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

1. Full title of the Project

The Project for Groundwater Resources Assessment in the Middle Awash River Basin

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

* Production of a set of geological and hydrogeological map.

* Formulation of provisional water supply scheme development plan of the small towns (Master Plan).

3. Categorization and its reason

（1）Category：B

（2）Reason

The project is not likely to have significant adverse impact on the environment uder the JICA Guidelines for Environmental and Social Consideration（April, 2010）in terms of its sectors, characteristics and areas.

4. Agency or institution responsible for the implementationof the project

Ministry of Water and Energy

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

5.1 Objectives

(1) Assessment of groundwater potential of the major ground water aquifers and groundwater regions in the Project areas.

(2) Production of a set of geological and hydrogeological map at a scale of 1:250,000 in the Middle Awash River Basin.

(3) Formulation of provisional water supply scheme development plan of the small towns (population of which would be less than about 15,000) selected from Oromia Region (a Part of Arsi, West Hararge and East Showa Zones) in the Middle Wash River Basin.

(4) Technical transfer and capacity development of counterpart staffs on hydrogeological investigation works and drilling technologies.

5.2 Location

*The Middle Awash River Basin for production of a set of geological and hydrogeological map.

*The small towns (population of which would be less than about 15,000) selected from Oromia Region (a Part of Arsi, West Hararge and East Showa Zones) in the Middle Wash River Basin for formulation of provisional water supply scheme development plan.

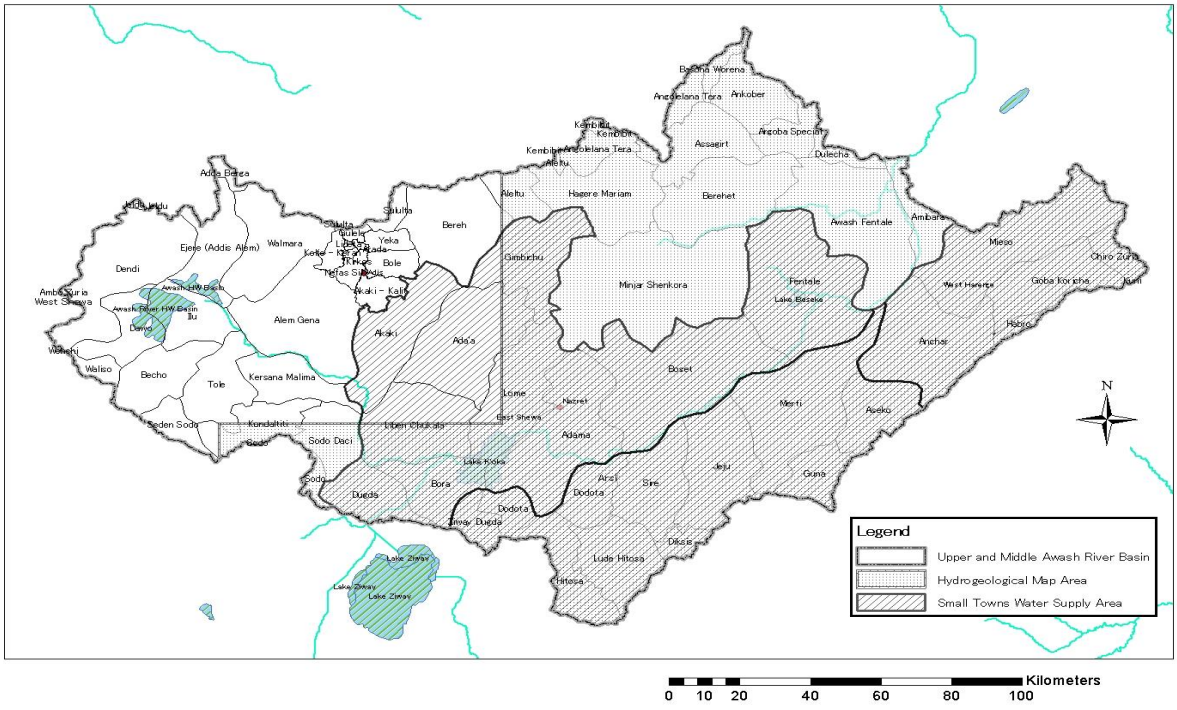
5. 3 Scope of the Project

Phase I: Producing a set of geological and hydrogeological map.

