

添付資料 1-2

Minutes of Meeting (1st Steering Committee)

&

Discussion materials

**MINUTES OF MEETING
OF
PROJECT STEERING COMMITTEE
ON
FEASIBILITY STUDY
FOR
ENHANCED WATER SUPPLY SYSTEM PROJECT**

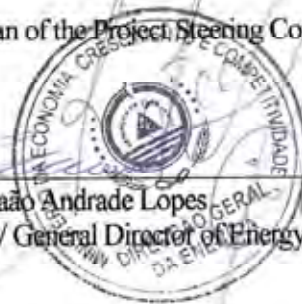
DATE: Februar 08, 2010

PLACE: Praia, Cape Verde

1. The Government of the Republic of Cape Verde (GoCV), in cooperation with the Government of Japan, intends to develop a structuring and strategic water sector project on the island of Santiago, aiming both at improving the water supply conditions, through the interconnection of water transmission and distribution networks, and at strengthening the production capacities ;
2. Given the specific and strategic significance of the project, a diligent and efficient technical follow-up will be needed for the same ;
3. In the scope of implementation of the above mentioned project, there will be a need to guarantee, to the GoCV, reliable technical counsel and assistance;
4. It is much advisable that the project be followed up and supported by all sectors and institutions which are, in one or other way, related to the water sector.
5. In this purpose, a Project Steering Committee has been officially established on 26th of January 2010 by the DISPATCH No. 007 / 2010 issued by MEGC.
6. The Project Steering Committee has met for the first time on the 8th of February 2010, in the office of Ministry of Finance, Praia, Cape Verde. The list of participants is given in Appendix 1.
7. The main points discussed are based on the presentation by The JICA study team of all results and propositions related to the project at the time of the meeting. This presentation is given in Appendix-2.
8. The Project Steering Committee members hereby confirmed full understanding of main points discussed as per Appendix 3.

Chairman of the Project Steering Committee

Mr. Abraão Andrade Lopes
MEGC / General Director of Energy (DGE)



MAIN POINTS DISCUSSED

Overall

1. According to the minutes of the meeting dated 23rd, October 2009 between the GoCV and the JICA Mission, a Project Steering Committee (hereinafter referred to as “the Committee”) has been established on 26th of January 2010.
2. The function of Project Steering Committee is officialy defined in the DISPATCH No. 007 / 2010 issued by MEGC. This function is as following:
3. To supervise the Survey and to monitor the progress of the procedure inside the GoCV.
4. The Committee is composed of representatives from JICA, MEGC, ELECTRA, Ministry of Agriculture and Environment, Ministry of Finance, National Institute for Water Resources Management (INGRH) and relevant municipalities.

All the members of Project Steering Committee confirmed that they fully understand the function, organisation and purpose of Project Steering Committee.

Subject discussed during the meeting of Project Steering Committee

The JICA study team first presented all results and propositions related to the project at this time. These results and propositions are detailed in appendix 2.

Following the presentation, the following points have been discussed:

a. Target municipalities:

The JICA study team together with the Steering Committee confirmed that all the municipalities of Santiago Island shall be targeted by the project.

b. Project scope

The JICA study team stated that the project scope is depending on others donors projects and asked for clarification on this point. The Representative of General Direction of Planning at the Ministry of Finance, Mr. Maia, precised that the others donors projects (loan type) related to water development which are due to be signed in 2010 are:

- Development of water system in Santiago 5000m³/day with Spanish cooperation
- Dams construction project with Portuguese cooperation
- Water pipeline construction between Sao Miguel and Assomada with Indian cooperation

In addition, Mr. Maia stated that the World Bank 5000m³/day water development



project (desalination) is overviewed for 2012. He has not heard about the Luxembourg development project.

The JICA study team stated that the scope of the project is also depending on the operation and maintenance organisation. The JICA study team asked for the Steering Committee and Government of Cape Verde to propose the organisation of operation and maintenance of the project installations, including budget management.

The JICA study team proposed three main options for water system development. These options are detailed in the appendix 2. The JICA study team explained these options do not take into account the loss of water supply, the projects by other donors or organisations, the use of existing well resources. The JICA study team asked for comments of Steering Committee for each of the three options.

The Steering Committee explained its concern about power availability for desalination plant. The Steering committee asked whether a power development item (using renewable energy) is included in this project. The Steering Committee asked the JICA study team to evaluate the power consumption of each of the three options. The JICA study team explained that the scope of this project is not including the development of power capacity, however power development projects are undergoing at this time. The JICA study team stated that this study is considering as a basic assumption that the power is available and sufficient. The JICA study team stated that the necessary power consumption will be studied.

The Steering Committee has asked whether or not the use of groundwater for mixing with desalinated water would not go against the general idea that groundwater should be left for irrigation and agricultural purpose and desalinated water for potable water use. The JICA study team answered that desalinated water is the main solution for drinking water, and will assess whether the use of groundwater can be available for economizing capacity of desalination plant and reducing operation costs.

The Steering Committee expressed its concern about environment regarding desalination plants, pipelines, and brine discharge in the vicinity of potential touristic place in the case of option 2 and option 3. The JICA study team answered that pipelines are foreseen to follow existing roads, and that area of influence of brine discharge is quite limited when discharging in sea water, these points shall however be studied by EIA.



The Steering Committee asked whether or not there would be a possibility to involve Cape Verdian local engineers in the JICA study team in order to assist the JICA study team. The JICA study team answered that any local contribution of Cape Verdian local engineers is welcomed, however presently involvement of Cape Verdian engineers in the study team is not foreseen.

The Steering Committee asked whether the scope is including rehabilitation of existing distribution network. The JICA study team answered that rehabilitation of existing distribution network is not included in the project.

The JICA Study team stated that based on these comments about scope of the project, one of the three main options will be proposed for further steps of the project.

c. Project sites

The project sites has not yet been selected.

d. Specification of facilities

The JICA study team stated that the capacity of developed water system will be resized according to the information about others donors projects.

e. Project cost

The Steering Committee expressed its concern about price of water because of cost of desalination technology and heavy use of power. The JICA study team answered that the use of desalination is a basic assumption for this study. The price of water should not differ much from the existing desalination plant.

The project cost will be revised in the light of comments and information coming from Steering Committee.

f. Procurement structure

The MECC will be in charge of procurement (tendering, land acquisition) for the project.

g. Project implementation

The MECC is in charge of project implementation.



h. Operation and management organizations

The JICA study team asked the Steering Committee and Government of Cape Verde to propose the organisation of operation and maintenance of the project installations, including budget management, in order to assure an appropriate management for sustainable operation and maintenance.

i. Financial structure

Basically, the project is overviewed to be financed by Japanese Government.

j. Tariff system

The JICA study team asked the Steering Committee and ARE to think about a suitable tariff system in the light of the existing tariff and affordable tariff by people.

k. Concession structure

The JICA study team asked for any information regarding the possible creation of a concession structure for management of water supply system.

l. IEE and EIA schedule, and organisation

The JICA study team explained that the IEE will be conducted by the JICA study team. The EIA will be conducted by Government of Cape Verde following JICA environmental guidelines, and JICA study team can assist the Government to apply the guidelines for EIA if it is requested.







Steering Committee on Water Supply System Development Project in Cape Verde

February 8, 2010 at Praia

Japan International Cooperation Agency

**Toyo Engineering Corporation
Ingérosec Corporation
UNICO International Corporation**

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- 1. Opening Remarks**
 - 2. Purpose of Steering Committee**
 - 3. JICA Study Explanation**
 - 4. JICA Study Status**
 - 5. Discussion**
 - 6. Closing Remarks**

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1. **Opening Remarks**
2. **Purpose of Steering Committee**
3. **JICA Study Explanation**
4. **JICA Study Status**
5. **Discussion**
6. **Closing Remarks**

3



Background of Steering Committee

- The Government of the Republic of Cape Verde (GoCV), in cooperation with the Government of Japan (JICA), intends to develop a structuring and strategic water sector project on the island of Santiago, aiming both at improving the water supply conditions, through the interconnection of water transmission and distribution networks, and at strengthening the production capacities.
- Given the specific and strategic significance of the project, a diligent and efficient technical follow-up will be needed for the same.
- In the scope of implementation of the above mentioned project, there will be a need to guarantee, to GoCV, reliable technical counsel and assistance.
- It is much advisable that the project be followed up and supported by all sectors and institutions which are, in one or other way, related to the water sector.



***The GoCV understands that it is very important
PROJECT STEERING COMMITTEE be established.***

4



Objectives of Committee and its Composition

- **According to Minutes of meeting dated 23rd, October 2009 between GoCV and JICA, a Project Steering Committee is needed to be established.**

The objectives and its composition are described as follows;

- **The JICA Mission and the MEGC agreed to set-up the Project Steering Committee to supervise the Survey and to monitor the progress of the procedure inside GoCV.**
- **The Committee will be composed of representatives from JICA, MEGC, ELECTRA, Ministry of Agriculture, Rural Development and Maritime Resources (MADRRM), Ministry of Finance, Ministry of Infrastructure and Transport, INGRH, and relevant municipalities.**

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Discussion Items with Steering Committee

To harmonize any opinions among relevant agencies, and to promote smooth decision by GoCV, following subjects shall be discussed with the Committee.

- a) To set criteria to select the target municipalities to be developed,**
- b) To identify the Project scope, including project sites, specification of facilities, project cost, procurement structure, etc,**
- c) To set-up and establish the project implementation, operation and management organizations,**
- d) To establish financial structure, including tariff system, concession structure, staff allocations, etc.**

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1. **Opening Remarks**
 2. **Purpose of Steering Committee**
 3. **JICA Study Explanation**
 4. **JICA Study Status**
 5. **Discussion**
 6. **Closing Remarks**

7



Background of JICA Study

In 1992, Government of Cape Verde made the master plan on Water resources development 1993-2005, for achieving safety and sustainable drinking water supply ratio up to 100% by year 2005. As the result, water supply ratio improved up to 65%, but it is still not enough to keep safety and sustainable water.

Most of fresh water for Santiago island is produced by the seawater desalination plant, and especially Praia city depends on $\frac{3}{4}$ of water to desalination plant.

Also one of important policy in Cape Verde is to develop tourism. For realizing this policy, it is necessary to have sustainable and safe water and its supply network.

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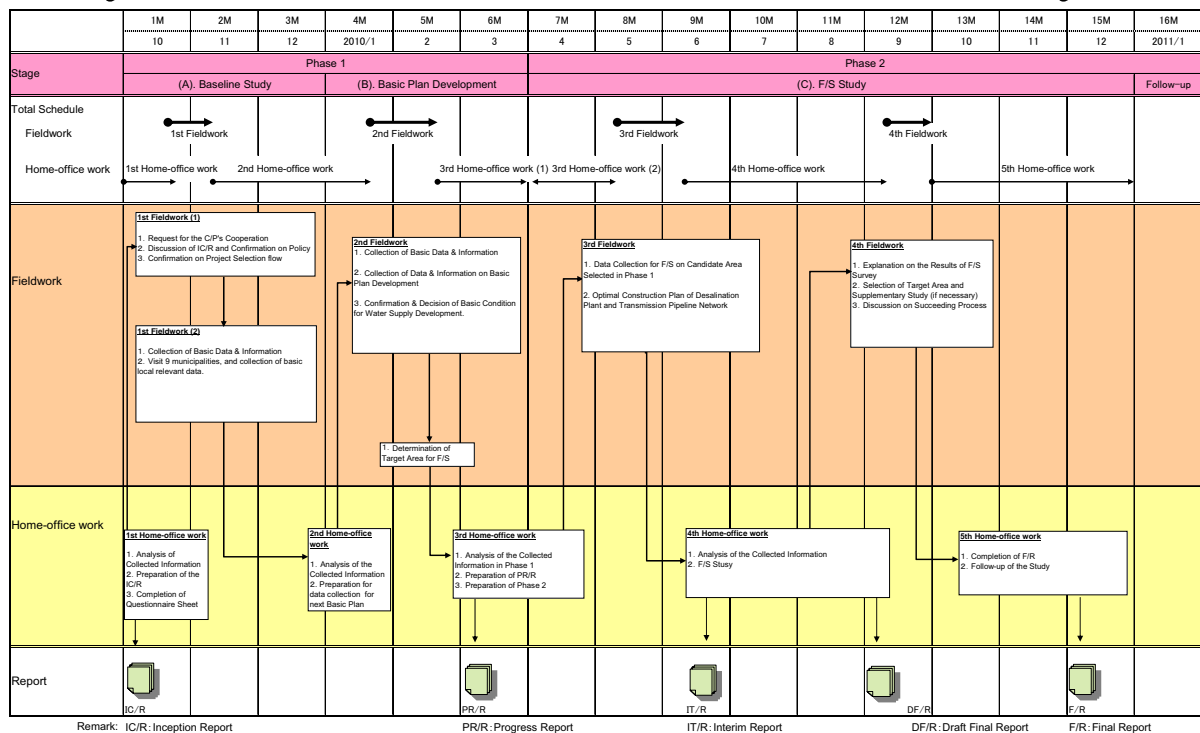
Objective of JICA Study

- 1) to verify the feasibility of the project including
 - Increase of fresh water by construction of seawater desalination plant,
 - Construction and/or rearrangement of wide area water distribution network to targeted cities, and
 - For corresponding the current and future water shortage by economic growth in Santiago island around 2020.

