secure stable transportation of goods between various areas in Dikhil Region and Dikhil City and Djibouti City as well as access to emergency medical care.
2. RN 9 (RN1PK51 – Tadjoura) RN9 is important in that it connects in one line. Obock, Tadjoura, Arta and Djibouti City in conjunction with RN14 and RN1. RN9 is vital for the people living in rural areas to receive goods from Djibouti City	To provide equipment for earth works such as slope cutting, removal of earth and reforming wajis in addition to the equipment for repairing pavement to secure traffic.	Based on one of the national policies to develop districts impartially, Djibouti is proceeding projects such as Tadjoura - Ethiopia Road, Tadjoura Port and Salt Port. New airport and resort are planned to be developed in Obock. Securing the traffic

Current Status and Problems	Countermeasures to be Taken under the Project	Effect and Degree of Improvement
and to transfer emergency patients to Djibouti City. Although traffic runs smoothly in general at present, there are landslides in mountainous area and covering up with earth and stones where the road crosses wajis, disrupting traffic in rainy seasons.		connecting districts has a key role for development of Djibouti as a whole. The road will also secure transportation of goods between Djibouti City and Obock, Tadjoura, Arta regions and emergency access to medical treatment.
3. RN12 RN12 from the junction with RN9 climes up to the summer resort of Day whose elevation is 1,700m above the sea. Day is popular among tourists with abundant nature and good tourist spots. The access, however, is inconvenient because the road is steep and unpaved.	Pave the road with DBST.	Improvement of the access will increase the number of visitors and contribute to regional economical enhancement.
4. RN16 (RN14 -- Gorriliyita) There are villages inland Obock along RN16. The area, however, remains undeveloped due to lack or improved road.	Level the road for cars for smoother travel.	To realize easier supply of backup materials to nomads living inland and help them sell products in Obock City, although it is in a small quantity.
5. Djibouti City Road Breakage in pavement is observed here and there in the city, which in some areas prevents bus traffic which is the main means of transport for general citizens.	Introduce smaller construction machines suitable for city road maintenance to promote repair work of city road.	Convenience will be promoted by increased traffic volume and living environment along the road will be improved by reduced dust.

Judging from the analysis presented in this chapter 3 Project Evaluation, it is concluded that this Project relevant and is expected to be effective.

APPENDICES

APPENDIX 1

MEMBER LIST OF THE STUDY TEAM

1. Member List of the Study Team

【First Field Survey】

Name	Work Assignment	Position
Hiroyuki OGINO	Mission Leader	Japan International Cooperation Agency (JICA)
Masayuki FURUKAWA	Sub Leader / Planning Management	Japan International Cooperation Agency (JICA)
Isao TAKAHASHI	Chief Consultant / Road Planner	Yachiyo Engineering Co., Ltd.
Masatsugu KOMIYA	Deputy Chief Consultant / Implementation Planner	Yachiyo Engineering Co., Ltd.
Kazuaki NEMOTO	Equipment Arrangement Planner	Yachiyo Engineering Co., Ltd.
Etsuo HASHIGUCHI	Equipment Planner	Yachiyo Engineering Co., Ltd.
Makoto SUGIYAMA	Maintenance Planner	Yachiyo Engineering Co., Ltd.
Susumu TANAKA	Social Surveyor	Yachiyo Engineering Co., Ltd.
Toshihiko AIZAWA	Procurement / Cost Estimator	Yachiyo Engineering Co., Ltd.
Kiyohito HOSAKA	Interpreter (French)	Yachiyo Engineering Co., Ltd.

【**Second Field Survey**】

Name	Work Assignment	Position
Hiroyuki OGINO	Mission Leader	Japan International Cooperation Agency (JICA)
Masayuki FURUKAWA	Sub Leader / Planning Management	Japan International Cooperation Agency (JICA)
Isao TAKAHASHI	Chief Consultant / Road Planner	Yachiyo Engineering Co., Ltd.
Kazuaki NEMOTO	Equipment Arrangement Planner	Yachiyo Engineering Co., Ltd.
Etsuo HASHIGUCHI	Equipment Planner	Yachiyo Engineering Co., Ltd.
Koji MASUDA	Safety Management	Yachiyo Engineering Co., Ltd.
Kiyohito HOSAKA	Interpreter (French)	Yachiyo Engineering Co., Ltd.

APPENDIX 2

STUDY SCHEDULE

First Field Survey Schedule

Day	Date		JICA		Chief Consultant / Road Planner	Deputy Chief Consultant / Implementation Planner	Equipment Arrangement Planner	Equipment Planner	Maintenance Planner	Social Surveyor	Procurement / Cost Estimator	Interpreter (French)	Accomodation
			Mission Leader	Sub Leader / Planning Management									
			Hiroyuki OGINO	Masayuki FURUKAWA	Isao TAKAHASHI	Masatsugu KOMIYA	Kazuaki NEMOTO	Etsuo HASHIGUCHI	Makoto SUGIYAMA	Susumu TANAKA	Toshihiko AIZAWA	Kiyohito HOSAKA	
1	28-Jul-15	Tue	—	・Trip by air : [Narita (10:05) TK0051 → Djibouti (5:05 on 29/Jul)]									Airplane
2	29-Jul-15	Wed	・Djibouti (10:15) ET362	・Djibouti [(5:05) TK0686]									Djibouti
			・Courtesy call on JICA Djibouti Office ・Meeting with Road Department (MET; Ministry of Equipment and Transport) discussion on Inception Report										
3	30-Jul-15	Thu	・Meeting with Ministry of Foreign Affairs ・Field Survey at Balbala Compund ・Meeting with Foreign Minister				・Field Survey at Balbala Compund ・Field Survey at PK12 Asphalt Plant					・Same as Chief cosultant	Djibouti
4	31-Jul-15	Fri	・Field Survey (Route 9)		・Classification of materials collected ・Team Meeting	・Same as Mission Leader	・Field Survey at Balbala Compund			・Classification of materials collected			Djibouti
5	1-Aug-15	Sat	・Field Survey (Route 1) to the border with Ethiopia							・Meeting with Director General	・Same as Chief cosultant		Djibouti
6	2-Aug-15	Sun	・Field Survey (Route 4 / Route 9, Tadjoura Compound)							・Meeting with Director General ・Social Survey	・Same as Chief cosultant		Djibouti
7	3-Aug-15	Mon	・Meeting with Road Department (MET; Ministry of Equipment and Transport) discussion on M/D							・Same as Chief cosultant ・Social Survey	・Same as Chief cosultant		Djibouti
8	4-Aug-15	Tue	・Signing of M/D ・Visit to JICA Djibouti Office, report of M/D				・Same as Chief cosultant ・Interview to Contractor			・Same as Chief cosultant ・Social Survey	・Same as Chief cosultant		Djibouti
9	5-Aug-15	Wed	・Visit to Embassy of Japan in Djibouti, report of M/D				・Classification of materials collected			・Social Survey	・Classification of materials collected	・Same as Chief cosultant	Djibouti
			・Trip by air : [Djibouti (11:00) ET363]	・Visit to Training center, Field Survey (Route 2 / Route 5)							・Same as Chief cosultant		
10	6-Aug-15	Thu	—	・Field Survey (PK12 Asphalt Plant, Arta road)						・Social Survey	・Same as Chief cosultant		Djibouti
11	7-Aug-15	Fri	—	・Trip by air : [Djibouti (12:10) TK0687 → Narita]	・Team Meeting ・Classification of materials collected								Djibouti
12	8-Aug-15	Sat	—	・Narita [(18:30) TK0052]	・Meeting with Direction des Etudes			・Survey for Procurement	・Field Survey (Balbala Compund)	・Social Survey	・Survey for Procurement	・Same as Chief cosultant	Djibouti
13	9-Aug-15	Sun	—	—	・Meeting with Direction des Etudes ・Visit to Embassy of Japan in Djibouti		・City road survey	・Interview to Contractor	・Field Survey (Balbala Compund)	・Social Survey	・Interview to Contractor	・Same as Chief cosultant	Djibouti
14	10-Aug-15	Mon	—	—	・Djibouti→Dikhil (by car) ・Field Survey (Route 1, Dikhil Compund)	・Trip by air : [Djibouti (12:10) TK0687 → Narita]	・Same as Chief cosultant			・Field Survey (Route 1) ・Social Survey	・Same as Chief cosultant		Dikhil
15	11-Aug-15	Tue	—	—	・Field Survey (Route 1)	・Narita [(18:30) TK0052]	・Same as Chief cosultant		・Field Survey (Dikhil Compund)	・Social Survey	・Same as Chief cosultant	・Same as Social Surveyor	Dikhil
16	12-Aug-15	Wed	—	—	・Field Survey (Route 1 / Route 8)	—	・Same as Chief cosultant						Tadjoura
17	13-Aug-15	Thu	—	—	・Field Survey (Route 11 / Route 12)	—	・Same as Chief cosultant		・Field Survey (Tadjoura Compund)	・Social Survey	・Same as Chief cosultant	・Same as Social Surveyor	Tadjoura
18	14-Aug-15	Fri	—	—	・Team Meeting ・Classification of materials collected	—	・Same as Chief cosultant			・Social Survey	・Same as Chief cosultant	・Same as Social Surveyor	Tadjoura
19	15-Aug-15	Sat	—	—	・Field Survey (Route 14 / 15 / 16)	—	・Same as Chief cosultant						Tadjoura
20	16-Aug-15	Sun	—	—	・Field Survey (Route 9 / 10 / 1)	—	・Same as Chief cosultant			・Social Survey	・Same as Chief cosultant	・Same as Social Surveyor	Djibouti
21	17-Aug-15	Mon	—	—	・Meeting with Director General	—	・Same as Chief cosultant	・Survey for Procurement	・Field Survey at PK12 Asphalt Plant	・Social Survey	・Survey for Procurement	・Field Survey at PK12 Asphalt Plant	Djibouti
22	18-Aug-15	Tue	—	—	・City road survey ・Meeting with Director General	—	・Same as Chief cosultant	・Field Survey (Balbala Compund) ・Meeting with Director General	・Field Survey (Balbala Compund)	・Social Survey	・Same as Chief cosultant	・Same as Chief cosultant	Djibouti
23	19-Aug-15	Wed	—	—	・Preparation of Field Report ・Meeting with Director General	—	・City road survey ・Meeting with Director General	・Field Survey at PK12 Asphalt Plant	・Field Survey (Balbala Compund)	・Social Survey ・Meeting with Director General	・City road survey ・Meeting with Director General		Djibouti
24	20-Aug-15	Thu	—	—	・Preparation of Field Report	—	・Preparation of Field Report			・Social Survey	・Classification of materials collected	・Same as Social Surveyor	Djibouti
25	21-Aug-15	Fri	—	—	・Preparation of Field Report	—	・Preparation of Field Report						Djibouti
26	22-Aug-15	Sat	—	—	・Preparation of Field Report	—	・Preparation of Field Report			・Social Survey	・Survey for Procurement	・Same as Social Surveyor	Djibouti
27	23-Aug-15	Sun	—	—	・Meeting with Director General	—	・Same as Chief cosultant		・Field Survey (Balbala Compund)	・Preparation of Field Report		・Same as Chief cosultant	Djibouti
28	24-Aug-15	Mon	—	—	・Visit to JICA Djibouti Office, report of survey ・Meeting with Director General	—	・Same as Chief cosultant		・Visit to JICA Djibouti Office, report of survey ・Preparation of Field Report			・Same as Chief cosultant	Djibouti
29	25-Aug-15	Tue	—	—	・City road survey ・Meeting with Director General	—	・Same as Chief cosultant		・Trip by air : [Djibouti (12:10) TK0687 → Narita]		・Survey for Procurement ・Interview to Contractor	・Same as Chief cosultant	Djibouti
30	26-Aug-15	Wed	—	—	・Meeting with Road Department (MET) discussion on Field Report ・Preparation of Field Survey Report (Draft)	—	・Same as Chief cosultant		・Narita [(18:30) TK0052]		・Same as Chief cosultant		Djibouti
31	27-Aug-15	Thu	—	—	・Preparation of Field Survey Report (Draft)	—	・Same as Chief cosultant		—		・Same as Chief cosultant		Djibouti
32	28-Aug-15	Fri	—	—	・Preparation of Field Survey Report (Draft)	—	・Same as Chief cosultant		—		・Same as Chief cosultant		Djibouti
33	29-Aug-15	Sat	—	—	・Preparation of Field Survey Report (Draft)	—	・Same as Chief cosultant		—		・Same as Chief cosultant		Djibouti
34	30-Aug-15	Sun	—	—	・Visit to Embassy of Japan in Djibouti, report of survey	—	・Same as Chief cosultant		—		・Same as Chief cosultant		Djibouti
35	31-Aug-15	Mon	—	—	・Trip by air : [Djibouti (12:10) TK0687 → Narita]	—	・Trip by air : [Djibouti (12:10) TK0687 → Narita]		—		・Trip by air : [Djibouti (12:10) TK0687 → Narita]		Airplane
36	1-Sep-15	Tue	—	—	・Narita [(18:30) TK0052]	—	・Narita [(18:30) TK0052]		—		・Narita [(18:30) TK0052]		-

Second Field Survey Schedule

Day	Date		JICA		Chief Consultant / Road Planner	Equipment Arrangement Planner	Equipment Planner	Safety Management	Interpreter (French)	Accomodation
			Mission Leader	Sub Leader / Planning Management						
			Hiroyuki OGINO	Masayuki FURUKAWA	Isao TAKAHASHI	Kazuaki NEMOTO	Etsuo HASHIGUCHI	Koji MASUDA	Kiyohito HOSAKA	
1	12-Dec-15	Sat	・Trip by air : [Narita → Djibouti]							Airplane
2	13-Dec-15	Sun	・Djibouti ・Meeting with Road Department (MET; Ministry of Equipment and Transport) discussion on DFR, M/D							Djibouti
3	14-Dec-15	Mon	・Meeting with Ministry of Foreign Affairs discussion on DFR, M/D			・Meeting with Balbala Compund		・Safety Management Seminar (Preparation)	・Same as Chief cosultant	Djibouti
4	15-Dec-15	Tue	・Signing of M/D							Djibouti
5	16-Dec-15	Wed	・Safety Management Seminar							Djibouti
6	17-Dec-15	Thu	・Safety Management Seminar ・Visit to Embassy of Japan in Djibouti, report of survey							Djibouti
7	18-Dec-15	Fri	・Trip by air : [Djibouti → Tokyo]							Airplane
8	19-Dec-15	Sat	・Tokyo							-

APPENDIX 3

LIST OF PARTIES CONCERNED IN THE RECIPIENT COUNTRY

3. List of Parties Concerned in the Recipient Country

Name of Organization	Position
Agence Djiboutienne de la Route	
Mr. MAHAMOUD Moussa	General Director
Mr. SOULEIMAN Mohamed Hassan	Directeur des Travaux
Mr. MAHDI Abdillahi Sougouleh	Directeur des études
Mr. BARKHADLEH Youssouf	Chef de Service des Travaux
Mr. AHMED Omar Djama	Chef de Service Parc Matériel
Ministère de l'Equipement et des Transports	
Mr. MOUSSA Ahmed Hassan	Ministre
Mr. SAID NOUH	Secretaire Générale
Ms. IFRAH Idriss Nour	Directrice Administrative
Ms. FATOUMA Awaleh Osman	Directrice des Statistques des Etudes prospectives et des Affaires juridique
Mr. ALI Ahmed Youssouf	Director of Transport
Ministry of Foreign Affairs	
Mr. Mohamed Ali Hassan	Vice-minister
Mr. Yachin Houssein Douale	Director for Bilateral Relations
Mr. Omar Mahamoud Farah	Counselor of Direction of Bilateral Relations
Mr. Moussa Mohmed Omar	Director of Communication
Ministry of Interior	
Mr. Abdourahman Chamsan Saleh	Technical Councilor
Mr. Mohamed Oman Ahmed	Technical Councilor
Mr. Moumin Ahmed Cheick	Prefect of Djibouti
Port of Djibouti S.A	
Mr. Saad Omar Guelleh	Director General
Mr. Wahib Daher Aden	Container Terminal Director

Minister of Health

Mr. Ali Sillaye Abdallah	Secretary General

Ministry of Budget

Mr. Simon Mibrathu	Secretary General

Minister of Labor

Mr. ABDALLA Ali Mohamed	Secretary General

Ministry of Economy and Finance

Mr. Nouh Omar Miguil	Secretary General
Ms. Marian Hamadou Ali	Director of Economy

Tadjourah

Mr. ABDOULMALIKE Mohamed Bonoïta	Mayor of TADJOURA
Mr. Hassan Houssein Omar	President of Regional Counsel

Arta

Mr. Abdillahi Darar Okie	Mayor of Arta

UNHCR

Mr. Paul Ndaitouroum	Representative

WFP

Mr. Jacques Higgins	Representative

UNICEF

Ms. Meritxell Relano	Representative

IOM

Ms. Henry Glorieux	Chief of Mission

Marrill Automotive

Mr. SAFOUAN Abdo	Directeur Commercial
Ms. DIKRA Mohamed	Assistante de direction

SARL Transit Marrill

Mr. ADALLAH Akkaoui	Logistic's & forwarding director
Mr. KEVIN Corot	Assistante de Sales representatives Local transit dep-Djibouti, Somalia and Hinterland countries

COLAS

Mr. ERIC Forby	General Manager
Ms. SOUBANEL Said Ismael	Directeur, Laboratoire Centrale du Batiment et des Equipements

APPENDIX 4

MINUTES OF DISCUSSIONS

Procès-verbal des Discussions
sur l'Étude Préparatoire concernant le Projet
d'Amélioration des Équipements de Gestion des Routes

En réponse à la requête du Gouvernement de la République de Djibouti (ci-après désignée « Djibouti »), le Gouvernement du Japon a décidé de mener une Étude préparatoire concernant le Projet d'Amélioration des Équipements de Gestion des Routes (ci-après désigné « le Projet ») et a confié l'Étude préparatoire à l'Agence Japonaise de Coopération Internationale (ci-après désignée « la JICA »).

La JICA a diligenté une mission d'Étude préparatoire pour la Conception préliminaire (ci-après désignée « la Mission ») à Djibouti, dirigée par M. Hiroyuki OGINO, conseiller principal du Département des infrastructures et de la consolidation de la paix, et prévue de séjourner dans le pays du 29 juillet au 31 août 2015.

La Mission a tenu une série de discussions avec les officiels concernés du Gouvernement de Djibouti, et mené une étude sur le terrain dans la zone concernée par le Projet. Au cours des discussions, les deux parties ont confirmé les principaux points mentionnés dans les documents ci-joints. La Mission procédera aux travaux complémentaires et préparera le rapport de l'Étude préparatoire.

Djibouti, le 4 août 2015

Hiroyuki OGINO
Chef de mission
Mission d'Étude préparatoire
Agence Japonaise de Coopération Internationale
Japon

Mahmoud Moussa Ahmed
Directeur Général
Agence Djiboutienne des Routes
Ministère de l'Equipement et des Transports
République de Djibouti

Les témoins :

Yacin Houssein Doualé
Directeur des Relations Bilatérales, Ministère des Affaires Etrangères et de la Coopération Internationale

Said Nouh Hassan
Secrétaire Général, Ministère de l'Equipement et des Transports

APPENDICES

1. Objectif du Projet

   L'objectif du Projet est d'accélérer les travaux de réparation des routes et d'améliorer la gestion des routes par le biais de la fourniture des équipements de construction et de réparation, en contribuant ainsi à l'amélioration du trafic routier à Djibouti.

2. Nom de l'Étude préparatoire

   Les deux parties ont confirmé le nom de l'Étude préparatoire stipulée comme suit : « l'Étude préparatoire concernant le Projet d'Amélioration des Équipements de Gestion des Routes ».

3. Site du Projet

   Les deux parties ont confirmé que les sites du Projet se situent à Djibouti tel qu'indiqué à l'Annexe 1.

4. Ministère de tutelle et organisme d'exécution

   Les deux parties ont confirmé le ministère de tutelle et l'organisme d'exécution comme suit :

   4-1. Le ministère de tutelle est le Ministère de l'Équipement et des Transports, qui supervisera l'organisme d'exécution.

   4-2. L'organisme d'exécution est l'Agence Djiboutienne des Routes. L'organisme d'exécution devra coordonner avec tous les organismes compétents, afin d'assurer une bonne mise en œuvre du Projet et que les dispositions soient prises par les organismes compétents de manière appropriée et dans les temps impartis. L'organigramme est indiqué à l'Annexe 2.

5. Éléments faisant l'objet de la requête du Gouvernement de Djibouti

   5-1. A l'issue des discussions, les deux parties ont confirmé que les éléments faisant l'objet de la requête du Gouvernement de Djibouti sont les suivants :

   - Routes prioritaires devant être entretenues et réparées

   [Zone de Balbala]

   a) Voies urbaines de la ville de Djibouti (amélioration partielle)
   b) Section PK51 – Plage d'Arta (amélioration en route revêtue)

   [Zone de Dikhil]

   c) Section PK82 - Galafi sur la RN1 (amélioration partielle)

d) RN8 (amélioration en route revêtue)

[Zone de Tadjoura]

e) Section PK51 – PK113 sur la RN9 (amélioration partielle)

f) RN12 (amélioration en route revêtue)

g) RN16 (nivellement)

Les routes sélectionnées du Projet seront confirmées au cours de la Mission d'explication du contenu de l'avant-projet du rapport final.

- Composante des équipements demandés

Les deux parties ont confirmé que la composante provisoire des équipements demandés sont tels qu'indiqués à l'Annexe 3. La composante du Projet sera déterminée en fonction de la priorité indiquée à l'Annexe 3 ainsi que du résultat de l'étude sur le terrain effectuée par la Mission.

- Réparation des ateliers

La JICA évaluera les conditions dans lesquelles se trouvent les ateliers existants et examinera la nécessité de réparation des ateliers. La composante du Projet sera déterminée selon le résultat de l'évaluation.

5-2. La JICA évaluera la pertinence des éléments ci-dessus faisant l'objet de la requête au travers de l'Étude, et présentera ses conclusions au Gouvernement du Japon. La composante définitive du Projet sera déterminée par le Gouvernement du Japon.

6. Système d'aide financière non remboursable du Japon

6-1. La partie djiboutienne a pris connaissance du système d'aide financière non remboursable du Japon et de ses procédures décrits à l'Annexe 4 et à l'Annexe 5, ainsi que des mesures nécessaires qui devront être prises par le Gouvernement de Djibouti.

6-2. La partie djiboutienne a pris connaissance qu'elle prendra les mesures nécessaires décrites à l'Annexe 6 pour une bonne mise en œuvre du Projet, et que ceci constitue une condition pour que le Projet soit réalisé. Le contenu détaillé à l'Annexe 6 sera réalisé durant l'étude, et sera convenu au plus tard avant l'explication de l'avant-projet du Rapport de l'Étude préparatoire.

Le contenu de l'Annexe 7 servira à déterminer les suivants :

(1) Étendue du Projet.

(2) Période de la mise en œuvre du Projet.

(3) Période et possibilité de l'affectation du budget.

Le contenu de l'Annexe 7 sera remis à jour en fonction de l'avancement de l'Étude préparatoire, et joint à l'Accord de Don en tant que pièce jointe.

7. Calendrier de l'Étude

7-1. La Mission procédera à l'étude plus approfondie à Djibouti jusqu'au 31 août 2015.

7-2. La JICA préparera un avant-projet du Rapport de l'Étude préparatoire en français, et dépêchera une mission à Djibouti vers le mois de décembre 2015 afin d'expliquer son contenu.

7-3. Lorsque le contenu de l'avant-projet du Rapport de l'Étude préparatoire est en principe accepté et que les dispositions seront entièrement convenues par la partie djiboutienne, la JICA achèvera un rapport final en français et le fera parvenir à Djibouti vers le mois de février 2016.

7-4. Le calendrier ci-dessus est provisoire et susceptible d'être modifié.

8. Usage approprié des équipements

La partie djiboutienne a pris connaissance de l'importance de « l'usage approprié » des équipements fournis dans le cadre du système d'aide financière non remboursable du Japon, et qu'ils doivent être utilisés pour la construction des routes spécifiées en tant que sections cibles du Projet.

9. Faute

La Mission a expliqué et la partie djiboutienne a pris connaissance les mesures préventives concernant les pratiques frauduleuses qui seront stipulées dans l'Accord de Don de la JICA.

10. Autres points concernés

10-1. La partie djiboutienne devra fournir à la Mission, et à ses frais, les éléments suivants en coopération avec les organismes concernés :

(1) Informations relatives à la sécurité ainsi que des mesures assurant la sécurité des membres de la Mission.

(2) Informations ainsi qu'assistance dans l'obtention des services médicaux.

(3) Données et informations relatives à l'Étude préparatoire.

(4) Personnel homologue.

(5) Espace de bureau approprié avec équipements et services nécessaires.

(6) Cartes d'accréditation ou d'identification.

(7) Permission d'entrée obligatoire aux membres de la Mission afin de mener des

études sur le terrain, et

(8) Soutien pour l'obtention d'autres prérogatives et avantages, si nécessaire.

10-2. La partie djiboutienne devra assurer les aires temporaires de construction, de stockage, et les locaux et le personnel nécessaires à la formation initiale concernant les équipements fournis par le Projet. La partie djiboutienne devra acquérir également toutes approbation et autorisation nécessaires auprès des parties prenantes concernées, et ceci avant la formation initiale.

10-3. La partie djiboutienne assurera un budget suffisant et le personnel nécessaire pour la gestion et la maintenance d'équipements fournis par le Projet, y compris les travaux d'entretien périodique après l'achèvement du Projet.

10-4. La Mission a demandé que la route cible du Projet soit construite dans les 3 ans après la livraison d'équipements.

10-5. La partie djiboutienne a demandé à la Mission que la JICA fournisse une formation technique à long terme relative au Projet en tant que coopération technique de la JICA. La partie djiboutienne a pris connaissance qu'une requête officielle concernant une formation technique à long terme devra être soumise au Japon. La partie djiboutienne soumettra la requête officielle accompagnée du contenu concret des formations.

10-6. L'Agence Djiboutienne des Routes devra répondre au Questionnaire soumis par la Mission en français et munie des documents concernés, et ceci avant le 9 août 2015.

10-7 Les deux parties ont confirmé que les langues indiquées à l'Annexe 8 sont utilisées dans chaque document.

Annexe 1 Site du Projet

Annexe 2 Organigramme

Annexe 3 Composante provisoire des équipements demandés

Annexe 4 Aide financière non remboursable du Japon

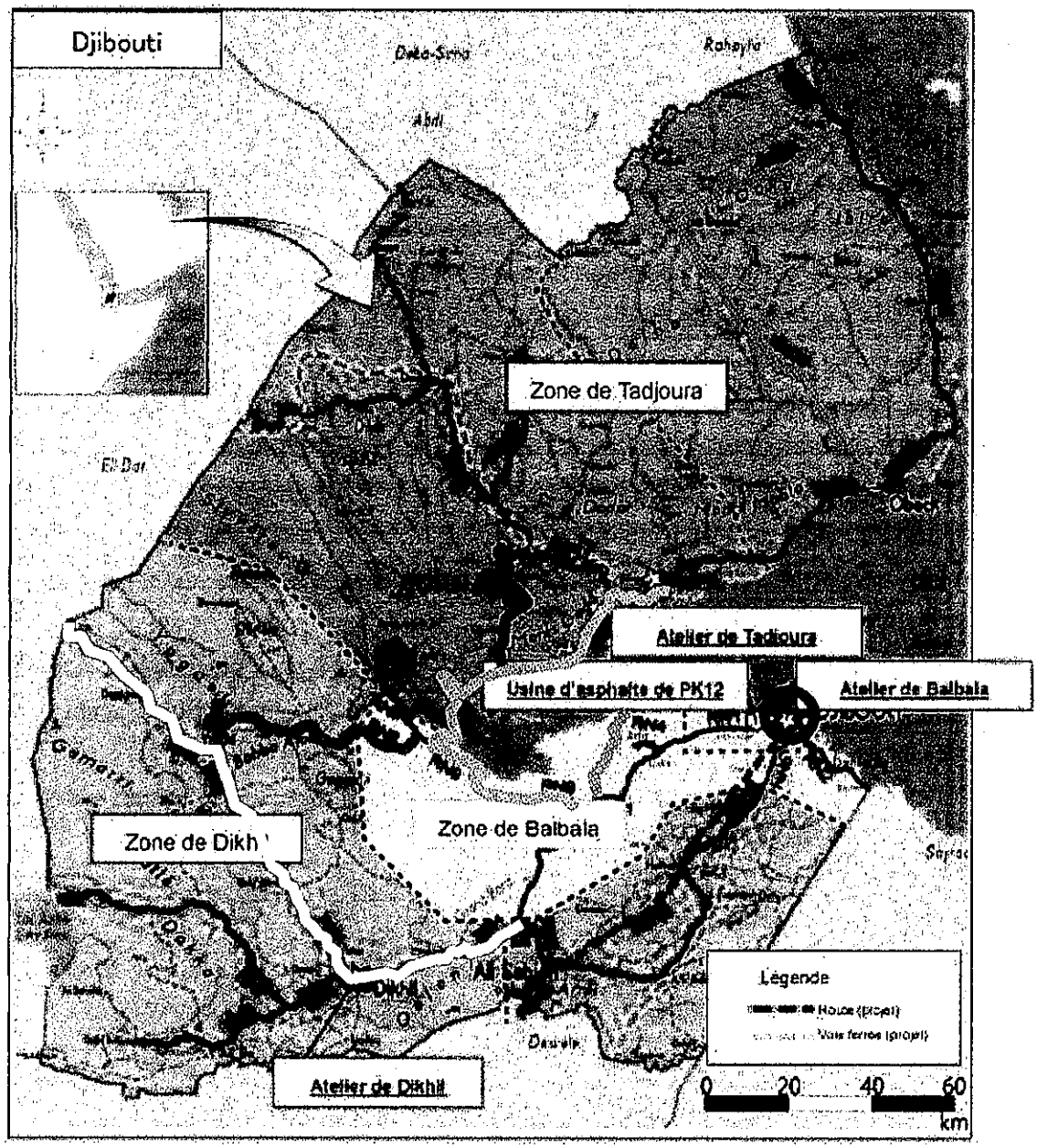
Annexe 5 Ordinogramme de la procédure de l'aide financière non remboursable du Japon

Annexe 6 Dispositions à prendre par chaque gouvernement

Annexe 7 Rapport de suivi du Projet (modèle)

Annexe 1

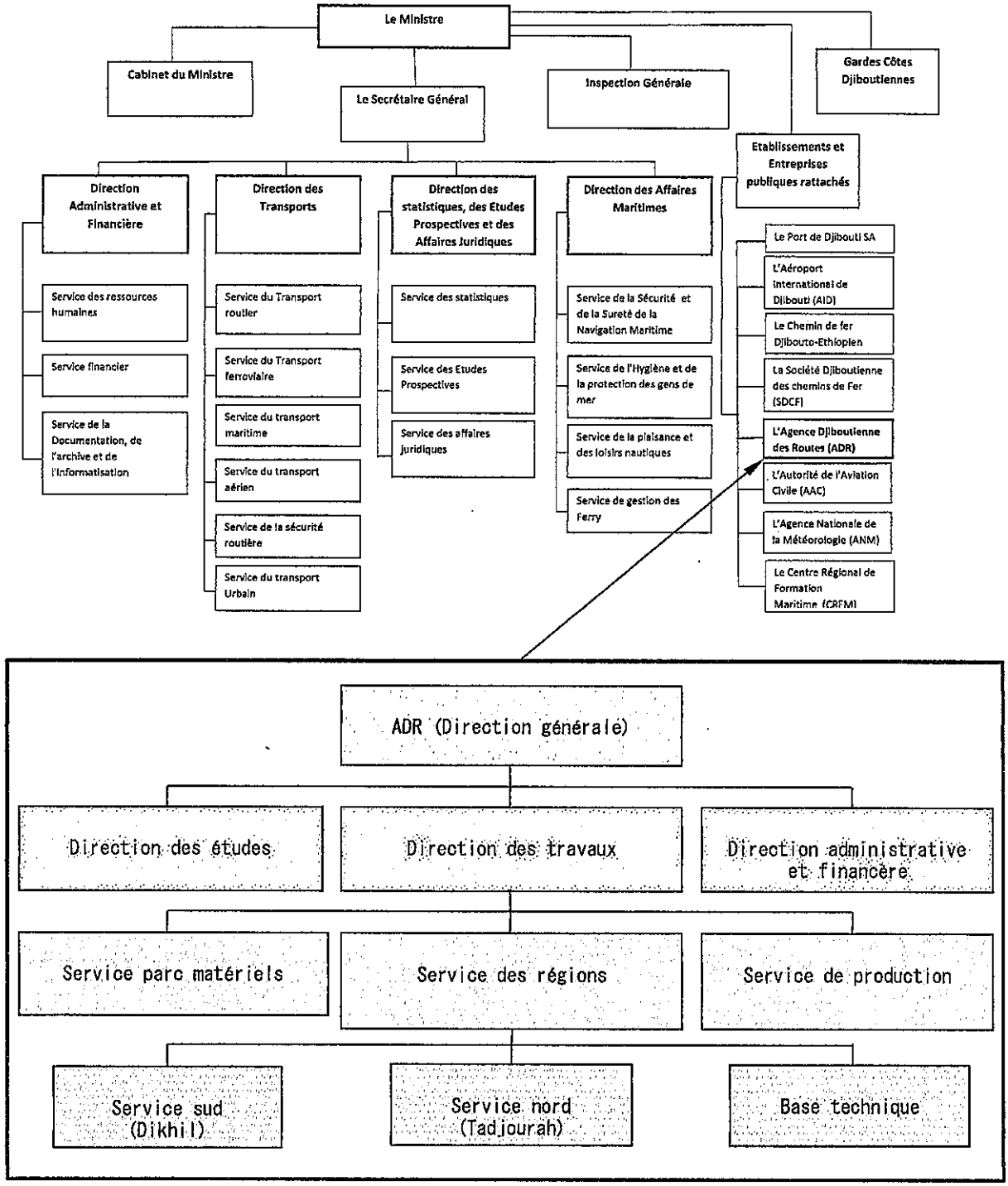
Site du Projet



a) Voies urbaines de la ville de Djibouti (amélioration partielle)
b) Section PK51 – Plage d'Arta (amélioration en route revêtue)
c) Section PK82 - Galafi sur la RN1 (amélioration partielle)
d) RN8 (amélioration en route revêtue)
e) Section PK51 – PK113 sur la RN9 (amélioration partielle)
f) RN12 (amélioration en route revêtue)
g) RN16 (nivellement)

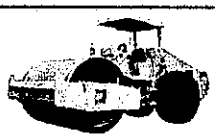
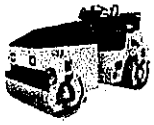
Annexe 2

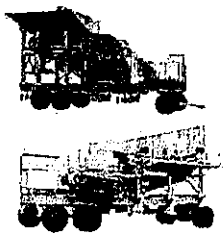
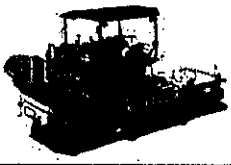
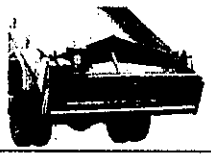
Organigramme

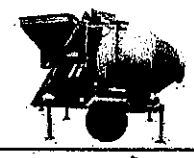
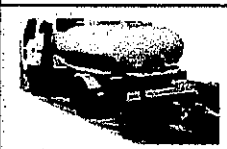
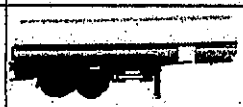


Annexe 3

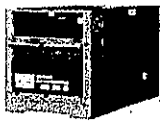
Composante provisoire des équipements demandés

No.	Name of Equipment		Specification
1-1	Wheel Loader		Bucket Capacity: Approx. 2.5 m^3 Engine Output: Approx. 140 kW , Operation Weight: not more than 17~20 ton, Max Dumping Clearance: Approx. 3 m
1-2	Motor Grader		Engine Output: Approx. 130 kW, Blade Length: Approx. 4 m with Scarifier, and Articulation Frame Operation weight: Approx. 14 ton
1-3	Bulldozer (Crawler)		Operation Weight: Approx. 27~28 ton, Engine Output: Approx. 170 kW Straight Tilt Dozer and Multi-shank Ripper with ROPS cab
1-4			Operation Weight: Approx. 40 ton, Engine Output: Approx. 260 kW Straight Tilt Dozer and Multi-shank Ripper with ROPS cab
1-5	Hydraulic Excavator (Crawler)		Bucket Capacity: Approx. 0.8~1.0 m^3 Capable to attach Hydraulic Breaker Max. Digging Depth: more than 6 m Operation Weight: Approx. 20~25 ton Engine Output: Approx. 100~ 130 kW
1-6	Hydraulic Breaker		Attachment of the Hydraulic Excavator (Item: 1-5) Pyramidal Point Tool, Vertical, Box type Bracket Working Weight: 1600 ~ 2000 kg Impact Rate: 360 ~ 600 min^{-1}
1-7	Wheel Excavator		Bucket Capacity: Approx. 0.6 m^3 Max. Digging Depth: Approx. 5 m Operation Weight: Approx. 16 ton Engine Output: Approx. 90 kW
1-8	Vibratory Combined roller		Operation Weight: Approx. 13 ton Smooth Drum Vibration Power: Approx. 245 kN (25,000 kgf)
1-9	Vibratory Tandem Roller (for pavement work)		Operation Weight: Approx. 4 ton Smooth Drum (front & rear) Vibration Power: Approx. 26~34 kN
1-10	Tire Roller		Operation Weight: 8 ~ 15 ton (adjustable by ballast) Travel Speed: 0 ~ 20 km/h Compaction Width: Approx. 2000 mm

No.	Name of Equipment		Specification
1-11	Hand-guided Vibratory Roller		Operation Weight: Approx. 400~600 kg Vibration Power: Approx.10 kN Compaction Width: Approx. 600 mm
1-12	Plate Compactor		Weight: 40~60 kg Centrifugal Force: 6~10 kN Vibrating Plate Size: Approx. 550 × 350 (mm)
1-13	Asphalt Cutter		Max. Cutting Depth: Approx. 170 mm
1-14	Asphalt Plant		Mobile, batch type or continuous type The plant to be composed of aggregate supply system, dryer, hot aggregate elevator, filler supply system, weighing and mixing system, asphalt storage/heater, bitumen supply system. Capacity: Approx. 50 t/h
1-15	Rock Crushing & Screening Plant		Trailer-mounted Portable type. The plant to be composed of primary crusher, secondary crusher, vibratory screen, belt conveyers and power supply unit (generator) Capacity: Approx. 50 t/h
1-16	Asphalt Finisher		Crawler type Paving width: 2.0 ~ 6.0 m, Paving Thickness: 10 ~ 150 mm Travel Speed: 1.5 ~ 20 m/min. Hopper capacity: Approx. 10,000 kg
1-17	Bitumen Sprayer Truck (Bitumen Distributor)		Capacity: 4000 lit. With Sub-engine for Asphalt Pump Diesel Fuel Burner and Heater Splay Width: Approx. 3.6 m Carrier: 4 x 2, left-hand steering
1-18	Chip Spreader		Dump Truck mounted, Self-propelled Tail-gate type, Hopper: Approx. 0.3 m^3 Spreading Width: Approx. 1.6~2.4 m

No.	Name of Equipment		Specification
1-19	Concrete Mixer (for mixing cold mix asphalt)		Electric Motor driven Power source: 3-pahse, 380 V, 50Hz Capacity: 0.8 m^3
1-20	Concrete Mixer (for concrete work)		Diesel engine driven Capacity: 0.5 m^3
1-21	Dump Truck		Payload: 14 ton Engine Output: Approx. 190 kW Drive System: 6 x 4, Left-hand Steering, Air Brake GVW: Max. 26 ton
1-22	Water Bowser (Tanker)		Payload: 10 ton, (10,000 lit.) Engine Output: Approx. 150 kW Drive System: 4 x2 or 6 x 4, Left-hand Steering, Air Brake GVW: Approx. 23 ton
1-23	Trailer mounted Water Tank		Single or two axle, semi-trailer mounted water tank, Air Brake Capacity: 10000 lit.
1-24	Fuel Tanker		Payload: 8~ 10 ton, (8,000 ~ 10,000 lit.) Engine Output: Approx. 150 kW Drive System: 4 x2 or 6 x 4, Left-hand Steering, Air Brake GVW: Approx. 23 ton
1-25	Boom Truck (Cab-back Crane)		Cargo Truck with 5 ton Telescopic Boom Crane Payload: 10 ton, Drive system: 6 x4, Left-hand Steering, Air Brake. Engine Output: Approx.190 kW
1-26	Rough Terrain Crane		Lifting capacity: 25 ton, with Telescopic Boom Engine Output:Approx. 200 kW
1-27	Mobile Workshop		4 x 4 Cargo Truck, with 3 ton Telescopic Boom Crane, and Equipment and Tools necessary to carry out service for construction machines Left-hand Steering, Payload: Approx. 7~10 ton
1-28	Low Bed Semi-trailer (with Tractor Head)	 	Max. Payload: 30~40 ton, Rear Loading type Two or Three Axles, 8~16 Wheels Air Brake, Suspension: Multi-leaf Spring <u>Tractor Head</u> Forward Control, 6x4 Drive system Engine Output: Approx. 350 kW GCM : Approx. 60 ton Left-hand Steering, Air Brake

No.	Name of Equipment		Specification
1-29	Inspection Vehicle		4 x 4, Double Cab Pickup, Diesel Engine, Engine Output: Approx. 78 kW
1-30	Mini Dumper		Diesel Engine Driven, Load capacity: 1000 kg Hopper Capacity: Approx. 300 lit. Engine Output: Approx. 17 kW
1-31	Line Marker		Manually operated, flow-painting type, Line Width: 50, 100, 150 mm, Painting Speed: Approx. 100 m/5~10 min. Painting Distance: 300 ~ 400 m/20 lit. (100 mm line)
1-32	Asphalt Emulsion Plant		Capacity: 6 m^3/h. Details to be considered

No.	Name of Equipment		Specification
2-1	Generator		Diesel Engine Driven, 380/220 V, 50 Hz, 120 KVA
2-2	Air Compressor		Electric Motor driven, with Receiver Tank Discharge Pressure: 0.7~0.85 Mpa Power Source: 380 V/50 Hz/3-phase Receiver Tank Capacity: 2 m^3
2-3	Portable Welding Machine		AC/DC Welder Max. Welding Current: Approx. 250~350 A Power Source: 380 V/50 Hz/3-phase
			Disel Engine Driven Welder Max. Welding Current: Approx. 250~350 A
2-4	Electric High Pressure Washer		Water Discharge Pressure: Approx. 10 Mpa Water Disegarge Rate: 350~700 lit./h Power Source: 380 V/50 Hz/3-phase Water Tank Capacity: 2 m^3
2-5	Mechanic Tool Set		70 pces/set (Approx.)

Annexe 4

Aide financière non remboursable du Japon

En se basant sur la loi de la JICA entrée en vigueur le 1er octobre 2008 et la décision du Gdj, la JICA est devenue l'agence exécutive de l'aide financière non remboursable concernant les Projets de construction des installations, d'acquisition d'équipements, etc.

L'aide financière non remboursable du Japon consiste en des fonds non remboursables pour le pays bénéficiaire qui permettront de fournir les installations, les équipements et les services (services techniques ou transport des produits, etc.) pour le développement socio-économique du pays, selon les principes suivants et conformément aux lois et réglementations y afférentes du Japon. La coopération financière non remboursable n'est pas effectuée sous forme de don de matériel en nature au pays bénéficiaire.

