

F-13 : Inventory of SSID Schemes in Eastern Zone (2/4)

Proj't Name		5	6	7	8	12
Type		Kaseheja	Kubssa	Gabissa	Kuroharo	Soffe
Zone		W	P	P	P	Spring Dev.
Province		E	E	E	E	E
I-Area	ha.	W. Harerige	W. Harerige	W. Harerige	W. Harerige	E. Harerige
Base flow	m ³ /s	250	30	30	30	10
Bene. (House)	No.	1.2	0.06	0.025	0.06	0.015
Bene. (Popu.)	No.	2,100	150	125	150	80
** Intake **						
B. leng.	m	15				50
B. hight	m	5				1.5
L. Sway	m					W. ; 20m
H. Sway	m					St. 1350m ³
** M-Canal **						
Number	No.					
T-Leng.	m	3,710	2,500	107	1,125	230
Width	m	1	0.35	0.3	0.35	0.2
Dep.	m	1.05	0.3	0.25	0.3	0.15
Capa.	M ³ /S					
** S-Canal **						
Number	No.					
T-Leng.	m	2,179		108		
Width	m					
Dep.	m					
** T-Canal **						
Number	No.		12			
T-Leng.	m	2,250	2,290			
Width	m					
Dep.	m					
** Q-Canal **	m					
** Drainage**	m	4,500	2,500	600	1,500	
Structures						
No. Flume	No.		4			
Culvert	No.	7			2	3
Div. -Box	No.		2	2		2
Drop	No.	26				
C-gate	No.					
T-out	No.	5				
No. F-road	No.					
L. F-road	m	6,511				
T. C. C	Bir	286,784	86,400	21,810	22,819	14,730
** Status **		D-Comp.	Comp.	D-Comp.	Comp.	D-Comp.
Design	%	100	100	100	100	100
Const.	%	95	100	100	100	
On-Farm	%	65	100	100	100	

F-13 : Inventory of SSID Schemes in Eastern Zone (3/4)

		13	14	16	17
Proj t Name		Burka Hundene	Wetel	Jawisso	Rarre
Type		Spring Dev.	W	W	P
Zone		E	E	E	E
Province			Harar Zuria		
I-Area	ha	20	60	45	30
Base flow	m ³ /s	0.0118	0.12	0.08	0.589
Bene. (House)	No.	-	-	-	-
Bene. (Popu.)	No.	80	1,975	100	2,716
** Intake **					
B. leng.	m	50	29	12	-
B. hight	m	1.25	2	2	-
L. Sway	m	W. ;20m?	-	-	-
H. Sway	m	St. 1125m3?	-	-	-
** M-Canal **				Not Y. Des.	
Number	No.	-	-	-	-
T-Leng.	m	250	4,000	-	1,840
Width	m	-	0.5	-	0.5
Dep.	m	-	0.8	-	0.6
Capa.	M ³ /S	-	-	-	-
** S-Canal **					
Number	No.	-	160	-	1
T-Leng.	m	850	3,000	-	666
Width	m	-	-	-	-
Dep.	m	-	-	-	-
** T-Canal **					
Number	No.	-	160	-	-
T-Leng.	m	-	3,000	-	2,500
Width	m	-	-	-	-
Dep.	m	-	-	-	-
** Q-Canal **	m	-	-	-	-
** Drainage**	m	850	8,000	-	2,500
Structures					
No. Flume	No.	-	-	-	-
Culvert	No.	1	2	-	2
Div. -Box	No.	2	160	-	-
Drop	No.	-	-	-	-
C-gate	No.	-	-	-	-
T-out	No.	-	-	-	10
No. F-road	No.	-	-	-	-
L. F-road	m	-	-	-	160
T. C. C	Bir	39,404	171,358	171,315	192,012
** Status **		D-Comp.	D-Comp.	(Fof HW only)	
Design	%	100	100	100	100
Const.	%	-	-	-	-
On-Farm	%	-	-	-	-

F-13 : Inventory of SSID Schemes in Eastern Zone (4/4)

Project		9	10	11	15	18
Type		Biyo	Chinahassen	Harero	Jijiga	Kobo
Zone		Earth Dam	Earth Dam	Earth Dam	Earth Dam	Earth dam
Province		E	E	E	E	E
1-Area	ha	E. Harerige	E. Harerige	E. Harerige	E. Harerige	E. Harerige
No. of B.		86	45	1000	500	250
Pop.		172	90	-	-	-
C Area	Km2	-	-	2000	1000	500
An. R-fall	mm/y	26	12	280	18.4	120
An. Dis.	MCM	612	500	21MCM?	620	700
Subm d area	Km2	1.6	0.74	-	-	9
Stor. Capa.	MCM	-	-	1.1	1.6	-
Facil.		1.325	0.4	6	7	2.14
Type		Earth Dam	Earth Dam	Earth Dam		
Height	m	14.5	12	16.5	18.4	22
Length	m	680	380	940	1250	104
V. Earth	m3	180,058	107,000	520,000	550,000	200,000
Spillway						
Type		conc. & gabion	Concrete		Concrete	Concrete
Leng.	m	300	105	615	40	210
Wid.	m		20	40		66
Height	m					
Disc. capa.	m3/s	82	25	800	360	360
Intake						
Type		steel pipe	R. C. Pipe	R. C. Pipe	R. C. Pipe	R. C. Pipe
Leng.	m	72.4		140		110
Disc. capa.		0.69	0.0805	11.35	1.54	4.9
** M-C **						
No.						
Leng.	m					
Bed Width	m					
Water Dep.	m					
S-C						
No.						
Leng.	m					
Bed Width	m					
Water Dep.	m					
T-C						
No.						
Leng.	m					
Bed Width	m					
Water Dep.	m					
Drain						
R-S						
No. Flume	No.					
Culvert	No.					
Shute	No.					
Div. -Box	No.					
Drop	No.					
T-out	No.					
C-gate	No.					
No. F-road	No.					
L. F-road	m					
T. C. C	Birr	4,841,800	2,612,824	28,000,000	12,000,000	7,400,000
Status		Under-C.	Under-C.	D-Comp.		D-Comp.
Design	%	100	100	100	100	100
Const.	%	100	95	-	-	-
On-Farm	%	-	-	-	-	-

F-14 : Summary of SSID Schemes in Southern Zone

No	Project's Name	Region	Awraja	Latitude (N)	Longitude (E)	Potential Irrigable Area (ha)	Status of the project	Source of fund	Type of Headwork	Beneficiaries	Construction cost (Birr)
1	Lesho	N.Omo	Demot	6°-36'	37°-36'	168	On farm cons.	Gov.	Weir	336	117,200
2	Gewada	N.Omo	Konso	5°-6'	37°-44'	80	"	ADF (Loan)	"	160	400,000
3	Argoba	N.Omo	Gardula	5°-34'	37°-26'	150	"	"	"	300	245,300
4	Kedoboga	Sidamo	Awasa-Zurria	7°-3'	38°-34'	234	"	Gov.	"	468	1,100,000
5	Wamole	"	Sidamo	7°	38°-34'	68.5	"	"	"	137	172,300
6	Weyto	N.Omo	Konso	5°-12'	37°	254	Headwork Cons.	FAO (Don.)	"	508	217,800
7	Harre	N.Omo	Arba Minch	6°-9'	37°-20'	1000	"	UNCDF (Don.)	"	2000	46,000,000
8	Ela	N.Omo	Welayita	6°-46'	37°-50'	80	"	IFAD (Loan)	"	160	216,900
9	Wajja	N.Omo	Welayita	6°-48'	37°-48'	20	Design comp.	"	"	40	53,200
10	Weybo	N.Omo	Yeleso-Sere	7°-9'	37°-39'	150	"	"	"	300	1,023,000
11	Wajifo	N.Omo	Chencha	6°-31'	37°-44'	400	"	UNCDF (Don.)	"	800	1,600,000
						Total					2604.5

F-15 : Inventory of SSID Schemes in Southern Zone (1/2)

Proj't Name		1 Lesho	2 Gewada	3 Aregoba	4 Kedoboga	5 Wamole
Type		W	W	W	W	W
Zone		S	S	S	S	S
Province		N/OMO	N/OMO	N/OMO	Sidamo	Sidamo
I-Area	ha	168	80	150	234	68.5
Base flow	m ³ /s	0.3	0.11	0.33	0.435	0.15
Bene. (House)	No.	68	146	-	-	204
Bene. (Popu.)	No.	-	-	141	468	-
** Intake **		Gabion Weir	Diver. Weir	Diver. Weir	Diver. Weir	Diver. Weir
B. leng.	m	-	-	-	41	10
B. hight	m	-	-	-	2	4.86
L. Sway	m	-	-	-	26	5
ll. Sway	m	-	-	-	1	1
** M-Canal **						
Number	No.	-	-	-	-	-
T-Leng.	m	4,400	1,900	1,600	4,000	2,240
Width	m	-	-	-	-	0.6
Dep.	m	-	-	-	-	0.7
Capa.	M ³ /S	-	-	-	0.435	-
** S-Canal **						
Number	No.	-	-	-	9	-
T-Leng.	m	3,200	5,400	4,800	7,900	-
Width	m	-	-	-	-	-
Dep.	m	-	-	-	-	-
** T-Canal **						
Number	No.	-	-	-	-	18
T-Leng.	m	-	5,400	1,900	25,250	5,225
Width	m	-	-	-	-	-
Dep.	m	-	-	-	-	-
** Q-Canal **						
Number	No.	-	-	-	-	-
** Drainage**	m	7,000	3,000	14,000	6,500	6,000
Structures						
No. Flume	No.	-	-	-	-	-
Culvert	No.	1	-	-	11	2
Div.-Box	No.	-	-	-	1	-
Drop	No.	7	-	-	938	18
C-gate	No.	-	-	-	-	-
T-out	No.	14	-	-	179	18
No. F-road	No.	-	-	-	-	-
L. F-road	m	-	4,000	2,600	8,000	-
T. C. C	Bir	117,225	500,000	545,000	1,100,000	172,300
** Status **		Comp.	D-Comp.	D-Comp.	Under-C	D-Comp.
Design	%	100	100	100	100	100
Const.	%	-	40	-	60	100
On-Farm	%	-	40	-	-	-

F-15 : Inventory of SSID Schemes in Southern Zone (2/2)

Proj t Name		6	7	8	9	10	11
Type		Wayto	Hare	Waja	Wajifo	Gewada	Weyibo
Zone		W	W	W	W	W	W
Province		S	S	S	S	S	S
I-Area	ha	N/OMO	N/OMO	N/OMO	N/OMO	N/OMO	N/OMO
Base flow	m ³ /s	254	1000	20	401	80	150
Bene. (House)	No.	0.61	2	0.044	0.94	0.2	0.33
Bene. (Popu.)	No.	134	-	100	735	100	1,000
** Intake **		Diver. Weir	Diver. Weir	Diver. Weir	Diver. Weir	Diver. Weir	Diver. Weir
B. leng.	m	-	-	40	85	-	50
B. hight	m	-	-	2.8	4	4	3.1
L. Sway	m	-	-	35	38	-	32.4
H. Sway	m	-	-	1	-	1	-
** M-Canal **							
Number	No.	-	-	-	-	-	-
T-Leng.	m	4,875	-	2,150	4,534	1,500	3,070
Width	m	-	-	0.5	1.65	-	-
Dep.	m	-	-	0.25	1.1	-	-
Capa.	M ³ /S	-	-	-	-	0.2	0.33
** S-Canal **							
Number	No.	-	-	-	2	2	11
T-Leng.	m	-	-	-	1,680	1,200	8,040
Width	m	-	-	-	-	-	-
Dep.	m	-	-	-	-	-	-
** T-Canal **							
Number	No.	-	24	-	29	5	10
T-Leng.	m	8,320	21,600	-	12,413	3,910	4,440
Width	m	-	-	-	-	-	-
Dep.	m	-	-	-	-	-	-
** Q-Canal **							
Number	No.	-	-	-	-	3,910	-
** Drainage**	m	13,000	9,500	3,000	8,000	4,000	10,000
Structures							
No. Flume	No.	-	1	4	-	-	3
Culvert	No.	-	5	-	16	-	12
Div. -Box	No.	-	6	-	5	20	-
Drop	No.	-	83	-	91	16	111
C-gate	No.	-	-	-	-	-	46
T-out	No.	6	24	-	21	32	-
No. F-road	No.	-	-	-	-	-	46
L. F-road	m	16,975	-	-	18,627	1,600	10,000
T. C. C	Bir	217,815	46,000,000	53,227	1,600,000	216,956	893,000
** Status **		D-Comp.	D-Comp.	D-Comp.	D-Comp.	Comp.	Comp.
Design	%	100	100	100	-	100	100
Const.	%	-	-	-	-	-	-
On-Farm	%	-	-	-	-	-	-

F-16 : Summary of SSID Schemes in Southeastern Zone

No	Project's Name	Region	Awraja	Latitude (N)	Longitude (E)	Potential Irrigable Area (ha)	Status of the project	Source of fund	Type of Headwork	Beneficiaries	Construction cost (Birr)
1	Homba	Arsi	Arbagugu	8°-35'	40°-4'	95	Constr. comp.	Gov.	Weir	190	462,200
2	Assasa/Kawa	"	Chilalo	7°-9'	39°-16'	100	"	"	"	200	380,000
3	Gongoma	Bale	Delomena	6°-25'	39°-51'	70	"	"	"	140	372,800
4	Kulumsa	Arsi	Chilalo	8°	39°-12'	30	"	"	"	60	-
5	Hora boka	Bale	Mendeyu	7°-2'	40°-4'	30	"	"	"	60	27,200
6	Menna	"	Guro	7°-27'	40°-20'	100	"	"	"	200	257,000
7	Shaya	"	Mendeyu	7°-11'	40°	270	"	"	"	540	307,400
8	Sheled	Arsi	Chilalo	7°-55'	38°-59'	50	"	IFAD (Loan)	"	100	677,800
9	Hassen Usman	Arsi	Ticho	7°-46'	39°-30'	150	"	"	"	300	521,000
10	Ketar	"	Chilalo	7°-48'	39°-5'	1200	On-farm const.	ADF (Loan)	"	2400	2,900,000
11.	Dalele-Sembero	"	"	7°-30'	38°-55'	60	Head work	Cons. IFAD (Loan)	"	120	429,000
12	Metana-Meti	"	"	7°-35'	38°-54'	50	"	"	"	100	396,000
13	Legeden-Shoba	"	"	7°-30'	38°-55'	80	"	"	"	160	627,000
14	Arata Chufa	"	"	7°-50'	39°-05'	100	"	"	"	200	589,000
15	Bush-Mesno	Arsi	Chilalo	7°-40'	38°-50'	50	"	"	"	100	400,000
16	Meribo-Chata	Bale	Genale	6°-57'	39°-23'	60	"	"	"	120	250,000
17	Cheri	Bale	Delo	6°-27'	40°-15'	50	Design Comp.	"	"	100	300,000
Total						2545					

F-17 : Inventory of SSID Schemes in Southeastern Zone (1/3)

Proj't Name		1	2	3	4	5
Type		Homba	KAWA	Ketar	Hora-boka	Menna
Zone		W	W&P(9.9HEAD)	W	W	W
Province		S/E	S/E	S/E	S/E	S/E
I-Area	ha	95	100	1200	30	100
Base flow	m ³ /s	0.15	0.15	2.64	0.06	0.2
Bene. (House)	No.	191	250	100	45	168
Bene. (Popu.)	No.	-	-	1,816	-	-
** Intake **						
B. leng.	m	22.5	29	-	-	18
B. hight	m	5.5	2	-	-	3.9
L. Sway	m	-	-	-	-	-
H. Sway	m	-	-	-	-	-
** M-Canal **						
Number	No.	-	-	-	-	-
T-Leng.	m	9,000	1,750	18,700	1,800	5,077
Width	m	0.5	0.3	-	0.2	0.2 & 0.5
Dep.	m	0.5	0.3	-	0.5	.22 & .45
Capa.	M ³ /S	-	-	-	0.06	-
** S-Canal **						
Number	No.	1	-	-	1	23
T-Leng.	m	1,600	-	18,000	420	2,044
Width	m	-	-	-	-	-
Dep.	m	-	-	-	-	-
** T-Canal **						
Number	No.	38	-	-	-	59
T-Leng.	m	14,440	-	56,500	-	7,440
Width	m	-	-	-	-	-
Dep.	m	-	-	-	-	-
** Q-Canal **						
Number	No.	-	-	-	-	-
T-Leng.	m	-	-	-	-	-
Width	m	-	-	-	-	-
Dep.	m	-	-	-	-	-
** Drainage **						
Number	No.	3,000	2,000	42,000	1,000	8,000
Structures						
No. Flume	No.	-	-	-	-	-
Culvert	No.	8	1	-	2	1
Div. -Box	No.	1	1	-	1	16
Drop	No.	36	-	-	20	50
C-gate	No.	-	-	-	-	-
T-out	No.	3	-	-	7	19
No. F-road	No.	-	-	-	1	22
L. F-road	m	-	-	10,000	1,100	2,270
T. C. C	Bir	462,131	380,000	5,300,000	27,182	257,000
** Status **						
Design	%	Under-C	D-Comp	Under-C	D-Comp	Comp
Const.	%	100	100	20	100	100
On-Farm	%	70	-	20	-	100
	%	20	-	-	100	100

F-17 : Inventory of SSID Schemes in Southeastern Zone (2/3)

Proj't Name		6	7	8	9	10
Type		Shaya	Gongoma	Sheled	Hassen-Uzman	DeleleSembere
Zone		W	W	W	W	W
Province		S/E	S/E	S/E	S/E	S/E
I-Area	ha	270	70	50	100	60
Base flow	m ³ /s	0.3	0.23	0.135	0.35	0.11
Bene. (House)	No.	-	150	80	190	47
Bene. (Popu.)	No.	1,000	-	-	-	-
** Intake **						
B. leng.	m	38	35	90	13	14.5
B. hight	m	3.5	4	2	3.5	3
L. Sway	m	-	9	-	-	-
H. Sway	m	-	1	-	-	-
** M-Canal **						
Number	No.	-	-	-	-	-
T-Leng.	m	8,679	3,220	505	1,675	675
Width	m	1.6	1.45	-	-	1.1
Dep.	m	0.8	0.7	0.8	-	0.7
Capa.	M ³ /S	-	-	-	-	-
** S-Canal **						
Number	No.	12	2	3	1	-
T-Leng.	m	3,234	1,205	1,280	2,940	-
Width	m	-	-	-	-	-
Dep.	m	-	-	-	-	-
** T-Canal **						
Number	No.	12	6	13	1	4
T-Leng.	m	3,234	3,080	5,000	1,740	1,750
Width	m	-	-	-	-	-
Dep.	m	-	-	-	-	-
** Q-Canal **						
** Drainage**	m	6,000	4,000	8,000	5,000	2,000
Structures						
No. Flume	No.	1	-	-	-	-
Culvert	No.	6	5	-	2	-
Div. -Box	No.	12	1	5	-	2
Drop	No.	7	17	-	83	13
C-gate	No.	-	shtute-1	-	-	-
T-out	No.	-	-	13	19	-
No. F-road	No.	-	7	-	-	4
L. F-road	m	-	6,230	2,000	5,000	5,700
T. C. C	Bir	307,311	410,000	120,000	521,000	429,000
** Status **		Comp	Under-C			
Design	%	100	100	100	100	100
Const.	%	100	4	90	-	-
On-Farm	%	10	-	-	-	-

F-17 : Inventory of SSID Schemes in Southeastern Zone (3/3)

Proj't Name		11	12	13
Type		Metana-Meti	Legeden	ArataChufa
Zone		W	W	W
Province		S/E	S/E	S/E
I-Area	ha	50	80	100
Base flow	m ³ /s	0.11	0.3	0.1
Bene. (House)	No.	35	172	130
Bene. (Popu.)	No.	-	-	-
** Intake **				
B. leng.	m	8.2 & 6.0	11	111
B. hight	m	0.5 & 0.3	2.5	4.2
L. Sway	m	7 & 5	-	42
H. Sway	m	-	-	1.6
** M-Canal **				
Number	No.	-	-	-
T-Leng.	m	2,235	3,090	1,010
Width	m	1.1	0.36	0.25
Dep.	m	0.6	0.4	0.32
Capa.	M ³ /S	-	-	-
** S-Canal **				
Number	No.	-	-	2
T-Leng.	m	-	-	584
Width	m	-	-	-
Dep.	m	-	-	-
** T-Canal **				
Number	No.	3	5	10
T-Leng.	m	1,000	5,220	4,032
Width	m	-	-	-
Dep.	m	-	-	-
** Q-Canal **				
** Drainage**	m	3,500	8,000	6,000
Structures				
No. Flume	No.	-	-	-
Culvert	No.	2	11	5
Div. -Box	No.	-	2	5
Drop	No.	25	68	336
C-gate	No.	-	-	-
T-out	No.	-	2	1
No. F-road	No.	2	-	-
L. F-road	m	6,760	7,050	9,000
T. C. C	Bir	396,000	627,000	588,997
** Status **			D-Comp.	
Design	%	100	100	100
Const.	%	-	-	-
On-Farm	%	-	-	-

F-18 : Summary of SSID Schemes in Central Zone

No	Project's Name	Region	Awraja	Latitude (N)	Longitude (E)	Potential Irrigable Area (ha)	Status of the project	Source of fund	Type of Headwork	Beneficiaries	Construction cost (Birr)
1	Walga	W.Shewa	Becho	8°-28'	37°-55'	245	On-farm const.	Gov.	Weir	490	444,500
2	Jigduserdu	"	"	8°-35'	38°-11'	90	"	"	"	180	292,900
3	Endris	"	Ambo	8°-56'	37°-48'	200	"	"	"	400	800,000
4	Gibe	"	Bako	9°-5'	37°-5'	50	"	"	"	100	294,300
5	Ataye	N.Shewa	Yifat	9°-5'	39°-37'	200	Head work const. Comp.	"	Dam	400	3,000,000
6	Senbete	"	"	10°-18'	39°-58'	600	Design of Head work comp.	"	"	1200	13,000,000
7	Leku	W.Shewa	Bako	9°-05'	37°-10'	70	Design comp.	EEC (Don)	Weir	140	4,900,000
8	Ijaji	"	"	9°-07'	37°-19'	60	"	"	"	120	4,200,000
9	Sewer	"	Yifat	10°-6'	39°-55'	300	"	"	"	600	2,100,000
Total											1815

F-19 : Inventory of SSID Schemes in Central Zone (1/2)

小規模灌溉開發計畫事業概要一覽表

Proj't Name		1	2	3
		Walga	Jigduserdo	Endris
Type		W	W	W
Zone		C	C	C
Province		W/Shewa	W/Shewa	W/Shewa
I-Area	ha	245	90	200
Base flow	m ³ /s	-	0.3	0.75
Bene. (House)	No.	240	157	500
Bene. (Popu.)		-	685	-
** Intake **				
B. leng.	m	33.15	41	24.93
B. hight	m	3.5	0.8	1.5
L. Sway	m	-	-	8.1
H. Sway	m	-	-	1.3
** M-Canal **				
Number	No.	1	1	-
T-Leng.	m	6850	4400	6140
Width	m	231	1.3	2.5
Dep.	m	1.05	0.7	0.55
Capa.	m	-	-	-
** S-Canal **				
Number	No.	1	1	-
T-Leng.	m	800	640	-
Width	m	-	-	-
Dep.	m	-	-	-
** T-Canal **				
Number	No.	12	10	-
T-Leng.	m	2994	1496	-
Width	m	-	-	-
Dep.	m	-	-	-
** Q-Canal **	m	-	-	-
** Drainage**	m	2000	5000	-
Structures				
No. Flume	No.	1	-	7
Culvert	No.	3	-	-
Div.-Box	No.	13	9	-
Drop	No.	3	-	-
C-gate	No.	-	-	-
T-out	No.	-	-	-
No. F-road	No.	-	-	-
L. F-road	m	2224	5400	-
T. C. C	Bir	444,456	292,950	800,000
** Status **		Comp.	Comp.	Comp.
Design	%	100	100	60
Const.	%	Comp.	75	40
On-Farm	%	50	75	30

F-19 : Inventory of SSID Schemes in Central Zone (2/2)

Project		4	5
Type		Earth Dam	Earth Dam
Zone		C	C
Province		N/Shewa	N/Shewa
I-Area	ha	200	600
No. of B.		400	7237
Pop.			
C Area	Km2	9000	62
An. R-fall	mm/y	1,200	-
An. Dis.	MCM	1300	4.68
Subm'd area	Km2	1.29	330ha
Stor. Capa.	MCM	5	6.32
Facil.			
Hight	m	8.1	9.7
Length	m	165.7	532
V. Earth	m3	27,000	103,656
Spillway			
Type		Natural	Concrete
Leng.	m	-	-
Wid.	m	-	-
Hight	m	-	1.7
Disc. capa.	m3/s	-	45
Intake			
Type		Steel pipe	Steel pipe
Leng.	m	48.6	98
Disc. capa.		1.32	24
** M-C **			
No.		1	-
Leng.	m	8,162	-
Bed Width	m	1.25	-
Water Dep.	m	0.5	-
S-C			
No.		13	-
Leng.	m	5,965	-
Bed Width	m	-	-
Water Dep.	m	-	-
T-C			
No.		-	-
Leng.	m	-	-
Bed Width	m	-	-
Water Dep.	m	-	-
Drain			
R-S			
No. Flume	No.	2	-
Culvert	No.	3	-
Shute	No.	3	-
Div. -Box	No.	10	-
Drop	No.	1	-
T-out	No.	1	-
C-gate	No.	-	-
No. F-road	No.	-	-
L. F-road	m	-	-
T. C. C.	Birr	3,000,000	13,080,000
Status			
Design	%	100	100
Const.	%	100	0
On-Farm	%	0	0

F-20 : Summary of SSID Schemes in Central-south Zone

No	Project's Name	Region	Awraja	Latitude (N)	Longitude (E)	Potential Irrigable Area (ha)	Status of the project	Source of fund	Type of Headwork	Beneficiaries	Construction cost (Birr)
1	Kety	S.Shewa	Hadiya	7°-16'	37°-47'	63	On-farm const. comp.	ADF (Loan)	Weir	126	300,000
2	Lentala	"	"	7°-22'	37°-43'	27	"	"	"	54	150,000
3	Mekizeray	"	Hikotch	8°-7'	38°-50'	540	On-farm const.	Gov.	"	1080	-
4	Elalaber	E.Shewa	Arerti	8°-50'	39°-25'	50	Design comp.	"	Dam	100	900,000
5	Huluka	S.Shewa	Hikoch	7°-29'	38°-47'	40	On-farm const. comp.	"	Weir	80	160,000
6	Ameka	"	Chebo	7°-50'	37°-41'	300	Design comp.	"	"	600	21,000,000
7	Horuwa	"	Hadiya	7°-39'	37°-37'	60	"	"	"	120	4,200,000
8	Tilku-Dedba	"	Chilalo	7°-19'	38°-44'	100	"	"	"	200	7,000,000
9	Hidi	E.Shewa	Adea	8°-47'	39°-8'	1050	On-farm const.	ADF (Loan)	Weir	-	7,600,000
Total						2250					