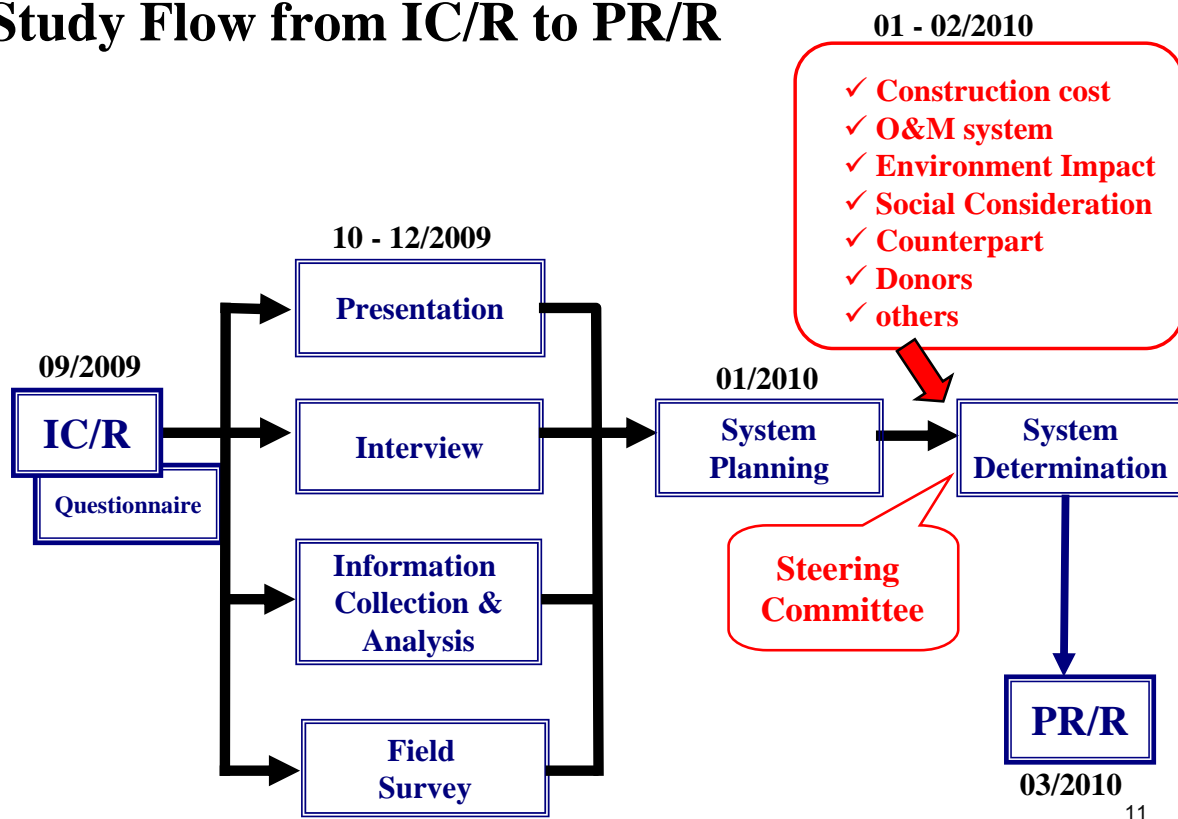
- 2) to find suitable project for Japanese yen and/or other fund credit.



Study Flow and Time Schedule of JICA Study



Study Flow from IC/R to PR/R

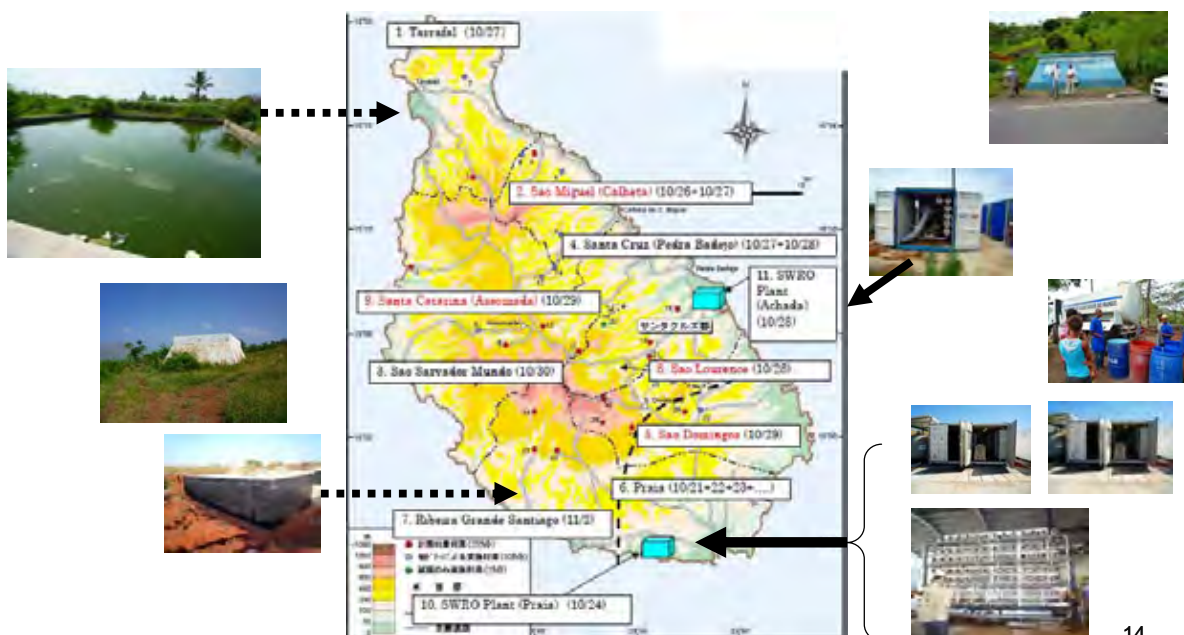


1. Opening Remarks
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Part-1: Summary of 1st field and 2nd domestic work

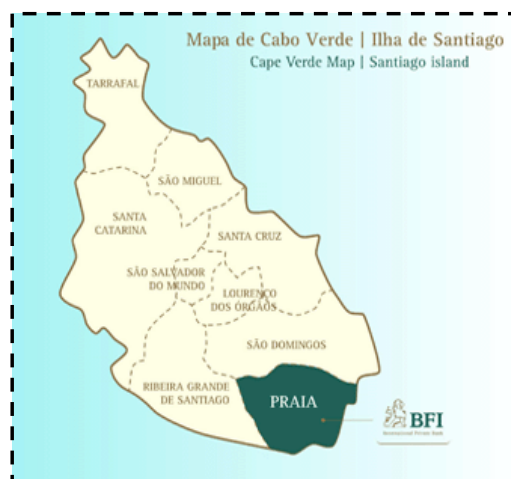
1. 1st Field Work Summary
2. Interview Records from Municipality
3. Information Analysis
4. Horizons of Water Demand
5. Water Supply System Study
6. other Water Projects in Santiago
7. Steering Committee Establishment

1. 1st Field Work Summary



2. Visit and Interview to all Municipalities

1. *Tarrafal*
2. *Sao Miguel*
3. *San Salvador do Mundo*
4. *Santa Cruz*
5. *Sao Domingo*
6. *Praia*
7. *Ribeira Grande de Santiago*
8. *San Lourenco dos Orgaos*
9. *Santa Catarina (Assomada)*



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Interview Summary by MEGC and JICA as of Oct. 2009

MUNICIPALITY	unit	S.Miguel	Tarrafal	Santa Cruz	S L D Orgaos	Santa Catarina	Picos	Ribeira Grande	S. Domingo	Praia all
population		17,000	21,000	30,000	10,000	50,000	10,000	12,000	14,300	120,000
water supply	m ³ /day	1160	1200	1200	420	900		250	880	6,802
water supply loss	%	15-20	34	35		30-40		not available	12	31.5
water to people	%		75	80	d60-r40	100		33	47	100
water to agriculture	%		25	20	r60-r40	0		not available	53	0
water consumption,	l/d/person		55	40	20	18		30	30	57
connection to householdrate	%	60	70	82	57		15-16	600 household	21	54
water price for people	m ³ /CVE									325
	0-5m ³	220	108	220	0-6m ³	500	80	see below	253	0-6m ³
	6-10m ³	280	134	280	6-10m ³	150	120		354	6-10m ³
	10-15m ³	10+m ³	350	189	340	10m ³ +	170	150	442	10m ³ +
	15+ m ³		289			300	200			
water price for irrigation	CVE/m ³									
	Manual	35/m ³		25/m ³	manual	n/a		n/a	25/m ³	manual
	Drip system	22/m ³		8/m ³	Drip system	n/a		n/a	15/m ³	Drip system
contract fee	CVE	3,000	3,450	varies 8000-14000		4,000		6,000	14,000	varies 9,900-35,000
tax	CVE/m ³			15						
price	CVE/m ³		1000 by habitat	1850			350 by habitat			
RO desalination	m ³ /d	500	n/a	540	n/a	n/a	n/a	n/a	n/a	7400
from		well near sea	n/a	well near sea	n/a	n/a	n/a	n/a	n/a	sea water
well water	m ³ /d		1137	660	varies	900		880		900
well number			12	8	7	16	5	2+	14	6
reservoir number		30	2	45	26		3	6+		
reservoir capacity	m ³	10 - 500	150	20-1000	8-100		50,40/40	1000,50,30/20		
fountain water	m ³ /d		23		745 in 10/09			250		
fountain number					4			3+		

from S.Catarina via PL	80
from S.Domingo via truck	310
from S.Cruz via truck	270
from S.Catarina via PL	80

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3. Information Analysis

Water Production in the Santiago Island

Municipality	2006			
	Potable Water m ³ /year	Industrial m ³ /year	Total m ³ /year	Total m ³ /day
Tarrafal	237,011	—	237,011	649.35
São Miguel	89,512	—	89,512	245.24
São Salvador do Mundo	<i>Within S.Catarina</i>	—	—	—
Santa Cruz	299,623	7,856	307,479	842.41
São Domingos	128,665	1,670	130,335	357.08
Praia	2,723,248	74,387	2,797,635	7,664.75
Ribeira Grande de Santiago	<i>Within S.Catarina</i>	—	—	—
São Lourenço dos Orgaos	<i>Within S.Catarina</i>	—	—	—
Santa Catarina	563,492	—	563,492	1,543.81
Total (Santiago Island)	4,041,551	83,913	4,125,464	11,302.64

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Horizons of Population in Santiago Island, 2010

Municipality	2000				2010				Evolution of Population
	Total	Urban	Rural	% Urban	Total	Urban	Rural	% Urban	
Tarrafal	17,883	5,810	12,073	32.5	23,786	8,027	15,759	33.7	24.8%
São Miguel	16,213	5,017	11,196	30.9	17,602	6,042	11,560	34.3	7.9%
São Salvador do Mundo	9,214	1,148	8,029	12.5	10,950	1,459	8,029	13.3	15.9%
Santa Cruz	25,333	8,575	16,693	33.8	30,038	11,707	16,693	39.0	15.7%
São Domingos	13,381	1,607	11,774	12.0	14,421	2,212	12,209	15.3	7.2%
Praia	97,232	94,361	2,897	97.0	131,453	129,163	2,897	98.3	26.0%
Ribeira Grande de Santiago	9,664	1,346	8,318	13.9	9,618	1,435	8,183	14.9	-0.5%
São Lourenço dos Orgaos	7,847	1,437	6,410	18.3	9,285	1,831	7,454	19.7	15.5%
Santa Catarina	41,061	7,297	33,764	17.8	48,535	14,380	34,155	29.6	15.4%
Total (Santiago Island)	237,828	126,598	99,969	53.2	295,688	176,256	116,939	59.6	19.6%

Data source: Census 2000, “Resultado de Revisão das Projecções Demograficas 2000-2020”.

