5.4 Cropping Intensity of Paddy

Cropping area of each scheme is estimated from topographical map surveyed during the Study. Ratio of paddy fields both wet and dry season is calculated in the table II-8. Mean cropping ratio between wet and dry season at North Sumatra is 84 %, and 72 % for South Sulawesi and 50 % for NTB respectively.

As to the NTB province, the lowest ratio is shown due to little rainfall in dry season in Sumbawa island especially. As the results of calculation, cropping intensities of paddy field are as below;

North Sumatra	;	184 %
South sulawesi	;	172 %
NTB	;	150 %

Above value shows comparatively large intensity but these intensity own to their river discharge itself. On the other hand the inventory data on the ratio of planting area was gained as bellow;

North Sumatra	;	LD	;	75.3 % of wet paddy area
		VI	;	61.2 %
South Sulawesi	;	LD	;	29.3 %
		VI	;	62.4 %
NTB	;	LD	;	0 %
		VI	;	6.6 %

From the above both data, planning cropping ratio between wet and dry season is assumed considering hydrological analysis.

5.5 Other Basic Dimension for Irrigation Plan

(1) Intake Discharge and Canal Discharge

Discharge of Intake and distribution canal are shown in Table discharge and canal discharge of Table II-9.

(2) Work Quantity for 30 Representative Schemes

Work quantity for 30 representative schemes by item and classification are shown in Table II-10.

(3) Planning Area of Land Development

Planning area of land development in the three provinces is described in Table II-11.

(4) Land Use of Representative Schemes

Land use area of present condition and planing condition in each representative scheme are calculated by topographical maps surveyed actually (map scale 1:2,000) and land use maps. Refer to the Table II-12.

Table II-8 (1/3) CROPPING INTENSITY OF PADDY

Province : NORTH SUMATRA

PLANTED AREA = GROSS IRR. PADDY x 0.9

NO	CODE	IRRIGATION SCHEME		GROSS IRR. PADDY	PLANTED AREA	PLANTED RATIO
1	60011	Sumbari	Rainy	77	69	
			Dry	53	48	0.69
2	60038	Rauning (B)	Rainy	66	59	
			Dry	20	18	0.30
3	60025	Sumbul Berampu	Rainy	124	112	
			Dry	124	112	1.00
4	60057	Sidomukuti	Rainy	27	24	
			Dry	27	24	1.00
5	60091	Aek Palia	Rainy	38	34	
			Dry	31	28	0.82
6	60129	Pangambatan (B)	Rainy	48	43	
			Dry	48	43	1.00
7	60141	Aek Siparbue	Rainy	26	23	
			Dry	26	23	1.00
8	60218	Kutamale	Rainy	40	36	
			Dry	34	31	0.86
9	60240	Asahan VIII Pengajian	Rainy	66	59	
			Dry	66	59	1.00
10	60256	Aek Sihim	Rainy	48	43	
			Dry	41	37	0.86
		TOTAL	Rainy	560	504	Av. Plant. Rt.
			Dry	470	423	84%

Table II-8 (2/3) CROPPING INTENSITY OF PADDY

Province :SOUTH SULAWESI

PLANTED AREA =
GROSS IRR. PADDY x 0.9

NO	CODE	IRRIGATION SCHEME		GROSS IRR. PADDY	PLANTED AREA	PLANTED RATIO
1	20003	Kalu	Rainy	70	63	
			Dry	60	54	0.86
2	10055	Pajjenge	Rainy	143	129	
			Dry	41	37	0.29
3	10099	Kadieng	Rainy	224	202	
			Dry	224	202	1.00
4	10115	Kaindi	Rainy	124	112	
			Dry	73	66	0.59
5	10140	Lembang Bata	Rainy	76	68	
			Dry	76	68	1.00
6	10168	Panrita	Rainy	65	59	
			Dry	11	10	0.17
7	10182	Mario I-II-III	Rainy	57	51	
			Dry	16	14	0.27
8	10201	Pakelli II	Rainy	54	49	
			Dry	17	15	0.31
9	10227	Padaelo	Rainy	138	124	
			Dry	138	124	1.00
10	10287	Malimbu	Rainy	32	29	
			Dry	32	29	1.00
11	10332	Salu Akung	Rainy	26	23	
			Dry	26	23	1.00
12	10354	Mariri	Rainy	63	57	
			Dry	63	57	1.00
		TOTAL	Rainy	1072	965	Av. Plant. Rt.
			Dry	777	699	72%

Table II-8 (3/3) CROPPING INTENSITY OF PADDY

Province : WEST NUSA TENGGARA

PLANTED AREA = GROSS IRR. PADDY x 0.9

NO	CODE	IRRIGATION SCHEME		GROSS IRR. PADDY	PLANTED AREA	PLANTED RATIO
1	45010	Danar Jengkang	Rainy	120	108	
			Dry	120	108	1.00
2	32013	Mada Manini	Rainy	70	63	
			Dry	6	5	0.08
3	33050	Uma Lebang	Rainy	89	80	
			Dry	7	6	0.07
4	34004	Lokok Tripas	Rainy	34	31	
			Dry	34	31	1.00
5	35035	Lengkok Dudu	Rainy	26	23	
			Dry	26	23	1.00
6	35045	Kelokos Udang	Rainy	111	100	
			Dry	74	67	0.67
7	36016	Raba Sangga	Rainy	111	100	
			Dry	7	6	0.06
8	37003	Montong Sapah/Puri	Rainy	33	30	
			Dry	21	19	0.64
		TOTAL	Rainy	594	535	Av. Plant. Rt.
			Dry	294	265	50%

Table II-9 INTAKE DISCHARGE AND CANAL DISCHARGE

	GROSS ha	NET ha	Q m3/s	GROSS ha	NET ha	Q m3/s
NORTH SUMATRA						
1 Sumbari	77	69	0.1			
2 Rauning (B)	66	59	0.09			
3 Sumbul Berampu	124	112	0.17			
4 Sidomukuti	14	13	0.02	13	12	0.02
5 Aek Palia	25	23	0.03	13	12	0.02
6 Pangambatan (B)	48	43	0.06			
7 Aek Siparbue				26	23	0.03
8 Kutamale	40	36	0.05			
9 Asahan VIII Pengajian				66	59	0.09
10 Aek Sihim				48	43	0.06
SOUTH SULAWESI						
1 Kalu				70	63	0.09
2 Pajjenge				143	129	0.19
3 Kadieng				224	202	0.3
4 Kaindi				124	112	0.17
5 Lembang Bata				76	68	0.1
6 Panrita	65	59	0.09			
7 Mario I-II-III	57	51	0.08			
8 Pakelli II				54	49	0.07
9 Padaelo	138	124	0.19			
10 Malimbu				32	29	0.04
11 Salu Akung	8	7	0.01	18	16	0.02
12 Mariri				63	57	0.09
WEST NUSA TENGGARA						
1 Danar Jengkang	120	108	0.16			
2 Mada Manini	70	63	0.09			
3 Uma Lebang	89	80	0.12			
4 Lokok Tripas	24	22	0.03	10	9	0.01
5 Lengkok Dudu	26	23	0.03			
6 Kelokos Udang				111	100	0.15
7 Raba Sangga	111	100	0.15			
8 Montong Sapah/Puri	13	12	0.02	20	18	0.03

Table II-10 WORK QUANTITY FOR REPRESENTATIVE SCHEMES

No.	Name of Schemes		INTAKE FACILITY			TERT. CANAL		DELIVERY CANAL		FIELD CANAL		O & M ROAD	CANAL STRUCTURE
		LD	NEW	REPLACE	REHAB.	NEW	REHAB.	NEW	REHAB.	NEW	REHAB.	NEW	NEW
		ha	nos	nos	nos	m	m	m	m	m	m	m	nos
	NORTH SUMATRA												
1	Sumbari	42				200				2000			2
2	Rauning (B)	47						500	1000	2900		300	2
3	Sumbul Berampu								1000				6
4	Sidomukuti	3	1					200		2000		750	2
5	Aek Palia	4			1				800	200			
6	Pangambatan (B)	6		1				500		2150		800	2
7	Aek Siparbue	2			1				400	100		200	
8	Kutamale	8			1				600	400		200	1
9	Asahan VIII Pengajian	19		1				600	600	1200			6
10	Aek Sihim	8	1						600	400		800	4
	SUB TOTAL	139	2	2	3	200	0	1800	5000	11350	0	3050	25
	SOUTH SULAWESI												
1	Kalu	23					500			1100		400	2
2	Pajjenge				1				1000			1400	6
3	Kadieng	53		1					4000	2500		2000	8
4	Kaindi	57		1					600	2700			3
5	Lembang Bata	4	1					900	600	200			5
6	Panrita	10	1						400	100			
7	Mario I-II-III	7			1			400	800	400		300	1
8	Pakelli II	35		1					600	1600		400	4
9	Padaelo	61		2				3000		4500			
10	Malimbu		1					100	400				1
11	Salu Akung			1					500			550	
12	Mariri	29		1				1500	600	600			
	SUB TOTAL	279	3	7	2	0	500	5900	9500	13700	0	5050	30
	WEST NUSA TENGGARA												
1	Danar Jengkang	115		1		2000	400			5000			6
2	Mada Manini		1						1000	400		1100	1
3	Uma Lebang	21			1			150	500	1000		2000	2
4	Lokok Tripas				1			100	600			500	4
5	Lengkok Dudu	2		1					600			100	2
6	Kelokos Udang	6			1				650	300		450	6
7	Raba Sangga							400	400				2
8	Montong Sapah/Puri			1					350	2300		350	2
	SUB TOTAL	144	1	3	3	2000	400	650	4100	9000	0	4500	25
	TOTAL	562	6	12	8	2200	900	8350	18600	34050	0	12600	80

Table II-11 PLANNING AREA OF LAND DEVELOPMENT

No.	Scheme	Dry Land	Plantation	Grass Land	Forest	Swamp	Total
		ha	ha	ha	ha	ha	ha
	NORTH SUMATRA						
1	Sumbari	10	32				42
2	Rauning	3	29		15		47
3	Sumbul Berampu						0
4	Sidomukti		3				3
5	Aek Palia		1			3	4
6	Pangambatan (B)				3	3	6
7	Aek Siparbue	1	1				2
8	Kutamale	5		1		2	8
9	Asahan VIII Pengajian	6	13				19
10	Aek Sihim		8				8
	SUB TOTAL	25	87	1	18	8	139
	SOUTH SULAWESI						
11	Panrita	3	7				10
12	Mario I-II-III	7					7
13	Pakelli II	19	16				35
14	Padaelo	20	19	22			61
15	Malimbu						0
16	Kalu	23					23
17	Pajjenge						0
18	Kadieng	52			1		53
19	Kaindi	57					57
20	Lembang Bata		4				4
21	Salu Akung						0
22	Mariri	29					29
	SUB TOTAL	210	46	22	1	0	279
	WEST NUSA TENGGARA						
23	Kelokos Udang	6					6
24	Raba Sangga						0
25	Montong Sapah/Puri						0
26	Danar Jengkang		115				115
27	Mada Manini						0
28	Uma Lebang	21					21
29	Lolok Tripas						0
30	Lengkok Dudu		2				2
	SUB TOTAL	27	117	0	0	0	144
	TOTAL	262	250	23	19	8	562

Table II-12 (1/3) LAND USE PLAN

Province : NORTH SUMATRA

Unit : ha

NO	CODE	IRRIGATION SCHEME		IRR. PADDY	DAMAGED PADDY	RAIN PADDY	DRY FIELD	PLANTATION	GRASS LAND	FOREST	HOUSING, ROAD, etc	RIVER, POND, etc	TOTAL (Area)
1	60008	Sumbari	Present	34	-	1	20	106	-	-	2	-	163
			Future	77	-	0	10	74	-	-	2	-	163
2	60038	Rauning (B)	Present	5	14	-	3	62	-	15	-	-	99
			Future	66	0	-	0	33	-	0	-	-	99
3	50025	Sumbul Berampu	Present	124	-	-	-	69	-	34	7	-	234
			Future	124	-	-	-	69	-	34	7	-	234
4	50057	Sidomukuti	Present	12	-	15	-	36	-	-	4	1	68
			Future	27	-	3	-	33	-	-	4	1	68
5	50091	Aek Palia	Present	34	-	-	2	22	-	-	2	4	64
			Future	38	-	-	2	21	-	-	2	1	64
6	50129	Pangambatan (B)	Present	30	12	-	-	-	-	11	-	3	56
			Future	48	0	-	-	-	-	8	-	0	56
7	50141	Aek Siparbue	Present	23	-	1	1	9	-	-	3	-	37
			Future	26	-	0	0	8	-	-	3	-	37
8	50218	Kutamale	Present	32	-	-	17	-	12	6	-	2	69
			Future	40	-	-	12	-	11	6	-	0	69
9	50240	Asahan VIII Pengajian	Present	45	-	2	10	39	2	-	2	-	100
			Future	66	-	0	4	26	2	-	2	-	100
10	50256	Aek Sihim	Present	40	-	-	-	58	-	-	4	1	103
			Future	48	-	-	-	50	-	-	4	1	103
		TOTAL	Present	379	26	19	53	401	14	66	24	11	993
			Future	560	0	3	28	314	13	48	24	3	993

Table II-12 (2/3) LAND USE PLAN

Province :SOUTH SULAWESI

Unit : ha

NO	CODE	IRRIGATION SCHEME		IRR. PADDY	DAMAGED PADDY	RAIN PADDY	DRY FIELD	PLANTATION	GRASS LAND	FOREST	HOUSING, ROAD, etc	RIVER, POND, etc	TOTAL (Area)
1	20003	Kalu	Present	47	-	-	32	11	-	-	10	1	101
			Future	70	-	-	9	11	-	-	10	1	101
2	10055	Pajjenge	Present	100	48	-	4	2	-	10	1	-	160
			Future	143	0	-	4	2	-	10	1	-	160
3	10099	Kadieng	Present	171	-	-	61	27	-	2	7	2	270
			Future	224	-	-	9	27	-	1	7	2	270
4	10115	Kaindi	Present	67	-	-	104	3	-	16	5	-	195
			Future	124	-	-	47	3	-	16	5	-	195
5	10140	Lembang Bata	Present	72	-	-	-	101	-	-	2	-	175
			Future	76	-	-	-	97	-	-	2	-	175
6	10168	Panrita	Present	55	-	-	3	15	-	1	4	-	78
			Future	65	-	-	0	8	-	1	4	-	78
7	10182	Mario I-II-III	Present	50	-	-	12	-	-	4	6	2	74
			Future	57	-	-	5	-	-	4	6	2	74
8	10201	Pakelli II	Present	19	-	-	35	104	-	-	10	-	168
			Future	54	-	-	16	88	-	-	10	-	168
9	10227	Padaelo	Present	77	-	-	20	19	22	-	19	4	161
			Future	138	-	-	0	0	0	-	19	4	161
10	10287	Malimbu	Present	0	32	-	2	1	-	9	-	-	44
			Future	32	0	-	2	1	-	9	-	-	44
11	10332	Salu Akung	Present	26	-	-	-	-	-	4	-	-	30
			Future	26	-	-	-	-	-	4	-	-	30
12	10354	Mariri	Present	0	34	-	50	23	-	15	29	-	151
			Future	63	0	-	21	23	-	15	29	-	151
		TOTAL	Present	684	109	0	323	306	22	61	93	9	1607
			Future	1072	0	0	113	260	0	60	93	9	1607

Table II-12 (3/3) LAND USE PLAN

Province : WEST NUSA TENGGARA

Unit : ha

NO	CODE	IRRIGATION SCHEME		IRR. PADDY	DAMAGED PADDY	RAIN PADDY	DRY FIELD	PLANTATION	GRASS LAND	FOREST	HOUSING, ROAD, etc	RIVER, POND, etc	TOTAL (Area)
1	45010	Danar Jengkang	Present	5	-	-	-	218	-	-	4	-	227
			Future	120	-	-	-	103	-	-	4	-	227
2	32013	Mada Manini	Present	70	-	-	-	-	13	14	1	-	98
			Future	70	-	-	-	-	13	14	1	-	98
3	33050	Uma Lebang	Present	68	-	-	24	4	-	-	-	-	96
			Future	89	-	-	3	4	-	-	-	-	96
4	34004	Lokok Tripas	Present	34	-	-	19	-	-	-	4	-	57
			Future	34	-	-	19	-	-	-	4	-	57
5	35035	Lengkok Dudu	Present	24	-	-	-	20	-	1	-	-	45
			Future	26	-	-	-	18	-	1	-	-	45
6	35045	Kelokos Udang	Present	105	-	-	12	-	-	-	11	-	128
			Future	111	-	-	6	-	-	-	11	-	128
7	36016	Raba Sangga	Present	111	-	-	1	-	-	11	2	-	125
			Future	111	-	-	1	-	-	11	2	-	125
8	37003	Montong Sapah/Puri	Present	13	-	20	3	-	-	-	1	-	37
			Future	33	-	0	3	-	-	-	1	-	37
		TOTAL	Present	430	0	20	59	242	13	26	23	0	813
			Future	594	0	0	32	125	13	26	23	0	813

APPENDIX-III

METEOROLOGY AND HYDROLOGY

APPENDIX III METEOROLOGY AND HYDROLOGY

1. METEOROLOGY

The meteorological data in the Study area are arranged at many observation stations of the Bureau of Weather, Provincial Services for Public Works and Agriculture (DPU and DIPERTA), and other agencies. It is difficult to collect all of the data during a short period because of the enormous amount. Thus the data especially for rainfall in the limited areas are collected. Table III-1 to III-3 show the number of observation stations by province for reference data.

1.1 Rainfall

(1) Collected Data

The data at a rural extension center (BPP) located in the neighborhood of each scheme for the latest five (5) years are used as the data for the scheme. Usually, ten day data arranged by BPP using daily data are sent to the Provincial Agricultural Services (PRAS) and PRAS has the custody of monthly data compiled from ten day data.