F-21 : Inventory of SSID Schemes in Central-south Zone (1/2)

Proj't Name		1	2	3	5
Type		Kati	Lentalla	Hidi	Huhuka
Zone		W	W	W	W
Province		C/S	C/S	C/S	C/S
I-Area	ha	S/Shewa	S/Shewa	E/Shewa	S/Shewa
I-Area	ha	63	27	1050	40
Base flow	m ³ /s	0.115	0.065	2.4	0.075
Bene. (House)	No.	105	35	-	334
Bene. (Popu.)	No.	-	-	-	-
** Intake **					
B. leng.	m	-	-	-	28.8
B. hight	m	-	-	-	1.9
L. Sway	m	-	-	-	17.2
H. Sway	m	-	-	-	1.4
** M-Canal **					
Number	No.	-	-	2	-
T-Leng.	m	5,400	2,600	10,400	2,800
Width	m	-	-	-	0.85
Dep.	m	-	-	-	0.4
Capa.	M ³ /S	-	-	-	-
** S-Canal **					
Number	No.	-	-	-	-
T-Leng.	m	4,100	2,000	43,600	-
Width	m	-	-	-	-
Dep.	m	-	-	-	-
** T-Canal **					
Number	No.	-	-	-	-
T-Leng.	m	4,100	2,000	68,000	-
Width	m	-	-	-	-
Dep.	m	-	-	-	-
** Q-Canal **					
Number	No.	-	-	32,000	-
** Drainage**					
Number	No.	4,000	3,000	-	2,000
Structures					
No. Flume	No.	-	-	-	-
Culvert	No.	-	-	-	-
Div. -Box	No.	-	-	-	2
Drop	No.	-	-	-	-
C-gate	No.	-	-	-	-
T-out	No.	-	-	-	-
No. F-road	No.	-	-	-	-
L. F-road	m	2,000	3,000	18,000	-
T. C. C	Bir	476,000	210,000	7,600,000	160,000
** Status **		Comp.	Comp.	Under-C.	Comp.
Design	%	100	25	-	100
Const.	%	75	15	30	65
On-Farm	%	-	-	30	50

F-21 : Inventory of SSID Schemes in Central-south Zone (2/2)

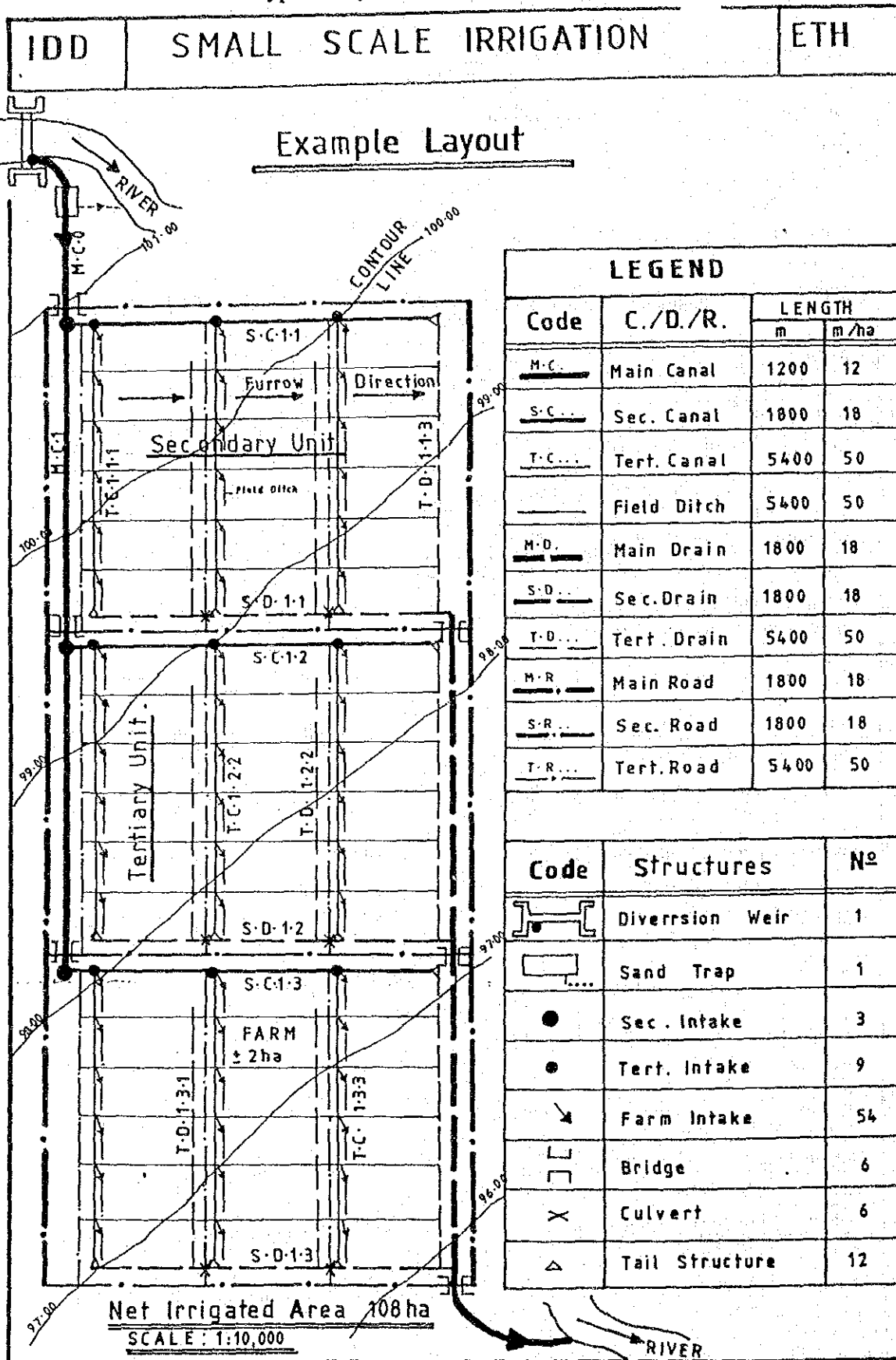
Project		4		
Type		Earth Dam		
Zone		C/S		
Province		E/Shewa		
I-Area	ha	30		
No. of B.		125		
C Area	Km2	47.5		
An. R-fall	mm/y	813		
An. Dis.	MCM	3.86		
Subm'd area	Km2	300ha		
Stor. Capa.	MCM	3.1		
**Facil. **		Earth Dam		
Hight	m	17.2		
Length	m	270		
V. Earth	m3	101,612		
Spillway				
Type		Concrete		
Leng.	m	10		
Hight	m	1.5		
Disc. capa.	m3/s	34		
Intake				
Type		Steel pipe		
Leng.	m	60		
Disc. capa.	m3/s	1.84		
** M-C **				
No.				
Leng.	m	-		
Bed Width	m	-		
Water Dep.	m	-		
S-C				
No.				
Leng.	m	-		
Bed Width	m	-		
Water Dep.	m	-		
T-C				
No.				
Leng.	m	-		
Bed Width	m	-		
Water Dep.	m	-		
Drain				
R-S				
No. Flume	No.	-		
Culvert	No.	-		
Shute	No.	-		
Div. -Box	No.	-		
Drop	No.	-		
T-out	No.	-		
C-gate	No.	-		
No. P-road	No.	-		
L. P-road	m	-		
T. C. C	Birr	900,000		
Status		D-Comp.		
Design	%	100		
Const.	%	-		
On-Farm	%	-		

F-22 : Design Standard for Tertiary Block Planning

IDD		Design of Tertiary Unit			ETH
Nº	Designation	Formula	Unit	Symbole	Example
1	Station	Coordinates	—	—	
2	Month/Decade		—	—	
3	Crop	Station	—	—	
4	Crop stage	Station Table	Nº	—	
5	Crop factor	Station Table	—	Kc	
6	Irrigation method	Station Table	—	—	
7	Type of soil	Texture analysis Table	—	S-T	
8	Field capacity	Table	mm/m	F-C	
9	Wilting point	Table	mm/m	W-P	
10	Available moisture	(10) = (8) - (9)	mm/m	AM	
11	Ratio RAM/AM	Table	—	—	
12	Readily available moisture	(12) = (10) x (11)	mm/m	RAM	
13	Rootzone depth	Table	m	D	
14	Available effective storage	(14) = (12) x (13)	mm	Se	
15	Allowance for rain storage	Station	mm	Srain	
16	Storage for irrigation	(16) = (14) - (15)	mm	S	
17	Evapo transpiration	Table	mm/day	E _{To}	
18	Crop evapotranspiration	(18) = (5) x (17)	mm/day	E _{T crop}	
19	Rainfall	Station	mm/day	P	
20	Effective rainfall	(20) = 0.7 x (19)	mm/day	P _{eff}	
21	Net irrigation requirements	(21) = (18) - (20)	mm/day	I _{net}	
22	Field application efficiency	Station (assumption)	—	ea	
23	Gros irrigation requirements	(23) = (21) ÷ (22)	mm/day	I _{gros}	
24	Max. irrigation interval	(24) = (16) ÷ (21)	days	i _{max}	
25	Chosen irrigation interval	(25) < (24) (assumption)	days	i	
26	Irrigation days/interval	Station (25) < (25) (assumption)	days	d	
27	Irrigation days/farm	Station (assumption)	days	T _{fo}	
28	Irrigation hours/day	Station (assumption)	hours/day	h	
29	Irrigation hours/farm	(29) = (27) x (28)	hours	T _f	
30	Number of farms/T.U	(30) = (26) ÷ (27)	—	n _{fa}	
31	Farm area (net)	Station	ha	A _{fa}	
32	Area of T.U. (net)	(32) = (30) x (31)	ha	A _T	
33	Main d'eau	(33) = 2.8 x (23) x (25) ÷ (26) ÷ (28) x (32)	l/s	q _m	
34	Check : Main d'eau	15 < (33) < 30	l/s	So not	
35	Area not used for irrigation	Station : 5-15% of (32)	ha	a	
36	Area of T.U. (gros)	(36) = (32) + (35)	ha	A _T	
37	Number of irrigators at same time	Station (n = 1, or 2)	—	n	
38	Area of T.U (gros)	(38) = (36) x (37)	ha	A _T	
39	Area of scheme (gros)	Station	ha	A	
40	Number of T.U in scheme	(40) = (39) ÷ (38)	—	n _{TU}	

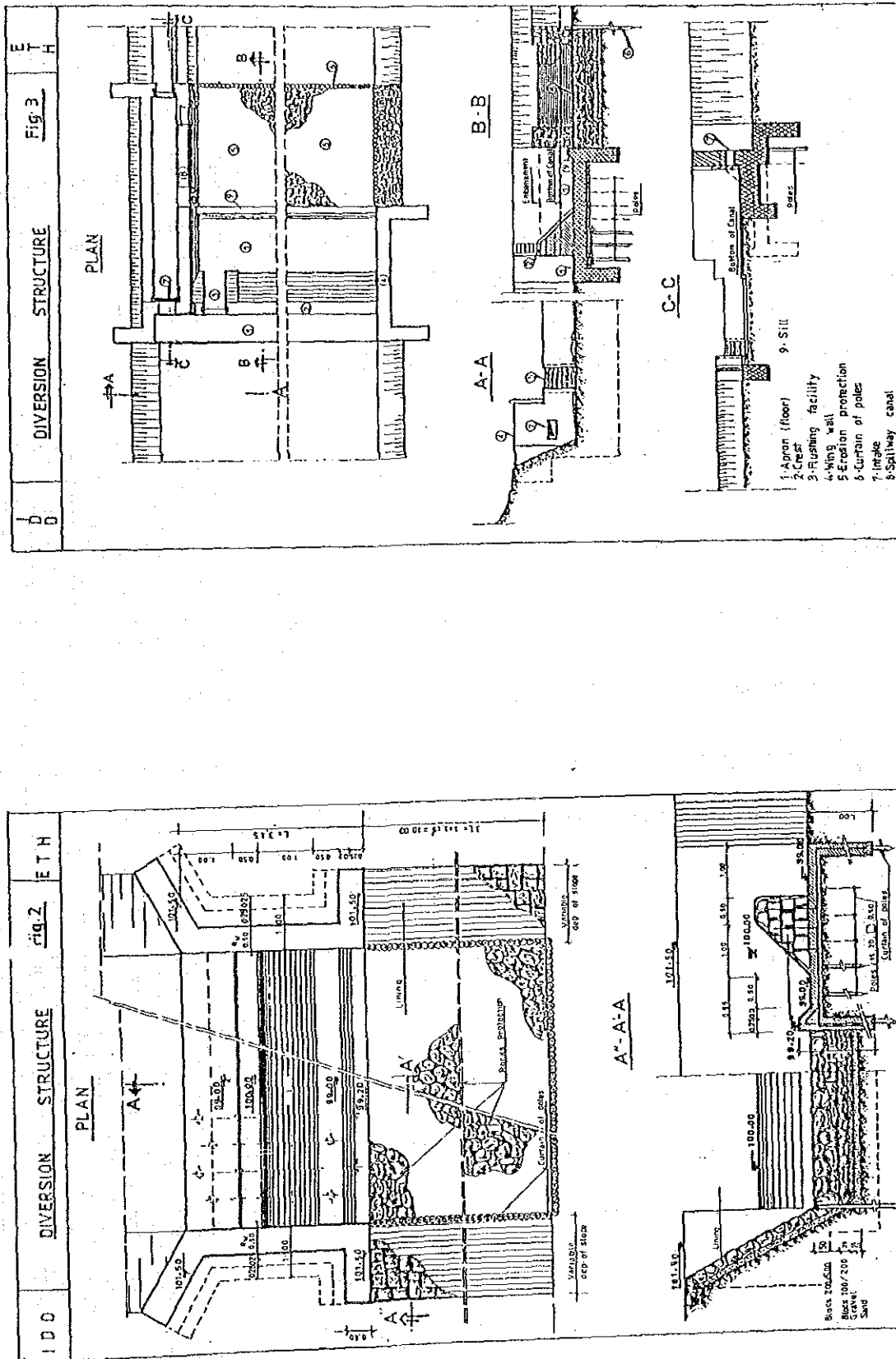
SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Manual on Small Scale Irrigation

F-23 : Typical Layout of SSID Schemes



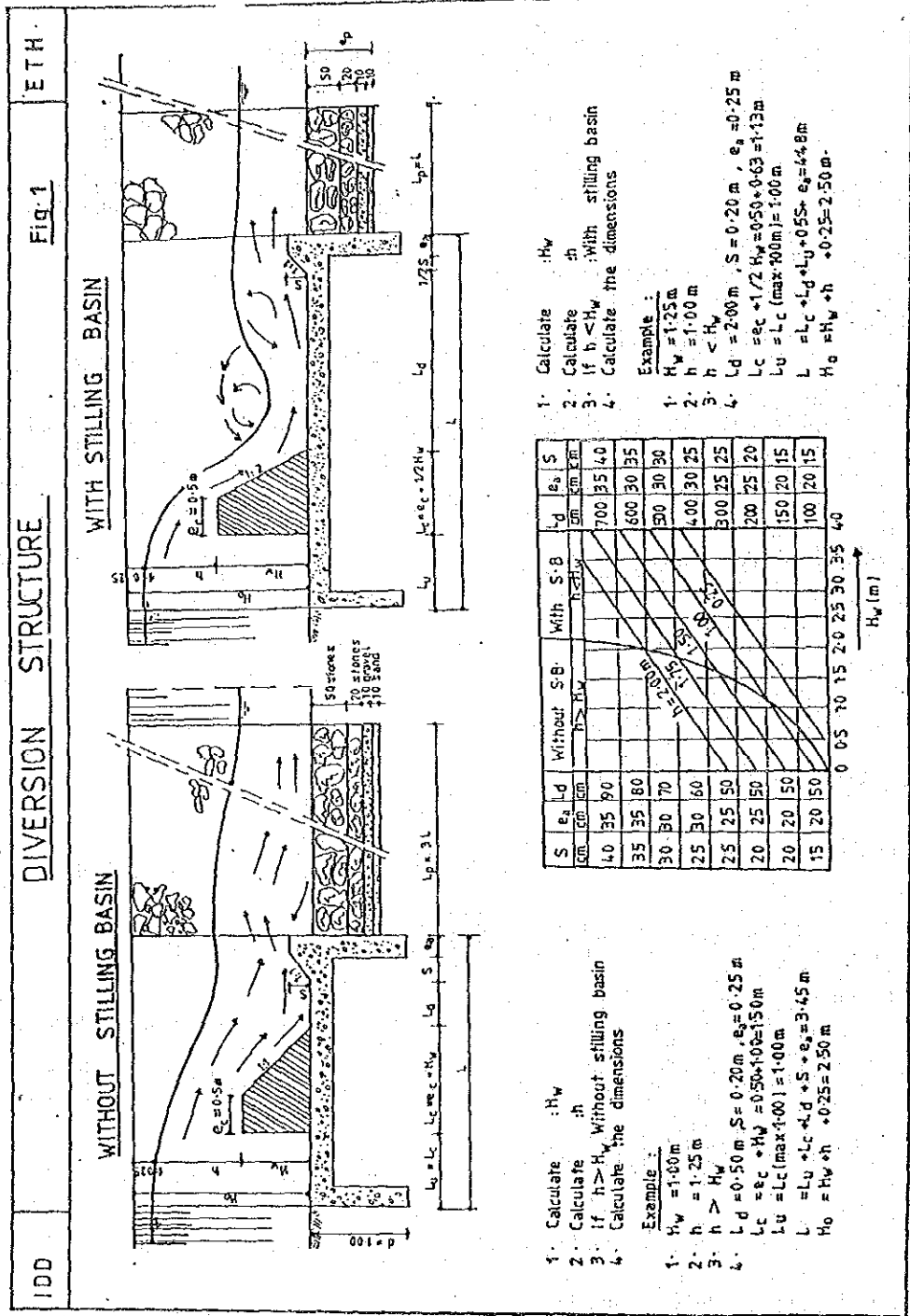
SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Manual on Small Scale Irrigation

F-24 : Typical Design of Diversion Structure



SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Manual on Small Scale Irrigation

F-25 : Hydraulic Calculation of Diversion Weir



1. Calculate H_w

2. Calculate h

3. If $h < H_w$ With stilling basin

4. Calculate the dimensions

Example :

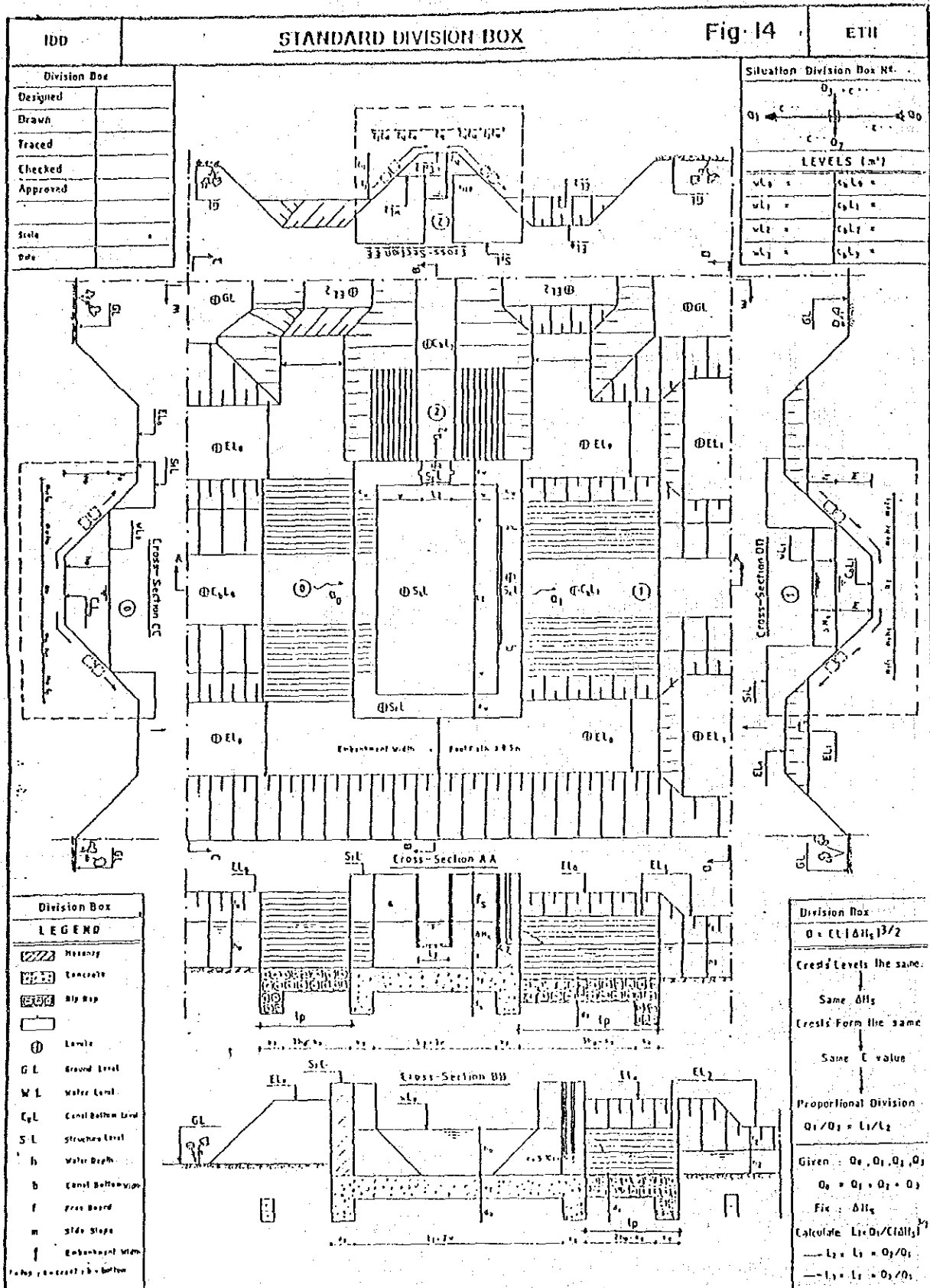
- $H_w = 1.25$ m
- $h = 1.00$ m
- $h < H_w$
- $L_d = 2.00$ m, $S = 0.20$ m, $e_s = 0.25$ m
 $L_c = e_c + 1/2 H_w = 0.50 + 0.63 = 1.13$ m
 $L_u = L_c (\max 100m) = 1.00$ m
 $L = L_c + L_d + S + e_s = 4.48$ m
 $H_0 = H_w + h = 0.25 + 2.50$ m

S	e_s	L_d	Without SB	With SB	L_d	e_s	S
cm	cm	cm	$h > H_w$	$h < H_w$	cm	cm	
40	35	90	1.00	1.25	700	35	40
35	35	80	1.00	1.25	600	30	35
30	30	70	1.00	1.25	500	30	30
25	30	60	1.00	1.25	400	30	25
25	25	50	1.00	1.25	300	25	25
20	25	50	1.00	1.25	200	25	20
20	20	50	1.00	1.25	150	20	15
15	20	50	1.00	1.25	100	20	15

H_w (m)

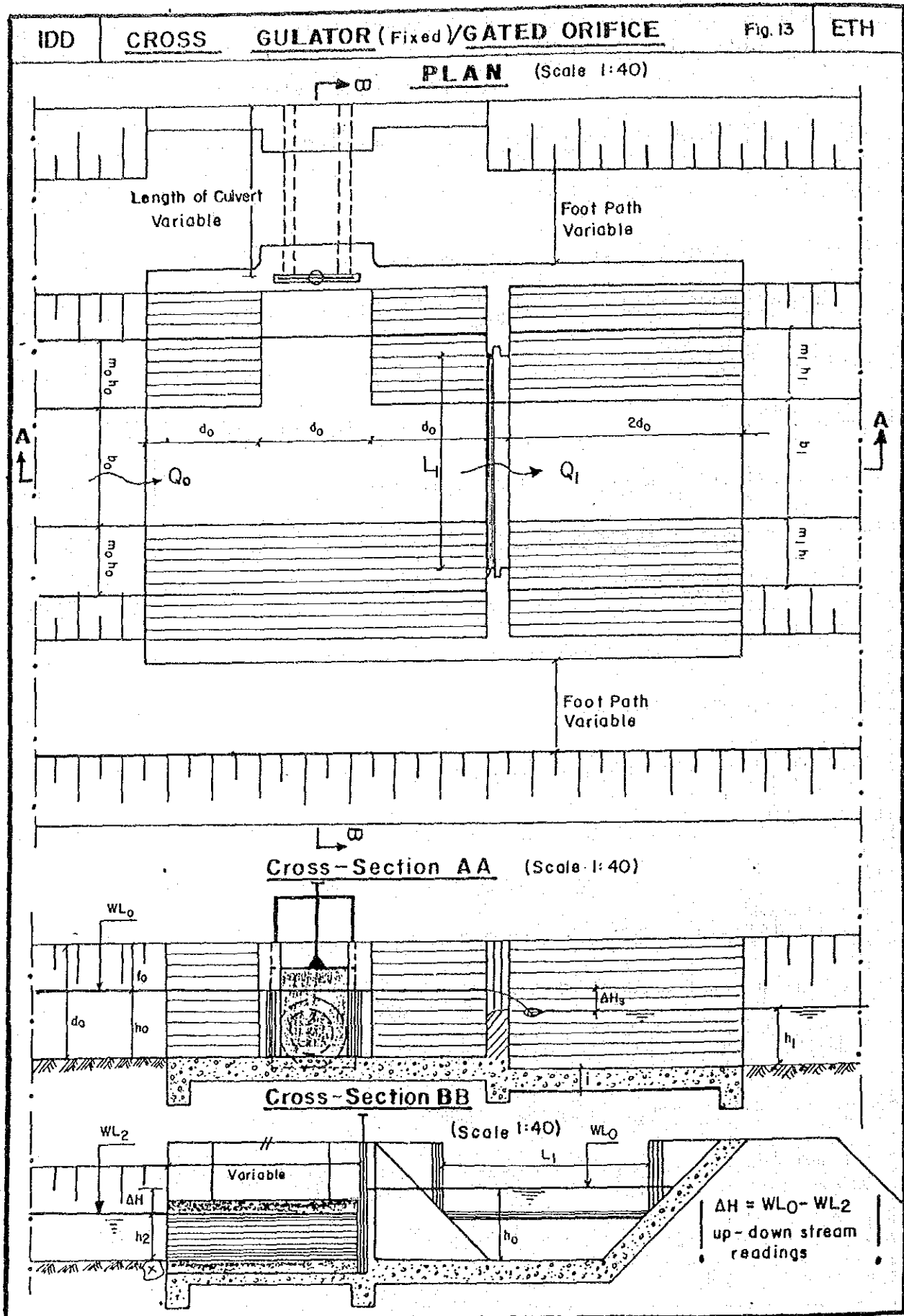
SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Mannual on Small Scale Irrigation