Urban area population increased.

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Horizons of Population in Santiago Island, 2020 - preliminary

➤ Horizons will be discussed and confirmed during 2nd field survey

Municipality	2020			
	Total	Urban	Rural	% Urban
Tarrafal	31,638	11,041	20,596	34.9
São Miguel	19,110	7,204	11,906	37.7
São Salvador do Mundo	13,013	1,835	11,178	14.1
Santa Cruz	35,617	15,743	19,874	44.2
São Domingos	15,542	2,891	12,651	18.6
Praia	177,718	177,007	711	99.6
Ribeira Grande de Santiago	9,572	1,522	8,050	15.9
São Lourenço dos Orgaos	10,987	2,318	8,668	21.1
Santa Catarina	57,369	23,751	33,618	41.4
Total (Santiago Island)	370,566	243,313	127,253	65.7

Total : Estimated by "evolution of population" during 2000-2010

Rural : Estimated by "evolution of urban area population" during 2000-2010

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4. Horizons of Water Demand - preliminary -

➤ Horizons will be discussed and confirmed during 2nd field survey
➤ Including tourism and industry, excluding water loss

Municipality	Population (year 2000)	Population (year 2008)	City area (%)	Population (year 2020, estimated)	person m3/d	Round Figure (m3/d)
1. Tarrafal	17,883	22,453	33.50%	31,637	2,134 2,384	Now 422,000m3/y x 75% 2,400
2. Sao Miguel	16,213	17,291	33.60%	19,110	1,316 1,841	Italy 3,500m3/d 1,600
3. Sao Salvador Mundo, Picos	9,214	10,560	13.20%	13,013	742 742	700
4. Santa Cruz (Pedra Badejo)	25,333	28,989	37.90%	35,617	2,568 2,893	Italy 1,000m3/d 2,900
5. Sao Domingos	13,381	14,230	14.70%	15,542	922 922	Luxenburg 2500m3/d 900
6. Praia	97,232	123,741	98.00%	177,718	17,736 19,986	Now 15,000m3/d 20,000
7. Ribeira Grande Santiago (*)	9,664	9,639	14.70%	9,572	555 555	600
8. Sao Lourenco Orgaos (*)	7,847	8,961	19.40%	10,986	665 665	700
9. Santa Catarina (Assomada)	41,061	46,866	27.30%	57,369	4,056 6,056	Now 1,000m3/d 6,000
Total	237,828	282,730		370,564	30,694 35,844	35,800

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4. Horizons of Water Demand - *presumption* -


Water consumption, l/day/person	urban	100
	rural	50
	tourist	250

Tourist Hotel Bed, number	Tarrafal	200
	Sao Miguel	500
	Santa Cruz	500
	Praia	5,000
	Santa Catarina	6,000


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Horizon of water consumption, l/person/day

Year	Urban			
	% Coverage Public Pipe	Consumption l / person / day	% Coverage Fountain	Consumption l / person / day
2010	90	100	10	25
2020	100	150	—	—

 **100 in urban**

Year	Rural			
	% Coverage Public Pipe	Consumption l / person / day	% Coverage Fountain	Consumption l / person / day
2010	20	50	80	25
2020	25	80	75	30

 **50 in rural**

Data source : “National Vision on Water, Life and Environment on the horizon 2025” by INGRH (2000)
WHO recommend 100 litter/person/day

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Horizons of Water Demand in detail (1/2)

Municipality	Population (year 2000)	Population (year 2008)	City area (%)	ratio		15%		4		Person	m ³ /d	Round Figure (m ³ /d)
				Urban	Rural	Hotel	Industry	Urban	Rural			
1. Tarrafal	17,883	22,453	33.50%	50	200	beds	31,637	2,134	1,104	1,030	2,384	Now 422,000m ³ /y x 75% (for Potable) = 870m ³ /c
Urban		7,522					11,041	1,104				
Rural		14,931					20,596	1,030				
Hotel								50				
Industry								200				
												2,400
2. Sao Miguel	16,213	17,291	33.60%	100	400	beds	19,110	1,316	720	595	1,616	Italy 3,500m ³ /d
Urban		5,810					7,204	720				
Rural		11,481					11,906	595				
Hotel								100				
Industry								200				
												1,600
3. Sao Salvador Mundo, Picos	9,214	10,560	13.20%	0	0	beds	13,013	742	184	559	742	
Urban		1,394					1,835	184				
Rural		9,166					11,178	559				
Hotel								0				
Industry								0				
												700
4. Santa Cruz (Pedra Badejo)	25,333	28,989	37.90%	100	400	beds	35,617	2,568	1,574	994	2,868	Italy 1,000m ³ /d
Urban		10,987					15,743	1,574				
Rural		18,002					19,874	994				
Hotel								100				
Industry (Cement)		China						200				
												2,900
5. Sao Domingos	13,381	14,230	14.70%	0	0	beds	15,542	922	289	633	922	Luxenburg 2500m ³ /d at S.Francisco
Urban		2,092					2,891	289				
Rural		12,138					12,651	633				
Hotel								0				
Industry								0				
												900

Note 1 : Number of bed is estimated based on the data by Tourist data analysis (PD consultant).

Note 2 : Consumption for tourist and Industry are estimation by JICA study team.

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Horizons of Water Demand in detail (2/2)

Municipality	Population (year 2000)	Population (year 2008)	City area (%)	ratio		15%		4		Person	m ³ /d	Round Figure (m ³ /d)
				Urban	Rural	Hotel	Industry	Urban	Rural			
6. Praia	97,232	123,741	98.00%	600	2,400	beds	177,718	17,736	17,701	36	19,836	Now 15,000m ³ /d
Urban		121,266					177,007	17,701				
Rural		2,475					711	36				
Hotel								600				
Industry								1,500				
												20,000
7. Ribeira Grande Santiago (*)	9,664	9,639	14.70%	0	0	beds	9,572	555	152	403	555	
Urban		1,417					1,522	152				
Rural		8,222					8,050	403				
Hotel								0				
Industry								0				
												600
8. Sao Lourenco Orgaos (*)	7,847	8,961	19.40%	0	0	beds	10,986	665	232	433	665	
Urban		1,738					2,318	232				
Rural		7,223					8,668	433				
Hotel								0				
Industry								0				
												700
9. Santa Catarina (Assomada)	41,061	46,866	27.30%	300	1,200	beds	57,369	4,056	2,375	1,681	5,856	Now 1,000m ³ /d at 2020, 3,775m ³ /d
Urban		12,794					23,751	2,375				
Rural		34,072					33,618	1,681				
Hotel								300				
Industry								1,500				
												6,000
Total	237,828	282,730		1,150	4,600	beds	370,564	30,694	24,331	6,363	3,600	35,444
Urban		165,020					243,312	24,331				
Rural		117,710					127,252	6,363				
Hotel								1,150				
Industry								3,600				

Note 1 : Number of bed is estimated based on the data by Tourist data analysis (PD consultant).

Note 2 : Consumption for tourist and Industry are estimation by JICA study team.

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5. Water Supply System Study - *presumption* -

- *Whole potable water demand in 2020:*

35,800 m³/day

- *Existing Desalination Capacity in 2010
in Praia and S. Cruz*

7,900 m³/day

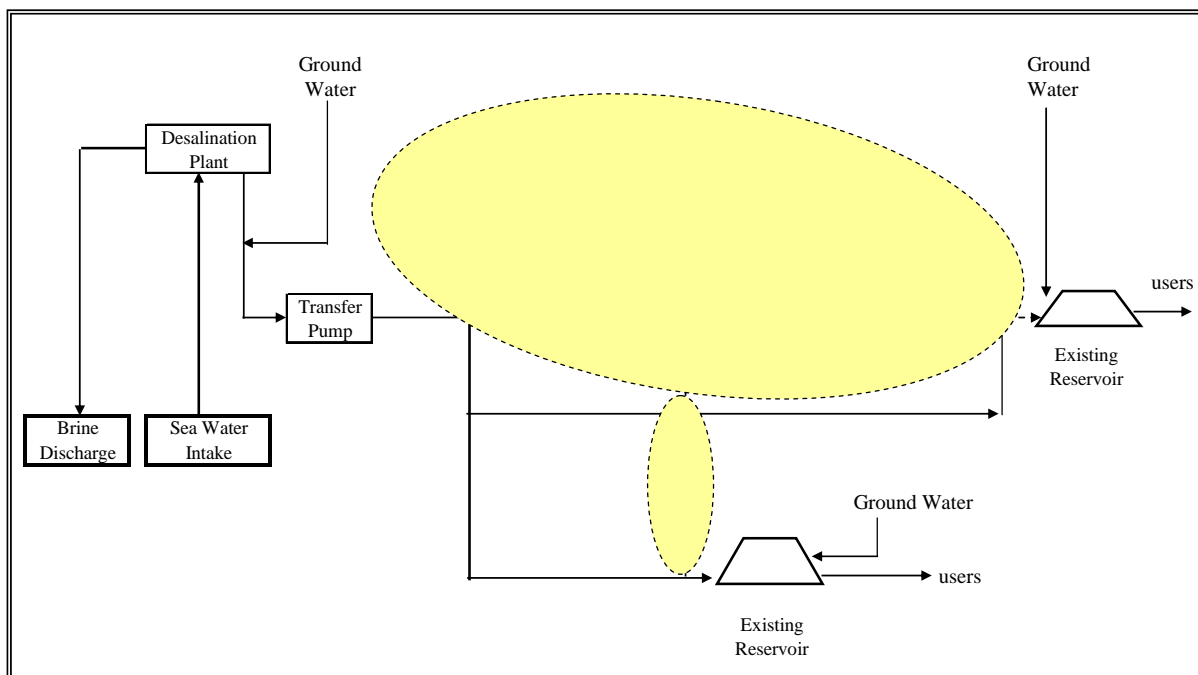
- *Additional Capacity for whole demand*

27,900 m³/day

Note: Ground water utilization and Water loss are not countered.