1. Procédures de l'aide financière non remboursable du Japon

L'aide financière non remboursable du Japon est menée comme suit :

- Etude préliminaire (ci-après dénommée « l'Etude »)
  - L'Etude menée par la JICA
- Estimation et approbation
  - Estimation par le Gdj et la JICA. Approbation par le Conseil des ministres du Japon
- Détermination de l'exécution
  - L'Echange de Notes entre le Gdj et un pays bénéficiaire
- Accord de Don (ci-après dénommé « l'A/D »)
  - Accord conclu entre la JICA et un pays bénéficiaire
- Exécution
  - Mise en œuvre du Projet sur la base de l'A/D

2. Etude préparatoire

(1) Contenu de l'Etude

Le but de l'Etude est de fournir un document de base nécessaire pour l'estimation du Projet par la JICA et le Gdj. Le contenu de l'Etude est le suivant :

- confirmer l'arrière-plan de la requête, les objectifs et les effets du Projet ainsi que les capacités de maintenance du pays bénéficiaire nécessaires à l'exécution

du Projet.

- évaluer la pertinence de l'aide financière non remboursable d'un point de vue technique, financier et socio-économique
- confirmer le concept de base du Projet convenu après concertations entre les deux parties
- préparer un concept de base du Projet ; et
- estimer les coûts du Projet

Le contenu de la requête initiale du pays bénéficiaire n'est pas obligatoirement approuvé, dans sa version initiale, en tant que contenu de l'aide financière non remboursable. Le concept de base du Projet doit être confirmé selon les Directives du système d'aide financière non remboursable du Japon.

La JICA demande au gouvernement du pays bénéficiaire de prendre toutes les mesures nécessaires pour assurer son indépendance lors de l'exécution du Projet. Ces mesures doivent être garanties même si elles n'entrent pas dans la juridiction de l'organisme du pays bénéficiaire en charge de l'exécution du Projet. Par conséquent, l'exécution du Projet doit être confirmée par toutes les organisations concernées du pays bénéficiaire par la signature du Procès-verbal des discussions.

(2) Sélection des consultants

En vue de la bonne exécution de l'Etude, la JICA utilise un (des) consultant(s). La JICA effectue une sélection basée sur des propositions soumises par ces derniers.

(3) Résultat de l'Etude

Le rapport de l'Etude est relu par la JICA, et après confirmation de la justesse du Projet, la JICA recommande au Gdj d'effectuer une estimation sur l'exécution du Projet.

3. Système d'aide financière non remboursable du Japon

(1) E/N et A/D

Après l'approbation du Projet par le Conseil des ministres du Japon du Projet, l'Echange de Notes (ci-après dénommé « l'E/N ») sera signé entre le Gdj et le Gouvernement du pays bénéficiaire pour formuler une demande d'aide, qui sera suivie par la conclusion de l'A/D entre la JICA et le Gouvernement du pays bénéficiaire afin de définir les clauses nécessaires, conformément à l'E/N, pour l'exécution du Projet,

telles que les conditions de paiement, les responsabilités du Gouvernement du pays bénéficiaire, et les conditions d'approvisionnement.

(2) Sélection des Consultants

Le(s) consultant(s) employé(s) pour l'Etude sera (seront) recommandé(s) par la JICA au pays bénéficiaire pour également travailler sur l'exécution du Projet après l'E/N et l'A/D en vue de maintenir l'uniformité technique.

(3) Pays d'origine éligible

Dans le cadre de l'aide financière non remboursable du Japon, l'acquisition portera en principe sur des produits et des services japonais et du pays bénéficiaire incluant le transport. L'aide financière non remboursable pourra être utilisée, s'il y a lieu, pour l'achat des produits ou des services d'un pays tiers, compte tenu de leur quantité, de leur compétitivité et de leur rationalité économique pour atteindre l'objectif du Projet. Toutefois, les principaux contractants, à savoir les sociétés de construction et d'approvisionnement, et le consultant principal seront limités, en principe, aux « ressortissants japonais ».

(4) Nécessité de la « vérification »

Le gouvernement du pays bénéficiaire ou son représentant autorisé conclura en principe les contrats en Yen japonais avec les ressortissants japonais. Ces contrats seront vérifiés par la JICA. Cette « vérification » est nécessaire afin d'assumer sa responsabilité envers les contribuables japonais.

(5) Principales dispositions à prendre par le gouvernement du pays bénéficiaire

Lors de l'exécution de l'aide financière non remboursable, le pays bénéficiaire devra prendre les dispositions telles qu'indiquées à l'Annexe. Le Gouvernement du Japon demande au Gouvernement du pays bénéficiaire d'exonérer tous les droits de douane, les taxes intérieures et autres charges fiscales tels que la TVA, la taxe commerciale, les impôts sur le revenu, les impôts sur les sociétés, la taxe d'habitation, la taxe sur les carburants qui peuvent être imposés dans le pays bénéficiaire par rapport à la fourniture des produits et des services dans le cadre du contrat vérifié, car les fonds de l'aide financière non remboursable proviennent des contribuables japonais.

(6) « Usage adéquat »

Le Gouvernement du pays bénéficiaire est requis d'entretenir et d'utiliser les installations construites et les équipements achetés dans le cadre de l'aide financière

non remboursable de manière adéquate et efficace et de désigner le personnel nécessaire pour le fonctionnement et la maintenance ainsi que de prendre en charge toutes les dépenses autres que celles couvertes par l'aide financière non remboursable.

(7) « Exportation et Réexportation »

Les produits achetés dans le cadre de l'aide financière non remboursable ne doivent pas être exportés ou réexportés à partir du pays bénéficiaire.

(8) Arrangement bancaire (A/B)

a) Le Gouvernement du pays bénéficiaire ou son « représentant autorisé » devra en principe ouvrir un compte à son nom dans une banque au Japon (ci-après dénommée la « Banque »). La JICA exécutera en principe l'aide financière non remboursable en procédant aux paiements en Yen japonais pour couvrir les obligations du Gouvernement du pays bénéficiaire ou de son représentant autorisé conformément aux contrats vérifiés.

b) Les paiements seront effectués lorsque les demandes de paiement seront présentées par la Banque à la JICA conformément à l'Autorisation de Paiement (A/P) émise par le Gouvernement du pays bénéficiaire ou de son représentant autorisé.

(9) Autorisation de Paiement (A/P)

Le Gouvernement du pays bénéficiaire devra régler à la banque la commission de notification de l'autorisation de paiement et la commission de paiement.

(10) Considérations sociales et environnementales

Le Gouvernement du pays bénéficiaire doit assurer les considérations sociales et environnementales pour le Projet et doit suivre les règlements environnementaux du pays bénéficiaire et les directives socio-environnementales de la JICA.

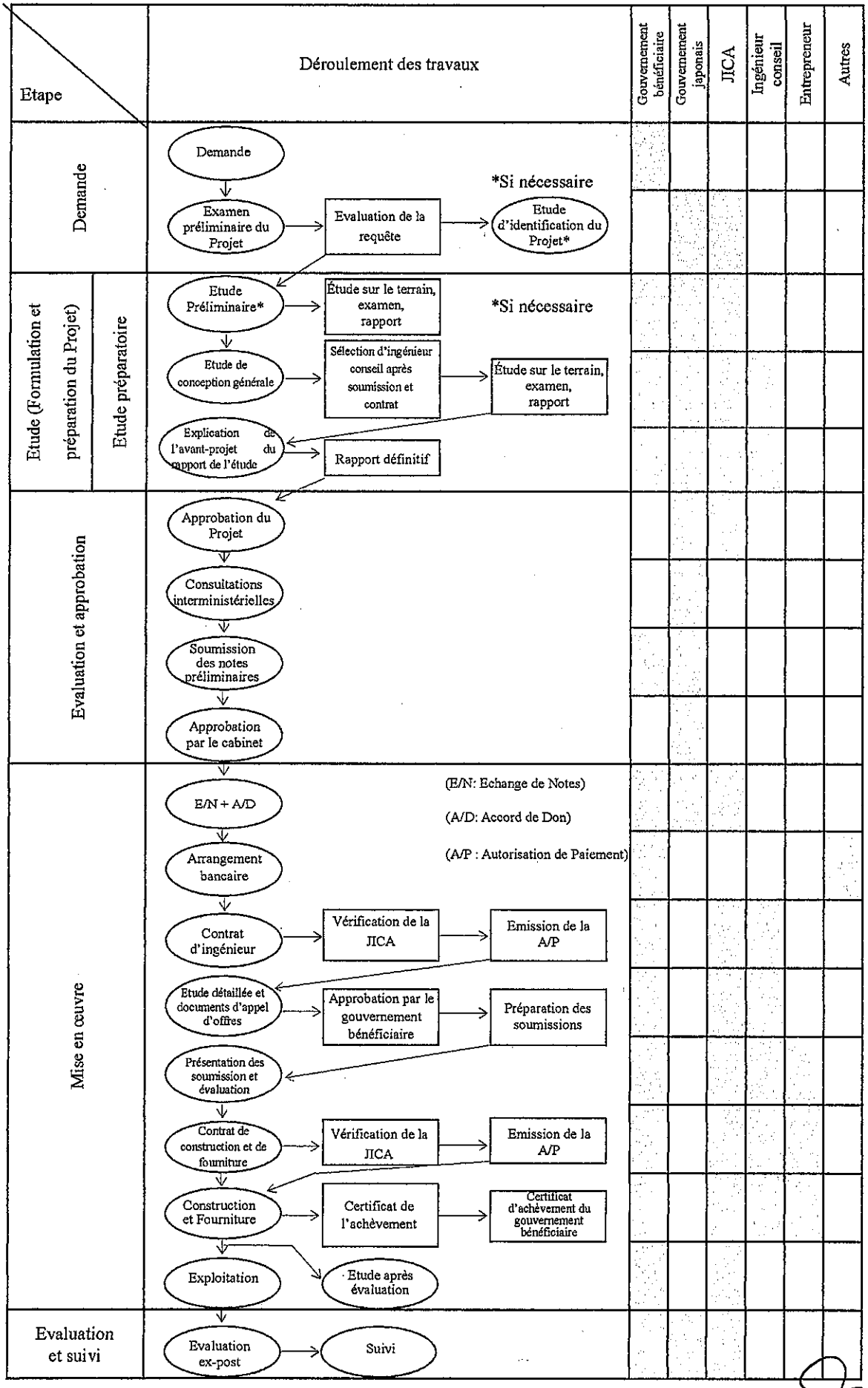
(11) Suivi

Le Gouvernement du pays bénéficiaire prendra les initiatives afin de superviser attentivement l'avancement du Projet afin d'assurer sa bonne exécution, et ceci étant du domaine de sa responsabilité telle que définie dans l'A/D, et rapportera régulièrement à la JICA le point sur la situation du Projet par le biais du Rapport de suivi du Projet (RSP).

(12) Mesures de sécurité

Le Gouvernement du pays bénéficiaire assurera que la sécurité est bien observée tout au long de l'exécution du Projet.

PROCEDURE DE L'AIDE FINANCIERE NON REMBOURSABLE DU JAPON



Annexe 6

Principales dispositions à prendre par le Gouvernement bénéficiaire

1. Avant l'appel d'offres

NO	Items	Délais	En charge	Coût	Réf.
1	Ouvrir un compte bancaire (Arrangement bancaire (A/B))	Dans les 30 jours après l'A/D.	MDF		

2. Au cours de la mise en œuvre du Projet

NO	Items	Délais	En charge	Coût	Réf.
1	Prendre en charge les commissions dues à la banque japonaise en ce qui concerne les services bancaires selon l'A/B.				
	1) Commission de notification de l'A/P.	Dans les 30 jours après la signature du contrat.	MET		
	2) Commission de paiement pour l'A/P.	À chaque paiement.	MDF		
2	Assurer le déchargement et le dédouanement rapides au port de débarquement du pays bénéficiaire.				
	1) Exonération de taxes et dédouanement des produits au port de déparquement.	Pendant le Projet.	MET		
3	Accorder aux ressortissants japonais dont les services seront requis en rapport avec la fourniture des produits et des services dans le cadre du contrat vérifié, tels que les commodités nécessaires à leur entrée et leur séjour dans le pays bénéficiaire pour l'exercice de leur travail.	Pendant le Projet.			
4	Assurer que les droits de douane, les taxes intérieures et autres charges fiscales susceptibles d'être imposés dans le pays bénéficiaire à l'égard de l'achat des produits et/ou des services soient exonérés. Les droits de douane, les taxes intérieures et autres charges fiscales susmentionnés comprennent : TVA, taxe commerciale, impôts sur le revenu, impôts sur les sociétés des ressortissants japonais, taxe d'habitation, taxe sur les carburants, sans être limités à ceux-ci, susceptibles d'être imposés dans le pays bénéficiaire concernant la fourniture de produits et de services dans le cadre du contrat vérifié.	Pendant le Projet.			
5	Supporter tous les frais autres que ceux pris en charge par l'aide financière non remboursable, et qui sont nécessaires aussi bien à la construction des installations qu'au transport et à la mise en place des équipements.	Pendant le Projet.			
6	À mettre à jour pendant l'Étude préparatoire				
	1) Obtenir toute approbation et autorisation nécessaires auprès des parties prenantes concernées avant la formation initiale. 2) Assurer les aires temporaires de construction, de stockage, et le personnel nécessaire à la formation initiale concernant les équipements fournis par le Projet.	3 mois avant l'achèvement de la construction.			

3. Après le Projet

NO	Items	Délais	En charge	Coût	Réf.
1	Entretenir et utiliser de manière appropriée et efficace les installations construites et équipées dans le cadre de l'aide financière non remboursable. 1) Affectation du coût de maintenance. 2) Structure de l'exploitation et de la maintenance. 3) Contrôle de routine / inspection périodique	Après l'achèvement de la construction			

(A/B: Arrangement bancaire, A/P: Autorisation de paiement, N/A: Non applicable)

Principales dispositions supportées par le Don japonais

No	Items	Délais	Coût estimé (Million de yen japonais)*	
1	Approvisionner des équipements		XX.XX	
	- Amélioration des routes			
	1) Assurer le déchargement et le dédouanement rapides au port de débarquement du pays bénéficiaire.			
	a) Transport maritime (aérien) des produits du Japon jusqu'au pays bénéficiaire.			
	b) Transport intérieur du port de débarquement jusqu'au site du Projet.			
	2) Réaliser une formation concernant l'utilisation des équipements.			
	3) Réaliser le bâtiment temporaire.			
2	Réaliser une conception détaillée, apporter un appui à l'appel d'offres et superviser l'acquisition et fournir une assistance technique. (Consultant)		YY.YY	
	Total		ZZ.ZZ	

* : Le coût estimé est provisoire. Il est soumis à l'approbation du Gouvernement du Japon.

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX

20XX, Month

Organization Information

Authority (Signer of the G/A)	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Ministry	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

Outline of Grant Agreement:

Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____
Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:

1: Project Description

1-1 Project Objective

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

1-3 Effectiveness and the indicators

- Effectiveness by the Project

Quantitative Effect (Operation and Effect indicators)		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	**Original:** *(M/D)* **Attachment(s):Map**	**Actual:** *(PMRand PCR)* **Attachment(s):Map**

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D)	*(M/D)*	*(PMR and PCR)* Please state not only th e most updated schedul e but also other past re visions chronologically

'Soft component' shall be included in 'Items'.		All change of design shal l be recorded regardless of its degree.

2-1-2 Reason(s) for the modification if there have been any.

(PMR and PCR)

2-2 Implementation Schedule
2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
[M/D]	*(M/D)*		*(PMR,PCR)* As of (Date of Revision)
'Soft component' shall be stated in the column of 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Project Completion Date*			

*Project Completion was defined as _____ at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

(PMR and PCR)

2-3 Undertakings by each Government
2-3-1 Major Undertakings
See Attachment 2.

2-3-2 Activities
See Attachment 3.

2-4 Project Cost
2-4-1 Project Cost

Table 2-3-1 Comparison of Original and Actual Cost by the Government of Japan
(Confidential until the Tender)

Items	Cost (Million Yen)

	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design -Procurement Management -Construction Supervision			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

Table 2-3-2 Comparison of Original and Actual Cost by the Government of XX

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = (local currency)

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR, PCR)

2-5 Organizations for Implementation

2-5-1 Executing Agency:

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original: *(M/D)*

Actual, if changed: *(PMR and PCR)*

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number ,qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original: *(M/D)*
Actual: *(PCR)*

3-2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original: *(M/D)*

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s): *(M/D)*	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:

	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
3.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR and PCR)	

5: Evaluation at Project Completion and Monitoring Plan

5-1 Overall evaluation

Please describe your overall evaluation on Project.

(PCR)

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

5-3 Monitoring Plan for the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

(PCR)

ANNEXE 8

Langues utilisées dans chaque document

N°	Article	Rédacteur	Langue	
			Français	Anglais
I	**ETAPE DE L'ETUDE PREPARATOIRE**			
1.	Rapport de l'Etude sur le terrain	Consultant		○
2.	Avant-projet du Rapport de l'Etude préparatoire (avant-projet du Rapport final) Note : Les parties techniques.	Consultant	○	○ (Note)
3.	Rapport de l'Etude préparatoire (Rapport final) Note : Les parties techniques.	Consultant	○	○ (Note)
II	**ETAPE DE MISE EN ŒUVRE**			
1.	**Documents connexes à l'Accord de consultation**			
1.1	Accord de consultation	Consultant	○	
1.2	Recommandation du Consultant	JICA	○	
1.3	Documents connexes à l'arrangement bancaire (B/A, A/P)	Banque	○	
1.4	Demande de paiement	Consultant	○	
2.	**Documents connexes au Contrat d'exécution**			
2.1	Avis d'appel d'offres dans le journal	Consultant		○
2.2	Documents d'appel d'offres			
	Volume I : Conditions de l'appel d'offres et Contrat	Consultant		○
	Partie I : Instructions aux soumissionnaires	Consultant		○
	Partie II : Formule de l'appel d'offres	Consultant		○
	Partie III : Formule du Contrat	Consultant	○	
	Volume II Spécifications	Consultant		○
2.3	Questions et réponses concernant les documents d'appel d'offres	Soumissionnaire/Consultant		○
2.4	Documents de soumission	Soumissionnaires (Fournisseur)		○

2.5	Rapport d'évaluation des soumissions	Consultant	○	○
2.6	Contrat d'exécution	Fournisseur	○	
2.7	Documents connexes à l'arrangement bancaire (B/A, A/P)	Banque	○	
2.8	Demande de paiement	Fournisseur	○	
2.9	Certificat d'achèvement	Consultant/Pays concerné	○	
2.10	Documents techniques pour approbation	Fournisseur		○
2.11	Manuels d'exploitation et d'entretien (manuels de fabricants) Note: S'ils sont disponibles chez les fabricants.	Fournisseur	○ (Note)	○

Minutes of Discussions
on the Preparatory Survey for the Project for
Improvement of Road Management Equipment

In response to the request from the Government of Republic of Djibouti (hereinafter referred to as "Djibouti"), the Government of Japan decided to conduct a Preparatory Survey for the Project for Improvement of Road Management Equipment (hereinafter referred to as “the Project”), and entrusted the Preparatory Survey to Japan International Cooperation Agency (hereinafter referred to as “JICA”).

JICA sent the Preparatory Survey Team for the Outline Design (hereinafter referred to as “the Team”) to Djibouti, headed by Mr. Hiroyuki Ogino, Senior Advisor, Infrastructure and Peacebuilding Department, and is scheduled to stay in the country from 29th July to 31st August, 2015.

The Team held a series of discussions with the officials concerned of the Government of Djibouti and conducted a field survey in the Project area. In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Djibouti, 4th August, 2015

Hiroyuki Ogino	Mahmoud Moussa Ahmed
Leader	Directeur General
Preparatory Survey Team	Agence Djiboutienne Des Routes
Japan International Cooperation Agency	Ministère de l’Equipement et des Transports
Japan	Djibouti

In Witness whereof,

Yacin Houssein Doualé

Directeur des Relations Bilatérales, Ministère des Affaires Etrangères et de la Coopération Internationale

Said Nouh Hassan

Secrétaire Général, Ministère de l'Equipement et des Transports

ATTACHEMENT

1. Objective of the Project

   The objective of the Project is to expedite road repair work and improve road management by providing equipment for road construction and repairing, thereby contributing to improvement of road traffic in Djibouti.

2. Title of the Preparatory Survey

   Both sides confirmed the title of the Preparatory Survey as “the Preparatory Survey for the Project for Improvement of Road Management Equipment”.

3. Project Site

   Both sides confirmed that the sites of the Project are in Djibouti, which is shown in Annex 1.

4. Line Ministry and Executing Agency

   Both sides confirmed the line agency and executing agency as follows:

   4-1. The line ministry is Ministre de l’equipment et des Transport, which would be the ministry to supervise the executing agency.

   4-2. The executing agency is Agence Djiboutienne des Routes. The executing agency shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the undertakings are taken by relevant agencies properly and on time. The organization chart is shown in Annex 2.

5. Items requested by the Government of Djibouti

   5-1. As a result of discussions, both sides confirmed that the items requested by the Government of Djibouti are as follows:

   - Prioritized Roads to be maintained and repaired

   [Balbala zone]

   a) Djibouti city roads (Partially improve)
   b) PK51 – Alta beach section (Upgrade to paved road)

   [Dikhil zone]

   c) PK82 - Galafi section on RN1 (Partially improve)
   d) RN8 (Upgrade to paved road)

   [Tadjoura zone]

   e) PK51 – PK113 section on RN9 (Partially improve)
   f) RN12 (Upgrade to paved road)

g) RN16 (Leveling)

The Selected Roads of the Project will be confirmed at the mission to explain the contents of a draft final report.

- Requested equipment component

Both side confirmed the tentative requested equipment component as shown in ANNEX 3. The Project component will be determined in consideration with the priority shown in ANNEX 3 as well as the result of field survey by the Team.

- Repairing Workshop

JICA will assess existing workshop conditions and examine the necessity of repairing workshop. The Project component will be determined according to the result of assessment.

5-2. JICA will assess the appropriateness of the above requested items through the survey and will report findings to the Government of Japan. The final components of the Project would be decided by the Government of Japan.

6. Japanese Grant Scheme

6-1. Djibouti side understood the Japan Grant Scheme and its procedures as described in Annex 4 and Annex 5, and necessary measures to be taken by the Government of Djibouti.

6-2. Djibouti side understood to take the necessary measures, as described in Annex 6, for smooth implementation of the Project, as a condition for the Japanese Grant to be implemented. The detailed contents of the Annex 6 will be worked out during the survey and shall be agreed no later than by the Explanation of the Draft Preparatory Survey Report.

The contents of Annex 7 will be used to determine the following:

(1) The scope of the Project.
(2) The timing of the Project implementation.
(3) Timing and possibility of budget allocation.

Contents of Annex 7 will be updated as the Preparatory Survey progresses, and will finally be the Attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Djibouti until 31st August, 2015.

7-2. JICA will prepare a draft Preparatory Survey Report in French and dispatch a mission to Djibouti in order to explain its contents around December, 2015.

7-3. If the contents of the draft Preparatory Survey Report is accepted in principle and the undertakings are fully agreed by Djibouti side, JICA will complete a final report in French and send it to Djibouti around February, 2016.

7-4. The above schedule is tentative and subject to change.

8. Proper Use of the Equipment

Djibouti side understood the importance of "Proper Use" of equipment procured under the Japan Grant Scheme and they should be utilized in road construction for the road sections which were specified as the Target Sections of the Project.

9. Misconduct

The term explained and Djibouti side understood the preventive measures about fraudulent practices which would be stipulated in JICA's grant agreement.

10. Other Relevant Issues

10-1. Djibouti side shall, at its own expenses, provide the Team with the following items in cooperation with organizations concerned.

(1) Security-related information as well as measures to ensure the safety of the Team members;
(2) Information as well as support in obtaining medical service;
(3) Data and information related to the Preparatory Survey;
(4) Counterpart personnel;
(5) Suitable office space with necessary equipment and services;
(6) Credentials or identification cards;
(7) Entry permits necessary for the Team members to conduct field surveys; and
(8) Support in obtaining other privileges and benefits if necessary.

10-2. Djibouti side shall secure temporary construction yard, stock yard, venue and personnel necessary for the initial training of the equipment procured by the Project. Also, Djibouti side shall acquire all necessary approval and license from relevant stakeholders before the initial training.

10-3. Djibouti side shall secure enough budget and personnel necessary for the operation and maintenance of equipment procured by the Project, including the periodical maintenance work after the completion of the Project.

10-4. The Team requested that the Target Road of the Project should be constructed within 3 years after the hand-over of equipment.

10-5. Djibouti side requested the Team that JICA provides long-term technical training related to the Project as technical cooperation by JICA. Djibouti side

understands that the official request regarding long-term technical training will be needed to be submitted to the Japan. Djibouti side should submit the official request with the concrete contents of trainings.

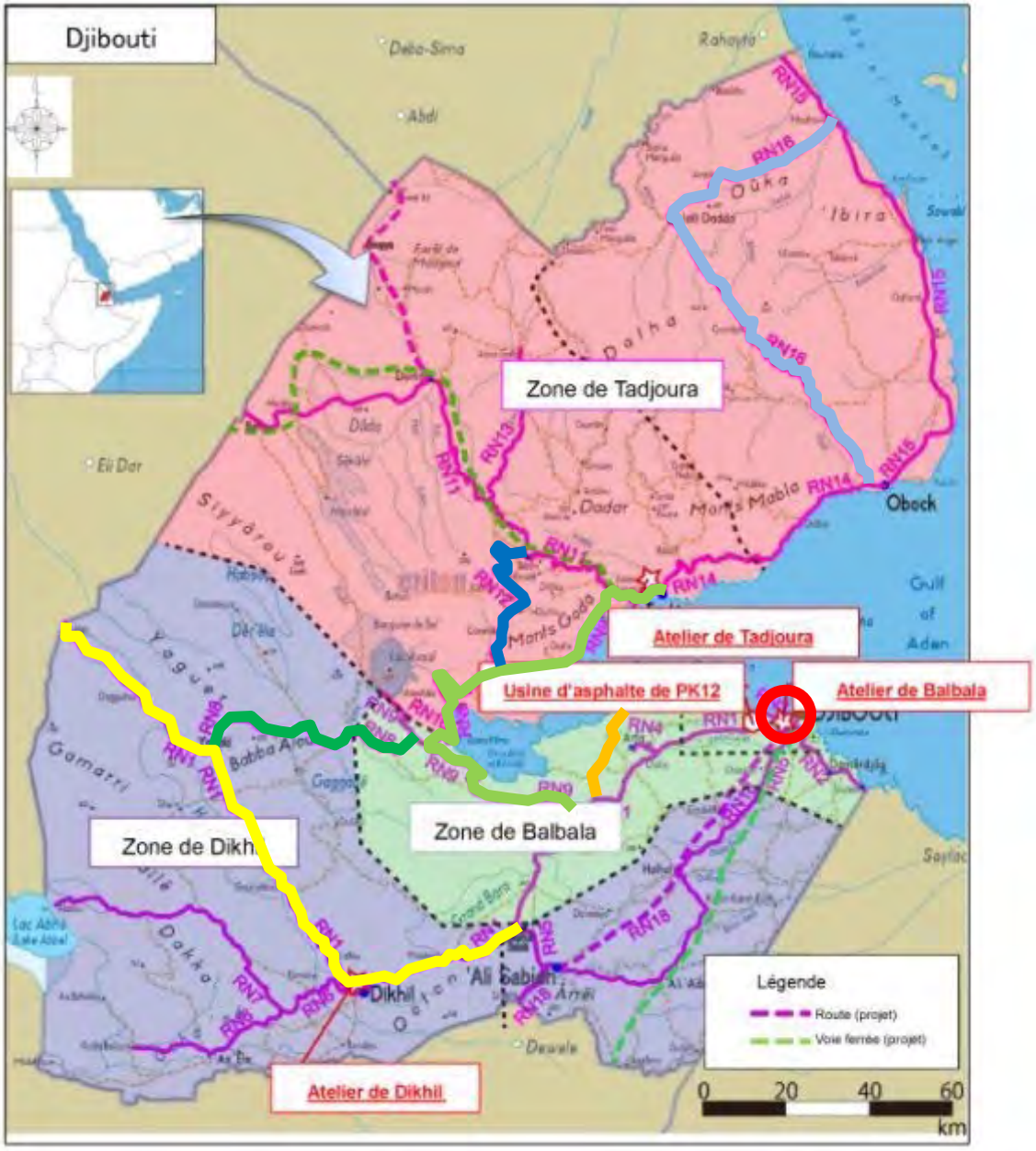
10-6. Agence Djiboutienne des Routes shall answer to the Questionnaire submitted by the Team in English with relevant documents by 9th August, 2015.

10-7. Both sides confirmed languages used for each documents as ANNEX 8.

Annex 1 Project Site
Annex 2 Organization Chart
Annex 3 Tentative requested equipment component
Annex 4 Japanese Grant
Annex 5 Flow Chart of Japanese Grant Procedures
Annex 6 Major Undertakings to be taken by Each Government
Annex 7 Project Monitoring Report (template)
Annex 8 Language used in each Document

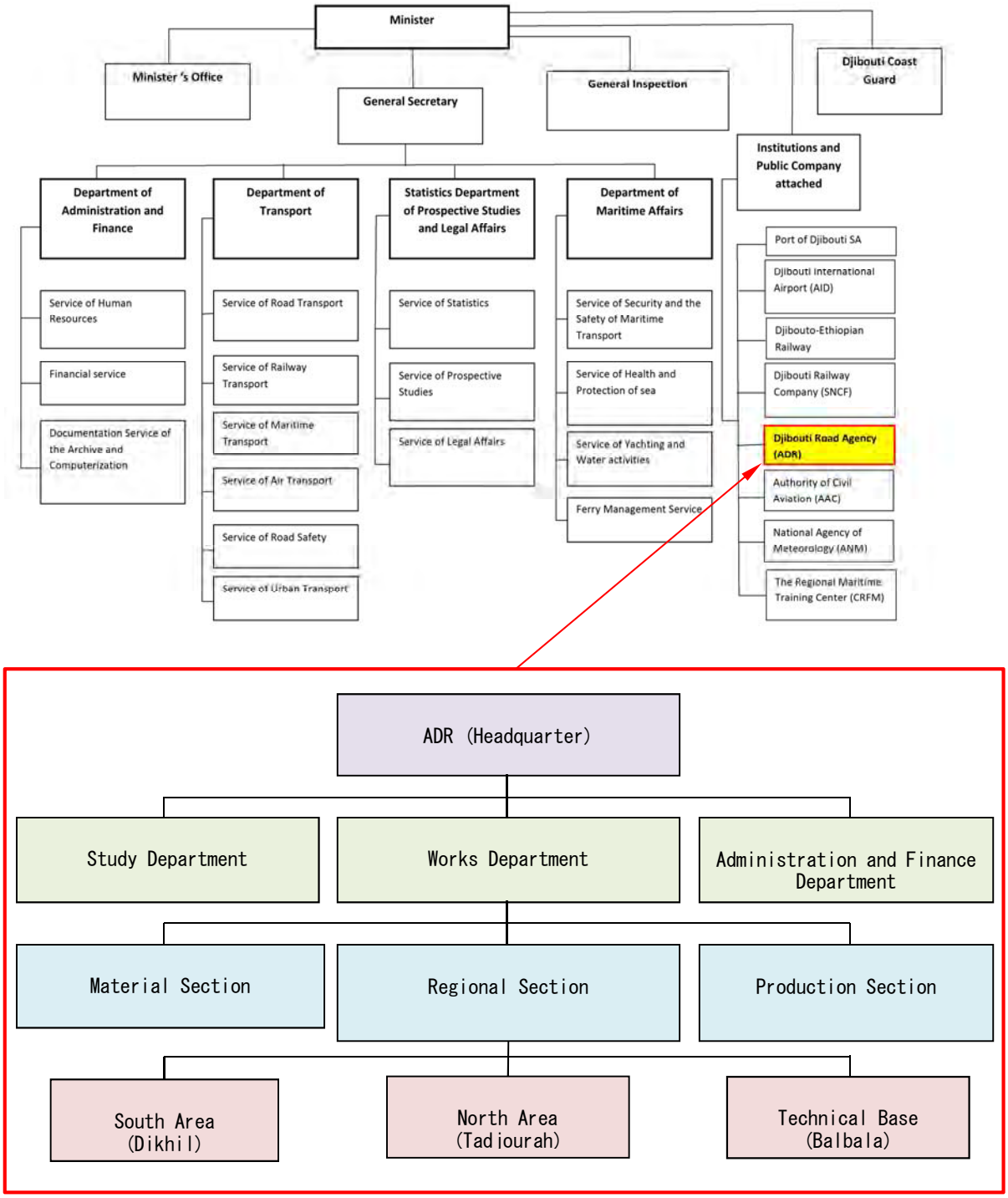
Annex 1

Project Site



a) Djibouti city roads (Partially improve)
b) PK51 – Alta beach section (Upgrade to paved road)
c) PK82 - Galafi section on RN1 (Partially improve)
d) RN8 (Upgrade to paved road)
e) PK51 – PK113 section on RN9 (Partially improve)
f) RN12 (Upgrade to paved road)
g) RN16 (Leveling)

Organization Chart



Annex 3

Tentative requested equipment component

No.	Name of Equipment		Specification
1-1	Wheel Loader		Bucket Capacity: Approx. 2.5 m^3 Engine Output: Approx. 140 kW , Operation Weight: not more than 17~20 ton, Max Dumping Clearance: Approx. 3 m
1-2	Motor Grader		Engine Output: Approx. 130 kW, Blade Length: Approx. 4 m, with Scarifier, and Articulation Frame Operation weight: Approx. 14 ton
1-3	Bulldozer (Crawler)		Operation Weight: Approx. 27~28 ton, Engine Output: Approx. 170 kW Straight Tilt Dozer and Multi-shank Ripper with ROPS cab
1-4			Operation Weight: Approx. 40 ton, Engine Output: Approx. 260 kW Straight Tilt Dozer and Multi-shank Ripper with ROPS cab
1-5	Hydraulic Excavator (Crawler)		Bucket Capacity: Approx. 0.8~1.0 m^3 Capable to attach Hydraulic Breaker Max. Digging Depth: more than 6 m Operation Weight: Approx. 20~25 ton Engine Output: Approx. 100~ 130 kW
1-6	Hydraulic Breaker		Attachment of the Hydraulic Excavator (Item: 1-5) Pyramidal Point Tool, Vertical, Box type Bracket Working Weight: 1600 ~ 2000 kg Impact Rate: 360 ~ 600 min^{-1}
1-7	Wheel Excavator		Bucket Capacity: Approx. 0.6 m^3 Max. Digging Depth: Approx. 5 m Operation Weight: Approx. 16 ton Engine Output: Approx. 90 kW
1-8	Vibratory Combined roller		Operation Weight: Approx. 13 ton Smooth Drum Vibration Power: Approx. 245 kN (25,000 kgf)
1-9	Vibratory Tandem Roller (for pavement work)		Operation Weight: Approx. 4 ton Smooth Drum (front & rear) Vibration Power: Approx. 26~34 kN
1-10	Tire Roller		Operation Weight: 8 ~ 15 ton (adjustable by ballast) Travel Speed: 0 ~ 20 km/h Compaction Width: Approx. 2000 mm

No.	Name of Equipment		Specification
1-11	Hand-guided Vibratory Roller		Operation Weight: Approx. 400~600 kg Vibration Power: Approx.10 kN Compaction Width: Approx. 600 mm
1-12	Plate Compactor		Weight: 40～60 kg Centrifugal Force: 6～10 kN Vibrating Plate Size: Approx. 550 × 350 (mm)
1-13	Asphalt Cutter		Max. Cutting Depth: Approx. 170 mm
1-14	Asphalt Plant		Mobile, batch type or continuous type The plant to be composed of aggregate supply system, dryer, hot aggregate elevator, filler supply system, weighing and mixing system, asphalt storage/heater, bitumen supply system. Capacity: Approx. 50 t/h
1-15	Rock Crushing & Screening Plant		Trailer-mounted Portable type, The plant to be composed of primary crusher, secondary crusher, vibratory screen, belt conveyers and power supply uint (generator) Capacity: Approx. 50 t/h
1-16	Asphalt Finisher		Crawler type Paving width: 2.0 ~ 6.0 m, Paving Thickness: 10 ~ 150 mm Travel Speed: 1.5 ~ 20 m/min. Hopper capacity: Approx. 10,000 kg
1-17	Bitumen Sprayer Truck (Bitumen Distributor)		Capacity: 4000 lit. With Sub-engine for Asphalt Pump Diesel Fuel Burner and Heater Splay Width: Approx. 3.6 m Carrier: 4 x 2, left-hand steering
1-18	Chip Spreader		Dump Truck mounted, Self-propelled Tail-gate type, Hopper: Approx. 0.3 m^3 Spreading Width: Approx. 1.6～2.4 m

No.	Name of Equipment		Specification
1-19	Concrete Mixer (for mixing cold mix asphalt)		Electric Motor driven Power source: 3-pahse, 380 V, 50Hz Capacity: 0.8 m^3
1-20	Concrete Mixer (for concrete work)		Diesel engine driven Capacity: 0.5 m^3
1-21	Dump Truck		Payload: 14 ton Engine Output: Approx. 190 kW Drive System: 6 x 4, Left-hand Steering, Air Brake GVW: Max. 26 ton
1-22	Water Bowser (Tanker)		Payload: 10 ton, (10,000 lit.) Engine Output: Approx. 150 kW Drive System: 4 x2 or 6 x 4, Left-hand Steering, Air Brake GVW: Approx. 23 ton
1-23	Trailer mounted Water Tank		Single or two axle, semi-trailer mounted water tank, Air Brake Capacity: 10000 lit.
1-24	Fuel Tanker		Payload: 8~ 10 ton, (8,000 ~ 10,000 lit.) Engine Output: Approx. 150 kW Drive System: 4 x2 or 6 x 4, Left-hand Steering, Air Brake GVW: Approx. 23 ton
1-25	Boom Truck (Cab-back Crane)		Cargo Truck with 5 ton Telescopic Boom Crane Payload: 10 ton, Drive system: 6 x4, Left-hand Steering, Air Brake, Engine Output: Approx.190 kW
1-26	Rough Terrain Crane		Lifting capacity: 25 ton, with Telescopic Boom Engine Output:Approx. 200 kW
1-27	Mobile Workshop		4 x 4 Cargo Truck, with 3 ton Telescopic Boom Crane, and Equipment and Tools necessary to carry out service for construction machines Left-hand Steering, Payload: Approx. 7~10 ton
1-28	Low Bed Semi-trailer (with Tractor Head)	 	Max. Payload: 30~40 ton, Rear Loading type Two or Three Axles, 8~16 Wheels Air Brake, Suspension: Multi-leaf Spring <u>Tractor Head</u> Forward Control, 6x4 Drive system Engine Output: Approx. 350 kW GCM : Approx. 60 ton Left-hand Steering, Air Brake

No.	Name of Equipment		Specification
1-29	Inspection Vehicle		4 x 4, Double Cab Pickup, Diesel Engine, Engine Output: Approx. 78 kW
1-30	Mini Dumper		Diesel Engine Driven, Load capacity: 1000 kg Hopper Capacity: Approx. 300 lit. Engine Output: Approx. 17 kW
1-31	Line Marker		Manually operated, flow-painting type, Line Width: 50, 100, 150 mm, Painting Speed: Approx. 100 m/5~10 min. Painting Distance: 300 ~ 400 m/20 lit. (100 mm line)
1-32	Asphalt Emulsion Plant		Capacity: 6 m^3/h. Details to be considered

No.	Name of Equipment		Specification
2-1	Generator		Diesel Engine Driven, 380/220 V, 50 Hz. 120 KVA
2-2	Air Compressor		Electric Motor driven, with Receiver Tank Discharge Pressure: 0.7~0.85 Mpa Power Source: 380 V/50 Hz/3-phase Receiver Tank Capacity: 2 m^3
2-3	Portable Welding Machine		AC/DC Welder Max. Welding Current: Approx. 250~350 A Power Source: 380 V/50 Hz/3-phase
			Disel Engine Driven Welder Max. Welding Current: Approx. 250~350 A
2-4	Electric High Pressure Washer		Water Discharge Pressure: Approx. 10 Mpa Water Discgarge Rate: 350~700 lit./h Power Source: 380 V/50 Hz/3-phase Water Tank Capacity: 2 m^3
2-5	Mechanic Tool Set		70 pces/set (Approx.)

Annex 4

Japanese Grant

Based on a JICA law which was entered into effect on October 1, 2008 and the decision of the GOJ, JICA has become the executing agency of the Japanese Grant for Projects for construction of facilities, purchase of equipment, etc.

The Japanese Grant (hereinafter referred to as the "Grant") is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant is not supplied through the donation of materials as such.

1. Grant Procedures

The Grant is supplied through following procedures:

・Preparatory Survey
- The Survey conducted by JICA

・Appraisal &Approval
-Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet

・Authority for Determining Implementation
-The Notes exchanged between the GOJ and a recipient country

・Grant Agreement (hereinafter referred to as "the G/A")
-Agreement concluded between JICA and a recipient country

・Implementation
-Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.

- Evaluation of the appropriateness of the Project to be implemented under the Grant Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of a outline design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant project. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japanese Grant Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as “the E/N”) will be singed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles, in accordance with the E/N, to

implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. The Grant may be used for the purchase of the products or services of a third country, if necessary, taking into account the quality, competitiveness and economic rationality of products and services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals", in principle.

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals, in principle. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Project, the recipient country is required to undertake such necessary measures as Annex. The Japanese Government requests the Government of the recipient country to exempt all customs duties, internal taxes and other fiscal levies such as VAT, commercial tax, income tax, corporate tax, resident tax, fuel tax which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract, since the Grant fund comes from the Japanese taxpayers.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant.