F-27 : Typical Design of Diversion Box



SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Manual on Small Scale Irrigation

F-29 : Typical Design of Offtake with Gate

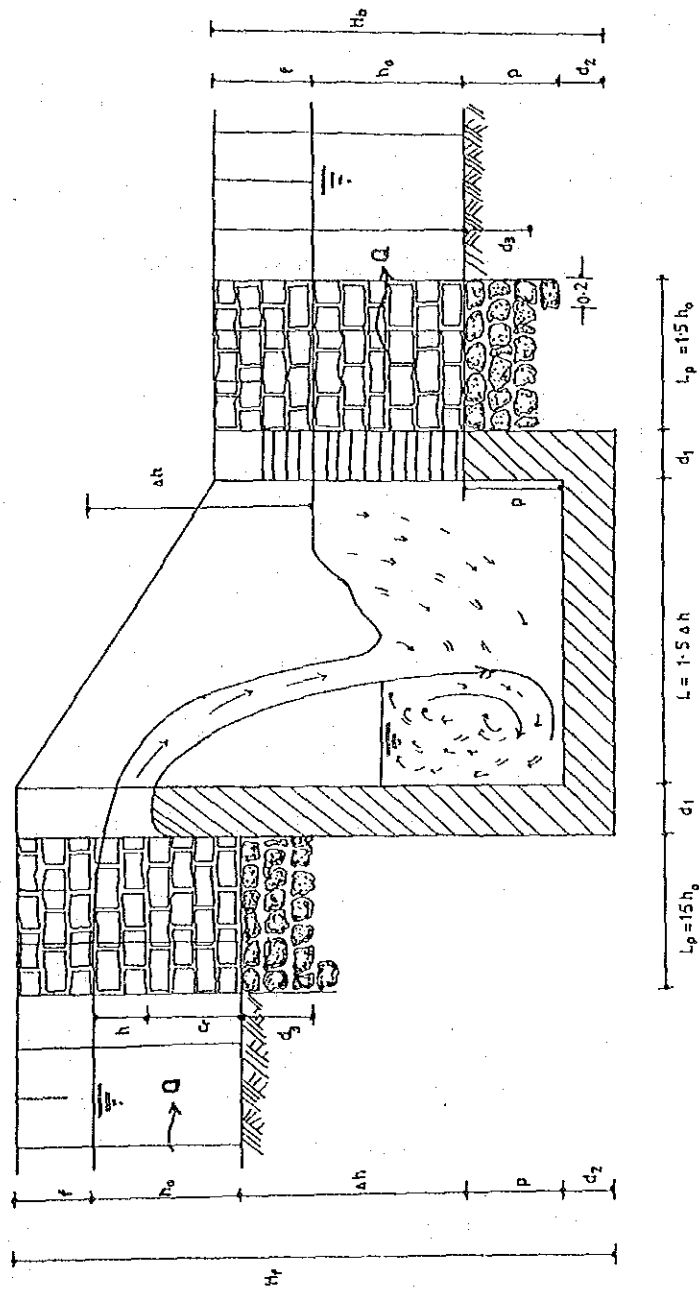


SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Manual on Small Scale Irrigation

F-30 : Typical Design of Drops

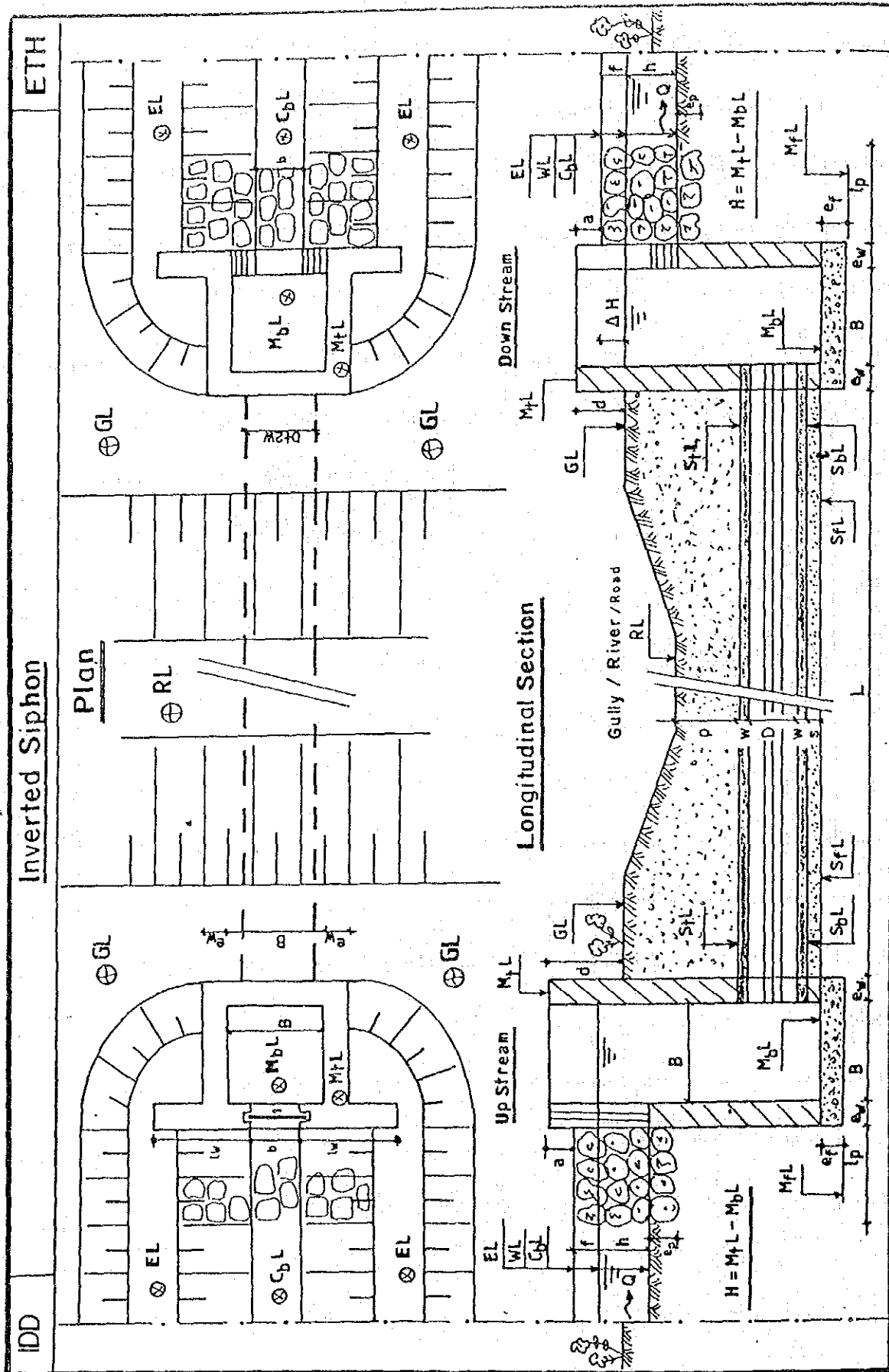
Rectangular Drop Structure

Longitudinal Section



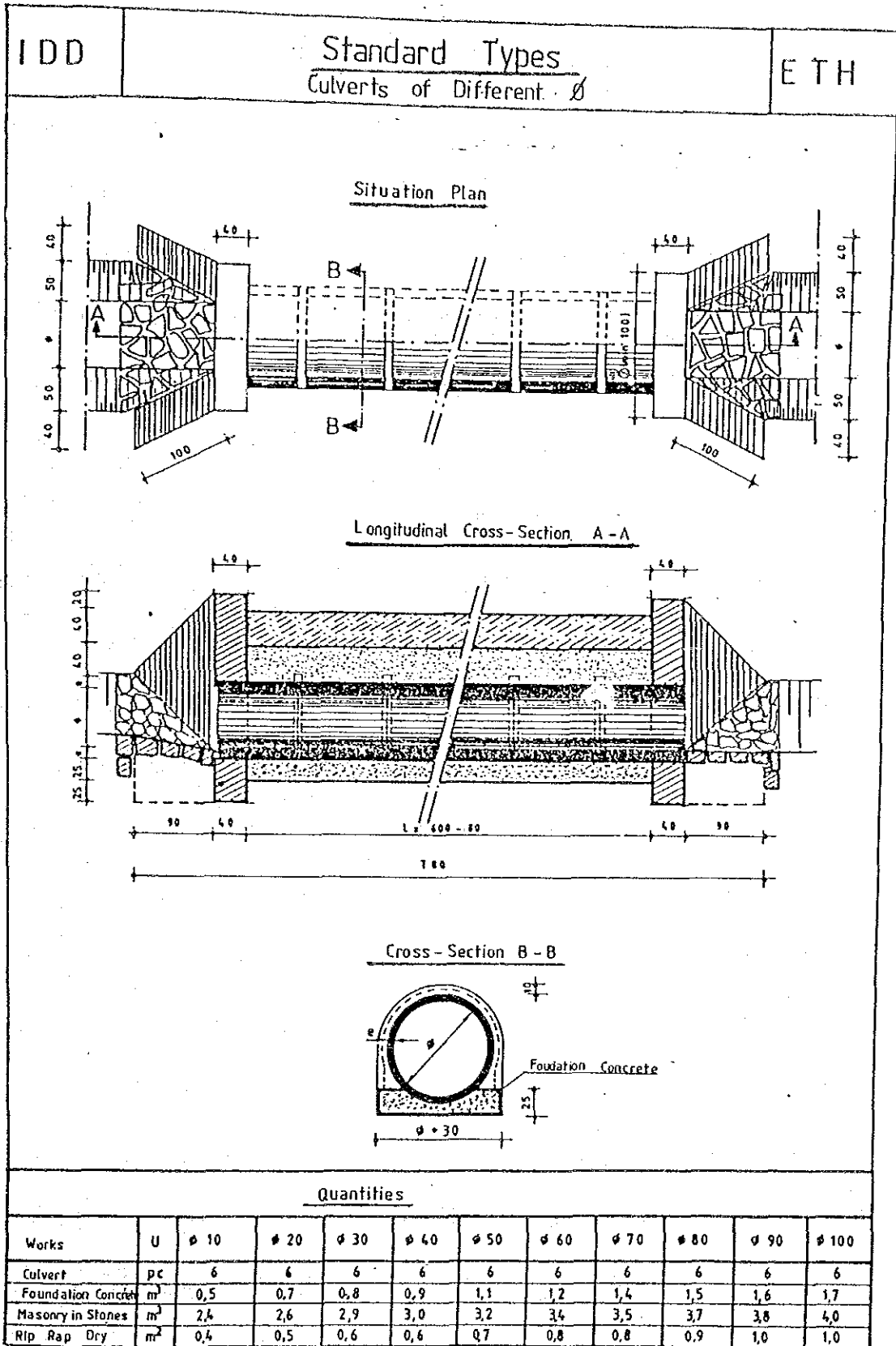
SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Manual on Small Scale Irrigation

F-31 : Typical Design of Inverted Siphons



SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Mannual on Small Scale Irrigation

F-32 : Typical Design of Road Crossing Culverts



SOURCE : IFAD SPECIAL COUNTRY PROGRAMME/Manual on Small Scale Irrigation

G : Inventory of Construction Equipment for SSID Project

- G-1 : Inventory of Construction Equipment for SSID Project
- G-2 : Inventory of Construction Equipment for SSID Project in Main Department
- G-3 : Inventory of Construction Equipment for SSID Project in Central Zone
- G-4 : Inventory of Construction Equipment for SSID Project in Central-south Zone
- G-5 : Inventory of Construction Equipment for SSID Project in Eastern Zone
- G-6 : Inventory of Construction Equipment for SSID Project in Northern Zone
- G-7 : Inventory of Construction Equipment for SSID Project in Northeastern Zone
- G-8 : Inventory of Construction Equipment for SSID Project in Northwestern Zone
- G-9 : Inventory of Construction Equipment for SSID Project in Southern Zone
- G-10 : Inventory of Construction Equipment for SSID Project in Southeastern Zone
- G-11 : Inventory of Construction Equipment for SSID Project in Southwestern Zone
- G-12 : Inventory of Construction Equipment for SSID Project in Western Zone
- G-13 : Inventory of Construction Equipment for SSID Project by Japanese Assistance
- G-14 : Present Status of Equipment for SSID Project by Japanese Assistance

G-1 : Inventory of Construction Equipment for SSID Project(1/5)

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv'd Year	Location Deliv'd	Donner Finance
1	Bulldozer	CAT D6C	20X 04661	132 08303	-	-	1986	C-S	UNCDF
2	Bulldozer	CAT D6C	20X 04664	132 08280	-	-	1986	N-W	UNCDF
3	Bulldozer	CAT D6D	31X 03780	10Z 09020	-	-	1985	C-S	JAPAN
4	Bulldozer	CAT D6D	31X 03781	10Z 09021	-	-	1986	S-E	JAPAN
5	Bulldozer	CAT D6D	31X 03782	10Z 09022	-	-	1986	C-S	JAPAN
6	Bulldozer	CAT D6D	31X 03783	10Z 09023	-	-	1986	W	JAPAN
7	Bulldozer	CAT D6D	31X 03784	10Z 09024	-	-	1986	C-S	JAPAN
8	Bulldozer	CAT D6D	31X 03785	10Z 09025	-	-	1986	N-E	JAPAN
9	Bulldozer	CAT D6D	31X 03786	10Z 09026	-	-	1986	N-E	JAPAN
10	Bulldozer	CAT D7G	92V 12464	8Z 23722	-	-	1985	C-S	UNCDF
11	Bulldozer	KOMATSU D65E	34724	26169221	-	-	?	C	JAPAN
12	Bulldozer	KOMATSU D65E	34725	26169212	-	-	?	S-E	JAPAN
13	Bulldozer	KOMATSU D75A	50180	130297	-	286,965	1988	C	JAPAN
14	Bulldozer	KOMATSU D75A	50181	30298	-	286,965	1988	C	JAPAN
15	Bulldozer	KOMATSU D75A	50182	30299	-	286,965	1988	S	JAPAN
16	Bulldozer	KOMATSU D75A	50183	30300	-	286,965	1988	E	JAPAN
17	Bulldozer	KOMATSU D75A	50201	35625	-	318,270	1988	W	JAPAN
18	Bulldozer	KOMATSU D75A	50216	35624	-	318,270	1988	S	JAPAN
19	Bulldozer	DRESSER TD15C	4240004/3043	32282	-	-	1988	S	UNCDF
20	Bulldozer	FIATALLIS FD20	008992	008974	-	-	1987	C	GOV
21	Bulldozer	FIATALLIS FD20	008998	009002	-	-	1987	N	GOV
22	Bulldozer	FIATALLIS FD20	008999	009000	-	-	1987	C	GOV
23	Bulldozer	FIATALLIS FD20	009000	008905	-	-	1987	N	GOV
24	Bulldozer	FIATALLIS FD20	009002	008976	-	-	1987	E	GOV
25	Bulldozer	FIATALLIS FD20	009003	009003	-	-	1987	E	GOV
26	Bulldozer	FIATALLIS FD20	009004	009021	-	-	1987	S-E	GOV
27	Bulldozer	FIATALLIS FD20	009005	008978	-	-	1987	N-E	GOV
28	Bulldozer	FIATALLIS FD20	009007	00923	-	-	1987	S	GOV
29	Bulldozer	FIATALLIS FD20	009009	008936	-	-	1987	N-W	GOV
30	Bulldozer	FIATALLIS FD20	009010	009053	-	-	1987	E	GOV
31	Bulldozer	FIATALLIS FD20	009011	009053	-	-	1987	N-E	GOV
32	Bulldozer	FIATALLIS FD20	009013	009060	-	-	1987	C	GOV
33	Bulldozer	FIATALLIS FD20	009014	009059	-	-	1987	E	GOV
34	Bulldozer	FIATALLIS FD20	009015	009054	-	-	1987	E	GOV
35	Bulldozer	FIATALLIS FD20	009046	009130	-	-	1987	N-W	GOV
36	LOADER	CAT 926	8NR 0064	45V 52266	-	-	1988	S	JAPAN
37	LOADER	CAT 926	8NR 0065	45V 52267	-	-	1988	N-W	JAPAN
38	LOADER	KOMATSU WA380-1	11234	29893	-	243,735	1989	Main D.	JAPAN
39	LOADER	KOMATSU WA380-1	11235	29898	-	-	1989	W	JAPAN
40	LOADER	FURUKAWA FL330-1	-	-	-	129,000	1988	Assab	JAPAN
41	LOADER	VOLVO 4400	33203	82042	3796	196,813	1986	C	UNCDF
42	LOADER	VOLVO 4400	33205	80609	6437	-	1986	N-W	UNCDF
43	LOADER	BENATI 22SB	222322	-	-	-	1987	E	GOV
44	LOADER	BENATI 22SB	222323	-	-	-	1987	S	GOV
45	LOADER	BENATI 22SB	222324	-	-	-	1987	N	GOV
46	LOADER	BENATI 22SB	222325	-	-	-	1987	E	GOV
47	LOADER	BENATI 22SB	222326	-	-	-	1987	S-E	GOV
48	LOADER	BENATI 22SB	222327	-	-	-	1987	S	GOV
49	LOADER	BENATI 22SB	222328	-	-	-	1987	E	GOV
50	LOADER	BENATI 22SB	222329	-	-	-	1987	S-E	GOV
51	LOADER	BENATI 22SB	222330	-	-	-	1987	E	GOV
52	LOADER	BENATI 22SB	222331	-	-	-	1987	S-E	GOV
53	LOADER	BENATI 22SB	222332	-	-	-	1987	N-E	GOV
54	LOADER	BENATI 22SB	222333	-	-	-	1987	N	GOV
55	LOADER(Crawler)	KOMATSU D57-S	08578	25922	-	-	1986	Main D.	UNCDF
56	LOADER(Crawler)	KOMATSU D57-S	08579	25921	-	-	1986	C	EEC
57	COMPACTOR	SAKAI SV91CT	10024	-	-	113,160	1989	N-E	JAPAN
58	COMPACTOR	SAKAI SV91CT	10023	-	-	113,160	1989	N-E	JAPAN
59	COMPACTOR	SAKAI SV91CT	10020	0617153	-	-	1989	E	JAPAN
60	COMPACTOR	SAKAI SV91CT	10021	0617159	-	-	1989	E	JAPAN
61	COMPACTOR	SAKAI SV91CT	10022	-	-	-	1989	N-W	JAPAN
62	COMPACTOR	SAKAI SV91CT	10025	-	-	-	1989	N-W	JAPAN
63	COMPACTOR	CAT CB-521	6RD 00017	-	-	-	1987	E	EIPRD
64	COMPACTOR	CAT CB-521	6RD 00018	-	-	-	1987	E	EIPRD
65	COMPACTOR	DYNAPAC CA25PD	7049320	7049320	-	-	1987	C	UNCDF
66	COMPACTOR	DYNAPAC CA25PD	56015	-	-	-	1989	N-E	JAPAN
67	COMPACTOR	DYNAPAC CA25	575740	7049328	-	-	1989	C-S	JAPAN
68	COMPACTOR	CAT CB-521	6TD 00008	-	-	-	1990	S	UNCDF
69	COMPACTOR	CAT CB-521	6TD 00008	-	-	-	1990	S	UNCDF
70	GRADER	CAT 120G	87V 07541	17711920	-	-	1987	C-S	UNCDF
71	GRADER	KOMATSU GD511R	10011	32760	-	184,065	1988	N-W	JAPAN
72	GRADER	MITSUBISHI-MG350	66000230	517116	-	175,500	1989	E	JAPAN
73	GRADER	MITSUBISHI-MG350	66000187	517099	-	175,500	1989	E	JAPAN
74	GRADER	DRESSER 450E	11958	8710001531	-	-	1990	S	UNCDF
75	GRADER	DRESSER 450E	11959	5710001520	-	-	1990	S	UNCDF
76	GRADER	FIATALLIS FG85	44Y00266	759358	-	-	1988	E	EIPRD
77	GRADER	FIATALLIS FG85	-	759675	44Y00264	-	1988	E	EIPRD
78	GRADER	FIATALLIS FG85	-	759847	14500396	-	1988	?	GOV

G-1 : Inventory of Construction Equipment for SSID Project(2/5)

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv'd Year	Location Deliv'd	Donner Finance
79	GRADER	FIATALLIS FG85		759848	14S00397		1988	?	GOV
80	GRADER	FIATALLIS FG85		759854	14S00398		1988	?	GOV
81	GRADER	FIATALLIS FG85		760044	14S00399		1988	?	GOV
82	GRADER	FIATALLIS FG85		760043	14S00400		1988	?	GOV
83	GRADER	FIATALLIS FG85		759829	14S00401		1988	E	GOV
84	GRADER	FIATALLIS FG85		758892	14S00402		1988	?	GOV
85	GRADER	FIATALLIS FG85		759892	14S00403		1988	?	GOV
86	GRADER	FIATALLIS FG85		759828	14S00404		1988	?	GOV
87	GRADER	FIATALLIS FG85		730221	14S00405		1988	?	GOV
88	EXCAVATOR	MITSUBISHI MS140	2470	6D 389424				Main D.	JAPAN
89	EXCAVATOR	HITACHI EX200		11280	145-36121	148,440	1988	S	JAPAN
90	EXCAVATOR	HITACHI EX200		118407	145-36120	148,440	1988	E	JAPAN
91	EXCAVATOR	KATO HD700SE	06263	GD31009685		154,305	1988	S	JAPAN
92	SCRAPER	KOMATSU WS165S	3007	127228		711,213	1988	Main D.	JAPAN
93	SCRAPER	KOMATSU WS165S	3008	127227		711,213	1988	S	JAPAN
94	SCRAPER	CAT 623E	6CB00843	70V 29771		513,000	1991	C-S	JAPAN
95	BACK-HOE LOADER	VOLVO 646		36125	8462		1988	?	UNCDF
96	BACK-HOE LOADER	VOLVO 646		62327	2988		1988	?	UNCDF
97	BACK-HOE LOADER	3300T	11951014				1988	N-E	GOV
98	BACK-HOE LOADER	3300T	11951015				1988	E	GOV
99	BACK-HOE LOADER	3300T	11951016				1988	E	GOV
100	BACK-HOE LOADER	3300T	11951018				1988	E	GOV
101	BACK-HOE LOADER	3300T	11951195				1988	N-E	GOV
102	TRACTOR	KUBOTA M7500	52088				1988	S-E	JAPAN
103	TRACTOR	KUBOTA M7500	52069	36660			1988	C	JAPAN
104	TRACTOR	KUBOTA M7500	52070				1988	S-E	JAPAN
105	TRACTOR	KUBOTA M7500	52071				1988	N-W	JAPAN
106	TRACTOR	KUBOTA M7500	52072				1988	N-E	JAPAN
107	TRACTOR	KUBOTA M7500	52073				1988	S-E	JAPAN
108	TRACTOR	KUBOTA M7500	52074	36658			1988	C	JAPAN
109	TRACTOR	KUBOTA M7500	52075				1988	C-S	JAPAN
110	TRACTOR	KUBOTA M7500	52076	36672			1988	S	JAPAN
111	TRACTOR	KUBOTA M7500	72077				1988	N-E	JAPAN
112	TRACTOR	FIAT AGRI						N	EEC
113	TRACTOR	FIAT AGRI						N	EEC
114	TRACTOR	FIAT AGRI						N	EEC
115	TRACTOR	FIAT AGRI 65-46					1988	N-E	EEC
116	TRACTOR	FIAT AGRI 8066DT		110329			1988	N-E	EEC
117	TRACTOR	FIAT AGRI 8066DT		110482			1988	N-E	EEC
118	TRACTOR	FIAT AGRI	413646	236201				S	UNCDF
119	TRACTOR	FIAT AGRI	413647	235635				S	UNCDF
120	TRACTOR	FIAT AGRI	413648	235657				S	UNCDF
121	TRACTOR	FIAT AGRI	413649	235641				S	UNCDF
122	TRACTOR	FIAT AGRI	413650	235654				S	UNCDF
123	TRACTOR	FIAT AGRI	413651	237003				S	UNCDF
124	TRACTOR	FIAT AGRI	413645					S	UNCDF
125	TRACTOR	FIAT AGRI	413652					S	UNCDF
126	TRACTOR	FIAT AGRI	411068	106679				E	EIPRD
127	TRACTOR	FIAT AGRI	411069	106997				E	EIPRD
128	TRACTOR	FIAT AGRI	411070	110329				E	EIPRD
129	TRACTOR	FIAT AGRI	411084	110140				E	EIPRD
130	TRACTOR	FIAT AGRI	411079	110469				E	EIPRD
131	TRACTOR	FIAT AGRI	411157	110033				E	EIPRD
132	TRACTOR	FIAT AGRI	411066	106825				E	EIPRD
133	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18247			182,438	1988	Main D.	JAPAN
134	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18249	018060	01876	182,438	1988	Main D.	JAPAN
135	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18864				1988	Main D.	JAPAN
136	TRUCK SEMI-TRAILED	HINO SS633SA	4-21832	24804	10186	212,611	1989	Main D.	JAPAN
137	TRUCK SEMI-TRAILED	HINO SS633SA	4-21833	24863	10171	212,611	1989	Main D.	JAPAN
138	TRUCK SEMI-TRAILED	HINO SS633SA	4-21834	24838	10170	212,611	1989	Main D.	JAPAN
139	TRUCK SEMI-TRAILED	HINO SS633SA	4-21835	24821	10169	212,611	1989	Main D.	JAPAN
140	LOW-BED	NISSAN CWA45	4-22356	018525	00179	253,163	1989	Main D.	JAPAN
141	LOW-BED	NISSAN CWA45	4-22357	018523	00180	253,163	1989	Main D.	JAPAN
142	LOW-BED	NISSAN CWA45	4-19397	18007	00169	255,761	1989	Main D.	JAPAN
143	LOW-BED	NISSAN CWA45	4-19398	052758	00001	255,761	1989	Main D.	JAPAN
144	LOW-BED	SCANIA 112E	4-19863	5295727	1132018		1988	Main D.	UNCDF
145	TRUCK	VOLVO N7	4-18196	131191	010525		1986	Main D.	UNCDF
146	TRUCK	VOLVO N7	4-19653	131198	010524		1986	Main D.	UNCDF
147	TRUCK	SCANIA 93H	4-20731	905081344	01136233	134,550	1991	Main D.	UNCDF
148	TRUCK	FIAT	4-16333	205963	17420		1988	Main D.	GOV
149	TRUCK	FIAT	4-16334	205944	17419		1988	Main D.	GOV
150	MOBILE WORKSHOP	NISSAN TFA	4-19467	052758	00001	162,753	1987	Main D.	JAPAN
151	MOBILE WORKSHOP	NISSAN TFA	4-19467	002563	15037	162,753	1987	Main D.	JAPAN
152	MOBILE WORKSHOP	NISSAN TFA	4-21317	053686	00030	170,775	1989	Main D.	JAPAN
153	MOBILE WORKSHOP	FIAT-IVECO 190.26	UN1891	197328	4024305	28,552	1987	E	EIPRD
154	MOBILE WORKSHOP	FIAT-IVECO 190.26	4-00804	197388	4024304	\$ 13,793	1987	E	EIPRD
155	MOBILE WORKSHOP	LANDROVER-110	4-15281	243128	137130		1986	M. D.	EEC
156	MOBILE WORKSHOP	LANDROVER-110	4-15282	243123	137160		1986	M. D.	EEC