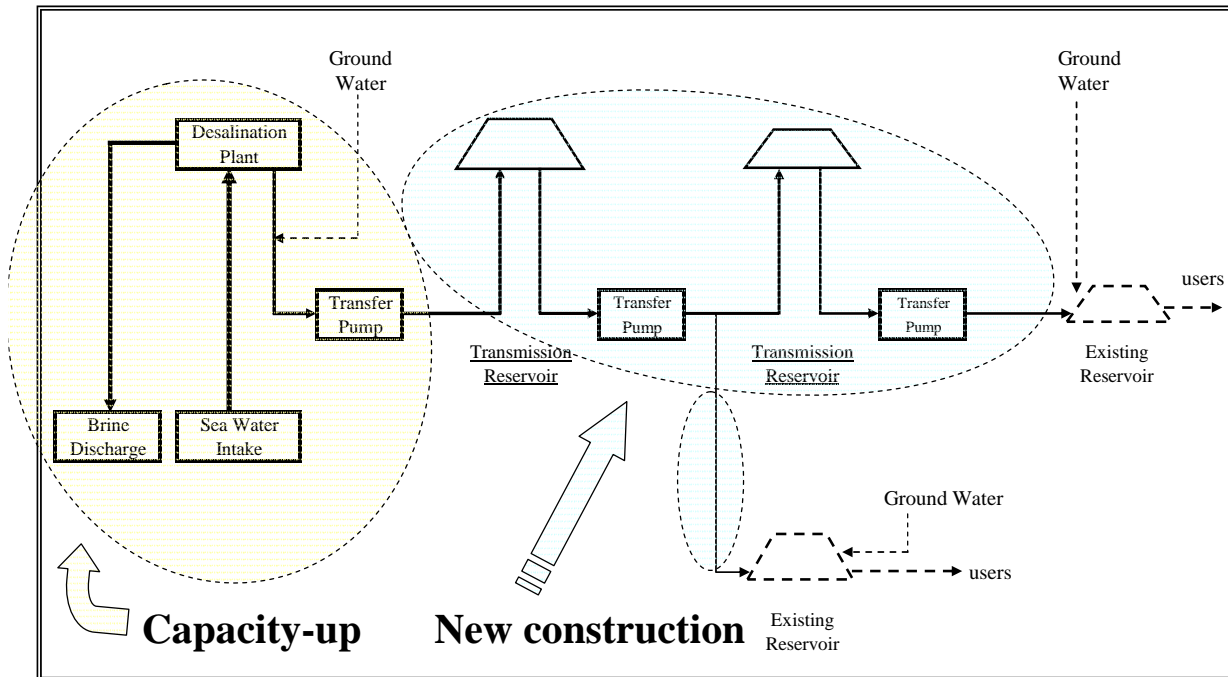
25

Water Supply System Study *existing system*



26

Water Supply System Study *new system*



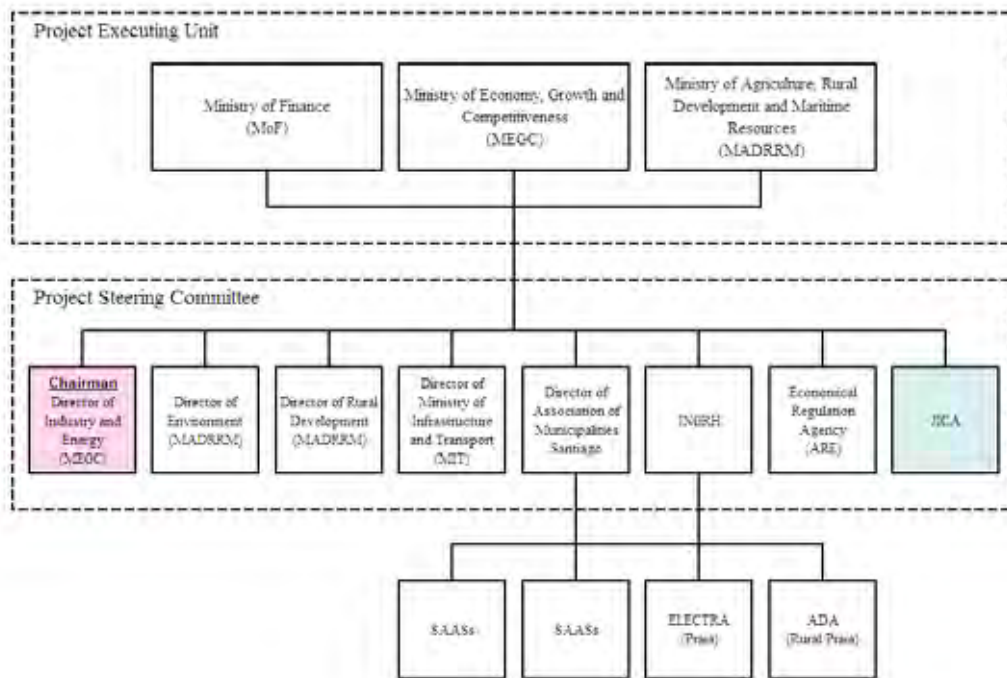
27

6. Other Water Projects in Santiago

<p>ODA basis</p>	<ul style="list-style-type: none"> - World Bank for 5000-7500m³/day of water production in Praia under discussion of IBRD funding, after 2012 - Spain for 5000m³/day of water production in Praia under negotiation, after 2010 discussion - Spain for reservoir , transfer line and distribution line in Cidade Velha Phase-1 reservoir construction finished Phase-2 line construction will be constructed and connected - China for dam Phase-1 construction finished Phase-2 utilization under discussion - French for F/S on ground water supply and sanitation in Assomada - Luxemburg for plan on 2,500m³/day of water production with 9km line in S. Domingo - Portugal for other dam ? - Morocco for Cidade-Praia network rehabilitation ? - 18km pipeline for Calheta and Santa Catarina
<p>Private basis</p>	<ul style="list-style-type: none"> - Lachesi of Italy for 3,500m³ of water production in Calheta, S. Miguel to Assomada under negotiation - Lachesi of Italy for 500+500m³ of water production in Pedro Badejo, S. Cruz to Assomada under discussion - CAIS (Company of water introduction Santiago), 30 year Concession Company Lachesi: GoCV=80:20(max)

28

7. Steering Committee Establishment



29

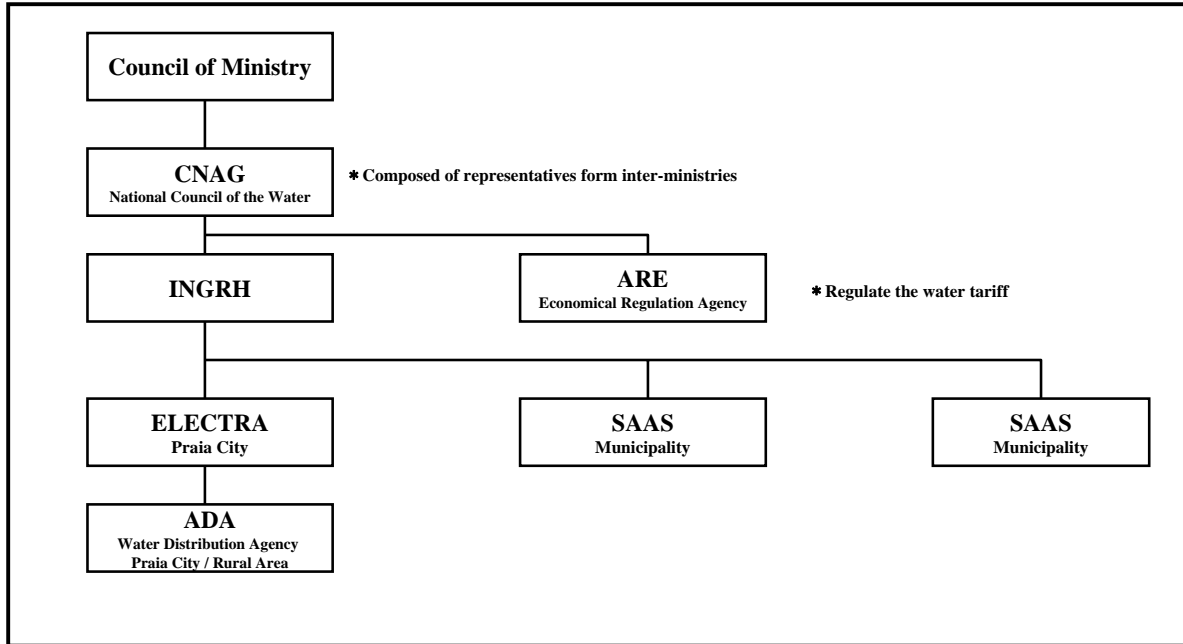
Part-2: Summary of 2nd field work

1. Water related Organization review
2. Project case selection
3. ROM cost estimation
4. Ground water utilization
5. System discussion
6. IEE and EIA

30

1. Organization and Institution review

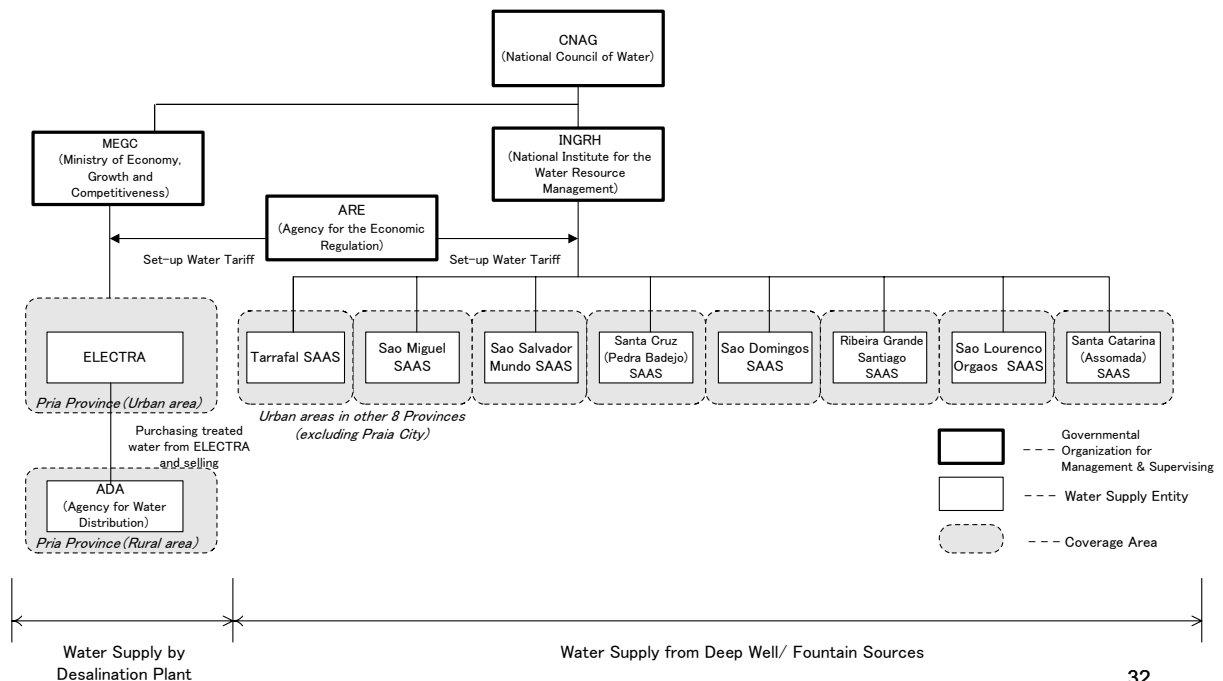
- for review -



31

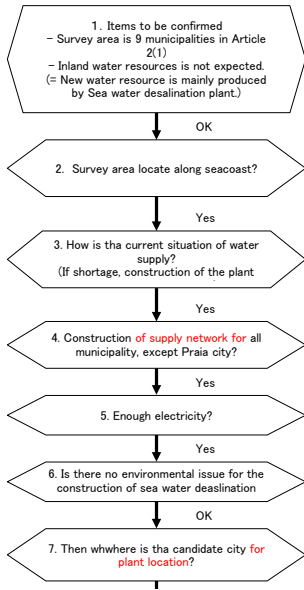
Administrative Framework for Water Supply