(2) Rainfall in Dry and Wet Seasons

The ratio between average monthly rainfall data in the dry season and those in the wet season is arranged as follows:

RATIO OF AVERAGE RAINFALL IN DRY SEASON /AVERAGE RAINFALL IN WET SEASON

NORTH SUMATRA			SOUTH SULAWESI			WEST NUSA TENGGARA		
WET SEASON RAINFALL mm	DRY SEASON RAINFALL mm	RATIO DRY/WET	WET SEASON RAINFALL mm	DRY SEASON RAINFALL mm	RATIO DRY/WET	WET SEASON RAINFALL mm	DRY SEASON RAINFALL mm	RATIO DRY/WET
(1)	(2)	(2)/(1)	(1)	(2)	(2)/(1)	(1)	(2)	(2)/(1)
246	159	0.65	188	140	0.74	261	20	0.08
235	133	0.57	238	184	0.77	227	16	0.07
263	188	0.71	191	150	0.79	256	30	0.12
409	261	0.64	252	238	0.94	221	15	0.07
386	264	0.69	280	256	0.91	356	69	0.19
232	131	0.56	206	174	0.84	219	24	0.11
409	211	0.52	203	148	0.73	279	24	0.09
225	139	0.62	272	85	0.31	281	69	0.25
238	197	0.83	277	49	0.18	215	21	0.10
344	262	0.76	251	53	0.21	227	32	0.14
201	33	0.16	237	45	0.19	200	47	0.24
127	79	0.62	97	77	0.79	162	14	0.09
141	79	0.56	125	109	0.87	108	14	0.13
137	84	0.61	216	117	0.54	131	13	0.10
109	45	0.41	352	116	0.33	240	12	0.05
166	94	0.57	250	58	0.23	212	24	0.11
232	98	0.42	285	46	0.16	256	23	0.09
174	65	0.37	430	190	0.44	130	24	0.18
147	64	0.44	625	134	0.21	210	13	0.06
141	72	0.51	770	151	0.20	156	14	0.09
256	162	0.63	433	63	0.15	186	20	0.11
141	72	0.51	402	69	0.17	131	15	0.11
256	162	0.63	415	42	0.10	129	27	0.21
188	90	0.48	431	62	0.14	187	27	0.14
165	107	0.65	463	56	0.12	265	28	0.11
194	119	0.61	444	57	0.13	222	49	0.22
166	111	0.67	400	58	0.15	257	20	0.08
173	89	0.51	372	56	0.15	240	16	0.07
200	167	0.84				278	60	0.22
874	147	0.17				239	39	0.16
207	134	0.65				227	48	0.21
194	149	0.77				220	53	0.24
286	177	0.62				238	41	0.17
259	135	0.52				243	78	0.32
269	133	0.49				213	32	0.15
163	83	0.51				239	30	0.13
207	104	0.50						
123	50	0.41						
200	108	0.54						
300	173	0.58						
259	103	0.40						
AVERAGE 235	128	0.56	325	107	0.41	218	31	0.14

The table shows that rainfall in the dry season is not expected in West Nusa Tenggara because the dry and wet seasons are clearly specified. North Sumatra province has rainfall more than 100 mm even in the dry season and the region with monthly rainfall more than 200 mm in the dry season. In North Sumatra province, the rainfall in the dry season is not so different from those in the wet season. In South Sulawesi province, the monthly rainfall in the wet season is comparatively big and reaches to more than 300 mm.

The ratio between the rainfall in the wet season and those in the dry season may suggest the ratio between the paddy cultivation areas in both seasons in the schemes taking water from rivers with small discharge.

1.2 Air Temperature and Relative Humidity

There are almost no annual difference in each province with reference to the average yearly air temperature and relative humidity as shown in Table III-4 and Table III-5. The air temperature ranges from 23°C to 31°C and the relative humidity is at the level of 80%.

2. HYDROLOGY

2.1 Result of Inventory Survey

The following tables show the results arranged and analyzed using available data by inventory item on the schemes with their water source facilities on river. (Refer to Table III-6 ~ Table III-11)

2.2 Specific Discharge

The analysis of discharge is carried out referring to the hydrological data arranged by BTA 155, DGWRD using the report on Regional Physical Planning Program for Transmigration (RePPProT) of the Ministry of Transmigration.

Specific discharge in the wet and dry season are estimated dividing areas into certain regions from hydrological view points by each province. The specific discharges in the dry season are obtained by averaging the minimum discharge data on monthly average basis by region. Those in the wet season are gotten by averaging the annual mean discharge by region. However, the specific discharge in Sumbawa island are estimated at the average of four or five months' data in the wet season because the discharge in the dry season is extremely small.

In the above, the hydrological regions are taken as two (2) regions in north and south areas of North Sumatra, three (3) in north, central and south areas of South Sulawesi and two (2) of Lombok and Sumbawa Islands of West Nusa Tenggara.

2.3 Evaluation of Water Availability

It is necessary to estimate river discharge for each scheme because the water availability is the decisive factor to decide the irrigable area in each scheme. Although the observed data are the best data for the estimation, almost no observed data during the long period is found in almost all the schemes. Besides, it is difficult to estimate catchment areas and thus it is almost impossible to estimate river discharge by specific discharge and catchment area.

Consequently, the evaluation of water availability is carried out by the following method.

(1) Annual conditions

- River discharge data, if any, in the inventory survey result is used.
- If no data is found in the inventory survey result, river discharge is estimated by the assumed discharge per unit width of river.
- Intake discharge is assumed to be 80% at maximum of river discharge.
- Unit water requirement data, if any, in the inventory survey result is used. In the case that no data is found, or the data is not reliable, the following values are used.

Province	Water Requirement in wet Season	Water Requirement in Dry Season
North Sumatra	1.2 ℓ/sec/ha	1.5 ℓ/sec/ha
South Sulawesi	1.2	1.5
West Nusa Tenggara	1.3	1.5

- Cultivated area in the dry season is taken as the average data in the inventory survey result.

Province	LD	VI
North Sumatra	75%	61%
South Sulawesi	30%	62%
NTB Lombok	60%	60%
Sumbawa	5%	5%

(2) Estimation of discharge per unit width of river

The discharge per unit width (m) of river is obtained using the river discharge data and river width considered to be reliable in the inventory survey result.

In Sumbawa, however, the unit discharge is inferred by the estimated discharge for Lombok and the ratio of the specific discharge because no available data is found.

The result of the estimation is as follows:

Province	Wet Season	Dry Season
North Sumatra	340 ℓ/m	160 ℓ/m
South Sulawesi	260	90
NTB Lombok	60	20
Sumbawa	55	5

(3) Point for evaluation

The ratios by season between the irrigated area and the irrigable area estimated by the possible intake discharge are obtained respectively and the water availability is evaluated by the points obtained using the following division. The full point is 15.

Wet season
Ratio ≥ 1.0 ..... 10 points
Ratio < 1.0 ..... Ratio x 10 points

Dry season
Ratio ≥ 1.0 ..... 5 points
Ratio < 1.0 ..... Ratio x 5 points

The results are shown in Table III-18 to Table III-20.

Table III-1 NUMBER OF METEOROLOGICAL OBSERVATION STATION BY KABUPATEN IN NORTH SUMATERA PROVINCE

Kabupaten/District	Meteorological Station	Rainfall Station
Langkat	-	27
Deli Serdang	3	66
Asahan	-	27
Labuhan Ratu	1	15
Tapanuli Selatan	-	40
Tapanuli Tengah	1	7
Tapanuli Utara	1	29
Tanah Karo	1	18
Dairi	-	10
Total	7	239

Table III-2 NUMBER OF METEOROLOGICAL OBSERVATION STATION BY KABUPATEN IN SOUTH SULAWESI PROVINCE

Kabupaten /District	Meteorological Station	Rainfall Station
Polmas	-	20
Enrekang	-	10
Sidrap	2	23
Pinrang	2	11
Tator	1	19
Wajo	-	12
Soppeng	1	10
Bone	2	33
Sinjai	1	8
Bulu Kumba	1	11
Bantaeng	-	4
Jeneponto	-	14
Gowa	2	25
Maros	-	16
Barru	-	11
Luwu	5	29
Majene	1	5
Manuju	-	7
Total	18	268

Table III-3 NUMBER OF METEOROLOGICAL OBSERVATION STATION BY KABUPATEN IN WEST NUSA TENGGARA PROVINCE

Kabupaten/ District	Meteorological Station	Rainfall Station
Lombok Barat	2	28
Lombok Tengah	1	40
Lombok Timur	1	41
Sumbawa	2	28
Dompu	-	5
Bima	-	19
Total	6	161

Table III-4 MONTHLY AVERAGE MAXIMUM/MINIMUM TEMPERATURE (°C)

* MEDAN / POLONIA, NORTH SUMATRA (EL. 27 m)

YEAR	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		AVERAGE	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1987	30.8	21.9	32.1	23.3			32.4	23.5	33.1	23.8	32.9	21.8	33.1		33.9	23.1	31.1	22.6	30.9	23.1	31.0	23.1	30.6	22.9	32.0	22.9
1988	30.4	22.6	32.5	22.3	33.3	23.1			32.5	24.1	33.5	23.9	32.7	23.5	31.7	23.4	31.3	23.5	31.2	23.6	31.7	23.8	30.5	23.4	31.9	23.4
1989			32.1	23.7	32.4	23.9	33.0	24.4	33.0	23.8	32.3	23.7	32.0	23.5	31.5	22.7	31.1	23.4	32.1	22.9	30.7	23.3	30.0	22.7	31.8	23.5
1990	31.2	22.3	31.6	21.1	32.2	22.6	32.8	22.2	31.2	21.8	30.8	22.5	31.0	22.2	29.8	22.2	30.0	22.2	30.2	22.9	29.5	21.9	30.2	21.5	30.9	22.1
AVERAGE	30.8	22.3	32.1	22.6	32.6	23.2	32.7	23.4	32.5	23.4	32.4	23.0	32.2	23.1	31.7	22.9	30.9	22.9	31.1	23.1	30.7	23.0	30.3	22.6	31.7	23.0

* UJUNG PANDANG / HASANUDDIN, SOUTH SELAWESI (EL. 14 m)

YEAR	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		AVERAGE	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1987	29.4	23.2	29.6	22.5	30.2	23.0	31.2	23.0	32.7	22.4	32.2	22.6	31.3	21.8	32.9	20.9	33.7	20.7	33.1	22.8	31.3	22.9			31.6	22.3
1988	29.0	23.2	29.5	23.4	31.0	22.9	31.7	23.1	29.8	23.5	29.3	23.0	28.9	22.0	27.7	22.9	29.1	22.4	30.0	23.3	32.0	27.1	31.7	23.8	30.0	23.4
1989	30.7	24.1	29.9	23.2	31.1	24.3	32.1	23.9	31.8	23.9	31.4	22.2	31.9	22.0	32.1	22.9	32.8	22.7	32.7	23.3	31.0	23.7	29.3	23.0	31.4	23.3
1990	29.7	23.1	29.3	23.2	29.9	23.1	28.4	23.3	32.2	22.9	31.9	23.0	31.4	22.4	32.4	22.0	33.0	21.4	32.9	21.3	31.9	22.7			31.2	22.6
AVERAGE	29.7	23.4	29.6	23.1	30.6	23.3	30.9	23.3	31.6	23.2	31.2	22.7	30.9	22.1	31.3	22.2	32.2	21.8	32.2	22.7	31.6	24.1	30.5	23.4	31.0	22.9

* MATARAM / AMPENAN, WEST NUSA TENGGARA (EL. 16 m)

YEAR	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		AVERAGE	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1987	29.7	23.8	31	23.1	30.9	23.2	31.5	23.2	31.5	22.2	28.9	22.8	29.9	21.3	30.4	21.1	31.3	22.2	30.3	23.4	30.8	22.9			30.6	22.7
1988	29.8	24.1	30.2	23.9	31.2	23.1	31.6	23.2	32.8	23.9			31.2	22.1	31.3	21.5	32.7	21.9	33.5	21.7	33.7	24.8	31.3	23.9	31.8	23.1
1989	30.4	23.8	30.8	24.1	31.4	24.3	31.6	23.1	31.7	23.3	31.1	21.3	30.6	21.2	30.3	22.4	31.3	22.9	31.2	23.7	30.4	23.9	29.9	23.7	30.9	23.1
1990	30.1	23.3	30.2	23.4	30	23.1	30.7	23.3	31.9	22.1	31.3	22.1	31.4	21.9	31.6	21.7	32.7	21.4	33.6	23	33.3	23.4	32.7	23.8	31.6	22.7
AVERAGE	30.0	23.8	30.6	23.6	30.9	23.4	31.4	23.2	32.0	22.9	30.4	22.1	30.8	21.6	30.9	21.7	32.0	22.1	32.2	23.0	32.1	23.8	31.3	23.8	31.2	22.9

Source ; Statistik Indonesia

Table III-5 MONTHLY AVERAGE RELATIVE HUMIDITY

* MEDAN / POLONIA, NORTH SUMATRA (EL. 27 m)

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVMBER	DECEMBER	AVERAGE
1987	84 %	81 %		83 %	83 %	84 %	82 %	84 %	83 %	85 %	84 %	84 %	83 %
1988	85 %	78 %	81 %		84 %	82 %	82 %	84 %	85 %	87 %	86 %	86 %	84 %
1989		83 %	82 %	81 %	83 %	83 %	84 %	85 %	85 %	83 %	86 %	85 %	84 %
1990	87 %	83 %	85 %	84 %	84 %	83 %	84 %	84 %	86 %	85 %	87 %	86 %	83 %
AVERAGE	85 %	81 %	83 %	83 %	84 %	83 %	83 %	79 %	85 %	85 %	86 %	85 %	83 %

* UJUNG PANDANG / HASANUDDIN, SOUTH SELAWESI (EL. 14 m)

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVMBER	DECEMBER	AVERAGE
1987	90 %	90 %	90 %	87 %	86 %	88 %	86 %	86 %	84 %	85 %	83 %	78	86 %
1988	91 %	89 %	86 %	83 %	79 %	77 %	70 %	61 %	63 %	65 %	79 %	89	78 %
1989	86 %	88 %	86 %	83 %	85 %	81 %	78 %	75 %	78 %	78 %	85 %	89	83 %
1990	88 %	89 %	86 %	85 %	81 %	81 %	81 %	73 %	73 %	77 %	80 %		81 %
AVERAGE	89 %	89 %	87 %	85 %	83 %	82 %	79 %	74 %	75 %	76 %	82 %	85	82 %

* MATARAM / AMPENAN, WEST NUSA TENGGARA (EL. 16 m)

YEAR	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVMBER	DECEMBER	AVERAGE
1987	85 %	84 %	85 %	83 %	68 %	71 %	68 %	64 %	63 %	67 %	%	78 %	74 %
1988	87 %	85 %	83 %	81 %	83 %	83 %	80 %	75 %	76 %	74 %	83 %	86 %	81 %
1989	87 %	86 %	84 %	81 %	83 %	76 %	76 %	79 %	79 %	82 %	83 %	82 %	82 %
1990	87 %	86 %	84 %	81 %	83 %	76 %	76 %	79 %	79 %	82 %	83 %	82 %	82 %
AVERAGE	87 %	85 %	84 %	82 %	79 %	77 %	75 %	74 %	74 %	76 %	83 %	82 %	80 %

Source : Statistik Indonesia

Table III-6 AVERAGE WIDTH OF RIVER

Province : Sumatera Utara

Division	LD	VI	Total	%
0m < B <= 5m	18	134	135	55 %
5m < B <=10m	7	70	72	28 %
10m < B <=15m	0	16	18	6 %
15m < B <=20m	3	18	20	7 %
20m < B <=25m	0	0	0	0 %
25m < B <=30m	3	6	7	3 %
30m < B	0	3	3	1 %
Total	31	247	278	

Province : Selawesi Sulatan

Division	LD	VI	Total	%
0m < B <= 5m	1	69	70	23 %
5m < B <=10m	2	104	106	36 %
10m < B <=15m	2	54	56	19 %
15m < B <=20m	2	34	36	12 %
20m < B <=25m	0	12	12	4 %
25m < B <=30m	1	11	12	4 %
30m < B	0	7	7	2 %
Total	8	291	299	

Province : Nusa Tenggara Barat

Division	LD	VI	Total	%
0m < B <= 5m	2	16	18	15 %
5m < B <=10m	0	25	25	21 %
10m < B <=15m	5	24	29	25 %
15m < B <=20m	5	14	19	16 %
20m < B <=25m	2	11	13	11 %
25m < B <=30m	2	5	7	6 %
30m < B	4	3	7	6 %
Total	20	98	118	

Source: Inventory Survey

Table III-7 AVERAGE DEPTH OF RIVER

Province : Sumatera Utara

Division	LD	VI	Total	%
0m < h <= 1m	16	178	194	70 %
1m < h <= 2m	11	50	61	22 %
2m < h <= 3m	1	12	13	4 %
3m < h <= 4m	0	2	2	1 %
4m < h <= 5m	0	2	2	1 %
5m < h	3	3	6	2 %
Total	31	247	278	

Province : Selawesi Sulatan

Division	LD	VI	Total	%
0m < h <= 1m	3	156	159	53 %
1m < h <= 2m	4	91	95	32 %
2m < h <= 3m	0	22	22	8 %
3m < h <= 4m	0	10	10	3 %
4m < h <= 5m	1	6	7	2 %
5m < h	0	6	6	2 %
Total	8	291	299	

Province : Nusa Tenggara Barat

Division	LD	VI	Total	%
0m < h <= 1m	2	17	19	16 %
1m < h <= 2m	6	42	48	41 %
2m < h <= 3m	5	12	17	15 %
3m < h <= 4m	1	8	9	8 %
4m < h <= 5m	2	12	14	12 %
5m < h	4	6	10	8 %
Total	20	97	117	

Source: Inventory Survey

Table III-8 AVERAGE DISCHARGE OF RIVER DURING DRY SEASON

Province : Sumatera Utara

Division	LD	VI	Total	%
Q <=0.025m³	1	3	4	1 %
0.025m³ < Q <= 0.10m³	0	10	10	4 %
0.10m³ < Q <= 0.25m³	3	34	37	15 %
0.25m³ < Q <= 0.50m³	9	41	50	20 %
0.50m³ < Q <= 1.00m³	5	29	34	14 %
1.00m³ < Q <= 2.50m³	5	39	44	18 %
2.50m³ < Q <= 5.00m³	3	28	31	13 %
5.00m³ < Q <= 10.0m³	1	19	20	8 %
10.0m³ < Q	4	13	17	7 %
Total	31	216	247	

Province : Selawesi Sulatan

Division	LD	VI	Total	%
Q <=0.025m³	0	5	5	2 %
0.025m³ < Q <= 0.10m³	1	37	38	14 %
0.10m³ < Q <= 0.25m³	2	56	58	22 %
0.25m³ < Q <= 0.50m³	4	37	41	15 %
0.50m³ < Q <= 1.00m³	0	31	31	11 %
1.00m³ < Q <= 2.50m³	1	41	42	16 %
2.50m³ < Q <= 5.00m³	0	35	35	13 %
5.00m³ < Q <= 10.0m³	0	12	12	4 %
10.0m³ < Q	0	7	7	3 %
Total	8	261	269	

Province : Nusa Tenggara Barat

Division	LD	VI	Total	%
Q <=0.025m³	2	1	3	9 %
0.025m³ < Q <= 0.10m³	2	6	8	24 %
0.10m³ < Q <= 0.25m³	5	4	9	28 %
0.25m³ < Q <= 0.50m³	3	2	5	15 %
0.50m³ < Q <= 1.00m³	4	3	7	21 %
1.00m³ < Q <= 2.50m³	0	1	1	3 %
2.50m³ < Q <= 5.00m³	0	0	0	0 %
5.00m³ < Q <= 10.0m³	0	0	0	0 %
10.0m³ < Q	0	0	0	0 %
Total	16	17	33	