G-1 : Inventory of Construction Equipment for SSID Project(3/5)

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv' Year	Location Deliv' d	Donner Finance
157	MOBILE WORKSHOP	NISSAN CWA45	4-21316	018531	02003		1988	S	UNCDF
158	MOBILE GREASING PLAN	NISSAN TEA41	4-19455	052758	00001	65,571	1987	C-S	JAPAN
159	MOBILE GREASING PLAN	NISSAN TEA41	4-19468	052757	00002	155,572	1987	E	JAPAN
160	MOBILE GREASING PLAN	NISSAN TEA41	4-21318	053682	00029	153,014	1989	S-E	JAPAN
161	CRANE	TADANO TS-70ML	238011			128,744	1988	M.D	JAPAN
162	CRANE	TADANO TS-70ML	238012			128,744	1988	M.D	JAPAN
163	CRANE	TADANO TR-230E	530233			309,690	1989	M.D	JAPAN
164	WATER BOWSER	LEYLAND 411	4-15434	8640086	00683		1987	E	EEC
165	WATER BOWSER	LEYLAND 411	4-15435	8640080	00698		1987	E	EEC
166	WATER BOWSER	LEYLAND 411	4-15436	8640082	00697		1987	-	EEC
167	WATER BOWSER	LEYLAND 411	4-15437	8640074	00661		1987	E	EEC
168	WATER BOWSER	NISSAN CWA45	4-21890	018521	02008	113,060	1990	C	JAPAN
169	WATER BOWSER	NISSAN CWA45	4-22355	018520	02007	113,060	1990	N	JAPAN
170	WATER BOWSER	ZIL 5-130	4-14799	868178	2457946		1986	S-E	GOV
171	WATER BOWSER	ZIL 5-130	4-14787	568972	2458467		1986	N-W	GOV
172	WATER BOWSER	ZIL 5-130	4-14788	528912	2437852		1986	C	GOV
173	DUMP TRUCK	NISSAN TFA21	4-14581	115195	02087		1987	Main D.	JAPAN
174	DUMP TRUCK	NISSAN TFA21	4-14582	115134	02067		1987	C	JAPAN
175	DUMP TRUCK	NISSAN TFA21	4-14583	115131	02068		1987	C	JAPAN
176	DUMP TRUCK	NISSAN TFA21	4-14584	114113	02066		1987	C	JAPAN
177	DUMP TRUCK	NISSAN TFA21	4-14585	115213	02088		1987	E	JAPAN
178	DUMP TRUCK	NISSAN TFA21	4-14586	115135	02060		1987	E	JAPAN
179	DUMP TRUCK	NISSAN TFA21	4-14587	115173	02071		1987	N-E	JAPAN
180	DUMP TRUCK	NISSAN TFA21	4-14588	115191	02073		1987	N-E	JAPAN
181	DUMP TRUCK	NISSAN TFA21	4-14589	115170	02070		1987	N-E	JAPAN
182	DUMP TRUCK	NISSAN TFA21	4-14590	115172	02072		1987	N-E	JAPAN
183	DUMP TRUCK	NISSAN TFA21	4-14591	115198	02085		1987	C-S	JAPAN
184	DUMP TRUCK	NISSAN TFA21	4-14592	115188	02089		1987	N-E	JAPAN
185	DUMP TRUCK	NISSAN TFA21	4-14593	115125	02086		1987	N-E	JAPAN
186	DUMP TRUCK	NISSAN TFA21	4-14594	115145	02065		1987	S	JAPAN
187	DUMP TRUCK	NISSAN TFA21	4-14595	115129	02064		1987	Main D.	JAPAN
188	DUMP TRUCK	NISSAN TFA21	4-14596	115141	02067		1987	C	JAPAN
189	DUMP TRUCK	NISSAN TFA21	4-14597	115126	02062		1987	C	JAPAN
190	DUMP TRUCK	NISSAN TFA21	4-14598	115125	02053		1987	E	JAPAN
191	DUMP TRUCK	NISSAN TFA21	4-14599	115138	02069		1987	C	JAPAN
192	DUMP TRUCK	NISSAN TFA21	4-14600	115187	02090		1987	N-E	JAPAN
193	DUMP TRUCK	NISSAN CWA45	4-18974	018015	01819	90,792	1989	E	JAPAN
194	DUMP TRUCK	NISSAN CWA45	4-18975	018031	01858		1989	E	JAPAN
195	DUMP TRUCK	NISSAN CWA45	4-18976	018018	01845		1989	E	JAPAN
196	DUMP TRUCK	NISSAN CWA45	4-18977	018033	01851		1989	E	JAPAN
197	DUMP TRUCK	NISSAN CWA45	4-18978	018029	01854		1989	E	JAPAN
198	DUMP TRUCK	NISSAN CWA45	4-18979	018026	01853		1989	E	JAPAN
199	DUMP TRUCK	NISSAN CWA45	4-18980	018010	01846		1989	E	JAPAN
200	DUMP TRUCK	NISSAN CWA45	4-18981	018024	01856		1989	N-E	JAPAN
201	DUMP TRUCK	NISSAN CWA45	4-18982	018028	01860		1989	E	JAPAN
202	DUMP TRUCK	NISSAN CWA45	4-18983	018030	01855		1989	E	JAPAN
203	DUMP TRUCK	NISSAN CWA45	4-18984	018023	01861		1988	C	JAPAN
204	DUMP TRUCK	NISSAN CWA45	4-18985	018013	01817		1988	S	JAPAN
205	DUMP TRUCK	NISSAN CWA45	4-18986	018020	01849		1988	S	JAPAN
206	DUMP TRUCK	NISSAN CWA45	4-18987	018025	01859		1988	C	JAPAN
207	DUMP TRUCK	NISSAN CWA45	4-18988	018022	01845		1988	E	JAPAN
208	DUMP TRUCK	NISSAN CWA45	4-18989	018012	01818		1988	Main D.	JAPAN
209	DUMP TRUCK	NISSAN CWA45	4-18990	018009	01851		1988	S	JAPAN
210	DUMP TRUCK	NISSAN CWA45	4-18991	018027	01852		1988	Main D.	JAPAN
211	DUMP TRUCK	NISSAN CWA45	4-18992	018021	01850		1988	E	JAPAN
212	DUMP TRUCK	NISSAN CWA45	4-18993	018017	01847	90,792	1988	E	JAPAN
213	DUMP TRUCK	NISSAN CWA45	4-21794	018527	02004	86,406	1988	S	JAPAN
214	DUMP TRUCK	NISSAN CWA45	4-21795	018526	02000	86,406	1988	W	JAPAN
215	DUMP TRUCK	NISSAN CWA45	4-21797	018530	02001	86,406	1988	W	JAPAN
216	DUMP TRUCK	NISSAN CWA45	4-21799	018532	02002		1988	C	JAPAN
217	DUMP TRUCK	NISSAN CWA45	4-21780		02003		1988	C	JAPAN
218	DUMP TRUCK	VOLVO N 7	4-19505	172791	012348		1986	Main D.	UNCDF
219	DUMP TRUCK	VOLVO N 7	4-19311	172792	012346		1986	Main D.	UNCDF
220	DUMP TRUCK	VOLVO N 7	4-19312	172793	012349		1986	Main D.	UNCDF
221	DUMP TRUCK	FIAT (AMCE) 682	4-16476		100658		1989	Main D.	GOV
222	DUMP TRUCK	FIAT (AMCE) 682	4-16477				1989	Main D.	GOV
223	DUMP TRUCK	FIAT (AMCE) 682	4-16485	136954	100660		1989	E	GOV
224	DUMP TRUCK	FIAT (AMCE) 682	4-16699	136950	100661		1989	E	GOV
225	DUMP TRUCK	FIAT (AMCE) 682	4-17483	136913	100700		1989	E	GOV
226	DUMP TRUCK	FIAT (AMCE) 682	4-17485	137069	100764		1989	N-E	GOV
227	DUMP TRUCK	FIAT (AMCE) 682	4-17484	137076	100763		1989	N-E	GOV
228	DUMP TRUCK	FIAT (IVECO)	4-18841	137221	100856		1988	Main D.	GOV
229	DUMP TRUCK	FIAT (IVECO) 330-3	UN 1852	197205	4024285		1987	E	EIPRD
230	DUMP TRUCK	FIAT (IVECO)	4-805	197140	4024283		1987	E	EIPRD
231	DUMP TRUCK	FIAT (IVECO)	4-18842	137252	100857		1988	Main D.	GOV
232	DUMPER	VOLVO 861	UN 1756	82153	59896	SDR392,260	1987	S-E	UNCDF
233	DUMPER	VOLVO 861	UN 1757	83281	59906		1987	S-E	UNCDF
234	DUMP TRUCK	SCANIA 92H	4-14749	5078575	110809		1988	S-E	GOV

G-1 : Inventory of Construction Equipment for SSID Project(4/5)

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br.	Deliv' Year	Location Deliv'd	Donner Finance
235	DUMP TRUCK	SCANIA 92H	4-18351	5078922	1132302	171, 671	1988	N-W	GOV
236	DUMP TRUCK	SCANIA 92H	4-18352	5079357	1132587	171, 671	1988	S	GOV
237	DUMP TRUCK	SCANIA 92H	4-18353	5079118	1132595		1988	W	GOV
238	DUMP TRUCK	SCANIA 92H	4-18354	5079358	1132588		1988	S	GOV
239	DUMP TRUCK	SCANIA 92H	4-18355	5079139	1132586		1988	W	GOV
240	DUMP TRUCK	SCANIA 92H	4-18356	5078756	1132320		1988	E	GOV
241	DUMP TRUCK	SCANIA 92H	4-18357	5078972	1132362		1988	N-W	GOV
242	DUMP TRUCK	SCANIA 92H	4-18358	5078954	1132556		1988	C	GOV
243	DUMP TRUCK	SCANIA 92H	4-18359	5079017	1132321		1988	N-W	GOV
244	DUMP TRUCK	SCANIA 92H	4-18360	5079355	1132571		1988	S	GOV
245	DUMP TRUCK	SCANIA 92H	4-18361	5079361	1132602		1988	S	GOV
246	DUMP TRUCK	SCANIA 92H	4-18362	5078755	1132343		1988	C	GOV
247	DUMP TRUCK	SCANIA 92H	4-18363	5078590	1132733		1988	E	GOV
248	DUMP TRUCK	SCANIA 92H	4-18364	5078571	1131818		1988	M. D	GOV
249	DUMP TRUCK	SCANIA 92H	4-18365	5078816	1132318		1988	S-W	GOV
250	DUMP TRUCK	SCANIA 92H	4-18366				1988	E	GOV
251	DUMP TRUCK	SCANIA 92H	4-18367	5079018	1132346		1988	N-W	GOV
252	DUMP TRUCK	SCANIA 92H	4-18368	5079012	1132277		1988	M. D	GOV
253	DUMP TRUCK	SCANIA 92H	4-18369	5078928	1132305		1988	E	GOV
254	DUMP TRUCK	SCANIA 92H	4-18370	5078762	1132344		1988	C	GOV
255	DUMP TRUCK	SCANIA 92H	4-18371	5079016	1131902		1988	S	GOV
256	DUMP TRUCK	SCANIA 92H	4-18372	5078828	1132359		1988	N-W	GOV
257	DUMP TRUCK	SCANIA 92H	4-18373	5078764	1131862		1988	Main D.	GOV
258	DUMP TRUCK	SCANIA 92H	4-18449	5078946	1132555		1988	S-E	GOV
259	DUMP TRUCK	SCANIA 92H	4-18374	5078924	1132279		1988	S-E	GOV
260	DUMP TRUCK	SCANIA 92H	4-18375	5078757	1132105		1988	S-W	GOV
261	DUMP TRUCK	SCANIA 92H	4-18376				1988	Main D.	GOV
262	DUMP TRUCK	SCANIA 92H	4-18377		1131863		1988	Main D.	GOV
263	DUMP TRUCK	SCANIA 92H	4-18378	5078765			1988	N-W	GOV
264	DUMP TRUCK	SCANIA 92H	4-18379	5078591	1131777		1988	E	GOV
265	DUMP TRUCK	SCANIA 92H	4-18380	5078400	1131434		1988	S-W	GOV
266	DUMP TRUCK	SCANIA 92H	4-18381	5078415	1131432		1988	E	GOV
267	DUMP TRUCK	SCANIA 92H	4-18382	7077289	1131391		1988	S-W	GOV
268	DUMP TRUCK	SCANIA 92H	4-18383	5078575	1131390		1988	S-W	GOV
269	DUMP TRUCK	SCANIA 92H	4-18384	5078430	1131387		1988	S-W	GOV
270	DUMP TRUCK	SCANIA 92H	4-18385	5078433	1131861		1988	E	GOV
271	DUMP TRUCK	SCANIA 92H	4-18386	5078429	1131375		1988	E	GOV
272	DUMP TRUCK	SCANIA 92H	4-18387	5078570	1131376		1988	E	GOV
273	DUMP TRUCK	SCANIA 92H	4-18388	5078228	1132017		1988	Main D.	GOV
274	DUMP TRUCK	SCANIA 92H	4-18389	5078759	1131861		1988	N-W	GOV
275	DUMP TRUCK	SCANIA 92H	4-18390	5078423	1131380		1988	S-E	GOV
276	DUMP TRUCK	SCANIA 92H	4-18391	5078923	1132304		1988	S-E	GOV
277	DUMP TRUCK	SCANIA 92H	4-18392	5079127	1132594		1988	C-S	GOV
278	DUMP TRUCK	SCANIA 92H	4-18431	5078565	1131376		1988	N-E	GOV
279	DUMP TRUCK	SCANIA 92H	4-18432	5078431	1131382		1988	N-E	GOV
280	DUMP TRUCK	SCANIA 92H	4-18433		1131778/1131385		1988	N-E	GOV
281	DUMP TRUCK	SCANIA 92H	4-18434	5078576	113389		1988	S	GOV
282	DUMP TRUCK	SCANIA 92H	4-18435	5078594	1131781		1988	N-E	GOV
283	DUMP TRUCK	SCANIA 92H	4-14748	5078654	1108232		1988	N-E	GOV
284	DUMP TRUCK	SCANIA 92H	4-18436		1131779		1988	N-E	GOV
285	DUMP TRUCK	SCANIA 92H	4-18438	5078926	1132345		1988	S	GOV
286	DUMP TRUCK	SCANIA 92H	4-18439	5078916	1131004		1988	S-E	GOV
287	DUMP TRUCK	SCANIA 92H	4-18440	5078921	1132148		1988	N-E	GOV
288	DUMP TRUCK	SCANIA 92H	4-18441	5078920	1132276		1988	Main D.	GOV
289	DUMP TRUCK	SCANIA 92H	4-18443	5079014	1132278		1988	N-E	GOV
290	DUMP TRUCK	SCANIA 92H	4-18444	5078956	1132557		1988	S	GOV
291	DUMP TRUCK	SCANIA 92H	4-18445	5079184	1132570		1988	N-E	GOV
292	DUMP TRUCK	SCANIA 92H	4-18446	5079120	1132593		1988	N-E	GOV
293	DUMP TRUCK	SCANIA 92H	4-18447	5078591	1131337		1988	S-E	GOV
294	DUMP TRUCK	SCANIA 92H	4-18448	5078599	1131735		1988	C	GOV
295	DUMP TRUCK	SCANIA 92H	4-18450	5078415	1131432		1988	E	GOV
296	DUMP TRUCK	SCANIA 92H	4-18451	5078568	1131734		1988	S	GOV
297	DUMP TRUCK	SCANIA 92H	4-18452	5078917	1131903		1988	S-E	GOV
298	DUMP TRUCK	SCANIA 92H	4-18453	5078819	1132319		1988	S-E	GOV
299	DUMP TRUCK	SCANIA 92H	4-18454	5079136	1132572		1988	S	GOV
300	DUMP TRUCK	SCANIA 92H	4-18455	5078122	1132601		1988	S-E	GOV
301	DUMP TRUCK	SCANIA 92H	4-18456	5078930	1132360		1988	S	GOV
302	DUMP TRUCK	SCANIA 92H	4-18457	5079362	1132603		1988	S	GOV
303	DUMP TRUCK	SCANIA 92H	4-18437						GOV
304	FLAT BED	SCANIA 92H	4-18442	50708815	1132186		1988	C	GOV
305	STATION WAGON	NISSAN	14560			31, 411	1985	N-W	JAPAN
306	STATION WAGON	NISSAN	14561	1596128	780148	31, 411	1985	C	JAPAN
307	STATION WAGON	NISSAN	14562	1596092	780089	31, 411	1985	S	JAPAN
308	STATION WAGON	NISSAN	15397	169186	781338		1985	Main D.	JAPAN
309	STATION WAGON	NISSAN	14859	1596093	780072		1985	S-W	JAPAN
310	STATION WAGON	NISSAN	15398	169264	781338		1987	S-E	JAPAN
311	STATION WAGON	NISSAN	18460	001251	100240	31, 411	1988	N	JAPAN
312	STATION WAGON	NISSAN	18461	000169	100249	31, 411	1988	N-E	JAPAN

G-1 : Inventory of Construction Equipment for SSID Project(5/5)

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv' d Year	Location Deliv' d	Donner Finance
313	STATION WAGON	NISSAN	18462	001587	100294	31,411	1988	Main D.	JAPAN
314	STATION WAGON	NISSAN	18463	001504	100286	31,411	1988	E	JAPAN
315	STATION WAGON	TOYOTA	21448	1197686	048174			C-S	JAPAN
316	STATION WAGON	TOYOTA	21601	1197524	048130			N-W	JAPAN
317	STATION WAGON	TOYOTA	4-16997	1154081	040847			W	JAPAN
318	STATION WAGON	TOYOTA	19384	1109202	031459		1985	Main D.	UNCDF
319	STATION WAGON	TOYOTA	19493	1109039	031446		1985	Main D.	UNCDF
320	STATION WAGON	TOYOTA	19152	8899688	021021		1985	S	UNCDF
321	STATION WAGON	TOYOTA	19170	0899688	021032		1985	Main D.	UNCDF
322	STATION WAGON	TOYOTA	UN 1686	1123732	035265		1987	Main D.	EIPRD
323	STATION WAGON	TOYOTA	UN 1691	1123921	035322		1987	C-S	EIPRD
324	STATION WAGON	TOYOTA	UN 1765	1115008	911437		1987	E	EIPRD
325	STATION WAGON	TOYOTA	UN 1766	1115678	911460		1987	E	EIPRD
326	STATION WAGON	NISSAN	22856	038982	107639		1991	Main D.	UNCDF
327	STATION WAGON	NISSAN	22857	038900	107645		1991	Main D.	UNCDF
328	STATION WAGON	NISSAN	22564	029009	105672		1990	Main D.	IFAD
329	STATION WAGON	NISSAN	22697	029714	105619		1990	S-E	IFAD
330	PICK-UP D. CABIN	ISUZU	4-18458	280349	7100036	18,000	1988	S	JAPAN
331	PICK-UP D. CABIN	ISUZU	4-18459	280348	7100037	18,000	1988	S-W	JAPAN
332	PICK-UP D. CABIN	ISUZU	4-18464	229870	7100040	18,000	1988	S-W	JAPAN
333	PICK-UP D. CABIN	ISUZU	4-18465	280888	7100035		1988	N-E	JAPAN
334	PICK-UP D. CABIN	ISUZU	4-18466	280351	7100034		1988	Main D.	JAPAN
335	PICK-UP D. CABIN	ISUZU	4-18467	279950	7100039		1988	N-W	JAPAN
336	PICK-UP D. CABIN	ISUZU	18469		7200010		1988	E	JAPAN
337	PICK-UP D. CABIN	ISUZU	18470	280209	7100011		1988	C-S	JAPAN
338	PICK-UP D. CABIN	ISUZU	18471	280219	7100041		1988	E	JAPAN
339	PICK-UP D. CABIN	ISUZU	18472	280347	7100036		1988	N-E	JAPAN
340	PICK-UP D. CABIN	TOYOTA	19168	1626074	0071081		1988	S	UNCDF
341	PICK-UP D. CABIN	TOYOTA	19169	1623267	0070984		1988	N-W	UNCDF
342	PICK-UP D. CABIN	TOYOTA	19196	1628671	5071203		1988	Main D.	UNCDF
343	STATION WAGON	NISSAN	22856	038982	107639		1991	Main D.	UNCDF
344	STATION WAGON	NISSAN	22857	038900	107645		1991	Main D.	UNCDF
345	STATION WAGON	NISSAN	22564	029009	105672		1990	Main D.	IFAD
346	STATION WAGON	NISSAN	22697	029714	105619		1990	S-E	IFAD
347	STATION WAGON	NISSAN		01108			1990	E	IFAD
348	PICK-UP D. CABIN	TOYOTA	21449	1854299	0009416		1990	W	JAPAN
349	PICK-UP D. CABIN	TOYOTA	21450	1853756	0009334			S-E	JAPAN
350	PICK-UP D. CABIN	TOYOTA	21451	178609	0010133		1989	Main D.	JAPAN
351	PICK-UP D. CABIN	TOYOTA	21452	1861011	0009999		1989	E	JAPAN
352	PICK-UP D. CABIN	LANDROVER	16801		306790		1987	Main D.	EEC
353	PICK-UP D. CABIN	LANDROVER	16802	306712	311757		1987	C	EEC
354	PICK-UP D. CABIN	LANDROVER	16803		306879		1987	N-W	EEC
355	PICK-UP D. CABIN	LANDROVER	16804	357380	306872		1987	W	EEC
356	PICK-UP D. CABIN	LANDROVER	16805	362210	308594		1987	Main D.	EEC
357	PICK-UP D. CABIN	LANDROVER	16806	35623	308579		1987	W	EEC
358	PICK-UP D. CABIN	TOYOTA	19759	68030	0013971			S	UNCDF
359	PICK-UP D. CABIN	TOYOTA	UN 0693	1127539	0013960			C-S	UNCDF
360	PICK-UP D. CABIN	TOYOTA	UN 0697	1127577	0023911			S	UNCDF
361	PICK-UP D. CABIN	TOYOTA	UN 1674	1106515	006384			N-W	UNCDF
362	PICK-UP D. CABIN	TOYOTA	UN 0972	1123530	0012789		1986	E	EIPRD
363	PICK-UP D. CABIN	TOYOTA	UN 1578	11233928	19892		1986	E	EIPRD
364	PICK-UP D. CABIN	NISSAN	4-19654	1106673	000643		1986	C	SWISS