- under review -



32

2. Project Case Selection (1/3)

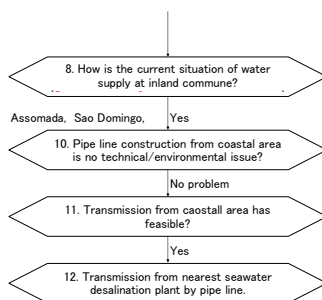
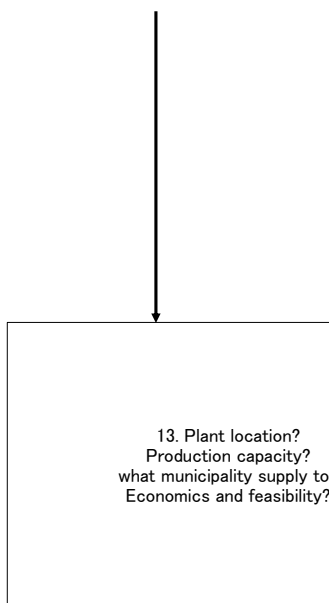


Candidate Supply Base

	1	2	3	4	5	6	7	8	9
	TRFL	SMG	SSdM	SCRZ	SDmg	Praia	RbGr	SLdO	SCtr
	○	○	○	○	○	○	○	○	○
	○	○		○		○	○		
	(○)	○		○		○	(○) enough water		
	(○)	○	○	○	○	○	○	○	○
	(○) Future supplied	(○) Soon supplied		(○) Soon supplied		○	○		
	○	○	○	○	○	○	○	○	○
	(○)	○		○		○			

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Project Case Selection (2/3)



	1	2	3	4	5	6	7	8	9
	TRFL	SMG	SSdM	SCRZ	SDmg	Praia	RbGr	SLdO	SCtr
			○ Shortage		○ Shortage			○ Shortage	○ Shortage
			○		○			○	○
			○		○			○	○
			○		○			○	○
Case 1	Plant Location					○			
	water supply to	○	○	○	○	○	(○)	○	○
Case 2	Plant Location	○	○			○			
	water supply to		○	○	○		(○)	○	○
Case 3	Plant Location	○	○	○		○			
	water supply to		○		○		(○)	○	○

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Project Case Selection (3/3)

Case 1



Case 2



Case 3



35

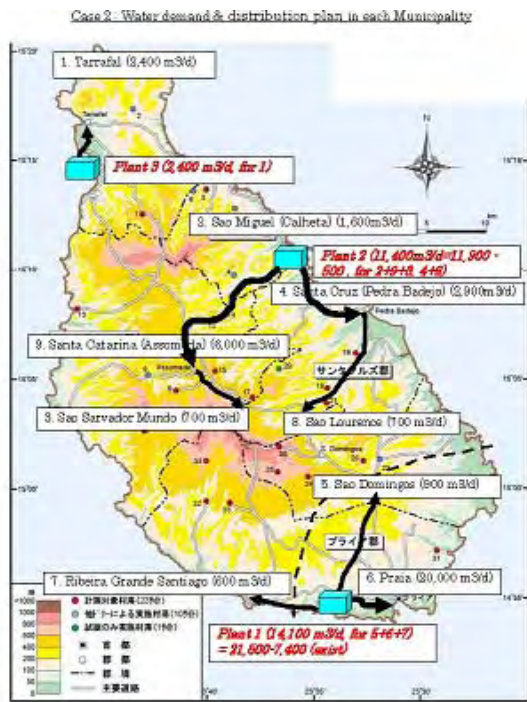
Case 1: One Desalination Plant at Praia



1. Expected Advantage
 - 1) Lower construction cost for desalination plant
 - 2) Centralized operation and management
2. Disadvantage
 - 1) Higher construction cost for pipeline
 - 2) Market sharing with ELECTRA and other Municipalities
 - 3) Risk of water leak and loss
 - 4) Risk of one water supplier

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Case 2: Three Plants at Praia, Sao Miguel and Tarrafal



1. Expected Advantage

- 1) Lower construction cost for pipeline
- 2) Job creation in local Municipalities
- 3) Lower conflict between ELECTRA and other Municipalities
- 4) Risk Decentralization from one water supplier

2. Disadvantage

- 1) Higher construction cost for desalination plants
- 2) More Training and people required for Operation and Maintenance

37

Case 3: Four Plants at Praia, Santa Cruz, Sao Miguel and Tarrafal



1. Expected Advantage

- 1) Lower construction cost for pipeline
- 2) Job creation in local Municipalities
- 3) Lower conflict between ELECTRA and other Municipalities
- 4) Risk Decentralization from one water supplier
- 5) Adjustment against other Donor's projects

2. Disadvantage

- 1) Higher construction cost for desalination plants
- 2) More Training and people required for Operation and Maintenance

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3. ROM cost estimation

Presumptions:

Preparatory Design basis

Estimation: in-house basis with relative cost

Sea water: available and not specific treatment required

Electric Power: available

EPC contractor: foreign

Equipment and Material: imported

Desalination plant: Reverse Osmosis type, and
non specific requirement for installation

Transmission Reservoirs: concrete with 12 hours holdings

Transfer Line

Carbon Steel with lining for HP service

HDPE for LP service

Transfer Pump: 1+1 with Electrical motor driven

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Water Supply System Study *selection criteria*

criteria	unit	Case 1	Case 2	Case 3	remarks
Total Water Production	m ³ /day	27,900	27,900	27,900	
Praia		27,900	14,100	14,100	
Tarrafal		-	2,400	2,400	
Sao Miguel		-	11,400	8,300	
Santa Cruz		-	-	3,100	
No. of Desalination plants		one	three	four	
Relative construction cost	%	100	77	74	
	%	136	104	100	
Total Construction Cost		×	○	○	<i>qualitative evaluation</i>
Dasalination Plant		◎	○	○	
others (Lines and Reservoir)		×	○	◎	◎: <i>excellent</i>
O&M cost		×	○	○	○: <i>good</i>
Dasalination Plant		◎	○	○	△: <i>normal</i>
others (Lines and Reservoir)		×	○	◎	×: <i>negative</i>
EIA cost		×	△	△	
Environmental Impact		△	△	△	
Social Consideration		△	△	△	
Ground water utilization					
comments from GoCV					
comments from Municipalities					
comments from donors					
JICA project (Yen loan) comment					
Project Profitability					
Overall Profitability					
JICA Recommendation					

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4. Ground Water Utilization for Mixing with Desalinated Water

Ground Water Utilization Policy



Utilization of Ground Water for Mixing with Desalinated Water

- *Availability in volume*
- *Availability in quality*
- *investment cost reduction*
- *potable water quality on minerals and Boron*
- *location, etc.*

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5. Water Supply System Discussion

3 cases were prepared.

For water supply system determination,

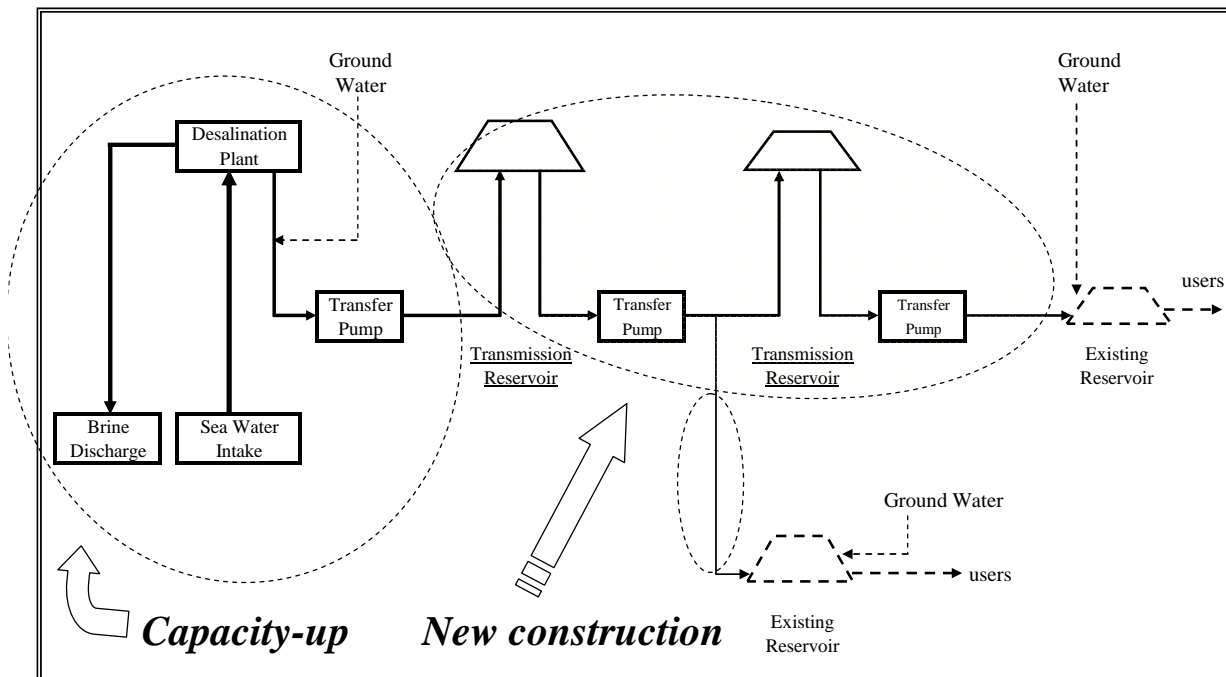
- *Preparatory design was conducted,*
- *ROM construction cost was estimated, and*
- *Selection criteria was prepared.*

1) JICA team will make Case recommendation during staying,

2) JICA team will make JICA Project Scope determination after coming home, and by the beginning of March.

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Water Supply System Study *JICA Project*



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6. IEE and EIA

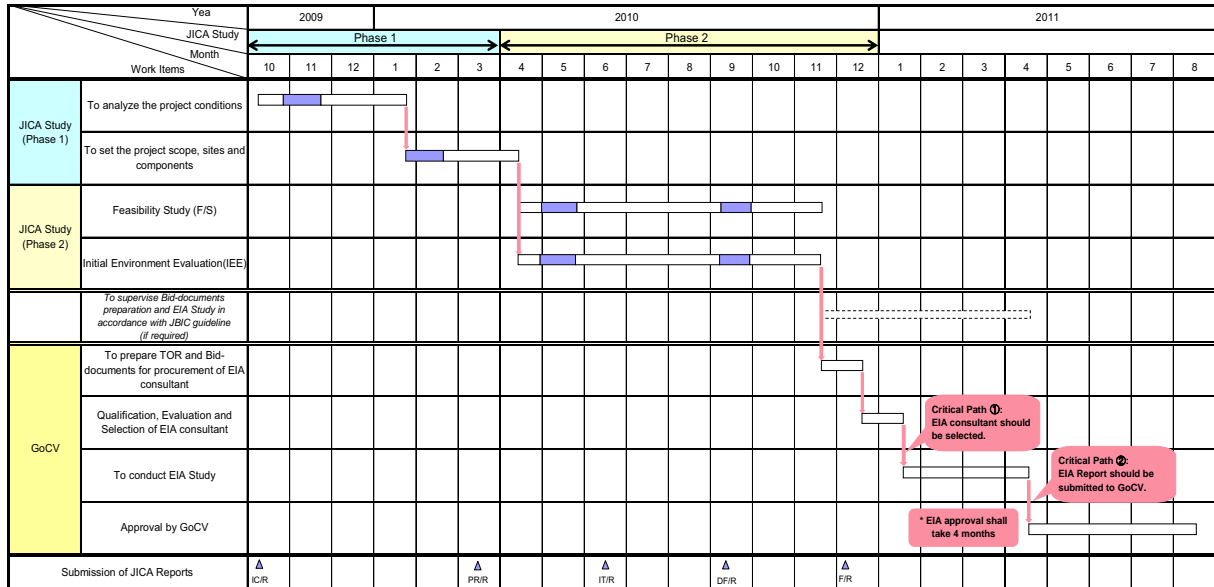
- **IEE will be carried out in accordance with JBIC Guidelines 2002, relevant local laws and regulation by JICA team.**
- **EIA procedure and necessary items are provided in “decree No. 29/2006” in Cape Verde.**
- **EIA will be conducted by consultants, and approved by MEGC.**
- **EIA is necessary for MEGC to precede Project.**
- **Direction General of Environment is responsible to approve EIA Report.**
- **About 4 months takes for EIA report approval.**
- **Time schedule should be discussed taking Cape Verde policy and Yen-loan into account.**

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IEE and EIA original time schedule

DRAFT

EIA Schedule in JICA F/S, original
 (* Terms and conditions: In the case of "Category B" under JBIC Guideline.)