Source: Inventory Survey

Table III-9 AVERAGE DISCHARGE OF RIVER DURING WET SEASON

Province : Sumatera Utara

Division	LD	VI	Total	%
Q <=0.5m³	3	44	47	19 %
0.5m³< Q <= 1m³	9	52	61	25 %
1m³< Q <= 5m³	13	69	82	33 %
5m³< Q <= 10m³	1	27	28	11 %
10m³< Q <= 15m³	1	11	12	5 %
15m³< Q <= 20m³	2	3	5	2 %
20m³< Q	2	10	12	5 %
Total	31	216	247	

Province : Selawesi Sulatan

Division	LD	VI	Total	%
Q <=0.5m³	0	63	63	23 %
0.5m³< Q <= 1m³	1	28	29	11 %
1m³< Q <= 5m³	3	85	88	33 %
5m³< Q <= 10m³	4	41	45	17 %
10m³< Q <= 15m³	0	31	31	11 %
15m³< Q <= 20m³	0	5	5	2 %
20m³< Q	0	8	8	3 %
Total	8	261	269	

Province : Nusa Tenggara Barat

Division	LD	VI	Total	%
Q <=0.5m³	6	8	14	40 %
0.5m³< Q <= 1m³	5	3	8	23 %
1m³< Q <= 5m³	7	6	13	37 %
5m³< Q <= 10m³	0	0	0	0 %
10m³< Q <= 15m³	0	0	0	0 %
15m³< Q <= 20m³	0	0	0	0 %
20m³< Q	0	0	0	0 %
Total	18	17	35	

Source: Inventory Survey

Table III-10 MAXIMUM HEIGHT OF FLOOD WATER

Province : Sumatera Utara

Division	LD	VI	Total	%
none	30	181	211	76 %
0m < h <=0.5m	1	20	21	8 %
0.5m < h <= 1m	0	18	18	6 %
1m < h <=1.5m	0	5	5	2 %
1.5m < h <= 2m	0	6	6	2 %
2m < h <= 3m	0	5	5	2 %
3m < h	0	12	12	4 %
Total	31	247	278	

Province : Selawesi Sulatan

Division	LD	VI	Total	%
none	8	234	242	81 %
0m < h <=0.5m	0	14	14	5 %
0.5m < h <= 1m	0	13	13	4 %
1m < h <=1.5m	0	12	12	4 %
1.5m < h <= 2m	0	11	11	3 %
2m < h <= 3m	0	1	1	1 %
3m < h	0	6	6	2 %
Total	8	291	299	

Province : Nusa Tenggara Barat

Division	LD	VI	Total	%
none	15	107	122	81 %
0m < h <=0.5m	0	3	3	2 %
0.5m < h <= 1m	0	3	3	2 %
1m < h <=1.5m	0	3	3	2 %
1.5m < h <= 2m	3	2	5	3 %
2m < h <= 3m	1	7	8	5 %
3m < h	1	6	7	5 %
Total	20	131	151	

Source: Inventory Survey

Table III-11 DRAUGHT PERIOD

Province : Sumatera Utara

Division	LD	VI	Total	%
no answer	29	200	229	82 %
less than 1month	1	15	16	6 %
1month to 2month	0	14	14	5 %
2month to 3month	1	3	4	1 %
3month to 4month	0	1	1	1 %
4month to 5month	0	14	14	5 %
more than 5month	0	0	0	0 %
Total	31	247	278	

Province : Selawesi Sulatan

Division	LD	VI	Total	%
no answer	8	173	181	60 %
less than 1month	0	5	5	2 %
1month to 2month	0	30	30	10 %
2month to 3month	0	33	33	11 %
3month to 4month	0	31	31	10 %
4month to 5month	0	11	11	4 %
more than 5month	0	8	8	3 %
Total	8	291	299	

Province : Nusa Tenggara Barat

Division	LD	VI	Total	%
no answer	18	107	125	83 %
less than 1month	1	4	5	3 %
1month to 2month	1	7	8	5 %
2month to 3month	0	3	3	2 %
3month to 4month	0	1	1	1 %
4month to 5month	0	1	1	1 %
more than 5month	0	8	8	8 %
Total	20	131	151	

Source: Inventory Survey

Table III-12 SPECIFIC DISCHARGE IN NORTH SUMATRA

STATION CODE	NAME OF RIVER	REGENCY	LOCATION LATITUDE	LOCATION LONGITUDE	CATCH. AREA km2	ANNUAL AVERAGE DISCHARGE m3/s	MONTHLY Max DISCHARGE m3/s	MONTHLY Min DISCHARGE m3/s	DRY SEASON SPECIFIC DISCHARGE lit./km2	WET SEASON SPECIFIC DISCHARGE lit./km2
ZONE I										
RNS4	S.Blumai-Tanjung Morawa	Deli Serdang	03 31 N	98 47 E	250	16.2	29.3	9.9	40	65
RNS5	S.Ular-Pulau Tagor	Deli Serdang	03 23 N	98 55 E	1,031	50.5	64.1	41.7	40	49
RNS7	S.Bah Balon-Batu Gajah	Simalungun	02 58 N	99 08 E	625	21.7	25.7	17.4	28	35
RNS8	S.Bah Balon-Nagori Bandar	Simalungun	03 08 N	99 19 E	993	35.5	45.3	25	25	36
RNS9	S.Asahan-Porsea	Asahan	02 26 N	99 09 E	3,568	106.6	121.7	83.9	24	30
RNS10	S.Asahan-Siruar	Asahan	02 28 N	99 15 E	3,782	103.1	121.6	76.4	20	27
RNS11	S.Asahan-Simorea	Asahan	02 30 N	99 15 E	3,850	101.4	118.5	79.2	21	26
RNS12	S.Silau-Kisaran Naga	Asahan	02 58 N	99 37 E	1,012	74.7	91.2	50.6	50	74
							ZONE I	AVERAGE	31	43
ZONE II										
RNS14	Bt.Pane-Lb.Sipelanduk	Tapanuli Selatan	01 38 N	99 33 E	828	25.7	41.6	10.3	12	31
RNS19	Bt.Angkola-Air Limbung	Tapanuli Selatan	01 08 N	99 25 E	635	16.8	27.5	7.6	12	26
RNS20	A.Sigoen-Ps.Sirongsit	Tapanuli Utara	02 04 N	98 57 E	383	8.5	12.4	4.9	13	22
							ZONE II	AVERAGE	12	27

Table III-13 SPECIFIC DISCHARGE IN SOUTH SULAWESI

(1/3)

STATION CODE	NAME OF RIVER	REGENCY	LOCATION LATITUDE	LOCATION LONGITUDE	CATCH. AREA km2	ANNUAL AVERAGE DISCHARGE m3/s	MONTHLY Max DISCHARGE m3/s	MONTHLY Min DISCHARGE m3/s	DRY SEASON SPECIFIC DISCHARGE lit./km2	WET SEASON SPECIFIC DISCHARGE lit./km2
ZONE I										
RSS140	S.Mata Allo-Enrekang	ENREKANG	03 34 S	119 47 E	870	31.7	59	16.1	19	36
RSS141	S.Maloea-Baraka	ENREKANG	03 25 S	119 51 E	168	5.0	11	1.6	10	30
RSS1	S.Larona-Larona	LUWU	02 45 S	121 21 E	2349	137.2	212.4	74.7	32	58
RSS113	S.Batang-Lipang	LUWU	02 55 S	120 11 E	99	8.1	19.4	1.9	19	82
RSS147	S.Paremang-Malingang	LUWU	03 16 S	120 13 E	695	24.4	52.4	6.8	10	35
RSS149	S.Makawa-Mamara	LUWU	02 49 S	120 07 E	108	10.7	16.6	5.4	50	99
RSS151	S.Salo Tubu-Ampangan	LUWU	02 45 S	120 09 E	29	2.4	4.1	0.4	14	84
RSS152	S.Salo Ampak-Babakan	LUWU	02 44 S	120 10 E	29	3.0	6.2	1.1	38	105
RSS154	S.Masamba-Sape	LUWU	02 32 S	120 19 E	105	8.4	13.3	3.2	30	80
RSS155	S.Balease-Lindu	LUWU	02 32 S	120 21 E	855	77.3	115	43	50	90
RSS156	S.Kanjiro-Kaluku	LUWU	02 35 S	120 29 E	120	9.1	15.2	4.1	34	76
RSS157	S.Bonebone - Bonebone	LUWU	02 35 S	120 31 E	46	4.7	7.2	2	43	101
RSS158	S.Larona-Mea	LUWU	02 40 S	121 16 E	2723	142.3	201	85	31	52
RSS159	S.Kalaena-Mungkotanah	LUWU	02 24 S	120 47 E	1250	64.1	114.8	27.4	22	51
RSS161	S.Tomori-Malaiku	LUWU	02 30 S	120 44 E	140	13.4	21.6	5.6	40	96
RSS162	S.Lauwa-Bungadindi	LUWU	02 38 S	120 38 E	188	7.8	12.8	2.9	15	42
RSS164	S.Rongkong-Saabang	LUWU	02 36 S	120 14 E	1030	90.0	166	49.2	48	87
RSS2	D.Towuti-Timampu	LUWU	02 40 S	121 31 E	25	1.2	1.54	0.93	37	49
RSS24	S.Tomoni-Tomoni	LUWU	02 30 S	120 49 E	190	14.2	23.1	7	37	75
RSS27	S.Kanjiro-Pampalangi	LUWU	02 36 S	120 35 E	93	9.0	15.2	3.1	33	97
RSS29	S.Pengala-Tombang	LUWU	02 55 S	120 06 E	75	3.8	6.6	1.9	25	51
RSS3	S.Larona-Warau	LUWU	02 40 S	121 10 E	2828	139.9	211.99	82.4	29	49
RSS30	S.Lamasi-Batusitanduk	LUWU	02 51 S	120 07 E	365	30.3	51.4	10.5	29	83
RSS4	S.Kalaena-Teromu	LUWU	02 26 S	120 49 E	1332	68.1	119	34.3	26	51
RSS47	S.Masamba-Masamba	LUWU	02 34 S	120 19 E	235	8.4	13.3	3.2	14	36
RSS5	S.Baliase-Baliase	LUWU	02 32 S	120 22 E	763	90.2	144.4	55.8	73	118
RSS6	S.Rongkong-Marabo	LUWU	02 40 S	120 11 E	915	82.5	153.7	48.2	53	90
RSS64	S.Batang-Tombang	LUWU	02 57 S	120 06 E	115	8.1	19.4	1.9	17	71
RSS67	S.Bungodidi-Bungodidi	LUWU	02 39 S	120 30 E	83	8.5	13.8	3.2	39	102
RSS68	S.Senggeni-Lamberese	LUWU	02 35 S	120 43 E	85	6.3	9.9	2.3	27	74
RSS70	S.Bae Bunto-Bae Bunto	LUWU	02 36 S	120 16 E	40	3.0	6.9	1.7	43	76
RSS75	S.Lampuawa-Lampuawa	LUWU	02 34 S	120 24 E	29	1.8	2.9	0.6	21	63

STATION CODE	NAME OF RIVER	REGENCY	LOCATION LATITUDE	LOCATION LONGITUDE	CATCH. AREA	ANNUAL AVERAGE DISCHARGE	MONTHLY Max DISCHARGE	MONTHLY Min DISCHARGE	DRY SEASON SPECIFIC DISCHARGE	WET SEASON SPECIFIC DISCHARGE
					km2	m3/s	m3/s	m3/s	lit./km2	lit./km2
RSS82	S.Paremang-Cilalang	LUWU	03 20 S	120 21 E	825	11.0	24.6	4	5	13
RSS139	S.Sa'dang-Lasape	PINRANG	03 42 S	119 33 E	5985	222.3	514	68	11	37
RSS142	S.Mamasa-Garugu	PINRANG	03 28 S	119 37 E	1215	63.9	105	36	30	53
RSS51	S.Sa'adang-Kabere	PINRANG	03 40 S	119 47 E	5760	299.8	725	111	19	52
RSS53	S.Tiroang-Buki	PINRANG	03 51 S	119 42 E	93	7.7	11.1	4.5	48	83
RSS55	S.Arasei-Toe	PINRANG	03 51 S	119 43 E	130	3.7	6.4	1.3	10	28
RSS56	S.Rapang-Lingga	PINRANG	03 52 S	119 44 E	127	8.9	18.7	1.6	13	70
RSS15	S.Mamasa-Sikuku	POLMAS	03 14 S	119 17 E	908	45.5	67	28.1	31	50
RSS16	S.Mamasa-Suluan	POLMAS	03 13 S	119 13 E	1305	53.9	102.5	36.18	28	41
RSS165	S.Maloso-Bulu Batu Simbayo	POLMAS	03 21 S	119 10 E	808	72.1	109	37	46	89
RSS134	S.Boya-Bulu Cenranae I	SIDENRENG	03 47 S	119 58 E	514	16.5	26.2	6.7	13	32
RSS143	S.Karadjae-Bulutimorang	SIDENRENG	03 50 S	119 51 E	74	1.4	3	0.4	5	19
RSS166	S.Bila-Bila	SIDENRENG	03 49 S	120 02 E	379	16.8	28.9	8.7	23	44
RSS57	S.Bila-Tanru Tedong	SIDENRENG	03 54 S	119 58 E	1123	40.5	69	19.8	18	36
RSS8	S.Siwa-Labanga	SIDENRENG	03 41 S	120 21 E	234	12.3	22.7	4.8	20	52
RSS138	S.Sa'adang-Rantepao	TATOR	02 59 S	119 53 E	327	27.0	59.8	1.4	4	83
							ZONE I	AVERAGE	27	64
ZONE II										
RSS110	S.Palaka-Bulu Tempe	BONE	04 32 S	120 18 E	151	4.3	8.8	1.7	11	28
RSS124	S.Batupute-Tana Batue	BONE	04 46 S	119 59 E	150	7.2	12.3	2.3	15	48
RSS44	S.Pattiro-Katumpi	BONE	04 38 S	120 14 E	143	3.5	8	1	7	24
RSS45	S.Sanrego-Turunggeng	BONE	04 59 S	120 01 E	174	10.2	14.2	5.5	32	59
RSS95	S.Walanae-Ujung Lamuru	BONE	04 40 S	119 59 E	1625	59.5	116	19	12	37
RSS13	S.Maros-Tompo Bulu	MAROS	05 10 S	119 41 E	252	24.9	63.9	2.3	9	99
RSS160	S.Maros - Talang-talang	MAROS	05 02 S	119 33 E	352	28.9	78.7	3	9	82
RSS167	S.Pangkajene-Tabo Tabo	PANGKEP	04 47 S	119 35 E	327	23.6	75.5	1.4	4	72
RSS43	S.Lawo-Lawo	PANGKEP	04 47 S	119 40 E	83	4.2	11.8	0.6	10	66
RSS101	S.Mario-Kalempang	SOPPENG	04 30 S	119 58 E	485	14.1	25.8	5.2	11	29
RSS107	S.Sero-Sero	SOPPENG	04 30 S	119 53 E	325	15.8	42.5	2.4	7	49
RSS125	S.Walanae-Pacongkang	SOPPENG	04 24 S	119 59 E	2720	78.6	121	16.6	6	29
RSS126	S.Walanae-Lakibong	SOPPENG	04 24 S	120 00 E	2759	66.6	154	18.7	7	24
RSS127	S.Walanae-Cabenge	SOPPENG	04 20 S	119 58 E	2846	108.2	185	30.3	11	38
RSS39	S.Langkeme-Cennae	SOPPENG	04 30 S	119 54 E	104	3.7	7.2	1.5	14	35
RSS146	S.Gilirang-Tarumpakkae	WAJO	03 58 S	120 02 E	309	18.6	44.6	2.4	8	60
RSS96	S.Gilirang-Gilirang	WAJO	03 58 S	120 16 E	194	6.2	14.8	0.8	4	32
							ZONE II	AVERAGE	10	48

STATION CODE	NAME OF RIVER	REGENCY	LOCATION LATITUDE	LOCATION LONGITUDE	CATCH. AREA km2	ANNUAL AVERAGE DISCHARGE m3/s	MONTHLY Max DISCHARGE m3/s	MONTHLY Min DISCHARGE m3/s	DRY SEASON SPECIFIC DISCHARGE lit./km2	WET SEASON SPECIFIC DISCHARGE lit./km2
ZONE III										
RSS121	S.Balantieng-Batukaropak	BULUKUMBA	05 26 S	120 12 E	87	4.5	11.4	1.2	14	52
RSS33	S.Bialo Hilir-Barabe	BULUKUMBA	05 32 S	120 10 E	84	5.1	13.4	0.4	5	61
RSS46	S.Bialo-Bayang Bayang	BULUKUMBA	05 31 S	120 09 E	50	3.8	7.3	1.4	28	75
RSS116	S.Jeneberang-Bilibili	GOWA	05 17 S	119 35 E	384	29.0	70	3.8	10	75
RSS117	S.Jenelata-Bilibili	GOWA	05 17 S	119 35 E	318	23.1	66	1.5	5	72
RSS12	S.Pamukulu-Ko'mara	GOWA	05 14 S	119 34 E	93	7.4	18.4	1.1	12	80
RSS32	S.Karoloe-Talumbo	GOWA	05 32 S	119 49 E	313	9.1	14.8	2.2	7	29
RSS11	S.Klara-Likupande	JENEPONT	05 34 S	119 48 E	276	15.2	28.4	4.4	16	55
RSS122	S.Aparang-Aparang	SINJAI	05 14 S	120 11 E	62	4.4	9	1.6	26	71
							ZONE III	AVERAGE	13	63