G-2 : Inventory of Construction Equipment for SSID Project in Main Department

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost In Brr	Deliv'd Year	Donner	Remarks	
1	38	LOADER	KOMATSU WA380-1	11234	29893		243,735	1989	JAPAN	out of order
2	55	LOADER	KOMATSU D57-S	08578	25922			1986	UNCDF	chain loader
3	92	SCRAPER	KOMATSU WS165S	3007	127228			1988	JAPAN	
4	133	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18247			182,438	1988	JAPAN	
5	134	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18249	018060	01876	182,438	1988	JAPAN	
6	135	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18864				1988	JAPAN	
7	136	TRUCK SEMI-TRAILED	HINO SS633SA	4-21832	24804	10186	212,611	1989	JAPAN	
8	137	TRUCK SEMI-TRAILED	HINO SS633SA	4-21833	24863	10171	212,611	1989	JAPAN	
9	138	TRUCK SEMI-TRAILED	HINO SS633SA	4-21834	24838	10170	212,611	1989	JAPAN	
10	139	TRUCK SEMI-TRAILED	HINO SS633SA	4-21835	24821	10169	212,611	1989	JAPAN	
11	140	LOW-BED	NISSAN CWA45	4-22356	018525	00179	253,163	1989	JAPAN	
12	141	LOW-BED	NISSAN CWA45	4-22357	018523	00180	253,163	1989	JAPAN	
13	142	LOW-BED	NISSAN CWA45	4-19397	18007	00169	255,761	1989	JAPAN	
14	143	LOW-BED	NISSAN CWA45	4-19398	052758	00001	255,761	1989	JAPAN	
15	144	LOW-BED	SCANIA 112E	4-19863	5295727	1132018		1988	UNCDF	
16	145	TRUCK	VOLVO N7	4-18196	131191	010525		1986	UNCDF	
17	146	TRUCK	VOLVO N7	4-19653	131198	010524		1986	UNCDF	
18	147	TRUCK	SCANIA 93H	4-20731	905081344	01136233	134,550	1991	UNCDF	
19	148	TRUCK	FIAT	4-16333	205963	17420		1988	GOV	
20	149	TRUCK	FIAT	4-16334	205944	17419		1988	GOV	
21	150	MOBILE WORKSHOP	NISSAN TFA	4-19467	052758	00001	162,753	1987	JAPAN	
22	151	MOBILE WORKSHOP	NISSAN TFA	4-19487	002563	15037	162,753	1987	JAPAN	
23	152	MOBILE WORKSHOP	NISSAN TFA	4-21317	053686	00030	170,775	1989	JAPAN	
24	155	MOBILE WORKSHOP	LANDROVER-110	4-15281	243128	137130		1986	EEC	
25	156	MOBILE WORKSHOP	LANDROVER-110	4-15282	243123	137160		1986	EEC	
26	161	CRANE	TADANO TS-70ML	238011			128,744	1988	JAPAN	
27	162	CRANE	TADANO TS-70ML	238012			128,744	1988	JAPAN	
28	163	CRANE	TADANO TR-230E	530233			309,690	1989	JAPAN	
29	173	DUMP TRUCK	NISSAN TFA21	4-14581	115195	02087		1987	JAPAN	
30	187	DUMP TRUCK	NISSAN TFA21	4-14595	115129	02064		1987	JAPAN	
31	208	DUMP TRUCK	NISSAN CWA45	4-18989	018012	01818		1988	JAPAN	
32	210	DUMP TRUCK	NISSAN CWA45	4-18991	018027	01852		1988	JAPAN	
33	218	DUMP TRUCK	VOLVO N 7	4-19505	172791	012348		1986	UNCDF	
34	219	DUMP TRUCK	VOLVO N 7	4-19311	172792	012346		1986	UNCDF	
35	220	DUMP TRUCK	VOLVO N 7	4-19312	172793	012349		1986	UNCDF	
36	221	DUMP TRUCK	FIAT (AMCE) 682	4-16476		100658		1989	GOV	
37	222	DUMP TRUCK	FIAT (AMCE) 682	4-16477				1989	GOV	
38	228	DUMP TRUCK	FIAT (IVECO)	4-18841	137221	100856		1988	GOV	under EPRDF
39	231	DUMP TRUCK	FIAT (IVECO)	4-18842	137252	100857		1988	GOV	
40	248	DUMP TRUCK	SCANIA 92H	4-18364	5078571	1131818		1988	GOV	
41	252	DUMP TRUCK	SCANIA 92H	4-18368	5079012	1132277		1988	GOV	
42	257	DUMP TRUCK	SCANIA 92H	4-18373	5078764	1131862		1988	GOV	
43	261	DUMP TRUCK	SCANIA 92H	4-18376				1988	GOV	under repair
44	262	DUMP TRUCK	SCANIA 92H	4-18377		1131863		1988	GOV	
45	273	DUMP TRUCK	SCANIA 92H	4-18388	5078228	1132017		1988	GOV	
46	288	DUMP TRUCK	SCANIA 92H	4-18441	5078920	1132276		1988	GOV	
47	308	STATION WAGON	NISSAN	15397	169186	781338		1985	JAPAN	
48	313	STATION WAGON	NISSAN	18462	001587	100294	31,411	1988	JAPAN	
49	318	STATION WAGON	TOYOTA	19384	1109202	031459		1985	UNCDF	
50	319	STATION WAGON	TOYOTA	19493	1109039	031446		1985	UNCDF	
51	321	STATION WAGON	TOYOTA	19170	0899688	021032		1985	UNCDF	
52	322	STATION WAGON	TOYOTA	UN 1686	1123732	035265		1987	EIPRD	
53	326	STATION WAGON	NISSAN	22856	038982	107639		1991	UNCDF	br IFAD/ADF
54	327	STATION WAGON	NISSAN	22857	038990	107645		1991	UNCDF	br IFAD/ADF
55	328	STATION WAGON	NISSAN	22564	029009	105672		1990	IFAD	
56	334	PICK-UP D. CABIN	ISUZU	4-18466	280351	7100034		1988	JAPAN	
57	342	PICK-UP D. CABIN	TOYOTA	19196	1628671	5071203		1988	UNCDF	
58	343	STATION WAGON	NISSAN	22856	038982	107639		1991	UNCDF	
59	344	STATION WAGON	NISSAN	22857	038990	107645		1991	UNCDF	
60	345	STATION WAGON	NISSAN	22564	029009	105672		1990	IFAD	
61	350	PICK-UP D. CABIN	TOYOTA	21451	178609	0010133		1989	JAPAN	
62	352	PICK-UP D. CABIN	LANDROVER	16801		306790		1987	EEC	
63	356	PICK-UP D. CABIN	LANDROVER	16805	362210	308594		1987	EEC	
64	78	GRADER	FIATALLIS FG85		759847	14S00396		1988	GOV	
65	79	GRADER	FIATALLIS FG85		759848	14S00397		1988	GOV	
66	80	GRADER	FIATALLIS FG85		759854	14S00398		1988	GOV	
67	81	GRADER	FIATALLIS FG85		760044	14S00399		1988	GOV	
68	82	GRADER	FIATALLIS FG85		760043	14S00400		1988	GOV	
69	84	GRADER	FIATALLIS FG85		758892	14S00402		1988	GOV	
70	85	GRADER	FIATALLIS FG85		759892	14S00403		1988	GOV	
71	86	GRADER	FIATALLIS FG85		759828	14S00404		1988	GOV	
72	87	GRADER	FIATALLIS FG85		730221	14S00405		1988	GOV	
73	95	BACK-HOE LOADER	VOLVO 646		35125	8462		1988	UNCDF	
74	96	BACK-HOE LOADER	VOLVO 646		62327	2988			UNCDF	
75	168	WATER BOWSER	LEYLAND 411	4-15436	8640082	00697		1987	EEC	
76	303	DUMP TRUCK	SCANIA 92H	4-18437					GOV	out of order
77	88	EXCAVATOR	mitsubishi MS140	2470	6D 389424				JAPAN	under repair
78	40	LOADER	FURUKAWA FL330-1				129,000	1988	JAPAN	Assab

G-3 : Inventory of Construction Equipment for SSID Project in Central Zone

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Brr	Deliv'd Year	Donner	Remarks
1	11	Bulldozer	KOMATSU D65E	34724	26169221		?	JAPAN	
2	13	Bulldozer	KOMATSU D75A	50180	130297			JAPAN	
3	14	Bulldozer	KOMATSU D75A	50181	30298		286,965	JAPAN	
4	20	Bulldozer	FIATALLIS FD20	008992	008974		286,965	GOV	
5	22	Bulldozer	FIATALLIS FD20	008999	009000			GOV	
6	32	Bulldozer	FIATALLIS FD20	009013	009060			GOV	
7	41	LOADER	VOLVO 4400	33203	82842	3796	196,813	UNCDF	
8	56	LOADER	KOMATSU D57-S	08579	25921			EEC	chain loader
9	65	COMPACTOR	DYNAPAC CA25PD	7049320	7049320			UNCDF	
10	103	TRACTOR	KUBOTA M7500	52069	36660			JAPAN	
11	108	TRACTOR	KUBOTA M7500	52074	36658			JAPAN	
12	168	WATER BOWSER	NISSAN CWA45	4-21890	018521	02008	113,060	JAPAN	
13	172	WATER BOWSER	ZIL 5-130	4-14788	528912	2437852		GOV	
14	174	DUMP TRUCK	NISSAN TFA21	4-14582	115134	02067		JAPAN	
15	175	DUMP TRUCK	NISSAN TFA21	4-14583	115131	02068		JAPAN	
16	176	DUMP TRUCK	NISSAN TFA21	4-14584	114113	02066		JAPAN	
17	188	DUMP TRUCK	NISSAN TFA21	4-14596	115141	02067		JAPAN	
18	189	DUMP TRUCK	NISSAN TFA21	4-14597	115126	02062		JAPAN	
19	191	DUMP TRUCK	NISSAN TFA21	4-14599	115138	02069		JAPAN	
20	203	DUMP TRUCK	NISSAN CWA45	4-18984	018023	01861		JAPAN	
21	206	DUMP TRUCK	NISSAN CWA45	4-18987	018025	01859		JAPAN	
22	216	DUMP TRUCK	NISSAN CWA45	4-21799	018532	02002		JAPAN	
23	217	DUMP TRUCK	NISSAN CWA45	4-21780	02003			JAPAN	
24	242	DUMP TRUCK	SCANIA 92H	4-18358	5078954	1132556		GOV	
25	246	DUMP TRUCK	SCANIA 92H	4-18362	5078755	1132343		GOV	
26	254	DUMP TRUCK	SCANIA 92H	4-18370	5078762	1132344		GOV	
27	294	DUMP TRUCK	SCANIA 92H	4-18448	5078599	1131735		GOV	
28	304	FLAR BED	SCANIA 92H	4-18442	50708815	1132186		GOV	
29	306	STATION WAGON	NISSAN	14561	1596128	780148	31,411	JAPAN	
30	353	PICK-UP D. CABIN	LANDROVER	16802	306712	311757		EEC	
31	364	PICK-UP D. CABIN	NISSAN	4-19654	1106673	000643		SWISS	

G-4 : Inventory of Construction Equipment for SSID Project in Central-south Zone

Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Brr	Deliv'd Year	Donner	Remarks
1	1	Bulldozer	CAT D6C	20X 04661	13Z 08303			1986	UNCDF
2	3	Bulldozer	CAT D6D	31X 03780	18Z 09020			1985	JAPAN
3	5	Bulldozer	CAT D6D	31X 03782	10Z 09022			1986	JAPAN
4	7	Bulldozer	CAT D6D	31X 03784	10Z 09024			1986	JAPAN
5	10	Bulldozer	CAT D7G	92V 12464	8Z 23722			1985	UNCDF
6	67	COMPACTOR	DYNAPAC CA25	575740	7049328			1989	JAPAN
7	70	GRADER	CAT 120G	87V 07541	17711920			1987	UNCDF
8	94	SCRAPER	CAT 623E	6CB00843	70V 29771		513,000	1991	JAPAN
9	109	TRACTOR	KUBOTA M7500	52075				1988	JAPAN
10	158	MOBILE GREASING PLAN	NISSAN TEA41	4-19455	052758	00001	65,571	1987	JAPAN
11	183	DUMP TRUCK	NISSAN TFA21	4-14591	115198	02085		1987	JAPAN
12	277	DUMP TRUCK	SCANIA 92H	4-18392	5079127	1132594		1988	GOV
13	315	STATION WAGON	TOYOTA	21448	1197686	048174			JAPAN
14	323	STATION WAGON	TOYOTA	UN 1691	1123921	035322		1987	EIPRD
15	337	PICK-UP D. CABIN	ISUZU	18470	280209	7100011		1988	JAPAN
16	359	PICK-UP D. CABIN	TOYOTA	UN 0693	1127539	0013960			UNCDF

G-5 : Inventory of Construction Equipment for SSID Project in Eastern Zone

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv'd Year	Donner	Remarks
1	16	Bulldozer	KOMATSU D75A	50183	30300		286, 965	1988	JAPAN	
2	24	Bulldozer	FIATALLIS FD20	009002	008976			1987	GOV	
3	25	Bulldozer	FIATALLIS FD20	009003	009003			1987	GOV	
4	30	Bulldozer	FIATALLIS FD20	009010	009053			1987	GOV	
5	33	Bulldozer	FIATALLIS FD20	009014	009059			1987	GOV	
6	34	Bulldozer	FIATALLIS FD20	009015	009054			1987	GOV	
7	43	LOADER	BENATI 22SB	222322				1987	GOV	
8	46	LOADER	BENATI 22SB	222325				1987	GOV	
9	49	LOADER	BENATI 22SB	222328				1987	GOV	
10	51	LOADER	BENATI 22SB	222330				1987	GOV	
11	59	COMPACTOR	SAKAI SV91CT	10020	0617153			1989	JAPAN	
12	60	COMPACTOR	SAKAI SV91CT	10021	0617159			1989	JAPAN	
13	63	COMPACTOR	CAT CB-521	6RD 00017				1987	EIPRD	
14	64	COMPACTOR	CAT CB-521	6RD 00018				1987	EIPRD	
15	72	GRADER	MITSUBISHI-MG350	6G000230	517116		175, 500	1989	JAPAN	
16	73	GRADER	MITSUBISHI-MG350	6G000187	517099		175, 500	1989	JAPAN	
17	76	GRADER	FIATALLIS FG85	44Y00266	759358			1988	EIPRD	
18	77	GRADER	FIATALLIS FG85		759675	44Y00264		1988	EIPRD	
19	83	GRADER	FIATALLIS FG85		759829	14S00401		1988	GOV	
20	90	EXCAVATOR	HITACHI EX200		118407	145-36120	148, 440	1988	JAPAN	
21	98	BACK-HOE LOADER	3300T	11951015				1988	GOV	
22	99	BACK-HOE LOADER	3300T	11951016				1988	GOV	
23	100	BACK-HOE LOADER	3300T	11951018				1988	GOV	
24	126	TRACTOR	FIAT AGRI	411068	106679				EIPRD	
25	127	TRACTOR	FIAT AGRI	411069	106997				EIPRD	
26	128	TRACTOR	FIAT AGRI	411070	110329				EIPRD	
27	129	TRACTOR	FIAT AGRI	411084	110140				EIPRD	
28	130	TRACTOR	FIAT AGRI	411079	110469				EIPRD	
29	131	TRACTOR	FIAT AGRI	411157	110033				EIPRD	
30	132	TRACTOR	FIAT AGRI	411066	106825				EIPRD	
31	153	MOBILE WORKSHOP	FIAT-IVECO 190. 26	UN1891	197328	4024305	28, 552	1987	EIPRD	
32	154	MOBILE WORKSHOP	FIAT-IVECO 190. 26	4-00804	197388	4024304	US\$13, 793	1987	EIPRD	
33	164	WATER BOWSER	LEYLAND 411	4-15434	8640986	00683		1987	EEC	
34	165	WATER BOWSER	LEYLAND 411	4-15435	8640080	00698		1987	EEC	
35	167	WATER BOWSER	LEYLAND 411	4-15437	8648874	00661		1987	EEC	
36	177	DUMP TRUCK	NISSAN TFA21	4-14585	115213	02088		1987	JAPAN	
37	178	DUMP TRUCK	NISSAN TFA21	4-14586	115135	02060		1987	JAPAN	out of order
38	190	DUMP TRUCK	NISSAN TFA21	4-14598	115125	02053		1987	JAPAN	
39	193	DUMP TRUCK	NISSAN CWA45	4-18974	018015	01819	90, 792	1989	JAPAN	
40	194	DUMP TRUCK	NISSAN CWA45	4-18975	018031	01858		1989	JAPAN	
41	195	DUMP TRUCK	NISSAN CWA45	4-18976	018018	01845		1989	JAPAN	
42	196	DUMP TRUCK	NISSAN CWA45	4-18977	018033	01851		1989	JAPAN	
43	197	DUMP TRUCK	NISSAN CWA45	4-18978	018029	01854		1989	JAPAN	
44	198	DUMP TRUCK	NISSAN CWA45	4-18979	018026	01853		1989	JAPAN	
45	199	DUMP TRUCK	NISSAN CWA45	4-18980	018010	01846		1989	JAPAN	
46	201	DUMP TRUCK	NISSAN CWA45	4-18982	018028	01860		1989	JAPAN	
47	202	DUMP TRUCK	NISSAN CWA45	4-18983	018030	01855		1989	JAPAN	
48	207	DUMP TRUCK	NISSAN CWA45	4-18988	018022	01845		1988	JAPAN	
49	211	DUMP TRUCK	NISSAN CWA45	4-18992	018021	01850		1988	JAPAN	
50	212	DUMP TRUCK	NISSAN CWA45	4-18993	018017	01847	90, 792	1988	JAPAN	
51	223	DUMP TRUCK	FIAT (AMCE)682	4-18485	136954	100660		1989	GOV	
52	224	DUMP TRUCK	FIAT (AMCE)682	4-18699	136950	100661		1989	GOV	
53	225	DUMP TRUCK	FIAT (AMCE)682	4-17483	136913	100700		1989	GOV	
54	229	DUMP TRUCK	FIAT (IVECO)330-30	UN 1852	197205	4024285		1987	EIPRD	
55	230	DUMP TRUCK	FIAT (IVECO)	4-805	197140	4024283		1987	EIPRD	
56	240	DUMP TRUCK	SCANIA 92H	4-18356	5078756	1132320		1988	GOV	under repair
57	247	DUMP TRUCK	SCANIA 92H	4-18363	5078590	1132733		1988	GOV	
58	250	DUMP TRUCK	SCANIA 92H	4-18366				1988	GOV	
59	253	DUMP TRUCK	SCANIA 92H	4-18369	5078928	1132305		1988	GOV	
60	264	DUMP TRUCK	SCANIA 92H	4-18379	5078591	1131777		1988	GOV	
61	266	DUMP TRUCK	SCANIA 92H	4-18381	5078415	1131432		1988	GOV	
62	270	DUMP TRUCK	SCANIA 92H	4-18385	5078433	1131861		1988	GOV	
63	271	DUMP TRUCK	SCANIA 92H	4-18386	5078429	1131375		1988	GOV	
64	272	DUMP TRUCK	SCANIA 92H	4-18387	5078570	1131376		1988	GOV	
65	295	DUMP TRUCK	SCANIA 92H	4-18450	5078415	1131432		1988	GOV	under repair detective
66	314	STATION WAGON	NISSAN	18463	001504	100286	31, 411	1988	JAPAN	
67	324	STATION WAGON	TOYOTA	UN 1765	1115008	911437		1987	EIPRD	
68	325	STATION WAGON	TOYOTA	UN 1766	1115678	911460		1987	EIPRD	
69	336	PICK-UP D. CABIN	ISUZU	18469		7200010		1988	JAPAN	
70	338	PICK-UP D. CABIN	ISUZU	18471	280219	7100041		1988	JAPAN	
71	347	STATION WAGON	NISSAN		01108			1990	IFAD	
72	351	PICK-UP D. CABIN	TOYOTA	21452	1861011	0009999		1989	JAPAN	
73	362	PICK-UP D. CABIN	TOYOTA	UN 0972	1123530	0012789		1986	EIPRD	
74	363	PICK-UP D. CABIN	TOYOTA	UN 1578	11233928	19892		1986	EIPRD	
75	159	MOBILE GREASING PLAN	NISSAN TEA41	4-19468	052757	08002	155, 572	1987	JAPAN	

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv' d Year	Donner	Remarks
1	21	Bulldozer	FIATALLIS FD20	008998	009002			1987	GOV	
2	23	Bulldozer	FIATALLIS FD20	009000	008905			1987	GOV	
3	45	LOADER	BENATI 22SB	222324				1987	GOV	
4	54	LOADER	BENATI 22SB	222333				1987	GOV	
5	112	TRACTOR	FIAT AGRI						EEC	
6	113	TRACTOR	FIAT AGRI						EEC	
7	114	TRACTOR	FIAT AGRI						EEC	
8	169	WATER BOWSER	NISSAN CWA45	4-22355	018520	02007	113,060	1990	JAPAN	
9	311	STATION WAGON	NISSAN	18460	001251	100240	31,411	1988	JAPAN	

G-6 : Inventory of Construction Equipment for SSID Project in Northern Zone
G-7 : Inventory of Construction Equipment for SSID Project in Northeastern Zone

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv' d Year	Donner	Remarks
1	8	Bulldozer	CAT D6D	31X 03785	102 09025			1986	JAPAN	
2	9	Bulldozer	CAT D6D	31X 03786	102 09026			1986	JAPAN	
3	27	Bulldozer	FIATALLIS FD20	009005	008978			1987	GOV	
4	31	Bulldozer	FIATALLIS FD20	009011	009053			1987	GOV	
5	53	LOADER	BENATI 22SB	222332				1987	GOV	
6	57	COMPACTOR	SAKAI SV91CT	10024			113,160	1989	JAPAN	
7	58	COMPACTOR	SAKAI SV91CT	10023			113,160	1989	JAPAN	
8	66	COMPACTOR	DYNAPAC GA25PD	56015				1989	JAPAN	
9	97	BACK-HOE LOADER	3300T	11951014				1988	GOV	
10	101	BACK-HOE LOADER	3300T	11951195				1988	GOV	
11	106	TRACTOR	KUBOTA M7500	52072				1988	JAPAN	
12	111	TRACTOR	KUBOTA M7500	72077				1988	JAPAN	
13	117	TRACTOR	FIAT AGRI 8066DT		110482			1988	EEC	
14	179	DUMP TRUCK	NISSAN TFA21	4-14587	115173	02071		1987	JAPAN	
15	180	DUMP TRUCK	NISSAN TFA21	4-14588	115191	02073		1987	JAPAN	put of order
16	181	DUMP TRUCK	NISSAN TFA21	4-14589	115170	02070		1987	JAPAN	put of order
17	182	DUMP TRUCK	NISSAN TFA21	4-14590	115172	02072		1987	JAPAN	put of order
18	184	DUMP TRUCK	NISSAN TFA21	4-14592	115188	02089		1987	JAPAN	
19	185	DUMP TRUCK	NISSAN TFA21	4-14593	115125	02086		1987	JAPAN	put of order
20	192	DUMP TRUCK	NISSAN TFA21	4-14600	115187	02090		1987	JAPAN	
21	200	DUMP TRUCK	NISSAN CWA45	4-18981	018024	01856		1989	JAPAN	
22	226	DUMP TRUCK	FIAT (AMCE)682	4-17485	137069	100764		1989	GOV	
23	227	DUMP TRUCK	FIAT (AMCE)682	4-17484	137076	100763		1989	GOV	
24	278	DUMP TRUCK	SCANIA 92H	4-18431	5078565	1131376		1988	GOV	
25	279	DUMP TRUCK	SCANIA 92H	4-18432	5078431	1131382		1988	GOV	
26	280	DUMP TRUCK	SCANIA 92H	4-18433		1131778/1131385		1988	GOV	
27	282	DUMP TRUCK	SCANIA 92H	4-18435	5078594	1131781		1988	GOV	
28	283	DUMP TRUCK	SCANIA 92H	4-14748	5078654	1108232		1988	GOV	
29	284	DUMP TRUCK	SCANIA 92H	4-18436		1131779		1988	GOV	
30	287	DUMP TRUCK	SCANIA 92H	4-18440	5078921	1132148		1988	GOV	under EPRDF
31	289	DUMP TRUCK	SCANIA 92H	4-18443	5079014	1132278		1988	GOV	
32	291	DUMP TRUCK	SCANIA 92H	4-18445	5079184	1132570		1988	GOV	under EPRDF
33	292	DUMP TRUCK	SCANIA 92H	4-18446	5079120	1132593		1988	GOV	
34	312	STATION WAGON	NISSAN	18461	000169	100249	31,411	1988	JAPAN	
35	333	PICK-UP D. CABIN	ISUZU	4-18465	280888	7100035		1988	JAPAN	
36	339	PICK-UP D. CABIN	ISUZU	18472	280347	7100036		1988	JAPAN	
37	115	TRACTOR	FIAT AGRI 65-46					1988	EEC	
38	116	TRACTOR	FIAT AGRI 8066DT		110329			1988	EEC	

G-8 : Inventory of Construction Equipment for SSID Project in Northwestern Zone

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv'd Year	Donner	Remarks
1	2	Bulldozer	CAT D6C	20X 04664	132 08280			1986	UNCDF	
2	29	Bulldozer	FIATALLIS FD20	009009	008936			1987	GOV	
3	35	Bulldozer	FIATALLIS FD20	009046	009130			1987	GOV	
4	37	LOADER	CAT 926	8NR 0065	45V 52267			1988	JAPAN	
5	42	LOADER	VOLVO 4400	33205	80609	6437		1986	UNCDF	
6	61	COMPACTOR	SAKAI SV91CT	10022				1989	JAPAN	
7	82	COMPACTOR	SAKAI SV91CT	10025				1989	JAPAN	
8	71	GRADER	KOMSTSU GD511R	10011	32760		184,065	1988	JAPAN	
9	105	TRACTOR	KUBOTA M7500	52071				1988	JAPAN	
10	171	WATER BOWSER	ZIL 5-130	4-14787	568972	2458467		1986	GOV	
11	235	DUMP TRUCK	SCANIA 92H	4-18351	5078922	1132302	171,671	1988	GOV	under EPRDF
12	241	DUMP TRUCK	SCANIA 92H	4-18357	5078972	1132362		1988	GOV	under EPRDF
13	243	DUMP TRUCK	SCANIA 92H	4-18359	5079017	1132321		1988	GOV	under EPRDF
14	251	DUMP TRUCK	SCANIA 92H	4-18367	5079018	1132346		1988	GOV	under EPRDF
15	256	DUMP TRUCK	SCANIA 92H	4-18372	5078828	1132359		1988	GOV	under EPRDF
16	263	DUMP TRUCK	SCANIA 92H	4-18378	5078765			1988	GOV	detective
17	274	DUMP TRUCK	SCANIA 92H	4-18389	5078759	1131861		1988	GOV	under EPRDF
18	305	STATION WAGON	NISSAN	14560			31,411	1985	JAPAN	
19	316	STATION WAGON	TOYOTA	21601	1197524	048130			JAPAN	
20	335	PICK-UP D. CABIN	ISUZU	4-18467	279950	7100039		1988	JAPAN	
21	341	PICK-UP D. CABIN	TOYOTA	19169	1623267	0070984		1988	UNCDF	
22	354	PICK-UP D. CABIN	LANDROVER	16803		306879		1987	EEC	
23	361	PICK-UP D. CABIN	TOYOTA	UN 1674	1106515	006384			UNCDF	