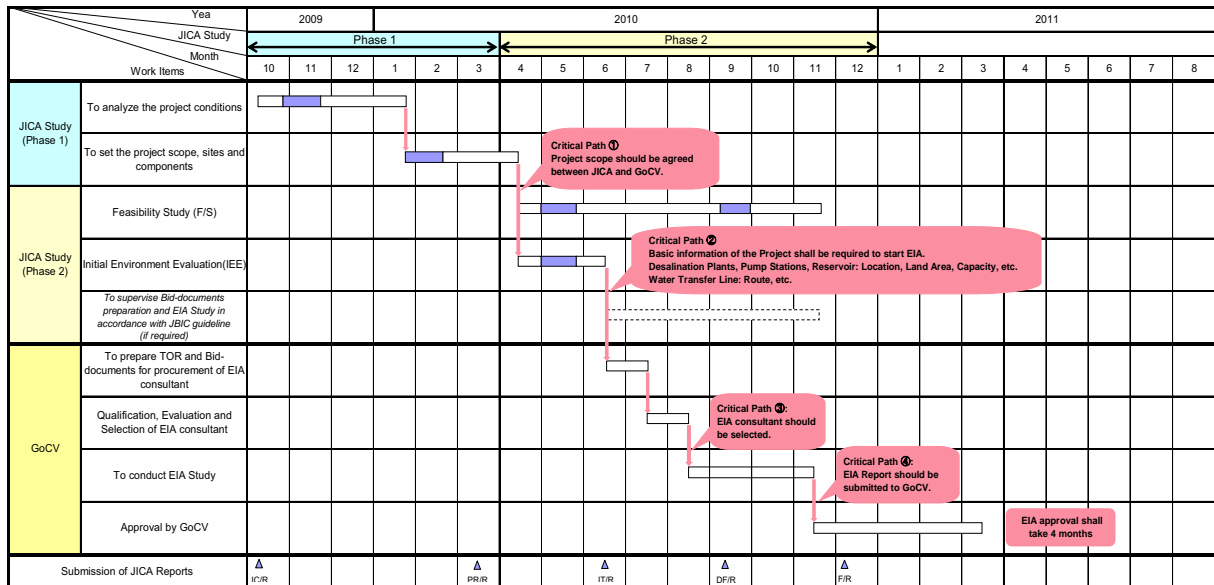


Legend: ■ Study Mission in Cape Verde □ Domestic Work ▲ Submission of Report
 ICR: Inception Report, PR/R: Progress Report, IT/R: Interim Report, DF/R: Draft Final Report, F/R: Final Report

IEE and EIA early L/A schedule case

DRAFT

EIA Schedule in JICA F/S, early L/A case
 (* Terms and conditions: In the case of "Category B" under JBIC Guideline and making loan agreement (L/A) within fiscal year 2010 between JICA and GoCV.)



Legend: ■ Study Mission in Cape Verde □ Domestic Work ▲ Submission of Report
 ICR: Inception Report, PR/R: Progress Report, IT/R: Interim Report, DF/R: Draft Final Report, F/R: Final Report



1. **Opening Remarks**
2. **Purpose of Steering Committee**
3. **JICA Study Explanation**
4. **JICA Study Status**
5. **Discussion**
6. **Closing Remarks**

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-
- a. **Criteria to select the target municipalities to be developed,**
 - b. **Identification of the Project scope, including project sites, specification of facilities, project cost, procurement structure, etc,**
 - c. **Setting-up and establishment of the Project implementation, operation and management organizations,**
 - d. **Establish of the financial structure, including tariff system, concession structure, staff allocations, etc.**
 - e. --
 - f. --
 - g. --

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- 1. Opening Remarks**
- 2. Purpose of Steering Committee**
- 3. JICA Study Explanation**
- 4. JICA Study Status**
- 5. Discussion**
- 6. Closing Remarks**

添付資料 1-3

Minutes of Meeting (2nd Steering Committee)

&

Discussion materials


**SUMMARY OF MOM
OF
PROJECT STEERING COMMITTEE
ON
FEASIBILITY STUDY
FOR
ENHANCED WATER SUPPLY SYSTEM PROJECT**

DATE: May 21st, 2010

PLACE: Praia, Cape Verde

1. The Government of the Republic of Cape Verde (GoCV), in cooperation with the Government of Japan, intends to develop a structuring and strategic water sector project on the island of Santiago, aiming both at improving the water supply conditions, through the interconnection of water transmission and distribution networks, and at strengthening the production capacities ;
2. Given the specific and strategic significance of the project, a diligent and efficient technical follow-up will be needed for the same ;
3. In the scope of implementation of the above mentioned project, there will be a need to guarantee, to the GoCV, reliable technical counsel and assistance;
4. It is much advisable that the project be followed up and supported by all sectors and institutions which are, in one or other way, related to the water sector.
5. In this purpose, a Project Steering Committee has been officially established on 26th of January 2010 by the DISPATCH No. 007 / 2010 issued by MEGC (now MTIE).
6. The Project Steering Committee has met officially for the third time on the 21st of May 2010, in the office of Cape Verde Investment Agency, Praia, Cape Verde. The list of participants is given in Annex-3.
7. The main points discussed are based on the presentation by The JICA study team of all results and propositions related to the project at the time of the meeting. This presentation is given in Annex-1 and 2.
8. The Project Steering Committee members hereby confirmed full understanding of main points discussed as per Appendix 4.

By Chairman of the Project Steering Committee



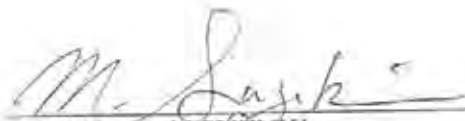
Mr. Pedro Alcantara Silva
MTIE / General Directorate of Energy

MINUTES OF MEETING
ON
THE PROGRESS REPORT
FOR
THE PREPARATORY SURVEY
ON
WATER SUPPLY SYSTEM DEVELOPMENT PROJECT
IN
THE REPUBLIC OF CAPE VERDE

Praia, 26th May, 2010



Mr. Pedro Alcantara Silva
Directorate General for Energy,
Ministry of Tourism, Industry and Energy
The Government of the Republic of Cape Verde



Mr. Mitsutoshi SUZUKI
Lead Consultant of the Survey Team
Japan International Cooperation Agency

Attachment

Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a mission (hereinafter referred to as "the JICA Mission") to the Republic of Cape Verde. Since its arrival on May 17th, 2010, the JICA Mission and officials of Government of the Republic of Cape Verde (hereinafter referred to as "the GoCV"), Ministry of Tourism, Industry and Energy, (hereinafter referred to as "MTIE") had detailed discussions on the Progress Report of the Preparatory Survey (hereinafter referred to as "the Survey") for Water Supply System Development Project (hereinafter referred to as "the Project").

In the course of discussions, both sides confirmed the main items described below. The JICA Mission will proceed as planned up to December 2010, when the Survey comes to the end.

1. Explanation of Progress Report (PR/R)

The JICA Mission submitted seven (7) copies of the PR/R to the GoCV on 17th May.

The progress report was first presented by the JICA Mission to MTIE and discussed in Praia on 17th May. The JICA Mission presented the basic concept, outline and scope of the survey proposed in the PR/R.

The GoCV side agreed on the contents of the PR/R in principle, understood the survey objectives, schedule, activities and methodology, and promised close cooperation with the JICA Mission during the Survey.

2. Conditions of the Survey

The JICA Mission stated that the results of discussions do not imply any decision or commitment by JICA for its prospective loan for the Project at this moment and the above results should be reported to the higher authority of JICA and the Government of Japan.

3. Major Points Discussed

(change of ministry in charge)

- (1) The GoCV side explained that the Ministry of Economy, Growth and Competitiveness has been changed to Ministry of Tourism, Industry and Energy (MTIE) on April 2010. The MTIE will be responsible for the Survey.

(internal steering committee)

- (2) The GoCV side explained the contents of the internal steering committee held on April 28th.
 - a. Case 1 can be postponed from the options. (Case 1 means Centralized water production in Praia.)
 - b. Taking into account the current water supply system and activities of other donors and firms in Santiago Island, the Steering Committee decided to propose to the JICA Mission an option for operation and maintenance of water supply facilities in Santiago Island.
 - c. The system will be composed by two areas, one which will cover the southern part of Santiago Island, and the other which will cover the northern part of Santiago Island. The details of the two areas are as below.

area	Municipalities		Production	Transmission/Distribution
North	6 Municipalities [Santa Catarina, Santa Cruz, Sao Miguel, Sao Salvador do Mundo, Sao Lourenco dos Orgaos, Tarrafal]	Facility Owner	CAIS or other company to be created	GoCV
		O/M	CAIS or other company to be created	“Inter Municipality Water Company” or other company to be created
South	3 Municipalities [Praia, Sao Domingos, Ribeira Grande de Santiago]	Facility Owner	Electra	GoCV
		O/M	Electra	Electra

d. Contents of the internal steering committee proposal has not been discussed yet with relevant Government authorities, including CNAG. It is an option to be considered by JICA Mission in this survey.

(activities of other donors and firms)

(3) As for the activities of other donors and firms the GoCV explained the below.

- Financial cooperation of Spain (5,000m³/day) and World Bank (5,000m³/day) to expand the existing desalination plant in Praia, is official, and the Survey should include the two cooperation projects.
- The concession contract between GoCV and CAIS is still under discussion. Therefore, CAIS projects to construct desalination plants in Sao Miguel and Santa Cruz are still under discussion.
- Project to finance transmission line from Sao Miguel to Assomada is under discussion.

(4) For the above points, the JICA mission mentioned the below.

- JICA Mission will consider the feasibility of the option proposed by the internal steering committee. JICA Mission will conduct the remaining survey for whole Santiago Island as planned.
- The basic plan and feasibility study will be drafted taking into account activities and projects which are official at this point. With discussion with the GoCV, JICA Mission will propose an optimal plan.
- In order to conduct meaningful and efficient survey, GoCV side should share any information, changes and results regarding water supply with the JICA Mission.
- According to the preliminary calculation of the project cost, JICA envisaged the phasing the projects.

(Second Steering Committee)

(5) On May 21st, 2nd Steering Committee was held. JICA Mission explained the current status of the Survey using Annex-1. The conclusion of the steering committee was as follows.

- Although the options need to be determined by CNAG, JICA Mission will begin feasibility study based on Case 3. Next CNAG meeting should be held before June 7th.
- JICA Mission explained its concern for Boron in desalinated water and also explained that the dilution with groundwater would be a feasible solution using Annex-2. The GoCV understood the explanation although utilization of groundwater for dilution shall also be determined by CNAG.
- JICA Mission will provide any information to GoCV regarding preliminary calculation of project cost and water tariff.

d. JICA Mission will, in its survey, propose commercial studies for the construction and operation of water supply facilities.

(design framework of the survey)


(6) JICA Mission proposed to the GoCV side the design framework of the Survey as in Annex-1. The GoCV will look into the framework and make comments by the next steering committee on June 7th.

(EIA procedures)

(7) With reference to the principle of the relevant law in Cape Verde and the JICA Guidelines, EIA report will be prepared and submitted by the GoCV based on the recommendations made by the Survey Team. The Survey team will examine environmental impact of the project through the Survey as level of Initial Environment Evaluation (IEE).