Phase II: Formulating a provisional water supply scheme development plan.

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

6. 1 Location Map of the Project Area



6. 2 Environmental and social condition

The Middle Awash River Basin mainly includes the central part of Oromia Region and some part of southern Afar and Amhara regions. The size of the project site for production of a set of geological and hydorogeological is 29,074km ^{2} (located in $7^0$53' 44'' N– $9^0$41' 18'' N

and 37°57'53''E –40°45'53''E). The Project sites for formulation of a provisional water scheme development plan of the small towns, the location, size and climate data of targeted three zones of Oromia Region are shown in the tabls.

Table-1 Location of Theree Zones

Zone Name	Latitudinal Extension	Longitudinal Extension
Arsi	7°08'58''N – 8°49'00''N	38°41'55''E – 40°43'56''E
West Hararge	7°52'15''N – 9°28'43''N	40°01'33''E – 41°34'13''E
East Shewa	7°37'00''N – 9°08'00''N	38°25'00''E –40°06'00'' E
Oromia Region	3°24'20''N –10°23'26''N	34°07'37'7E –42°58'51''E

Source: The National Regional Government of Oromiya Statistical Abstract 9th Edition, January 2001

Table-2 Population and Size of Three Zones

Zone	Population(2010)	Area (2007) km^2
Arsi	346,045	21,008
West Hararge	182,129	17,779
East Shewa	626,848	9,546

Source: The National Regional Government of Oromiya Statistical Abstract 9th Edition, January 2001

Table-3 Summary of Climatic Data in the main towns in three zones

Station Name(Zone)	Minimum Temperature (C^0)	Maximum Temperature (C^0)	Average Temperature (C^0)	Average annual Rainfall (mm)	Altitude (m)	Years of Observation
Assela(Arsi)	7.9	20.4	14.2	1,194	2,450	1966-1997
Chiro/ Assabe tafari (West Hararge)	11.4	28.0	19.4	848	1,730	1962-1977
Nazaret/ Adama(East Shewa)	13.8	27.1	20.5	871	1,622	1965-1997

Source: The National Regional Government of Oromiya Statistical Abstract 9th Edition, January 2001

The rainfall pattern in the Project area is bimodal, receiving the greatest share of rainfall in summer and the smallest portion in spring.

Adama (Nazaret) is one of the largest towns in Oromia Region, and also the center of East Shewa Zone. The town is located 90Km away from Addis Ababa to the south-east, and which is situated on the junction of the highway leading to the Port of Djibuti and on the road to extensive crop growing of Arsi and Bale.

There are many rivers and lakes in Oromia region, such as Awash, Wabe-Shebele, and so on. River Awash is the longest river inside Ethiopia is a source of great agro-industrial hydroelectric powere.

The Project site(producing a set of geological and hydrogiological map) also includes many protected areas such as Awash National Park, which stretched over 756km^2 and located at the distance of 225km to the south -east of Addis Ababa. The park is entirely established on the plain of the Rift Valley. With the exception of 2600m high Mountain Fantale, the park area is predominantly covered with shrub, bush, acacia and open grasslands.