Table III-14 SPECIFIC DISCHARGE IN WEST NUSA TENGGARA

STATION CODE	NAME OF RIVER	ISLAND	LOCATION LATITUDE	LOCATION LONGITUDE	CATCH. AREA km2	ANNUAL AVERAGE DISCHARGE m3/s	MONTHLY Max DISCHARGE m3/s	MONTHLY Min DISCHARGE m3/s	DRY SEASON SPECIFIC DISCHARGE lit./km2	WET SEASON SPECIFIC DISCHARGE lit./km2
ZONE I										
RWN1	S.Meninting - Belencong	LOMBOK	08 33 S	116 07 E	65	6.1	11.0	1.37	21	94
RWN2	S.Jangkok - Bungbung	LOMBOK	08 34 S	116 11 E	144	5.6	11.8	0.79	5	39
RWN4	S.Babak - Gebong	LOMBOK	08 37 S	116 12 E	193	10.5	15.8	3.37	17	54
RWN5	S.Penunjak - Penunjak	LOMBOK	08 45 S	116 15 E	163	6.6	15.0	0.38	2	40
RWN6	S.Penunjak - Penitik	LOMBOK	08 46 S	116 13 E	376	8.3	30.6	0.5	1	22
RWN7	S.Dodakan - Karang Anyar	LOMBOK	08 41 S	116 08 E	529	21.9	43.8	2.47	5	41
								AVERAGE	9	48
ZONE II										
RWN16	Br.Orde - Aias	SUMBAWA	08 30 S	116 59 E	78	1.64 *	2.3	0.12	2	21
RWN17	Br.Jurumapin - Jurumapin	SUMBAWA	08 27 S	117 03 E	18	0.53 *	0.8	0.05	3	29
RWN18	Br.Utan - Utan	SUMBAWA	08 23 S	117 08 E	64	5.98 *	12.6	0.04	1	93
RWN19	Br.Semonte - Semonte	SUMBAWA	08 24 S	117 10 E	68	2.54 *	2.9	0.27	4	37
RWN20	Br.Ree - Ree	SUMBAWA	08 29 S	117 14 E	208	14.57 *	16.7	0.87	4	70
RWN21	Br.Lekong - Lekong	SUMBAWA	08 31 S	116 56 E	13	0.17 *	0.3	0.01	1	13
RWN22	Br.Rea - Taliwang	SUMBAWA	08 43 S	116 50 E	626	21.05 *	24.9	1.7	3	34
RWN23	Br.Sateluk - Sateluk	SUMBAWA	08 36 S	116 52 E	19	1.87 *	4.3	0.01	1	99
RWN24	Br.Pantang - Kalimantong	SUMBAWA	08 45 S	116 54 E	160	4.04 *	7.0	0.07	0	25
RWN25	Br.Rae - Tepas	SUMBAWA	08 40 S	116 57 E	365	21.78 *	28.1	1.73	5	60
RWN26	Br.Jerewe - Jerewe	SUMBAWA	08 51 S	116 50 E	81	3.77 *	4.8	0.04	0	47
RWN28	Br.Setonga - Pelempit Aji	SUMBAWA	08 30 S	117 24 E	74	2.37 *	3.1	0.02	0	32
RWN30	Br.Moyo - Moyo	SUMBAWA	08 30 S	117 30 E	288	8.40 *	12.5	0.04	0	29
RWN32	Br.Moyo - Ngeru	SUMBAWA	08 34 S	117 32 E	263	12.50 *	17.9	0.1	0	48
RWN33	Br.Marunge - Marunge	SUMBAWA	08 38 S	117 41 E	88	5.34 *	6.7	0	0	61
RWN34	Br.Kollong - Kollong	SUMBAWA	08 40 S	117 44 E	51	0.60 *	0.9	0	0	12
RWN35	N.Gali - Plampang	SUMBAWA	08 44 S	117 49 E	66	2.81 *	3.0	0.01	0	43
RWN37	Br.Ampang - Ampang	SUMBAWA	08 44 S	118 01 E	48	4.39 *	7.2	0.11	2	91
RWN38	S.Baka - Raba Baka	SUMBAWA	08 28 S	118 25 E	121	3.19 *	4.3	0.09	1	26
RWN40	S.Katua - Rora Besar	SUMBAWA	08 27 S	118 29 E	49	2.11 *	3.2	0.61	12	43
RWN44	S.Sari - Sari	SUMBAWA	08 32 S	118 54 E	8	0.27 *	0.4	0.11	14	34
RWN47	Br.Sumbawa - Kerekeh	SUMBAWA	08 30 S	117 25 E	96	3.55 *	6.7	0.76	8	37
RWN48	Br.Passer - Mamak	SUMBAWA	08 39 S	117 34 E	101	3.42 *	5.2	0.06	1	34
RWN49	S.Katua - Legara Saka	SUMBAWA	08 28 S	118 28 E	73	2.31 *	3.6	0.46	6	32
			* ; AVERAGE DISCHARGE DURING WET SEASON					AVERAGE	3	44

Table III-15 MONTHLY RIVER DISCHARGE IN NORTH SUMATRA

STATION CODE	NAME OF RIVER	CATCH. AREA km²	PERIOD START	PERIOD END	MONTHLY RIVER DISCHARGE JAN m3/s	FEB m3/s	MAR m3/s	APR m3/s	MAY m3/s	JUN m3/s	JUL m3/s	AUG m3/s	SEP m3/s	OCT m3/s	NOV m3/s	DEC m3/s	AVERAGE YEAR m3/s
RNS4	S. Blumai-Tanjung Morawa	250	74	76	18.6	18.3	13.3	15.5	29.3	12.6	12.7	9.9	14.7	15.2	18.0	15.8	16.2
RNS5	S. Ular-Pulau Tagor	1031	74	76	49.3	54.8	46.0	47.5	44.0	41.7	42.6	46.0	55.5	54.5	64.1	60.1	50.5
RNS7	S. Bah Balon-Batu Gajah	625	74	76	25.3	22.9	17.9	25.7	23.2	21.6	22.0	17.4	23.6	19.0	21.6	20.2	21.7
RNS8	S. Bah Balon-Nagori Bandar	993	74	76	37.4	37.3	31.8	37.0	35.0	40.3	32.5	25.0	45.3	33.1	38.6	32.5	35.5
RNS9	S. Asahan-Porsea	3568	57	78	121.7	120.3	118.2	119.5	121.6	113.4	100.2	83.9	87.2	89.2	94.7	109.0	106.6
RNS10	S. Asahan-Siruar	3782	19	79	117.4	121.6	114.6	118.2	120.0	109.0	95.1	83.4	76.4	81.6	94.4	105.3	103.1
RNS11	S. Asahan-Simorea	3850	56	79	118.5	110.6	109.7	114.7	106.4	104.6	93.3	83.5	79.2	84.0	96.8	115.7	101.4
RNS12	S. Silau-Kisaran Naga	1012	74	76	86.1	76.3	63.6	90.8	80.0	64.3	61.8	50.6	68.7	76.7	91.2	86.2	74.7
RNS14	Bt. Pane-Lb. Sipelanduk	828	74	76	32.6	38.3	34.0	41.1	21.7	17.1	13.4	10.3	15.9	18.9	22.9	41.6	25.7
RNS19	Bt. Angkola-Air Limbung	635	74	75	26.1	17.7	21.2	27.5	9.6	12.1	7.6	8.3	13.1	17.9	19.0	21.2	16.8
RNS20	A. Sigoen-Ps. Sirongsit	383	74	76	12.4	9.4	10.3	9.9	5.8	5.6	5.6	4.9	6.9	9.3	9.7	11.8	8.5

Table III-16 MONTHLY RIVER DISCHARGE IN SOUTH SULAWESI

(1/2)

STATION CODE	NAME OF RIVER	CATCH. AREA km2	PERIOD START	PERIOD END	MONTHLY RIVER DISCHARGE JAN m3/s	FEB m3/s	MAR m3/s	APR m3/s	MAY m3/s	JUN m3/s	JUL m3/s	AUG m3/s	SEP m3/s	OCT m3/s	NOV m3/s	DEC m3/s	AVERAGE YEAR m3/s
RSS1	S. Larona-Larona	2349	19	73	121.0	132.5	149.4	199.7	212.4	191.5	160.0	134.1	100.7	80.4	74.7	90.2	137.2
RSS2	D. Towuti-Timampu	25	68	81	1.2	1.2	1.2	1.5	1.5	1.4	1.2	1.3	1.1	0.9	1.0	1.1	1.2
RSS3	S. Larona-Warau	2828	68	81	148.3	139.4	148.0	212.0	203.5	161.1	152.0	110.8	110.5	101.7	82.4	109.0	139.9
RSS4	S. Kalaena-Teromu	1332	19	82	64.0	72.4	95.7	119.0	102.0	78.7	58.4	45.2	37.9	34.3	46.4	63.4	68.1
RSS5	S. Baliase-Baliase	763	75	76	83.3	102.0	144.4	106.0	120.0	124.2	71.4	55.8	76.8	69.8	57.5	71.2	90.2
RSS6	S. Rongkong-Marabo	915	38	40	59.1	48.2	71.1	101.7	153.7	115.8	100.7	86.4	59.8	57.7	62.7	72.7	82.5
RSS8	S. Siwa-Labanga	234	75	83	6.6	8.0	13.7	18.6	20.1	22.7	18.5	11.0	9.2	6.7	4.8	7.5	12.3
RSS11	S. Klara-Likupande	276	68	82	26.7	28.4	24.0	23.2	18.4	13.0	8.2	5.2	4.4	4.7	10.9	15.3	15.2
RSS12	S. Pamukulu-Ko'mara	93	75	83	18.4	17.8	8.9	10.4	6.2	3.1	2.4	1.1	1.3	2.6	5.4	11.5	7.4
RSS13	S. Maros-Tompo Bulu	252	69	82	63.9	60.6	49.7	29.7	19.0	9.4	6.5	3.2	2.3	3.3	13.3	38.3	24.9
RSS15	S. Mamasa-Sikuku	908	77	82	43.0	39.0	45.0	67.0	61.0	55.0	42.0	32.9	31.5	28.1	46.5	55.0	45.5
RSS16	S. Mamasa-Suluan	1305	78	81	39.8	36.3	36.3	62.0	58.9	64.5	46.8	44.0	40.9	36.2	102.5	79.1	53.9
RSS24	S. Tomoni-Tomoni	190	37	82	16.1	15.2	20.9	23.1	20.8	16.5	12.2	10.7	9.3	7.0	7.6	11.3	14.2
RSS27	S. Kanjiro-Pampalangi	93	37	40	9.9	9.1	12.6	10.6	15.2	10.6	9.1	9.0	5.0	3.1	5.0	9.1	9.0
RSS29	S. Pengala-Tombang	75	77	82	3.7	4.6	6.3	6.6	4.9	4.8	3.4	1.9	1.9	2.0	2.6	3.2	3.8
RSS30	S. Lamasi-Batusitanduk	365	37	78	32.0	33.8	46.3	44.3	51.4	37.8	31.0	25.1	16.6	11.4	10.5	23.6	30.3
RSS32	S. Karoloe-Talumbo	313	78	80	11.4	10.3	14.1	14.8	12.7	9.6	5.9	3.4	2.8	2.2	7.3	14.4	9.1
RSS33	S. Bialo Hilir-Barabe	84	77	82	3.2	4.9	6.8	13.0	13.4	10.3	5.3	0.5	0.7	0.4	0.4	2.3	5.1
RSS39	S. Langkeme-Cennae	104	74	82	6.8	7.2	3.7	3.6	3.9	3.4	2.7	1.5	1.6	2.0	2.1	5.3	3.7
RSS43	S. Lawo-Lawo	63	75	82	7.8	6.9	3.2	11.8	2.9	4.5	1.7	0.6	0.8	0.7	1.3	7.6	4.2
RSS44	S. Pattiro-Katumpi	143	77	82	2.0	1.7	4.0	5.7	6.8	8.0	5.3	2.3	1.7	1.0	1.0	2.5	3.5
RSS45	S. Sanrego-Turunggeng	174	73	82	11.7	10.8	10.3	12.3	14.2	14.2	10.8	9.4	7.0	5.5	7.1	9.6	10.2
RSS46	S. Bialo-Bayang Bayang	50	79	82	3.6	3.5	3.7	4.5	7.3	5.1	6.9	2.5	2.7	1.4	1.7	2.3	3.8
RSS47	S. Masamba-Masamba	235	37	38	8.3	7.4	8.6	8.7	12.6	8.6	6.2	13.3	9.5	3.2	5.0	9.5	8.4
RSS51	S. Sa'adang-Kabere	5760	80	82	290.0	254.0	554.0	725.0	407.0	340.0	220.0	128.0	122.0	111.0	213.0	234.0	299.8
RSS53	S. Tiroang-Buki	93	80	82	7.4	4.9	7.3	9.9	11.1	10.4	9.7	4.5	5.8	5.0	6.2	10.1	7.7
RSS55	S. Arasei-Toe	130	81	82	1.8	1.6	4.3	4.9	6.4	4.9	6.3	2.4	5.9	1.3	1.7	2.6	3.7
RSS56	S. Rapang-Lingga	127	80	82	7.0	4.9	12.7	17.2	18.7	11.9	11.6	3.8	4.3	1.6	3.3	9.8	8.9
RSS57	S. Bila-Tanru Tedong	1123	74	82	25.9	19.8	42.0	57.1	69.0	68.0	61.0	29.3	35.4	27.2	21.6	30.2	40.5
RSS64	S. Batang-Tombang	115	37	38	6.7	5.0	15.7	14.4	19.4	8.2	8.0	7.6	3.3	1.9	2.4	4.8	8.1
RSS67	S. Bungodidi-Bungodidi	83	37	82	10.2	10.3	13.8	11.5	13.4	10.2	7.6	7.1	4.4	3.2	3.9	6.1	8.5
RSS68	S. Senggeni-Lamberese	85	81	82	7.4	8.4	7.6	9.4	8.7	9.9	8.9	3.5	3.3	2.3	2.7	3.6	6.3
RSS70	S. Bae Bunto-Bae Bunto	40	37	40	2.0	1.7	2.6	3.8	6.9	4.8	3.6	3.2	2.2	1.7	1.7	2.3	3.0
RSS75	S. Lampuawa-Lampuawa	29	37	38	2.4	2.0	2.3	1.5	2.9	1.8	2.4	2.9	1.0	0.6	0.7	1.4	1.8
RSS82	S. Paremang-Cilalang	825	80	83	15.2	9.9	11.7	21.4	24.6	12.8	9.0	4.0	5.3	4.5	6.6	7.4	11.0
RSS95	S. Walanae-Ujung Lamuru	1625	74	82	90.0	116.0	67.0	65.0	78.0	102.0	58.0	25.8	21.8	19.0	21.9	49.0	59.5
RSS96	S. Gilirang-Gilirang	194	78	82	2.8	0.8	1.9	14.2	14.8	14.6	4.0	3.9	4.2	5.4	4.6	3.3	6.2
RSS101	S. Mario-Kalempang	485	78	82	25.8	22.8	18.2	19.6	18.2	14.0	10.4	5.6	5.6	5.2	7.1	17.0	14.1
RSS107	S. Sero-Sero	325	75	82	35.1	42.5	17.5	13.9	14.6	18.5	11.3	3.6	2.7	2.4	5.5	21.7	15.8
RSS110	S. Palaka Bulu Tempe	151	78	82	4.0	2.6	4.0	7.2	8.8	7.4	5.5	2.6	2.2	1.7	1.9	3.4	4.3

MONTHLY RIVER DISCHARGE

STATION CODE	NAME OF RIVER	CATCH. AREA km2	PERIOD START	PERIOD END	JAN m3/s	FEB m3/s	MAR m3/s	APR m3/s	MAY m3/s	JUN m3/s	JUL m3/s	AUG m3/s	SEP m3/s	OCT m3/s	NOV m3/s	DEC m3/s	AVERAGE YEAR m3/s
RSS113	S. Batang-Lipang	99	37	38	6.7	5.0	15.7	14.4	19.4	8.2	8.0	7.6	3.3	1.9	1.9	4.8	8.1
RSS116	S. Jeneberang-Bilibili	384	78	84	70.0	61.0	46.3	42.5	25.3	12.0	8.1	3.8	4.5	4.3	12.8	57.2	29.0
RSS117	S. Jenelata-Bilibili	318	77	83	66.0	57.0	29.7	28.9	16.4	9.1	6.3	2.0	3.6	1.5	8.3	48.0	23.1
RSS121	S. Balantieng-Batukaropak	87	80	82	4.0	4.3	4.5	4.6	11.4	4.5	8.7	2.0	4.5	1.2	1.8	2.4	4.5
RSS122	S. Aparang-Aparang	62	78	82	3.8	4.6	4.5	5.6	9.0	7.9	6.5	2.7	2.3	1.6	1.7	2.9	4.4
RSS124	S. Batupute-Tana Batue	150	75	82	12.3	11.9	8.0	7.2	10.8	9.8	7.1	3.1	2.6	2.3	3.6	7.8	7.2
RSS125	S. Walanae-Pacongkang	2720	78	82	109.0	112.0	109.0	89.0	93.0	121.0	113.0	96.0	17.9	16.6	18.1	49.0	78.6
RSS126	S. Walanae-Lakibong	2759	75	80	133.0	154.0	68.0	62.0	76.0	88.0	72.0	30.9	31.2	24.0	18.7	41.0	66.6
RSS127	S. Walanae-Cabenge	2646	74	82	170.0	185.0	111.0	127.0	176.0	176.0	105.0	48.0	30.3	45.0	36.6	88.0	108.2
RSS134	S. Boya-Bulu Cenranae I	514	75	82	14.0	11.6	23.3	23.2	26.2	24.7	21.6	11.0	12.9	6.7	7.7	14.6	16.5
RSS138	S. Sa'adang-Rantepao	327	81	82	30.9	37.7	47.6	59.8	60.5	27.3	21.7	4.4	15.0	1.4	20.7	7.4	27.0
RSS139	S. Sa'dang-Lasape	5985	80	81	205.0	163.0	407.0	514.0	367.0	302.0	191.0	68.0	70.0	68.0	143.0	170.0	222.3
RSS140	S. Mata Allo-Enrekang	870	75	82	23.3	24.0	44.0	59.0	54.0	50.0	33.0	16.2	18.6	16.1	16.4	25.3	31.7
RSS141	S. Maloea-Baraka	168	79	82	5.4	2.6	5.4	8.4	11.0	7.6	5.4	2.2	1.6	1.7	2.4	6.1	5.0
RSS142	S. Mamasa-Garugu	1215	22	32	61.0	59.0	75.0	105.0	94.0	76.0	59.0	42.0	36.0	36.0	47.0	77.0	63.9
RSS143	S. Karadjae-Bulutimorang	74	78	82	0.9	1.1	1.7	3.0	2.3	2.2	1.9	0.6	1.0	0.4	0.4	1.2	1.4
RSS146	S. Gilirang-Tarumpakkae	309	75	80	9.1	8.2	12.7	19.8	36.8	44.6	37.5	12.1	21.2	12.5	2.4	5.9	18.6
RSS147	S. Paremang-Malingang	695	76	83	30.4	26.9	40.0	52.4	35.7	23.7	17.0	10.5	9.2	6.8	10.6	29.3	24.4
RSS149	S. Makawa-Mamara	108	37	82	10.2	13.0	12.8	16.6	13.6	13.6	8.7	7.2	7.7	5.9	5.4	13.7	10.7
RSS151	S. Salo Tubu-Ampangan	29	81	82	4.0	4.1	3.2	3.5	2.3	2.3	1.8	1.2	1.8	1.3	3.2	0.4	2.4
RSS152	S. Salo Ampak-Babakan	29	38	82	2.7	4.5	4.4	4.0	6.2	3.8	3.1	1.9	1.6	1.1	1.2	2.0	3.0
RSS154	S. Masamba-Sape	105	37	38	8.3	7.4	8.6	8.7	12.6	8.6	6.2	13.3	9.5	3.2	5.0	9.4	8.4
RSS155	S. Balease-Lindu	855	37	82	75.0	76.0	103.0	115.0	115.0	98.0	72.0	60.0	53.0	43.0	47.0	71.0	77.3
RSS156	S. Kanjiro-Kaluku	120	37	40	9.9	9.1	12.6	10.6	15.2	10.6	9.1	9.0	5.0	4.1	5.1	9.1	9.1
RSS157	S. Bonebone - Bonebone	46	37	82	4.5	4.5	6.2	6.4	7.2	6.6	5.2	4.8	3.6	2.0	2.2	2.6	4.7
RSS158	S. Larona-Mea	2723	18	32	124.0	149.0	171.0	201.0	190.0	178.0	165.0	142.0	110.0	87.9	85.0	105.0	142.3
RSS159	S. Kalaena-Mungkotanah	1250	18	40	62.2	68.8	95.8	114.8	97.9	75.3	61.4	44.0	32.2	27.4	38.3	50.5	64.1
RSS160	S. Maros - Talang-talang	352	68	74	56.8	72.2	78.7	29.1	21.5	11.5	7.3	4.5	3.0	6.6	16.9	38.5	28.9
RSS161	S. Tomori-Malaiku	140	37	40	12.7	12.6	19.9	21.1	21.6	19.7	12.2	10.9	7.6	5.6	6.0	10.9	13.4
RSS162	S. Lauwa-Bungadindi	188	37	40	9.0	8.5	12.4	9.8	12.8	9.9	7.1	7.1	4.1	2.9	3.8	6.3	7.8
RSS164	S. Rongkong-Saabang	1030	38	82	62.0	64.0	104.0	152.0	166.0	126.0	100.0	69.0	63.0	49.2	55.0	70.0	90.0
RSS165	S. Maloso-Bulu Batu Simbayo	808	76	83	61.0	60.0	59.0	102.0	109.0	108.0	65.0	53.0	56.0	37.0	70.0	85.0	72.1
RSS166	S. Bila-Bila	379	73	82	9.2	10.2	14.4	21.7	28.9	23.6	24.9	14.3	19.3	11.1	8.7	15.2	16.8
RSS167	S. Pangkajene-Tabo Tabo	327	77	82	75.5	60.9	38.0	21.4	11.6	7.5	5.1	1.8	1.4	1.5	6.8	51.8	23.6