(7) "Export and Re-export"

The products purchased under the Grant should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"), in principle. JICA will execute the Grant by making payments in Japanese yen, in principle, to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

The Government of the recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

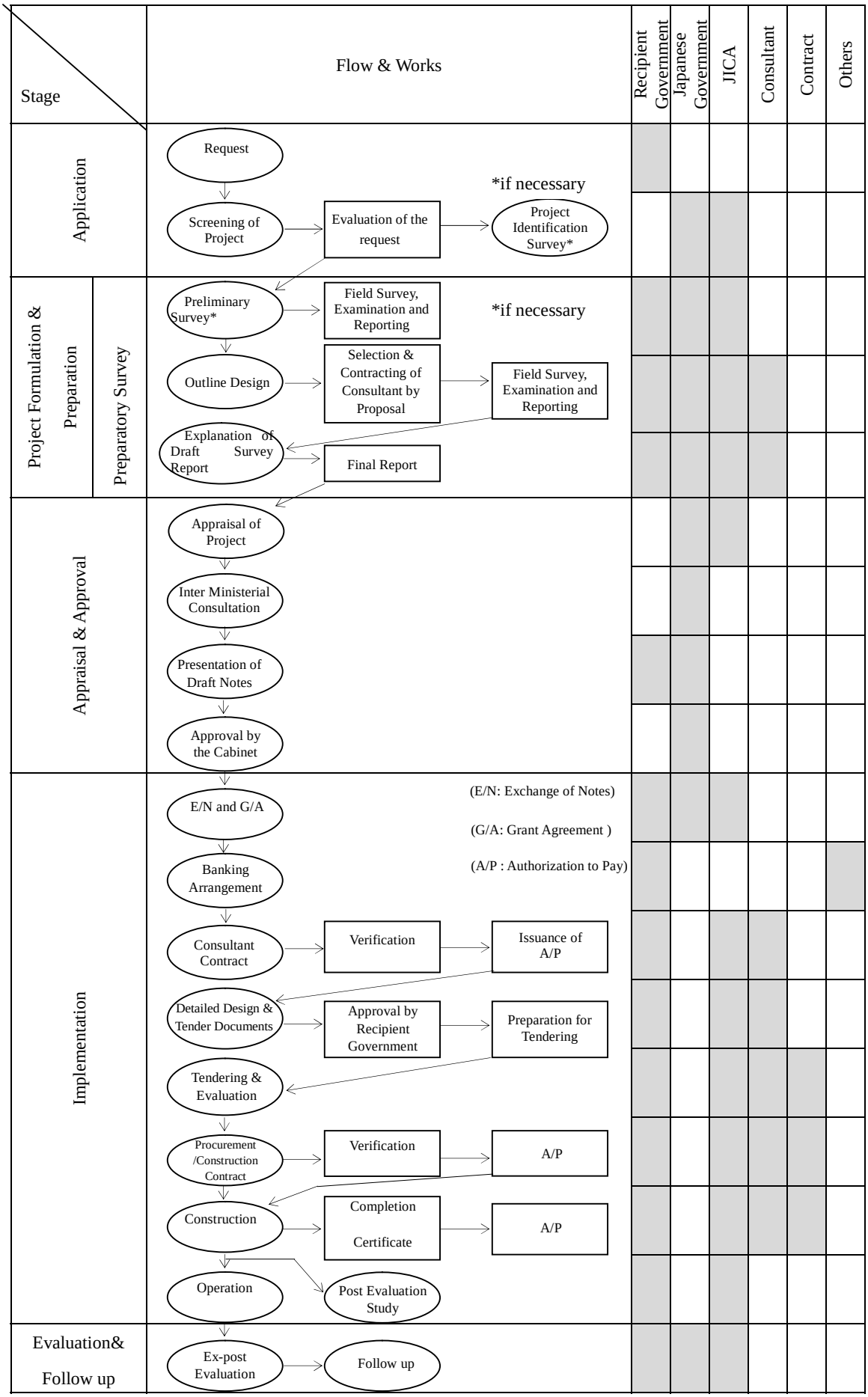
(11) Monitoring

The Government of the recipient country must take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and must regularly report to JICA about its status by using the Project Monitoring Report (PMR).

(12) Safety Measures

The Government of the recipient country must ensure that the safety is highly observed during the implementation of the Project.

FLOW CHART OF JAPANESE GRANT PROCEDURES



Annex 6

Major Undertakings to be taken by Recipient Government

1. Before the Tender

NO	Items	Deadline	In charge	Cost	Ref.
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A	MOF		

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the singing of the contract	MET		
	2) Payment commission for A/P	every payment	MOF		
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	1) Tax exemption and customs clearance of the products at the port of disembarkation	during the Project	MET		
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project			
4	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the Products and/or the Services be exempted; Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, commercial tax, income tax and corporate tax of Japanese nationals, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	during the Project			
5	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment	during the Project			
6	To Be Updated during Preparatory Survey				
	1) To acquire all necessary approval and license from relevant stakeholders before the initial training 2) To secure temporary construction yard, stock yard, venue and personnel necessary for the initial training of the equipment procured by the Project.	3 months before completion of the construction			

3. After the Project

NO	Items	Deadline	In charge	Cost	Ref.
1	To maintain and use properly and effectively equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction			

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

Major Undertakings to be Covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*	
1	To procure equipment		XX.XX	
	1) To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country			
	a) Marine(Air) transportation of the products from Japan to the recipient country			
	b) Internal transportation from the port of disembarkation to the project site			
	2) To conduct a training about usage of equipment			
2	To implement detailed design, tender support, procurement supervision and technical assistance. (Consultant)		YY.YY	
	Total		ZZ.ZZ	

*; The cost estimates are provisional. This is subject to the approval of the Government of Japan.

DRAFT

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX

20XX, Month

Organization Information

Authority (Signer of the G/A)	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Ministry	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

Outline of Grant Agreement:

Source of Finance	Government of Japan: Not exceeding JPY _____mil. Government of (_____): _____
Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:

1: Project Description

1-1 Project Objective

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

1-3 Effectiveness and the indicators

- Effectiveness by the Project

Quantitative Effect（Operation and Effect indicators）		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	**Original:** *(M/D)* **Attachment(s):Map**	**Actual:** *(PMRand PCR)* **Attachment(s):Map**

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D)	*(M/D)*	*(PMR and PCR)* Please state not only th e most updated schedul e but also other past re visions chronologically.

'Soft component' shall be included in 'Items'.		All change of design shal l be recorded regardless of its degree.

2-1-2 Reason(s) for the modification if there have been any.

(PMR and PCR)

2-2 Implementation Schedule
2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
【M/D】 'Soft component' shall be stated in the column of 'Items'. Project Completion Date*	*(M/D)*		*(PMR,PCR)* As of (Date of Revision) Please state not only the most updated schedule but also other past revisions chronologically.

*Project Completion was defined as _____ at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

(PMR and PCR)

2-3 Undertakings by each Government
2-3-1 Major Undertakings
See Attachment 2.

2-3-2 Activities
See Attachment 3.

2-4 Project Cost
2-4-1 Project Cost

Table 2-3-1 Comparison of Original and Actual Cost by the Government of Japan
(Confidential until the Tender)

Items	Cost (Million Yen)

	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design -Procurement Management -Construction Supervision			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

Table 2-3-2 Comparison of Original and Actual Cost by the Government of XX

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = (local currency)

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR, PCR)

2-5 Organizations for Implementation

2-5-1 Executing Agency:

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original: *(M/D)*

Actual, if changed: *(PMR and PCR)*

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number ,qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original*: (M/D)*
Actual: (*PCR*)

3-2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original*: (M/D)*

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s)*: (M/D)*	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:

	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
3.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR and PCR)	

5: Evaluation at Project Completion and Monitoring Plan

5-1 Overall evaluation

Please describe your overall evaluation on Project.

(PCR)

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

5-3 Monitoring Plan for the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

(PCR)

Attachment

1. Project Location Map
2. Undertakings to be taken by each Government
3. Monthly Report
4. Report on RD
5. Monitoring report on environmental and social considerations
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (Completion Report Only)

ANNEX 8

Language used in each Document

No	Item	Prepared by	Language	
			French	English
I	**PREPARATORY SURVEY STAGE**			
1.	Field Survey Report	Consultant		○
2.	Draft Preparatory Survey Report (Draft Final Report) Note: Technical contents	Consultant	○	○ (Note)
3.	Preparatory Survey Report (Final Report) Note: Technical contents	Consultant	○	○ (Note)
II	**IMPLEMENTATION STAGE**			
1.	**Documents for the Agreement for Consulting Services**			
1.1	Agreement for Consulting Services	Consultant	○	
1.2	Recommendation of Consultant	JICA	○	
1.3	Documents for Banking Arrangement (B/A, A/P)	Bank	○	
1.4	Documents for Payment	Consultant	○	
2.	**Documents for the Contract with Supplier**			
2.1	Tender Announcement	Consultant		○
2.2	Tender Documents			
	Volume I Tender Conditions and Contract	Consultant		○
	Part I : Instructions to Tenderers	Consultant		○
	Part II : Forms of Tender	Consultant		○
	Part III : Form of Contract	Consultant	○	
	Volume II Specifications	Consultant		○
2.3	Questions and Answers to Tender Documents	Tenderer/ Consultant		○
2.4	Document of Submissions of Tenders	Tenderer (Supplier)		○
2.5	Tender Evaluation Report	Consultant	○	○
2.6	Contract for execution	Supplier	○	
2.7	Documents for Banking Arrangement (B/A, A/P)	Bank	○	
2.8	Documents for Payment	Supplier	○	
2.9	Completion Certificate	Consultant/Buyer	○	
2.10	Technical Documents for Approval	Supplier		○
2.11	Operation and Maintenance Manuals (Manufacturer original) Note: If available by manufacturer	Supplier	○ (Note)	○

Procès-verbal des Discussions
sur l'Étude Préparatoire concernant le Projet
d'Amélioration des Équipements de Gestion des Routes
(Explications du Rapport d'Etude Préparatoire Provisoire)

Sur la base des discussions et étude de terrain menées en République de Djibouti (ci-après désignée « Djibouti ») en août 2015, et sur la base de l'examen technique ultérieur des résultats mené au Japon, l'Agence Japonaise de Coopération Internationale (ci-après désignée « La JICA ») a préparé un Rapport d'Etude Préparatoire Provisoire du Projet pour la mise en œuvre du Projet sur les Equipements de Gestion des Routes (ci-après désigné « le Rapport provisoire »).

Afin d'expliquer le Rapport provisoire et de consulter les responsables concernés du gouvernement de Djibouti sur le contenu du Rapport provisoire, la JICA a délégué à Djibouti une Equipe d'Etude préparatoire pour l'explication du Rapport provisoire (ci-après désignée « l'Equipe »), dirigée par M. Hiroyuki OGINO, conseiller principal, Département des Infrastructures et de la Consolidation de la Paix, et il est prévu que l'Equipe séjourne à Djibouti du 13 au 18 décembre 2015.

A l'issue des discussions, les deux parties ont confirmé les principaux items décrits dans les feuillets ci-dessous.

Djibouti, le 15 décembre 2015

Hiroyuki OGINO
Chef de mission, Mission d'Étude préparatoire
Agence Japonaise de Coopération Internationale
Japon

Mahmoud Moussa Ahmed
Directeur Général
Agence Djiboutienne des Routes
République de Djibouti

Les témoins :

Yacin Houssein Doualé
Directeur des Relations Bilatérales, Ministère des Affaires Etrangères et de la Coopération Internationale

Said Nouh Hassan
Secrétaire Général, Ministère de l'Equipement et des Transports

APPENDICES

1. Objectif du Projet

   L'objectif du Projet d'amélioration des équipements de gestion des routes (ci-après dénommé « le Projet ») est d'accélérer les travaux de réparation des routes et d'améliorer la gestion des routes par le biais de la fourniture des équipements de construction et de réparation, en contribuant ainsi à l'amélioration du trafic routier à Djibouti.

2. Nom de l'Étude préparatoire

   Les deux parties ont confirmé le nom de l'Étude préparatoire stipulée comme suit : « l'Étude préparatoire concernant le Projet d'Amélioration des Équipements de Gestion des Routes ».

3. Site du Projet

   Les deux parties ont confirmé que les sites du Projet se situent à Djibouti tel qu'indiqué à l'Annexe 1.

4. Organisme de tutelle responsable et organismes d'exécution

   Les deux parties ont confirmé l'organisme de tutelle et les organismes d'exécution comme suit :

   4-1. Le ministère de tutelle

   Le ministère de tutelle est le Ministère de l'Équipement et des Transports, qui supervisera l'organisme d'exécution.

   4-2. L'organisme d'exécution

   L'organisme d'exécution est l'Agence Djiboutienne des Routes (ci-après dénommée « l'ADR »). L'organisme d'exécution devra coordonner l'ensemble des organismes compétents, afin d'assurer une bonne mise en œuvre du Projet et que les dispositions soient prises par les organismes compétents de manière appropriée et dans les temps impartis. L'organigramme est indiqué à l'Annexe 2.

5. Contenu du Rapport préparatoire

   Après l'explication du contenu du Rapport préparatoire donnée par l'équipe d'étude, la partie djiboutienne a accepté son contenu dans son principe.

6. Estimation des coûts

Les deux parties ont confirmé que l'estimation des coûts du Projet décrit dans le Rapport préliminaire était provisoire et qu'elle serait examinée ultérieurement par le Gouvernement du Japon pour approbation finale.

7. Confidentialité de l'estimation des coûts et des spécifications

Les deux parties ont confirmé que l'estimation des coûts du Projet et les spécifications techniques du Rapport préliminaire ne devront jamais être dupliquées ou communiquées à aucune partie tierce jusqu'à ce que tous les contrats du Projet soient conclus.

8. Système d'aide financière non-remboursable du Japon

La partie djiboutienne prend connaissance du système d'aide financière non-remboursable du Japon et de ses procédures décrits à l'Annexe 4 et à l'Annexe 5, ainsi que des mesures nécessaires qui devront être prises par le Gouvernement de Djibouti.

9. Calendrier d'exécution du Projet

L'équipe a expliqué à la partie djiboutienne que le calendrier d'exécution prévisionnel est joint en annexe 7.

10. Résultats escomptés et indicateurs

Les deux parties ont convenu que les indicateurs clés pour les résultats escomptés sont les suivants. La partie djiboutienne a la responsabilité de surveiller la progression des indicateurs et d'atteindre les objectifs en 2020.

[Effet quantitatif]

	Routes	Longueur de la section ciblée	Indicateur 1			Indicateur 2		
			Indicateur	Valeur en cours (Année 2015)	Valeur cible (Année 2020)	Indicateur	Valeur en cours (Année 2015)	Valeur cible (Année 2020)
1	Voirie de la ville de Djibouti	1,4 km	Longueur cible	0 km	1,4 km	Vitesse moyenne du véhicule	15km/ heure	30km/ heure
2	RN1 (Dikhil à Galafi)	100 km		-	-		45km/ heure	60km/ heure
3	RN9 (RN1 PK51 à Tadjoura)	123 km		-	-		40km/ heure	60km/ heure
4	RN12 (RN9 à Day)	21 km		0 km	21 km		25km/ heure	40km/ heure
5	RN16 (RN14 à Gorriliyita)	40 km		0 km	40 km		30km/ heure	50km/ heure

[Effet qualitatif]

- Développement de grands axes routiers notamment pour les lignes de bus publiques, et accroissement du volume du trafic, ce qui va permettre de gagner en commodité.
- L'environnement de vie des villageois et des nomades le long de la route sera amélioré par la réduction de la poussière, etc.

11. Assistance technique (Projet de la « composante soft »)
Du point de vue de l'exploitation et de l'entretien durables des équipements fournis, il est prévu de fournir dans le cadre du Projet une assistance technique. La partie djiboutienne a confirmé qu'elle attribuera un nombre nécessaire de C/P compétents et appropriés tel que décrit dans le Rapport préliminaire.

12. Engagement à prendre par les deux parties
Les deux parties ont confirmé les engagements décrits dans l'annexe 8. La partie djiboutienne s'est engagée à prendre les mesures nécessaires et à prendre en charge la coordination, y compris l'attribution des budgets nécessaires qui sont des conditions préalables à l'exécution du Projet. En outre, il a été convenu que les coûts sont à titre indicatif, à savoir au niveau de la conception générale. Les coûts plus précis seront calculés au niveau de la conception détaillée. Le contenu de l'Annexe 8 sera mis à jour en fonction de la progression de la conception détaillée et sera finalement la pièce jointe à l'Accord de Don.

13. Suivi pendant la mise en œuvre du Projet
Le projet sera surveillé au moment de la livraison sur le site du Projet par l'organisme d'exécution en utilisant le Rapport de suivi du Projet.

14. Evaluation ex-post
La JICA effectuera une évaluation ex-post trois ans après l'achèvement du Projet selon cinq critères d'évaluation (pertinence, efficacité, efficience, impact, durabilité) du Projet. Les résultats de l'évaluation seront publiés. Il est demandé à la partie djiboutienne de fournir l'appui nécessaire.

15. Questions à prendre en considération pour une mise en œuvre harmonieuse du Projet
Les deux parties ont confirmé que les questions seront examinées et les mesures nécessaires s'y rapportant seront prises pour une mise en œuvre harmonieuse du

Projet décrit dans l'Annexe 8.

La partie djiboutienne a pris bonne note de l'importance de renforcer de manière constante les acquis du Projet avec les opérateurs qualifiés comme indiqués à l'Annexe 12 correspondant à la quantité d'équipements à fournir dans le cadre du Projet.

De plus, elle mettra à disposition un dépôt d'équipements et un entrepôt de pièces de rechange avant la livraison des équipements, tout en assurant en particulier les installations d'atelier pour les équipements d'atelier conformément à l'Atelier Plan d'action comme présenté à l'Annexe 11, et informera de tels travaux de préparation le bureau de la JICA à Djibouti à l'aide du formulaire de rapport joint à l'Annexe 11.

16. Calendrier de l'étude

La JICA complètera le Rapport final de l'Etude préparatoire conformément aux éléments confirmés et le Rapport final sera envoyé à la partie djiboutienne vers mars 2016.

17 Autres points importants

17-1. Service après-vente des Equipements

Les deux parties ont confirmé qu'un service après-vente approprié sera assuré par le(les) fournisseur(s) et le(les) fabricant(s) pour tous les équipements, y compris le(les) produit(s) provenant des pays tiers.

17-2. Exploitation et maintenance des équipements

L'équipe d'étude a expliqué l'importance de l'exploitation et de la maintenance des équipements approvisionnés par le Projet étant donné que la gestion adéquate impacte grandement la durée de vie des équipements ainsi que le coût de la maintenance. La partie djiboutienne doit garantir suffisamment de personnel et de budget nécessaires à l'exploitation et à la maintenance des équipements.

17-3. Mesures de sécurité

La partie djiboutienne a compris l'importance des mesures de sécurité dans les phases de construction et de mise en service, mesures qui sont basées sur « Le guide de gestion de la sécurité pour les travaux de construction dans les projets d'APD du Japon » publié sur l'URL du site de la JICA ci-dessous.

http://www.jica.go.jp/activities/schemes/oda_safety/ku57pq00001nz4eu-att/guidance_fr.pdf

17-4. Faute

Si la JICA reçoit des informations liées à des pratiques malhonnêtes ou frauduleuses dans la mise en œuvre du Projet, l'ADR et les organismes compétents doivent fournir à la JICA des informations supplémentaires, y compris des informations relatives à tout fonctionnaire concerné du gouvernement et/ou d'organismes publics de Djibouti.

L'ADR et les organismes compétents ne devront pas traiter injustement ou défavoriser le(s) personne(s) et/ou société qui auront fourni les informations relatives aux soupçonnées pratiques, corrompues ou frauduleuses, soupçonnées dans la mise en œuvre du Projet.

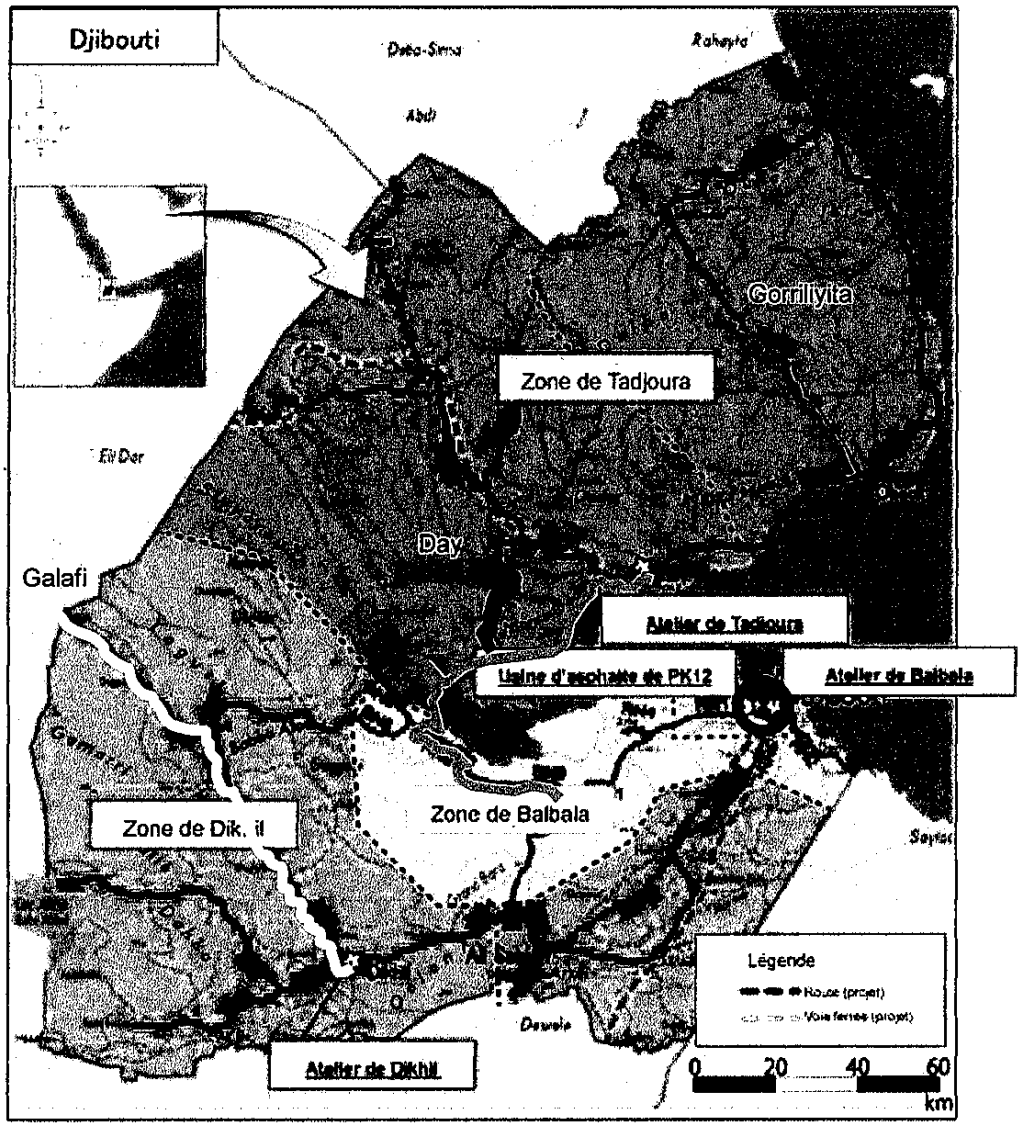
17-5. Divulgation d'informations

Les deux parties ont confirmé que les résultats de l'étude, mis à part le coût du Projet, seront divulgués au public après achèvement de l'Etude préparatoire. Tous les résultats de l'étude, y compris le coût du Projet, seront divulgués au public une fois que tous les contrats du Projet seront conclus.

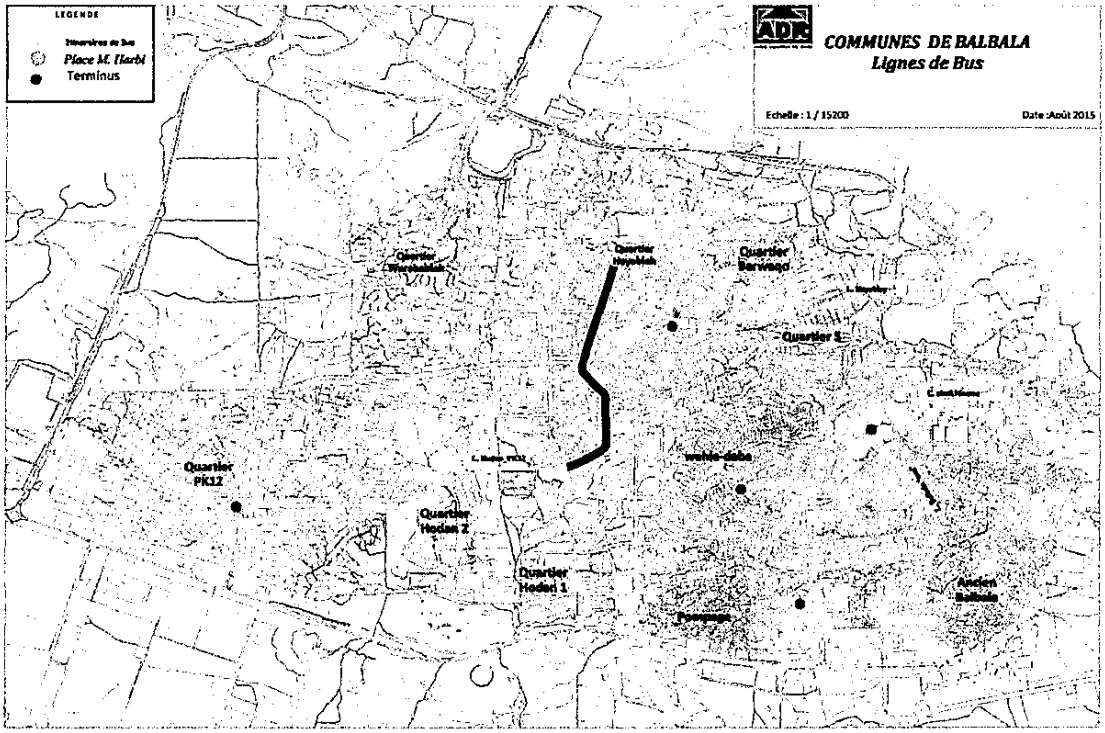
Annexe 1 Site du Projet
Annexe 2 Organigramme
Annexe 3 Estimation des coûts du Projet
Annexe 4 Aide financière non remboursable du Japon
Annexe 5 Ordinogramme de la procédure de l'aide financière non remboursable du Japon
Annexe 6 Flux financiers dans les procédures d'aide financière non remboursable du Japon
Annexe 7 Calendrier de la mise en œuvre du Projet
Annexe 8 Principales dispositions à prendre par chaque gouvernement
Annexe 9 Langues utilisées dans chaque document
Annexe 10 Rapport de suivi du Projet (modèle)
Annexe 11 Plan de disposition des ateliers devant être préparés par la partie djiboutienne ainsi que le formulaire du rapport
Annexe 12 Plan de renforcement de l'ADR

Annexe 1

Site du Projet



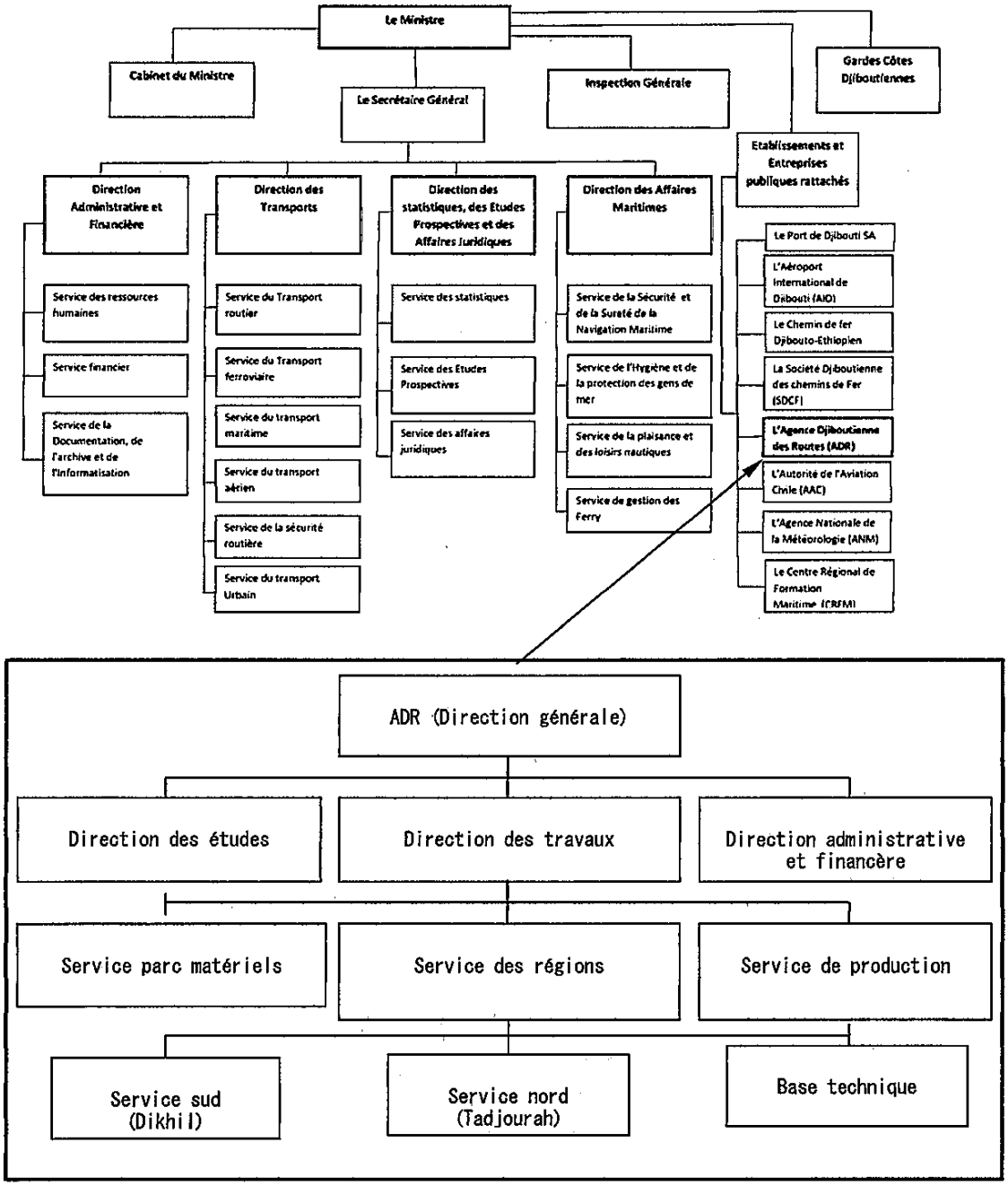
a) Voies urbaines de la ville de Djibouti (amélioration partielle)
b) Section PK82 - Galafi sur la RN1 (amélioration partielle)
c) Section PK51 – PK113 sur la RN9 (amélioration partielle)
d) RN12 (amélioration en route revêtue)
e) RN16 (nivellement)



a) Voies urbaines de la ville de Djibouti (amélioration partielle)

Annexe 2

Organigramme



Annexe 3

Estimation des coûts du Projet

Confidentiel

1. Partie japonaise

Le coût est confidentiel..

2. Partie djiboutienne

Le coût indiqué ci-dessous devra être pris en charge par la partie djiboutienne.

Approximativement 92 000 US dollars

Items		Montant (million de yen)
Préparation pour la livraison des équipements	Mise à disposition des dépôts d'équipements et de pièces de rechange	2 000
	Mise à disposition des réseaux publics pour les équipements d'atelier	20 000
Composante soft	Construction d'une route pilote	60 000
Commissions bancaires sur la base de l'Arrangement Bancaire		10 000

La partie djiboutienne allouera un montant d'environ 4,8 millions de US dollars à la construction et la maintenance des routes cibles dans le budget de 2018 à 2020. En outre, la partie djiboutienne supportera le coût de la main-d'œuvre permettant d'augmenter le nombre d'opérateurs nécessaires avant la livraison des équipements comme indiqué à l'Annexe 12.

Les conditions d'estimation du coût sont les suivants.

1. Période d'estimation du coût : Septembre 2015
2. Taux de change : 1 US dollar = 124,40 yen japonais (JPY)
3. Délai d'exécution : Voir à l'Annexe 7 « Calendrier de la mise en œuvre du Projet »
4. Autres : Le coût est estimé conformément au système de la coopération financière non-remboursable du Gouvernement du Japon.

Annexe 4

Aide financière non remboursable du Japon

En se basant sur la loi de la JICA entrée en vigueur le 1er octobre 2008 et la décision du Gdj, la JICA est devenue l'agence exécutive de l'aide financière non remboursable concernant les Projets de construction des installations, d'acquisition d'équipements, etc.

L'aide financière non remboursable du Japon consiste en des fonds non remboursables pour le pays bénéficiaire qui permettront de fournir les installations, les équipements et les services (services techniques ou transport des produits, etc.) pour le développement socio-économique du pays, selon les principes suivants et conformément aux lois et réglementations y afférentes du Japon. La coopération financière non remboursable n'est pas effectuée sous forme de don de matériel en nature au pays bénéficiaire.

1. Procédures de l'aide financière non remboursable du Japon

L'aide financière non remboursable du Japon est menée comme suit :

- Etude préliminaire (ci-après dénommée « l'Etude »)
  - L'Etude menée par la JICA
- Estimation et approbation
  - Estimation par le Gdj et la JICA. Approbation par le Conseil des ministres du Japon
- Détermination de l'exécution
  - L'Echange de Notes entre le Gdj et un pays bénéficiaire
- Accord de Don (ci-après dénommé « l'A/D »)
  - Accord conclu entre la JICA et un pays bénéficiaire
- Exécution
  - Mise en œuvre du Projet sur la base de l'A/D

2. Etude préparatoire

(1) Contenu de l'Etude

Le but de l'Etude est de fournir un document de base nécessaire pour l'estimation du Projet par la JICA et le Gdj. Le contenu de l'Etude est le suivant :

- confirmer l'arrière-plan de la requête, les objectifs et les effets du Projet ainsi que les capacités de maintenance du pays bénéficiaire nécessaires à l'exécution du Projet.
- évaluer la pertinence de l'aide financière non remboursable d'un point de vue technique, financier et socio-économique
- confirmer le concept de base du Projet convenu après concertations entre les deux parties
- préparer un concept de base du Projet ; et
- estimer les coûts du Projet

Le contenu de la requête initiale du pays bénéficiaire n'est pas obligatoirement approuvé, dans sa version initiale, en tant que contenu de l'aide financière non remboursable. Le concept de base du Projet doit être confirmé selon les Directives du système d'aide financière non remboursable du Japon.

La JICA demande au gouvernement du pays bénéficiaire de prendre toutes les mesures nécessaires pour assurer son indépendance lors de l'exécution du Projet. Ces mesures doivent être garanties même si elles n'entrent pas dans la juridiction de l'organisme du pays bénéficiaire en charge de l'exécution du Projet. Par conséquent, l'exécution du Projet doit être confirmée par toutes les organisations concernées du pays bénéficiaire par la signature du Procès-verbal des discussions.

(2) Sélection des consultants

En vue de la bonne exécution de l'Etude, la JICA utilise un (des) consultant(s). La JICA effectue une sélection basée sur des propositions soumises par ces derniers.

(3) Résultat de l'Etude

Le rapport de l'Etude est relu par la JICA, et après confirmation de la justesse du Projet, la JICA recommande au Gdj d'effectuer une estimation sur l'exécution du Projet.

3. Système d'aide financière non remboursable du Japon

(1) E/N et A/D

Après l'approbation du Projet par le Conseil des ministres du Japon du Projet, l'Echange de Notes (ci-après dénommé « l'E/N ») sera signé entre le Gdj et le Gouvernement du pays bénéficiaire pour formuler une demande d'aide, qui sera suivie par la conclusion de l'A/D entre la JICA et le Gouvernement du pays bénéficiaire afin de définir les clauses nécessaires, conformément à l'E/N, pour l'exécution du Projet, telles que les conditions de paiement, les responsabilités du Gouvernement du pays bénéficiaire, et les conditions d'approvisionnement.

(2) Sélection des Consultants

Le(s) consultant(s) employé(s) pour l'Etude sera (seront) recommandé(s) par la JICA au pays bénéficiaire pour également travailler sur l'exécution du Projet après l'E/N et l'A/D en vue de maintenir l'uniformité technique.

(3) Pays d'origine éligible

Dans le cadre de l'aide financière non remboursable du Japon, l'acquisition portera en principe sur des produits et des services japonais et du pays bénéficiaire incluant le transport. L'aide financière non remboursable pourra être utilisée, s'il y a lieu, pour l'achat des produits ou des services d'un pays tiers, compte tenu de leur quantité, de leur compétitivité

et de leur rationalité économique pour atteindre l'objectif du Projet. Toutefois, les principaux contractants, à savoir les sociétés de construction et d'approvisionnement, et le consultant principal seront limités, en principe, aux « ressortissants japonais ».

(4) Nécessité de la « vérification »

Le gouvernement du pays bénéficiaire ou son représentant autorisé conclura en principe les contrats en Yen japonais avec les ressortissants japonais. Ces contrats seront vérifiés par la JICA. Cette « vérification » est nécessaire afin d'assumer sa responsabilité envers les contribuables japonais.

(5) Principales dispositions à prendre par le gouvernement du pays bénéficiaire

Lors de l'exécution de l'aide financière non remboursable, le pays bénéficiaire devra prendre les dispositions telles qu'indiquées à l'Annexe. Le Gouvernement du Japon demande au Gouvernement du pays bénéficiaire d'exonérer tous les droits de douane, les taxes intérieures et autres charges fiscales tels que la TVA, la taxe commerciale, les impôts sur le revenu, les impôts sur les sociétés, la taxe d'habitation, la taxe sur les carburants qui peuvent être imposés dans le pays bénéficiaire par rapport à la fourniture des produits et des services dans le cadre du contrat vérifié, car les fonds de l'aide financière non remboursable proviennent des contribuables japonais.

(6) « Usage adéquat »

Le Gouvernement du pays bénéficiaire est requis d'entretenir et d'utiliser les installations construites et les équipements achetés dans le cadre de l'aide financière non remboursable de manière adéquate et efficace et de désigner le personnel nécessaire pour le fonctionnement et la maintenance ainsi que de prendre en charge toutes les dépenses autres que celles couvertes par l'aide financière non remboursable.

(7) « Exportation et Réexportation »

Les produits achetés dans le cadre de l'aide financière non remboursable ne doivent pas être exportés ou réexportés à partir du pays bénéficiaire.

(8) Arrangement bancaire (A/B)

a) Le Gouvernement du pays bénéficiaire ou son « représentant autorisé » devra en principe ouvrir un compte à son nom dans une banque au Japon (ci-après dénommée la « Banque »). La JICA exécutera en principe l'aide financière non remboursable en procédant aux paiements en Yen japonais pour couvrir les obligations du Gouvernement du pays bénéficiaire ou de son représentant autorisé conformément aux contrats vérifiés.

b) Les paiements seront effectués lorsque les demandes de paiement seront présentées par la Banque à la JICA conformément à l'Autorisation de Paiement (A/P) émise par le Gouvernement du pays bénéficiaire ou de son représentant autorisé.

(9) Autorisation de Paiement (A/P)

Le Gouvernement du pays bénéficiaire devra régler à la banque la commission de notification de l'autorisation de paiement et la commission de paiement.

(10) Considérations sociales et environnementales

Le Gouvernement du pays bénéficiaire doit assurer les considérations sociales et environnementales pour le Projet et doit suivre les règlements environnementaux du pays bénéficiaire et les directives socio-environnementales de la JICA.

(11) Suivi

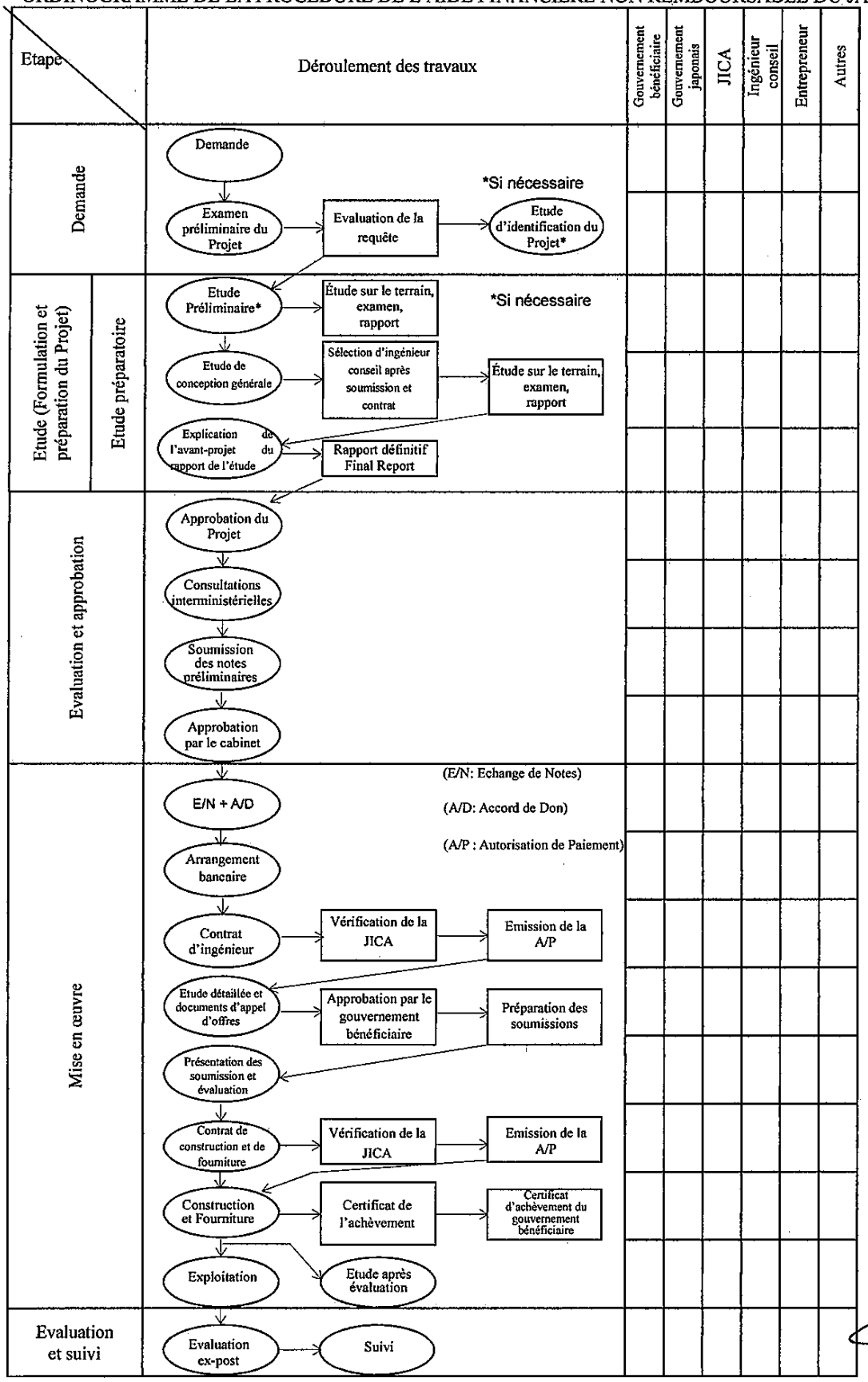
Le Gouvernement du pays bénéficiaire prendra les initiatives afin de superviser attentivement l'avancement du Projet afin d'assurer sa bonne exécution, et ceci étant du domaine de sa responsabilité telle que définie dans l'A/D, et rapportera régulièrement à la JICA le point sur la situation du Projet par le biais du Rapport de suivi du Projet (RSP).

(12) Mesures de sécurité

Le Gouvernement du pays bénéficiaire assurera que la sécurité est bien observée tout au long de l'exécution du Projet.