Table- 4 Summary of Information on Wild life Reserve Areas of Ethiopia

Name	Areas (km^2)	Regions	Zone	Ecosystem	Major wild animal species conserved
Alledeghi	1,832	Oromiya/ Afar	East Shewa/ Zone 3	Desert and semi-desert scrubland & *Acacia-Commiphora* woodland	Oryx, Soemmerring's Gazelle, Greater & Lesser Kudu, Ostrich, etc
Awash west	1,781	Oromiya	East Shewa	*Acacia-Commiphora* woodland and Evergreen scrub	Greater and Lesser kudus and Oryx
Bale	1,781	Oromiya	Bale	Dry evergreen montane forest & Afroalpine and Subafroalpine	Mountain Nyala and Memelik's Bush buck
Chew Bahir	4,212	SNNP		Desert and semi-desert scrubland	Grevy's Zebra Grant's gazelle, Gerenuk, Oryx, Lesser kudu
Yangud Rasa	2,431	Afar	Zone 3	Desert and semi-desert scrubland &	Soemmerring's gazelle, Greater &

				Acacia–Commiphora woodland	Lesser kudus, Ostrich
Mille–Serdo	8,766	Afar	Zone 2	Desert and semi–desert scrubland & *Acacia–Commiphora* woodland	Soemmerring's gazelle, Greater & Lesser kudus, Ostrich
Shiraro–Kefta	753	Tigray		Combretum–Terminalia woodland & Savanna, Evergreen scrub and *Acacia–Commiphora* woodland	Elephant, Roan antelop, Greater kudu, Oribi
Tama	3,269	SNNP		*Acacia–Commiphora* woodland & *Combretum–Terminalia* woodland & Savanna	Giraffe, Brchell's Zebra & lelwel Hartebeest

Source:' Ethiopia Environmental Profile' and Interviews'

Table –5 Summary of Information on Controlled Hunting Areas of Ethiopia

Name	**Area(Km^2)**	**Region**	**Zone**	**Form of hunting**	**Major Trophy Species**
Hanto	**480**	**Oromiya**	**Bale**	**Concession**	**Mountain Nyala Menelik's Bush buck**
Arbagugu	**225**	**Oromiya**	**Arsi**	**Concession**	**Mountain Nyala Menelik's Bush buck**
Munessa Kure	**111**	**Oromiya**	**West Arsi**	**Concession**	**Mountain Nyala Menelik's Bush buck**
Ababasheba Demero	**210**	**Oromiya**	**Bale**	**Concession**	**Mountain Nyala Menelik's Bush buck Giant Forest Hog**
Besmena Odubulu	**350**	**Oromiya**	**Bale**	**Concession**	**Mountain Nyala Menelik's Bush buck, Ginant Forest Hog**

Kebena (demolished)	300	Afar		Concession	Beisa Oryx Soemmerring's Gazelle
Blen hertele	1,095			Concession	Gerenuk Beisa Oryx Soemmering's Gazelle
Telalk Dewe Lesser Kudu	150	Afar	Zone1or4	Concession	Beisa Oryz Soemmering's Gazelle
Murulle	1,111	SNNP		Concession	Topi Buffalo Greater kudu Grants Gazelle
Woleshet Sala	500	SNNP		Concession	Buffalo Grants Gazelle
Dindin	**110**	**Oromia**	**West Hararge**	**Concession**	**Mountian Nyala Menelik's Bush Buck**
Gara Gumbi	**n.a.**	**Oromia**	**West Hararge**	**Open**	**Salts Dik dik LesserlKudu**
Gara Miti	**n.a.**	**Oromiya**	**East Hararge**	**Open**	**Klipspringer Dik dik**
Debrelibanos	**n.a.**	**Oromiya**	**North Shewa**	**Open**	**Gelada Baboon**
Alto	**n.a.**	**Oromiya**	**East Shewa**	**Open**	**Greater Kudu**
Jibat	**n.a.**	**Oromiya**	**West Shewa**	**Open**	**Giant Forest hog, Bush pig, Menelik's Bush buck Colobus Monkey**
Koka	**n.a.**	**Oromiya**	**East Shewa**	**Open**	**Bohor Reed buch**
Gelial Dura	n.a.	Afar	Zone 3		Warthog, Waterbuck Dik dik, Nohor Common Buxh Buck