G-9 : Inventory of Construction Equipment for SSID Project in Southern Zone

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv'd Year	Donner	Remarks
1	15	Bulldozer	KOMATSU D75A	50182	30299		285,965	1988	JAPAN	
2	18	Bulldozer	KOMATSU D75A	50216	35624		318,270	1988	JAPAN	
3	19	Bulldozer	DRESSER TD15C	4240004/3043	32282			1988	UNCDF	
4	28	Bulldozer	FIATALLIS FD20	009007	00923			1987	GOV	
5	36	LOADER	CAT 926	8NR 0064	45V 52266			1988	JAPAN	
6	44	LOADER	BENATI 22SB	222323				1987	GOV	
7	48	LOADER	BENATI 22SB	222327				1987	GOV	
8	68	COMPACTOR	CAT CB-521	6TD 00008				1990	UNCDF	
9	69	COMPACTOR	CAT CB-521	6TD 00008				1990	UNCDF	
10	74	GRADER	DRESSER 450E	11958	8710001531			1990	UNCDF	
11	75	GRADER	DRESSER 450E	11959	5710001520			1990	UNCDF	
12	89	EXCAVATOR	HITACHI EX200		11280	145-36121	146,440	1988	JAPAN	
13	91	EXCAVATOR	KATO HD700SE	06263	GD31009685		154,305	1988	JAPAN	
14	93	SCRAPER	KOMATSU WS165S	3008	127227		711,213	1988	JAPAN	
15	110	TRACTOR	KUBOTA M7500	52076	35672			1988	JAPAN	
16	118	TRACTOR	FIAT AGRI	413646	236201				UNCDF	
17	119	TRACTOR	FIAT AGRI	413647	235635				UNCDF	
18	120	TRACTOR	FIAT AGRI	413648	235657				UNCDF	
19	121	TRACTOR	FIAT AGRI	413649	235641				UNCDF	
20	122	TRACTOR	FIAT AGRI	413650	235654				UNCDF	
21	123	TRACTOR	FIAT AGRI	413651	237003				UNCDF	
22	124	TRACTOR	FIAT AGRI	413645					UNCDF	
23	125	TRACTOR	FIAT AGRI	413652					UNCDF	
24	157	MOBILE WORKSHOP	NISSAN CWA45	4-21316	018531	02003		1988	UNCDF	Trailed
25	186	DUMP TRUCK	NISSAN TFA21	4-14594	115145	02065		1987	JAPAN	
26	204	DUMP TRUCK	NISSAN CWA45	4-18985	018013	01817		1988	JAPAN	
27	205	DUMP TRUCK	NISSAN CWA45	4-18986	018020	01849		1988	JAPAN	
28	209	DUMP TRUCK	NISSAN CWA45	4-18990	018009	01851		1988	JAPAN	
29	213	DUMP TRUCK	NISSAN CWA45	4-21794	018527	02004	86,406	1988	JAPAN	
30	236	DUMP TRUCK	SCANIA 92H	4-18352	5079357	1132587	171,671	1988	GOV	
31	238	DUMP TRUCK	SCANIA 92H	4-18354	5079358	1132588		1988	GOV	under repair
32	244	DUMP TRUCK	SCANIA 92H	4-18360	5079355	1132571		1988	GOV	
33	245	DUMP TRUCK	SCANIA 92H	4-18361	5079361	1132602		1988	GOV	
34	255	DUMP TRUCK	SCANIA 92H	4-18371	5079016	1131902		1988	GOV	
35	281	DUMP TRUCK	SCANIA 92H	4-18434	5078576	113389		1988	GOV	
36	285	DUMP TRUCK	SCANIA 92H	4-18438	5078926	1132345		1988	GOV	
37	290	DUMP TRUCK	SCANIA 92H	4-18444	5078956	1132557		1988	GOV	
38	296	DUMP TRUCK	SCANIA 92H	4-18451	5078568	1131734		1988	GOV	detective
39	299	DUMP TRUCK	SCANIA 92H	4-18454	5079136	1132572		1988	GOV	
40	301	DUMP TRUCK	SCANIA 92H	4-18456	5078930	1132360		1988	GOV	detective
41	302	DUMP TRUCK	SCANIA 92H	4-18457	5079362	1132603		1988	GOV	
42	307	STATION WAGON	NISSAN	14562	1596092	780089	31,411	1985	JAPAN	
43	309	STATION WAGON	NISSAN	14859	1596093	780072		1985	JAPAN	
44	320	STATION WAGON	TOYOTA	19152	8899688	021021		1985	UNCDF	
45	330	PICK-UP D. CABIN	ISUZU	4-18458	280349	7100038	18,000	1988	JAPAN	
46	340	PICK-UP D. CABIN	TOYOTA	19168	1626074	0071081		1988	UNCDF	
47	358	PICK-UP D. CABIN	TOYOTA	19759	68030	0013971			UNCDF	
48	360	PICK-UP D. CABIN	TOYOTA	UN 0697	1127577	0023911			UNCDF	

G-10 : Inventory of Construction Equipment for SSID Project in Southeastern Zone

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv' d Year	Donner	Remarks
1	4	Bulldozer	CAT D6D	31X 03781	102 09021			1986	JAPAN	
2	12	Bulldozer	KOMATSU D65E	34725	26169212			?	JAPAN	
3	26	Bulldozer	FIATALLIS FD20	009004	009021			1987	GOV	
4	47	LOADER	BENATI 22SB	222326				1987	GOV	
5	50	LOADER	BENATI 22SB	222329				1987	GOV	
6	52	LOADER	BENATI 22SB	222331				1987	GOV	
7	102	TRACTOR	KUBOTA M7500	52068				1988	JAPAN	
8	104	TRACTOR	KUBOTA M7500	52070				1988	JAPAN	
9	107	TRACTOR	KUBOTA M7500	52073				1988	JAPAN	
10	160	MOBILE GREASING PLAN	NISSAN TEA41	4-21318	053682	00029	153,014	1989	JAPAN	
11	170	WATER BOWSER	ZIL 5-130	4-14799	868178	2457946		1986	GOV	
12	232	DUMPER	VOLVO 861	UN 1756	82153	59896	SDR392,260	1987	UNCDF	
13	233	DUMPER	VOLVO 861	UN 1757	83281	59906		1987	UNCDF	
14	234	DUMP TRUCK	SCANIA 92H	4-14749	5078575	110809		1988	GOV	
15	258	DUMP TRUCK	SCANIA 92H	4-18449	5078946	1132555		1988	GOV	
16	259	DUMP TRUCK	SCANIA 92H	4-18374	5078924	1132279		1988	GOV	
17	275	DUMP TRUCK	SCANIA 92H	4-18390	5078423	1131380		1988	GOV	
18	276	DUMP TRUCK	SCANIA 92H	4-18391	5078923	1132304		1988	GOV	
19	286	DUMP TRUCK	SCANIA 92H	4-18439	5078916	1131004		1988	GOV	
20	293	DUMP TRUCK	SCANIA 92H	4-18447	5078591	1131337		1988	GOV	
21	297	DUMP TRUCK	SCANIA 92H	4-18452	5078917	1131903		1988	GOV	
22	298	DUMP TRUCK	SCANIA 92H	4-18453	5078819	1132319		1988	GOV	
23	300	DUMP TRUCK	SCANIA 92H	4-18455	5078122	1132601		1988	GOV	
24	310	STATION WAGON	NISSAN	15398	169264	781338		1987	JAPAN	
25	329	STATION WAGON	NISSAN	22697	029714	105619		1990	IFAD	
26	346	STATION WAGON	NISSAN	22697	029714	105619		1990	IFAD	
27	349	PICK-UP D. CABIN	TOYOTA	21450	1853756	0009934			JAPAN	

G-11 : Inventory of Construction Equipment for SSID Project in Southwestern Zone

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv' d Year	Donner	Remarks
1	249	DUMP TRUCK	SCANIA 92H	4-18365	5078816	1132318		1988	GOV	
2	260	DUMP TRUCK	SCANIA 92H	4-18375	5078757	1132105		1988	GOV	
3	265	DUMP TRUCK	SCANIA 92H	4-18380	5078400	1131434		1988	GOV	
4	267	DUMP TRUCK	SCANIA 92H	4-18382	7077289	1131391		1988	GOV	
5	268	DUMP TRUCK	SCANIA 92H	4-18383	5078575	1131390		1988	GOV	
6	269	DUMP TRUCK	SCANIA 92H	4-18384	5078430	1131387		1988	GOV	
7	331	PICK-UP D. CABIN	ISUZU	4-18459	280348	7100037	18,000	1988	JAPAN	
8	332	PICK-UP D. CABIN	ISUZU	4-18464	229870	7100040	18,000	1988	JAPAN	

G-12 : Inventory of Construction Equipment for SSID Project in Western Zone

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv' d Year	Donner	Remarks
1	6	Bulldozer	CAT D6D	31X 03783	102 09023			1986	JAPAN	
2	17	Bulldozer	KOMATSU D75A	50201	35625		318,270	1988	JAPAN	
3	39	LOADER	KOMATSU WA380-1	11235	29898			1989	JAPAN	
4	214	DUMP TRUCK	NISSAN CWA45	4-21795	018526	02000	86,406	1988	JAPAN	
5	215	DUMP TRUCK	NISSAN CWA45	4-21797	018530	02001	86,406	1988	JAPAN	
6	237	DUMP TRUCK	SCANIA 92H	4-18353	5079118	1132595		1988	GOV	
7	239	DUMP TRUCK	SCANIA 92H	4-18355	5079139	1132586		1988	GOV	
8	317	STATION WAGON	TOYOTA	4-16997	1154081	040847			JAPAN	
9	348	PICK-UP D. CABIN	TOYOTA	21449	1854299	0009416		1990	JAPAN	
10	355	PICK-UP D. CABIN	LANDROVER	16804	357380	306872		1987	EEC	
11	357	PICK-UP D. CABIN	LANDROVER	16806	35623	308579		1987	EEC	

G-13 : Inventory of Construction Equipment for SSID Project by Japanese Assistance (1/2)

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv'd Year	Location	Remarks
1	3	Bulldozer	CAT D6D	31X 03780	10Z 09020			1985	C-S	
2	4	Bulldozer	CAT D6D	31X 03781	10Z 09021			1986	S-E	
3	5	Bulldozer	CAT D6D	31X 03782	10Z 09022			1986	C-S	
4	6	Bulldozer	CAT D6D	31X 03783	10Z 09023			1986	W	
5	7	Bulldozer	CAT D6D	31X 03784	10Z 09024			1986	C-S	
6	8	Bulldozer	CAT D6D	31X 03785	10Z 09025			1986	N-E	
7	9	Bulldozer	CAT D6D	31X 03786	10Z 09026			1986	N-E	
8	11	Bulldozer	KOMATSU D65E	34724	26169221			?	C	
9	12	Bulldozer	KOMATSU D65E	34725	26169212			?	S-E	
10	13	Bulldozer	KOMATSU D75A	50180	130297		286,965	1988	C	
11	14	Bulldozer	KOMATSU D75A	50181	30298		286,965	1988	C	
12	15	Bulldozer	KOMATSU D75A	50182	30299		286,965	1988	S	
13	16	Bulldozer	KOMATSU D75A	50183	30300		286,965	1988	E	
14	17	Bulldozer	KOMATSU D75A	50201	35625		318,270	1988	W	
15	18	Bulldozer	KOMATSU D75A	50216	35624		318,270	1988	S	
16	36	LOADER	CAT 926	8NR 0064	45Y 52266			1988	S	
17	37	LOADER	CAT 926	8NR 0065	45Y 52267			1988	N-W	
18	38	LOADER	KOMATSU WA380-1	11234	29893		243,735	1989	Main D.	mechnization
19	39	LOADER	KOMATSU WA380-1	11235	29898			1989	W	
20	40	LOADER	FURUKAWA FL330-1				129,000	1988	Assab	Assab
21	57	COMPACTOR	SAKAI SV91CT	10024			113,160	1989	N-E	
22	58	COMPACTOR	SAKAI SV91CT	10023			113,160	1989	N-E	
23	59	COMPACTOR	SAKAI SV91CT	10020	0617153			1989	E	
24	60	COMPACTOR	SAKAI SV91CT	10021	0617153			1989	E	
25	61	COMPACTOR	SAKAI SV91CT	10022				1989	N-W	
26	62	COMPACTOR	SAKAI SV91CT	10025				1989	N-W	
27	66	COMPACTOR	DYNAPAC CA25PD	56015				1989	N-E	
28	67	COMPACTOR	DYNAPAC CA25	575740	7049328			1989	C-S	
29	71	GRADER	KOMATSU GD511R	10011	32760		184,065	1988	N-W	
30	72	GRADER	MITSUBISHI-MG350	6G000230	517116		175,500	1989	E	
31	73	GRADER	MITSUBISHI-MG350	6G000187	517099		175,500	1989	E	
32	88	EXCAVATOR	MITSUBISHI MS140	2470	6D 389424				Addis A.	under repair
33	89	EXCAVATOR	HITACHI EX200		11280	145-36121	148,440	1988	S	
34	90	EXCAVATOR	HITACHI EX200		118407	145-36120	148,440	1988	E	
35	91	EXCAVATOR	KATO HD730SE	06263	GD31009685		154,305	1988	S	
36	92	SCRAPER	KOMATSU WS165S	3007	127228		711,213	1988	Main D.	
37	93	SCRAPER	KOMATSU WS165S	3008	127227		711,213	1988	S	
38	94	SCRAPER	CAT 623E	6CB00843	70Y 29771		513,000	1991	C-S	
39	102	TRACTOR	KUBOTA M7500	52068				1988	S-E	
40	103	TRACTOR	KUBOTA M7500	52069	36660			1988	C	
41	104	TRACTOR	KUBOTA M7500	52070				1988	S-E	
42	105	TRACTOR	KUBOTA M7500	52071				1988	N-W	
43	106	TRACTOR	KUBOTA M7500	52072				1988	N-E	
44	107	TRACTOR	KUBOTA M7500	52073				1988	S-E	
45	108	TRACTOR	KUBOTA M7500	52074	36658			1988	C	
46	109	TRACTOR	KUBOTA M7500	52075				1988	C-S	
47	110	TRACTOR	KUBOTA M7500	52076	36672			1988	S	
48	111	TRACTOR	KUBOTA M7500	72077				1988	N-E	
49	133	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18247			182,438	1988	Main D.	
50	134	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18249	018060	01876	182,438	1988	Main D.	
51	135	TRUCK SEMI-TRAILED	NISSAN CWA45	4-18864				1988	Main D.	
52	136	TRUCK SEMI-TRAILED	HINO SS633SA	4-21832	24804	10186	212,611	1989	Main D.	
53	137	TRUCK SEMI-TRAILED	HINO SS633SA	4-21833	24863	10171	212,611	1989	Main D.	
54	138	TRUCK SEMI-TRAILED	HINO SS633SA	4-21834	24838	10170	212,611	1989	Main D.	
55	139	TRUCK SEMI-TRAILED	HINO SS633SA	4-21835	24821	10169	212,611	1989	Main D.	
56	140	LOW-BED	NISSAN CWA45	4-22356	018525	00179	253,163	1989	Main D.	
57	141	LOW-BED	NISSAN CWA45	4-22357	018523	00180	253,163	1989	Main D.	
58	142	LOW-BED	NISSAN CWA45	4-19397	18007	00169	255,761	1989	Main D.	
59	143	LOW-BED	NISSAN CWA45	4-19398	052758	00001	255,761	1989	Main D.	
60	150	MOBILE WORKSHOP	NISSAN TFA	4-19467	052758	00001	162,753	1987	Main D.	
61	151	MOBILE WORKSHOP	NISSAN TFA	4-19487	002563	15037	162,753	1987	Main D.	
62	152	MOBILE WORKSHOP	NISSAN TFA	4-21317	053686	00030	170,775	1989	Main D.	
63	158	MOBILE GREASING PLAN	NISSAN TEA41	4-19455	052758	00001	65,571	1987	C-S	
64	159	MOBILE GREASING PLAN	NISSAN TEA41	4-19468	052757	00002	155,572	1987	F	
65	160	MOBILE GREASING PLAN	NISSAN TEA41	4-21318	053682	00029	153,014	1989	S-E	
66	161	CRANE	TADANO TS-70ML	238011			128,744	1988	Main D.	
67	162	CRANE	TADANO TS-70ML	238012			128,744	1988	Main D.	
68	163	CRANE	TADANO TR-230E	530233			309,690	1989	Main D.	
69	168	WATER BOWSER	NISSAN CWA45	4-21890	018521	02008	113,060	1990	C	
70	169	WATER BOWSER	NISSAN CWA45	4-22355	018520	02007	113,060	1990	T	

G-13 : Inventory of Construction Equipment for SSID Project by Japanese Assistance (2/2)

No.	Seri. No.	Machinery Type	Model	Serial Number	Engine Number	Chasses Number	Cost in Br	Deliv'd Year	Location	Remarks
71	173	DUMP TRUCK	NISSAN TFA21	4-14581	115195	02087		1987	Main D.	
72	174	DUMP TRUCK	NISSAN TFA21	4-14582	115134	02067		1987	C	
73	175	DUMP TRUCK	NISSAN TFA21	4-14583	115131	02068		1987	C	
74	176	DUMP TRUCK	NISSAN TFA21	4-14584	114113	02066		1987	C	
75	177	DUMP TRUCK	NISSAN TFA21	4-14585	115213	02088		1987	E	
76	178	DUMP TRUCK	NISSAN TFA21	4-14586	115135	02060		1987	E	burn out/ooo
77	179	DUMP TRUCK	NISSAN TFA21	4-14587	115173	02071		1987	N-E	
78	180	DUMP TRUCK	NISSAN TFA21	4-14588	115191	02073		1987	N-E	turned over/ooo
79	181	DUMP TRUCK	NISSAN TFA21	4-14589	115170	02070		1987	N-E	burn out/ooo
80	182	DUMP TRUCK	NISSAN TFA21	4-14590	115172	02072		1987	N-E	turned over/ooo
81	183	DUMP TRUCK	NISSAN TFA21	4-14591	115198	02085		1987	C-S	
82	184	DUMP TRUCK	NISSAN TFA21	4-14592	115188	02089		1987	N-E	
83	185	DUMP TRUCK	NISSAN TFA21	4-14593	115125	02086		1987	N-E	turned over/ooo
84	186	DUMP TRUCK	NISSAN TFA21	4-14594	115145	02065		1987	S	
85	187	DUMP TRUCK	NISSAN TFA21	4-14595	115129	02064		1987	Main D.	
86	188	DUMP TRUCK	NISSAN TFA21	4-14596	115141	02067		1987	C	
87	189	DUMP TRUCK	NISSAN TFA21	4-14597	115126	02062		1987	C	
88	190	DUMP TRUCK	NISSAN TFA21	4-14598	115125	02053		1987	E	
89	191	DUMP TRUCK	NISSAN TFA21	4-14599	115138	02069		1987	C	
90	192	DUMP TRUCK	NISSAN TFA21	4-14600	115187	02090		1987	N-E	
91	193	DUMP TRUCK	NISSAN CFA45	4-18974	018015	01819	90,792	1989	E	
92	194	DUMP TRUCK	NISSAN CFA45	4-18975	018031	01858		1989	E	
93	195	DUMP TRUCK	NISSAN CFA45	4-18976	018018	01845		1989	E	
94	196	DUMP TRUCK	NISSAN CFA45	4-18977	018033	01851		1989	E	
95	197	DUMP TRUCK	NISSAN CFA45	4-18978	018029	01854		1989	E	
96	198	DUMP TRUCK	NISSAN CFA45	4-18979	018026	01853		1989	E	
97	199	DUMP TRUCK	NISSAN CFA45	4-18980	018010	01846		1989	E	
98	200	DUMP TRUCK	NISSAN CFA45	4-18981	018024	01856		1989	N-E	
99	201	DUMP TRUCK	NISSAN CFA45	4-18982	018028	01860		1989	E	
100	202	DUMP TRUCK	NISSAN CFA45	4-18983	018030	01855		1989	E	
101	203	DUMP TRUCK	NISSAN CFA45	4-18984	018023	01861		1988	C	
102	204	DUMP TRUCK	NISSAN CFA45	4-18985	018013	01817		1988	S-C	
103	205	DUMP TRUCK	NISSAN CFA45	4-18986	018020	01849		1988	S-C	
104	206	DUMP TRUCK	NISSAN CFA45	4-18987	018025	01859		1988	C	
105	207	DUMP TRUCK	NISSAN CFA45	4-18988	018022	01845		1988	E	
106	208	DUMP TRUCK	NISSAN CFA45	4-18989	018012	01818		1988	Main D.	
107	209	DUMP TRUCK	NISSAN CFA45	4-18990	018009	01851		1988	S-C	
108	210	DUMP TRUCK	NISSAN CFA45	4-18991	018027	01852		1988	Main D.	
109	211	DUMP TRUCK	NISSAN CFA45	4-18992	018021	01850		1988	E	
110	212	DUMP TRUCK	NISSAN CFA45	4-18993	018017	01847	90,792	1988	E	
111	213	DUMP TRUCK	NISSAN CFA45	4-21794	018527	02004	86,406	1988	S	
112	214	DUMP TRUCK	NISSAN CFA45	4-21795	018526	02000	86,406	1988	W	
113	215	DUMP TRUCK	NISSAN CFA45	4-21797	018530	02001	86,406	1988	W	
114	216	DUMP TRUCK	NISSAN CFA45	4-21799	018532	02002		1988	C	
115	217	DUMP TRUCK	NISSAN CFA45	4-21780		02003		1988	C	
116	305	STATION WAGON	NISSAN	14560			31,411	1985	N-W	
117	306	STATION WAGON	NISSAN	14561	1596128	780148	31,411	1985	C	
118	307	STATION WAGON	NISSAN	14562	1596092	780089	31,411	1985	S	
119	308	STATION WAGON	NISSAN	15397	169186	781338		1985	Main D.	
120	309	STATION WAGON	NISSAN	14859	1596093	780072		1985	S-W	
121	310	STATION WAGON	NISSAN	15398	169264	781338		1987	S-E	
122	311	STATION WAGON	NISSAN	18460	001251	100240	31,411	1988	T	
123	312	STATION WAGON	NISSAN	18461	000169	100249	31,411	1988	N-E	
124	313	STATION WAGON	NISSAN	18462	001587	100294	31,411	1988	Main D.	
125	314	STATION WAGON	NISSAN	18463	001504	100286	31,411	1988	E	
126	315	STATION WAGON	TOYOTA	21448	1197686	048174			C-S	
127	316	STATION WAGON	TOYOTA	21601	1197524	048130			N-W	
128	317	STATION WAGON	TOYOTA	4-16997	1154081	040847			W	
129	330	PICK-UP D. CABIN	ISUZU	4-18458	280349	7100038	18,000	1988	S	
130	331	PICK-UP D. CABIN	ISUZU	4-18459	280348	7100037	18,000	1988	S-W	
131	332	PICK-UP D. CABIN	ISUZU	4-18464	229870	7100040	18,000	1988	S-W	
132	333	PICK-UP D. CABIN	ISUZU	4-18465	280888	7100035		1988	N-E	
133	334	PICK-UP D. CABIN	ISUZU	4-18466	280351	7100034		1988	Main D.	
134	335	PICK-UP D. CABIN	ISUZU	4-18467	279950	7100039		1988	N-W	
135	336	PICK-UP D. CABIN	ISUZU	18469		7200010		1988	E	
136	337	PICK-UP D. CABIN	ISUZU	18470	280209	7100011		1988	C-S	
137	338	PICK-UP D. CABIN	ISUZU	18471	280219	7100041		1988	E	
138	339	PICK-UP D. CABIN	ISUZU	18472	280347	7100036		1988	N-E	
139	348	PICK-UP D. CABIN	TOYOTA	21449	1854299	0009416		1990	W	
140	349	PICK-UP D. CABIN	TOYOTA	21450	1853756	0009934			S-E	
141	350	PICK-UP D. CABIN	TOYOTA	21451	178609	0010133		1989	M. D	
142	351	PICK-UP D. CABIN	TOYOTA	21452	1861011	0009999		1989	E	

[FILE : INVRIDMJ.WJ2]

Notes : /ooo = out of order
 Station, Main D. = Rural Infrastructure Development Main Department of MOA
 Zonal Station N : Northern zone (Mekele), E : Eastern zone (Harar), N-E : North Eastern zone (Dese)
 N-W : North Western zone (Bahar Dar), W : Western zone (Wekemte), C : Central zone (Addis Ababa)
 C-S : Central South zone (Nazaret), S-E : South Eastern zone (Asela),
 S-W : South Western zone (Jimma), S : Southern zone (Awasa)

G-14: Present Status of Equipment for SSID Project by Japanese Assistance
 日本政府供与機材の配置・稼動現況

Equipments	Location		Eastern		S-E		N-E		Southern		S-W		Western		C-S		Central		Northern		N-W		Main Dpt		①	②		
	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S	G	S			Total	
Bulldozer	0	1	0	1	0	0	0	2	0	1	0	0	0	2	1	2	0	3	0	0	0	0	0	0	0	0	3	710
Wheel Loader	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	5	750	
Motor Grader	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	3	640	
Motor Scraper	0	0	0	1	0	0	0	0	0	0	0	0	1	0	3	0	0	6	2	6	0	0	1	0	3	900		
Dump Truck	0	15	0	0	4	3	0	1	0	1	0	0	3	0	0	0	0	6	2	6	0	0	3	1	45			
Hydro. Scraper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4			
Mobile Workshop	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3			
Mobile Greas'g Plant	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3			
Semi-trailer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Water Tanker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Station Wagon	1	0	0	2	0	1	0	2	0	1	0	0	1	0	0	0	1	0	0	0	1	1	2	0	13			
Pick-up	1	2	0	1	1	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	2	14		
Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3			
Vibro-Roller	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2	1	0	8		
Agri. Tractor	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	1	10		
Total	2	22	1	11	5	8	0	8	0	4	0	6	1	8	2	12	2	8	2	8	1	6	23	8	139			
GRAND TOTAL	24	12	14	8	8	4	6	9	14	4	6	9	14	10	7	31	139											

Note : G : Garage
 S : Store
 () : Number of Machinery to be repaired
 ① : Annual Operational Hour
 ② : Japanese Standard (by M.O.C)

H. : CONSTRUCTION VOLUME AND COST

- H-1 : Construction Volume
- H-2 : Construction Volume (Northern Zone)
- H-3 : Construction Volume (North-Eastern Zone)
- H-4 : Construction Volume (North-Western Zone)
- H-5 : Construction Volume (Western Zone)
- H-6 : Construction Volume (South-Western Zone)
- H-7 : Composition of Unit Cost
- H-8 : Unit Cost

H-1 : Construction Volume

Item	Earth Works					Concrete Works				
	Bulldozer	Wheel Loader	Backhoe Loader	Vibro Compactor	Motor Grador	Dump Truck	Motor Scraper	Stone Crusher	Concrete Mixer	Unit
Unit	m3	m3	m3	Dam Works	m	m3	m3	m3	m3	m3
Weir/Pump Type										
Average Irrigation Area of Weir System 171.4ha										
Intake	5,400	2,880	720		90,000	3,600		730		730
M-Canal	29,456	11,782	3,314		3,682	22,828				
S-Canal	22,970	9,188	459		4,594	13,782				
T-Canal										
Q-Canal										
Drainage	35,955		17,978		17,978			1,872		1,872
No. Flume								614		614
Culvert								2,664		2,664
Div. -Box								8,592		8,592
Drop Struc.								1,709		1,709
Turnout										
Farm Road	61,699	50,481			5,609	46,555				
TOTAL	155,480	74,331	22,471	1	121,863	86,765	0	16,182		16,182
Quantity/ha	907	434	131	-	711	506	0	94		94
Dam Type										
Average Irrigation Area of Dam System 286.1ha										
Facilities	316,991	211,327	10,566		90,000	221,893	158,495	9,713		9,713
Spillway								730		730
Intake	12,600	6,720	7,680			8,400				
M-Canal	51,184	20,474	5,758		6,398	39,668				
S-Canal	18,690	7,476	374		3,738	11,214				
T-Canal										
C-Drain	30,938		15,469		15,469			432		432
No. Flume								912		912
Culvert										
Shute								1,440		1,440
Div. -Box								336		336
Drop								96		96
Turnout										
Farm Road	56,090	56,090			4,633	41,990				
TOTAL	486,492	302,087	39,847	1	120,238	328,165	158,495	13,659		13,659
Quantity/ha	1,700	1,066	139	-	420	1,130	554	48		48

H-2 : Construction Volume (Northern Zone)