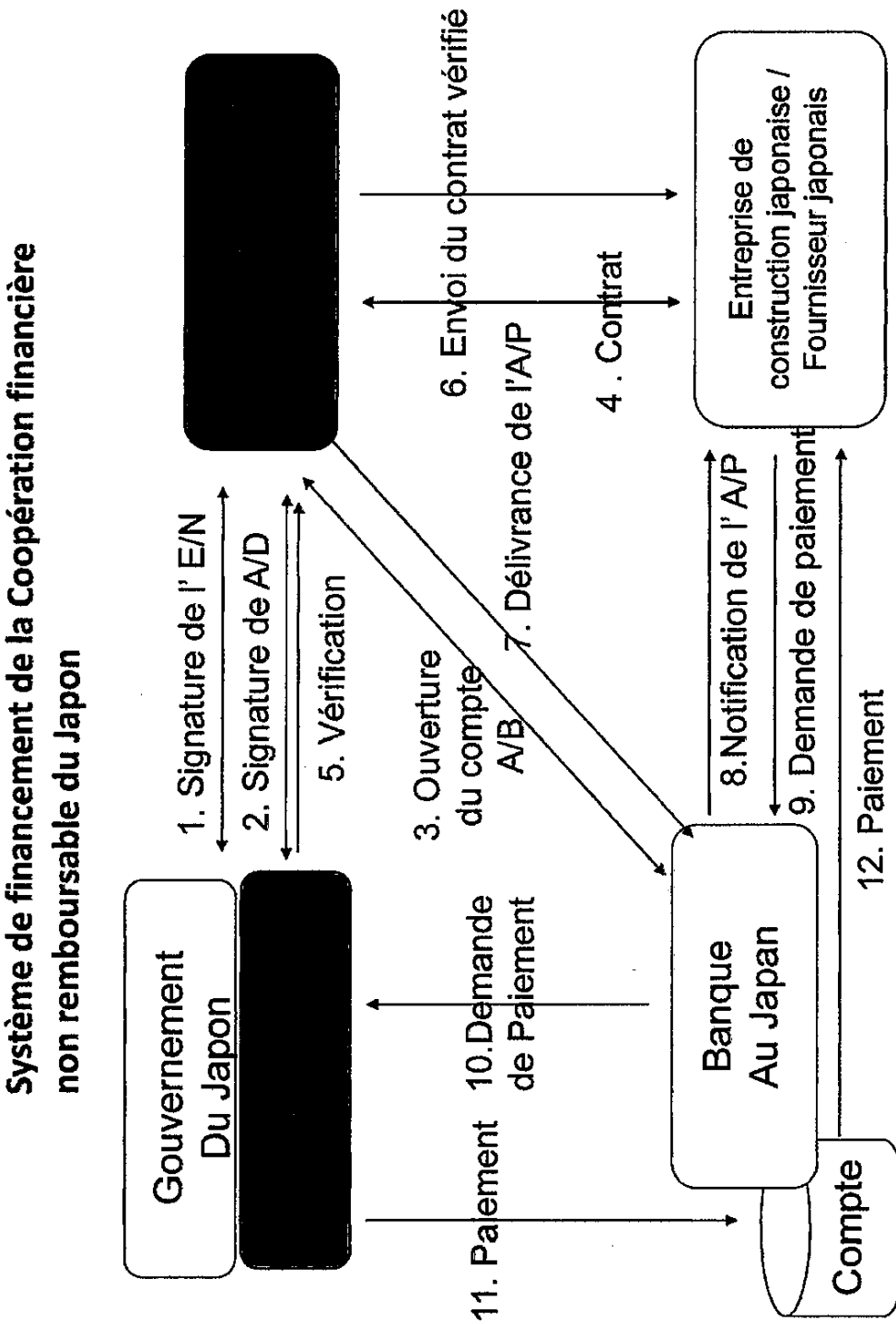
Annexe 5

ORDINOGRAMME DE LA PROCEDURE DE L'AIDE FINANCIERE NON REMBOURSABLE DU JAPON



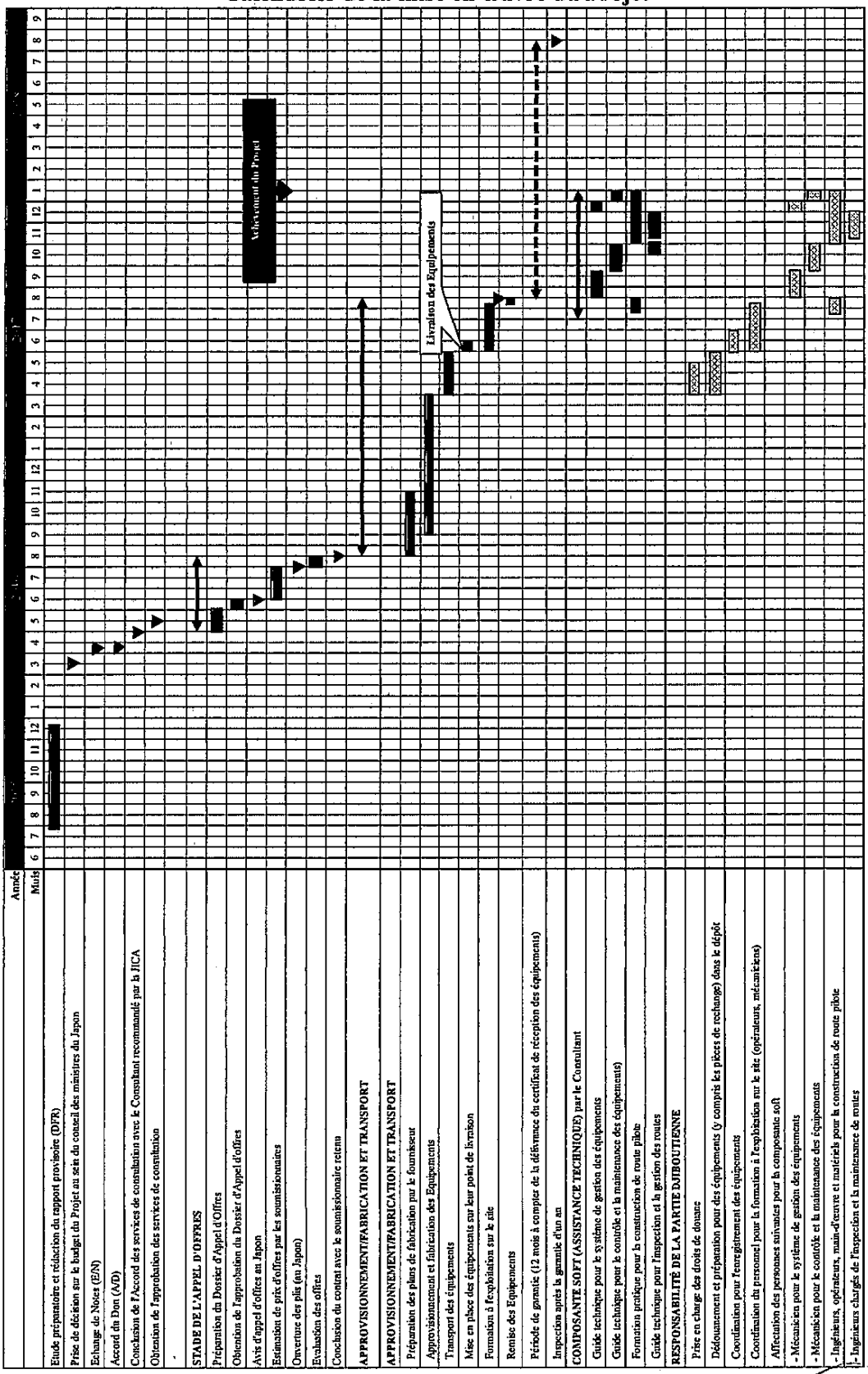
Annexe 6

Flux financiers dans les procédures d'aide financière non remboursable du Japon



Annexe 7

Calendrier de la mise en œuvre du Projet



Annexe 8

Principales dispositions à prendre par chaque gouvernement

Principales dispositions à prendre par le Gouvernement bénéficiaire

1. Avant l'appel d'offres

NO	Items	Délais	En charge	Coût	Réf.
1	Ouvrir un compte bancaire (Arrangement bancaire (A/B))	Dans les 30 jours après l'A/D.	MAECI		

2. Au cours de la mise en œuvre du Projet

NO	Items	Délais	En charge	Coût	Réf.
1	Prendre en charge les commissions dues à la banque japonaise en ce qui concerne les services bancaires selon l'A/B.				
	1) Commission de notification de l'A/P.	Dans les 30 jours après la signature du contrat.	ADR		Around 5,000(JPY) / time
	2) Commission de paiement pour l'A/P.	À chaque paiement.	ADR		0.1% of payment amount
2	Assurer le déchargement et le dédouanement rapides au port de débarquement du pays bénéficiaire.				
	1) Exonération de taxes et dédouanement des produits au port de déparquement.	Pendant le Projet.	ADR	-	
3	Accorder aux ressortissants japonais dont les services seront requis en rapport avec la fourniture des produits et des services dans le cadre du contrat vérifié, tels que les commodités nécessaires à leur entrée et leur séjour dans le pays bénéficiaire pour l'exercice de leur travail.	Pendant le Projet.	ADR	-	
4	Assurer que les droits de douane, les taxes intérieures et autres charges fiscales susceptibles d'être imposés dans le pays bénéficiaire à l'égard de l'achat des produits et/ou des services soient exonérés. Les droits de douane, les taxes intérieures et autres charges fiscales susmentionnés comprennent : TVA, taxe commerciale, impôts sur le revenu, impôts sur les sociétés des ressortissants japonais, taxe d'habitation, taxe sur les carburants, sans être limités à ceux-ci, susceptibles d'être imposés dans le pays bénéficiaire concernant la fourniture de produits et de services dans le cadre du contrat vérifié.	Pendant le Projet.	ADR	-	
5	Supporter tous les frais autres que ceux pris en charge par l'aide financière non remboursable, et qui sont nécessaires aussi bien à la construction des installations qu'au transport et à la mise en place des équipements.	Pendant le Projet.			
6	1) Obtenir toute approbation et autorisation nécessaires auprès des parties prenantes concernées avant la formation initiale. 2) Assurer les aires temporaires de construction, de stockage, et le personnel nécessaire à la formation initiale concernant les équipements fournis par le Projet.	3 mois avant l'achèvement de la construction.	ADR		

3. Après le Projet

NO	Items	Délais	En charge	Coût	Réf.
1	Entretenir et utiliser de manière appropriée et efficace les installations construites et équipées dans le cadre de l'aide financière non remboursable. 1) Affectation du coût de maintenance. 2) Structure de l'exploitation et de la maintenance. 3) Contrôle de routine / inspection périodique	Après l'achèvement de la construction	ADR		

(MAECI : Ministère des Affaires Etrangères et de la Coopération Internationale, A/B: Arrangement bancaire, A/P: Autorisation de paiement, N/A: Non applicable)

Principales dispositions supportées par le Don japonais

No	Items	Délais	Coût estimé (Million de yen japonais)*	
1	Approvisionner des équipements	Pendant le Projet	1 190	
	- Amélioration des routes			
	1) Assurer le déchargement et le dédouanement rapides au port de débarquement du pays bénéficiaire.	Pendant le Projet		
	a) Transport maritime (aérien) des produits du Japon jusqu'au pays bénéficiaire.	Pendant le Projet		
	b) Transport intérieur du port de débarquement jusqu'au site du Projet.	Pendant le Projet		
	2) Réaliser une formation concernant l'utilisation des équipements.	Pendant le Projet		
2	Réaliser une conception détaillée, apporter un appui à l'appel d'offres et superviser l'acquisition et fournir une assistance technique. (Consultant)	Pendant le Projet	57	
	Total		1 247	

* : Le coût estimé est provisoire. Il est soumis à l'approbation du Gouvernement du Japon.

Annexe 9

Langues utilisées dans chaque document

N°	Article	Rédacteur	Langue	
			Français	Anglais
I	**ETAPE DE L'ETUDE PREPARATOIRE**			
1.	Rapport de l'Etude sur le terrain	Consultant		○
2.	Avant-projet du Rapport de l'Etude préparatoire (avant-projet du Rapport final) Note : Les parties techniques.	Consultant	○	○ (Note)
3.	Rapport de l'Etude préparatoire (Rapport final) Note : Les parties techniques.	Consultant	○	○ (Note)
II	**ETAPE DE MISE EN ŒUVRE**			
1.	**Documents connexes à l'Accord de consultation**			
1.1	Accord de consultation	Consultant	○	
1.2	Recommandation du Consultant	JICA	○	
1.3	Documents connexes à l'arrangement bancaire (B/A, A/P)	Banque	○	
1.4	Demande de paiement	Consultant	○	
2.	**Documents connexes au Contrat d'exécution**			
2.1	Avis d'appel d'offres dans le journal	Consultant		○
2.2	Documents d'appel d'offres			
	Volume I : Conditions de l'appel d'offres et Contrat	Consultant		○
	Partie I : Instructions aux soumissionnaires	Consultant		○
	Partie II : Formule de l'appel d'offres	Consultant		○
	Partie III : Formule du Contrat	Consultant	○	
	Volume II Spécifications	Consultant		○
2.3	Questions et réponses concernant les documents d'appel d'offres	Soumissionnaire/Consultant		○
2.4	Documents de soumission	Soumissionnaires (Fournisseur)		○
2.5	Rapport d'évaluation des soumissions	Consultant	○	○
2.6	Contrat d'exécution	Fournisseur	○	
2.7	Documents connexes à l'arrangement bancaire (B/A, A/P)	Banque	○	
2.8	Demande de paiement	Fournisseur	○	
2.9	Certificat d'achèvement	Consultant/Pays concerné	○	
2.10	Documents techniques pour approbation	Fournisseur		○
2.11	Manuels d'exploitation et d'entretien (manuels de fabricants) Note: S'ils sont disponibles chez les fabricants.	Fournisseur	○ (Note)	○

Annexe 10

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organization Information

Authority (Signer of the G/A)	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Ministry	Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

Outline of Grant Agreement:

Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____
Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:

1: Project Description

1-1 Project Objective

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

1-3 Effectiveness and the indicators

- Effectiveness by the Project

Quantitative Effect (Operation and Effect indicators)		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	**Original:** *(M/D)* **Attachment(s):Map**	**Actual:** *(PMRand PCR)* **Attachment(s):Map**

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D)	*(M/D)*	*(PMR and PCR)*

'Soft component' shall be included in 'Items'.		Please state not only the most updated schedule but also other past revisions chronologically. All change of design shall be recorded regardless of its degree.

2-1-2 Reason(s) for the modification if there have been any.

(PMR and PCR)

2-2 Implementation Schedule

2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
【M/D】	*(M/D)*		*(PMR,PCR)* As of (Date of Revision)
'Soft component' shall be stated in the column of 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Project Completion Date*			

*Project Completion was defined as _____ at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

(PMR and PCR)

2-3 Undertakings by each Government

2-3-1 Major Undertakings

See Attachment 2.

2-3-2 Activities

See Attachment 3.

2-4 Project Cost

2-4-1 Project Cost

Table 2-3-1 Comparison of Original and Actual Cost by the Government of Japan

(Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design -Procurement Management -Construction Supervision			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

Table 2-3-2 Comparison of Original and Actual Cost by the Government of XX

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = (local currency)

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR, PCR)

2-5 Organizations for Implementation

2-5-1 Executing Agency:

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original: *(M/D)*
Actual, if changed: *(PMR and PCR)*

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number ,qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original: *(M/D)*
Actual: *(PCR)*

3-2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original: *(M/D)*

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s): *(M/D)*	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
3.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:

	Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR and PCR)	

5: Evaluation at Project Completion and Monitoring Plan

5-1 Overall evaluation

Please describe your overall evaluation on Project.

(PCR)

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

5-3 Monitoring Plan for the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

(PCR)

Attachment

1. Project Location Map
2. Undertakings to be taken by each Government

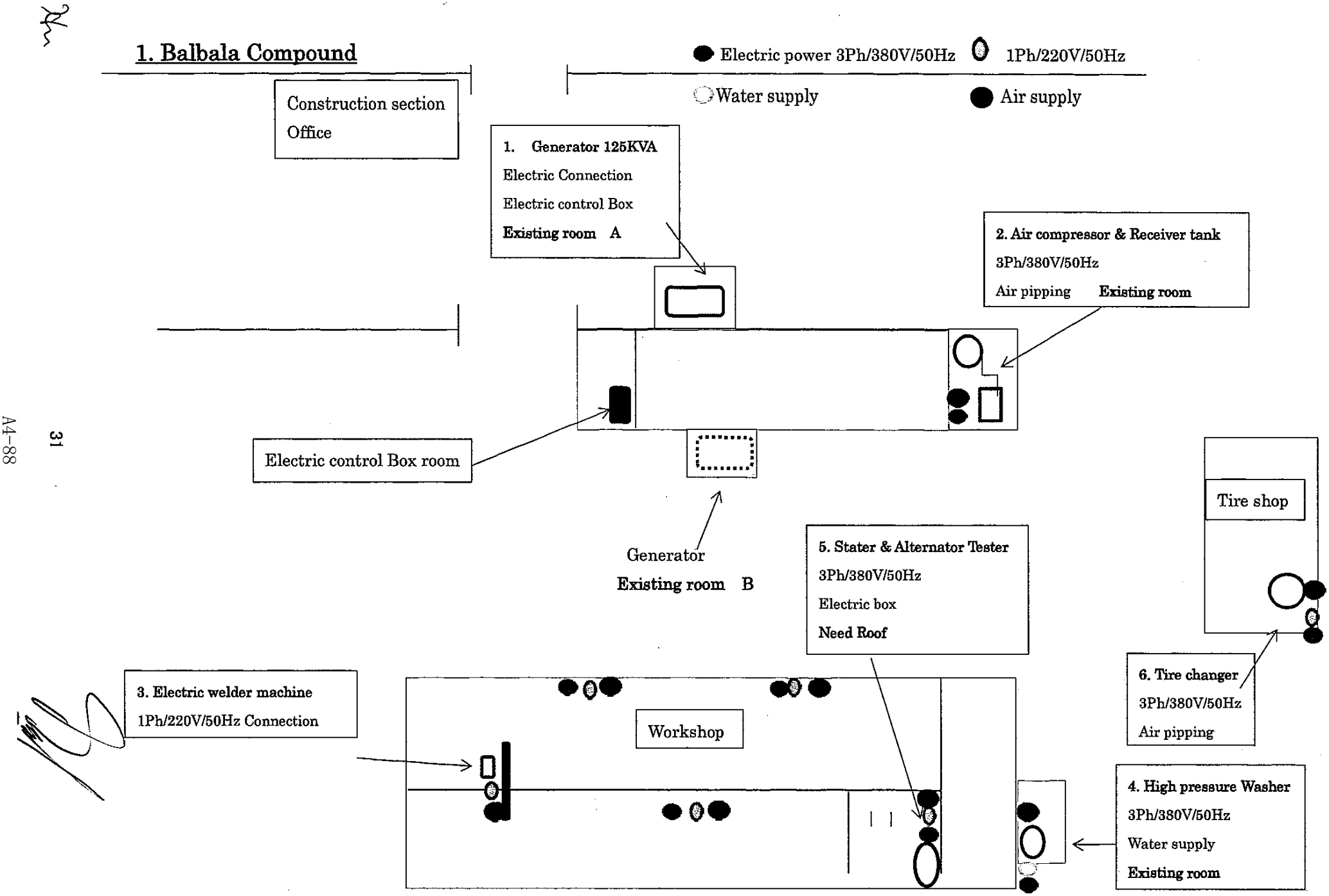
3. Monthly Report
4. Report on RD
5. Monitoring report on environmental and social considerations
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (Completion Report Only)

Annexe 11

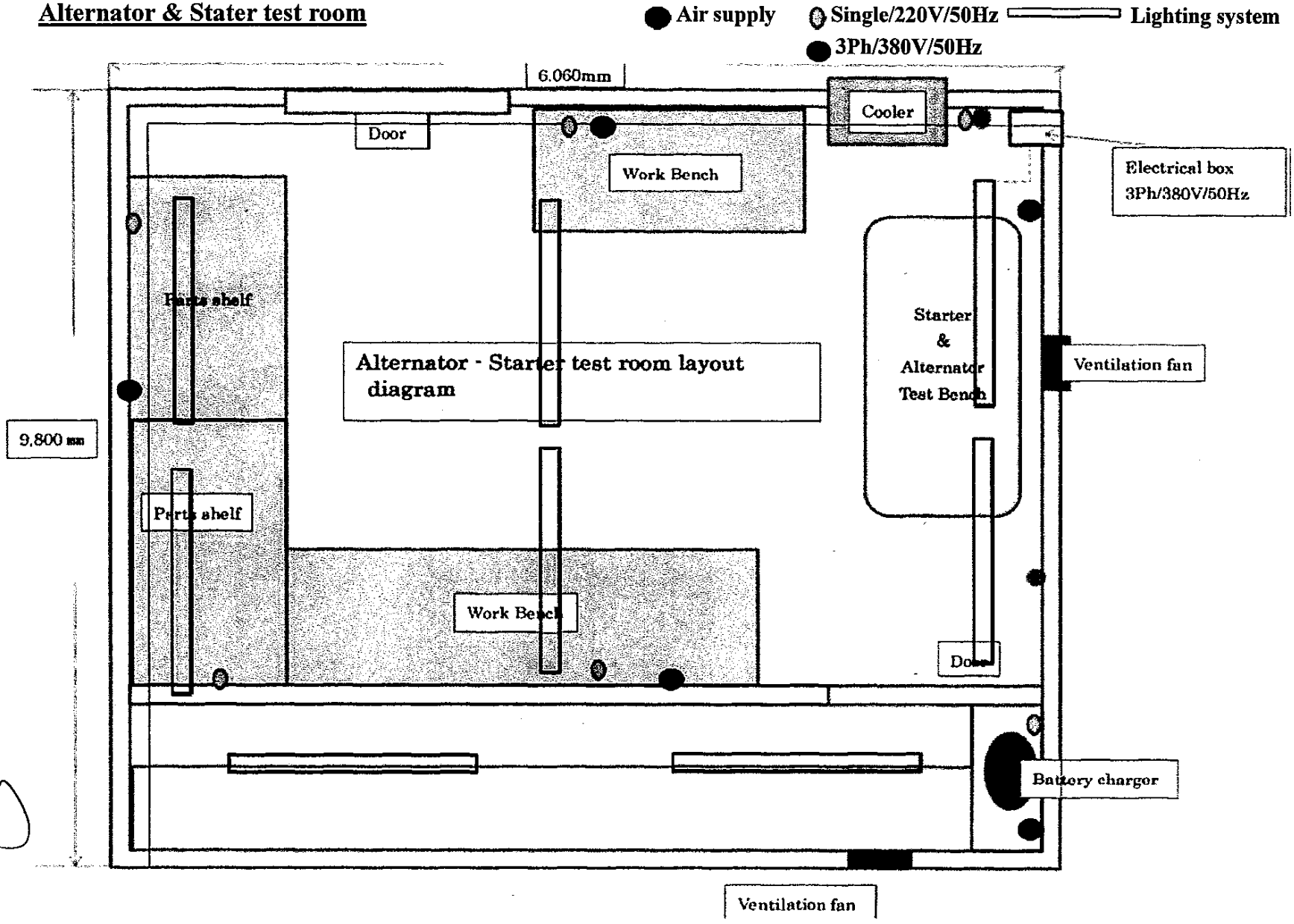
Plan de disposition des ateliers devant être préparés par la partie djiboutienne ainsi que le formulaire du rapport

Rapporté aux pages suivantes.

1. Balbala Compound



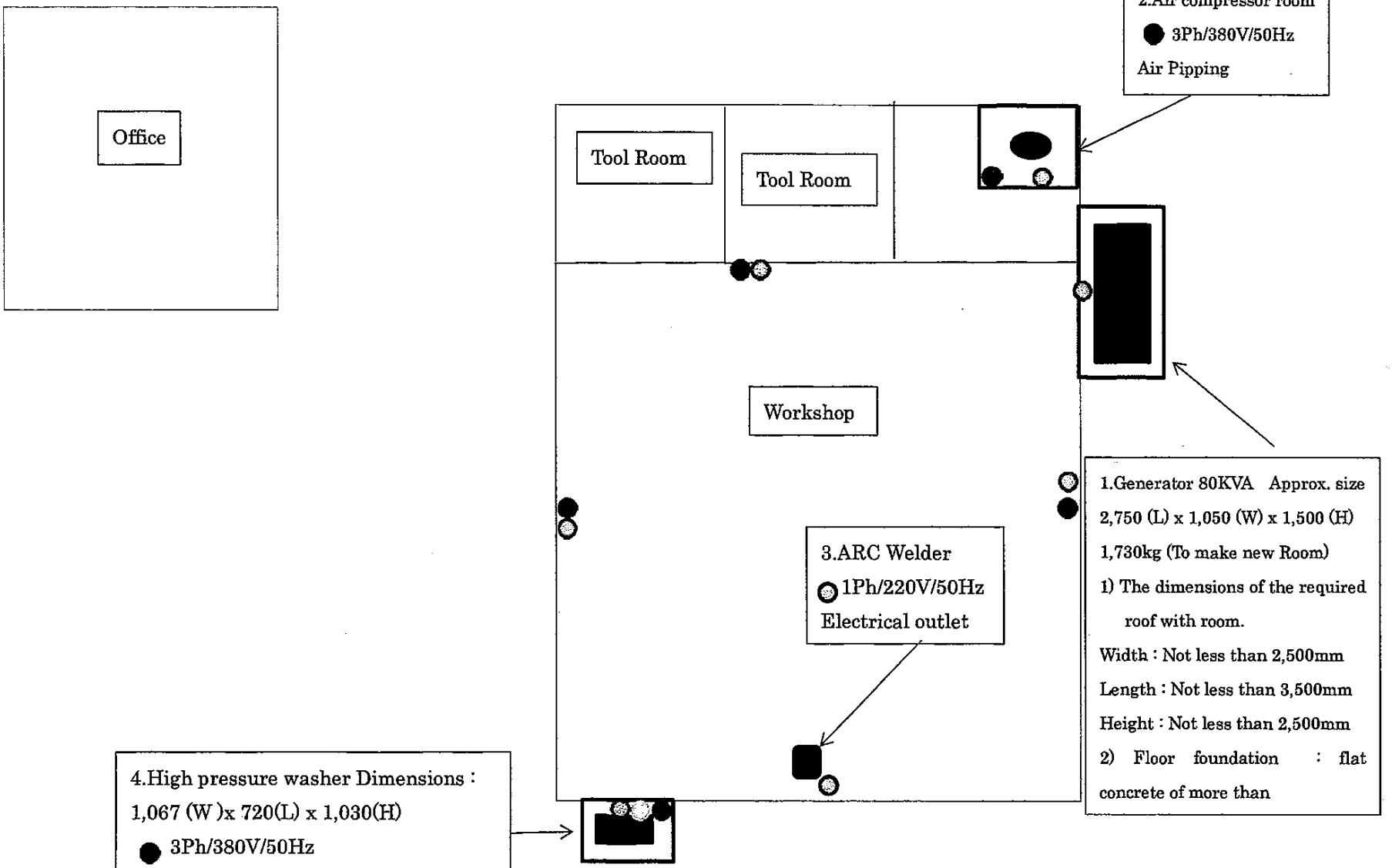
Alternator & Stater test room



2. Dikhil Compound

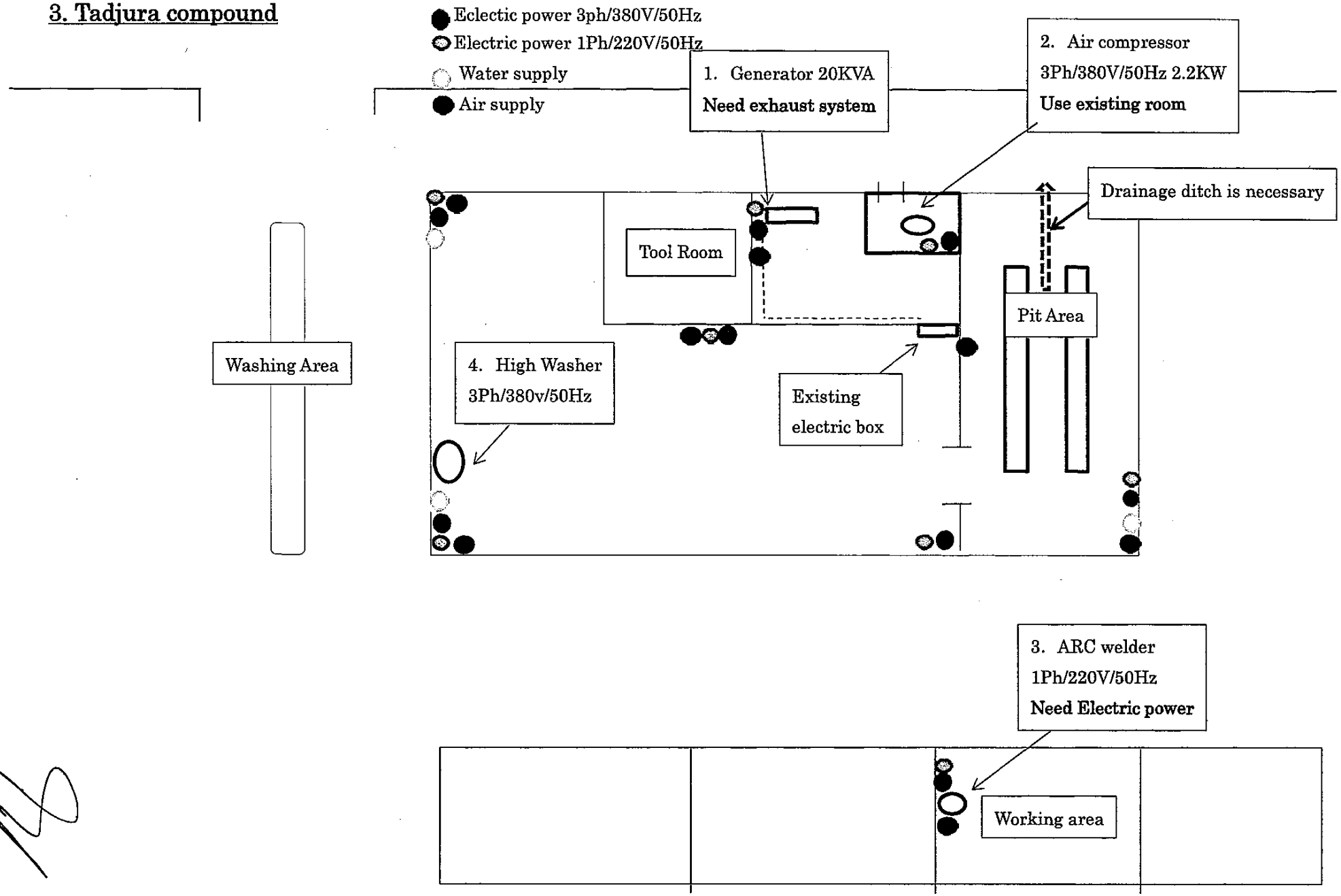
● 3Ph/380V/50Hz electric outlet

○ 1Ph/220V/50Hz



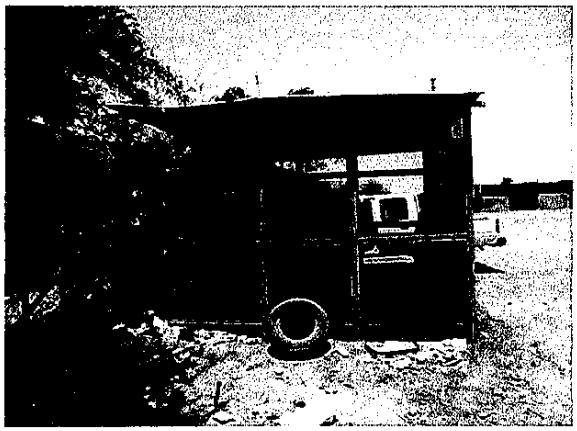
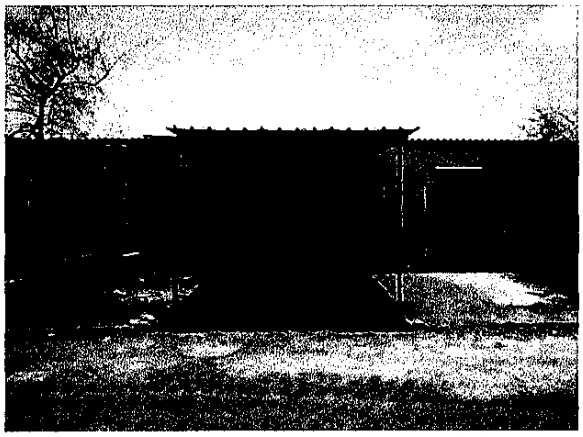
A4-90

3. Tadjura compound



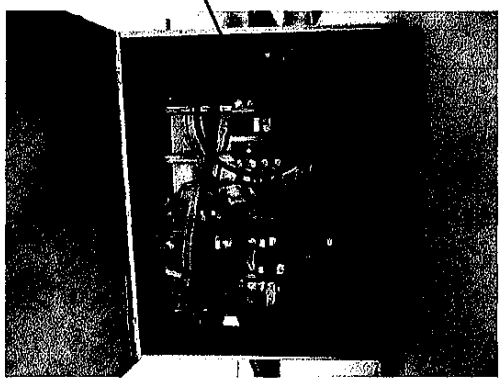
Reporting Form

1. Balbala compound

Before (Current state 23,8,2015)	After
1. Generator (125KVA) B-1. The room & roof 1) New Generator(125KVA) Dimensions : 1,080(W)x3,250(L)x1,500(H) 2) The dimensions of the required roof with room. Width : Not less than 2,500mm Length : Not less than 4,000mm Height : Not less than 2,000mm 3) Location: maintenance shop gate next to (A) and the factory in the guard station next to (B)  Installation candidate location (A)  Installation candidate location (B) ***Even if the put either it takes the existing generator removal work, before the new generator arrives.**	

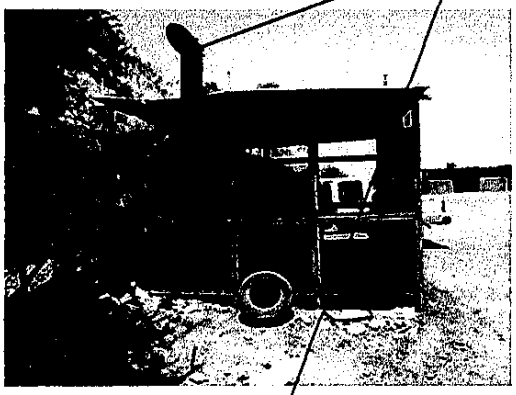
B-2, Electric Connection B-3.Electric control Box

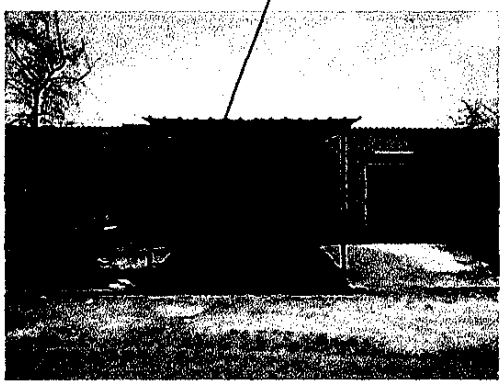
1) Wiring work from the generator until the power supply box.
2) Main breaker should be replaced with a new breaker (200A).
3) Location: inside of guard station
4) Selector switch of City Power and the generator is required.



B-4, Exhaust system

1) Example) attach the exhaust pipe and rain cap
2) It conducted after either removal





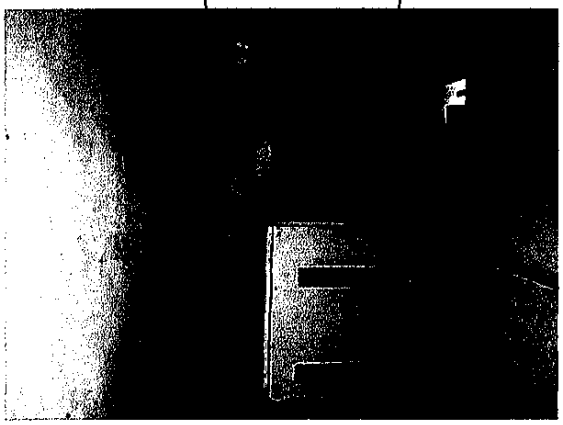
2. Air Compressor & Receiver tank

B-5 , The room & roof , B-6, Electric connection

B7,Electric control box

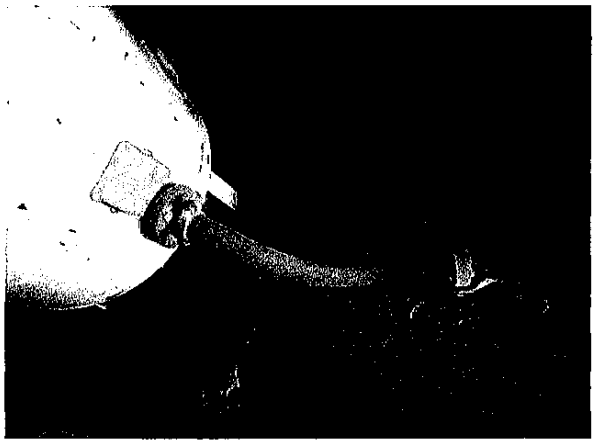
1) New Air Compressor Dimensions
   : 850(W)x1,350(L)x1,220(H)
   Receiver Tank
   : 850(W)x850(L)x1,200(H)
2) The dimensions of the required roof with room.
   Width : Not less than 4,000mm
   Length : Not less than 4,000mm
   Height : Not less than 3,000mm
3) Location: Guard station array of room

4) It conducted after removal old Air compressor and receiver tank if use as same room.
5) Compressor electric breaker use Electric leakage with breaker (30A)
6) Electric connection 3Ph/380V/50Hz
7) Air connection work it is necessary.



B-8, Air pipping

1) Air compressor to receiver tank
2) Receiver tank to workshop pipping connection
   Work it is necessary.



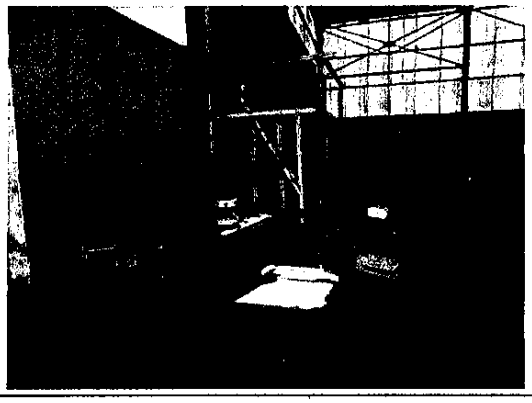
3) Almost damaged air taken out of the Workshop

3. Portable Welding machine

B-9,The room(space) & roof

B10, Electric connection B11,Electric control box

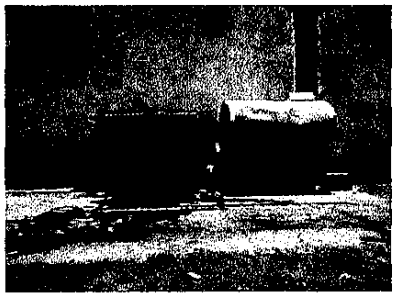
1) New ARC Welding Machine Dimensions
: 650(W)x500(L)x1,020(H)
2) The dimensions of the required roof with room.
Width : Not less than 1.000mm
Length : Not less than 1,000mm
Height : Not less than 2,000mm
3) Not dared necessary to make room When used in the factory.
4) It requires the installation of power outlets (single-phase / 220V / 50Hz).
5) Single-phase/220V= Breaker 110A
6) Location : inside of Workshop



4. Electric High Pressure Washer

B-12 , The room & roof

1) New High washer Dimensions
: 1,067 (W)x 720(L)x1,030(H)
2) The dimensions of the required roof with room.
Width : Not less than 2.000mm
Length : Not less than 2,000mm
Height : Not less than 2,000mm
3) Location : Next to the workshop



B-13,Electric connection, B14 Electric control box

Electric connection (3Ph/380V50Hz/Leaking Breaker 10A) with waterproof electric box.

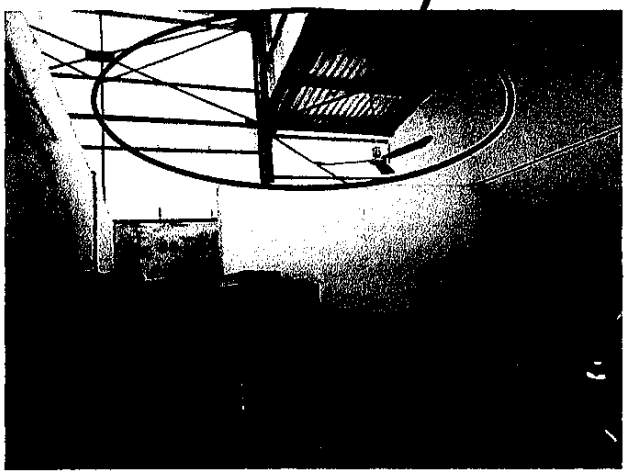
B-15 Water supply & Air valve

1) Water Supply and Air supply valve
2) Floor to well-drained flat

5. Alternator Stater tester

B-16 The Room & Roof

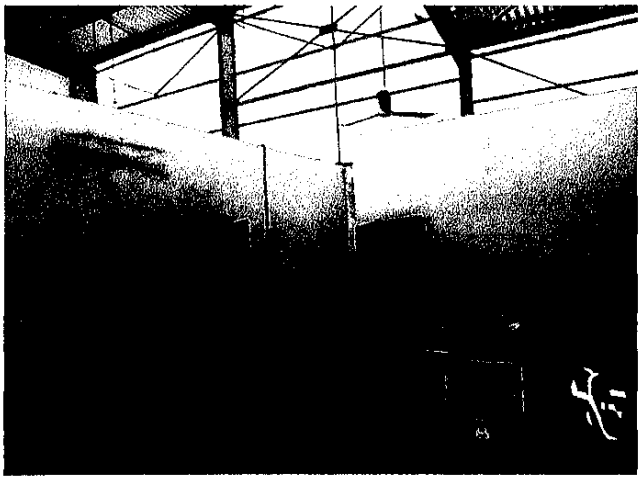
1) Dimensions
   : 1,020 (W)x 2,100(L)x1,770(H)
2) The dimensions of the required room with roof.
   Width : Not less than 4.000mm
   Length : Not less than 4,000mm
   Height : Not less than 3,000mm
3) Location : Inside of the workshop
4) Provided a workbench and tool shelf
5) **For details, see the A & S test room layout**

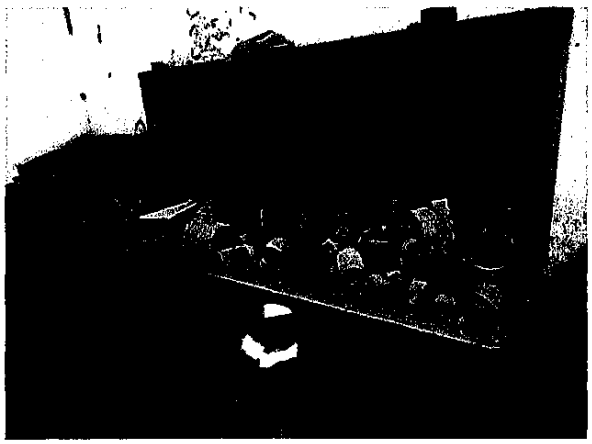


B17, Electric connection, B18,Electric control box

1) Electric connection work
   3Ph/380V/50Hz/30A

2) Removal action of old equipment, and
   Make clean room.





B19,Air conditioner & Ventilation fan

B20,Lighting B21, Air pipping & Air valve

1) To See Layout document.