(End)

ANNEX-1	Second Steering Committee Presentation
ANNEX-2	Boron Removal
ANNEX-3	Attendants List of the Second Steering Committee
ANNEX-4	Main Points discussed



**2nd Steering Committee
on
Water Supply System
Development Project in Santiago, Cape Verde
(JICA-II Project)**


May 21, 2010 at Praia



Japan International Cooperation Agency

**Toyo Engineering Corporation
Ingérosec Corporation
UNICO International Corporation**

1

-
- 
- 1. Opening Remarks**
 - 2. Purpose of Steering Committee**
 - 3. Progress Report (PR/R) Briefing**
 - 4. JICA Follow-up Study**
 - 5. Discussion**
 - 6. Closing Remarks**

2



Purpose of Steering Committee:

- 1) to supervise the Survey and
- 2) to monitor the progress of the procedure inside GoCV.

Discussion Items in Steering Committee:

- 1) to identify the Project scope, project sites, specification of facilities, project cost, procurement structure, etc,
- 2) to set-up and establish the project implementation, operation and management organizations,
- 3) to establish financial structure, including tariff system, concession structure, staff allocations.

Purpose of JICA Study:

- 1) to verify the feasibility of the project
- 2) to find suitable project for Japanese yen and/or other fund credit.

3



Purpose of 2nd Steering Committee

1. Water supply system concept determination
2. Production Capacity proposed and discussed
3. Project scope confirmation
4. IEE/EIA cooperation
5. Water analysis and Geo-technical survey permission

for Interim Report (IT/R) submitted by the end of July.

4



- 1. Opening Remarks**
- 2. Purpose of Steering Committee**
- 3. Progress Report (PR/R) Briefing**
- 4. JICA Follow-up Study**
- 5. Discussion**
- 6. Closing Remarks**

5



Progress Report Major Contents

- 1. General Survey for Cape Verde and Santiago Island**
- 2. Water Related Survey for Santiago Island**
 - Operation and Management System and Organization**
 - Water Supply and Distribution System**
 - Assistance by donors**
 - Socio-Economical Analysis**
- 3. Water Supply System Study**
 - Basic Conditions**
 - Basic Planning**
 - Project Recommendation**
- 4. Environment and Social Consideration study**

6

Progress Report Topics

1. Lack of water supply are confirmed for 370,000 people in Santiago, 2020.
2. Complicated management and organization are suggested.
3. Donors and private projects are individually realized and planned.
4. Willingness and Affordability to payment of 200-350 CVE/m³ are expected, if ample water is supplied.
5. Water Supply System be studied.

(1) System Capacity Discussion

- Horizon of Demand in 2020: 35,800 m³/day *as net demand horizon*
- Existing Desalination Capacity: 7,900 m³/day *no change basis*
- Required Desalination Capacity: 27,900 m³/day *as net basis*

(2) Candidates System Configuration prepared

- JICA prepared 3 candidates, 1 centralized and 2 de-centralized production.
- JICA recommends De-Centralized Production from major view points of Economics and Reliability.

7

3 Candidates be studied and discussed

Case 1



↑

Centralized Production

Case 2



↑

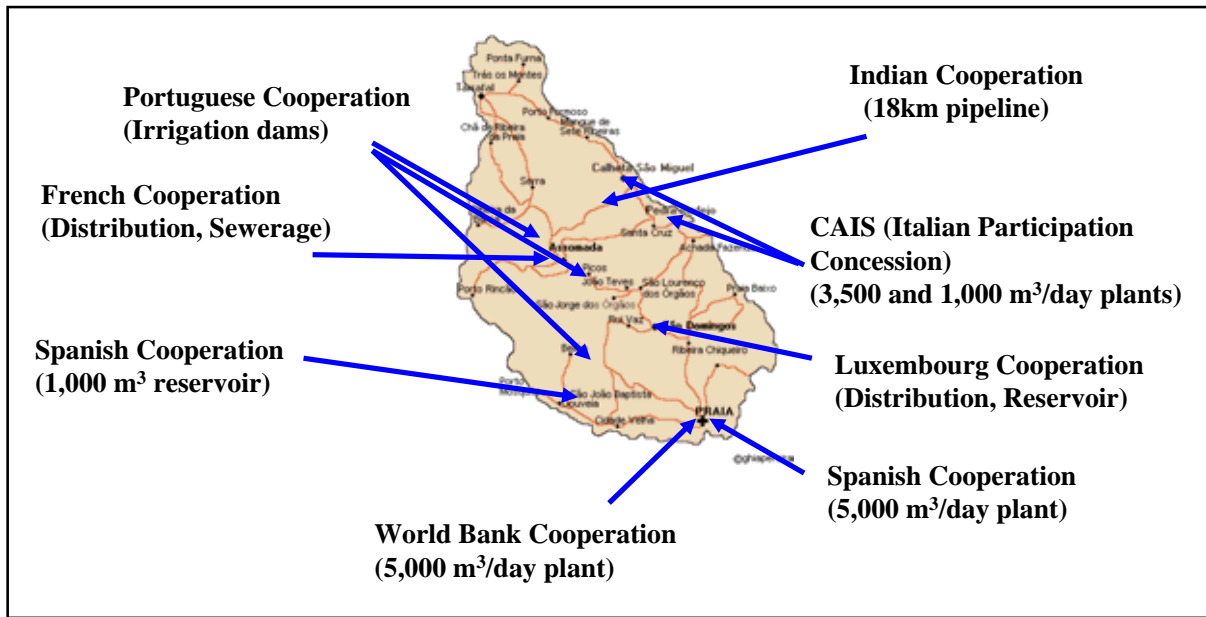
De-Centralized Production

Case 3



8

Donor and Private Project on Santiago island



9

1. Opening Remarks
2. Purpose of Steering Committee
3. Progress Report (PR/R) Briefing
4. JICA Follow-up Study
5. Discussion
6. Closing Remarks

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JICA Follow-up Study after Progress Report

1. JICA recommends De-Centralized water production system, while GoCV desires Centralized water production system.
2. JICA surveys Donor and private projects, which are individually planned, but those detail status are not disclosed.
3. JICA further studies the followings for the best option selection **on PR/R basis**;
 - preliminary construction cost estimation,
 - preliminary operation and maintenance cost estimation,
 - preliminary life cycle cost estimation, and
 - preliminary F-IRR (Financial Internal Rate of Return) calculation, and
 - those evaluation

11



Basic Assumption used for F-IRR Analysis

PRELIMINARY

- Design Stage: PR/R (Preparatory Design basis)
- Cost Estimation grade: Rough order of Magnitude
- Construction period: 2 years
- Sea water: free of charge and no special pretreatment required
- Power price: 0.388 US\$/kWh (30 CVE/kWh equivalent)
- Labor Cost: 50,000 US\$/year/one person
- F-IRR Analysis period: 20 years
- Non revenue water: zero
- Major excluded items:
 - Power Plant for captive and emergency
 - Distributed control system and SCADA system
 - Land cost, purchase or lease

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Outcome of F-IRR Analysis

Preliminary for best option selection

Planned Population served		370,000		
Water Production System		Centralized	De-Centralized	
	unit	Case 1	Case 2	Case 3
Production Capacity and location	m ³ /day	27,900	27,900	27,900
Praia		27,900	14,100	14,100
Tarrafal		-	2,400	2,400
Sao Miguel		-	11,400	8,300
Santa Cruz		-	-	3,100
No. of Desalination plants		one	three	four
Construction Cost (Base cost)	million US\$	147	113	108
Dasalination Plant		33	49	53
others (Lines and Reservoir)		114	64	55
Project Cost	million US\$	177	135	130
O&M cost	million US\$/year	45	40	40
Life Cycle Cost for 20 years	million US\$	1,045	904	901
Construction cost/population	US\$/person	398	304	292
F-IRR at 3.3 US\$/m ³ water	%	negative	negative	negative
F-IRR at 4.3 US\$/m ³ water	%	negative	2.8	3.0

- 3.3 US\$/m³-water means Santiago average tariff
- 4.3 US\$/m³ -water means Praia city tariff

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Donor and Private Project Survey

Project	Developer	System	Capacity	Location	Status
Donor	World Bank	Desalination Plant	5,000 m ³ /day	Praia	2012
	AfDB	rain water collection		entire island	study
	EC/OFIG	Distribution Network			
	Spain	Desalination Plant	5,000 m ³ /day	Praia	2010
		Reservoir	5,000 m ³	Cidade Velha	completed
	Portugal	Irrigation dams			2010
	China	Irrigation dam			completed
	Japan/JICA	Wells		entire island	on-going
	India	Pipeline	18 km	Sao Miguel to Assomada	2011
	France	Distribution Sewerage	521 m ³ /day	Santa Catarina	2010
Luxembourg	Distribution Reservoir				
Private	CAIS	Desalination Plant	3,500 m ³ /day	Sao Miguel	on-going
		Desalination Plant	1,000 m ³ /day	Pedra Bajero	on-going



Only Desalination Plants by World Bank and Spain were fixed, and will be integrated with further JICA Study.

14

JICA Recommendation as follow-up study

JICA recommends Case-3 with some modification due to

- Project economics
- Water supply reliability
- Project materialization and flexibility



JICA takes notes of the GoCV concerns such as

- proximity of existing desalination plant in Praia,
- tourism development in Santiago island, and
- operation & maintenance concern in local municipalities.

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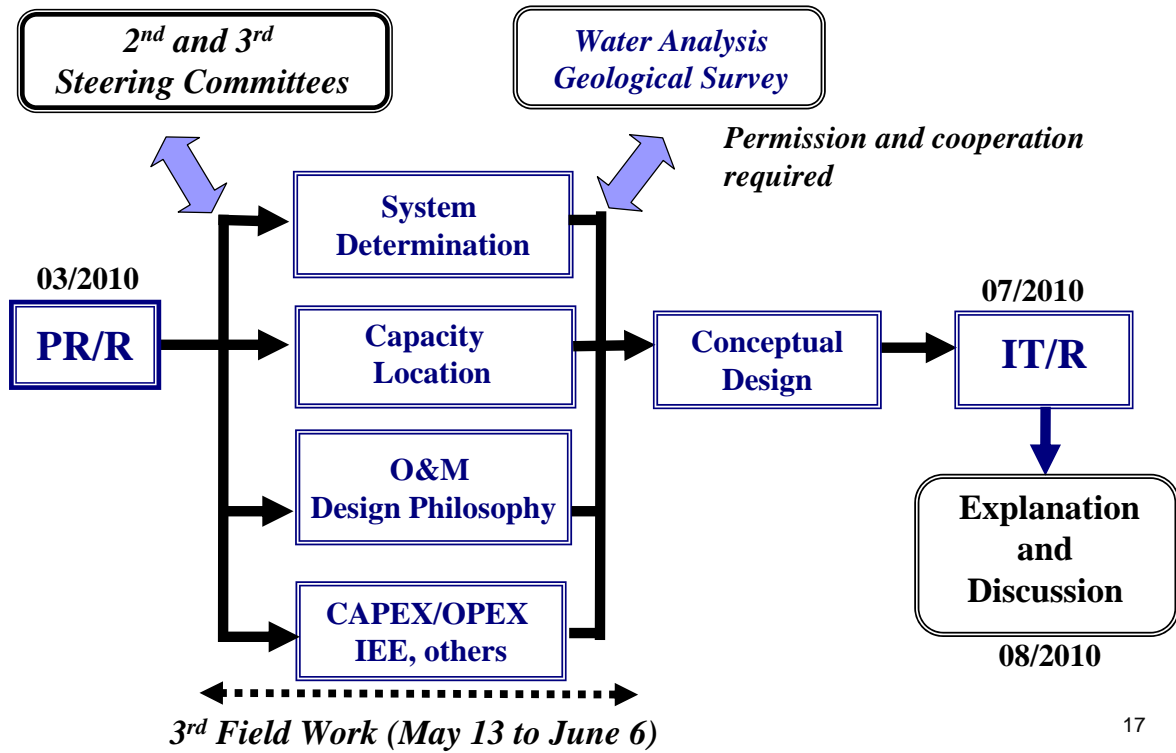
Time Schedule of JICA Study