Table III-17 MONTHLY RIVER DISCHARGE IN WEST NUSA TENGGARA

STATION CODE	NAME OF RIVER	CATCH AREA km2	PERIOD START	PERIOD END	MONTHLY RIVER DISCHARGE JAN m3/s	FEB m3/s	MAR m3/s	APR m3/s	MAY m3/s	JUN m3/s	JUL m3/s	AUG m3/s	SEP m3/s	OCT m3/s	NOV m3/s	DEC m3/s	AVERAGE YEAR m3/s
RWN1	S. Meninting - Belencong	65	73	75	7.29	7.67	7.01	5.79	5.70	3.82	1.37	1.40	7.88	11.00	7.16	7.13	6.10
RWN2	S. Jangkok - Bungbung	144	80	81	11.80	10.50	7.20	6.86	4.26	3.80	4.84	1.98	0.87	0.79	5.76	8.08	5.56
RWN4	S. Babak - Gebong	193	73	81	15.80	14.40	13.10	13.00	12.20	6.87	3.91	3.37	7.16	9.88	13.30	13.20	10.52
RWN5	S. Penunjak - Penunjak	163	73	75	12.40	15.00	14.10	7.08	7.51	0.52	0.38	0.50	2.43	0.93	6.77	11.10	6.56
RWN6	S. Penunjak - Penitik	376	80	81	18.80	12.80	2.33	3.54	3.22	0.74	2.53	0.50	0.95	0.84	30.60	22.60	8.29
RWN7	S. Dodakan - Karang Anyar	529	73	81	43.80	41.70	37.90	24.00	23.00	6.72	6.54	2.47	6.96	7.89	26.40	34.90	21.86
RWN16	Br. Orde - Alas	78	78	80	2.00	2.34	1.54	0.86	0.60	0.24	0.19	0.13	0.12	0.15	0.27	1.47	0.83
RWN17	Br. Jurumapin - Jurumapin	18	78	80	0.50	0.56	0.81	0.43	0.21	0.09	0.15	0.08	0.05	0.05	0.14	0.34	0.28
RWN18	Br. Utan - Utan	64	79	80	0.56	3.41	12.60	1.55	0.62	0.12	0.09	0.06	0.04	0.09	0.28	1.92	1.78
RWN19	Br. Semonte - Semonte	68	78	80	2.32	2.45	2.85	0.86	0.69	0.30	0.47	0.32	0.27	0.30	0.39	0.83	1.00
RWN20	Br. Ree - Ree	208	77	80	12.40	16.70	14.60	3.85	2.29	2.61	1.80	0.94	0.87	0.97	2.02	4.61	5.31
RWN21	Br. Lekong - Lekong	13	79	80	0.01	0.06	0.28	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.04
RWN22	Br. Rea - Taliwang	626	79	80	24.10	24.90	21.20	18.80	15.90	9.20	4.00	2.50	1.70	2.90	2.80	21.40	12.45
RWN23	Br. Sateluk - Sateluk	19	79	80	0.21	4.26	0.63	0.73	0.07	0.01	0.01	0.01	0.01	0.01	0.02	0.39	0.53
RWN24	Br. Pantang - Kalimantong	160	79	80	3.97	7.03	2.24	3.57	0.87	0.28	0.21	0.18	0.07	0.07	0.96	3.39	1.90
RWN25	Br. Rae - Tepas	365	79	80	23.90	28.10	21.00	17.20	5.32	3.19	2.50	1.73	1.80	2.16	6.78	18.70	11.03
RWN26	Br. Jerewe - Jerewe	81	79	80	4.55	4.77	1.23	0.72	0.38	0.22	0.11	0.15	0.07	0.04	0.94	1.98	1.26
RWN28	Br. Setonga - Pelempit Aji	74	77	80	2.66	3.06	2.67	0.58	0.26	0.71	0.20	0.03	0.06	0.02	0.14	1.07	0.96
RWN30	Br. Moyo - Moyo	288	76	80	6.49	8.53	12.50	6.07	1.11	3.59	1.13	0.13	0.04	0.13	0.48	3.14	3.61
RWN32	Br. Moyo - Ngeru	263	79	80	15.00	17.90	15.60	5.82	0.95	0.15	1.18	0.25	0.10	0.15	0.60	8.19	5.49
RWN33	Br. Marunge - Marunge	88	79	80	6.74	5.03	4.24	0.31	0.07	0.04	0.01	0.01	0.01	0.00	0.00	0.75	1.43
RWN34	Br. Kollong - Kollong	51	79	80	0.09	0.89	0.31	0.01	0.04	0.03	0.01	0.01	0.01	0.00	0.01	0.03	0.12
RWN35	N. Gali - Plampang	66	79	80	2.96	2.64	0.13	0.07	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0.24	0.52
RWN37	Br. Ampang - Ampang	48	78	79	1.53	5.01	7.24	0.33	3.25	0.55	0.28	0.30	0.16	0.11	0.57	2.05	1.78
RWN38	S. Baka - Raba Baka	121	77	80	3.68	3.65	3.07	2.05	2.44	1.09	1.15	0.10	0.09	0.36	1.66	4.26	1.97
RWN40	S. Katua - Rora Besar	49	78	80	1.76	3.21	1.98	1.42	0.61	0.72	0.83	0.69	0.70	0.68	1.06	2.20	1.32
RWN44	S. Sari - Sari	8	77	81	0.35	0.31	0.23	0.20	0.17	0.14	0.14	0.12	0.12	0.11	0.17	0.27	0.19
RWN47	Br. Sumbawa - Kerekeh	96	79	80	3.55	3.27	6.73	1.99	0.90	0.76	0.77	0.86	0.78	0.88	1.17	2.20	1.99
RWN48	Br. Passer - Mamak	101	79	80	3.39	5.24	2.27	1.29	0.26	0.11	0.11	0.35	0.07	0.06	0.26	2.78	1.35
RWN49	S. Katua - Legara Saka	73	78	80	1.97	2.94	1.94	1.54	0.84	0.57	0.74	0.50	0.46	0.69	1.86	3.61	1.47

Table III-18 EVALUATION OF WATER AVAILABILITY IN NORTH SUMATRA

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
* LAND DEVELOPMENT *																	
60002	Kuta Gambir	0.8	765	612	1.0	316	253	765	253	144	101	7.6	76	3.3	10	5	15
60003	Siarung Arung	0.8	700	560	1.3	400	320	700	246	197	138	5.1	103	2.4	10	5	15
60004	Gapaulako-Galian	0.8	450	360	1.3	290	232	450	178	192	134	3.3	101	1.8	10	5	15
60005	Parikki II	1.0	1678	1342	1.4	749	599	1342	428	200	140	9.6	105	4.1	10	5	15
60006	Kabau Tengak	1.2 *	650	520	1.5 *	330	264	433	176	185	130	3.3	97	1.8	10	5	15
60008	Amborgang	0.8	860	688	1.3	540	432	860	332	300	210	4.1	158	2.1	10	5	15
60010	Lae Pangaroan	1.0	967	774	1.2	267	214	774	178	148	104	7.5	78	2.3	10	5	15
60011	Sumbari	1.0	347	278	1.5	138	110	278	73	110	77	3.6	58	1.3	10	5	15
60012	Lae Rakkom	0.8	1317	1054	1.0	218	174	1317	174	140	98	13.4	74	2.4	10	5	15
60013	Lae Pinagar	0.8	2168	1734	1.2	1316	1053	2168	877	117	82	26.5	61	14.3	10	5	15
60014	Paniki I	1.0	715	572	1.4	310	248	572	177	75	53	10.9	39	4.5	10	5	15
60016	Sileu leu Sagala	0.8	2000	1600	1.3	600	480	2000	369	150	105	19.0	79	4.7	10	5	15
60017	Simanduma	0.8	1800	1440	1.3	9	7	1800	5	175	123	14.7	92	0.1	10	0	10
60020	Mungkur	0.8	1366	1093	1.2	498	398	1366	332	199	139	9.8	104	3.2	10	5	15
60021	Paluh Paki	1.2	4800	3840	2.0	2400	1920	3200	960	709	496	6.4	372	2.6	10	5	15
60022	Timbang Lawang	0.8	25000	20000	1.3	19200	15360	25000	11815	825	578	43.3	433	27.3	10	5	15
60023	Sinar Toba Simang	0.9	3718	2974	1.3	2578	2062	3305	1586	50	35	94.4	26	60.4	10	5	15
60025	Ulu Mahuan	1.2 *	11375	9100	1.5 *	7321	5857	7583	3905	75	53	144.4	39	99.2	10	5	15
60027	Aek Tobang	0.9	1965	1572	1.3	780	624	1747	480	57	40	43.8	30	16.0	10	5	15
60028	Mandailing	0.8	23200	18560	1.5	12000	9600	23200	6400	265	186	125.1	139	46.0	10	5	15
60029	Aek Baja	0.8	19875	15900	1.5	7200	5760	19875	3840	100	70	283.9	53	73.1	10	5	15
60031	Aek Sipalis	0.8	1900	1520	1.5	3100	2480	1900	1653	225	158	12.1	118	14.0	10	5	15
60033	Parlunggean	0.5	800	640	1.0	468	374	1280	374	245	172	7.5	129	2.9	10	5	15
60034	Sisuhar-Suhar	1.0	8330	6664	1.5	4165	3332	6664	2221	550	385	17.3	289	7.7	10	5	15
60035	Aek Silalang	1.0	3500	2800	1.5	1750	1400	2800	933	245	172	16.3	129	7.3	10	5	15
60036	Aek Sidoras	1.0	3400	2720	2.0	1700	1360	2720	680	75	53	51.8	39	17.3	10	5	15
60037	Silinggom-Linggom	1.2	302	242	1.8	220	176	201	98	285	200	1.0	150	0.7	10	3	13
60038	Rauning B	1.2	18750	15000	1.8	13750	11000	12500	6111	94	66	189.4	50	123.5	10	5	15
60040	Aek Solok	1.0	1000	800	1.5	725	580	800	387	125	88	9.1	66	5.9	10	5	15
60041	tahalak Rauning A	0.5	18750	15000	1.0	13750	11000	30000	11000	500	350	85.7	263	41.9	10	5	15
60042	Aek Suhat	1.5	1400	1120	2.0	1100	880	747	440	140	98	7.6	74	6.0	10	5	15
60045	Saba Bolak	1.1	600	480	1.5	425	340	436	227	80	56	7.8	42	5.4	10	5	15
* VILLAGE IRRIGATION *																	
50001	Parongil Jehe	0.8	1205	964	1.2	277	221	1205	184	85	60	20.3	37	5.0	10	5	15
50002	Marsada	0.8	244	195	1.3	179	143	244	110	140	98	2.5	61	1.8	10	5	15
50003	Lae Jering	0.8	246	197	1.2	175	140	246	117	55	39	6.4	24	4.9	10	5	15
50004	Ulu Merah	0.8	1300	1040	1.3	1100	880	1300	677	190	133	9.8	82	8.2	10	5	15
50005	Simantas	0.8	458	366	1.2	178	142	458	119	55	39	11.9	24	5.0	10	5	15
50006	Lae Panginuman	0.8	625	500	1.0	374	299	625	299	90	63	9.9	39	7.7	10	5	15
50007	Bantun Kerbo	0.8	625	500	1.0	318	254	625	254	100	70	8.9	43	5.9	10	5	15
50008	Pandeangan	0.6	700	560	1.0	148	118	933	118	65	46	20.5	28	4.2	10	5	15
50009	Tiga Serangkai I	0.8	641	513	1.2	342	274	641	228	75	53	12.2	33	7.0	10	5	15
50010	Sopokomil	2.0	680 #	544	3.0	320 #	256	272	85	150	105	2.6	65	1.3	10	5	15

EVALUATION OF WATER AVAILABILITY IN NORTH SUMATRA

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
50011	Simatupang	0.8	270	216	1.2	150	120	270	100	50	35	7.7	22	4.6	10	5	15
50012	Jumajoring	0.8	860	688	1.3	540	432	860	332	106	74	11.6	46	7.2	10	5	15
50013	Galian Bendar Bt.	0.8	400	320	1.3	175	140	400	108	45	32	12.7	20	5.5	10	5	15
50014	Bekasi (A)	0.8	917	734	1.3	600	480	917	369	150	105	8.7	65	5.7	10	5	15
50015	Bekasi (B)	0.8	917	734	1.3	600	480	917	369	60	42	21.8	26	14.2	10	5	15
50016	Garuh (Hutarahu)	0.8	570	456	1.3	330	264	570	203	200	140	4.1	87	2.3	10	5	15
50017	Kuta Gambir	0.8	1850	1480	1.2	415	332	1850	277	150	105	17.6	65	4.2	10	5	15
50018	Jumagulangan	0.8	480	384	1.2	135	108	480	90	70	49	9.8	30	3.0	10	5	15
50019	Lae Laklik Rambon	0.8	310	248	1.3	190	152	310	117	160	112	2.8	69	1.7	10	5	15
50020	Gapanlaho	0.8	450	360	1.3	290	232	450	178	192	134	3.3	83	2.1	10	5	15
50021	Gabe Padas/Lae La	0.8	550	440	1.3	240	192	550	148	150	105	5.2	65	2.3	10	5	15
50022	Siaring-aring	0.8	700	560	1.3	400	320	700	246	197	138	5.1	85	2.9	10	5	15
50023	Sibora-bora	0.8	241	193	1.4	171	137	241	98	80	56	4.3	35	2.8	10	5	15
50024	Buparsi	0.8	1320	1056	1.2	375	300	1320	250	90	63	21.0	39	6.4	10	5	15
50025	Sumbul Berampu	0.8	675	540	1.3	207	166	675	127	124	87	7.8	54	2.4	10	5	15
50026	Lae Tinokkap	0.9	680	544	1.2	315	252	604	210	82	57	10.5	36	5.9	10	5	15
50027	Lae Lancang	0.8	499	399	1.2	318	254	499	212	75	53	9.5	33	6.5	10	5	15
50028	Lae Situlan	0.8	678	542	1.2	275	220	678	183	120	84	8.1	52	3.5	10	5	15
50029	Hutamanir	0.8	1478	1182	1.3	309	247	1478	190	180	126	11.7	78	2.4	10	5	15
50030	Jumatukko	0.8	786	629	1.2	264	211	786	176	120	84	9.4	52	3.4	10	5	15
50031	Lae Pinagar	0.8	1485	1188	1.3	475	380	1485	292	85	60	25.0	37	7.9	10	5	15
50032	Sitalmak	0.8	1345	1076	1.2	403	322	1345	269	200	140	9.6	87	3.1	10	5	15
50033	Sopogadong	0.8	2455	1964	1.0	475	380	2455	380	60	42	58.5	26	14.6	10	5	15
50034	Bulu Ujung	1.0	568	454	0.8	117	94	454	117	120	84	5.4	52	2.2	10	5	15
50035	Lingga Raja	0.8	367	294	1.2	248	198	367	165	155	109	3.4	67	2.5	10	5	15
50036	Lae Nboang	0.8	120	96	1.3	55	44	120	34	40	28	4.3	17	1.9	10	5	15
50037	Hutaimbaru	0.8	850	680	1.2	240	192	850	160	180	126	6.7	78	2.0	10	5	15
50038	Lae Saradan	0.8	396	317	1.2	178	142	396	119	105	74	5.4	46	2.6	10	5	15
50039	Jumarindang	0.8	348	278	1.2	196	157	348	131	100	70	5.0	43	3.0	10	5	15
50040	Karing Pargaulan	0.8	468	374	1.2	179	143	468	119	65	46	10.3	28	4.2	10	5	15
50041	Jumasianak	0.8	230	184	1.3	90	72	230	55	60	42	5.5	26	2.1	10	5	15
50042	Jumapetak	0.8	348	278	1.2	196	157	348	131	80	56	6.2	35	3.8	10	5	15
50043	Sikaleut	0.8	850	680	1.3	240	192	850	148	60	42	20.2	26	5.7	10	5	15
50044	Sibintuar/Persawa	0.8	360	288	1.3	70	56	360	43	55	39	9.4	24	1.8	10	5	15
50045	Bangun Mulia	1.0	100	80	1.5	60	48	80	32	55	39	2.1	24	1.3	10	5	15
50046	Bukit Mas/Pantai	1.5	700	560	2.0	60	48	373	24	120	84	4.4	52	0.5	10	2	12
50047	Sematar/Pamah	1.0	4000	3200	1.5	90	72	3200	48	30	21	152.4	13	3.7	10	5	15
50048	Sungai Nibung	1.5	770	616	2.0	700	560	411	280	20	14	29.3	9	32.3	10	5	15
50049	Cinta Dapat	2.0	600	480	2.5	70	56	240	22	80	56	4.3	35	0.6	10	3	13
50050	Kerpey	1.0	600	480	1.8	80	64	480	36	120	84	5.7	52	0.7	10	3	13
50051	Sei Tapak Dua	1.5	400	320	2.0	40	32	213	16	75	53	4.1	33	0.5	10	2	12
50052	Bandar Bunga	1.0	320	256	1.5	100	80	256	53	70	49	5.2	30	1.8	10	5	15
50053	Selemak/Sejagat	0.8	300	240	1.0	30	24	300	24	70	49	6.1	30	0.8	10	4	14
50054	Simpang Lukis	1.0	100	80	1.5	25	20	80	13	60	42	1.9	26	0.5	10	3	13
50055	Sei Bekurmam	1.0	300	240	1.5	50	40	240	27	60	42	5.7	26	1.0	10	5	15