6. <u>Tire changer</u>

B22, The room (Space) & roof

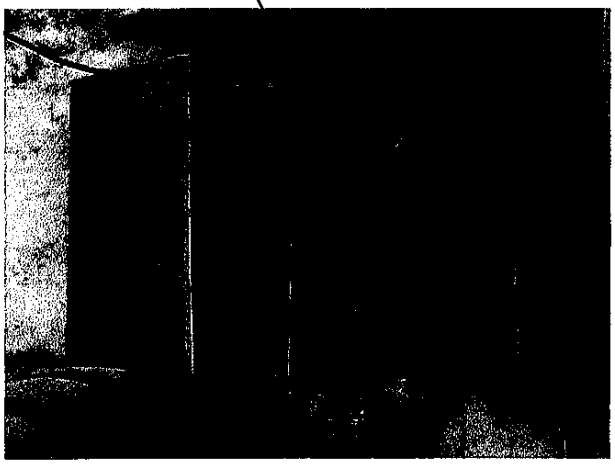
1) Dimension : 1,960(W)x2,020(L)x1,560(H)mm
2) The dimensions of the required roof with room.
   Width : Not less than 3.000mm
   Length : Not less than 4,000mm
   Height : Not less than 3,000mm
3) Location : Tire repair shop

Cleaning of the installation location

B23, Electric connection

3Ph/380V/50Hz/10A

B24 Electric control box

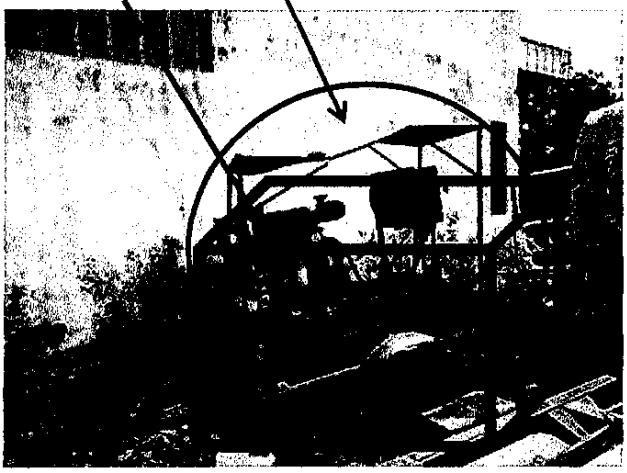


B25 Parts Warehouse

B26 Air Piping &Air valve

Reporting Form

2. Dikhil compound

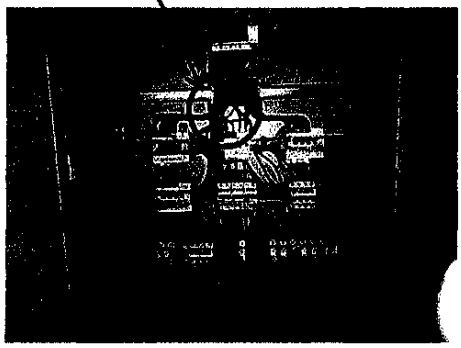
Before (Current state 23,8,2015)	After
1. Generator (80KVA) D-1. The room & roof 1) New Generator(80KVA) Dimensions : 1,050(W)x2,750(L)x1,350(H) 2) The dimensions of the required roof with room. Width : Not less than 2,500mm Length : Not less than 3,500mm Height : Not less than 2,500mm 3) Floor foundation : flat concrete of more than 150mm from the ground 4) Location: Next to the repair shop 5) Moving the existing equipment. 6) Installation planned place 	

D-2 Electric connection

1) 3Ph/380/Single Ph220/50Hz

D-3 Electric control box

1) Main breaker should be replaced with a new breaker (125A).
2) Inside of workshop
3) Selector switch of City Power and the generator is required.



D-4 Exhaust system

1) As same as Balbala system

2. Air compressor (2.2KW)

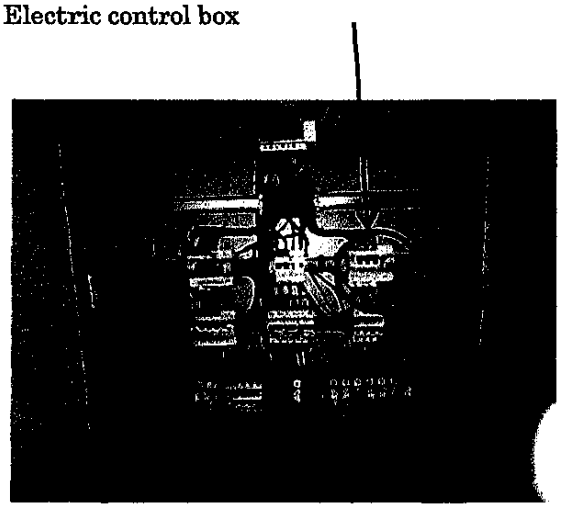
D-5. The room & roof

1) Air compressor Dimensions :
   490(W)x1,210(L)x850(H)
2) The dimensions of the required roof with room.
   Width : Not less than 1,000mm
   Length : Not less than 25,00mm
   Height : Not less than 2,000mm
3) Location of Air compressor room
   Next to the workshop

D-6 Electric connection

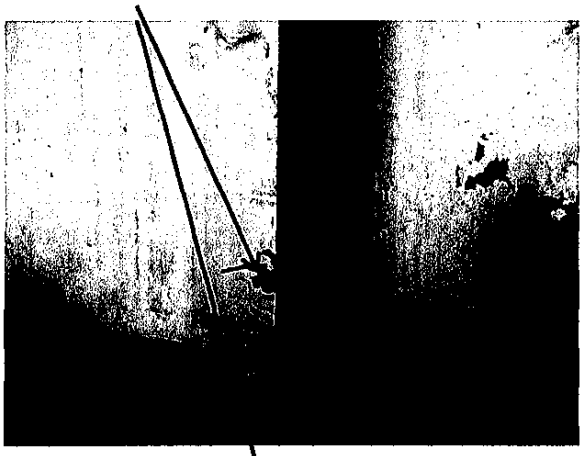
1) 3Ph/380/50Hz/Breaker (5A)
2) It puts a 5A new breaker for the air compressor.

D-7 Electric control box



D-8 Air pipping and valve

1) Almost damaged air taken out of the Workshop Air valve.



3. Portable Welding machine

D-9 The room(space) & roof

1) New ARC Welding Machine Dimensions
: 650(W)x500(L)x1,020(H)

2) The dimensions of the required roof with room.
Width : Not less than 1.000mm
Length : Not less than 1,000mm
Height : Not less than 2,000mm

3) Not dared necessary to make room when used in the factory.

4) It requires the installation of power outlets (single-phase / 220V / 50Hz).

5) Single-phase/220V= Breaker 110A

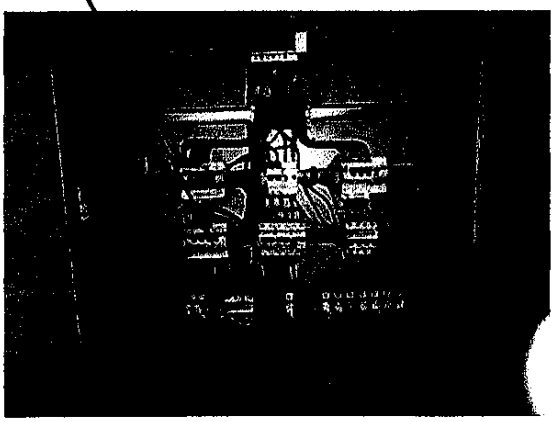
6)Location : inside of Workshop

D-10 Electric connection

1) 3Ph/380/Single Ph220/50Hz

D-11 Electric control box

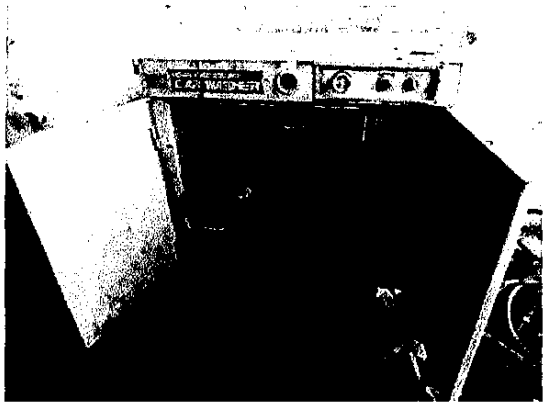
1) Breaker should be replaced with a new breaker (110A).



4. Electric High Pressure Washer

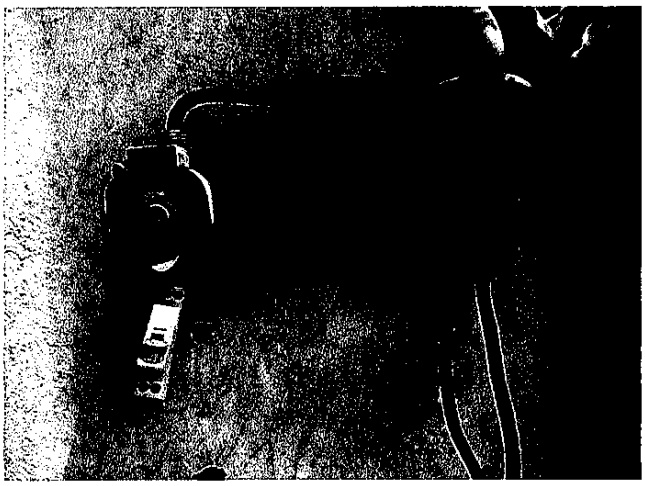
D-12 , The room & roof

1) New High washer Dimensions
   : 1,067 (W)x 720(L)x1,030(H)
2) The dimensions of the required roof with room.
   Width : Not less than 2,000mm
   Length : Not less than 2,000mm
   Height : Not less than 2,000mm
3) Location : Next to the workshop
4) Moving the existing equipment.



D-13 Electric connection

1) 3Ph/380/Single Ph220/50Hz
2) Repress broken electric Outlet socket and make new electric Outlet socket



D-14 Electric control box

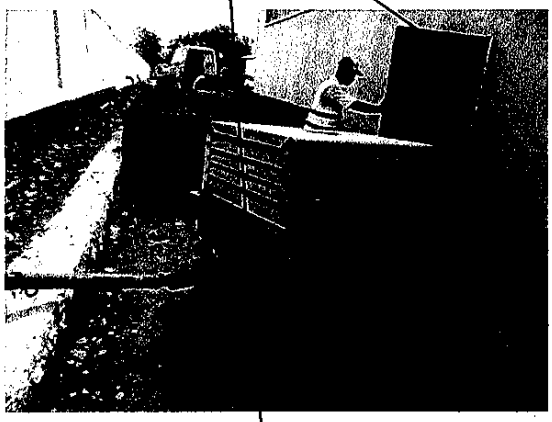
1) Breaker should be replaced with a new leaking breaker (10A).and keep with waterproof electric box.

D-15 Water supply & air valve

1) To make water supply valve
2) To make air supply valve near the washer area

Reporting Form

3. Tadjoura Compound

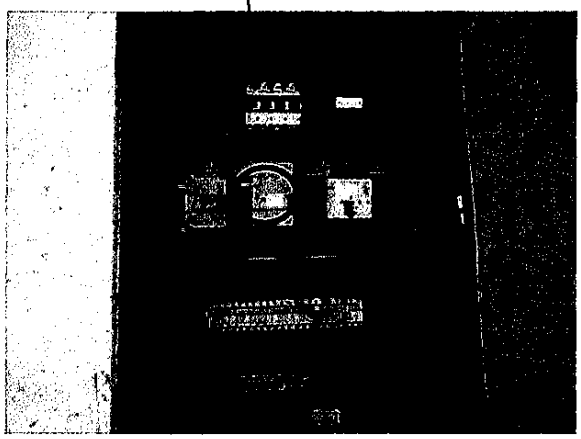
Before (Current state 23,8,2015)	After
1. Generator (20KVA) T-1. The room & roof 1) New Generator(20KVA) Dimensions : 680(W)x1,540(L)x900(H) 2) The dimensions of the required roof with room. Width : Not less than 1,500mm Length : Not less than 2,500mm Height : Not less than 2,500mm 3) Floor foundation : flat concrete of more than 150mm from the ground 4) Location : Back side of the repair shop 5) Moving the existing equipment. 6) Installation planned place As planned, to install the air compressor room that is not currently used   Inside of air compressor room	

T-2 Electric connection

1) 3Ph/380V/50Hz

T-3 Electric control box

1) Main breaker should be replaced with a new breaker (30A).
2) Location : Workshop
3) Selector switch of City Power and the generator is required.



T-4 Exhaust system

1) To make exhaust joint pipe to connect outside.

Caution

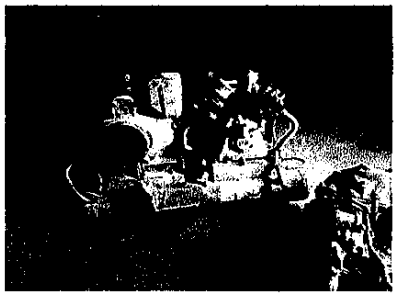
Welding machine can not be used on the relationship between the voltage in the 20KVA generator.

Please note.

2. Air Compressor (2.2KW)

T-5 The room (Space) & roof

1) Air compressor Dimensions :
490(W)x1,210(L)x850(H)
2) The dimensions of the required roof with room.
Width : Not less than 1,000mm
Length : Not less than 25,00mm
Height : Not less than 2,000mm
3) Can installed warehouse or inside of Workshop
4) Existing air compressor

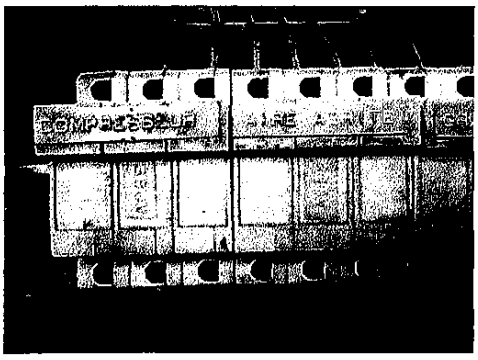


T-6 Electric connection

1) 3Ph/380/50Hz/Breaker (5A)

T-7 Electric control box

1) It puts a 5A new breaker for the air compressor.



T-8 Air pipping and Air valve

1) Repair of the air outlet in the workshop.

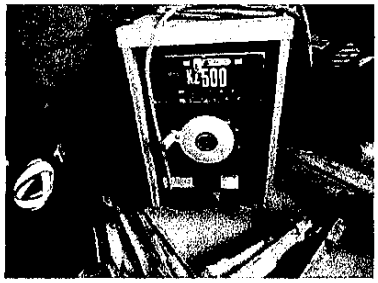
3. Portable Welding machine

T-9 The room(space) & roof

1) New ARC Welding Machine Dimensions
: 650(W)x500(L)x1,020(H)

2) The dimensions of the required roof with room.
Width : Not less than 1.000mm
Length : Not less than 1,000mm
Height : Not less than 2,000mm

3) There is no need to make a new room because basically being used and stored at the workshops.



T-10 Electric connection

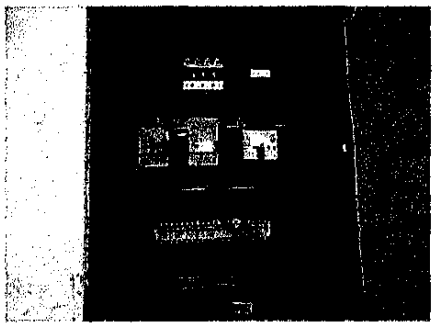
1) 3Ph/380/Single Ph220/50Hz

2) Repress broken electric Outlet socket and make new electric Outlet socket

T-11 Electric control box

1) ARC breaker should be replaced with a new breaker (110A).

2) Location : Workshop



Caution

This welding machine can not be used on the relationship between the voltage in the 20KVA generator.

Please note.

4. Electric High Pressure Washer

T-12 The room & roof

1) New High washer Dimensions
: 1,067 (W)x 720(L)x1,030(H)

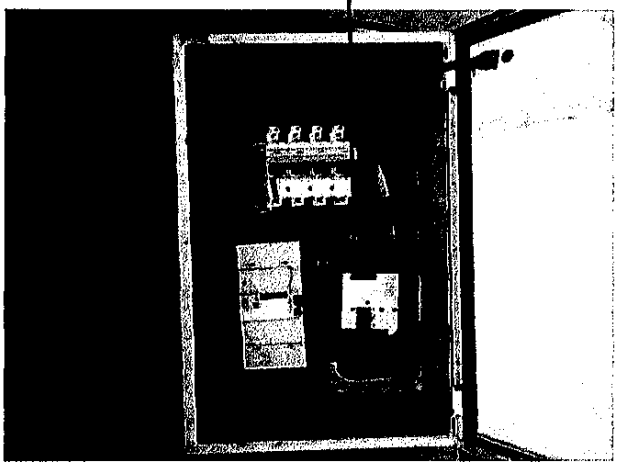
2) The dimensions of the required roof with room.
Width : Not less than 2.000mm
Length : Not less than 2,000mm
Height : Not less than 2,000mm

T-13 Electric connection

1) 3Ph/380/50Hz/ Earth leakage breaker (10A)

T-14 Electric control box

1) Earth leakage breaker (10A)



T-15 Water supply and Air valve

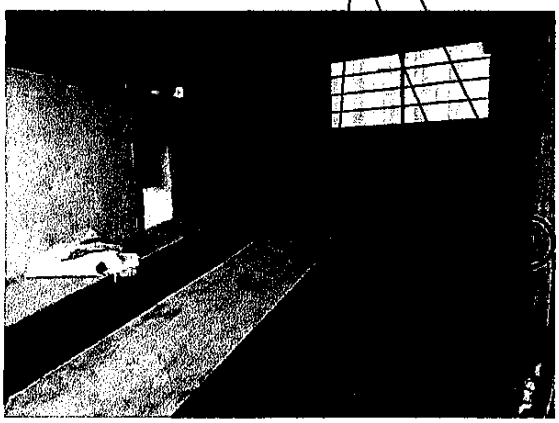
Installation Plan 1

The three-phase 380V power supply (waterproof power box) is necessary.

Workshop entrance area

Installation Plan 2

1) The three-phase 380V power supply (waterproof power box) is necessary.
2) Water source is necessary
3) Water drainage of the pit inside is required.



Pit area.

Annexe 12

Plan de renforcement de l'ADR

L'ADR s'assurera du nombre suivant des opérateurs nécessaires avant la livraison des équipements indiqués à l'Annexe 7, et les affectera en tant que stagiaires pour la formation d'utilisation et la Composante soft.

No.	Equipment	Quantité d'équipements (Unité)	Nombre nécessaire d'opérateurs
1	Bulldozer	2	2
2	Excavator (Crawler)	3	3
3	Hydraulic Breaker	2	-
4	Motor Grader	3	3
5	Wheel Loader	3	3
6	Vibratory Combined Roller	3	3
7	Vibratory Tandem Roller	1	1
8	Tire Roller	1	1
9	Hand-guided Vibratory Roller	3	-
10	Plate Compactor	3	-
11	Rammer	3	-
12	Asphalt Cutter	3	-
13	Asphalt Finisher	1	1
14	Bitumen Distributor	1	1
15	Chip Spreader	1	-
16	Asphalt Hand Sprayer	3	-
17	Asphalt Burner (Torch)	3	-
18	Concrete Mixer (0.8 m^3)	2	2
19	Concrete Mixer (0.5 m^3)	2	2
20	Water Bowser	4	4
21	Dump Truck	15	15
22	Fuel Tanker	1	1
23	Cab-back Crane	2	2
24	Mobile Workshop	2	2
25	Low Bed Semi-trailer with Tractor Head	1	1
26	Inspection Vehicle	3	-
27	Line Marker	3	-
28	Asphalt Plant	1	5
29	Crushing and Screening Plant	1	3
		Total	55

Minutes of Discussions
on the Preparatory Survey for the Project for
Improvement of Road Management Equipment
（Explanation on Draft Preparatory Survey Report）

On the basis of the discussions and field survey in Republic of Djibouti (hereinafter referred to as " Djibouti ") in August 2015, and the subsequent technical examination of the results in Japan, the Japan International Cooperation Agency (hereinafter referred to as "JICA") prepared a draft Preparatory Survey Report on the Project for Improvement of Road Management Equipment (hereinafter referred to as “the Draft Report”).

In order to explain the Draft Report and to consult with the concerned officials of the Government of Djibouti on its contents, JICA sent to Djibouti the Preparatory Survey Team for the explanation of the Draft Report (hereinafter referred to as "the Team"), headed by Mr. Hiroyuki Ogino, Senior Advisor, Infrastructure and Peacebuilding Department, and is scheduled to stay in the country from 13th December to18th December, 2015.

As a result of the discussions, both sides confirmed the main items described in the attached sheets.

Djibouti, 15th December, 2015

Hiroyuki Ogino	Mahmoud Moussa Ahmed
Leader, Preparatory Survey Team	Directeur General
Japan International Cooperation Agency	Agence Djiboutienne Des Routes
Japan	Djibouti

In Witness whereof,

Yacin Houssein Doualé
Directeur des Relations Bilatérales, Ministère des Affaires Etrangères et de la Coopération Internationale

Said Nouh Hassan
Secrétaire Général, Ministère de l'Equipement et des Transports

ATTACHMENT

1. Objective of the Project

The objective of the project for Improvement of Road Management Equipment (hereinafter referred to as “the Project”) is to expedite road repair work and improve road management by providing equipment for road construction and repairing, thereby contributing to improvement of road traffic in Djibouti.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as “the Preparatory Survey for the Project for Improvement of Road Management Equipment”.

3. Project Site

Both sides confirmed that the sites of the Project are in Djibouti, which is shown in Annex 1.

4. Responsible Line Agency and Executing Agencyies

Both sides confirmed the line agency and executing agency as follows:

4-1. The Line Ministry

The line ministry is Ministre de l’equipment et des Transport, which would be the ministry to supervise the executing agency.

4-2. The Executing Agency

The executing agency is Agence Djiboutienne des Routes (hereinafter referred to as "ADR "). The executing agency shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the undertakings are taken by relevant agencies properly and on time. The organization charts are shown in Annex 2.

5. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Djibouti side agreed in principle to its contents.

6. Cost Estimation

Both sides confirmed that the Project cost estimation described in the Draft Report was provisional and would be examined further by the Government of Japan for its final approval.

7. Confidentiality of the Cost Estimation and Specifications

Both sides confirmed that the Project cost estimation and technical specifications in the Draft Report should never be duplicated or disclosed to any third parties until all the contracts of the Project are concluded.

8. Japanese Grant Scheme

The Djibouti side understands the Japanese Grant Scheme and its procedures as described in Annex 4 and Annex 5, and necessary measures to be taken by the Government of Djibouti.

9. Project Implementation Schedule

The Team explained to the Djibouti side that the expected implementation schedule is as attached in Annex 7.

10. Expected outcomes and Indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Djibouti side has responsibility to monitor the progress of the indicators and achieve the target in year 2020.

[Quantitative Effect]

	Road	Length of Targeted Section	Indicator-1			Indicator-2		
			Indicator	Current Value (Year 2015)	Target Value (Year 2020)	Indicator	Current Value (Year 2015)	Target Value (Year 2020)
1	Djibouti City Road	1.4 km	Targeted Length	0 km	1.4 km	Averaged Vehicle Speed	15 km/hour	30 km/hour
2	RN1 (Dikhil to Galafi)	100 km		-	-		45 km/hour	60 km/hour
3	RN9 (RN1PK51 to Tadjoura)	123 km		-	-		40 km/hour	60 km/hour
4	RN12 (RN9 to Day)	21 km		0 km	21 km		25 km/hour	40 km/hour
5	RN16 (RN14 to Gorriliyita)	40 km		0 km	40 km		30 km/hour	50 km/hour

[Qualitative Effect]

- Convenience will be promoted by increased traffic volume in developing major roads, such as public bus routes.

- Life environment for villagers and nomads along the road will be improved by reduction of dust, and so on.

11. Technical assistance (“Soft Component” of the Project)
    Considering the sustainable operation and maintenance of the provided facility, following technical assistance is planned to be provided under the Project. The Djibouti side confirmed that it will assign necessary number of competent and appropriate C/Ps as described in the Draft Report.

12. Undertakings Taken by Both Sides
    Both sides confirmed to undertakings described in Annex 8. The Djibouti side assured to take the necessary measures and coordination including allocation of the necessary budgets which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage. Contents of Annex 8 will be updated as the Detailed Design progresses, and will finally be the Attachment to the Grant Agreement.

13. Monitoring during the Implementation
    The Project will be monitored at the timing of delivery to the project site by the executing agency and using the Project Monitoring Report (PMR).

14. Ex-Post Evaluation
    JICA will conduct ex-post evaluation three (3) years after the project completion with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability) of the Project. Result of the evaluation will be publicized. The Djibouti side is required to provide necessary support.

15. Issues to be Considered for the Smooth Implementation of the Project
    Both sides confirmed to the issues to be considered and taken necessary measures for the smooth implementation of the Project described in Annex 8.
    The Djibouti side understands that it is important to surely reinforce it with adequate operators, as shown in Annex 12, corresponding to the amount of equipment procured in the Project.
    Furthermore, the Djibouti side will secure equipment yards and storage for spare parts before the delivery of equipment, and it will especially secure workshop

facilities for workshop equipment based on the Workshop Build-up Plan attached in Annex 11 and will report such preparation works to JICA Djibouti Office, according to the Reporting Form attached in Annex 11 as well.

16. Schedule of the Study

JICA will complete the Final Report of the Preparatory Survey in accordance with the confirmed items and send it to the Djibouti side around March 2016.

17. Other Relevant Issues

17-1. After Sales Services for the Equipment

Both side confirmed that appropriate after sales services must be ensured by supplier(s) and manufacture(s) for all equipment including product(s) from third countries.

17-2. Operation and Maintenance of the Equipment

The Team explained the importance of operation and maintenance of the equipment procured by the Project considering that proper asset management impacts greatly on life-span of the equipment and its maintenance cost. The Djibouti side shall secure enough staff and budgets necessary for appropriate operation and maintenance of the equipment.

17-3. Safety Measures

The Djibouti side understood the importance of safety measure in construction and service stage based on “The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects” published on JICA’s URL below.

http://www.jica.go.jp/activities/schemes/oda_safety/ku57pq00001nz4eu-att/guidance_en.pdf

17-4. Misconduct

If JICA receives information related to suspected corrupt or fraudulent practices in the implementation of the Project, ADR and relevant organizations shall provide JICA additional information, including information related to any concerned official of the government and/or public organizations in Djibouti.

ADR and relevant organizations shall not, unfairly or unfavorably treat the person(s) and/or company which provided the information related to suspected

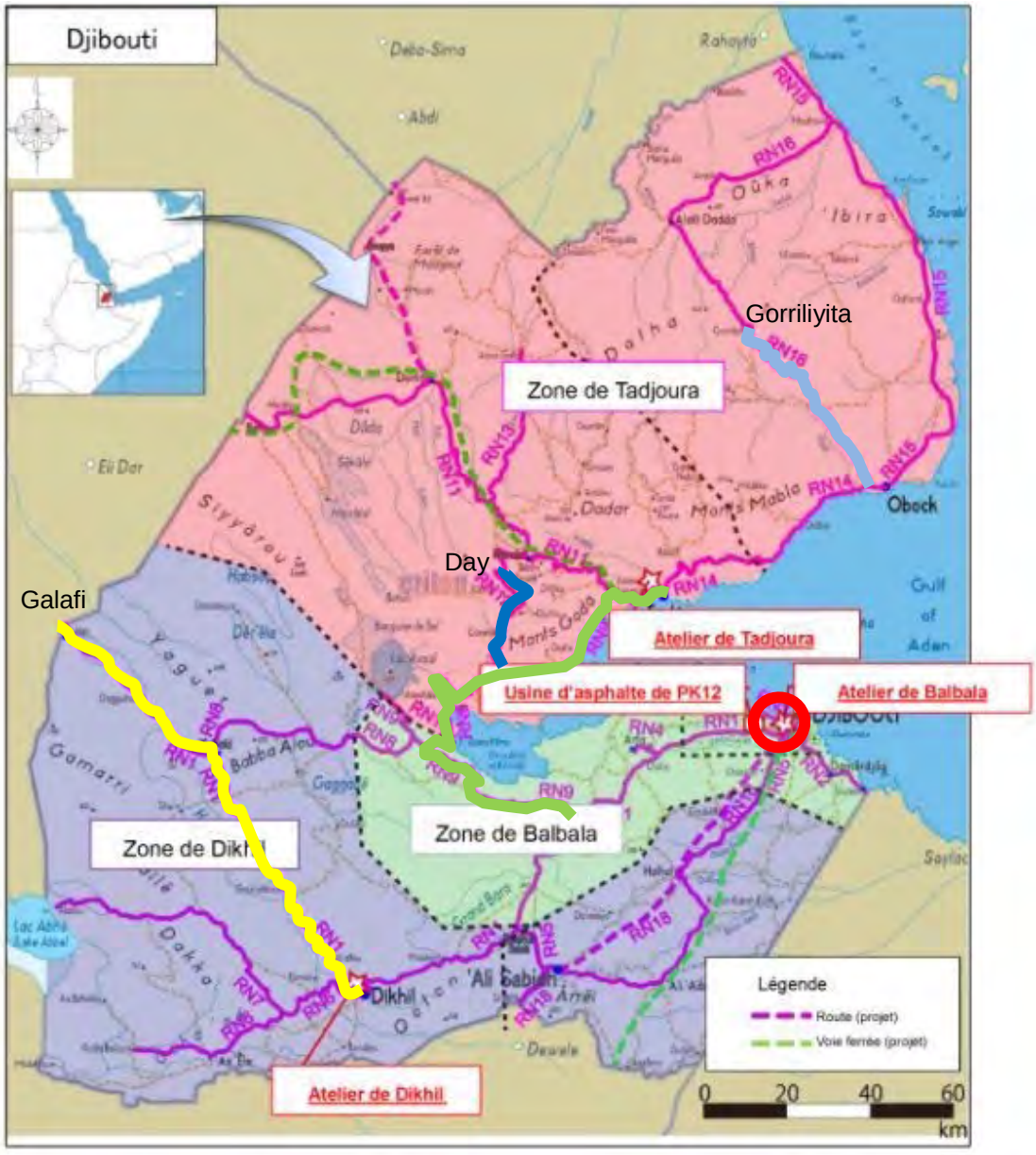
corrupt or fraudulent practices in the implementation of the Project.

17-5. Disclosure of Information

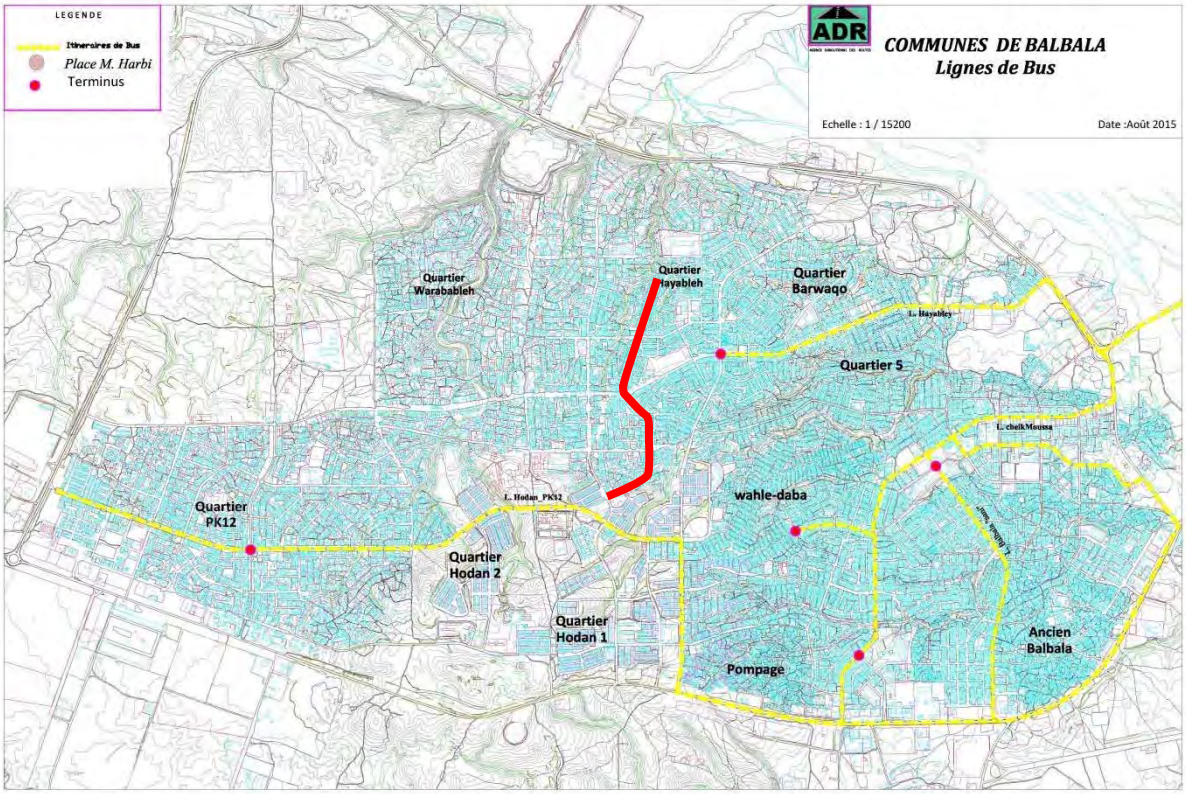
Both sides confirmed that the study results excluding the Project cost will be disclosed to the public after completion of the Preparatory Survey. All the study results including the project cost will be disclosed to the public after all the contracts for the Project are concluded.

Annex 1 Project Site
Annex 2 Organization Chart
Annex 3 Project Cost Estimation
Annex 4 Japanese Grant
Annex 5 Flow Chart of Japanese Grant Procedures
Annex 6 Financial Flow of Japanese Grant Procedures
Annex 7 Project Implementation Schedule
Annex 8 Major Undertakings to be taken by Each Government
Annex 9 Language used in each Document
Annex 10 Project Monitoring Report (template)
Annex 11 Workshop Build-up Plan to be prepared by Djibouti Side and Reporting Form
Annex 12 Increase Plan of Equipment Operator

Project Site

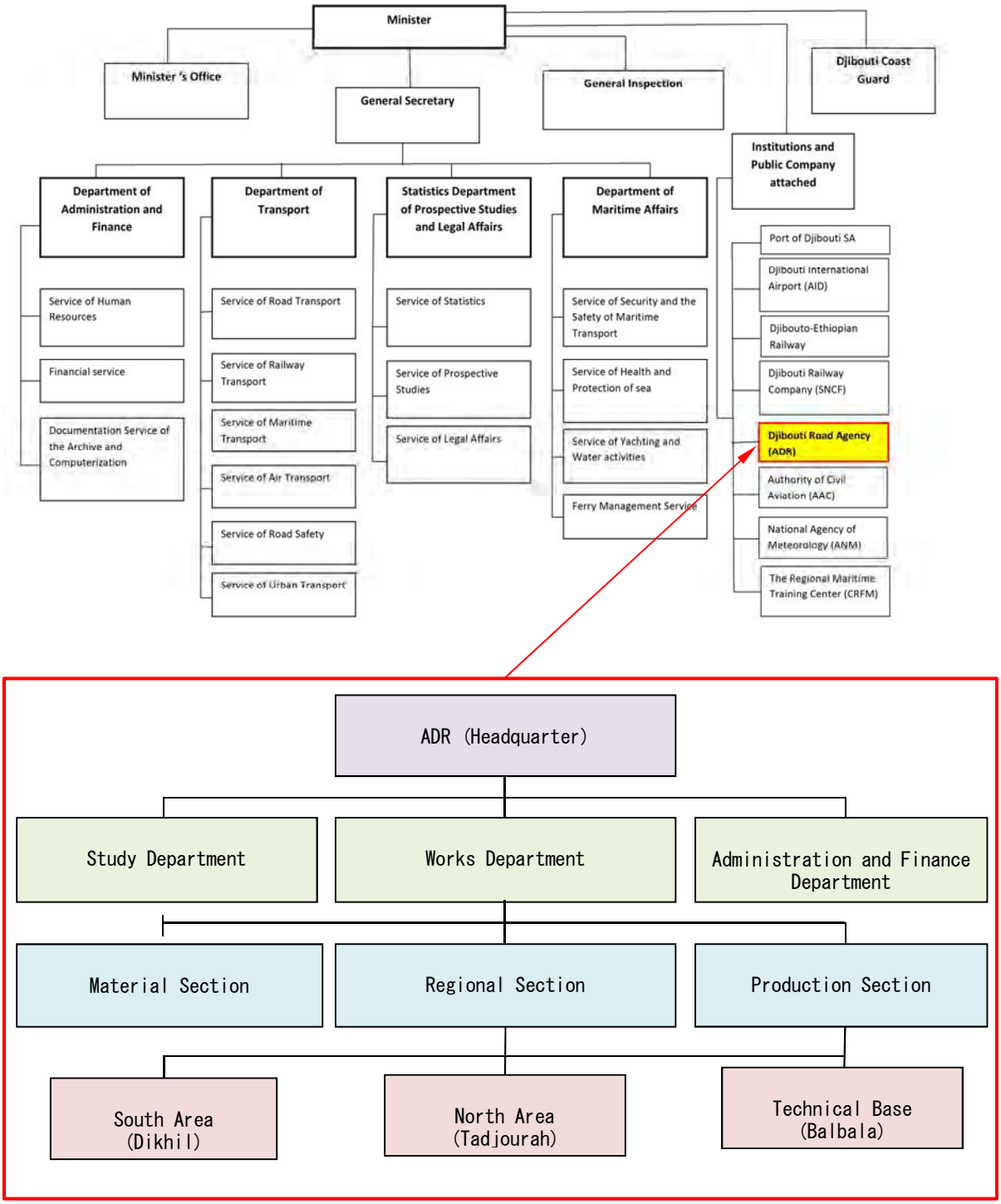


a) Djibouti city roads (Partially improve)
b) PK82 - Galafi section on RN1 (Partially improve)
c) PK51 – PK113 section on RN9 (Partially improve)
d) RN12 (Upgrade to paved road)
e) RN16 (Leveling)



a) Djibouti city roads (Partially improve)

Organization Chart



Annex 3

Project Cost Estimation

Confidential

1. Japan side

This chapter is closed due to the confidenciality.

2. Djibouti side

The costs shown below must be borne by the Djibouti side.

Approximately USD 92,000

Items		Cost Amount（USD）
Preparation for the delivery of equipment	Securing equipment yards and a storage for spare parts	2,000
	Securing workshop facilities for workshop equipment	20,000
Soft Component	Pilot road construction	60,000
Commissions to the bank based on Banking Arrangement		10,000

The Djibouti side is supposed to provide the budget of approximately USD 4.8 million in order to implement the target roads construction and maintenance in the year 2018 to 2020. In addition, the Djibouti side secures employment costs to increase operators needed before the delivery of equipment as indicated in Annex 12.

Conditions of cost estimation are as follows:

1. Timing of cost estimation : September 2015
2. Exchange rate : 1USD = 124.40 Japanese Yen (JPY)
3. Implementation schedule : Shown in Annex 7 “Tentative Project Implementation Schedule”.
4. Others : Cost estimation shall be conducted in accordance with the institution of the Grant Aid Project of the Japanese government.

Annex 4

Japanese Grant

Based on a JICA law which was entered into effect on October 1, 2008 and the decision of the GOJ, JICA has become the executing agency of the Japanese Grant for Projects for construction of facilities, purchase of equipment, etc.

The Japanese Grant (hereinafter referred to as the "Grant") is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development in accordance with the relevant laws and regulations of Japan. The Grant is not supplied through the donation of materials as such.

1. Grant Procedures

The Grant is supplied through following procedures:

・Preparatory Survey
- The Survey conducted by JICA

・Appraisal &Approval
-Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet

・Authority for Determining Implementation
-The Notes exchanged between the GOJ and a recipient country

・Grant Agreement (hereinafter referred to as "the G/A")
-Agreement concluded between JICA and a recipient country

・Implementation
-Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of

the Project.

- Preparation of a outline design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant project. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japanese Grant Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as “the E/N”) will be singed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles, in accordance with the E/N, to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project’s implementation after the E/N and G/A.

(3) Eligible source country

Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. The Grant may be used for the purchase of the products or services of a third country, if necessary, taking into account the quality, competitiveness and economic rationality of products and services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals", in principle.

(4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals, in principle. Those contracts shall be verified by JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Project, the recipient country is required to undertake such necessary measures as Annex. The Japanese Government requests the Government of the recipient country to exempt all customs duties, internal taxes and other fiscal levies such as VAT, commercial tax, income tax, corporate tax, resident tax, fuel tax which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract, since the Grant fund comes from the Japanese taxpayers.

(6) "Proper Use"

The Government of the recipient country is required to maintain and use properly and effectively the facilities constructed and the equipment purchased under the Grant, to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Grant.

(7) "Export and Re-export"

The products purchased under the Grant should not be exported or re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"), in principle. JICA will execute the Grant by making payments in Japanese yen, in principle, to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

The Government of the recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

(11) Monitoring

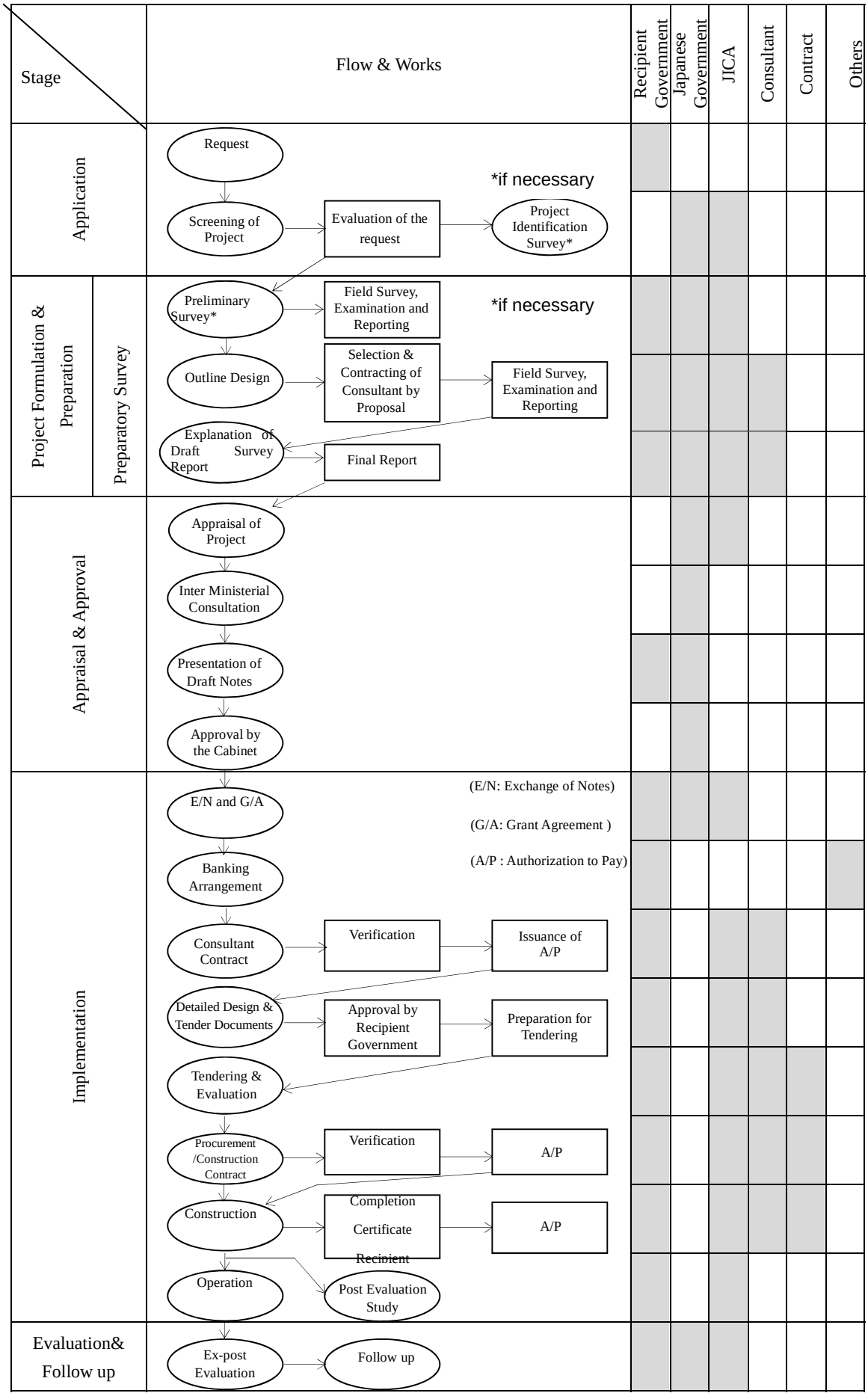
The Government of the recipient country must take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and must regularly report to JICA about its status by using the Project Monitoring Report (PMR).