		2009			2010								2011										
		10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	
		Phase 1			Phase 2																		
Field Work		1st			2nd				3rd			4th			5th								
Submission of JICA Report		▲ IC/R					▲ PR/R				▲ IT/R			▲ DF/R	▲ F/R								
Steering Committee					☆			☆	☆		☆			☆									
Local Consultant		Socio Economica Analysis			water analysis geological survey																		
Phase 1	To analyze the project conditions	[Bar]																					
	To set the project scope, sites and components	[Bar]																					
Phase 2	To define Water Supply System as FS subject				[Bar]																		
	To conduct Conceptual Design with CAPEX/OPEX				[Bar]																		
	To conduct IEE				[Bar]																		
To develop Financing Plan and conduct Economical Analysis					[Bar]																		

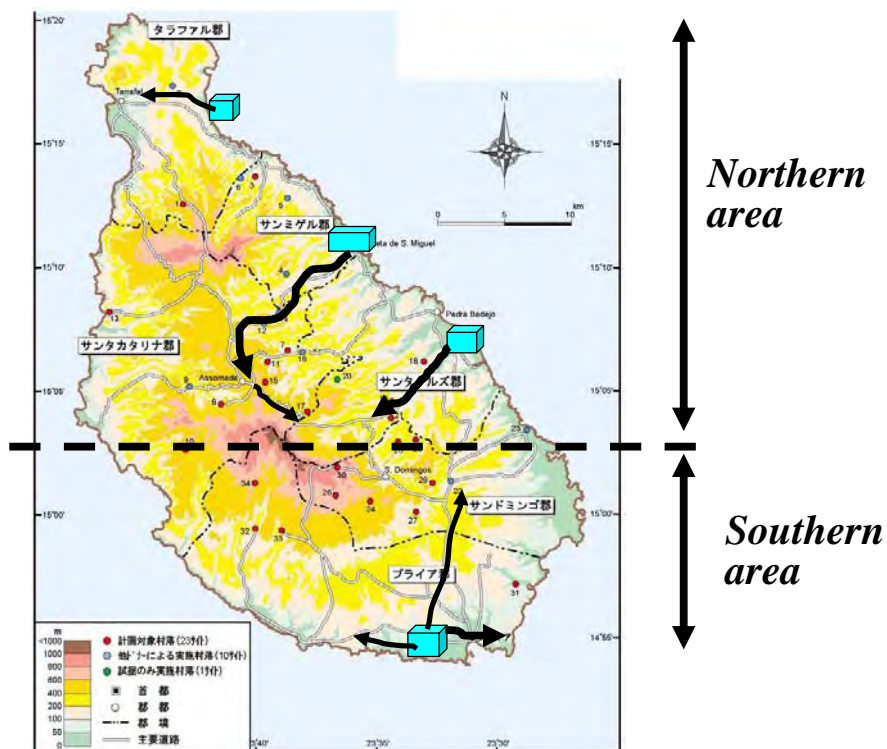
We are here.

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Study Flow for IT/R



System Determination proposed



Capacity as basic design frame work proposed

		South			Total South	North						Total North	Grand Total
		Praia	Ribeira Grande	Sao Domingos		Tarrafal	Sao Miguel	SS do Mundo	Santa Cruz	Sao Lourenco	Santa Catarina		
(a)	Target Year (2020) Population	177,718	9,572	15,542	202,832	31,637	19,110	13,013	35,617	10,986	57,369	167,732	370,564
a-1	Urban	177,007	1,522	2,891	181,420	11,041	7,204	1,835	15,743	2,318	23,751	61,892	243,312
a-2	Rural	711	8,050	12,651	21,412	20,596	11,906	11,178	19,874	8,668	33,618	105,840	127,252
(b)	Service Coverage (%)	100	100	100	100	100	100	100	100	100	100	100	100
(c)	Served Population	177,718	9,572	15,542	202,832	31,637	19,110	13,013	35,617	10,986	57,369	167,732	370,564
c-1	Urban	177,007	1,522	2,891	181,420	11,041	7,204	1,835	15,743	2,318	23,751	61,892	243,312
c-2	Rural	711	8,050	12,651	21,412	20,596	11,906	11,178	19,874	8,668	33,618	105,840	127,252
(d)	Per-Capita Demand (LCD)												
d-1	Urban	100	100	100	100	100	100	100	100	100	100	100	100
d-2	Rural	50	50	50	50	50	50	50	50	50	50	50	50
(e)	Domestic Demand (m ³ /day)	17,736	555	922	19,213	2,134	1,316	742	2,568	665	4,056	11,481	30,694
e-1	Urban	17,701	152	289	18,142	1,104	720	184	1,574	232	2,375	6,189	24,331
e-2	Rural	36	403	633	1,071	1,030	595	559	994	433	1,681	5,292	6,363
(f)	Non-Domestic Demand (m ³ /day)	2,100	0	0	2,100	250	200	0	300	0	1,800	2,550	4,650
f-1	Tourizm Demand	600	0	0	600	50	100	0	100	0	300	550	1,150
f-1-1	Number of Tourists (Daily)	2400	0	0	2,400	200	400	0	400	0	1200	2,200	4,600
f-1-2	Per-Capita Demand (LCD)	250	0	0	250	250	250	0	250	0	250	1,000	1,250
f-2	Others	1500	0	0	1,500	200	100	0	200	0	1500	2,000	3,500
(g)	Net Water Demand (m ³ /day)	19,836	555	922	21,313	2,384	1,516	742	2,868	665	5,856	14,031	35,344
(h)	Leakage Ratio (%)	24	20	10	23	24	16	20	28	10	28	25	24
(i)	Day Average Demand (m ³ /day)	26,100	693	1,020	27,813	3,137	1,804	928	3,983	736	8,133	18,722	46,535
(j)	Seasonal Peak Factor	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
(k)	Day Maximum Demand (m ³ /day)	33,930	901	1,325	36,157	4,078	2,346	1,206	5,178	957	10,573	24,338	60,495
					60%							40%	100%

- Leakage ratio and Seasonal peak factor should be carefully discussed.
- Suggested water tariff might be 5.6-6.7 US\$/m³, equivalent 430-500 CVE/m³ on expected F-IRR=5%.

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JICA Study Scope confirmation-1

Project Area:

Major urban areas and their surroundings of each municipality, including Praia city in Santiago island.

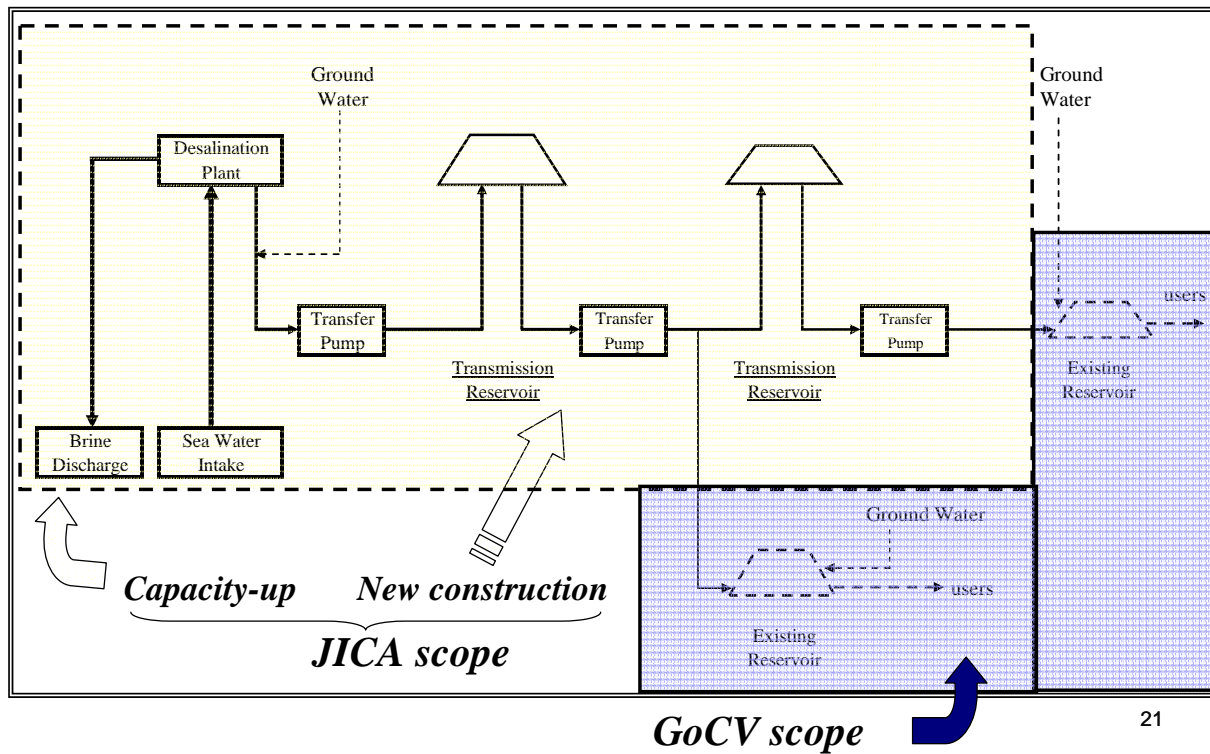
Scope of Study:

Component	summary
Desalination Plants	new construction
Transmission Pipe Line	new construction from each desalination Plant to municipalities
Reservoirs, Pump Stations, Main-sub station, Monitoring, etc.	new construction
Consulting Services	Planning and Detail Design, Bidding Assistance Construction Supervision, Initial Operation EIA Supervision

Notes: Facilities and equipments for house connection from the distribution pipe to the meter of each household will be excluded to the Project Scope.

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JICA Study Scope confirmation-2



IEE and EIA Schedule

(*In the case of "Category B" under JBIC Guideline)

		2010										2011					
		4	5	6	7	8	9	10	11	12	1	2	3	4	5		
JICA Study	Initial Environment Evaluation(IEE)																
GoCV	To prepare TOR and Bid-documents for procurement of EIA consultant																
	Qualification, Evaluation and Selection of EIA consultant																
	To conduct EIA Study																
	Approval by GoCV																
Submission of JICA Reports																	

Legend: ■ Study Mission in Cape Verde
 IC/R: Inception Report, PR/R: Progress Report, IT/R: Interim Report, DF/R: Draft Final

IEE and EIA

■ EIA conducted by GoCV

GoCV is responsible for:	Time Frame of EIA	Remarks
<ol style="list-style-type: none"> 1. Mobilization of the <u>budget</u> for EIA procedure. 2. Preparation of the <u>TORs</u> for procurement of the EIA consultants. 3. Selection of EIA <u>consultants</u>. 4. <u>Quality</u> of EIA study. 5. <u>Authorization</u> of EIA report. 6. <u>Monitoring</u> during construction and operation according to parameters established in the EIA report. 	<ol style="list-style-type: none"> 1. <u>End of July 2010:</u> JICA Study team will provide IT/R including the result of IEE. 2. <u>from August 2010 to April 2011 (9 months):</u> GoCV shall conduct EIA Study and authorize EIA report. 	<ul style="list-style-type: none"> ➤ EIA shall cover all the affected areas and/or municipalities due to the Project. ➤ EIA shall only be aligned environmental law in Cape Verde, if the Project will be categorized “B” by JICA. ➤ EIA report should be submitted to JICA before the appraisal of the Project. ➤ The timing of the appraisal shall be discussed with JICA.

1. **Opening Remarks**
2. **Purpose of Steering Committee**
3. **Progress Report (PR/R) Briefing**
4. **JICA Follow-up Study**
5. **Discussion**
6. **Closing Remarks**