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		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
50056	Sei Tumkan Jaya	1.0	200	160	1.3	50	40	160	31	55	39	4.2	24	1.3	10	5	15
50057	Sidomukti	1.0	300	240	1.5	65	52	240	35	27	19	12.7	12	3.0	10	5	15
50058	Perpulungan	0.8	450	360	1.5	40	32	450	21	50	35	12.9	22	1.0	10	5	15
50059	Sibertung	2.0	288	230	3.0	96	77	115	26	55	39	3.0	24	1.1	10	5	15
50060	Suka Pulung	1.5	690	552	2.0	450	360	368	180	170	119	3.1	74	2.4	10	5	15
50061	Paya Salit	1.0	400	320	1.5	50	40	320	27	50	35	9.1	22	1.2	10	5	15
50062	Sei Sirit	1.0	700	560	1.3	90	72	560	55	80	56	10.0	35	1.6	10	5	15
50063	Sei Tungkamsakti	1.0	700	560	1.8	50	40	560	22	75	53	10.7	33	0.7	10	3	13
50064	Kp. Mandailing	1.0	3072	2458	1.5	1536	1229	2458	819	55	39	63.8	24	34.3	10	5	15
50065	Namu Tembis	1.2	497	398	2.0	240	192	331	96	200	140	2.4	87	1.1	10	5	15
50066	Bekancan	1.3	600	480	3.0	200	160	369	53	105	74	5.0	46	1.2	10	5	15
50068	Indra Kaya	0.9	415	332	1.3	83	66	369	51	115	81	4.6	50	1.0	10	5	15
50069	Aek Menek	0.9	432	346	1.3	216	173	384	133	45	32	12.2	20	6.8	10	5	15
50070	Kp. Lalang II	0.8	9877	7902	1.2	4967	3974	9877	3311	35	25	403.1	15	218.0	10	5	15
50072	Parmanukan	0.9	3718	2974	1.3	2578	2062	3305	1586	100	70	47.2	43	36.6	10	5	15
50073	Aeksihare-hare	0.8	1226	981	1.3	667	534	1226	410	80	56	21.9	35	11.8	10	5	15
50074	Aek Kandis	0.9	833	666	1.3	520	416	740	320	125	88	8.5	54	5.9	10	5	15
50075	Janji Lobi	0.8	120	96	1.2	50	40	120	33	60	42	2.9	26	1.3	10	5	15
50076	Sibosur	0.8	7505	6004	1.2	4375	3500	7505	2917	80	56	134.0	35	84.0	10	5	15
50077	Sibara-bara	0.8	2499	1999	1.3	833	666	2499	513	135	95	26.4	59	8.7	10	5	15
50078	Aek Tapa	0.8	9876	7901	1.2	5431	4345	9876	3621	150	105	94.1	65	55.6	10	5	15
50079	Aek Halubi	0.8	2500	2000	1.2	1376	1101	2500	917	85	60	42.0	37	24.9	10	5	15
50080	Aek Paing	0.8	300	240	1.3	750	600	300	462	200	140	2.1	87	5.3	10	5	15
50082	Sinar Pagi/Sibara	0.8	1500	1200	1.3	1000	800	1500	615	200	140	10.7	87	7.1	10	5	15
50084	Aek Rawa-Rawa/Aek	0.9	589	471	1.3	264	211	524	162	45	32	16.6	20	8.3	10	5	15
50085	Sibuaya	0.5	1360 #	1088	1.3	640 #	512	2176	394	300	210	10.4	130	3.0	10	5	15
50086	Kampung Lalang I	0.8	9750	7800	1.2	5370	4296	9750	3580	23	16	605.6	10	358.6	10	5	15
50087	Kampung Lalang II	0.8	9877	7902	1.2	4967	3974	9877	3311	125	88	112.9	54	61.0	10	5	15
50088	Cinta Makmur	0.9	7000	5600	1.3	781	625	6222	481	175	123	50.8	76	6.3	10	5	15
50089	Padang Rie	0.9	1250	1000	1.3	850	680	1111	523	75	53	21.2	33	16.1	10	5	15
50091	Aek Palia/Tegal L	0.8	3678	2942	1.2	1377	1102	3678	918	38	27	138.3	16	55.7	10	5	15
50092	Bangun Sari	0.9	550	440	1.3	306	245	489	188	50	35	14.0	22	8.7	10	5	15
50095	Purbatua	0.8	442 #	354	1.5	208 #	166	442	111	270	189	2.3	117	0.9	10	5	15
50096	Labutua	0.8	10160	8128	1.5	8330	6664	10160	4443	180	126	80.6	78	56.9	10	5	15
50097	Sampang Maruhun	0.8	7500	6000	1.5	3000	2400	7500	1600	150	105	71.4	65	24.6	10	5	15
50098	Pangambatan	0.8	2000	1600	1.5	1200	960	2000	640	235	165	12.2	102	6.3	10	5	15
50099	Purbatua	0.8	1900	1520	1.0	1200	960	1900	960	150	105	18.1	65	14.7	10	5	15
50100	Sipange/Baratan	0.8	350	280	1.5	200	160	350	107	87	61	5.7	38	2.8	10	5	15
50101	Aek Sigala-gala	0.8	1190	952	1.5	700	560	1190	373	70	49	24.3	30	12.3	10	5	15
50103	Sungai Muara Angg	0.8	7650	6120	1.0	4500	3600	7650	3600	50	35	218.6	22	155.9	10	5	15
50104	Hutaimbaru	0.8	900	720	1.0	480	384	900	384	125	88	10.3	54	7.1	10	5	15
50106	Mungkur/Aloban	0.8	2720	2176	1.5	1600	1280	2720	853	50	35	77.7	22	39.3	10	5	15
50108	Napitupalu/Hutaim	0.8	850 #	680	1.5	400 #	320	850	213	287	201	4.2	125	1.7	10	5	15
50109	Hutabalang	0.8	1920	1536	1.5	1280	1024	1920	683	250	175	11.0	109	6.3	10	5	15
50110	Pargarutan	0.8	1619	1295	1.0	952	762	1619	762	60	42	38.5	26	29.2	10	5	15

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		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
50111	Anggoli	0.9	18	14	1.5	10	8	16	5	183	128	0.1	79	0.1		0	0
50112	Barambang	0.8	1820	1456	1.5	1160	928	1820	619	125	88	20.8	54	11.4	10	5	15
50113	Aek Lumut	0.8	14670	11736	1.5	4560	3648	14670	2432	100	70	209.6	43	56.0	10	5	15
50114	Aek Baung	0.8	854	683	1.5	640	512	854	341	50	35	24.4	22	15.7	10	5	15
50115	Lapian	0.8	1870	1496	1.5	1250	1000	1870	667	385	270	6.9	167	4.0	10	5	15
50116	Simonosor	0.8	7500	6000	1.5	3750	3000	7500	2000	205	144	52.3	89	22.5	10	5	15
50119	Poriaha/Tapian Na	0.8	550	440	1.5	370	296	550	197	159	111	4.9	69	2.9	10	5	15
50121	Sibintang	0.8	1360 #	1088	1.5	640 #	512	1360	341	225	158	8.6	98	3.5	10	5	15
50122	Hutanabalon	0.8	820	656	1.5	360	288	820	192	116	81	10.1	50	3.8	10	5	15
50123	Sibuluan	0.8	1900	1520	1.5	614	491	1900	327	200	140	13.6	87	3.8	10	5	15
50124	Desa Lumut A	0.8	23615	18892	1.5	8000	6400	23615	4267	75	53	449.8	33	131.1	10	5	15
50125	Lumut B	0.8	2440	1952	1.0	816	653	2440	653	75	53	46.5	33	20.1	10	5	15
50127	Unte Mungkur II	0.8	2250	1800	1.5	750	600	2250	400	80	56	40.2	35	11.5	10	5	15
50129	Pangambatan (B)	0.8	2000	1600	1.5	1200	960	2000	640	48	34	59.5	21	30.7	10	5	15
50130	Muara Bolak A	0.8	800	640	1.5	620	496	800	331	170	119	6.7	74	4.5	10	5	15
50131	Sigambo-Gambo	0.8	2700	2160	1.0	2250	1800	2700	1800	60	42	64.3	26	69.1	10	5	15
50133	Aek Siporhas	1.0	5875	4700	1.5	5346	4277	4700	2851	150	105	44.8	65	43.8	10	5	15
50134	Aek Silambu	1.0	3400 #	2720	1.5	1600 #	1280	2720	853	90	63	43.2	39	21.8	10	5	15
50135	Bandar Pangahan	1.0	4248	3398	1.5	3248	2598	3398	1732	130	91	37.3	56	30.7	10	5	15
50137	Pangaribuan	1.0	1700	1360	1.5	1300	1040	1360	693	100	70	19.4	43	16.0	10	5	15
50138	Aek Asahan	1.0	30000	24000	1.5	15000	12000	24000	8000	40	28	857.1	17	460.8	10	5	15
50139	Sisania	1.0	5100 #	4080	2.0	2400 #	1920	4080	960	235	165	24.8	102	9.4	10	5	15
50141	Aek Siparbue	1.3	14400	11520	2.0	7200	5760	8862	2880	26	18	486.9	11	255.2	10	5	15
50142	Aek Binanga Bolon	0.8	3895	3116	1.0	3328	2662	3895	2662	100	70	55.6	43	61.3	10	5	15
50143	Aek Sampean	1.0	8400	6720	1.5	7600	6080	6720	4053	100	70	96.0	43	93.4	10	5	15
50144	Aek Simargalung/S	1.0	8747	6997	1.5	6997	5597	6997	3732	110	77	90.9	48	78.2	10	5	15
50145	Danau Toba	1.0	23750	19000	1.5	10878	8702	19000	5802	95	67	285.7	41	140.7	10	5	15
50146	Sibual	1.0	3499	2799	1.5	2916	2332	2799	1555	130	91	30.8	56	27.6	10	5	15
50147	Sidilanitano	0.8	9996	7997	1.0	7997	6397	9996	6397	135	95	105.8	59	109.2	10	5	15
50150	Aek Sihotunggal	1.0	2916	2332	1.5	2624	2099	2332	1399	189	132	17.6	82	17.1	10	5	15
50153	Danau Toba	1.0	5000	4000	1.5	3000	2400	4000	1600	172	120	33.2	75	21.4	10	5	15
50154	Aek Simokmok	1.0	4165	3332	1.5	3332	2666	3332	1777	65	46	73.2	28	63.0	10	5	15
50155	Aek Marjambe	1.0	5100 #	4080	1.5	2400 #	1920	4080	1280	150	105	38.9	65	19.7	10	5	15
50156	Aek Hariara Sitam	1.0	500	400	1.5	300	240	400	160	150	105	3.8	65	2.5	10	5	15
50157	Bandar Naganjang	0.5	4900	3920	1.5	3000	2400	7840	1600	200	140	56.0	87	18.4	10	5	15
50158	Aek Sibargung	0.5	3200	2560	1.0	1500	1200	5120	1200	240	168	30.5	104	11.5	10	5	15
50159	Aek Siparbue II	1.5	9375	7500	2.0	4688	3750	5000	1875	150	105	47.6	65	28.8	10	5	15
50162	Aek Sitete	1.5	25500	20400	2.0	6247	4998	13600	2499	250	175	77.7	109	23.0	10	5	15
50163	Aek Sigumbang	1.5	3125	2500	2.0	1563	1250	1667	625	130	91	18.3	56	11.1	10	5	15
50164	Waduk Hairi Gorat	1.0	3125	2500	1.5	1563	1250	2500	833	151	106	23.7	66	12.7	10	5	15
50165	Aek Siampa Julu	1.0	3400 #	2720	1.5	1600 #	1280	2720	853	380	266	10.2	165	5.2	10	5	15
50166	Aek Badingin	0.5	375	300	1.0	188	150	600	150	100	70	8.6	43	3.5	10	5	15
50167	Aek Sijambe	1.5	3000	2400	2.0	1500	1200	1600	600	100	70	22.9	43	13.8	10	5	15
50168	Aek Silang	1.0	6000	4800	1.5	3000	2400	4800	1600	253	177	27.1	110	14.6	10	5	15
50169	Aek Sitapean/Pars	1.0	4165	3332	1.5	2082	1666	3332	1110	200	140	23.8	87	12.8	10	5	15

EVALUATION OF WATER AVAILABILITY IN NORTH SUMATRA

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
50170	Parmansian	1.0	1562	1250	1.5	781	625	1250	417	50	35	35.7	22	19.2	10	5	15
50171	Aek Nabara	1.0	5200	4160	0.8	2650	2120	4160	2650	220	154	27.0	95	27.8	10	5	15
50172	Aek Sipollas	0.5	3500	2800	1.0	1250	1000	5600	1000	75	53	106.7	33	30.7	10	5	15
50173	Sikual-Kual Silah	20.0	6800 #	5440	10.0	3200 #	2560	272	256	350	245	1.1	152	1.7	10	5	15
50174	Sipapan/Danau Tob	1.0	2100	1680	1.5	1750	1400	1680	933	75	53	32.0	33	28.7	10	5	15
50175	Aek Mandosi	1.0	12495	9996	1.5	6247	4998	9996	3332	500	350	28.6	217	15.4	10	5	15
50176	Aek Sampuran	1.0	8785	7028	1.2	8027	6422	7028	5351	95	67	105.7	41	128.8	10	5	15
50177	Aek Sitasik	1.1	3750	3000	1.7	1875	1500	2727	882	150	105	26.0	65	13.6	10	5	15
50178	Aek Bari Balon	1.0	75000	60000	1.5	37500	30000	60000	20000	95	67	902.3	41	485.1	10	5	15
50179	Siparolo Sulupapi	1.0	2040	1632	1.5	1020	816	1632	544	120	84	19.4	52	10.4	10	5	15
50180	Sigiro (Bandar Na	1.0	500	400	2.0	250	200	400	100	270	189	2.1	117	0.9	10	4	14
50182	Aek Harangan	1.0	3125	2500	1.5	1563	1250	2500	833	150	105	23.8	65	12.8	10	5	15
50183	Aek Siborong-boro	1.0	3125	2500	1.5	1563	1250	2500	833	100	70	35.7	43	19.2	10	5	15
50184	Saba Bolak Pakpoh	1.0	563	450	1.5	281	225	450	150	350	245	1.8	152	1.0	10	5	15
50186	Aek Sigilang	1.0	800	640	1.5	400	320	640	213	100	70	9.1	43	4.9	10	5	15
50187	Aek Sia Tunggal	1.0	9996	7997	1.5	4998	3998	7997	2666	165	116	69.2	72	37.2	10	5	15
50188	Bulugading	1.0	5000	4000	1.5	2000	1600	4000	1067	120	84	47.6	52	20.5	10	5	15
50189	Lau Rambung	1.6	900	720	2.0	450	360	450	180	60	42	10.7	26	6.9	10	5	15
50190	Mandah	1.6	425	340	1.9	210	168	213	88	40	28	7.6	17	5.1	10	5	15
50191	Nangka Glugur	1.8	460	368	2.0	230	184	204	92	70	49	4.2	30	3.0	10	5	15
50192	Parit Rumah Gugun	1.4	300	240	1.8	150	120	171	67	30	21	8.2	13	5.1	10	5	15
50193	Sumbeiken Elok	0.9	1000	800	1.1	500	400	889	364	450	315	2.8	195	1.9	10	5	15
50194	Lau Lenting	1.5	900	720	1.8	450	360	480	200	40	28	17.1	17	11.5	10	5	15
50195	Serdang	1.5	680	544	1.8	300	240	363	133	130	91	4.0	56	2.4	10	5	15
50196	Sawah Galumpang	1.2	625	500	2.0	310	248	417	124	30	21	19.8	13	9.5	10	5	15
50197	Sabah Berneh/Lau	1.6	2900	2320	2.0	1450	1160	1450	580	40	28	51.8	17	33.4	10	5	15
50198	Dalu-Dalu Cepen	1.6	225	180	2.0	110	88	113	44	100	70	1.6	43	1.0	10	5	15
50199	Lau Mbelin/LauJan	1.6	900	720	2.0	450	360	450	180	80	56	8.0	35	5.2	10	5	15
50200	Sabah Pinto	1.6	2900	2320	2.0	1450	1160	1450	580	40	28	51.8	17	33.4	10	5	15
50201	Melas	1.5	625	500	2.0	310	248	333	124	80	56	6.0	35	3.6	10	5	15
50202	Rumanis	1.2	800	640	1.6	400	320	533	200	100	70	7.6	43	4.6	10	5	15
50203	Pergendangen	1.6	2900	2320	2.0	1450	1160	1450	580	60	42	34.5	26	22.3	10	5	15
50204	Sabah Iama	0.9	200	160	1.0	100	80	178	80	100	70	2.5	43	1.8	10	5	15
50205	Lau Kesumpat	0.9	400	320	1.2	200	160	356	133	100	70	5.1	43	3.1	10	5	15
50206	Sabah Lepar	1.6	300	240	2.0	150	120	150	60	85	60	2.5	37	1.6	10	5	15
50207	Gurubenua	1.7	80	64	2.0	50	40	38	20	50	35	1.1	22	0.9	10	5	15
50208	Sabah Dekel	1.5	3000	2400	2.0	1500	1200	1600	600	40	28	57.1	17	34.6	10	5	15
50209	Sabah Namo Lembu	1.2	3000	2400	1.5	1500	1200	2000	800	40	28	71.4	17	46.1	10	5	15
50210	Lau Galuh	1.5	625	500	2.0	310	248	333	124	40	28	11.9	17	7.1	10	5	15
50211	Lau Pengulu	0.9	600	480	1.1	300	240	533	218	90	63	8.5	39	5.6	10	5	15
50212	Parit Gedang Air	0.9	300	240	1.1	150	120	267	109	75	53	5.1	33	3.4	10	5	15
50213	Kacaribu	1.2	800	640	1.5	320	256	533	171	50	35	15.2	22	7.9	10	5	15
50214	Sumbeiken	0.9	800	640	1.1	400	320	711	291	300	210	3.4	130	2.2	10	5	15
50215	S. Kenjahe	1.6	475	380	2.0	235	188	238	94	40	28	8.5	17	5.4	10	5	15
50216	Barong Kersap	1.4	350	280	1.8	225	180	200	100	100	70	2.9	43	2.3	10	5	15

EVALUATION OF WATER AVAILABILITY IN NORTH SUMATRA

(6/7)