Source:' Ethiopia Environmental Profile' and Interviews'

Table -6 National Forest Priority Areas of Ethiopia (NFPAs)

No	Name	Region	Zone	Coverage (ha)
1	**Arbagugu**	**Oromia**	**Arsi**	**21,400**
2	**Chilalo Galama**	**Oromia**	**Arsi**	**22,000**
3	**Munesa Shashemne**	**Oromia**	**West Arsi**	**98,200**
4	**Neshe-Batu Ababa Dodola**	**Oromia**	**West Arsi**	**40,000**
5	Logo			59,000
6	**Goro Bele**	**Oromia**	**Bele**	**100,000**
7	**Herena Kokosa**	**Oromia**	**Bele**	**182,000**
8	Kubayo			78,400
9	**Mena-Angetu**	**Oromia**	**Jimma**	**190,000**
10	Bulki Malokoza			11,000
11	Gidola Gamba			30,000
12	Gidole Gamba			16,000
13	Guwanga Kahitas			56,500
14	Sekela Mariam			10,000
15	Butiji Melkajebdu			45,200
16	**Dindin Arbagugu**	**Oromia**	**West Hararge**	**66,800**
17	**Gara Muleta**	**Oromia**	**East Hararge**	**7,000**
18	Jalo Muktare			21,300
19	Laro Gursum			52,300
20	Abobo God			218,000
21	Gebre Dima			165,000
22	Godere			160,000
23	Sele Anderacha			225,000
24	Sibo Tale Kobo			100,000
25	Sigemo Geba			280,000
26	**Yayu**	**Oromia**	**Illubabor**	**150,000**
27	Yeki			122,000
28	Wangus			415,000
29	Mesenigo			325,000
30	**Abelti Gibe**	**Oromia**	**Jimma**	**10,000**
31	Babiya Fola			74,300

32	**Belate Gera**	**Oromiya**	**Jimma**	**148,500**
33	Bonga			161,400
34	Gura Farda			340,000
35	**Tiro Boter Becho**	**Oromia**	**Jimma**	**85,800**
36	Butajira			15,000
37	**Chilimo Gaji**	**Oromia**	**West Shewa**	**26,000**
38	**Gedo**	**Oromia**	**West Shewa**	**10,000**
39	**Jibate Muti Jegenfo**	**Oromia**	**West Shewa**	**38,500**
40	**Menegesha Suba**	**Oromia**	**Addis Ababa**	**9,800**
41	Wof Washa			8,900
42	**Yere Diregebrech Zukala**	**Oromia**	**East Shewa**	**9,600**
43	**Anderara Wadera**	**Oromia**	**Guji**	**106,600**
44	**Bore Asferara**	**Oromia**	**Guji**	**217,300**
45	**Megada**	**Oromia**	**Guji**	**20,800**
46	**Negele**	**Oromia**	**Guji**	**17,800**
47	**Yabelo Arero**	**Oromia**	**Borena**	**49,900**
48	Dasa			20,000
49	**Chato Sengi Dengeb**	**Oromia**	**East Wellega ?**	**44,860**
50	**Gergeda**	**Oromia**	**Kelem Wellega**	**137,400**
51	**Gidame**	**Oromia**	**Kelem Wellega**	**17,000**
52	**Jurgo Wato**	**Oromia**	**East Wellega**	**19,900**
53	**Komto Waja Tsega**	**Oromia**	**East Wellega**	**9,100**
54	**Konchi**	**Oromia**	**East Wellega**	**23,000**
55	**Linche dali Gewe**	**Oromia**	**West Wellega**	**40,000**
56	Dekoro			5,300
57	Guwobirda Girakaso			26,000
58	Yegof Erike			18,000

Source:' Ethiopia Environmental Profile' and Interviews'

Over 90% of people of Oromia live in the rural areas, and agriculture has remained the source of livelihood for the overwhelming majority of the people. The Official Work launage in the Oromia Rigion is Afan Oromo, which belongs to the Eastern and Central Cushitic group of Languages.