Implementation Schedule (year)		93/94	94/95	95/96	95/97	TOTAL	REMARK			
Item	Equipment	Unit	Dam Type	Quantity/ha	93/94	94/95	95/96	95/97	TOTAL	REMARK
	Intake Type									
	Irrigation Area (ha)				100	200	0	0	300	
	Construction Unit				1	1	0	0	2	
	Bulldozer	m3		1.700	170.043	340.085	0	0	510.128	
	Wheel Loader	m3		1.056	105.588	211.176	0	0	316.763	
	Backhoe Loader	m3		139	13.928	27.856	0	0	41.783	
	Vibro Compactor	Dam Works		-	1	1	0	0	2	
	Motor Grador	km		420	42.027	84.053	0	0	126.080	
	Dump Truck	m3		1.130	112.955	225.910	0	0	338.865	
	Motor Scraper	m3		554	55.399	110.797	0	0	166.196	
	Water Brower	Const. Works		-	-	-	-	-	-	
	Wark Roller	Const. Works		-	-	-	-	-	-	
On-farm	Tractor	ha		-	-	-	-	-	-	
	Tractor	Machine		-	-	-	-	-	-	
Support Works	Truck	Const. Works		-	-	-	-	-	-	
	Mobil Workshop	Const. Works		-	-	-	-	-	-	
	Mobil Grasing	Const. Works		-	-	-	-	-	-	
	Motor Cycle	Const. Works		-	-	-	-	-	-	
	Crane	Machine		-	-	-	-	-	-	
Support Works	Station Wagon	Const. Works		-	-	-	-	-	-	
	Pick-up	Const. Works		-	-	-	-	-	-	
Inspection	Drilling Machine	Dam Works		-	-	-	-	-	-	
Temporary	Generator	Const. Works		-	-	-	-	-	-	
Concrete Works	Stone Crusher	m3		48	4,774	9,549	0	0	14,323	
	Concrete Mixer	m3		48	4,774	9,549	0	0	14,323	

H-3 : Construction Volume (North-Eastern Zone)

Implementation Schedule (year)		93/94	94/95	95/96	96/97	TOTAL	REMARK	
Intake Type		Weir	Weir	Weir				
Irrigation Area (ha)		385	280	300	0	965		
Construction Unit		2	3	1	0	6		
Item	Equipment Unit	Weir Type	Quantity/ha					
Earth Works	Bulldozer m3		907	349,240	253,993	272,135	0	875,369
	Wheel Loader m3		434	166,964	121,428	130,102	0	418,494
	Backhoe Loader m3		131	50,475	36,709	39,331	0	126,514
	Vibro Compactor Dam Works		-	0	0	0	0	0
	Motor Grader km		711	273,730	199,076	213,296	0	686,101
	Dump Truck m3		506	194,892	141,740	151,864	0	488,496
	Motor Scraper m3		0	-	-	-	-	-
	Water Brower Const. Works		-	-	-	-	-	-
	Wark Roller Const. Works		-	-	-	-	-	-
On-farm	Tractor ha		-	-	-	-	-	-
Support Works	Tractor Machine		-	-	-	-	-	-
	Truck Const. Works		-	-	-	-	-	-
	Mobil Workshop Const. Works		-	-	-	-	-	-
	Mobil Grasing Const. Works		-	-	-	-	-	-
	Motor Cycle Const. Works		-	-	-	-	-	-
	Crane Machine		-	-	-	-	-	-
	Station Wagon Const. Works		-	-	-	-	-	-
	Pick-up Const. Works		-	-	-	-	-	-
Inspection	Drilling Machine Dam Works		-	-	-	-	-	-
Temporary	Generator Const. Works		-	-	-	-	-	-
Concrete Works	Stone Crusher m3		94	36,347	26,434	28,323	0	91,104
	Concrete Mixer m3		94	36,347	26,434	28,323	0	91,104

H-4 : Construction Volume (North-Western Zone)

Implementation Schedule (year)		93/94		94/95		95/96		96/97		TOTAL		REMARK
Intake Type		Weir	Dam	Total	Weir	Weir	Weir	Weir	Weir			
Irrigation Area (ha)		500	50	550	1,140	795	752	3,237				
Construction Unit		3	1	4	8	5	8	25				
Item	Equipment	Unit	Weir Type Quantity/ha	Dam Type Quantity/ha								
Earth Works	Bulldozer	m3	907	1,700	85,021	538,580	1,034,114	721,159	682,153	2,976,006		
	Wheel Loader	m3	434	1,056	52,794	269,630	494,386	344,769	326,121	1,434,907		
	Backhoe Loader	m3	131	139	6,964	72,515	149,457	104,227	98,589	424,788		
	Vibro Compactor	Dam Works	-	-	1	1	0	0	0	1		
	Motor Grador	km	711	420	21,013	376,506	810,524	565,234	534,661	2,286,926		
	Dump Truck	m3	506	1,130	56,478	309,584	577,083	402,440	380,673	1,669,780		
	Motor Scraper	m3	0	554	27,699	27,699	0	0	0	27,699		
	Water Brower	Const. Works	-	-	-	-	-	-	-	-		
	Wark Roller	Const. Works	-	-	-	-	-	-	-	-		
On-farm	Tractor	ha	-	-	-	-	-	-	-	-		
Support Works	Trailer	Machine	-	-	-	-	-	-	-	-		
	Truck	Const. Works	-	-	-	-	-	-	-	-		
	Mobil Workshop	Const. Works	-	-	-	-	-	-	-	-		
	Mobil Grasing	Const. Works	-	-	-	-	-	-	-	-		
	Motor Cycle	Const. Works	-	-	-	-	-	-	-	-		
	Crane	Machine	-	-	-	-	-	-	-	-		
	Station Wagon	Const. Works	-	-	-	-	-	-	-	-		
	Pick-up	Const. Works	-	-	-	-	-	-	-	-		
Inspection	Drilling Machine	Dam Works	-	-	-	-	-	-	-	-		
Temporary	Generator	Const. Works	-	-	-	-	-	-	-	-		
Concrete Works	Stone Crusher	m3	94	48	2,387	49,591	107,626	75,055	70,995	303,267		
	Concrete Mixer	m3	94	48	2,387	49,591	107,626	75,055	70,995	303,267		

H-5 : Construction Volume (Western Zone)

Implementation Schedule (year)		93/94	94/95	95/96	96/97	TOTAL	REMARK		
Intake Type		Weir	Weir	Weir	Weir				
Irrigation Area (ha)		210	140	255	580	1,185			
Construction Unit		3	1	2	3	9			
Item	Equipment	Unit	Weir Type	Quantity/ha					
Earth Works	Bulldozer	m3	907	190,495	126,996	231,315	526,128	1,074,935	
	Wheel Loader	m3	434	91,071	60,714	110,586	251,530	513,901	
	Backhoe Loader	m3	131	27,532	18,354	33,431	76,040	155,357	
	Vibro Compactor	Dam Works	-	0	0	0	0	0	
	Motor Grador	km	711	149,307	99,538	181,301	412,372	842,518	
	Dump Truck	m3	506	106,305	70,870	129,084	293,604	599,863	
	Motor Scraper	m3	0	0	0	0	0	0	
	Water Brower	Const. Works	-	-	-	-	-	-	
	Wark Roller	Const. Works	-	-	-	-	-	-	
On-farm	Tractor	ha	-	-	-	-	-	-	
Support Works	Trailer	Machine	-	-	-	-	-	-	
	Truck	Const. Works	-	-	-	-	-	-	
	Mobil Workshop	Const. Works	-	-	-	-	-	-	
	Mobil Grasing	Const. Works	-	-	-	-	-	-	
	Motor Cycle	Const. Works	-	-	-	-	-	-	
	Crane	Machine	-	-	-	-	-	-	
	Station Wagon	Const. Works	-	-	-	-	-	-	
	Pick-up	Const. Works	-	-	-	-	-	-	
Inspection	Drilling Machine	Dam Works	-	-	-	-	-	-	
Temporary	Generator	Const. Works	-	-	-	-	-	-	
Concrete Works	Stone Crusher	m3	94	19,826	13,217	24,074	54,757	111,874	
	Concrete Mixer	m3	94	19,826	13,217	24,074	54,757	111,874	

H-6 : Construction Volume (South-Western Zone)

Implementation Schedule (year)		93/94	94/95	95/96	96/97	TOTAL	REMARK
Intake Type	Weir	Weir	Weir	Weir	Weir		
Irrigation Area (ha)		175	715	810	0	1,200	
Construction Unit		1	4	2	0	7	
Item	Equipment	Unit	Weir Type	Quantity/ha			
Earth Works	Bulldozer	m3		907			
	Wheel Loader	m3		434			
	Backhoe Loader	m3		131			
	Vibro Compactor	Dam Works		-			
	Motor Grador	km		711			
	Dump Truck	m3		506			
	Motor Scraper	m3		0			
	Water Brower	Const. Works		-			
	Wark Roller	Const. Works		-			
On-farm	Tractor	ha		-			
Support Works	Tractor	Machine		-			
	Truck	Const. Works		-			
	Mobil Workshop	Const. Works		-			
	Mobil Grasing	Const. Works		-			
	Motor Cycle	Const. Works		-			
	Crane	Machine		-			
	Station Wagon	Const. Works		-			
	Pick-up	Const. Works		-			
Inspection	Drilling Machine	Dam Works		-			
Temporary	Generator	Const. Works		-			
Concrete Works	Stone Crusher	m3		94	16,521	67,502	29,267
	Concrete Mixer	m3		94	16,521	67,502	29,267
							0
							113,290
							0
							113,290

H-7 : Composition of Unit Cost

Materials	Unit	Purchase Costs			Transport Cost		Total	Furnished on sites
		Out-tax	Tax	With-tax	Local	Inter-lo		
		Birr	Birr	Birr	Birr	Birr	Birr	Birr
1 Clear'g top soil	m2	0	0	0	0	0	0	0
2 Exc. earth	m3	0	0	0	0	0	0	0
3 Exc. soft rock	m3	0	0	0	0	0	0	0
4 Exc. sound rock	m3	0	0	0	0	0	0	0
5 Backfill earth	m3	0	0	0	0	0	0	0
6 Backfill rock	m3	0	0	0	0	0	0	0
7 Compa'd earth fill	m3	0	0	0	0	0	0	0
8 Comp'd rock fill	m3	0	0	0	0	0	0	0
9 Adjust't side slope	m2	0	0	0	0	0	0	0
10 Grment P.C	t	0	0	180	100	150	250	430
11 Sand 0.5/5	m3	0	0	15	25	0	25	40
12 Gravel 10/20	m3	0	0	60	25	0	25	85
13 Crush'd stone 20/100	m3	0	0	60	25	0	25	85
14 Stones 100/200	m3	0	0	30	25	0	25	55
15 Trim'd stone 200	m2	0	0	80	25	0	25	105
16 Brick 5-10-200	pcs	0	0	0.2	0.05	0.05	0.1	0.3
17 Hole cement stone	pcs	0	0	1.8	0.2	0	0.2	2
18 Concrete pipe φ10	pcs	0	0	4	4	0	4	8
19 Concrete pipe φ15	pcs	0	0	6	6	0	6	12
20 Concrete pipe φ20	pcs	0	0	8	8	0	8	16
21 Concrete pipe φ25	pcs	0	0	10	10	0	10	10
22 Concrete pipe φ30	pcs	0	0	15	12	0	12	27
23 Concrete pipe φ40	pcs	0	0	20	15	0	15	35
24 Concrete pipe φ50	pcs	0	0	25	20	0	20	45
25 Concrete pipe φ60	pcs	0	0	35	25	0	25	60
26 Concrete pipe φ80	pcs	0	0	50	30	0	30	80
27 Concrete pipe φ100	pcs	0	0	80	35	0	35	115
28 Reinforc'g iron	kg	0	0	1.5	0.1	0.1	0.2	17
29 Black wire	kg	0	0	2.5	0.1	0.1	0.2	2.7
30 Galvanized wire	kg	0	0	3	0.1	0.1	0.2	3.2
31 Nails	kg	0	0	3	0.1	0.1	0.2	3.2
32 Roofing Nails	kg	0	0	3	0.1	0.1	0.2	3.2
33 Angle iron	kg	0	0	3	0.1	0.1	0.2	3.2
34 Flat iron	kg	0	0	3	0.1	0.1	0.2	3.2
35 Shape iron	kg	0	0	3	0.1	0.1	0.2	3.2
36 Shut Iron	kg	0	0	3	0.1	0.1	0.2	3.2
37 Corgated iron steel	kg	0	0	3	0.1	0.1	0.2	3.2
38 Gabion 1-1-0.5	pc	0	0	32	2	2	4	36
39 Gabion 2-1-0.3	pc	0	0	48	4	4	8	56
40 Gabion 2-1-1	pc	0	0	80	4	4	8	88
41 Iron spindle φ48mm	m2	0	0	60	3	3	6	66
42 Welding Elechodu	kg	0	0	3	0.1	0.1	0.2	3.2
43 Timber	m3	0	0	100	160	0	160	1760
44 Planks 400-25-2.5	pc	0	0	40	4	0	4	44
45 Logs 400-12.5-5	pc	0	0	40	4	0	4	44
46 Euealyp	pc	0	0	5	1	0	1	6

Works	Unit	Skilled Labor			Unskilled Labor			Costs	Costs	Costs
		Output MD/U	Salary Br/MD	Cost Birr	Output MD/U	Salary Br/MD	Cost Birr	Labor Birr	O-Head Birr	Total Birr
1 Clear'g top soil	m2	0.00	0.00	0.00	0.25	2.00	0.50	0.50	0.50	1.00
2 Exc. earth	m3	0.00	0.00	0.00	1.00	2.00	2.00	2.00	2.00	4.00
3 Exc. soft rock	m3	0.00	0.00	0.00	4.00	2.00	8.00	8.00	8.00	16.00
4 Exc. sound rock	m3	0.00	0.00	0.00	8.00	2.00	16.00	16.00	16.00	32.00
5 Backfill earth	m3	0.00	0.00	0.00	1.00	2.00	2.00	2.00	2.00	4.00
6 Backfill rock	m3	0.00	0.00	0.00	1.00	2.00	2.00	2.00	2.00	4.00
7 Compa'd earth fill	m3	0.00	0.00	0.00	2.00	2.00	4.00	4.00	4.00	8.00
8 Comp'd rock fill	m3	0.00	0.00	0.00	2.00	2.00	4.00	4.00	4.00	8.00
9 Adjust' t side slope	m2	0.00	0.00	0.00	1.00	2.00	2.00	2.00	2.00	4.00
10 Concrete work 150kg	m3	2.00	12.00	24.00	4.00	2.00	8.00	32.00	32.00	64.00
11 Concrete work 250kg	m3	2.00	12.00	24.00	4.00	2.00	8.00	32.00	32.00	64.00
12 Concrete work 350kg	m3	2.00	12.00	24.00	4.00	2.00	8.00	32.00	32.00	64.00
13 Marsonry bricks	m2	1.00	12.00	12.00	2.00	2.00	4.00	16.00	16.00	32.00
14 Marsonry hole PC stones	m2	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
15 Marsonry stones	m3	2.00	12.00	24.00	4.00	2.00	8.00	32.00	32.00	64.00
16 Plastering 3cm	m2	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
17 Jointing (concrete)	m2	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
18 Jointing (tar)	m2	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
19 Riprap (dry)	m3	1.00	12.00	12.00	2.00	2.00	4.00	16.00	16.00	32.00
20 Riprap (marsonry)	m3	1.50	12.00	18.00	3.00	2.00	6.00	24.00	24.00	48.00
21 Placing Culvert ϕ 10	pc	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
22 Placing Culvert ϕ 15	pc	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
23 Placing Culvert ϕ 20	pc	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
24 Placing Culvert ϕ 25	pc	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
25 Placing Culvert ϕ 30	pc	0.25	12.00	3.00	0.50	2.00	1.00	4.00	4.00	8.00
26 Placing Culvert ϕ 40	pc	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
27 Placing Culvert ϕ 50	pc	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
28 Placing Culvert ϕ 60	pc	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
29 Placing Culvert ϕ 80	pc	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
30 Placing Culvert ϕ 100	pc	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
31 Iron fastening	kg	0.01	12.00	0.12	0.02	2.00	0.04	0.16	0.16	0.32
32 Form work iron	kg	0.10	12.00	1.20	0.20	2.00	0.40	1.60	1.60	3.20
33 Prep+Inst Iron Gate	kg	0.10	12.00	1.20	0.20	2.00	0.40	1.60	1.60	3.20
34 Prep+Inst Spindle	m	1.00	12.00	12.00	2.00	2.00	4.00	16.00	16.00	32.00
35 Form work wood	m2	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
36 Prep+Inst wood gate	m2	1.00	12.00	12.00	2.00	2.00	4.00	16.00	16.00	32.00
37 upporting works	m2	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
38 Foundation works	m2	1.00	12.00	12.00	2.00	2.00	4.00	16.00	16.00	32.00
39 Inst gabion 1-1-0.5	pc	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
40 Inst gabion 2-1-0.3	pc	0.50	12.00	6.00	1.00	2.00	2.00	8.00	8.00	16.00
41 Inst gabion 2-1-1	pc	2.00	12.00	24.00	4.00	2.00	8.00	32.00	32.00	64.00
42 Inst Filter	m3	1.00	12.00	12.00	2.00	2.00	4.00	16.00	16.00	32.00

H-8 : Unit Cost

CD	Work items	CD	Materials	Unit	Qt	UC	Mat. Br	Labour Br	Ben. Br	Total Br
1	Clear'g top soil	1	Soil Varied	m2	1	0	0	1	0	0
			Total	m2	1	0	0	1	1	2
2	Exc. earth	2	Soil Varied	m3	1	0	0	4	0	0
			Total	m3	1	0	0	4	1	5
3	Exc. soft rock	3	Soft Rock	m3	1	0	0	16	0	0
			Total	m3	1	0	0	16	4	20
4	Exc. sound rock	4	Sound Rock	m3	1	0	0	32	0	0
			Total	m3	1	0	0	32	8	40
5	Backfill earth	5	Soil Varied	m3	1	0	0	4	0	0
			Total	m3	1	0	0	4	1	5
6	Backfill rock	6	Rock Varied	m3	1	0	0	4	0	0
			Total	m3	1	0	0	4	1	5
7	Compa'd earth fill	7	Rock Varied	m3	1	0	0	8	0	0
			Total	m3	1	0	0	8	2	10
8	Comp'd rock fill	8	Rock Varied	m3	1	0	0	8	0	0
			Total	m3	1	0	0	8	2	10
9	Adjust't side slope	9	Slope Surface	m2	1	0	0	4	0	0
			Total	m2	1	0	0	4	1	5
10	Concrete work 150kg	10	Cement	t	0.15	430	65	0	0	0
		11	Sand	m3	0.4	40	16	0	0	0
		12	garvel	m3	0.8	85	68	0	0	0
			Total	m3	1	0	149	64	38	251
11	Concrete work 250kg	10	Cement	t	0.25	430	108	0	0	0
		11	Sand	m3	0.4	40	16	0	0	0
		12	garvel	m3	0.6	85	51	0	0	0
		13	Crush'd stone	m3	0.3	85	26	0	0	26
	Total	m3	1	0	201	64	51	316		
12	Concrete work 350kg	10	Cement	t	0.35	430	151	0	0	0
		11	Sand	m3	0.4	40	16	0	0	0
		12	garvel	m3	0.8	85	68	0	0	0
			Total	m3	1	0	235	64	59	358
13	Marsonry bricks	10	Cement 250kg	t	0.012	430	6	0	0	0
		11	Sand	m3	0.05	40	2	0	0	0
		16	bricks	pc	100	0.3	30	0	0	0
			Total	m3	1	0	38	32	10	80
14	Marsonry hole PC stones	10	Cement 250kg	t	0.012	430	6	0	0	0
		11	Sand	m3	0.05	40	2	0	0	0
		16	bricks	pc	15	2	30	0	0	0
			Total	m3	1	0	38	16	10	64
15	Marsonry stones	10	Cement 250kg	t	0.125	430	54	0	0	0
		11	Sand	m3	0.5	40	20	0	0	0
		14	stones	m3	0.4	55	22	0	0	0
		15	Trim'd stone	m3	0.4	105	42	0	0	42
			Total	m3	1	0	138	64	35	237
16	Plastering 3cm	10	Cement 400kg	t	0.012	430	6	0	0	0
		11	Sand	m3	0.03	40	2	0	0	0
			Total	m3	1	0	8	8	2	18

(Cont.)

CD	Work items	CD	Materials	Unit	Qt	UC	Mat. Labour Ben. Total			
							Br	Br	Br	Br
17	Jointing (concrete)	10	Cement 400kg	t	0.004	430	1	0	0	0
		11	Sand	m3	0.01	40	1	0	0	0
			Total	m3	1	0	2	8	1	11
18	Jointing (tar)	47	Tar	kg	1	0	0	0	0	0
			Total	m2	1	0	0	0	0	0
19	Riprap (dry)	12	gravel	m3	0.2	85	17	0	0	0
		14	stones	m3	0.8	55	44	0	0	0
			Total	m3	1	0	61	32	15	108
20	Riprap (marsonry)	10	Cement 250kg	t	0.075	430	32	0	0	0
		11	Sand	m3	0.3	40	12	0	0	0
		12	gravel	m3	0.2	85	17	0	0	0
		14	stones	-	0.8	55	44	0	0	44
			Total	m3	1	0	105	48	26	179
21	Placing Culvert ϕ 10	18	culvert ϕ 10	pc	1	8	8	0	0	0
			Total	pc	1	0	8	8	2	18
22	Placing Culvert ϕ 15	19	culvert ϕ 15	pc	1	12	12	0	0	0
			Total	pc	1	0	12	8	3	23
23	Placing Culvert ϕ 20	20	culvert ϕ 20	pc	1	16	16	0	0	0
			Total	pc	1	0	16	8	4	28
24	Placing Culvert ϕ 25	21	culvert ϕ 25	pc	1	20	20	0	0	0
			Total	pc	1	0	20	8	5	33
25	Placing Culvert ϕ 30	22	culvert ϕ 30	pc	1	27	27	0	0	0
			Total	pc	1	0	27	8	6	41
26	Placing Culvert ϕ 40	23	culvert ϕ 40	pc	1	35	35	0	0	0
			Total	pc	1	0	35	16	9	60
27	Placing Culvert ϕ 50	24	culvert ϕ 50	pc	1	45	45	0	0	0
			Total	pc	1	0	45	16	11	72
28	Placing Culvert ϕ 60	25	culvert ϕ 60	pc	1	60	60	0	0	0
			Total	pc	1	0	60	16	15	91
29	Placing Culvert ϕ 80	26	culvert ϕ 80	pc	1	80	80	0	0	0
			Total	pc	1	0	80	16	20	116
30	Placing Culvert ϕ 100	27	culvert ϕ 100	pc	1	115	115	0	0	0
			Total	pc	1	0	115	16	29	160
31	Iron fastening	28	Rein. iron	kg	1	1.7	1.7	0	0	0
		29	black wire	kg	0.04	2.7	0.1	0	0	0
			Total	kg	1	0	1.8	0.32	0.45	2.57
32	Form work iron	33	anglw iron	kg	0.5	3.2	1.6	0	0	0
		36	shut iron	kg	0.5	3.2	1.6	0	0	0
		42	weld elech	kg	0.1	3.2	0.32	0	0	0
			Total	kg	1	0	3.52	3.2	0.9	7.62
33	Prep+Inst Iron Gate	33	anglw iron	kg	0.5	3.2	1.6	0	0	0
		36	shut iron	kg	0.5	3.2	1.6	0	0	0
		42	weld elech	kg	0.1	3.2	0.32	0	0	0
			Total	kg	1	0	3.52	3.2	0.9	7.62
34	Prep+Inst Spindle	41	iron spindle	m	1	66	66	0	0	0
		42	weld elech	kg	0.1	3.2	0.32	0	0	0
			Total	m3	1	0	66.32	32	16.7	115.0

(Cont.)