(12) Safety Measures

The Government of the recipient country must ensure that the safety is highly observed during the implementation of the Project.

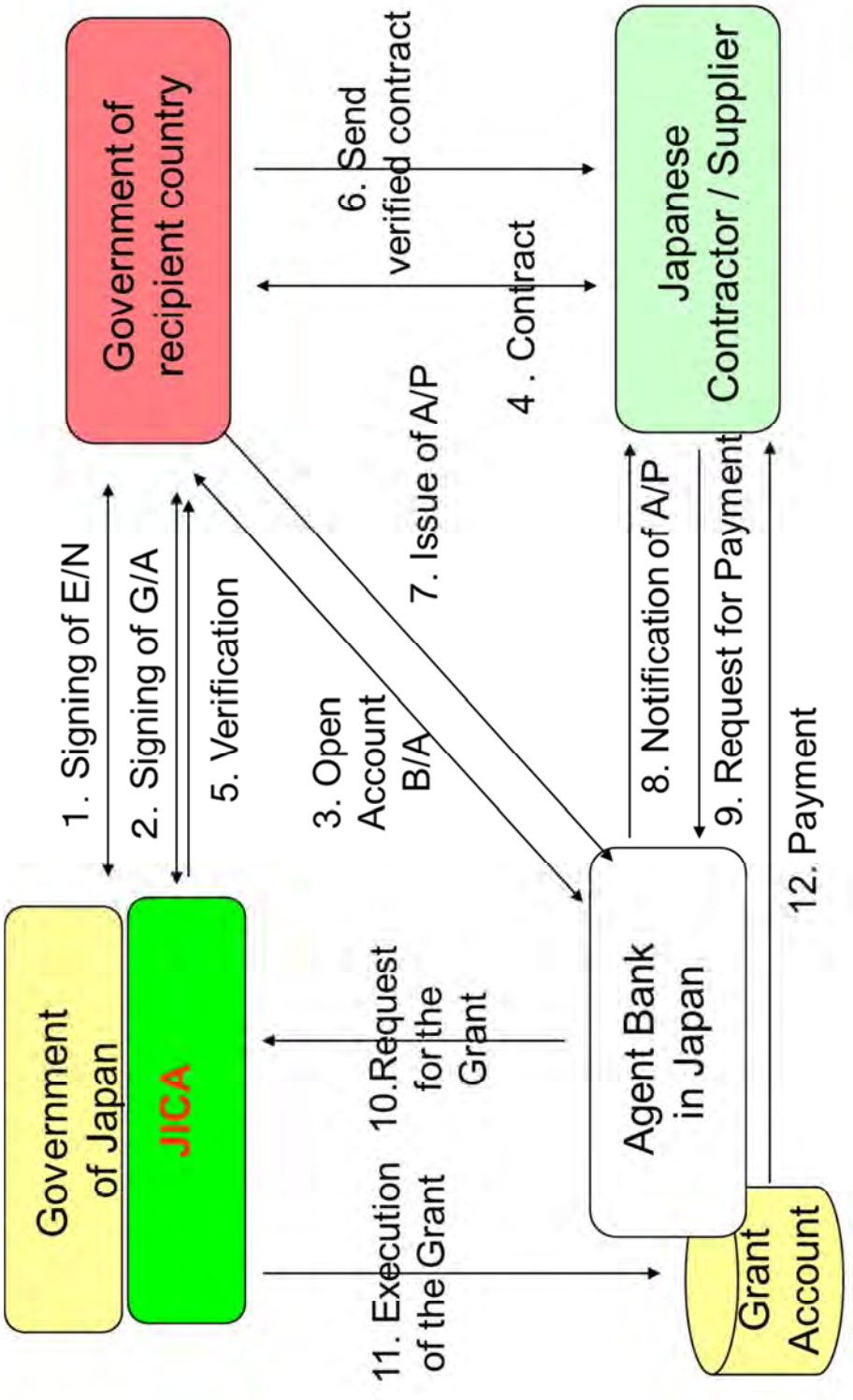
Flow Chart of Japanese Grant Procedures

Annex 5



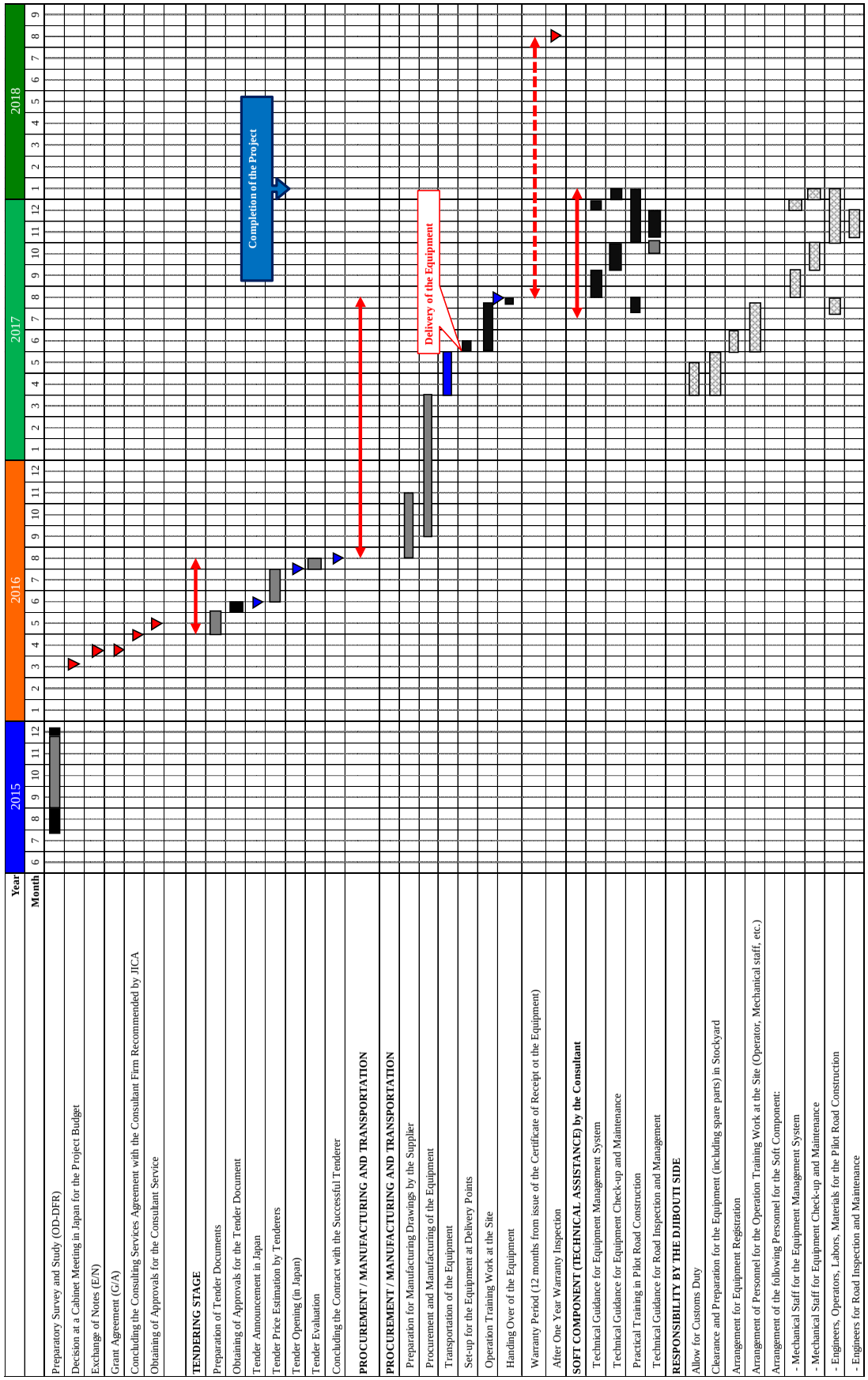
Annex 6

Financial Flow of Japanese Grant



Annex 7

Project Implementation Schedule



Annex 8

Major Undertakings to be taken by Recipient Government

1. Before the Tender

NO	Items	Deadline	In charge	Cost	Ref.
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A	MOFA	-	

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the singing of the contract	ADR		Around 5,000(JPY) / time
	2) Payment commission for A/P	every payment	ADR		0.1% of payment amount
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	1) Tax exemption and customs clearance of the products at the port of disembarkation	during the Project	ADR	-	
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project	ADR	-	
4	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the Products and/or the Services be exempted; Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, commercial tax, income tax and corporate tax of Japanese nationals, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	during the Project	ADR	-	
5	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment	during the Project	ADR	-	
6	To Be Updated during Preparatory Survey				
	1) To acquire all necessary approval and license from relevant stakeholders before the initial training 2) To secure temporary construction yard, stock yard, venue and personnel necessary for the initial training of the equipment procured by the Project.	3 months before completion of the construction	ADR	-	

3. After the Project

NO	Items	Deadline	In charge	Cost	Ref.
1	To maintain and use properly and effectively equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the Project	ADR		

(MOFA: Ministry of Foreign Affair, B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable,)

Major Undertakings to be covered by the Japanese Grant

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*	
1	To procure equipment	During the Project	1,190	
	1) To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country			
	a) Marine(Air) transportation of the products from Japan to the recipient country	During the Project		
	b) Internal transportation from the port of disembarkation to the project site	During the Project		
	2) To conduct a training about usage of equipment	During the Project		
2	To implement detailed design, tender support, procurement supervision and technical assistance. (Consultant)	During the Project	57	
	Total		1,247	

*; The cost estimates are provisional. This is subject to the approval of the Government of Japan.

Annex 9

Language used in each Document

No	Item	Prepared by	Language	
			French	English
I	**PREPARATORY SURVEY STAGE**			
1.	Field Survey Report	Consultant		○
2.	Draft Preparatory Survey Report (Draft Final Report) Note: Technical contents	Consultant	○	○ (Note)
3.	Preparatory Survey Report (Final Report) Note: Technical contents	Consultant	○	○ (Note)
II	**IMPLEMENTATION STAGE**			
1.	**Documents for the Agreement for Consulting Services**			
1.1	Agreement for Consulting Services	Consultant	○	
1.2	Recommendation of Consultant	JICA	○	
1.3	Documents for Banking Arrangement (B/A, A/P)	Bank	○	
1.4	Documents for Payment	Consultant	○	
2.	**Documents for the Contract with Supplier**			
2.1	Tender Announcement	Consultant		○
2.2	Tender Documents			
	Volume I Tender Conditions and Contract	Consultant		○
	Part I : Instructions to Tenderers	Consultant		○
	Part II : Forms of Tender	Consultant		○
	Part III : Form of Contract	Consultant	○	
	Volume II Specifications	Consultant		○
2.3	Questions and Answers to Tender Documents	Tenderer/ Consultant		○
2.4	Document of Submissions of Tenders	Tenderer (Supplier)		○
2.5	Tender Evaluation Report	Consultant	○	○
2.6	Contract for execution	Supplier	○	
2.7	Documents for Banking Arrangement (B/A, A/P)	Bank	○	
2.8	Documents for Payment	Supplier	○	
2.9	Completion Certificate	Consultant/Buyer	○	
2.10	Technical Documents for Approval	Supplier		○
2.11	Operation and Maintenance Manuals (Manufacturer original) Note: If available by manufacturer	Supplier	○ (Note)	○

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organization Information

Authority (Signer of the G/A)	_____ Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	_____ Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Ministry	_____ Person in Charge _____ (Division) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

Outline of Grant Agreement:

Source of Finance	Government of Japan: Not exceeding JPY _____mil. Government of (_____): _____
Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:

1: Project Description

1-1 Project Objective

1-2 Necessity and Priority of the Project

- Consistency with development policy, sector plan, national/regional development plans and demand of target group and the recipient country.

1-3 Effectiveness and the indicators

- Effectiveness by the Project

Quantitative Effect（Operation and Effect indicators）		
Indicators	Original (Yr)	Target (Yr)
Qualitative Effect		

2: Project Implementation

2-1 Project Scope

Table 2-1-1a: Comparison of Original and Actual Location

Location	**Original:** *(M/D)* **Attachment(s):Map**	**Actual:** *(PMRand PCR)* **Attachment(s):Map**

Table 2-1-1b: Comparison of Original and Actual Scope

Items	Original	Actual
(M/D)	*(M/D)*	*(PMR and PCR)*

'Soft component' shall be included in 'Items'.		Please state not only the most updated schedule but also other past revisions chronologically. All change of design shall be recorded regardless of its degree.

2-1-2 Reason(s) for the modification if there have been any.

(PMR and PCR)

2-2 Implementation Schedule

2-2-1 Implementation Schedule

Table 2-2-1: Comparison of Original and Actual Schedule

Items	Original		Actual
	DOD	G/A	
【*M/D*】 'Soft component' shall be stated in the column of 'Items'. Project Completion Date*	*(M/D)*		*(PMR,PCR)* As of (Date of Revision) Please state not only the most updated schedule but also other past revisions chronologically.

*Project Completion was defined as _____ at the time of G/A.

2-2-2 Reasons for any changes of the schedule, and their effects on the project.

(PMR and PCR)

2-3 Undertakings by each Government

2-3-1 Major Undertakings

See Attachment 2.

2-3-2 Activities

See Attachment 3.

2-4 Project Cost

2-4-1 Project Cost

Table 2-3-1 Comparison of Original and Actual Cost by the Government of Japan

(Confidential until the Tender)

Items			Cost (Million Yen)	
	Original	Actual	Original	Actual
Construction Facilities (or Equipment)	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Consulting Services	- Detailed design -Procurement Management -Construction Supervision			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

Table 2-3-2 Comparison of Original and Actual Cost by the Government of XX

Items			Cost (Million USD)	
	Original	Actual	Original	Actual
	'Soft component' shall be included in 'Items'.			Please state not only the most updated schedule but also other past revisions chronologically.
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = (local currency)

2-4-2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(PMR, PCR)

2-5 Organizations for Implementation

2-5-1 Executing Agency:

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original: *(M/D)*
Actual, if changed: *(PMR and PCR)*

3: Operation and Maintenance (O&M)

3-1 O&M and Management

- Organization chart of O&M
- Operational and maintenance system (structure and the number ,qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc)

Original*: (M/D)*
Actual: (*PCR*)

3-2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project up to today, as well as the annual O&M budget.

Original*: (M/D)*

4: Precautions (Risk Management)

- Risks and issues, if any, which may affect the project implementation, outcome, sustainability and planned countermeasures to be adapted are below.

Original Issues and Countermeasure(s)*: (M/D)*	
Potential Project Risks	Assessment
1.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
2.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:
	Contingency Plan (if applicable):
3.	Probability: H/M/L
(Description of Risk)	Impact: H/M/L
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action during the Implementation:

	Contingency Plan (if applicable):
Actual issues and Countermeasure(s)	
(PMR and PCR)	

5: Evaluation at Project Completion and Monitoring Plan

5-1 Overall evaluation

Please describe your overall evaluation on Project.

(PCR)

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

5-3 Monitoring Plan for the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

(PCR)

Attachment

1. Project Location Map
2. Undertakings to be taken by each Government

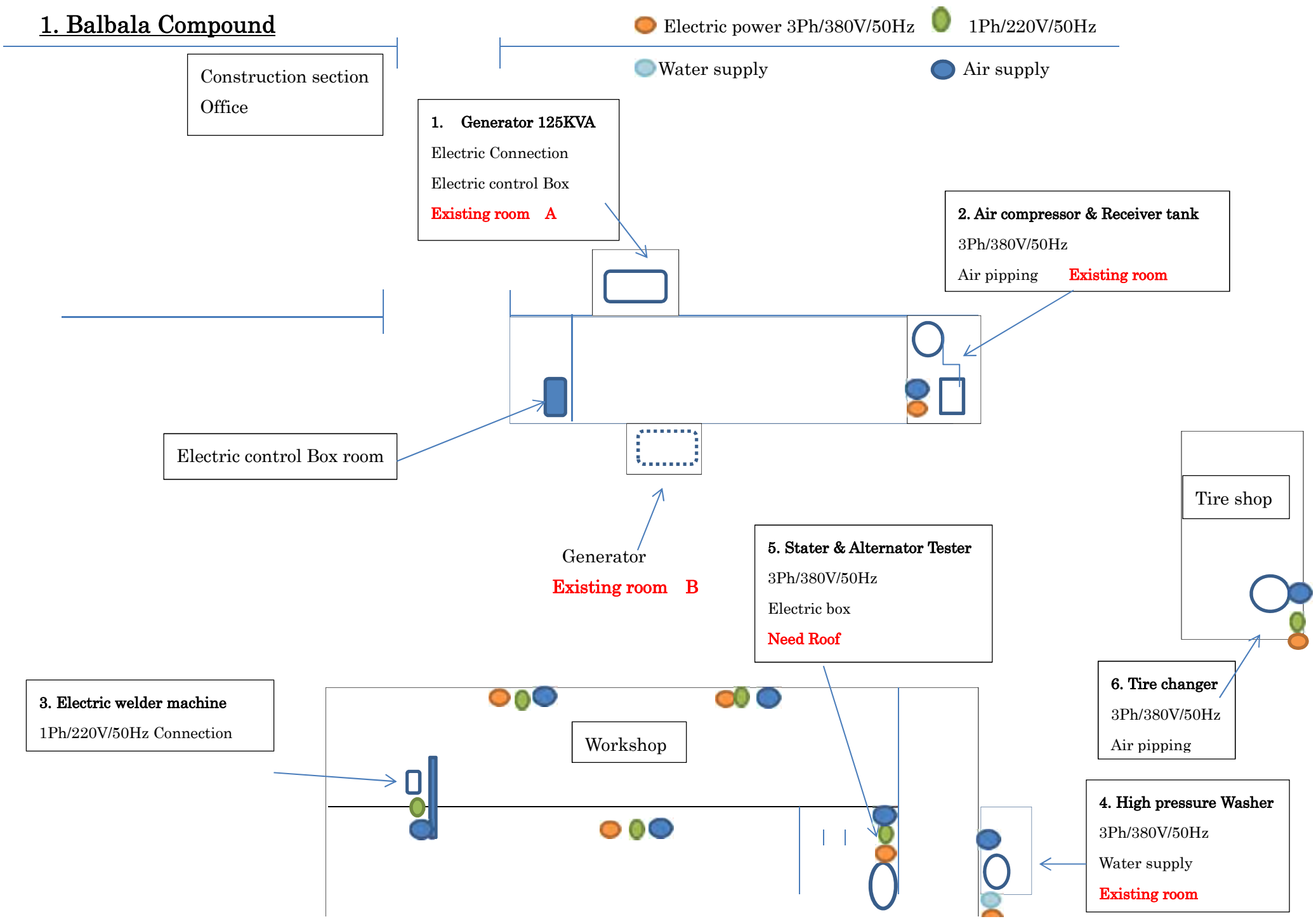
3. Monthly Report
4. Report on RD
5. Monitoring report on environmental and social considerations
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (Completion Report Only)

Annex 11

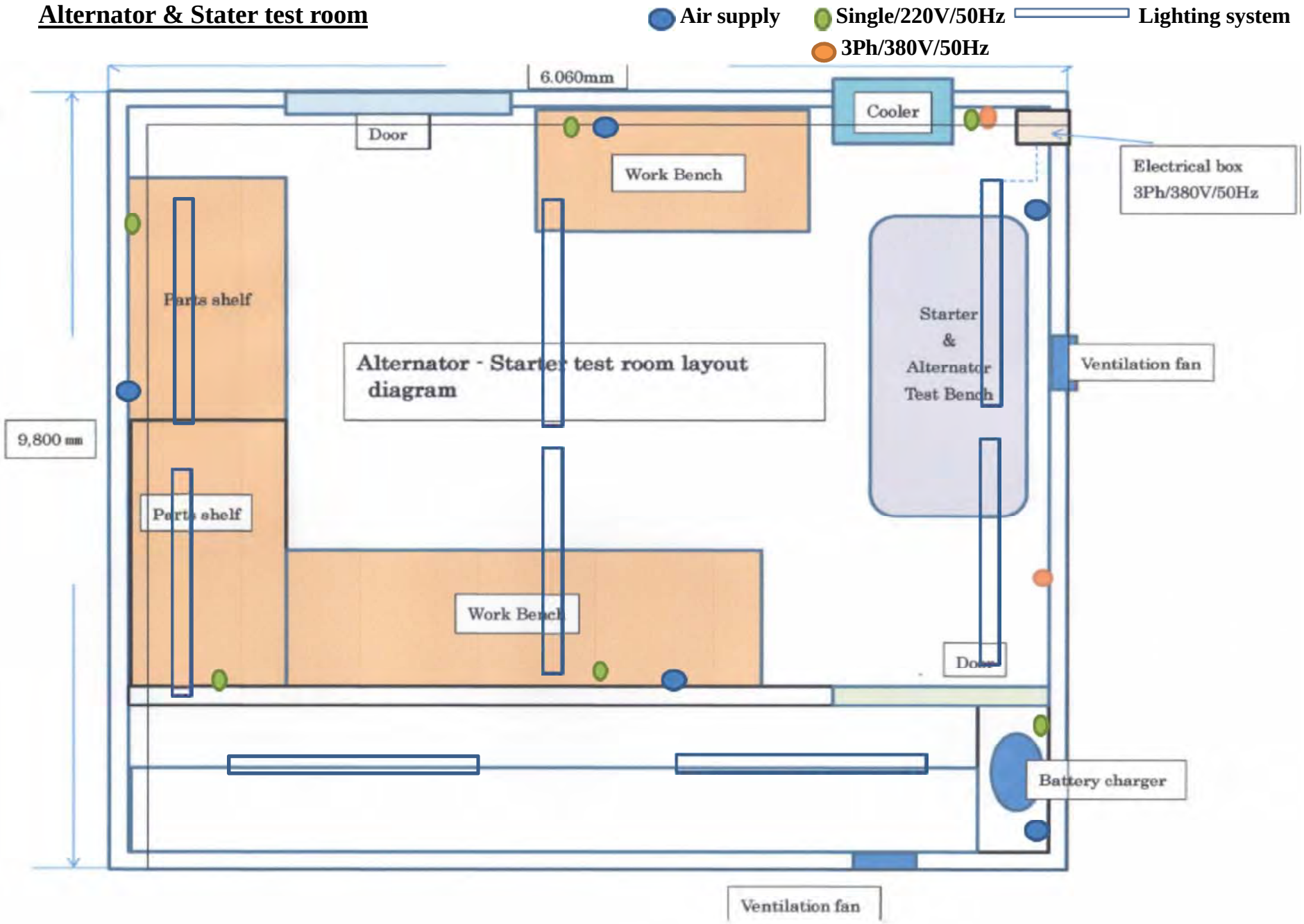
Workshop Build-up Plan to be prepared by Djibouti Side and Reporting Form

Referred in the following pages.

1. Balbala Compound



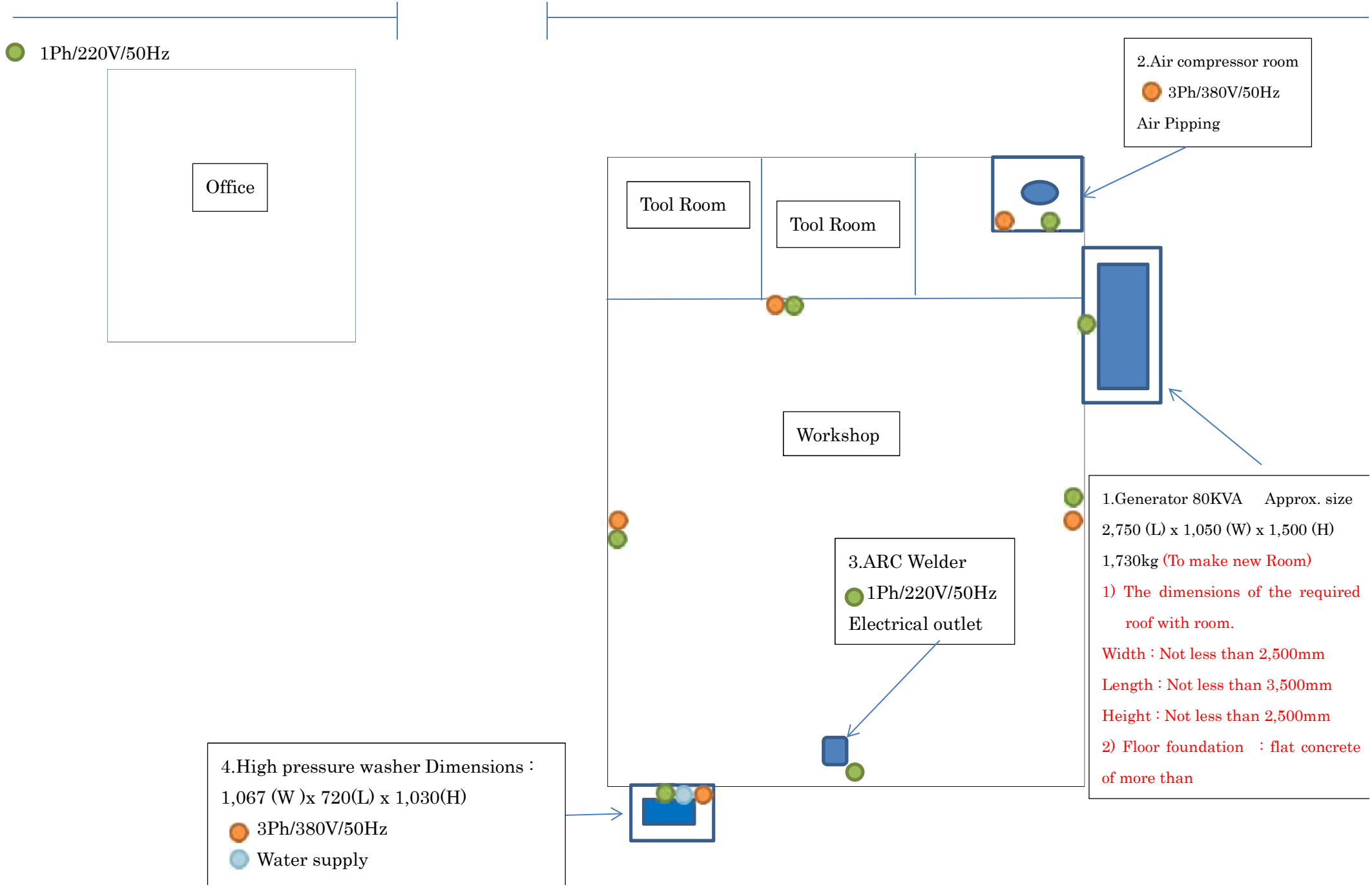
Alternator & Stater test room



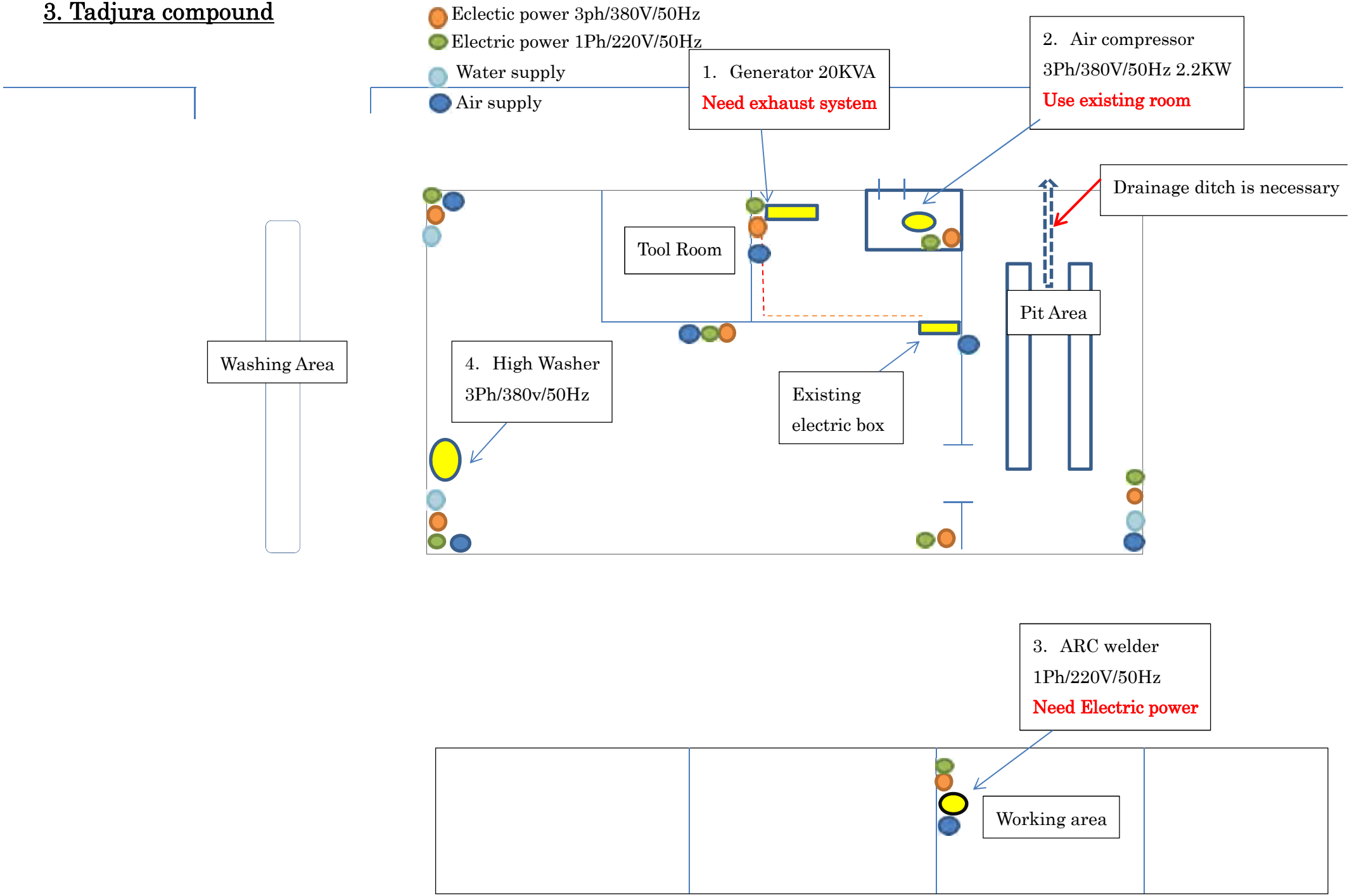
2. Dikhil Compound

3Ph/380V/50Hz electric outlet

1Ph/220V/50Hz



3. Tadjura compound



Reporting Form

1. Balbala compound

Before (Current state 23,8,2015)	After
1. Generator (125KVA) B-1. The room & roof 1) New Generator(125KVA) Dimensions : 1,080(W)x3,250(L)x1,500(H) 2) The dimensions of the required roof with room. Width : Not less than 2,500mm Length : Not less than 4,000mm Height : Not less than 2,000mm 3) Location: maintenance shop gate next to (A) and the factory in the guard station next to (B)  Installation candidate location (A)  Installation candidate location (B) *Even if the put either it takes the existing generator removal work, before the new generator arrives.	

B-2, Electric Connection B-3.Electric control Box

1) Wiring work from the generator until the power supply box.
2) Main breaker should be replaced with a new breaker (200A).
3) Location: inside of guard station
4) Selector switch of City Power and the generator is required.

B-4, Exhaust system

1) Example) attach the exhaust pipe and rain cap
2) It conducted after either removal

2. Air Compressor & Receiver tank

B-5 , The room & roof , B-6, Electric connection

B7,Electric control box

1) New Air Compressor Dimensions
   : 850(W)x1,350(L)x1,220(H)
   Receiver Tank
   : 850(W)x850(L)x1,200(H)
2) The dimensions of the required roof with room.
   Width : Not less than 4,000mm
   Length : Not less than 4,000mm
   Height : Not less than 3,000mm
3) Location: Guard station array of room

4) It conducted after removal old Air compressor and receiver tank if use as same room.
5) Compressor electric breaker use Electric leakage with breaker (30A)
6) Electric connection 3Ph/380V/50Hz
7) Air connection work it is necessary.

B-8, Air pipping

1) Air compressor to receiver tank
2) Receiver tank to workshop pipping connection
   Work it is necessary.

3) Almost damaged air taken out of the Workshop

3. <u>Portable Welding machine</u> **B-9,The room(space) & roof** **B10, Electric connection B11,Electric control box** 1) New ARC Welding Machine Dimensions : 650(W)x500(L)x1,020(H) 2) The dimensions of the required roof with room. Width : Not less than 1.000mm Length : Not less than 1,000mm Height : Not less than 2,000mm 3) Not dared necessary to make room When used in the factory. 4) It requires the installation of power outlets (single-phase / 220V / 50Hz). 5) Single-phase/220V= Breaker 110A 6) Location : inside of Workshop 	
4. <u>Electric High Pressure Washer</u> **B-12 , The room & roof** 1) New High washer Dimensions : 1,067 (W)x 720(L)x1,030(H) 2) The dimensions of the required roof with room. Width : Not less than 2.000mm Length : Not less than 2,000mm Height : Not less than 2,000mm 3) Location : Next to the workshop 	

B-13,Electric connection, B14 Electric control box

Electric connection (3Ph/380V50Hz/Leaking Breaker 10A) with waterproof electric box.

B-15 Water supply & Air valve

1) Water Supply and Air supply valve

2) Floor to well-drained flat

5. <u>Alternator Stater tester</u>

B-16 The Room & Roof

1) Dimensions
   : 1,020 (W)x 2,100(L)x1,770(H)

2) The dimensions of the required room with roof.
   Width : Not less than 4.000mm
   Length : Not less than 4,000mm
   Height : Not less than 3,000mm

3) Location : Inside of the workshop

4) Provided a workbench and tool shelf

5) For details, see the A & S test room layout

B17, Electric connection, B18,Electric control box

1) Electric connection work

3Ph/380V/50Hz/30A

2) Removal action of old equipment, and

Make clean room.

B19,Air conditioner & Ventilation fan

B20,Lighting B21, Air pipping & Air valve

1) To See Layout document.

6. <u>Tire changer</u>

B22, The room (Space) & roof

1) Dimension : 1,960(W)x2,020(L)x1,560(H)mm
2) The dimensions of the required roof with room.
   Width : Not less than 3.000mm
   Length : Not less than 4,000mm
   Height : Not less than 3,000mm
3) Location : Tire repair shop

Cleaning of the installation location

B23, Electric connection

3Ph/380V/50Hz/10A

B24 Electric control box

B25 Parts Warehouse B26 Air Piping &Air valve 	

Reporting Form

2. Dikhil compound

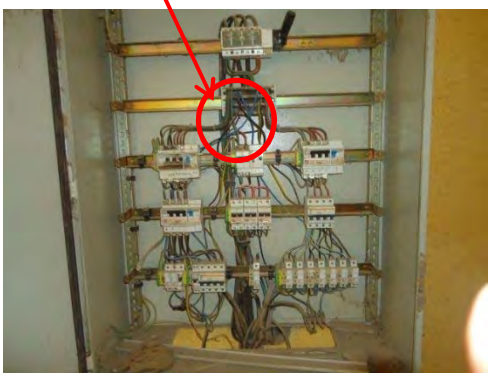
Before (Current state 23,8,2015)	After
1. Generator (80KVA) **D-1. The room & roof** 1) New Generator(80KVA) Dimensions : 1,050(W)x2,750(L)x1,350(H) 2) The dimensions of the required roof with room. Width : Not less than 2,500mm Length : Not less than 3,500mm Height : Not less than 2,500mm 3) Floor foundation : flat concrete of more than 150mm from the ground 4) Location: Next to the repair shop 5) Moving the existing equipment. 6) Installation planned place 	

D-2 Electric connection

1) 3Ph/380/Single Ph220/50Hz

D-3 Electric control box

1) Main breaker should be replaced with a new breaker (125A).
2) Inside of workshop
3) Selector switch of City Power and the generator is required.



D-4 Exhaust system

1) As same as Balbala system

2. Air compressor (2.2KW)

D-5. The room & roof

1) Air compressor Dimensions : 490(W)x1,210(L)x850(H)
2) The dimensions of the required roof with room.
   Width : Not less than 1,000mm
   Length : Not less than 25,00mm
   Height : Not less than 2,000mm
3) Location of Air compressor room
   Next to the workshop

D-6 Electric connection

1) 3Ph/380/50Hz/Breaker (5A)
2) It puts a 5A new breaker for the air compressor.

D-7 Electric control box

D-8 Air pipping and valve

1) Almost damaged air taken out of the Workshop Air valve.

3. Portable Welding machine

D-9 The room(space) & roof

1) New ARC Welding Machine Dimensions
: 650(W)x500(L)x1,020(H)

2) The dimensions of the required roof with room.
Width : Not less than 1.000mm
Length : Not less than 1,000mm
Height : Not less than 2,000mm

3) Not dared necessary to make room when used in the factory.

4) It requires the installation of power outlets (single-phase / 220V / 50Hz).

5) Single-phase/220V= Breaker 110A

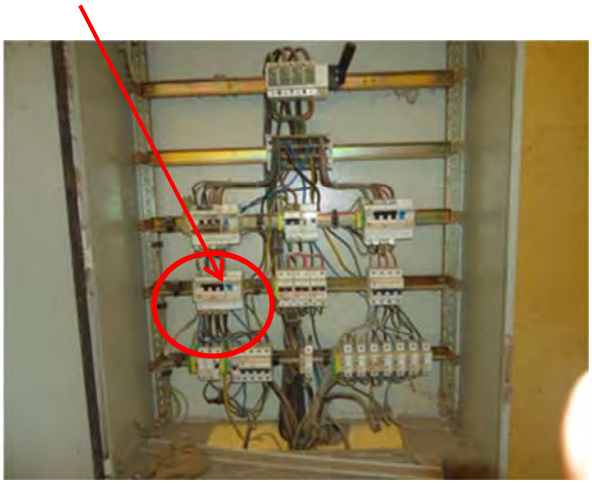
6)Location : inside of Workshop

D-10 Electric connection

1) 3Ph/380/Single Ph220/50Hz

D-11 Electric control box

1) Breaker should be replaced with a new breaker (110A).



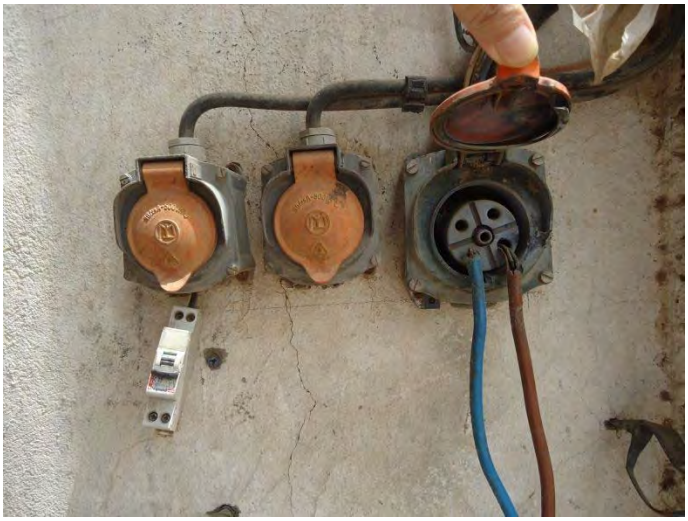
4. <u>Electric High Pressure Washer</u>

D-12 , The room & roof

1) New High washer Dimensions
   : 1,067 (W)x 720(L)x1,030(H)
2) The dimensions of the required roof with room.
   Width : Not less than 2.000mm
   Length : Not less than 2,000mm
   Height : Not less than 2,000mm
3) Location : Next to the workshop
4) Moving the existing equipment.

D-13 Electric connection

1) 3Ph/380/Single Ph220/50Hz
2) Repress broken electric Outlet socket and make new electric Outlet socket



D-14 Electric control box

1) Breaker should be replaced with a new leaking breaker (10A).and keep with waterproof electric box.

D-15 Water supply & air valve

1) To make water supply valve
2) To make air supply valve near the washer area

Reporting Form

3. Tadjoura Compound

Before (Current state 23,8,2015)	After
1. Generator (20KVA) **T-1. The room & roof** 1) New Generator(20KVA) Dimensions : 680(W)x1,540(L)x900(H) 2) The dimensions of the required roof with room. Width : Not less than 1,500mm Length : Not less than 2,500mm Height : Not less than 2,500mm 3) Floor foundation : flat concrete of more than 150mm from the ground 4) Location : Back side of the repair shop 5) Moving the existing equipment. 6) Installation planned place As planned, to install the air compressor room that is not currently used   Inside of air compressor room	

T-2 Electric connection

1) 3Ph/380V/50Hz

T-3 Electric control box

1) Main breaker should be replaced with a new breaker (30A).
2) Location : Workshop
3) Selector switch of City Power and the generator is required.

T-4 Exhaust system

1) To make exhaust joint pipe to connect outside.

Caution

Welding machine can not be used on the relationship between the voltage in the 20KVA generator.

Please note.

2. Air Compressor (2.2KW)

T-5 The room (Space) & roof

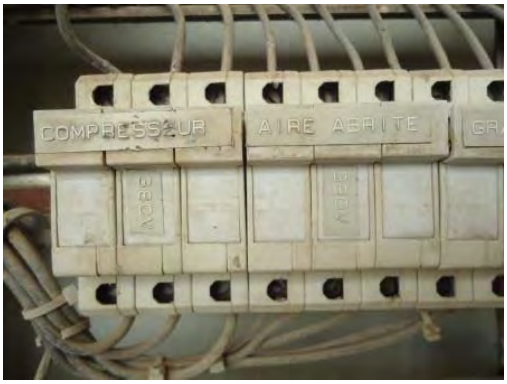
1) Air compressor Dimensions : 490(W)x1,210(L)x850(H)
2) The dimensions of the required roof with room.
   Width : Not less than 1,000mm
   Length : Not less than 25,00mm
   Height : Not less than 2,000mm
3) Can installed warehouse or inside of Workshop
4) Existing air compressor

T-6 Electric connection

1) 3Ph/380/50Hz/Breaker (5A)

T-7 Electric control box

1) It puts a 5A new breaker for the air compressor.



T-8 Air pipping and Air valve

1) Repair of the air outlet in the workshop.

3. Portable Welding machine

T-9 The room(space) & roof

1) New ARC Welding Machine Dimensions
: 650(W)x500(L)x1,020(H)

2) The dimensions of the required roof with room.
Width : Not less than 1.000mm
Length : Not less than 1,000mm
Height : Not less than 2,000mm

3) There is no need to make a new room because basically being used and stored at the workshops.

T-10 Electric connection

1) 3Ph/380/Single Ph220/50Hz

2) Repress broken electric Outlet socket and make new electric Outlet socket

T-11 Electric control box

1) ARC breaker should be replaced with a new breaker (110A).

2) Location : Workshop

Caution

This welding machine can not be used on the relationship between the voltage in the 20KVA generator.

Please note.