It is informed that taditional harmful practices(e. g. FGM, early marriage,

abduction)for women have been reducing due to the tightening laws and regulations, women headed households have become to receive land certificates in Oromia region. However, the responsibility of fetching water is still heavy burden on women and children.

6. 3 Current issues

The Rift Valley Regions (including the Awash River Basin) have often have been severely affected by chronic drought due mainly to its relatively lower elevation and hence annual precipitations are much lower than high land areas. However, according to previous studies, groundwater potentials at certain parts of the Rift Valley Region are relatively high, although the groundwater in the Region is not efficiently utilized and not appropriately managed yet.

7. Legal Framework of Environmental and Social Considerations

7. 1 Laws, Regulations and Relative agencies and institutions

The Ethiopia Constitution (adopted on the 21th of August 1995) requires current and future legislation and the conduct of government to conform to a Bill of Rights. The concept of sustainable development and environmental rights are entrenched in the Rights of Peoples in Ethiopia Articles 43 and 44.

The Environmental Protection Authority (EPA) was established in response to the requirements of the Constitution (Proclamation No9/1995). The EPA developed the Environmental Policy of Ethiopia (EPE) which was adopted in April 1997. The EPE includes the Environmental Impact Assessment policies in the Sectoral Environmental Policies. The Environmental Impact Assessment(EIA) Procramation(Proc. no. 299／2002) has made Environmental Assessment to be mandatory legal prerequisite for the implementation of major development projects. Environmental Proclamation Organs Establishment Proclamation (Proc.no. 295/2002) has made to establish a system that fosters coordinated but differentiated responsibilities among environmental protection agencies at federal and regional levels.

7.2 Prodecures of EIA, stakeholder participation and inforation isclosure

Environmental Impact Assessment Guideline Document (2000) indicates the projects are classified three categories:

Schedule 1. Projects may have adverse and significant environmental impacts, and may therefore, require full EIA.