CD	Work items	CD	Materials	Unit	Qt	UC	Mat. Br	Labour Br	Ben. Br	Total Br
35	Form work wood	44	planks	pc	1	44	44	0	0	0
		31	nails	kg	0.5	3.2	1.6	0	0	0
			Total	m2	1	0	45.6	16	11.4	73
36	Prep+Inst wood gate	44	planks	pc	1	44	44	0	0	0
		45	logs	pc	1	44	44	0	0	0
		31	nails	kg	1	3.2	3.2	0	0	0
			Total	m2	1	0	91.2	32	22.8	146
37	upporting works	45	logs	pc	1	44	44	0	0	0
		46	poles	pc	4	6	24	0	0	0
		31	nails	kg	1	3.2	3.2	0	0	0
			Total	m2	1	0	71.2	16	17.8	105
38	Foundation works	46	poles	pc	4	6	24	0	0	0
		14	stones	m3	0.4	55	22	0	0	0
			Total	m2	1	0	46	32	12	90
39	Inst gabion 1-1-0.5	14	stones	m2	0.5	55	28	0	0	0
		38	gabion basket	pc	1	36	36	0	0	0
		30	gabion wire	kg	1	3.2	3.2	0	0	0
			Total	pc	1	0	67.2	16	16.8	100
40	Inst gabion 2-1-0.3	14	stones	m2	0.6	55	33	0	0	0
		39	gabion basket	pc	1	56	56	0	0	0
		30	gabion wire	kg	1	3.2	3.2	0	0	0
			Total	pc	1	0	92.2	16	23	131.2
41	Inst gabion 2-1-1	14	stones	m2	2	55	110	0	0	0
		40	gabion basket	pc	1	88	88	0	0	0
		30	gabion wire	kg	1	3.2	3.2	0	0	0
			Total	pc	1	0	201.2	64	51	316.2
42	Inst Filter	11	sand	m3	0.5	40	20	0	0	0
		12	gravel	m3	0.5	85	42.5	0	0	0
			Total	m2	1	0	62.5	32	16.5	111

I. : CONSTRUCTION CAPACITY OF MACHINERY

- I - 1 : Hourly Yield of Bulldozer
- I - 2 : Hourly Yield of Scraper
- I - 3 : Hourly Yield of Backhoe
- I - 4 : Hourly Yield of Wheel Loader
- I - 5 : Hourly Yield of Dump Truck
- I - 6 : Hourly Yield of Motor Grader
- I - 7 : Hourly Yield of Walk-type Compactor
- I - 8 : Hourly Yield of Vibration Roller
- I - 9 : Daily Yield of Various Works

I-1 : Hourly Yield of Bulldozer

運転1時間当たりブルドーザー（21ton）掘削押土作業量は、次の算定式によって求める。

$$Q = \frac{60 \times q \times f \times E}{Cm}$$

Q : 運転1時間当たり作業量 (m³/hr)

q : 1サイクルの掘削押土量 (地山量 m³)

f : 土量換算係数

E : 作業効率

Cm : 1サイクルの所要時間 (min)

(1) 1サイクルの掘削押土量

1サイクル当り掘削押土量 (q)

(m³)

規 格	q	摘 要
15t	1.73	10,000 m ³ 未満の場合
21t	2.81	標 準
32t	4.63	100,000 m ³ 以上の場合

(2) 1サイクルの所要時間 (Cm)

$$Cm = 0.027L + 0.79 \text{ (min)} \quad L : \text{運搬距離 (m)}$$

(3) 土量換算係数 (f)

土量換算係数は、下表のとおり、地山掘削では f = 1 とする。

土質換算係数

土 質	自然状態	掘りゆるめた状態	締固めた状態
砂	1.00	1.20	0.95
砂 質 土	1.00	1.20	0.90
粘 質 土	1.00	1.25	0.90
礫 質 土	1.00	1.20	0.90
岩塊・玉石	1.00	1.20	1.00

備考：1. 土質換算係数は自然状態の土質（地山土量）に対する体積比である。

2. 施工中の損失量は含まれていない。

(4) 作業効率 (E)

現場条件 土質名	地山の掘削押土			ルーズな城体の土砂押土		
	良好	普通	不良	良好	普通	不良
砂・砂質土	0.85	0.80	0.75	0.90	0.90	0.80
礫質土	0.70	0.65	0.60	0.75	0.70	0.65
粘性土	0.65	0.60	0.55	0.70	0.65	0.60
岩塊・玉石	0.50	0.45	0.40	0.55	0.50	0.45

(注) 1. 現場条件の内容

① 地山の掘削押土

良好：作業現場が広く（土工板幅の3倍以上）、しかも地山がゆるい
うえ、下り勾配等で作業速度が十分期待できる場合

不良：作業現場が狭く（土工板幅の2倍以下）、しかも地山が固い
うえ、上り勾配等で作業速度が阻害される場合

普通：上記諸条件がほぼ中位と考えられる場合

② ルーズの状態の土砂押土

上記の諸条件のうち、地山の条件を除いた他の条件を勘案して決定する。

2. 軟岩をリッピングしたものはリッピング後の状態を考慮し、その状態に応じた土質の値を取る。

3. 破碎岩の作業効率は、「ルーズ状態の土砂押土」を適用する。

(5) 作業量 (掘削押土のみ)

21ton級ブルドーザーの場合の作業効率別押土距離別作業量は下表のとおり。

掘削押土作業量 (敷均しをしない場合)

(単位: m^3/h)

作業効率 (E) 機 種 \ 距離		0.40					
		0.45	0.50	0.55	0.60	0.65	
21 t	20m	50.7	57.0	63.4	69.7	76.1	82.4
	40m	36.1	40.6	45.1	49.6	54.1	58.6
	60m	28.0	31.5	35.0	38.5	42.0	45.5
作業効率 (E) 機 種 \ 距離		0.70					
		0.75	0.80	0.85	0.90		
21 t	20m	88.7	95.1	101.4	107.8	114.1	
	40m	63.1	67.6	72.1	76.6	81.1	
	60m	49.0	52.5	56.0	59.5	63.0	

I-2 : Hourly Yield of Motor Scraper

運転1時間当たりモーター・クレーパー (16 m^3) の掘削運搬作業量は、次の算定式によって求める。

$$Q = \frac{60 \times q \times f \times E}{Cm}$$

Q : 運転1時間当たり作業量 (m^3/hr)

q : 1サイクルの掘削運搬量 (m^3)

f : 土量換算係数

E : 作業効率

Cm : 1サイクルの所要時間 (min)

(1) 1サイクルの掘削運搬量

$$q = q_0 \times K$$

q_0 : 平積公称容量 (m^3)

K : 積載係数 0.88

(2) 1サイクルの所要時間 (Cm)

$$Cm = 1.40 + 0.0073L \text{ (min)}$$

L : 運搬距離 (m)

(注1) 積み込み、捨土時間はCmの固定時間部に含まれる。

(注2) 運搬距離は運搬行程により算定する。

(注3) 作業現場が広く、運行経路に制約のない場合の運搬距離(L)は、運土距離+45mとする。

(注4) Cm計算に用いる運搬距離は5mの整数倍とする。

(3) 土量換算係数 (f)

土量換算係数は、ブルドーザーの項を参照。

(4) 作業効率 (E)

土質名 \ 環境条件	良 好	普 通	不 良	標 準
	砂 質 土	0.85	0.65	0.50
粘 質 土	0.55	0.45	0.35	0.45

- (注1) 作業現場が広く下り勾配で作業速度が期待でき、ボウルに十分積込できるような条件の揃っている場合は良好の上限値をとる。
- (注2) 作業現場が狭く上り勾配等で作業速度が期待できず、ボウルに十分積込むことが困難なような条件の揃っている場合は、不良の下限値をとる。
- (注3) 上記の諸条件がほぼ中位と考えられるような場合は、中位の値をとる。
- (注4) 作業勾配の限界は10° を標準とする。
- (注5) 使用機械はツインエンジン付とし、プッシャを使用するものとする。

(5) 作業量

公称容量16 m^3 のモーター・クレーパーの作業量 ($m^3/hr.$) は、作業効率、運土距離毎に次のようになる。

E	0.85	0.65	0.55	0.50	0.45	0.35
L = 2 km	44.9	34.3	29.0	26.4	23.8	18.5
L = 1 km	83.0	63.5	53.8	48.9	44.0	34.2

I-3 : Hourly Production of Backhoe Loader (0.6 m³バケット)

(1) 掘削積込作業

1) 作業量

バックホウ(0.6 m³バケット)による運転1時間当たり掘削積込土工量の算定式は次式のとおりである。

$$Q = \frac{3,600 \times q \times f \times E}{C_m} \quad (\text{m}^3/\text{h})$$

Q : 運転1時間当たり土工量

q : 1サイクル当たり掘削量(地山土量) (m³)

q₀ : 0.98 q

q₀ : 公称バケット容量(平積容量 m³)

f : 土量換算係数

C_m : 1サイクルの所要時間(sec)

E : 作業効率

2) 掘削量

公称バケット容量	q	摘 要
0.60 m ³	0.59 m ³	掘削積込作業および溝掘削作業の標準機種
0.35	0.34	溝掘作業で平均掘削幅が2 m未満の場合

3) 1サイクルの所要時間(C_m)

(単位: sec)

旋 回 角 度	45°	90°	135°	180°
1サイクルの所要時間	28	30	32	35

注) 通常の積算では90° 旋回を標準とする。

4) 作業効率 (E)

現場条件 土質名	地山の掘削積込			ルーズな状態の積込		
	良好	普通	不良	良好	普通	不良
砂質土	0.80	0.65	0.50	0.85	0.70	0.55
粘性土 礫質土	0.75	0.60	0.45	0.80	0.65	0.50
岩塊・玉石 岩 (破碎)	—	—	—	0.65	0.50	0.35

(注) 現場条件の内容

1. 地山の掘削積込

良好：掘削作業に当たり、掘削深さが最適（1～4m）で地山がゆるく、しかも矢板等の障害物がなく連続掘削作業ができる場合

不良：掘削作業に当たり、掘削深さが最適でなく、地山が固く、しかも矢板等の障害物があり、連続掘削作業ができない場合

普通：上記諸条件がほぼ中位と考えられる場合

2. ルーズな状態の積込

上記の諸条件のうち、地山状態の条件を除いた地の条件を勘案して決定する。

5) 運転1時間当たり掘削積込作業

バックホウ (0.6)

(単位： m^3/h)

作業効率 (E) 旋回角度	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85
45°	26.5	30.3	34.1	37.9	41.7	45.5	49.3	53.1	56.9	60.7	64.5
90°	24.8	28.3	31.9	35.4	38.9	42.5	46.0	49.6	53.1	56.6	60.1
135°	23.2	26.6	29.9	33.2	36.5	39.8	43.1	46.5	49.8	53.1	56.4
180°	21.2	24.3	27.3	30.3	33.4	36.4	39.4	42.5	45.5	48.5	51.6

I-4 : Hourly Production Capacity of Wheel Loader

(1) 掘削積込作業

1) 作業量

ホイールローダー (2.1 m^3 バケット) による運転1時間当たり掘削積込作業量の算定式は次式のとおりである。

$$Q = \frac{3,600 \times q \times f \times E}{Cm} \quad (m^3/h)$$

Q : 運転1時間当たり土工量 (m^3/h)

q : 1サイクル当たり掘削積込量 (地山土量) (m^3)

$q = 0.84 q_0 - 0.03$

q_0 : 公称バケット容量 (山積) (m^3)

f : 土量換算係数

Cm : 1サイクルの所要時間 (sec)

E : 作業効率

2) バケット容量

バケット容量 (山積)	q
1.8 m^3 クローラ式	1.48 m^3
2.1 m^3 ホイール式	1.73 m^3

3) 1サイクルの所要時間

(sec)

足まわり形式	Cm
クローラ式	46
ホイール式	40

4) 作業効率 (E)

現場条件 土質名	地山の掘削積込			ルーズな状態の積込		
	良好	普通	不良	良好	普通	不良
砂質土	0.70	0.55	0.40	0.75	0.60	0.45
礫質粘性土	0.60	0.45	0.30	0.65	0.50	0.35
破碎岩	—	—	—	—	0.35	0.25

(注) 1. 地山がゆるく、積込形式が「ダンプトラック移動型」で作業妨害がなく、切土高が最適(1~3m)等の条件がそろっている場合は良好をとる。

2. 地山が固く掘削困難で、積込形式が「ダンプトラック定着型」で作業妨害が多く、切土高が最適にとれない等の条件がそろっている場合は不良をとる。

3. 積込形式は「ダンプトラック移動型」でも作業妨害等がある場合、または積込形式は「ダンプトラック定置型」でも作業妨害がない場合等上記の諸条件がほぼ中位と考えられるような場合は普通をとる。

4. ルーズな状態の土砂積込の場合は、上記の条件のうち土の固さを除いた他の条件を勘案して数値を決めるものとする。

トラクターショベルによる運転1時間当たり掘削積込作業量は下記のとおり。

5) 運転1時間当たり掘削積込作業量

(単位: m^3/h)

作業効率 (E)	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75
規格											
ホイール式 山積2.1 m^3	38.9	46.7	54.5	62.3	70.1	77.9	85.6	93.4	101.2	109.0	116.8

I-5 : Hourly Yield of Dump truck

(1) 作業量

運転1時間当たりのダンプトラック (13.5ton積) による運搬作業量は、次の算定式によって求める。

$$Q = \frac{3,600 \times q \times f \times E}{C_m}$$

Q : 運転1時間当たり作業量 (m³/hr)

q : 1サイクル当たり積載量 (m³)

f : 土量換算係数

E : 作業効率

C_m : 1サイクルの所要時間 (min)

1) 1サイクル当たり積載量 (q)

$$q = \frac{T}{W} \text{ (m}^3\text{)}$$

T : 公称積載量 (ton)

W : 土の単位体積重量 (自然状態) (ton/m³)

土の単位体積重量 (自然状態) (ton/m³) (標準値)

土質名	砂	砂質土	粘質土	礫質土	軟 岩	中硬岩	硬 岩
W	1.8				2.2	2.5	

2) 1サイクル当たり所要時間 (C_m)

$$C_m = \alpha L + \beta \text{ (min)}$$

C_m : サイクルタイム (min)

α : 運搬状況による係数 (標準0.48)

L : 運搬より (km) = $\frac{\text{往路距離} + \text{復路距離}}{2}$

β : 積込等その他の作業による係数 (min)

(2 m³ホイールローダーの場合 β=10)

(2) 積載土量

土質名	地山単位体積重量 (t/m^3)	q (m^3)
		13.5t ダンプトラック
土砂	1.8	7.5
軟岩	2.2	6.1
硬岩	2.5	5.4

(3) ダンプトラック運搬量

(m^3/h)

L	4	5	6	7	8	9	10
土砂	16.6	14.2	12.5	11.1	10.0	9.1	8.8
軟岩	13.2	11.6	10.2	9.1	8.1	7.6	7.1
硬岩	12.0	10.3	9.0	8.0	7.2	6.6	6.4

1-6 : Houldy Yield of Motor Grader

モーターグレータによる作業能力は、次によって求める。

(1) 運転1時間当たり作業量

運転1時間当たり作業量は、次の算定式によって求める。

$$A = \frac{W \times V \times E}{N}$$

A : 運転1時間当たり作業量 (m³/hr)

W : ブレードまたはスカリファイヤの有効幅 (m)

V : 作業速度

N : 掻起しまたは敷均し回数

E : 作業効率

1) ブレードまたはスカリファイヤの有効幅 (W)

ブレードまたはスカリファイヤの有効幅

規 格	ブ レ ード		スカリファイヤ	
	ブレード幅	有 効 幅	掻起し幅	有 効 幅
	(m)	(m)	(m)	(m)
3.1 m級	3.1	2.4	1.07	0.9
3.7 m級	3.7	2.9	1.23	1.1

備考：ブレードの有効幅 ≒ ブレード幅 × Sin 60° - 0.30 (m)

スカリファイヤの有効幅 ≒ 掻起し幅 - 0.15 (m)

2) 作業速度 (V)

不陸整正作業 (スカリファイヤ、ブレード作業とも) の場合 2,150m/hr

路盤材敷均し作業 (ブレード作業) の場合 1,900m/hr

3) 掻起しまたは敷均し回数 (N)

不陸整正作業の場合 掻起し回数 (スカリファイヤ作業) 2回

敷均し回数 (ブレード作業) 4回

路盤材均敷し作業の場合 敷均し回数 (ブレード作業) 8回

4) 作業効率 (E)

作業効率 (E)

作業条件	E		適用条件
	不陸整正作業	敷均し作業	
良好	0.75	0.65	全面通行止で施工でき、路線条件や路盤条件がよく、障害物もなく連続作業が期待できる場合
普通	0.65	0.55	路線条件や路盤条件が普通で、障害物も少なく、一般的な作業
不良	0.55	0.45	現道交通や障害物等が作業に影響を及ぼす場合、取付道路等で比較的小規模な工事等

備考：1. 路線条件とは道路の線形、縦横断勾配、施工幅の変更等により判定する。

2. 路盤条件とは不陸の程度、土質の硬軟、路盤材の条件等により判定する。

5) 運転時間

モータグレーダ (3.7m ブレード) の1日当たり運転時間 (T) = 5.9時間とする。

不陸整正作業 (m/h)

E	0.75	0.65	0.55	0.45
敷均し	1,558.8	1,013.2	875.3	701.4
掻起し	3,117.5	2,026.4	1,714.6	1,402.9

路盤材敷均し (m)

E	0.75	0.65	0.55	0.45
路盤材敷均し	516.6	447.7	378.8	310.0

I-7 : Hourly Yield of Walk-type Roller(Compactor)

作業量を締固め面積で表す場合の作業量

$$S = \frac{W \times V \times E}{N}$$

作業量を締固め体積で表す場合の作業量

$$Q = \frac{W \times V \times D \times E}{N}$$

S : 運転1時間当たり作業面積 (㎡/h)

Q : 運転1時間当たり作業土量 (m³/h)

W : 1回の有効締固め幅 (m)

V : 作業速度 (m/h)

D : 仕上り厚さ (m)

N : 締固め回数 5回

E : 作業効率

1) 作業効率 (E)

機種	作業条件		
	良好	普通	不良
振動ローラ	-	0.40	-

2) 1回の有効締固め幅および作業速度

機種	規格	1回の有効 締固め幅 W(m)	作業速度V(m/h)
			路盤工
振動ローラ	2.5~2.8t	0.70	1,000

3) 振動ローラ (1 t) の作業面積

(単位: m^2/h)

回数(N) \ 作業効率(E)	0.40
5回	56

4) 振動ローラ (1 t) 締固め回数5回の場合の作業量

(単位: m^2/h)

仕上げ厚さ \ 作業効率	0.40
0.10m	5.6
0.15	8.4
0.20	11.2
0.25	14.0
0.30	16.8
0.35	19.6

I - 8 : Hourly Yield of Vibration Roller

締固め機械による運転1時間当たり締固め作業量の算定式は次式のとおりである。

作業量を締固め土量で表す場合

$$Q_1 = \frac{V \times W \times D \times E}{N}$$

作業量を締固め面積で表す場合

$$Q_2 = \frac{V \times W \times E}{N}$$

Q_1 : 運転1時間当たり路床締固め作業量 (m^3/h)

Q_2 : 運転1時間当たり路床締固め作業量 (m^2/h)

V : 締固め速度 (m)

W : 1回の有効締固め幅 (m)

D : 仕上り厚さ (m)

N : 締固め回数

E : 作業効率

(1) 締固め機械の有効締固め幅と速度

機 種	規 格	有効締固め幅W	標準締固め速度V 路体・策堤・路床
振動ローラー	8~20 t	1.8m	3.500m/h

(2) 仕上り厚さと締固め回数

工 種	仕上り厚さ	締 固 め 回 数	
		締固め機械	締固め回数
路 床	0.3m	振動ローラー	5 回
路体・策堤	0.2	振動ローラー	7 回

(注) 仕上り厚さは締め固めた状態の厚さとする。

(3) 作業効率 (E)

工 種	路体・策堤・路床		
現場条件	良 好	普 通	不 良
振動ローラー	0.6	0.4	0.2

(注) 作業効率は次のような諸条件を考慮し、選択するものとする。

良好：作業現場が広く、かつ作業妨害が少ない場合
(たとえば新設のバイパス工事あるいは、新設策堤等)

不良：作業現場が狭く、かつ作業妨害が多い場合
(たとえば現道上の工事あるいは、1車線程度の現道拡幅工事等)

普通：上記の諸条件がほぼ中位と考えられる場合

(4) 運転1時間当たり締固め作業量

振動ローラー (10 t) の作業量は次のように算定される。

1) 締固め土量の場合

(単位： m^3/h)

作業効率(E)	0.20	0.40	0.60
工 種			
路 床	36	72	108
路体・策堤	76	151	227

2) 締固め面積の場合

(単位： m^2/h)

作業効率(E)	0.20	0.40	0.60
工 種			
路 床	180	360	540
路体・策堤	252	504	756

単位当り工事量算定表

Equipment	Unit	Excavation			Backfill/Embankment			Compaction/Loading			Grading/Conveyance		Land Level		Carrier/Service/Inspect		Tempo. Work		TOTAL	REMARK
		%	Capa.	Unit	%	Capa.	Unit	%	Capa.	Unit	Capa.	Unit	Capa.	Unit	Capa.	Unit	Capa.	Unit		
Bulldozer	m3/day	50	312	25	379	25	865												467	
Wheel Loader	m3/day	50	380					50	380										380	
Backhoe Loader	m3/day	50	216					50	216										216	
Vibro Compactor	Unit/Dam Works						100	3											3	
Motor Grador	m/day									494									494	
Dump Truck	m3/day										63								63	
Motor Scraper	m3/day	50	274	50	506													390		
Water Brower	Unit/Const. Works						100	1											1	
Wark Roller	Unit/Const. Works						100	1											1	
Tractor	ha/day												2						2	
Trailer	Unit/No. Machine														8				8	
Truck	Unit/No. Machine														23				23	
Mobil Workshop	Unit/No. Machine															42			42	
Mobil Grasing	Unit/No. Machine															147			147	
Motor Cycle	Unit/Const. Works															5			5	
Crane	Unit/No. Machine														98				98	
Station Wagon	Unit/Const. Works															2			2	
Pick-up	Unit/Const. Works															1			1	
Drilling Machine	Unit/Dam Works																1		*	
Generator	Unit/Const. Works																	1	1	
Stone Crusher	m3/day																		43	
Concrete Mixer	m3/day																		43	

- J. : REQUIRED EQUIPMENT
- J-1 : Estimation of Total Required Equipment
- J-2 : Estimation of Required Equipment in Northern Zone
- J-3 : Estimation of Required Equipment in North-Eastern Zone
- J-4 : Estimation of Required Equipment in North-Western Zone
- J-5 : Estimation of Required Equipment in Western Zone
- J-6 : Estimation of Required Equipment in South-Western Zone

J-1 Estimation of Total Required Equipment in Ethiopia
 J-1 地域別必要機械数量算定表 (TOTAL)

Implementation Schedule (year)		93/94			94/95			95/96			96/97			MAX. REQUIRED								
Intake Type	Equipment	Capacity per day	Quantity	Weir	Dam	total	Weir	Dam	total	Weir	Dam	total	Weir	Dam	total							
Area (ha)	Unit of Total Quantity	per year	per day	1,270	150	1,420	2,275	290	2,475	1,550	1,332	2,475	1,550	1,332	2,475							
Construction Unit	Item	Capacity per day	Quantity	No. of Units	Total No. of Units	Total Quantity	No. of Units	Total No. of Units	Total Quantity	No. of Units	Total No. of Units	Total Quantity	No. of Units	Total No. of Units	Total Quantity							
	Earth Works	467	170,455	9.1	255,084	2.0	1,407,104	11.2	2,063,593	18.4	340,085	2.7	2,403,778	19.1	1,505,816	11.9	1,208,281	9.6	2,403,778	19		
	Wheel Loader	380	138,700	5.4	158,382	1.5	709,145	6.9	986,604	9.5	211,176	2.1	1,197,780	11.7	719,396	7.0	577,651	5.5	1,197,780	12		
	Backhoe Loader	216	78,340	2.9	20,892	0.4	187,390	3.2	288,255	5.5	27,855	0.5	326,110	5.5	217,828	3.7	174,626	3.0	326,110	6		
	Vibro Compactor	4	4	0	2	8.0	2	0	0	0	0	0	1	4.0	0	0	0	0	0	2	8	
	Motor Grader	494	180,310	6.8	63,040	0.5	955,888	7.2	1,617,487	12.1	84,053	0.6	1,701,539	12.8	1,180,232	8.8	947,029	7.1	1,701,539	13		
	Dump Truck	63	22,995	37.8	159,433	10.0	812,325	47.8	1,151,637	67.7	225,910	13.3	1,377,547	81.0	840,315	49.4	674,277	39.6	1,377,547	81		
	Motor Scraper	350	142,350	0	0	0.8	83,098	0.8	0	0	0	0	110,797	1.1	0	0	0	0	0	110,797	1	
	Water Brewer	Units*Cons.Works	2	9	4.5	2	1.0	5.5	15	8.0	1	0.5	17	8.5	10	5.0	11	5.5	17	9		
	Work Roller	Units*Cons.Works	1	9	9.0	2	2.0	11	11.0	16	16.0	1	1.0	17	17.0	10	10.0	11	11.0	17		
	Tractor	ha/day	2	730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	Tractor	ha/day	4	26	5.6	15	8.7	41	10.3	47	11.8	11	2.8	58	14.6	33	8.2	29	7.3	58	15	
	Truck	Units / Machine	12	26	2.2	15	1.2	41	3.4	47	3.9	11	0.9	58	4.9	33	2.7	29	2.4	58	5	
	Mobil Workshop	Units / Machine	8	26	3.3	15	1.8	41	5.1	47	5.9	11	1.4	58	7.3	33	4.1	29	3.7	58	7	
	Mobil Greasing	Units / Machine	29	26	0.9	15	0.5	41	1.4	47	1.6	11	0.4	58	2.0	33	1.1	29	1.0	58	2	
	Motor Cycle	Units / Machine	1	9	9.0	2	2.0	11	11.0	16	16.0	1	1.0	17	17.0	10	10.0	11	11.0	17	17	
	Crane	Units / Machine	20	26	1.3	15	0.7	41	2.1	47	2.4	11	0.6	58	2.9	33	1.6	29	1.5	58	3	
	Station Wagon	Units*Cons.Works	2	9	18.0	2	4.0	11	22.0	16	32.0	1	2.0	17	34.0	10	20.0	11	22.0	17	34	
	Pick-up	Units*Cons.Works	1	9	9.0	2	2.0	11	11.0	16	16.0	1	1.0	17	17.0	10	10.0	11	11.0	17	17	
	Drilling Machine	Units*Cons.Works	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Generator	Units*Cons.Works	1	9	9.0	2	2.0	11	11.0	16	16.0	1	1.0	17	17.0	10	10.0	11	11.0	17	17	
	Concrete Works	Stone Crusher	43	15,695	119,899	10.3	7,161	0.6	127,060	10.9	214,779	18.5	9,549	0.8	224,328	19.3	156,718	13.5	125,752	10.8	224,328	19
	Concrete Works	Concrete Mixer	43	15,695	119,899	10.3	7,161	0.6	127,060	10.9	214,779	18.5	9,549	0.8	224,328	19.3	156,718	13.5	125,752	10.8	224,328	19

J - 2 Estimation of Required Equipment in Northern Zone
 J - 2 地域別必要機械数量算定表 (NORTHERN ZONE)

2

Implementation Schedule (year)		93/94	94/95	95/96	95/97	MAX. REQUIRED
Intake Type		Dam		-		
Irrigation Area (ha)		100		0		200
Construction Unit		1		0		1
Item	Unit of Total Capacity, per day	Quantity	No. of Units	Total Quantity	No. of Units	Total Quantity
Bulldozer	m ³	467	1.3	340,085	2.7	0 0.0 340,085 3
Wheel Loader	m ³	380	1.0	211,176	2.1	0 0.0 211,176 2
Backhoe Loader	m ³	216	0.2	27,855	0.5	0 0.0 27,855 0
Vibro Compactor	Units*Dam Works	0.25	4.0	1	4.0	0 0.0 1 4
Motor Grater	m/day	494	0.3	84,053	0.6	0 0.0 84,053 1
Dump Truck	m ³ /day	63	6.6	225,910	13.3	0 0.0 225,910 13
Motor Scraper	m ³ /day	390	0.5	110,797	1.1	0 0.0 110,797 1
Water Brewer	Units*Cons. Works	2	0.5	1	0.5	0 0.0 1 1
Work Roller	Units*Cons. Works	1	1.0	1	1.0	0 0.0 1 1
Tractor	ha/day	2	0.0	0	0.0	0 0.0 0 0
Trailer	Units / Machine	4	2.0	11	2.8	0 0.0 11 3
Truck	Units / Machine	12	0.7	11	0.9	0 0.0 11 1
Mobil Workshop	Units / Machine	8	1.0	11	1.4	0 0.0 11 1
Mobil Greasing	Units / Machine	29	0.3	11	0.4	0 0.0 11 0
Motor Cycle	Units / Machine	1	1.0	1	1.0	0 0.0 1 1
Crane	Units / Machine	20	0.4	11	0.6	0 0.0 11 1
Station Wagon	Units*Cons. Works	2	2.0	1	2.0	0 0.0 1 2
Pick-up	Units*Cons. Works	1	1.0	1	1.0	0 0.0 1 1
Drilling Machine	Units*Dam Works	2	0.0	0	0.0	0 0.0 0 0
Generator	Units*Cons. Works	1	1.0	1	1.0	0 0.0 1 1
Concrete Works Stone Crusher	m ³ /day	43	11.610	4,774	0.4	9,549 0.8 0 0.0 9,549 1
Concrete Mixer	m ³ /day	43	11.610	4,774	0.4	9,549 0.8 0 0.0 9,549 1