4. Electric High Pressure Washer

T-12 The room & roof

1) New High washer Dimensions
: 1,067 (W)x 720(L)x1,030(H)

2) The dimensions of the required roof with room.

Width : Not less than 2.000mm

Length : Not less than 2,000mm

Height : Not less than 2,000mm

T-13 Electric connection

1) 3Ph/380/50Hz/ Earth leakage breaker (10A)

T-14 Electric control box

1) Earth leakage breaker (10A)

T-15 Water supply and Air valve

Installation Plan 1

The three-phase 380V power supply (waterproof power box) is necessary.

Workshop entrance area

Installation Plan 2

1) The three-phase 380V power supply (waterproof power box) is necessary.
2) Water source is necessary
3) Water drainage of the pit inside is required.

Pit area.

Annex 12

Increase Plan of Equipment Operator

ADR needs to secure the following number of operators needed before the delivery of equipment indicated in Annex 7 and to assign them to the Operation Training Work and the Soft Component as a trainee.

No.	Equipment	Quantity of equipment (Unit)	Necessary number of operator
1	Bulldozer	2	2
2	Excavator (Crawler)	3	3
3	Hydraulic Breaker	2	-
4	Motor Grader	3	3
5	Wheel Loader	3	3
6	Vibratory Combined Roller	3	3
7	Vibratory Tandem Roller	1	1
8	Tire Roller	1	1
9	Hand-guided Vibratory Roller	3	-
10	Plate Compactor	3	-
11	Rammer	3	-
12	Asphalt Cutter	3	-
13	Asphalt Finisher	1	1
14	Bitumen Distributor	1	1
15	Chip Spreader	1	-
16	Asphalt Hand Sprayer	3	-
17	Asphalt Burner (Torch)	3	-
18	Concrete Mixer (0.8 m^3)	2	2
19	Concrete Mixer (0.5 m^3)	2	2
20	Water Bowser	4	4
21	Dump Truck	15	15
22	Fuel Tanker	1	1
23	Cab-back Crane	2	2
24	Mobile Workshop	2	2
25	Low Bed Semi-trailer with Tractor Head	1	1
26	Inspection Vehicle	3	-
27	Line Marker	3	-
28	Asphalt Plant	1	5
29	Crushing and Screening Plant	1	3
		Total	55

APPENDICES

APPENDIX 5

SOFT COMPONENT (TECHNICAL ASSISTANCE) PLAN

The Project for

Improvement of Road Management Equipment

in the Republic of Djibouti

Soft Component (Technical Assistance) Plan

December 2015

Yachiyo Engineering Co., Ltd.

Contents

1. Background of the Soft Component

The Soft Component in the Project is provided based on equipment procurement in order to enhance the capacity of the Agence Djiboutienne des Routes (hereinafter referred to as "ADR") of ① proper operation and maintenance of road maintenance equipment, ② proper maintenance of inspection and maintenance equipment, ③ proper allocation and use of latest maintenance equipment in road improvement, and ④ road maintenance. Reasons for the need for the soft component are described below.

Japan expended grant aid projects to Djibouti to supply construction equipment for road improvement in 1983, 1986, 1992 and 1996. However, the preparatory survey was decided to be performed because there is still much need for the ADR to perform road improvement and maintenance and such equipment needs to be procured.

Existing equipment the ADR owns is managed integratedly at Balbala Compound (in Djibouti City) that is the central equipment operation and maintenance organization and the compound also has workshop for equipment inspection and maintenance on its premises. There are two regional compounds (Dikhil Compound and Tadjoura Compound) under the Balbala Compound and they are responsible for simple road maintenance and equipment maintenance in their jurisdictional area. Balbala Compound is responsible for road maintenance equipment allocation and procurement of equipment and their parts and they are allocated to regional compounds as needed. Although Balbala Compound that is the central organization has introduced computers for entering and dispatching from warehouse of equipment and parts, it has not established a system to accumulate and manage written data. Under the circumstances, it is important to improve the current equipment management system in order to properly manage the maintenance time and spare part replacement time based on equipment operation condition and operation hours so that the road maintenance equipment to be procured in the Project will be operated and maintained efficiently. Although each compound has mechanics and electric engineers in charge of equipment inspection and maintenance at their workshop, their function as the workshop has deteriorated as the facility has become old. The workshop function needs to be improved using inspection and maintenance equipment (alternator, starter tester and mobile workshop) and maintenance and inspection techniques for their sound operation for a long time also need to be acquired in order to ensure the performance of routine maintenance and failure diagnosis and repair of equipment to be procured.

Equipment needs to be allocated properly and proper techniques of equipment operation need to be acquired in accordance with the work contents and procedures for the road maintenance equipment to be procured in the Project to fully exert its latest performance and realize safe and quality road maintenance using the equipment management system described above. In consideration of this, it is very important to conduct pilot works in a section of the target maintenance road for the engineers of the ADR des Routes in charge of the works to improve their works management capacity and skills. The pilot works are effective for training of practical works techniques in accordance with the conditions of the construction site and it is also usable as the place for practical training of the equipment management system. Thus,

the personnel in charge of equipment management are expected to improve their skills to continue efficient operation of the system through the pilot works.

The ADR that is responsible for road administration of the country has various problems, which include ① road inspection is not performed regularly, ② no systematic road inspection and maintenance system is established, ③ inspection and repair record is in written document and not in data and thus it is difficult to sum up and search it, and ④ no road facility report including pavement is compiled, and thus no process from the inspection to works completion is established, although it is responsible for maintenance of existing National Route 1 and roads in Djibouti City. Against the backdrop, it is important to create data of road information and system to maintain it at the latest condition in order to promote the compilation of a book of the volume, specifications and assets of structures and attached facilities, understand them correctly and manage the assets efficiently and rationally. Thus, it is necessary to create a system to manage the data integratedly and update information on new construction, inspection and repair work as needed.

2. Soft Component Objectives

Against the backdrop described above, objectives listed below are set for the emergence of project effects and sustainability.

Objective ①

Construction equipment to be procured in the Project is efficiently operated and maintained together with existing equipment and spare parts.

Objective ②

Construction equipment to be procured in the Project is properly maintained through the use of inspection and maintenance equipment (alternator starter tester and mobile container workshop) that is also to be procured.

Objective ③

Construction equipment to be procured in the Project is allocated properly for road maintenance and their performance is fully delivered.

Objective ④

Main roads under the jurisdiction of the ADR are maintained systematically and efficiently.

3. Soft Component Outputs

Direct Outputs at the completion of the Soft Component of the Project are summarized below.

Output 1: An equipment management system to control and manage the operation and spare part inventory of equipment to be procured in the Project is created and the

employees of the ADR can understand the need and urgency of equipment maintenance and promptly respond to failures by enhancing a systematic communication structure among compounds.
(Output of Objective-1 in "2. Soft Component Objectives")

Output 2: Proper failure diagnosis is performed with the alternator starter tester and quick maintenance is performed with the mobile container workshop, both of which are to be procured in the Project, to reduce the trouble of construction equipment.
(Output of Objective-2 in "2. Soft Component Objectives")

Output 3: The road construction management capacity of the employees of the ADR is improved and their skills to enable the equipment to be procured in the Project to fully deliver their performance are acquired.
(Output of Objective-3 in "2. Soft Component Objectives")

Output 4: The employees of the ADR understand the importance of systematic routine inspections in road maintenance and it is reflected on maintenance and repair plans based on the accumulation of inspection results.
(Output of Objective-4 in "2. Soft Component Objectives")

4. Method for confirming Achievement of Outputs

In order to confirm the level of achievement of the Soft Component outputs in the Project, confirmation items will be set for each output as follows. Level of achievement will be evaluated by observation and addressing questionnaires by the Consultant before and after the training to the personnel targeted by the Soft Component.

Output	Items for Confirming Level of Achievement
Output 1: An equipment management system to control and manage the operation and spare part inventory of equipment to be procured in the Project is created and the employees of the ADR can understand the need and urgency of equipment maintenance and promptly respond to failures by enhancing a systematic communication structure among compounds.	1. Can the operating conditions and stock conditions of the Project equipment and spare parts be grasped?
	2. Are ledger control methods and procedures that utilize a database understood, and can accurate data control be implemented?
	3. Can periodic reporting to Balbara compound regarding the equipment condition be understood and be performed?
	4. Based on the Project equipment control methods, can the conditions of allocation and operation be controlled through listing the existing equipment owned by the ADR?
	5. Have personnel learned the ability to utilize the control system for the maintenance and procurement of spare parts for long term management?
Output 2: Proper failure diagnosis is performed with the alternator starter tester and quick maintenance is performed with the mobile container workshop, both of which are to be procured in the Project, to reduce the trouble of construction equipment.	1. Can diagnosis using the alternator starter tester be conducted?
	2. Have personnel learned the equipment maintenance using the mobile workshop and learned the knowhow to accumulate such records into the control system?
	3. Have manuals been formulated and have such manuals been utilized effectively?
	4. Have personnel learned the ability to maintain equipment by the alternator starter tester and the mobile workshop?
	5. Have personnel learned importance of the low-cost maintenance by changing spare parts, but not heavy assembly?

Output 3: The road construction management capacity of the employees of the ADR is improved and their skills to enable the equipment to be procured in the Project to fully deliver their performance are acquired.	1. Can the Project equipment be safely and appropriately operated on works sites? 2. Can works that fully realize the functions and performance of the Project equipment to achieve compaction and flatness required for earthwork and paving work? 3. Can works materials be procured according to the design documents and specifications, and can works be executed according to the execution plans?
Output 4: The employees of the ADR understand the importance of systematic routine inspections in road maintenance and it is reflected on maintenance and repair plans based on the accumulation of inspection results.	1. Have personnel understood importance of daily and periodic inspections and have inspection structure been organized? 2. Can the ADR accumulate and management the data from inspection results? 3. Can the ADR reflect the inspection data into the future maintenance plan?

5. Soft Component Activities (Plan of Inputs)

(1) Contents of Activities

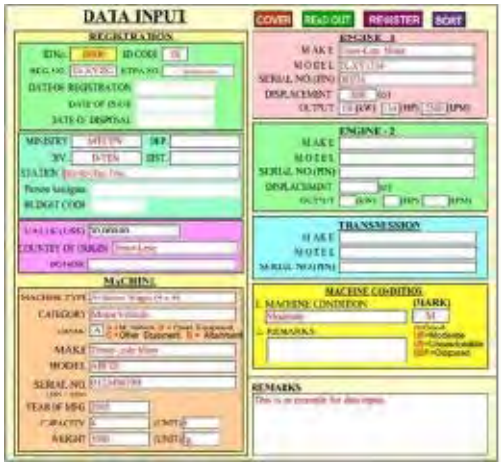
Four items listed below are planned as soft component activities of the Project to achieve the Outputs in (3) above.

Activities	Target Organization	Relevant Output
(1) Improvement of equipment management system	Service parc Matériels and Service des Régions, Direction des Travaux	Output 1
(2) Equipment inspection and maintenance capacity enhancement	Service parc Matériels and Service des Régions, Direction des Travaux	Output 2
(3) Pilot works	Service des Régions and Service parc Matériels, Direction des Travaux	Output 3
(4) Enhancement of road maintenance system	Service des Régions, Direction des Travaux	Output 4

The soft component of the Project is direct assistance type by the order-receiving consultant for the target organization above and the contents of activities to achieve the Outputs are described in 1) to 4) below.

1) Activities regarding Output 1

Item	Contents
Objective	Improvement of equipment management system for equipment to be procured in the Project
Place	Balbala Compound (Djibouti City)
Target trainee	Equipment managers and mechanics of Balbala Compound, Dikhil Compound and Tadjoura Compound (total of 15 trainees)
Training aids	- Manual for construction equipment operation record (operation record) * in French - Manual for construction equipment operation and maintenance record (spare part management record) * in French
Equipment to be used	- 2 desktop computers - Management database (general-purpose software)

Item	Contents
Activity	The training is carried out in two sessions of practical training and evaluation and follow-up so that trainees will acquire the efficient operation know-how of equipment to be procured over a long time.  Sample of Database

2) Activities regarding Output 2

Item	Contents
Objective	Improvement of inspection, diagnosis and maintenance capacity using the equipment to be procured
Place	Balbala Compound (Djibouti City)
Target trainee	Mechanics (mechanics and electric engineers) of Balbala Compound, Dikhil Compound and Tadjoura Compound (total of 15 trainees)
Training aids	- CD aid (hydraulic pressure, electricity and equipment) * in English (French translation attached)
Equipment to be used	- Inspection and maintenance equipment to be procured in the Project (alternator starter tester, and mobile container workshop) - Equipment to be procured in the Project (excavator, cut model and training aids for training)
Activity	The training is carried out in two sessions of practical training and evaluation and follow-up so that trainees will acquire the efficient operation know-how of equipment to be procured over a long time.  Alternator Starter Teste

3) Activities regarding Output 3

Item	Contents
Objective	Improvement of work capacity through the pilot works using the equipment to be procured in the Project and practical utilization capacity of equipment record management system
Place	A 400-meter-long section of target maintenance road
Target trainee	Work team (including equipment operators)
Training aids	- Materials on road work procedures
Equipment to be used	- Road maintenance equipment to be procured in the Project
Activity	The pilot works are to select a 200-meter section of asphalt paving and a 200-meter section of simple paving (DBST) (total of 400 meters) of target roads and execute the works based on the understanding that the works contents of the target roads are the two types of works. It is carried out in two sessions of preparation and on-site work training.

4) Activities regarding Output 4

Item	Contents
Objective	Improvement of routine inspection and maintenance capacity of existing roads
Place	Balbala Compound (Djibouti City) National Rt. 1
Target trainee	Work team
Training aids	- Road inspection handbook * in French - Road record and inspection report * in French
Equipment to be used	- Road record and inspection report * in French
Activity	The training includes works in Japan for preparing training aids and practical on-site training.

(2) Implementation Resources

1) Japanese side

Japanese experts to be dispatched for the Soft Component, field, number, period and major contents of activities are described below.

[Japanese Engineers]

Responsible field	Number of member	Period (M/M)	Major contents of activities
Experts for Output 1			
Equipment Management Planning (Japanese engineer)	1	1st: 1.2M/M 2nd: 0.5M/M Total: 1.7M/M	First time: Guidance on ledger control system training Second time: Confirmation and evaluation of conditions of system utilization

Experts for Output 2			
Equipment Inspection and Maintenance Planning （Japanese engineer）	1	1st: 1.37M/M 2nd: 0.5M/M Total: 1.87M/M	First time: Guidance on the alternator starter tester and the mobile work shop Second time: Confirmation and evaluation of conditions of equipment utilization
Experts for Output 3			
Road Planning （Japanese engineer）	1	1st: 0.7M/M 2nd: 2.5M/M Total: 3.2M/M	First time: Pilot work preparation Second time: Technical guidance on pilot works
Experts for Output 4			
Road Inspection and Management Planning （Japanese engineer）	1	1st: 0.65M/M (in Japan) 2nd: 1.2M/M Total: 1.85M/M	First time: Preparing the training text in Japan Second time: Technical guidance

[Local Staff]

Responsible field	Number of staff	Period (M/M)	Major contents of activities
Local Staff for Output 1			
Interpreter-1	1	1st: 1.07M/M 2nd: 0.37M/M Total：1.44 M/M	Translation for Japanese engineer
Local Staff for Output 2			
Interpreter-2	1	1st: 1.23M/M 2nd: 0.37M/M Total: 1.6M/M	Translation for Japanese engineer
Local Staff for Output 3			
Interpreter-3	1	1st: 0.57M/M 2nd: 2.37M/M Total: 2.94M/M	Translation for Japanese engineer
Local Staff for Output 4			
Interpreter-4	1	1st: N/A 2nd: 1.07M/M Total: 1.07M/M	Translation for Japanese engineer

2) Djibouti side

The human resources to be recruited on Djibouti side for the Soft Component are described below.

Responsible field	Number of trainees	Period
Equipment control and management	Around 15 trainees	1st: 1.2 months 2nd: 0.5 months Total：1.7 months
Equipment control and management	Around 15 trainees	1st: 1.37 months 2nd: 0.5 months Total：1.87 months
Works supervisors, road engineers, operators	Appropriately recruit according to the type of pilot works	1st: 0.7 months (except operators) 2nd: 2.5 months Total：3.2 months
Road engineers and inspectors	Around 10 trainees	1st: N/A 2nd: 1.2 months Total：1.2 months

(3) Types of Outputs

1) Japanese side

- Construction and maintenance equipment operating record manual (operating log) in French
- Construction and maintenance equipment operation and maintenance manual (spare parts control ledger) in French
- Road inspection manual in French
- Road inspection ledger form

2) Japanese side and Djibouti side

- Operation flow of the Ledger Control System prepared in the training

  (The operating flow including the periodic reporting setup between the central and local levels will be jointly created).

- Road inspection ledger targeting RN1

6. Procurement Method for Soft Component Implementation Resources

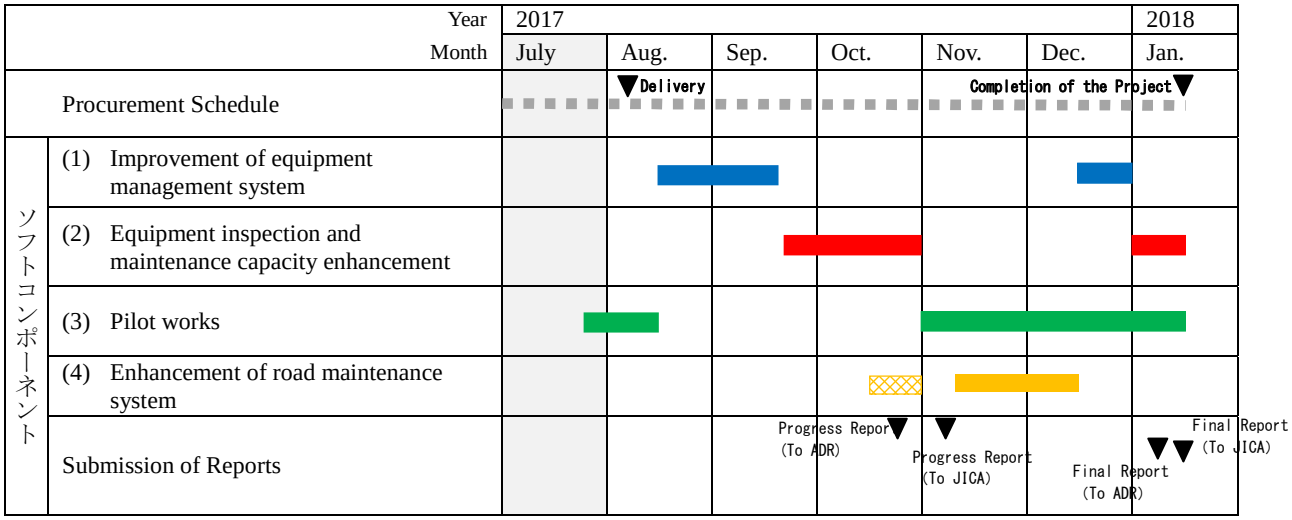
It is considered that the activities in the soft component are better carried out by Japanese engineers than by local resources for the reasons summarized below

Activities	Reason for Introduction of Japanese Engineers
(1) Improvement of equipment management system	The system to manage various construction equipment using ledger is not common in Djibouti. In addition, manufacturers of the most equipment are Japanese. So it is difficult for local resources to cope with it and Japanese engineers would best suit.
(2) Equipment inspection and maintenance capacity enhancement	As well as (1) above, it is difficult for local resources to cope with Japanese manufactures and Japanese engineers would best suit.
(3) Pilot works	In connection with (1) above, improvement of quality of road works using the project equipment can be achieved by guidance on site by Japanese engineers who are well informed of equipment and ledger system.
(4) Enhancement of road maintenance system	Technologies of road management ledger system in Japan are superior to others and so Japanese engineers would best suit.

As such, it is appropriate that the contracted consultant directly conduct the Soft Component.

7. Implementation Schedule of Soft Component

The implementation schedule of Soft Component is as follows.



Note: Construction works in July and August which are hottest period in Djibouti are almost off.

8. Types of Outputs

The outputs to be created in the Soft Component are as follows:

- Construction and maintenance equipment operating record manual (operating log)
- Construction and maintenance equipment operation and maintenance manual (spare parts control ledger)
- Training CD (hydraulic, electric, mechanic)
- Handbook for road inspection
- Road inspection ledger on RN1
- Final Report on the Soft Component

  to includes:

  - Record of activities, for example, photographs of works, etc.
  - The above-mentioned manuals and system operation flow
  - Results of questionnaire implemented with respect to trainees of the ADR
  - Final Report to be submitted to the client (ADR)

9. Soft Component Cost Estimation

The cost for the Soft Component is not disclosed.

10. Obligations of Djibouti Side

In order to achieve the objectives of the Soft Component, in addition to the outputs of implementation, the following items will need to be implemented as the obligations of Djibouti side:

- To ensure the ongoing operation of the Ledger Control System established under the Soft Component, disseminate and horizontally extend within the organization the technologies and control methods that have been learned.
- Utilizing the project equipment, advance construction and maintenance of the target roads without delay, and utilize the control system in order to efficiently operate and maintain the roads.
- In order to appropriately conduct operation and maintenance utilizing the control system, secure the necessary budget to maintain the Project equipment and procure additional spare parts.

APPENDIX 6

OTHER RELEVANT DATA

6-1 Safety Management Seminar

Séminaire sur le management de la Sécurité à Djibouti

Décembre 2015

le 16 décembre 2015

08:30 - 09:00	Enregistrement	
09:00 - 09:10	Discours d'ouverture	M. Hiroyuki OGINO (Chef de projet chez la JICA)
09:10 - 10:20	Séminaire de la Sécurité:Vol.1 §0 Orientation §1 Règles générales §2 Principes généraux de la gestion de sécurité §3 Plan de précautions de sécurité	M. Koji MASUDA (Maître de conférence, Yachiyo Engineering Co., LTD.)
10:20 - 10:40	Pause	
10:40 - 12:00	Séminaire de la Sécurité:Vol.2 §4 Plan de sécurité dans la construction §5-1 Exemples d'accidents (Recherche de la cause d'accident) §5-2 Quels risques se cachent? (Exercice)	

le 17 décembre 2015

08:30 - 09:00	Enregistrement	
09:00 - 10:20	Séminaire de la Sécurité:Vol.3 §5-3 Apparition des accidents au Japon §5-4 Exemples d'accidents liés au matériel lourd §5-5 Prévention d'accident lié au matériel lourd	M. Koji MASUDA (Maître de conférence, Yachiyo Engineering Co., LTD.)
10:20 - 10:40	Pause	
10:40 - 11:50	Séminaire de la Sécurité:Vol.4 §5-6 Exercices KY (Anticipation de risques) : Conclusion : Questionnaire	
11:50 - 12:00	Discours de fermeture	M. Mahmoud Moussa Ahmed (Directeur général de l'ADR)

Safety Management Seminar in Djibouti

Introduction of The Guidance for Management of Safety for Construction Works in Japanese ODA Projects

December 2015

Yachiyo Engineering Co.,Ltd.(yec)

Contenu et horaire du séminaire

	Date	Heures	Matières
	16/12/2015	9:00-10:20	§ 0 Orientation § 1 Règle générale § 2 Principes généraux de la gestion de sécurité § 3 Plan de précautions de sécurité
		Pause	
	16/12/2015	10:40-12:00	§ 4 Plan de sécurité dans la construction § 5-1 Exemples d'accident (Recherche de la cause d'accident) § 5-2 Quels risques se cachent? (Exercice)
	17/12/2015	9:00-10:20	§ 5-3 Apparition des accidents au Japon § 5-4 Exemples d'accident lié au matériel lourd § 5-5 Prévention d'accident lié au matériel lourd
		Pause	
	17/12/2015	10:40-12:00	§ 5-6 Exercices KY (Anticipation de risques) Conclusion Questionnaire

Guide sur la gestion de sécurité dans les travaux de construction de l'APD

Décembre 2014

Agence japonaise de coopération internationale (JICA)

Principes généraux

Principe fondamental

«Respect des droits fondamentaux de l'homme»

Objectives

«Réalisation de l'environnement sûr et sain du travail» dans les travaux de construction de l'APD:

- L'enracinement et la généralisation de la culture de sécurité qui fait prévaloir la sécurité ;
- L'élaboration d'un système qui permet de faire progresser des mesures de sécurité sur le lieu de travail de manière autonome dans l'organisation;
- Davantage de sensibilisation à la sécurité.

* Le présent guide ne se substitue toutefois pas aux règles telles que les lois, les réglementations, les normes du pays faisant l'objet du projet.

Constitution

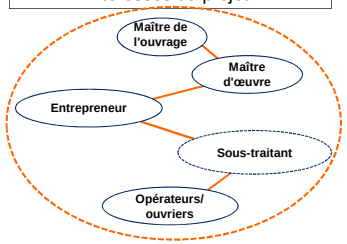
Chapitre	Titre
Chapitre 1	**Règle générale**
Chapitre 2	**Principes généraux de la gestion de sécurité**
Chapitre 3	**Détail du «Plan de précautions de sécurité»**
Chapitre 4	**Détail du «Plan de sécurité dans la construction»**
Chapitre 5	**Guide sur la technique d'exécution protégée (selon le type d'opération)**
Chapitre 6	**Guide sur la technique d'exécution protégée (selon le type d'accident)**

Chapitre 1. Règle générale

Objectifs

La prévention d'accident du travail et du public dans les travaux de construction de l'APD ainsi que la contribution au développement du pays font l'objet du projet.

Rôles et responsabilités des intéressés du projet:



Intéressés du projet

Rôles et responsabilités des intéressés du projet (1)

Intéressés du projet	Rôles et responsabilités
Maître de l'ouvrage	1. Le maître de l'ouvrage s'efforce d'appliquer et observer les lois et réglementations du pays faisant l'objet du projet et le présent guide afin de s'assurer la sécurité des intéressés du projet de construction ainsi que de protéger les tiers y compris les riverains contre tout risque d'accident supposé dans les travaux de construction. 2. Il contrôle le «Plan de précautions de sécurité» et le «Plan de sécurité dans la construction» préparés par l'entrepreneur et s'il y trouve un problème qui peut compromettre la sécurité il donne des instructions à l'entrepreneur de l'améliorer. 3. Il vérifie si les travaux se déroulent conformément aux «Plan de précautions de sécurité» et «Plan de sécurité dans la construction» préparés par l'entrepreneur et donne éventuellement des instructions pour amélioration. 4. Il s'efforce de créer un environnement qui permet à tous les intéressés des travaux de participer activement aux activités liées à la sécurité du chantier de construction. 5. Dans le cas où plusieurs entrepreneurs travailleraient en même temps dans le même chantier, le maître de l'ouvrage prépare un environnement qui permet à ces entrepreneurs de coopérer ou d'ajuster mutuellement au sujet de la gestion de sécurité. 6. Le maître de l'ouvrage notifie à l'entrepreneur les conditions naturelles, sociales, etc. qui peuvent affecter la gestion de sécurité.
Maître d'œuvre	1. Le maître d'œuvre comprend bien les rôles et les responsabilités qui incombent au maître de l'ouvrage en ce concerne la gestion de sécurité dans les travaux de construction, et en même temps, il exécute convenablement avec le maître de l'ouvrage, les activités liées à la gestion de sécurité incluant les obligations prescrites dans les documents contractuels afin de s'assurer la sécurité. 2. Il contrôle en coopération avec le maître de l'ouvrage, le «Plan de précautions de sécurité» et le «Plan de sécurité dans la construction» préparés par l'entrepreneur et s'il y trouve un problème qui peut compromettre la sécurité il donne des instructions à l'entrepreneur de l'améliorer. 3. Il vérifie en coopération avec le maître de l'ouvrage, si les travaux se déroulent conformément aux «Plan de précautions de sécurité» et "Plan de sécurité dans la construction» préparés par l'entrepreneur et donne éventuellement des instructions pour amélioration.

Rôles et responsabilités des intéressés du projet (2)

Intéressés du projet	Rôles et responsabilités
Entrepreneur	1. L'entrepreneur assume la responsabilité sur la conduite du chantier et la gestion de sécurité du site de construction. 2. En phase d'avant construction, il prépare un «Plan de précautions de sécurité» en se basant sur les lois et réglementations du pays faisant l'objet du projet ainsi que le présent guide. En phase de construction, avant de démarrer de divers travaux, il prépare un «Plan de sécurité dans la construction» qui spécifie des mesures de sécurité et soumettre celui-ci aux maître de l'ouvrage et maître d'œuvre pour contrôle. 3. Il corrige/améliore ses «Plan de précautions de sécurité» et «Plan de sécurité dans la construction» suivant les résultats du contrôle effectué par le maître de l'ouvrage et le maître d'œuvre. 4. S'il remarque la nécessité de modifier le «Plan de précautions de sécurité» et le «Plan de sécurité dans la construction» pour les adapter aux conditions du site, etc., il effectue aussitôt la modification requise et soumettre le(s) document(s) aux maître de l'ouvrage et maître d'œuvre pour contrôle. 5. Il veille sur la sécurité de tous les intéressés du projet de construction. 6. Il exécute les travaux de construction tout en prenant en considération la sécurité du tiers.
Opérateurs/ouvriers	1. Ils observent aussi bien les lois et réglementations applicables aux travaux de construction dans le pays faisant l'objet du projet que le présent guide. 2. Ils respectent les instructions données par l'entrepreneur. 3. Ils coopèrent avec l'entrepreneur. 4. Ils veillent à leur propre sécurité et aussi à celle de leurs collègues ainsi que des intéressés du projet qui subissent l'influence de travaux. 5. Ils se conforment aux «Plan de précautions de sécurité» et «Plan de sécurité dans la construction» établis par l'entrepreneur ainsi qu'aux règles applicables à l'ensemble du site de construction. 6. Ils exécutent les travaux en portant un équipement de protection désigné ou fourni.

Chapitre 2. Principes généraux de la gestion de sécurité (1)

Principes de base

No	Principes de base
1	Priorité à la sécurité avant tout
2	Elimination de cause (d'accident)
3	Mesures de protection
4	Respect des lois et règlementations adéquats
5	Prévention d'accident du public
6	La roue PDCA de la gestion de sécurité
7	Partage d'information
8	Participation complète des intéressés du projet

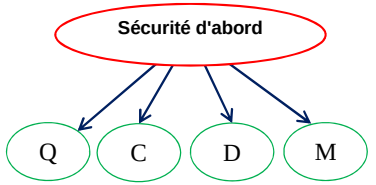
Chapitre 2. Principes généraux de la gestion de sécurité (2)

(1) Priorité à la sécurité avant tout

Ce que signifie "Safety First" (Sécurité d'abord)

La sécurité prévaut sur les Q, C, D et M.

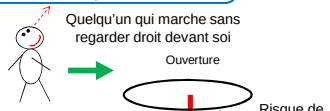
Conduite des travaux de construction	
S	Safety (Sécurité)
Q	Quality (Qualité)
C	Cost (Coût)
D	Delivery (Procédé)
M	Morale (Moral)



Au début des années 1900, par la suite de la dépression économique, les travailleurs des États-Unis s'occupaient des tâches dangereuses dans de mauvaises conditions de travail subissant en conséquence un grand nombre d'accidents du travail.
Elbert Henry Gary, le président alors du géant mondial de la sidérurgie, US Steel, était peiné de l'état douloureux où se trouvaient ces travailleurs. Du point de vue humanitaire, il a apporté une réforme fondamentale à la politique de gestion de l'entreprise en la faisant évoluer de «**La production d'abord, la qualité en deuxième priorité et la sécurité à la troisième place**» à «**La sécurité d'abord, la qualité en deuxième priorité et la production à la troisième place**».[1][2]
Dès que cette nouvelle politique s'était mise en œuvre, le nombre d'accidents de travail s'est vu très vite diminué. La conjoncture favorable aidant, la qualité et la production se sont améliorées et le slogan «La sécurité d'abord» s'est propagé d'abord sur l'ensemble des États-Unis et puis dans le monde entier.

Chapitre 2. Principes généraux de la gestion de sécurité (3)

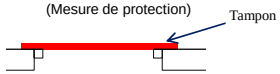
(2) Élimination de cause (d'accident)
(3) Mesures de protection



2e étape : Mesure de protection (1)

L'ouverture ne peut pas être éliminée, mais elle n'est pas utilisée habituellement.

Couvrir l'ouverture d'une plaque (Mesure de protection)



1re étape : Élimination de cause

La cause ne peut-elle pas être éliminée?

La cause: L'ouverture

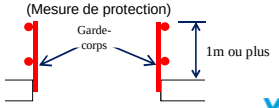
Élimination

Élimination de l'ouverture

3e étape : Mesure de protection (2)

L'ouverture ne peut pas être éliminée et doit être toujours ouverte.

Mise en place d'un garde-corps (Mesure de protection)

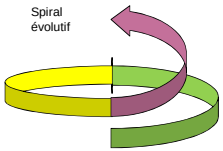


Chapitre 2. Principes généraux de la gestion de sécurité (4)

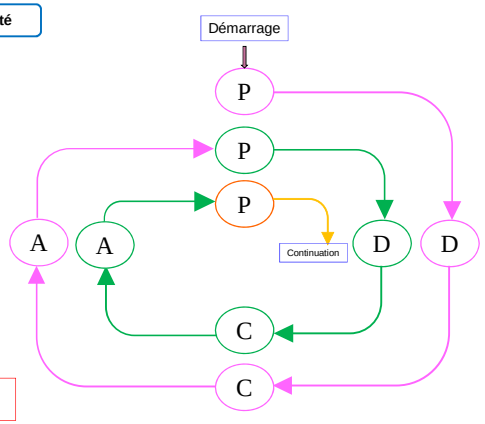
La roue PDCA de la gestion de sécurité

P : Plan (Planifier)
D : Do (Faire)
C : Check (Vérifier)
A : Action (Agir)

Spiral évolutif



Amélioration de qualité par le biais de la roue PDCA



A6-4

Chapitre 3 Détail du «Plan de précautions de sécurité» (1)

«Plan de précautions de sécurité» =
Principes généraux et plan de la gestion de sécurité à appliquer dans l'exécution du projet

Sujets à traiter dans le «Plan de précautions de sécurité»	
(1)	Principes généraux de la gestion de sécurité
(2)	Organisation de la gestion de sécurité
(3)	Mise en œuvre de la roue PDCA
(4)	Surveillance (système)
(5)	Formation/exercices de sécurité
(6)	Activités autonomes de la gestion de sécurité
(7)	Partage d'information
(8)	Procédure en cas d'urgence/imprévu

Chapitre 3 Détail du «Plan de précautions de sécurité» (2)

(1) Principes généraux de la gestion de sécurité

- **Principes généraux de sécurité du dirigent du maître de l'ouvrage**
- **Principes généraux de sécurité du chef de l'entreprise (l'entrepreneur)**
- **Principes généraux de sécurité du projet**

- Exemples -
Principes généraux de sécurité de l'entreprise de construction XX pour l'année YY:
- Élimination de risques par la mise en œuvre généralisée des activités KY (anticipation de risques)
- Élimination d'accident grave

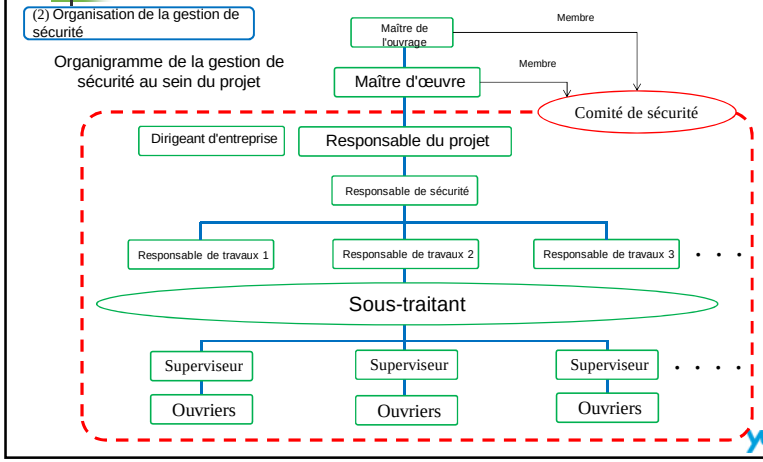
Slogan de sécurité
«Découvrons des risques cachés et y apportons ensemble des améliorations pour atteindre le risque zéro !»

Principes généraux de sécurité du projet ZZ
- Accomplissement du zéro accident par la mise en œuvre généralisée de l'évaluation de risques et des activités KY.

Chapitre 3 Détail du «Plan de précautions de sécurité» (3)

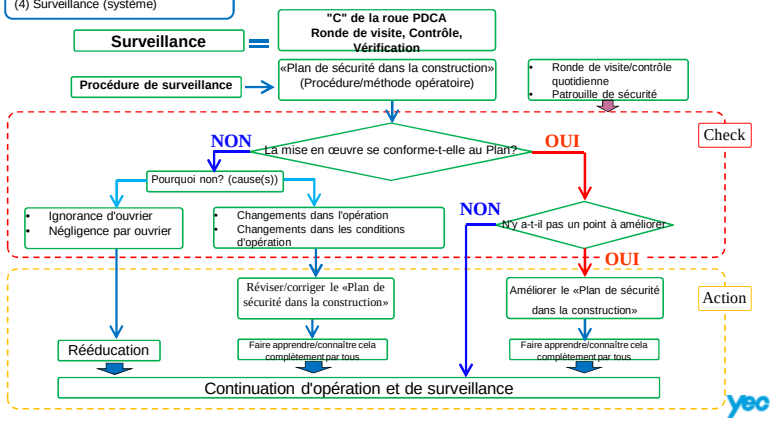
(2) Organisation de la gestion de sécurité

Organigramme de la gestion de sécurité au sein du projet



Chapitre 3 Détail du «Plan de précautions de sécurité» (4)

(3) Mise en œuvre de la roue PDCA
(4) Surveillance (système)



Chapitre 3 Détail du «Plan de précautions de sécurité» (5)

(5) Formation/exercices de sécurité

	Principaux types de Formation/exercices de sécurité	Sujets
1	Formation sur les lois, réglementations et normes d'Etat relatives à la sécurité	• Les lois, réglementations et normes liées aux travaux de construction.
2	Formation destinée aux nouveaux arrivés au chantier	• Sommaire des travaux (Plan d'ensemble) • Règles applicables au chantier • Le cycle quotidien de sécurité de travail
3	Formation sur la procédure opératoire de sécurité	• Connaissance complète sur la procédure opératoire de sécurité prévue par le «Plan de sécurité dans la construction»
4	Formation lors de changement	• Connaissance complète sur des changements opérés dans la procédure ou le contenu opératoire
5	Formation/exercice périodique de sécurité	• Rassemblement de sécurité • Résultat de la patrouille de sécurité

Chapitre 3 Détail du «Plan de précautions de sécurité» (6)

(6) Activités autonomes de la gestion de sécurité

1	Le cycle quotidien de sécurité de travail
2	Activités KY
3	5S (3S)
4	Rassemblement de sécurité
5	Appel au concours du slogan de sécurité
6	Récompense aux méritants sur le plan de sécurité
7	Divers gestes de sécurité: • Echanger des saluts/paroles chaque fois que l'on se croise; • Pratiquer la règle de la signe de la main en ouvrant/fermant le poing; • S'assurer de l'accomplissement d'une action tout en appelant à haute voix et pointant de l'index l'objet de l'action.

Davantage de sensibilisation à la sécurité

Chapitre 3 Détail du «Plan de précautions de sécurité» (7)

Le cycle quotidien de sécurité de travail

Chapitre 3 Détail du «Plan de précautions de sécurité» (8)

Déroulement du briefing matinal de sécurité

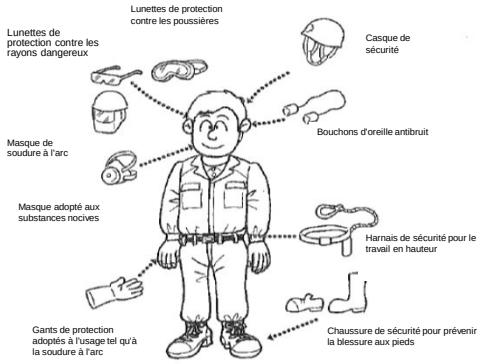
7:50	Groupement au point de rassemblement
	Mise en rangs
	Appel
7:55	Exercice physique normalisé
8:00	Briefing matinal de sécurité
8:10	TOOL BOX MEETING (Activités KY)
8:20	Contrôle avant de démarrer le travail
8:30	Démarrage du travail

1. Allocation par le responsable de chantier (chargé de sécurité)
2. Confirmation sur les opérations à accomplir en ce jour
   - Substance des opérations
   - Points de sécurité
   - Effectif
3. Passage des consignes par la personne qui prend son tour de se charger de la sécurité
4. Reprise du slogan de sécurité en chœur
5. Fin de réunion

Briefing matinal de sécurité

Briefing matinal de sécurité

Portez un équipement de protection individuelle adapté



Chapitre 3 Détail du «Plan de précautions de sécurité» (9)

Activités KY
(anticipation de risques)

Étape 1	Gamme opératoire
Étape 2	Recensement de tous les risques envisageables que l'opération peut présenter
Étape 3	Identification des risques graves
Étape 4	Prévention des risques graves

Chapitre 3 Détail du «Plan de précautions de sécurité» (10)

Montage de l'échafaudage

Tableau noir KY

Gamme opératoire	Accidents envisageables	Nous prenons les précautions suivantes:
Transport des matériaux	Un matériau peut tomber sur quelqu'un.	• Nous échangeons les signes.
		• Nous ne nous mettons pas au-dessous des matériaux en cours de transport.
	L'ouvrier peut se pencher au-dehors et chuter d'une hauteur.	• Nous portons un harnais de sécurité.
Assemblage des matériaux	Un matériau peut tomber sur quelqu'un.	• Nous ne nous mettons pas au-dessous du montage.
.		• Nous défendons d'entrer dans la zone de montage.
	L'ouvrier peut se pencher au-dehors et chuter d'une hauteur.	• Nous portons un harnais de sécurité.

Chapitre 3 Détail du «Plan de précautions de sécurité» (11)

Activités 5S (3S)

Tri (Seiri)	Tri des utiles et inutiles et débarras des inutiles
Rangement (Seiton)	Mise (remise) en place systématique des utiles aux endroits prévus
Nettoyage (Seisou)	Nettoyage du lieu de travail pour terminer l'opération.
Propreté (Seiketsu)	Maintien de la zone de vos activités en état propre
Discipline/Education (Shitsuke)	Respect des règles

Chapitre 3 Détail du «Plan de précautions de sécurité» (12)

(7) Partage d'information

- Réunion quotidienne de travaux (réunion de coordination) → Passage d'information/coordination entre des équipes de travail → Utilisation du journal de sécurité
- Séance de présentation des cas qui ont failli entraîner des accidents (cas HIYARI-HATTO) → Visualisation des dangers potentiels → Amélioration
- Séance d'information sur des changements dans la substance/procédure opératoire
- Passage de consignes au briefing matinal de sécurité

Chapitre 3 Détail du «Plan de précautions de sécurité» (13)

(8) Procédure en cas d'urgence/imprévu

Un accident s'est produit.