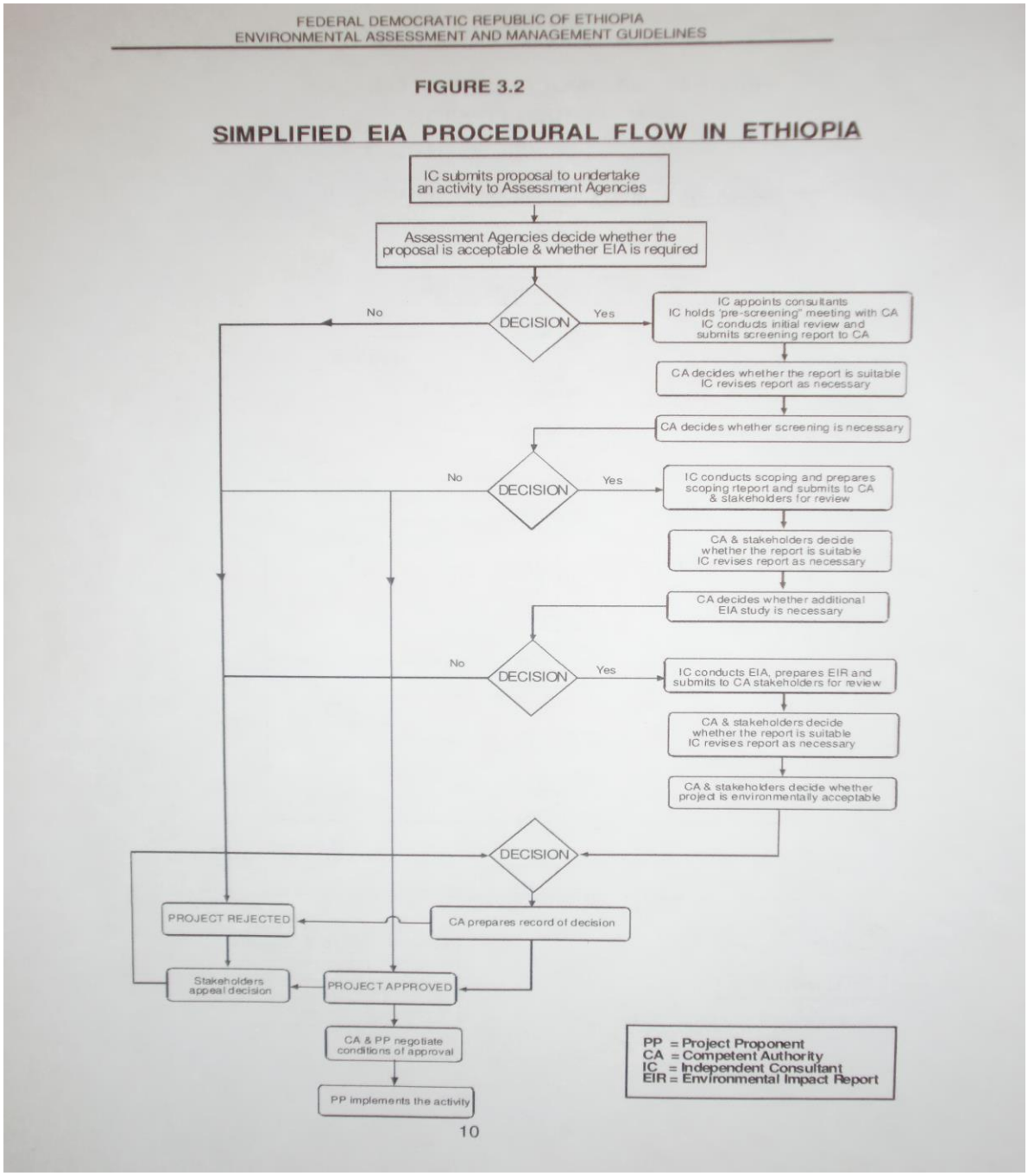
For example, social infrastructure and services: Groundwater development for industrial,

agricultural or urban water supply of greater than 4,000 m^3 a day).

Schedule 2. Projects whose type, scale or other relevant characteristics have potential to cause some significant environmental impacts but not likely to warrant and environmental impact study.
For example, social infrastructure and services: Rural water supply and sanitation)

Schedule 3. Projects which would have no impact and does not require environmental impact assessment.

Accordance with Environmental Proclamation Organs Establishment Proclamation (Proc.no. 295/2002), EIA and Social Development Office has been in charge of EIA (Competent Authority :CA) in the Ministry of Water and Energy (MoWE) since 2010/2011.
The Ethiopian EIA guideline (2000), shows the flow of environmental assessment process as the next page.



8. Provisional Scoping(types and magnitudes of possibile adverse impacts a nd mitigation measures)

(1) Types of magnitudes of possible adverse impacts

Table-7 Checklist for Scoping

(Formulation of provisional water supply scheme development plan of the small towns)

	No.	Likely Impacts	Rating[*1]			Description
			D	C	O	
Anti-Pollution Measures						
	1	Air Pollution	−	−	−	No impact
	2	Water Pollution	−	−	−	No impact
	3	Noise and Vibration	−	C−	−	Some noise and vibration might be prospected during the drilling of boreholes.
	4	Soil Contamination	−	−	−	No impact
	5	Ground Subsidence	−	−	−	No impact
	6	Offensive Odor	−	−	−	No impact
	7	Waste	−	−	−	No impact
	8	Bottom Sediment				No impact
	9	Accident	−	C−	−	There might be a possibility of during the drilling of boreholes.
Natural Environment						
	10	Climate Change	−	−	B+	Drought effects due to the climate change could be reduced by the construction of water schemes.
	11	Protected areas	−	−	−	The project site could be outside of the protected areas.
	12	Ecosystems, fauna and flora	−	−	−	Conserved species are confirmed during the implementation of the Project.
	13	Topography and Geographical Features	−	−	−	No impact
	14	Ground Water	−	C−	C−	Monitoring of quality (e.g. Fluoride) and level of groundwater is necessary.
	15	Soil Erosion	−	−	−	No impact
	16	Hydrological Situation	−	−	−	No impact
	17	Costal Zone, Mangroves, Coal reefs, tidal flats, etc.	−	−	−	No impact
	18	Meteorology	−	−	−	No impact
	19	Landscape	−	−	−	No impact