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
50217	Sukajulu	1.2	400	320	1.5	100	80	267	53	80	56	4.8	35	1.5	10	5	15
50218	Kutamale	1.8	7000	5600	2.0	3500	2800	3111	1400	40	28	111.1	17	80.6	10	5	15
50220	Beringin	1.7	600	480	2.0	300	240	282	120	50	35	8.1	22	5.5	10	5	15
50225	Marjanji Aceh	0.8	500	400	1.5	250	200	500	133	150	105	4.8	65	2.0	10	5	15
50226	Desa Gajah	0.8	5520	4416	1.5	2760	2208	5520	1472	500	350	15.8	217	6.8	10	5	15
50228	Siantipa/Siou	0.8	2100	1680	1.0	1500	1200	2100	1200	100	70	30.0	43	27.6	10	5	15
50240	Asahan VIII Penga	0.7	46	37	1.2	31	25	53	21	66	46	1.1	29	0.7	10	4	14
50245	Pulorejo	0.1	25	20	0.4	17	13	200	33	300	210	1.0	130	0.3		1	1
50246	Aek Sangulan	1.1	1000	800	1.8	871	697	727	387	70	49	14.8	30	12.7	10	5	15
50247	Tanohudon	1.1	1250	1000	1.8	855	684	909	380	90	63	14.4	39	9.7	10	5	15
50248	Tahalak Saba Baha	1.2	8000	6400	1.8	7200	5760	5333	3200	125	88	61.0	54	59.0	10	5	15
50249	Bondar Dolak Tami	1.2	12500	10000	1.8	10000	8000	8333	4444	100	70	119.0	43	102.4	10	5	15
50250	Aek Sitekkean	1.2	462	370	1.8	400	320	308	178	95	67	4.6	41	4.3	10	5	15
50251	Aek Harsik	1.5	729	583	2.0	550	440	389	220	150	105	3.7	65	3.4	10	5	15
50252	Marsungsang Batan	0.9	9000	7200	1.5	6000	4800	8000	3200	80	56	142.9	35	92.2	10	5	15
50253	Sungai Sidadi	1.2	1500	1200	1.8	1000	800	1000	444	150	105	9.5	65	6.8	10	5	15
50254	Batang Gadis	1.2	974	779	1.7	800	640	649	376	200	140	4.6	87	4.3	10	5	15
50255	Aek Mahual	1.1	2875	2300	1.8	2000	1600	2091	889	50	35	59.7	22	41.0	10	5	15
50256	Aek Sihim	1.2	2215	1772	1.7	1400	1120	1477	659	48	34	43.9	21	31.6	10	5	15
50258	Sirai Bujang	0.8	2700	2160	2.0	2000	1600	2700	800	190	133	20.3	82	9.7	10	5	15
50259	Bulu Sonik	0.8	800	640	1.5	550	440	800	293	155	109	7.4	67	4.4	10	5	15
50260	Tano Tiris I	1.2	4420 #	3536	1.8	2080 #	1664	2947	924	85	60	49.5	37	25.1	10	5	15
50261	Tano Tiris II	1.0	974	779	1.5	800	640	779	427	245	172	4.5	106	4.0	10	5	15
50262	Sungai Batang Nat	1.0	6500	5200	1.5	3500	2800	5200	1867	150	105	49.5	65	28.7	10	5	15
50263	Balimbing	0.8	1586	1269	1.5	1200	960	1586	640	85	60	26.7	37	17.3	10	5	15
50264	Torkalas	1.3	450	360	1.8	350	280	277	156	75	53	5.3	33	4.8	10	5	15
50265	Saba Napa Gulanga	0.8	2343	1874	1.0	1850	1480	2343	1480	150	105	22.3	65	22.7	10	5	15
50266	Bondar Tamiang	1.2	12500	10000	1.5	10000	8000	8333	5333	142	99	83.8	62	86.5	10	5	15
50267	Aek Aloban	1.1	875	700	1.8	601	481	636	267	115	81	7.9	50	5.4	10	5	15
50268	Sababolak	1.2	999	799	1.8	700	560	666	311	100	70	9.5	43	7.2	10	5	15
50269	Bondar Lapan Aek	1.2	900	720	1.8	715	572	600	318	61	43	14.1	26	12.0	10	5	15
50270	Sungai Sidadi	1.5	1000	800	2.0	1000	800	533	400	245	172	3.1	106	3.8	10	5	15
50271	Sungai Batang Nat	1.1	4165	3332	1.8	3015	2412	3029	1340	70	49	61.8	30	44.1	10	5	15
50272	Bondar Bulusoma	1.0	624	499	1.5	450	360	499	240	110	77	6.5	48	5.0	10	5	15
50273	Sungai Batang Nat	1.3	15625	12500	1.8	13213	10570	9615	5872	75	53	183.2	33	180.4	10	5	15
50274	Siraja Omping	1.0	15200	12160	2.0	13500	10800	12160	5400	100	70	173.7	43	124.4	10	5	15
50275	Aek Latong	4.1	690	552	1.8	288	230	135	128	100	70	1.9	43	2.9	10	5	15
50276	Panyanggar Julu	1.2	2400	1920	1.8	2000	1600	1600	889	100	70	22.9	43	20.5	10	5	15
50277	Sabajulu/Hutaimba	1.7	937	750	1.2	725	580	441	483	85	60	7.4	37	13.1	10	5	15
50278	Sihapas Batang Ga	1.2	35370	28296	2.0	32500	26000	23580	13000	105	74	320.8	46	285.3	10	5	15
50279	Sabaipar	1.2	1346	1077	1.8	1100	880	897	489	94	66	13.6	41	12.0	10	5	15
50283	Dusun X, XI, XII	0.8	5830	4664	1.0	2915	2332	5830	2332	475	333	17.5	206	11.3	10	5	15
50288	Sei Rejo	0.8	40800	32640	1.0	20400	16320	40800	16320	200	140	291.4	87	188.0	10	5	15
50289	Sei Blumei	0.8	6640	5312	1.0	3320	2656	6640	2656	60	42	158.1	26	102.0	10	5	15
50293	Sungai Rambung	0.8	6250	5000	1.0	4720	3776	6250	3776	80	56	111.6	35	108.8	10	5	15

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
50294	Bukit Cermin	1.0	37500	30000	1.5	25000	20000	30000	13333	150	105	285.7	65	204.8	10	5	15
50296	Sungai Kerapuh	0.8	33200	26560	1.0	16600	13280	33200	13280	350	245	135.5	152	87.4	10	5	15
50299	Paluh Kemiri	0.8	45900	36720	1.0	30600	24480	45900	24480	187	131	350.6	81	301.6	10	5	15
50300	Sungai Belutu	1.5	13750	11000	2.0	12500	10000	7333	5000	120	84	87.3	52	96.0	10	5	15
50302	Lau Keramat	1.2	7000	5600	1.5	3500	2800	4667	1867	90	63	74.1	39	47.8	10	5	15
50303	Sungai Belutu	1.2	20000	16000	1.5	15620	12496	13333	8331	200	140	95.2	87	96.0	10	5	15
50306	Sipanguapan	1.5	9750	7800	2.0	488	390	5200	195	232	162	32.0	101	1.9	10	5	15
50307	Bondar Julu	1.0	3400 #	2720	2.0	1600 #	1280	2720	640	100	70	38.9	43	14.7	10	5	15
50308	Sinapolan	1.1	4000	3200	1.5	3200	2560	2909	1707	100	70	41.6	43	39.3	10	5	15
50309	Saba Hutadangka	1.2	12500	10000	1.8	8000	6400	8333	3556	70	49	170.1	30	117.0	10	5	15
50310	Siranap	1.2	15000	12000	1.8	12000	9600	10000	5333	150	105	95.2	65	81.9	10	5	15
50311	Aek Sibontar	1.0	3188	2550	2.0	1593	1274	2550	637	175	123	20.8	76	8.4	10	5	15

Table III-19 EVALUATION OF WATER AVAILABILITY IN SOUTH SULAWESI

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
* LAND DEVELOPMENT *																	
20002	Cerowali	0.5	250	200	1.0	200	160	400	160	800	560	0.7	168	1.0	7	5	12
20003	Kalu	0.5	200	160	1.0	150	120	320	120	100	70	4.6	21	5.7	10	5	15
20004	Leko Ballo	0.5	1000	800	1.0	300	240	1600	240	227	159	10.1	48	5.0	10	5	15
20005	Taretta	0.5	537	430	1.0	350	280	859	280	300	210	4.1	63	4.4	10	5	15
20006	Jinetalasa	1.2	650	520	1.3	400	320	433	246	200	140	3.1	42	5.9	10	5	15
20009	Belong	1.2	2000	1600	1.3	200	160	1333	123	250	175	7.6	53	2.3	10	5	15
20010	Calendu I	1.2 *	4500	3600	1.5 *	500	400	3000	267	217	152	19.7	46	5.9	10	5	15
20011	Panaikang I	1.2 *	4750	3800	1.5 *	500	400	3167	267	210	147	21.5	44	6.0	10	5	15
20017	Salobunne	1.2 *	800	640	1.5 *	100	80	533	53	722	505	1.1	152	0.4	10	2	12
20393	Sumamillan	1.2 *	3375	2700	1.5 *	1125	900	2250	600	50	35	64.3	11	57.1	10	5	15
* VILLAGE IRRIGATION *																	
10001	Balangninri	0.8	5250.0	4200	1.7	3000.0	2400	5250	1412	54	38	138.9	24	59.9	10	5	15
10003	Kijang	0.9	1170.0 #	936	1.7	300.0	240	1040	141	120	84	12.4	52	2.7	10	5	15
10004	Batu Kanre	0.9	4000.0	3200	1.7	2500.0	2000	3556	1176	64	45	79.4	28	42.1	10	5	15
10005	Bungloe	0.9	1040.0 #	832	1.7	1500.0	1200	924	706	30	21	44.0	13	53.9	10	5	15
10008	Sinoa I	0.9	2300.0	1840	1.7	1350.0	1080	2044	635	166	116	17.6	73	8.8	10	5	15
10009	Parangpangi	0.9	11500.0	9200	1.7	458.0	366.4	10222	216	97	68	150.5	42	5.1	10	5	15
10010	Bulu sumang	0.9	4500.0	3600	1.7	500.0	400	4000	235	60	42	95.2	26	9.0	10	5	15
10012	Sabarro	0.9	4500.0	3600	1.7	300.0	400	4000	235	24	17	238.1	10	22.4	10	5	15
10013	Woddie	0.5	150.0	120	1.0	100.0	80	240	80	88	62	3.9	38	2.1	10	5	15
10014	Batu Gading	0.5	1000.0	800	1.0	392.7	314.16	1600	314	200	140	11.4	87	3.6	10	5	15
10015	Cenrana	0.5	200.0	160	1.0	80.0	64	320	64	250	175	1.8	109	0.6	10	3	13
10016	Lapaupang	0.5	1000.0	800	1.0	300.0	240	1600	240	200	140	11.4	87	2.7	10	5	15
10017	Sabbang Par	0.5	1500.0	1200	1.0	200.0	160	2400	160	200	140	17.1	87	1.8	10	5	15
10018	Lawara	0.5	1500.0	1200	1.0	100.0	80	2400	80	100	70	34.3	44	1.8	10	5	15
10019	Pising	0.5	400.0	320	1.0	200.0	160	640	160	120	84	7.6	52	3.1	10	5	15
10020	Liu Sitoppo	0.5	1000.0	800	1.0	100.0	80	1600	80	100	70	22.9	44	1.8	10	5	15
10022	Timpa	0.5	1000.0	800	1.0	300.0	240	1600	240	50	35	45.7	22	11.0	10	5	15
10023	Tondon Buah	0.5	1000.0	800	1.0	200.0	160	1600	160	100	70	22.9	44	3.7	10	5	15
10024	Elle (Tondo	0.5	250.0	200	1.0	200.0	160	400	160	100	70	5.7	44	3.7	10	5	15
10025	Ompang Use	0.5	250.0	200	1.0	100.0	80	400	80	250	175	2.3	109	0.7	10	4	14
10026	Toila	0.5	200.0	160	1.0	150.0	120	320	120	250	175	1.8	109	1.1	10	5	15
10028	Tubung	0.5	360.0	288	1.0	200.0	160	576	160	360	252	2.3	157	1.0	10	5	15
10029	Balsiru	0.5	350.0	280	1.0	100.0	80	560	80	200	140	4.0	87	0.9	10	5	15
10030	Ajakkang	0.5	300.0	240	1.0	50.0	40	480	40	150	105	4.6	66	0.6	10	3	13
10031	Aluppang	0.5	1000.0	800	1.0	300.0	240	1600	240	150	105	15.2	66	3.7	10	5	15
10032	Padang Lamp	0.5	300.0	240	1.0	100.0	80	480	80	200	140	3.4	87	0.9	10	5	15
10033	Lappa Talle	0.5	300.0	240	1.0	85.0	68	480	68	150	105	4.6	66	1.0	10	5	15
10034	Toddang Jom	0.5	200.0	160	1.0	150.0	120	320	120	100	70	4.6	44	2.7	10	5	15
10035	Goari	0.5	700.0	560	1.0	300.0	240	1120	240	200	140	8.0	87	2.7	10	5	15
10036	Salo Pokki	0.5	500.0	400	1.0	80.0	64	800	64	200	140	5.7	87	0.7	10	4	14
10037	Ulu Bubung	0.5	150.0	120	1.0	100.0	80	240	80	200	140	1.7	87	0.9	10	5	15
10038	Maroanging	0.5	500.0	400	1.0	200.0	160	800	160	100	70	11.4	44	3.7	10	5	15

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
10039	Langi	0.5	500.0	400	1.0	150.0	120	800	120	50	35	22.9	22	5.5	10	5	15
10040	Patukku	0.5	200.0	160	1.0	75.0	60	320	60	50	35	9.1	22	2.7	10	5	15
10041	Langgara	0.5	500.0	400	1.0	150.0	120	800	120	50	35	22.9	22	5.5	10	5	15
10042	Lakojang	0.5	500.0	400	1.0	100.0	80	800	80	45	32	25.4	20	4.1	10	5	15
10043	Lappa Karon	0.5	1500.0	1200	1.0	200.0	160	2400	160	100	70	34.3	44	3.7	10	5	15
10044	S.Bakke	0.5	75.0	60	1.0	50.0	40	120	40	80	56	2.1	35	1.1	10	5	15
10046	S.Lita	0.5	300.0	240	1.0	150.0	120	480	120	200	140	3.4	87	1.4	10	5	15
10048	Laoni	0.5	1350.0	1080	1.0	350.0	280	2160	280	317	222	9.7	138	2.0	10	5	15
10049	Ajakkang	1.2 *	6500.0 #	5200	1.5	2250.0 #	1800	4333	1200	75	53	82.5	33	36.6	10	5	15
10050	Alakkang	1.2 *	6500.0 #	5200	1.5	2250.0 #	1800	4333	1200	200	140	31.0	87	13.7	10	5	15
10051	Batu Maraja	1.2 *	300.0 #	240	1.5	40.0 #	32	200	21	50	35	5.7	22	1.0	10	5	15
10052	Matajang	1.2 *	4420.0 #	3536	1.5	1530.0 #	1224	2947	816	75	53	56.1	33	24.9	10	5	15
10053	Palakka	1.2 *	7800.0 #	6240	1.5	2700.0 #	2160	5200	1440	200	140	37.1	87	16.5	10	5	15
10055	Pajjenge	1.0	15000.0	12000	1.5	6000.0	4800	12000	3200	143	100	119.9	62	51.2	10	5	15
10056	Pajjeng E	1.0	15000.0	12000	1.5	5000.0	4000	12000	2667	200	140	85.7	87	30.5	10	5	15
10057	Waepubbu	1.2 *	390.0 #	312	1.5	135.0 #	108	260	72	313	219	1.2	137	0.5	10	3	13
10058	Ulo	1.2 *	13000.0 #	10400	1.5	4500.0 #	3600	8667	2400	435	305	28.5	190	12.6	10	5	15
10060	Bunewe	1.2 *	5200.0 #	4160	1.5	1800.0 #	1440	3467	960	50	35	99.0	22	44.0	10	5	15
10061	Galung Beru	1.2 *	780.0 #	624	1.5	270.0 #	216	520	144	40	28	18.6	17	8.2	10	5	15
10062	Baji Areng	1.2 *	1040.0 #	832	1.5	360.0 #	288	693	192	70	49	14.1	31	6.3	10	5	15
10063	Anisia	1.2	2410.0	1928	1.6	730.0	584	1607	365	270	189	8.5	118	3.1	10	5	15
10064	Balumbung	1.1	1467.0	1173.6	1.5	448.0	358.4	1067	239	200	140	7.6	87	2.7	10	5	15
10065	Kompenni	1.1	356.0	284.8	1.5	1030.0	824	259	549	150	105	2.5	66	8.4	10	5	15
10066	Lembang Tin	1.3	731.0	584.8	1.5	223.0	178.4	450	119	150	105	4.3	66	1.8	10	5	15
10067	Kassi Bulen	1.3	382.0	305.6	1.5	139.0	111.2	235	74	100	70	3.4	44	1.7	10	5	15
10068	Jammu	1.3	249.0	199.2	1.5	138.0	110.4	153	74	75	53	2.9	33	2.2	10	5	15
10069	Sarajoko	1.0	2840.0	2272	1.5	131.0	104.8	2272	70	30	21	108.2	13	5.3	10	5	15
10070	Paocani	1.4	2980.0	2384	1.6	187.0	149.6	1703	94	60	42	40.5	26	3.6	10	5	15
10071	Patiroang	0.9	2870.0	2296	1.2	97.0	77.6	2551	65	25	18	145.8	11	5.9	10	5	15
10072	Bongkarae	0.9	2240.0	1792	1.0	124.0	99.2	1991	99	150	105	19.0	66	1.5	10	5	15
10073	Pakombong I	1.0	2960.0	2368	1.5	114.0	91.2	2368	61	45	32	75.2	20	3.1	10	5	15
10074	Pakombong I	1.1	2960.0	2368	1.5	114.0	91.2	2153	61	70	49	43.9	31	2.0	10	5	15
10075	Pulonggo	0.9	764.0	611.2	1.1	278.0	222.4	679	202	115	81	8.4	50	4.0	10	5	15
10076	Sengi Panda	1.0	764.0	611.2	1.5	278.0	222.4	611	148	100	70	8.7	44	3.4	10	5	15
10077	Marame I	1.0	764.0	611.2	1.2	278.0	222.4	611	185	100	70	8.7	44	4.2	10	5	15
10078	Marame II	1.2 *	764.0	611.2	1.5 *	278.0	222.4	509	148	30	21	24.3	13	11.3	10	5	15
10079	Polehali	0.7	1764.0	1411.2	1.5	278.0	222.4	2016	148	120	84	24.0	52	2.8	10	5	15
10080	Katute	1.2 *	2080.0 #	1664	1.5	720.0 #	576	1387	384	75	53	26.4	33	11.7	10	5	15
10081	Lembang par	1.0	687.0	549.6	1.5	187.0	149.6	550	100	100	70	7.9	44	2.3	10	5	15
10082	Capengnge	0.9	500.0	400	1.5	130.0	104	444	69	139	97	4.6	61	1.1	10	5	15
10083	Bambaungan	1.2 *	1300.0 #	1040	1.5	450.0 #	360	867	240	50	35	24.8	22	11.0	10	5	15
10084	Ili I	1.2	3120.0 #	2496	1.5	1080.0 #	864	2080	576	175	123	17.0	76	7.5	10	5	15
10085	Ili II	1.2	3120.0 #	2496	1.5	1080.0 #	864	2080	576	100	70	29.7	44	13.2	10	5	15
10086	Lakatoang	1.0	4000.0	3200	1.5	800.0	640	3200	427	25	18	182.9	11	39.1	10	5	15
10087	Balu'eja I	1.0	4000.0	3200	1.5	800.0	640	3200	427	100	70	45.7	44	9.8	10	5	15