- Évacuation de personne(s) accidentée(s) → Transport à l'hôpital
- Appels d'urgence
- Arrêt de travaux
- Prévention d'accident secondaire
- Préservation du lieu de travail
- Premier rapport d'accident → Maître de l'ouvrage, Maître d'ouvre, Entreprise
- Enquête sur l'accident
- Identification de la cause de l'accident
- Mise en œuvre des mesures prévenant la récurrence
- Reprise des travaux

- Hôpital d'urgence (département lutte incendie)
- Communautés locales (au besoin)
- Police
- Inspection de travail
- Maître de l'ouvrage
- Maître d'ouvre
- Entreprise

1. Les coordonnées des destinataires d'appels d'urgence doivent être listées et affichées au bureau, etc. pour être partagées par toutes les personnes.
2. Des exercices d'évacuation et de prise en charge en cas d'urgence doivent être effectués.

Chapitre 4 Détail du «Plan de sécurité dans la construction» (1)

«Plan de sécurité dans la construction»: C'est un plan de prévention d'accident qui tout en se basant sur le «Plan de précautions de sécurité» tient compte des spécificités et des conditions d'exécution du projet.

Substance du «Plan de sécurité dans la construction»	
(1)	Matériel/équipements à utiliser dans la construction
(2)	Appareils/outils à utiliser
(3)	Matériaux à utiliser
(4)	Permis/qualification requis
(5)	Chaine de commandement (Organigramme)
(6)	Tâches opératoires
(7)	Mode opératoire (Procédure opératoire)
(8)	Risques envisageables
(9)	Mesures préventives

Procédure opératoire d'évaluation de risques

Chapitre 4 Détail du «Plan de sécurité dans la construction» (2)

Évaluation de risques

Gravité d'accident / Probabilité	1. Légère (n'entraînant pas de temps chômé)	2. Grave (entraînant du temps chômé)	3. Très grave (entraînant des décès et infirmité)
1. Très peu probable (n'entraînant presque pas de blessure même si on n'est pas attentif)	2 (problème mineur)	3 (problème ni mineur ni considérable)	4 (problème considérable)
2. Probable (entraînant la blessure faute d'être attentif)	3 (problème ni mineur ni considérable)	4 (problème considérable)	5 (problème sérieux)
3. Très probable (entraînant la blessure faute d'être très attentif)	4 (problème considérable)	5 (problème sérieux)	6 (problème à résoudre immédiatement)

Chapitre 4 Détail du «Plan de sécurité dans la construction» (3)

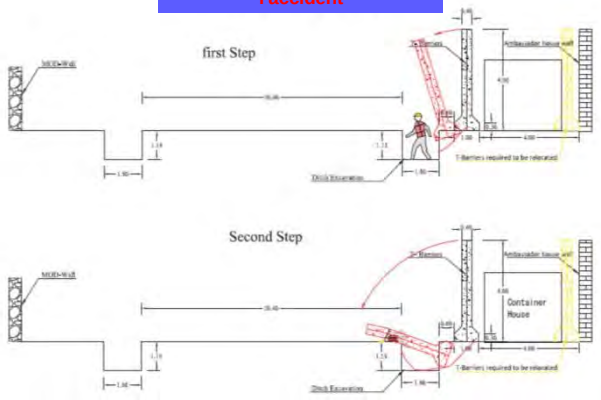
Procédure opératoire d'évaluation de risques

Classification d'opération	Gammes opératoires (Etapes principales)	Point clé d'opération (Sécurité, Conformité, Facilité d'exécution)	Dangers, nocivités, etc. (Risques envisageables)	Probabilité	Gravité	Evaluation	Priorité (Niveau de risque 1)	Mesures pour éliminer/atténuer les dangers, nocivités, etc.	Par qui ?	Note
Travaux définitifs (excavation primaire)	1. Amenée du matériel lourd (excavatrice hydraulique)	1. Suivant instructions/signes du guide de manœuvre 2. A l'endroit convenu 3. En faisant évacuer la zone	· L'engin peut dévier des rampes lors de déchargement et basculer. · L'engin peut se déplacer sans guide et accrocher un ouvrier	2 2	3 3	5 5	④ ④	· On décharge un engin lourd sur un endroit plat et solide suivant les indications du guide de manœuvre. · On déplace L'engin suivant indications du guide posté pour l'amener jusqu'à l'endroit prévu.	Guide de manœuvre Conducteur d'engin	
	2. Défense d'entrer dans la zone de manœuvre	1. Au moyen de la barrière type A, la balise conique, etc. 2. Dans les limites du rayon de manœuvre et du champ de	· Lorsque L'engin tourne il peut accrocher ou écraser un ouvrier qui se trouve dans le champ de manœuvre de l'engin.	2	3	5	④	· A chaque opération, On interdit d'entrer dans la zone en la délimitant avec la barrière type A, etc. · Si plusieurs engins sont présents	Guide de manœuvre Ouvrier	

§ 5-1 Exemple d'accident (Recherche de la cause)

Exemple d'accident (Exercice)

Les circonstances de l'accident



Exemple d'accident (Exercice)

Pourquoi l'accident s'est-il produit? Pourquoi?

Cause directe	La barrière en T s'est écroulée et abattue sur la victime.
Pourquoi la barrière s'est-elle écroulée?	Sa proximité du fossé l'a rendu instable par le fait d'excavation.
Pourquoi la barrière a-t-elle été placée près du fossé?	La présence d'un obstacle derrière la barrière nous a contraints à choisir cette position.
Pourquoi n'a-t-on pas pu déplacer l'obstacle au préalable?	Personne ne savait sa présence et on a poursuivi les travaux en le laissant en place.

Manque d'études préalables, manque d'anticipation de risques et manque de conscience.

Erreur humaine

Quelle est la vraie cause?

Pourquoi a-t-on continué à travailler dans cette situation dangereuse?

Personne ne l'a trouvée dangereuse. On se croyait hors de danger.

OU

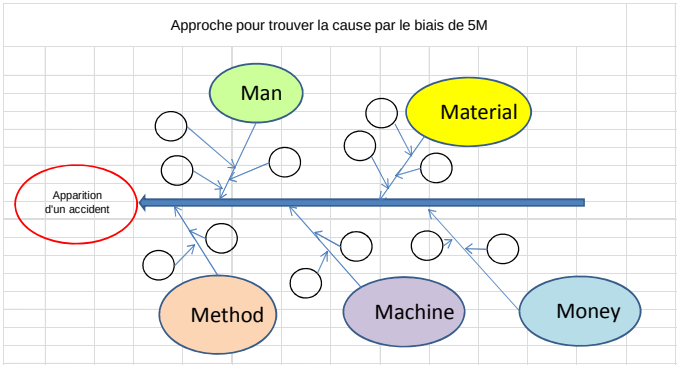
Personne n'a arrêté de travailler bien que l'on sente le danger

OU

On a continué à travailler au mépris de l'ordre d'arrêter les travaux.

Erreur humaine

Approche pour trouver la cause



Prévention d'erreur humaine

L'accident se produit à cause d'erreur humaine.

Il ne doit pas y avoir d'accident que l'on ne peut pas prévenir

théoriquement tout au moins,

mais,

Erreur est humaine:
• On oublie;
• On tente à saboter le travail (recourir à une solution facile);
• On croit que «cela peut peut-être aller»;
• On croit que «moi au moins, je suis hors de danger»;
• On a du parti-pris.

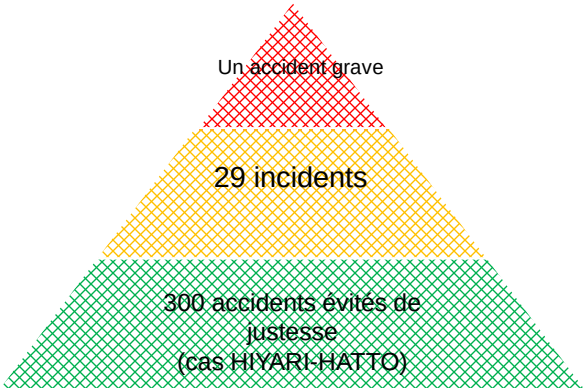
Prévention des erreurs humaines

=

3 C
Contrôle (Check)
Communication (Communication)
Confirmation (Confirmation)

La théorie de Heinrich

La pyramide d'accidents



§ 5-2. Quels risques se cachent? Qu'est ce qu'il faut améliorer? (Exercice)

A6–11

Quels risques se cachent?
Qu'est ce qu'il faut améliorer?

Quels risques se cachent?
Qu'est ce qu'il faut améliorer?

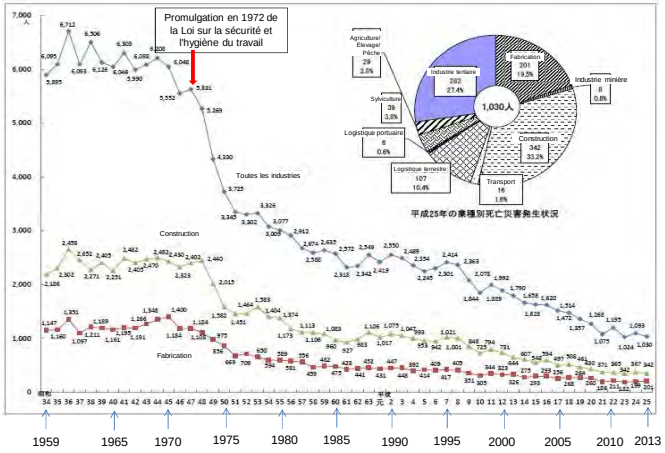
Quels risques se cachent?
Qu'est ce qu'il faut améliorer?

Quels risques se cachent?
Qu'est ce qu'il faut améliorer?

A6-12

§ 5-3. Statistiques d'accident du travail au Japon

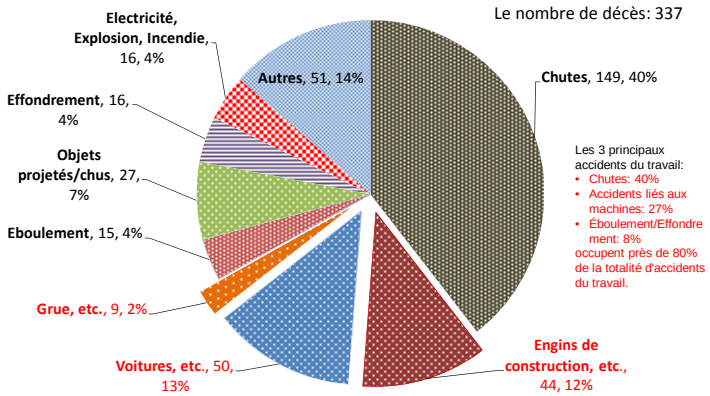
Évolution du nombre d'accidents du travail mortels au Japon (toutes industries confondues)



Ventilation des accidents du travail dans le secteur de construction

Statistiques en 2014

Le nombre de décès: 337



Les 3 principaux accidents du travail:
- Chutes: 40%
- Accidents liés aux machines: 27%
- Éboulement/Effondrement: 8%

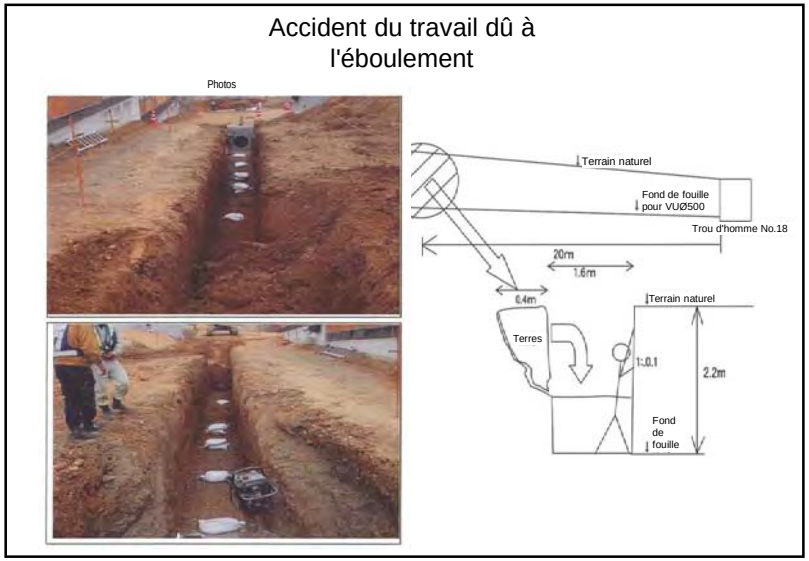
occupent près de 80% de la totalité d'accidents du travail.

§ 5-4. Exemples d'accident impliquant le matériel lourd


L'engin renversé dû à une fausse manœuvre


L'engin tombé de l'accotement dans une rivière: une fausse manœuvre

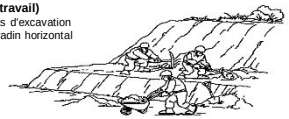

L'engin a basculé parce qu'il s'est approché trop de la crête du talus.
Cet engin a dérapé de sa chenille gauche sur la crête de talus basculé et s'est glissé d'un mètre en bas pour s'arrêter avec la cabine à l'envers. A noter que la crête du talus réalisée selon la méthode RCD était légèrement


Accident du travail dû à l'éboulement
Photos
Terrain naturel
Fond de fouille pour VUØ500
Trou d'homme No.18
20m
1.6m
0.4m
Terrain naturel
Terres
1:0.1
2.2m
Fond de fouille

Standard japonais concernant la pente de paroi d'excavation

Standard concernant la pente de paroi d'excavation
(Art. 356, Ordonnance sur la sécurité et l'hygiène du travail)

- applicable aux excavations manuelles (applicable aux parois d'excavation de chaque gradin si le talus d'excavation est pourvu d'un gradin horizontal de profondeur 2m ou plus)



Prévention de risques liés aux travaux d'excavation manuelle du terrain sableux, etc.
(Art. 357, Ordonnance sur la sécurité et l'hygiène du travail)

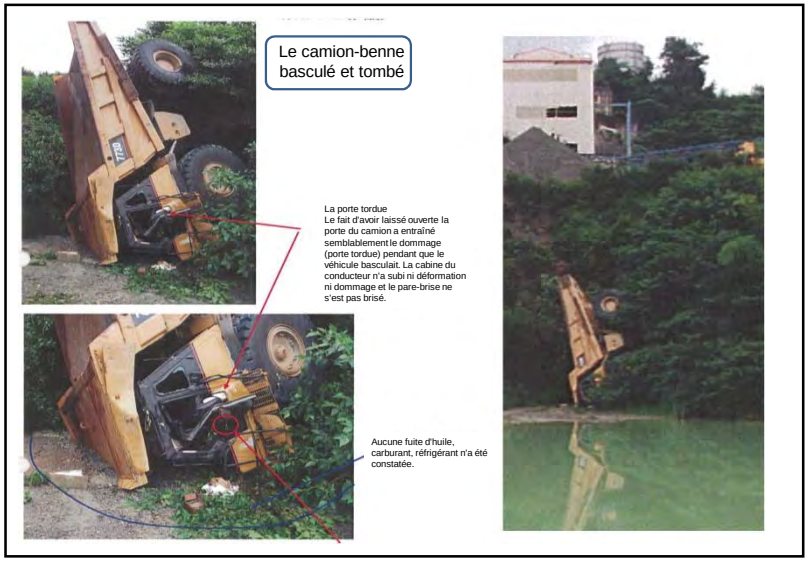
Art. 356, Ordonnance sur la sécurité et l'hygiène du travail

Type de terrain	Hauteur de paroi d'excavation	Pente de paroi d'excavation	
Terrains rocheux ou argileux et compacts	Moins de 5m	90º ou moins	Moins de 5m / 90º ou moins
	5m ou plus	75º ou moins	5m ou plus / 75º ou moins
Terrains d'autre nature	Moins de 2m	90º ou moins	Moins de 2m / 90º ou moins
	Entre 2m ou plus et moins de 5m	75º ou moins	Entre 2m ou plus et moins de 5m / Profondeur de 2m ou plus / 75º ou moins
	5m ou plus	60º ou moins	5m ou plus / 60º ou moins

Le camion-benne basculé

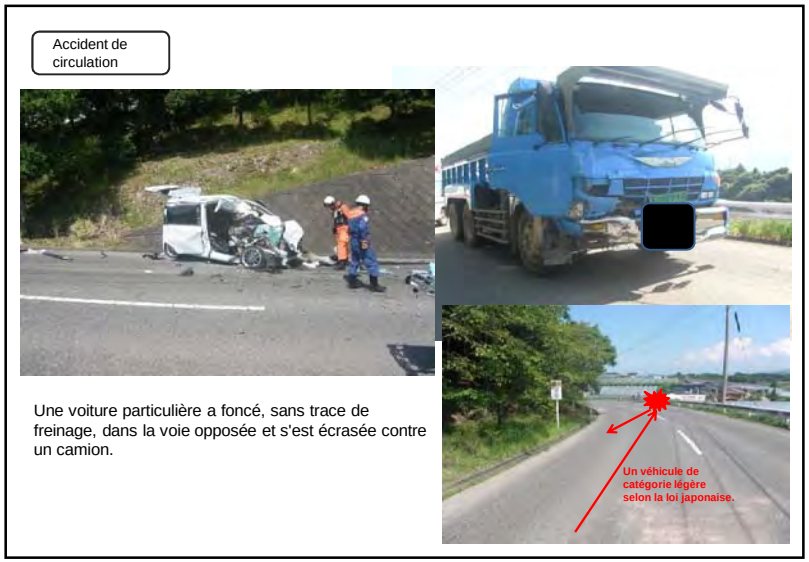
L'engin basculé et tombé par une fausse manœuvre

A6–15


Le camion-benne basculé et tombé
La porte tordue
Le fait d'avoir laissé ouverte la porte du camion a entraîné semblablement le dommage (porte tordue) pendant que le véhicule basculait. La cabine du conducteur n'a subi ni déformation ni dommage et le pare-brise ne s'est pas brisé.
Aucune fuite d'huile, carburant, réfrigérant n'a été constatée.

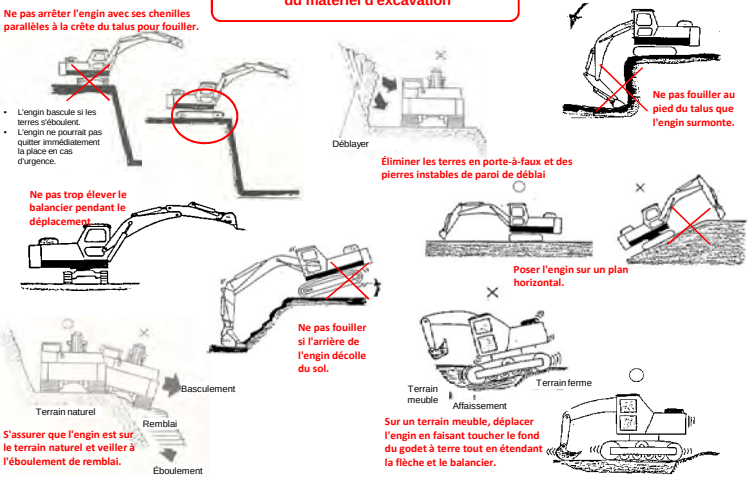

L'engin tombé de la crête de talus


L'engin basculé de la crête de talus

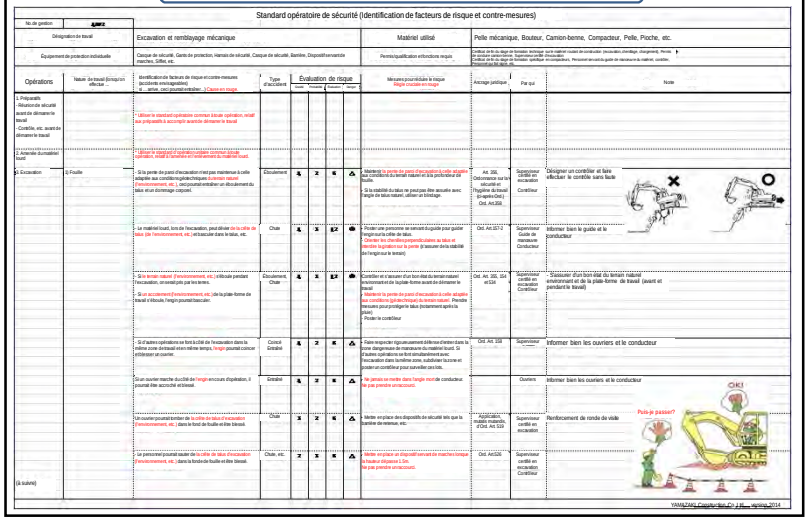

Accident de circulation
Une voiture particulière a foncé, sans trace de freinage, dans la voie opposée et s'est écrasée contre un camion.
Un véhicule de catégorie légère selon la loi japonaise.

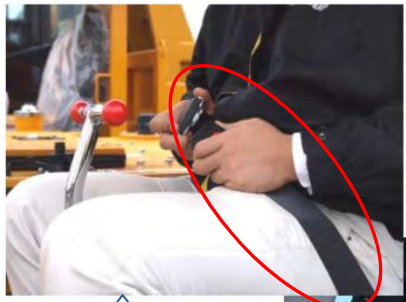
§ 5-5. Prévention d'accidents liés au matériel lourd

Règles fondamentales de la manœuvre du matériel d'excavation



Mode opératoire de l'évaluation de risques (Excavation)





Port de la ceinture de sécurité

Pour prévenir que vous êtes projeté hors du véhicule.

A6–17

La marche en petite vitesse est obligatoire pour les compacteurs.

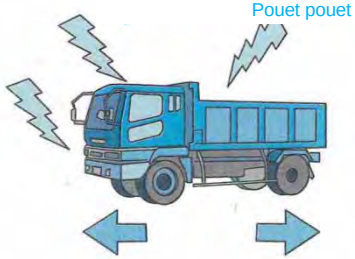
La tortue
(marche lentement) →

Panneau de grand format placé sur la piste où les camions-benne empruntent.

Klaxon de départ

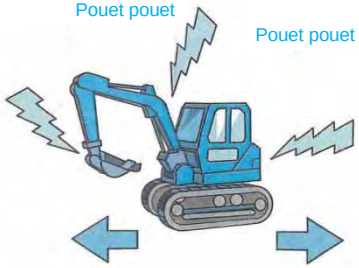
Klaxon de départ du véhicule

Pouet pouet
Pouet pouet
Pouet pouet



Klaxon de déplacement du matériel lourd

Pouet pouet
Pouet pouet
Pouet pouet



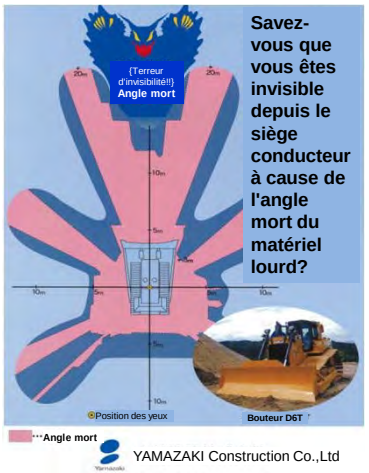
Application de la règle du signe de la main (ouvrir/fermer le poing)

Puis-je passer?

A6–18

Autocollant de rappel

Savez-vous que le matériel lourd a l'angle mort?

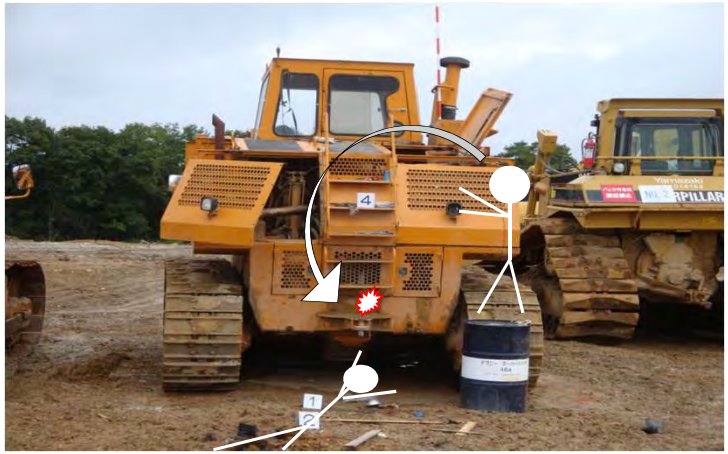


Dans le parking, les véhicules et le matériel lourd sont tous rangés dans l'alignement et toujours avec leurs avants devant.

Les engins sur pneus, lorsqu'ils sont en arrêt, doivent être toujours immobilisés par la cale roue.

4 balises cône sont placées sur les chenilles du matériel utilisé dans le tunnel.
Lorsque l'on démarre le matériel, on les enlève tout en veillant à ce qu'il y a autour.

Accident de chute



Signalisation nette de la zone de réparation du matériel lourd

Cet engin est en cours d'entretien. Ne le conduisez pas.

Barrière de sécurité pour le travail en hauteur de réparation/entretien

Prévention de chute pour le travail en hauteur de réparation/entretien (Harnais de sécurité)

Les outils et ordures traînent dans la cabine de conducteur.

Un chemin de sécurité régulier (ne présentant pas d'obstacle à la marche à pied et indiqué avec une signalisation nette)

A6-21

§ 5-6. Exercices KY (Anticipation de risques)

Exercices KY (Anticipation de risques)

	Risques envisageables	Mesures préventives que nous pourrions prendre
1	Un poteau électrique ou un arbre en bordure de la route peut perdre l'aplomb et tomber en heurtant les gens et véhicules.	• Enlever ou déplacer préalablement les arbres et dispositifs pouvant contraindre l'excavation. • Mettre en œuvre au préalable les mesures préventives contre le basculement si ni l'enlèvement ni déplacement n'est possible.
2	Un matériel lourd en cours d'excavation peut, lorsqu'il tourne, heurter les gens circulant sur les trottoirs et les véhicules	• Signaler nettement la zone de travail et faire défense d'y entrer aux tiers. • Contrôler le trafic et guider les piétons en mettant en place du personnel pour surveiller et guider.
3	Un matériel lourd en cours d'excavation peut heurter un ouvrier.	• Signaler nettement la zone de travail du matériel lourd • Ne pas entrer dans la zone de travail du matériel lourd
4	Un piéton peut tomber dans la fouille.	• Signaler nettement la zone de travail et faire défense d'y entrer aux tiers. • Contrôler le trafic et guider les piétons en mettant en place le personnel pour surveiller et guider. • Mettre en place la signalisation lumineuse pour la nuit.

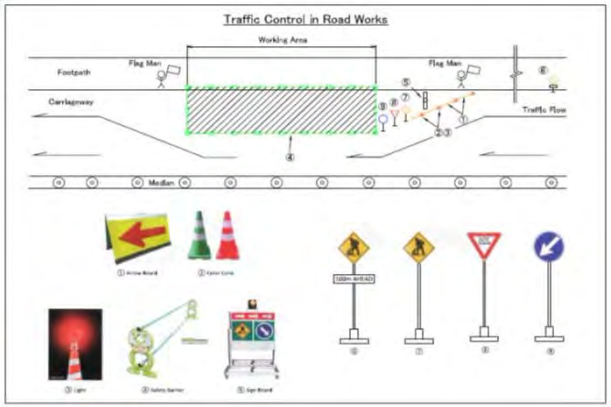
Exercices KY (Anticipation de risques)

	Risques envisageables	Mesures préventives que nous pourrions prendre
5	Un véhicule peut écraser un ouvrier.	• Signaler nettement le côté chaussée de la zone de travail. • Défendre aux ouvriers de pénétrer dans les zones de travail qui ne les concernent pas. • Poster le personnel de surveillance et de guide.
6	Un véhicule circulant sur la route peut tomber dans la fouille.	• Signaler nettement le côté chaussée de la zone de travail. • Mettre en place un panneau de rappel de travaux en cours. (100m avant) • Mettre en place la signalisation lumineuse pour la nuit.
7	Un talus d'excavation peut s'effondrer	• Vérifier préalablement l'état du terrain naturel et la venue des eaux. • Excaver avec la pente de parois appropriée en fonction de la profondeur de fouille, ou mettre en place un blindage.
8	Un matériel lourd en cours d'excavation peut endommager un câble aérien.	• Rappeler le conducteur du matériel lourd à la présence du câble à proximité. • Mettre un ruban, etc. sur le câble pour faire ressortir sa présence. • S'il s'agit d'un câble important, déplacer ce dernier après consultation avec son gestionnaire.
9	Un matériel lourd en cours d'excavation peut endommager une structure enterrée.	• Reconnaître préalablement le type et la position de la structure enterrée en effectuant la fouille d'essai, etc. • Si la structure présente un contrainte aux travaux, consulter son gestionnaire pour décider comment la protéger et déplacer.

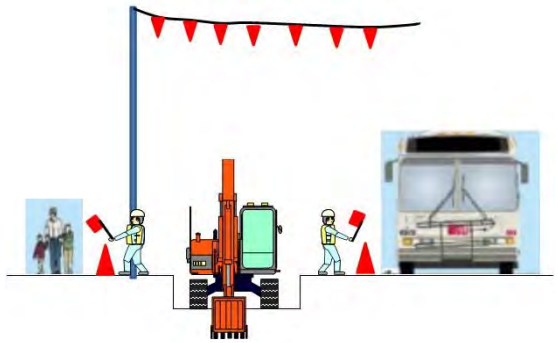
Exemples d'accident - 1

Exemples d'accident - 2

Contrôle de circulation (Vue en plan, équipement de sécurité)



Contrôle de circulation (Coupe)



Conclusion

Si un accident se produit,

1. la victime sera privée de sa future;
2. la famille de la victime sera privée du principal soutien économique du ménage;
3. les sanctions légales seront infligées à l'entreprise;
4. le projet s'interrompra et les travaux prendront du retard;
5. le moral des ouvriers baissera;
6. le coût augmentera;
7. la réputation sociale de l'entreprise baissera.

Aucun accident ne doit donc se produire.

Merci de votre attention et coopération.

Yachiyo Engineering Co.,Ltd.(yec)

Koji Masuda

A6-24


Seminaire sur le management de la Securité
à
Djibouti
Decembre 2015
JICA


Seminaire sur le management de la Sécurité


Seminaire sur le management de la Sécurité
des travaux de construction
à
Djibouti
JICA

APPENDIX 7

REFERENCES

7-1 Equipment Conditions at ADR

Equipment Conditions at ADR (Compound)

1. Balbala Compound

N0	Maintenance Equipment Name	Condition	Photograph	Remarks
1	Over-Head Crane	Broken		Electric trolley and electric hoist are broken.
	Over-Head Crane			
2	Gantry Crane (3 ton)	Old		Only hoisting equipment Although it was usable, the trolley and chain block need to be replaced as they have become old.
	Gantry Crane			
3	Screw Compressor & Air Receiver Tank	Old		
	Screw Compressor			
	Air Receiver Tank			Pressure-regulating valve is broken.
4	Air Compressor	Broken		
	Air Compressor			Engine-driven

5	Hydraulic Shop Press (55ton)	Broken		Hydraulic pump is missing.
	Hydraulic Shop Press			
6	Hydraulic Shop Press (55ton)	Broken		Hydraulic pump is missing.
	Hydraulic Shop Press			
7	Lathe Machine	Broken		Motor part is broken. 1 turner
	Engine Lathe Machine			
8	Upright Drilling Machine	Broken		Motor part is broken.
	Upright Drilling Machine			
9	Hack Sawing Machine	Broken		Motor part is broken.
	Hack Sawing Machine			

10	Surface Grinder	Broken		Motor part is broken.
	Surface Grinder			
11	Blasting Machine	Broken		Motor part is broken.
	Blasting Machine			
12	Starter・Alternator Test Bench	Broken		Motor part is broken.
	Starter・Alternator Test Bench			
13	Tool Set	Many missing items		Missing items
	Tool Set			
14	Siphon Stub Oil Supply Pump	Old		Pump is broken.
	Siphon Stub Oil Supply Pump			

15	Arc Welder	Old		Only left-side 500A was working.
	Arc Welder			
16	Tire Changer	Broken		Only bead loosener was working.
	Tire Changer			
17	Transmission Jack	Broken		Hydraulic jack was missing.
				
18	High Pressure Washer	Broken		Cover only
	High Pressure Washer			
19	Generator (80KVA)	Broken		Engine is broken.
	Generator			
	Generator (100KVA)	Old		Engine deterioration
				

2. Dikhil Compound

1	Arc Welder	Old		
	Arc Welder			
2	Arc Welder	Broken		Motor is broken.
	Air Compressor			
3	High Pressure Washer	Old		Pump deterioration
	High Pressure Washer			
4	Generator 80KVA	Broken		Engine is broken.
	Generator			
5	Tool Set	Many missing items		Many broken and missing items
	Tool Set			

3. Tadjoura Compound

1	Arc Welder	Old		
	Arc Welder			
2	Air Compressor	Broken		Motor is broken.
	Air Compressor			
3	Air Compressor	Deterioration		Engine is deteriorated.
	Air Compressor Engine type			
4	Tire Changer	Broken		Motor is broken.
	Tire Changer			
5	Tool Set	Many missing items		Many broken and missing items
	Tool Set			

7-2 Social Data

List of Medical Facilities

Ministry of Health (August, 2015)

District (Population)	No	Name or type of facilities	Location (address or name of village)	Number							Remarks
				Beds	Doctors	Nurses	Assistant nurses	Midwives	assistant midwives	Ambulances	
Djibouti (528,000)	H1	Hospital	Hôpital Général Peltier	291	27	76	43	0	0	2	general
	H2		Hôpital de Balbala	93	28	19	54	35	11	4	general
	H3		Hôpital Dr Chakib	156	9	19	13	0	0	1	tuberculosis
	H4		Hôpital Dar Al Hanan	111	8	14	24	56	12	1	maternity
			Total Hôpitaux de référence	**360**	**45**	**52**	**91**	**91**	**23**	**6**	
	1	Health Center	CSC ARHIBA	3	2	5	9	3	0	0	
	2		CSC EINGUELLA	0	2	6	11	4	0	0	
	3		AMBOULI	0	1	3	8	6	0	0	
	4		CSC IBRAHIM BALALA	0	1	5	6	3	1	0	
	5		CSC FARAH HAD	3	2	4	3	3	0	0	
	6		CSC KHOR BOURHAN	2	1	3	5	5	0	0	
	7		BALBALA1	0	1	5	3	2	0	0	
	8		BALBALA2	0	2	6	4	4	0	0	
	9		CSC HAYABLEH	7	2	6	7	16	10	0	
	10		PK12	7	2	3	2	12	6	0	
	11		CSC DORALEH	6	0	1	1	1	0	0	
	12		WARABALEH	4	1	5	6	1	0	0	
	13		CSC WAHLEDABA	6	2	4	4	3	0	1	
			Total CSC de Djibouti ville	**38**	**19**	**56**	**69**	**63**	**17**	**1**	
Arta (46,000)	H1	Central Medical Hspital of Arta	CMH	5	1	2	2	2	1	1	
	1	Health Post	Damerjog	4	1	2	2	1	1	1	
	2		Chebelleh	2	0	1	0	0	0	0	
	3		Wéah	4	0	1	0	0	2	0	
	4		Douda	6	0	1	0	1	0	0	
	5		PK 51	9	0	1	0	0	0	0	
	6		Karta	4	0	1	0	1	0	0	
			Total Région d'Arta	**34**	**2**	**9**	**4**	**5**	**4**	**2**	

District (Population)	No	Name or type of facilities	Location (address or name of village)	Number							Remarks
				Beds	Doctors	Nurses	Assistant nurses	Midwives	assistant midwives	Ambulances	
Ali-Sabieh (94,000)	H1	Central Medical Hspital of Ali Sabieh	CMH	109	3	11	3	6	6	1	
	1	Health Post	Goubéto	2	0	1	0	0	0	0	
	2		Holl-Holl	6	1	1	0	0	2	1	
	3		Assamo	2	0	1	1	0	1	0	
	4		Ali-Addeh	3	0	1	0	0	2	1	
	5		Guestir	2	0	1	1	0	0	0	
	6		Dasbyo	4	0	1	0	0	2	0	
			Total région Ali Sabieh	**128**	**4**	**17**	**5**	**6**	**13**	**3**	
Dikhil (97,000)	H1	Central Medical Hspital of Dikhil	CMH	72	2	13	8	8	4	1	
	1	Health Post	Galamo	4	0	0	1	0	0	0	
	2		Gourabous	4	0	1	1	0	1	0	
	3		As-Eyla	4	0	2	1	0	2	1	
	4		Yoboki	3	1	2	0	0	1	1	
	5		Mouloud	4	0	2	2	1	1	0	
	6		Koutabouya	3	0	1	0	0	0	0	
	7		Sankal	4	0	1	0	0	0	0	
	8		Aba itou	7	0	1	0	0	0	0	
			Total région de Dikhil	**105**	**3**	**23**	**13**	**9**	**9**	**3**	

District (Population)	No	Name or type of facilities	Location (address or name of village)	Number							Remarks
				Beds	Doctors	Nurses	Assistant nurses	Midwives	assistant midwives	Ambulances	
Tadjoura (94,000)	H1	Central Medical Hspital of Tadjourah	CMH	45	2	16	10	8	4	2	
	1	Health Post	Dorra	12	1	2	2	0	1	1	
	2		Day	4	0	0	1	0	1	0	
	3		Assa Guella	4	0	1	2	0	1	0	
	4		Ripta	3	0	0	1	0	0	0	
	5		Randa	6	0	1	3	0	2	0	
	6		Guirrori	4	0	1	0	0	0	0	
	7		Sagallou	5	0	1	0	0	1	0	
	8		Adaillou	6	0	1	1	0	0	0	
	9		Adoyla	6	0	1	0	0	0	0	
	10		Balho	5	0	0	1	0	1	0	
			Total région de Tadjourah	**100**	**3**	**24**	**21**	**8**	**11**	**3**	
Obock (41,000)	H1	Central Medical Hspital of Obock	CMH	55	2	16	8	7	2	2	
	1	Health Post	Alailou	2	0	1	1	0	1	0	
	2		Waddi	3	1	1	1	0	1	0	
	3		Médého	2	0	1	0	0	0	0	
	4		Khor Angar	1	0	1	0	0	0	0	
	5		Assassan	3	0	1	0	0	1	0	
	6		Daley Af	3	0	1	0	0	1	0	
			Total région d'Obock	**69**	**3**	**22**	**10**	**7**	**6**	**2**	
Total Général				**834**	**79**	**203**	**213**	**189**	**83**	**20**	

Basic Data on Target Roadside Areas

Route	Length	Community Name	Population	Primary School (○ ×)	Well Availability (○ ×)	Medical and Healthcare Facility
RN1 Dikhil-Galafi	100 km	Dikhil	38,000	○	○	○
		Abaitou	350	○	○	○
		Galamo	310	○	○	×
		Sabir	310	×	○	×
		Gourabous	800	○	○	○
		Yoboki	1,200	○	○	○
		Galafi	1,000	○	○	×
		Total	41,970			
RN8	54 km	Gagade	1,000	×	×	×
		Alouli	250	×	×	×
		Gousour	750	×	×	×
		Karta	250	○	×	×
		Total	2,250			
Arta Coast	18 km	8 camps	100	×	×	×
		Total	100			
RN9	123 km	Layta	300	×	×	×
		Karta	250	○	×	○
		Assal-villege	150	×	×	×
		Raissa	30	×	○	×
		Forage	150	○	○	×
		Sogallou	500	○	○	○
		Daeloul	30	×	×	×
		Oulalisse	40	×	×	×
		Khalaf	460	○	○	×
		PK9	150	×	○	×
		Dafo	130	○	○	×
		Tadjoura	29,000	○	○	○
		Total	31,190			
RN12	21 km	As-danaw	100	×	×	×
		Ideyta	75	×	×	×
		Gallina	250	○	○	×
		Tewle	150	×	○	×
		Grenle	250	○	○	×
		Itky	200	○	○	×
		Gobla-digue	50	×	×	×
		Day	1,500	○	○	○
		Total	2,575			
RN16	40 km					
		Total				

The survey was conducted by distributing question sheets to regional assemblies.

7-3 Field Survey Result

Field Survey Result (1/3)

	National Road No.1 Dikhil– Galafi (Ethiopian Border) section	National Road No.9 PK52(RN.1)– Tadjourah section	Djibouti City Road
Site photos	 Road condition  Damaged road shoulder  Damaged pavement	 Road condition  Eroded road shoulder  Protect by gabion	 Road condition  Inferior road  Dead end of road
Existing road condition	Dikhil-Galafi section of road passes mostly flat areas except for the neighborhood of Dikhil town. At present, 101 kilometers of a total are asphalt paved and width of paved surface is 6.5-6.7 meters. The damaged kinds of pavements are pothole, crack and breakage in a shoulder side. As the border becomes near, the road surface comes to have much damage. Repair work of a pavement is put by an ADR into effect, but the processing speed and the quality aren't enough.	PK22-Tadjourah of road passes flat areas and somewhere hilly areas. At present, 123 kilometers of a total are asphalt paved and width of paved surface is 6.5-7.0 meters. 37 Causeways exist between PK32 and PK123. There is accumulation in the soil and stone which flowed by a flood in many causeways. The shoulder of the road eroded by a flood existed much, and there are few potholes.	Balbala region of local road passes hilly areas and congested housing district. Except for a main road, most local roads are un-paving and are in the inferior state.
Importance of road improvement	Importance of road improvement on this section is: ・ To Securement of continual transportation capacity between Ethiopia.	Importance of road improvement on this section is: ・ To strengthen the access between Djibouti and Tadjourah. ・ To (After national highway No.8 operated.) Securement of transportation capacity with Ethiopia as one area in a detour on national highway No.1.	Importance of road improvement on this section is: ・ To improve access to hospital and school for local residents. ・ To improve sanitary conditions.

Field Survey Result (2/3)

	National Road No.12 IS on RN.9– Day section	National Road No.16 IS on RN.14– Gorriliyita section	–
Site photos	 Road condition  Hilly section  Day area	 Road condition  Sandy section  Village on the route	–
Existing road condition	Intersection with National Highway No.9-Day section of the road passes mountainous region. All of route is unpaved and road width is 4-6m. Mountain path of the steep grade during 11km from the starting point and after that route passes a plateau zone.	Intersection with National Highway No.14- Gorriliyita section of the road passes flat areas and somewhere mountainous region. There does nothing but be a run mark of a vehicle, and there are no traces maintained. On the route, a run mark of a vehicle, but there are no traces of road maintenance. The linear second half isn't being investigated for restriction on the security.	–
Importance of road improvement	Importance of road improvement on this section is: ・ To Securement of continual transportation capacity between Tadjourah and Day. ・ To promotion of tourist resort development in a Day resort/ Day Forest National Park.	Importance of road improvement on this section is: ・ To keep the road passable throughout the year and stably connect Gorriliyita. ・ To contribute to aid of food and water and community health care to a resident on the route and Gorriliyita.	–

Field Survey Result (3/3)

	Road to Arta Coast (Near Ouea to Arta Coast)	National Road No.8 Yoboki– Lake Assal section	–
Site photos	 Road condition  Valley bottom trail  Beachside road	 Road condition  Lava field path  Near lake Assal	–
Existing road condition	Near the Ouea town-Arta coast section of the road passes mountainous region. All of route is unpaved and road width is 5-7m. A vehicle can be run by around 35km/h. There are facilities of the French troops on the beachfront, and the vehicle is passing through this road.	Yoboki-Lake Assal section of the road passes mountainous region and somewhere flat areas. All of route is unpaved. 60% of 54km in total are mountainous section 4-5m wide. 40% are wadi section. A road is rough, and about 15 km/h is the limit for the driving speed of the mountainous area, and 25km/h is also the limit for the max speed level terrain.	–
Importance of road improvement	Importance of road improvement on this section is: ・ To promotion of tourist resort development of Arta coast.	Importance of road improvement on this section is: ・ To secure transportation capacity in trade with Ethiopia as a detour of national highway No.1. ・ To contribute to future geothermal electric power development and tourist resort development.	–