Social Environment						
	20	Involuntary Resettlement	−	C−	−	It is necessary to confirm during the implementation of the Project.
	21	Local economy such as employment and livelihood	−	−	−	No impact
	22	Land use and utilization of local resources	−	−	−	No impact
	23	Social institutions such as social infrastructure and local decision-making institutions	−	−	−	No impact
	24	Existing social infrastructures and services	−	−	A+	Water supply infrastructure could be improved.
	25	Vulnerable social groups such as poor and indigenous peoples	−	−	−	No impact
	26	Equality of benefits and losses and equality in the development process	−	−	−	No impact
	27	Gender	-	-	A+	Burdens of fetching water on women and children might be reduced.
	28	Children' s rights	−	−	A+	Burdens of fetching water on women and children might be reduced.
	29	Cultural heritage	−	−	−	No impact
	30	Local conflicts of interest			C−	Monitoring is necessary in some areas.
	31	Water Usage, Water Rights	−	−	B+	Safe water could be available.
	32	Infectious diseases such as HIV/AIDS	−	−	A+	Infection of HIV/ AIDS would not be prospected due to the short period of construction work. Infection of waterborne diseases could be reduced.
	33	Working conditions, occupational safety	−	−	−	No impact

＊D:Design State, C:Construction Stage, O:Operation Stage

＊＊$A^{+/-}$: Significant positive/negative impact is expected.

$B^{+/-}$: Positive/negative impact is expected to some extent.

$C^{+/-}$: Extent of positive/negative impact is unknown.

"−": No impact is expected.

(A further examination is needed, and the impact could be clarified as the study progress)

(2) Mitigation measures

Detailed mitigation plans will be analyzed through an implementation of the Project.

9. Alternatives to the project activities including 'without project'option.

If the Project is not commenced, the issue of shortage of water supply could not be solved and the quality of water could not be improved in the Project area (the small towns).

This situation would deteriorate sanitary condition of the Project area and may cause health problems for people living in and around the area. The burdens of fetching water on women and children would not be reduced. There seem no spaces to plan alternatives.

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

Ethiopian side agreed with JICA Preparatory Study Team on 12th of September 2012 that, environmental and social consideration based on JICA guidelines for environmental and social considerations(April, 1st, 2010)is carried out through the Project.

11. Terms of Reference for Environmental and Social Considerations.

Environment and social consideration based on JICA guidelines for environmental and social considerations (April, 1st, 2010).

And also, Ethiopian side and JICA Preparatory Study Teem agreed on the Draft of TOR of Expert for Environmental and Social Considerations on 12th of September, 2012.

12. Other relevant information

According to the JICA guidelines for environmental and social considerations, JICA applies a Strategic Environmental Assessment (SEA) when conducting Master Plan Studies, so this Project might be required SEA as well.

However, SEA is not described on Ethiopian environmental laws and regulations. Therefore, continuing consultations are necessary for mutual understanding of concept, purpose, process

and implementation of SEA with EIA and Social Development Office in MoWE.

Gender Mainstreaming Guidelines and Checklists for the Water Sector (2001) is useful for planning , implementing and monitoring stages for water supply projects in order for gender considerations.