EVALUATION OF WATER AVAILABILITY IN SOUTH SELAWESI

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
10088	Batu'eja II	0.9	4000.0	3200	1.5	800.0	640	3556	427	150	105	33.9	66	6.5	10	5	15
10089	Bontopao	1.0	4000.0	3200	1.5	800.0	640	3200	427	75	53	61.0	33	13.0	10	5	15
10090	Barana II	0.9	3360.0	2688	1.5	225.0	180	2987	120	100	70	42.7	44	2.7	10	5	15
10091	Balakang	1.0	900.0	720	1.5	250.0	200	720	133	120	84	8.6	52	2.5	10	5	15
10092	Majangka	0.7	468.0 #	374.4	1.5	200.0	160	535	107	100	70	7.6	44	2.4	10	5	15
10093	Patontongan	0.8	1450.0	1160	1.5	215.0	172	1450	115	80	56	25.9	35	3.3	10	5	15
10094	Balutompo	0.8	1298.0	1038.4	1.5	102.0	81.6	1298	54	105	74	17.7	46	1.2	10	5	15
10095	Matilu	0.8	1510.0	1208	1.5	217.0	173.6	1510	116	75	53	28.8	33	3.5	10	5	15
10096	Lahumutti	1.2 *	1320.0	1056	1.5	212.0	169.6	880	113	75	53	16.8	33	3.5	10	5	15
10097	Borongkondo	0.9	1336.0	1068.8	1.5	225.0	180	1188	120	100	70	17.0	44	2.7	10	5	15
10098	Bontorihu	0.9	1200.0	960	1.5	560.0	448	1067	299	140	98	10.9	61	4.9	10	5	15
10099	Kadieng	0.9	732.0	585.6	1.7	301.0	240.8	651	142	224	157	4.1	98	1.4	10	5	15
10100	Tinurung	0.9	7120.0	5696	1.5	205.0	164	6329	109	100	70	90.4	44	2.5	10	5	15
10101	Galoggo	0.9	932.0	745.6	1.7	315.0	252	828	148	100	70	11.8	44	3.4	10	5	15
10102	Kabibing	1.0	2350.0	1880	1.6	166.0	132.8	1880	83	60	42	44.8	26	3.2	10	5	15
10103	Bassaran	1.0	300.0	240	1.5	450.0	360	240	240	20	14	17.1	9	27.5	10	5	15
10104	Hiba	1.0	7500.0	6000	1.0	5000.0	4000	6000	4000	100	70	85.7	44	91.6	10	5	15
10105	Lalantedong	1.0	2600.0	2080	1.5	460.0	368	2080	245	557	390	5.3	243	1.0	10	5	15
10106	Kalo Baru	1.0	2000.0	1600	1.5	300.0	240	1600	160	290	203	7.9	127	1.3	10	5	15
10107	Kalo Kimba	1.0	2600.0 #	2080	1.5	900.0 #	720	2080	480	147	103	20.2	64	7.5	10	5	15
10108	Sitodon	1.0	14542.0	11633.6	1.5	13220.0	10576	11634	7051	68	48	244.4	30	237.4	10	5	15
10109	Kalolang	1.0	3900.0 #	3120	1.5	7999.0	6399.2	3120	4266	180	126	24.8	79	54.3	10	5	15
10110	Kaloko	1.0	13150.0	10520	1.5	12400.0	9920	10520	6613	140	98	107.3	61	108.1	10	5	15
10112	Kambiolangi	1.0	720.0	576	1.5	520.0	416	576	277	70	49	11.8	31	9.1	10	5	15
10113	Kambiolangi	1.0	3190.0	2552	1.5	2400.0	1920	2552	1280	58	41	62.9	25	50.5	10	5	15
10114	Totallang	1.0	300.0	240	1.5	30.0	24	240	16	105	74	3.3	46	0.3	10	2	12
10115	Karindi	1.0	2400.0	1920	1.5	220.0	176	1920	117	124	87	22.1	54	2.2	10	5	15
10116	Pantawan /B	1.0	1600.0	1280	1.5	900.0	720	1280	480	31	22	59.0	14	35.4	10	5	15
10117	Parinding	1.0	2860.0 #	2288	1.3	990.0 #	792	2288	609	45	32	72.6	20	31.0	10	5	15
10118	Passaran	1.0	3000.0	2400	1.5	1500.0	1200	2400	800	110	77	31.2	48	16.7	10	5	15
10119	Pangurak	1.0	3120.0	2496	1.5	2500.0	2000	2496	1333	50	35	71.3	22	61.1	10	5	15
10120	Bulawan	1.2	14000.0	11200	1.5 *	10000.0	8000	9333	5333	174	122	76.6	76	70.2	10	5	15
10121	Dattc Malan	1.2	3120.0 #	2496	1.5 *	1080.0 #	864	2080	576	110	77	27.0	48	12.0	10	5	15
10122	Gegge /Leon	1.0	4840.0	3872	1.3	3850.0	3080	3872	2369	120	84	46.1	52	45.2	10	5	15
10123	Awo	1.0	2100.0	1680	1.5	900.0	720	1680	480	150	105	16.0	66	7.3	10	5	15
10124	Sengka	1.2 *	1700.0	1360	1.5 *	800.0	640	1133	427	191	134	8.5	83	5.1	10	5	15
10125	Kao /Tantid	1.0	3440.0	2752	1.5	1800.0	1440	2752	960	100	70	39.3	44	22.0	10	5	15
10126	Tua	1.0	1040.0 #	832	1.5	360.0 #	288	832	192	150	105	7.9	66	2.9	10	5	15
10127	Dadeko	1.0	225.0	180	1.5	125.0	100	180	67	80	56	3.2	35	1.9	10	5	15
10128	Karrang	1.0	1820.0 #	1456	2.5	630.0 #	504	1456	202	20	14	104.0	9	23.1	10	5	15
10129	S. Durian	1.0	1300.0 #	1040	2.5	450.0 #	360	1040	144	75	53	19.8	33	4.4	10	5	15
10130	Membura	1.0	255.0	204	1.5	233.0	186.4	204	124	57	40	5.1	25	5.0	10	5	15
10131	Salu Gewang	1.0	233.0	186.4	1.5	204.0	163.2	186	109	36	25	7.4	16	6.9	10	5	15
10132	Baraka	1.0	207.0	165.6	1.5	194.0	155.2	166	103	42	29	5.6	18	5.6	10	5	15
10133	Baringin	1.0	6605.0	5284	1.5	4850.0	3880	5284	2587	30	21	251.6	13	197.4	10	5	15

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
10134	Salu Dara	1.0	2040.0	1632	1.5	1860.0	1488	1632	992	42	29	55.5	18	54.1	10	5	15
10135	Sarassang	1.0	1500.0	1200	1.5	1365.0	1092	1200	728	34	24	50.4	15	49.0	10	5	15
10136	S.Noran	1.0	7250.0	5800	1.5	675.0	540	5800	360	100	70	82.9	44	8.2	10	5	15
10138	Salu Kalama	1.0	7500.0	6000	1.5	5000.0	4000	6000	2667	30	21	285.7	13	203.5	10	5	15
10139	Lembang Pan	1.2	250.0	200	1.2	50.0	40	167	33	200	140	1.2	87	0.4	10	2	12
10140	Lembong Bat	1.2	400.0	320	1.3	100.0	80	267	62	76	53	5.0	33	1.9	10	5	15
10141	Gantarang	1.2	400.0	320	1.3	150.0	120	267	92	150	105	2.5	66	1.4	10	5	15
10142	Panaikang	1.2	600.0	480	1.3	300.0	240	400	185	200	140	2.9	87	2.1	10	5	15
10143	Baliti	1.2	12000.0	9600	1.3	150.0	120	8000	92	225	158	50.8	98	0.9	10	5	15
10144	Paburuang	1.2	150.0	120	1.3	50.0	40	100	31	150	105	1.0	66	0.5	10	2	12
10145	Kampania	1.2	8000.0	6400	1.3	300.0	240	5333	185	200	140	38.1	87	2.1	10	5	15
10146	Patalasang	1.2	200.0	160	1.3	75.0	60	133	46	150	105	1.3	66	0.7	10	4	14
10147	Aerelemban	1.2	250.0	200	1.3	150.0	120	167	92	150	105	1.6	66	1.4	10	5	15
10148	Panting	1.2	250.0	200	1.3	150.0	120	167	92	200	140	1.2	87	1.1	10	5	15
10149	Jenebatu	1.2	800.0	640	1.3	100.0	80	533	62	100	70	7.6	44	1.4	10	5	15
10150	Nyulu	1.2	300.0	240	1.3	100.0	80	200	62	100	70	2.9	44	1.4	10	5	15
10151	Gonra	1.2	8000.0	6400	1.3	150.0	120	5333	92	150	105	50.8	66	1.4	10	5	15
10152	Tonrang	1.2	10000.0	8000	1.3	235.0	188	6667	145	210	147	45.4	92	1.6	10	5	15
10153	Bangkengtet	1.2	300.0 #	240	1.3	40.0 #	32	200	25	150	105	1.9	66	0.4	10	2	12
10154	Pitape	1.2	250.0	200	1.3	100.0	80	167	62	100	70	2.4	44	1.4	10	5	15
10155	Sulurang	1.2	13000.0 #	10400	1.3	4500.0 #	3600	8667	2769	150	105	82.5	66	42.3	10	5	15
10156	Birangloe	1.2	200.0	160	1.3	50.0	40	133	31	125	88	1.5	55	0.6	10	3	13
10157	Soga/Datara	1.2	520.0	416	1.3	180.0 #	144	347	111	235	165	2.1	103	1.1	10	5	15
10158	Balangnabod	1.2	100.0	80	1.5 *	0.0	0	67	0	100	70	1.0	44	0.0	10	0	10
10159	Kalampeto	1.2	45000.0	36000	1.3	500.0	400	30000	308	250	175	171.4	109	2.8	10	5	15
10160	Tangkuluka	1.2	45000.0	36000	1.3	500.0	400	30000	308	150	105	285.7	66	4.7	10	5	15
10161	Tantalisi	1.2	8000.0	6400	1.3	150.0	120	5333	92	150	105	50.8	66	1.4	10	5	15
10162	Barobbo	1.2	7000.0	5600	1.3	150.0	120	4667	92	200	140	33.3	87	1.1	10	5	15
10163	Tabuakang	1.2	6500.0	5200	1.3	225.0	180	4333	138	150	105	41.3	66	2.1	10	5	15
10164	Kassikebo	1.2	900.0 #	720	1.3	2600.0 #	2080	600	1600	85	60	10.1	37	43.1	10	5	15
10165	Pabundukang	1.2	22400.0	17920	1.3	500.0	400	14933	308	220	154	97.0	96	3.2	10	5	15
10166	Pattiro	1.2	500.0	400	1.4	20.0	16	333	11	144	101	3.3	63	0.2	10	1	11
10167	Punagaya	1.2	5000.0	4000	1.3	100.0	80	3333	62	150	105	31.7	66	0.9	10	5	15
10168	Panrita	1.2	500.0	400	1.3	55.0	44	333	34	65	46	7.3	28	1.2	10	5	15
10169	Passaukang	1.2	6500.0	5200	1.3	100.0	80	4333	62	200	140	31.0	87	0.7	10	4	14
10170	Bontonompo	1.2	15000.0	12000	1.3	200.0	160	10000	123	200	140	71.4	87	1.4	10	5	15
10171	Pao-pao	1.2	11520.0	9216	1.3	150.0	120	7680	92	150	105	73.1	66	1.4	10	5	15
10172	Kompasa	1.2	6000.0	4800	1.2	500.0	400	4000	333	200	140	28.6	87	3.8	10	5	15
10173	Tangaparang	1.2	250.0	200	1.3	150.0	120	167	92	70	49	3.4	31	3.0	10	5	15
10174	Bungaeja	1.2	50.0	40	1.3	50.0	40	33	31	50	35	1.0	22	1.4	10	5	15
10175	Swadiri	1.2	400.0	320	1.4	200.0	160	267	114	85	60	4.5	37	3.1	10	5	15
10176	Samanggi	1.2	200.0	160	1.3	100.0	80	133	62	148	104	1.3	65	1.0	10	5	15
10177	Puca	1.2	200.0	160	1.4	108.0	86.4	133	62	40	28	4.8	17	3.5	10	5	15
10178	Tombolo	1.2	300.0	240	1.4	125.0	100	200	71	75	53	3.8	33	2.2	10	5	15
10180	Bulumarupa	1.2	700.0	560	1.4	150.0	120	467	86	150	105	4.4	66	1.3	10	5	15

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)		(9)x0.7	(7)/(10)	(9)x0.62	(8)/(12)			(14)+(15)
10182	Mario I-II-	1.2	300.0	240	1.4	100.0	80	200	57	57	40	5.0	25	2.3	10	5	15
10183	Matajang I	1.2	125.0	100	1.4	75.0	60	83	43	125	88	1.0	55	0.8	10	4	13
10184	Mahaka	1.2	200.0	160	1.5	80.0	64	133	43	80	56	2.4	35	1.2	10	5	15
10185	Sawaru	1.2	250.0	200	1.3	100.0	80	167	62	102	71	2.3	45	1.4	10	5	15
10186	Bontoa	1.2	150.0	120	1.4	90.0	72	100	51	68	48	2.1	30	1.7	10	5	15
10187	Panagi	1.2	200.0	160	1.4	100.0	80	133	57	100	70	1.9	44	1.3	10	5	15
10188	Malaka	1.2	200.0	160	1.4	60.0	48	133	34	119	83	1.6	52	0.7	10	3	13
10189	Matanre	1.2	200.0	160	1.4	114.0	91.2	133	65	94	66	2.0	41	1.6	10	5	15
10190	Bontotanga	1.2	150.0	120	1.3	75.0	60	100	46	100	70	1.4	44	1.1	10	5	15
10191	Makdenge &	1.2	150.0	120	1.4	50.0	40	100	29	100	70	1.4	44	0.7	10	3	13
10192	Bulu-bulu	1.2	120.0	96	1.3	50.0	40	80	31	105	74	1.1	46	0.7	10	3	13
10193	Malempong	1.2	200.0	160	1.3	80.0	64	133	49	140	98	1.4	61	0.8	10	4	14
10194	Wanuawaru	1.3	200.0	160	1.4	130.0	104	123	74	130	91	1.4	57	1.3	10	5	15
10195	Lasipeppa	1.0	1800.0	1440	1.5	100.0	80	1440	53	265	186	7.8	116	0.5	10	2	12
10196	Bangkeng la	0.9	2000.0	1600	1.2	1400.0	1120	1778	933	30	21	84.7	13	71.2	10	5	15
10197	Arongo II	1.2 *	1300.0 #	1040	1.5	450.0 #	360	867	240	30	21	41.3	13	18.3	10	5	15
10198	Rumpala	0.9	3500.0	2800	1.7	2600.0	2080	3111	1224	45	32	98.8	20	82.2	10	5	15
10199	Buke I & II	0.9	1500.0	1200	1.5	1300.0	1040	1333	693	125	88	15.2	55	12.7	10	5	15
10200	Pakelli I	0.9	2000.0	1600	1.5	1500.0	1200	1778	800	180	126	14.1	79	10.2	10	5	15
10201	Pakelli II	0.9	2000.0	1600	1.9	1500.0	1200	1778	632	54	38	47.0	24	26.8	10	5	15
10202	Kalibong	0.9	6000.0	4800	1.7	2800.0	2240	5333	1318	17	12	448.2	7	177.4	10	5	15
10203	Kanrung	1.2 *	2600.0 #	2080	1.5	900.0 #	720	1733	480	30	21	82.5	13	36.6	10	5	15
10204	Ciping	0.7	6000.0	4800	1.5	1800.0	1440	6857	960	25	18	391.8	11	87.9	10	5	15
10205	Kabba	0.9	6000.0	4800	1.6	4000.0	3200	5333	2133	145	102	52.5	63	33.7	10	5	15
10206	Lebba	0.7	6000.0	4800	1.5	4000.0	3200	6857	2133	125	88	78.4	55	39.1	10	5	15
10207	Laiya	0.9	6000.0	4800	1.7	4000.0	3200	5333	1882	75	53	101.6	33	57.5	10	5	15
10208	Galungtoa	0.7	3000.0	2400	1.5	1500.0	1200	3429	800	270	189	18.1	118	6.8	10	5	15
10209	Kajade	1.2 *	5980.0 #	4784	1.5 *	2070.0 #	1656	3987	1104	200	140	28.5	87	12.6	10	5	15
10210	Seppae	1.2 *	624.0 #	499.2	1.5 *	216.0 #	172.8	416	115	150	105	4.0	66	1.8	10	5	15
10211	Ompo I	1.2 *	3900.0 #	3120	1.5 *	1350.0 #	1080	2600	720	60	42	61.9	26	27.5	10	5	15
10212	Latana	1.2 *	3900.0 #	3120	1.5 *	1350.0 #	1080	2600	720	150	105	24.8	66	11.0	10	5	15
10213	Ladope	1.2 *	1820.0 #	1456	1.5 *	630.0 #	504	1213	336	100	70	17.3	44	7.7	10	5	15
10215	Galung Lang	1.2 *	1820.0 #	1456	1.5	630.0 #	504	1213	336	100	70	17.3	44	7.7	10	5	15
10216	Iree/Cenran	1.5	15000.0	12000	2.0	12000.0	9600	8000	4800	215	151	53.2	94	51.1	10	5	15
10217	Cenranae II	1.5	42000.0	33600	3.0	40000.0	32000	22400	10667	85	60	376.5	37	287.3	10	5	15
10218	Cenranae IV	1.5	300.0	240	3.0	150.0	120	160	40	100	70	2.3	44	0.9	10	5	15
10219	Peneki	1.5	11000.0	8800	3.0	7500.0	6000	5867	2000	150	105	55.9	66	30.5	10	5	15
10220	Lokading/Sa	1.5	9450.0	7560	2.5	7250.0	5800	5040	2320	70	49	102.9	31	75.9	10	5	15
10221	Lagosi II/S	1.5	250.0	200	3.0	50.0	40	133	13	150	105	1.3	66	0.2	10	1	11
10225	Sakkoli/Dop	1.5	32500.0	26000	2.0	31000.0	24800	17333	12400	150	105	165.1	66	189.3	10	5	15
10226	Mualla /Cin	1.5	12000.0	9600	2.0	400.0	320	6400	160	100	70	91.4	44	3.7	10	5	15
10227	Linipua /la	1.5	7000.0	5600	2.0	1500.0	1200	3733	600	138	97	38.6	60	10.0	10	5	15
10228	Pao-Pao	1.5	15000.0	12000	2.0	660.0	528	8000	264	60	42	190.5	26	10.1	10	5	15
10229	danau latap	2.0	12000.0	9600	2.5	700.0	560	4800	224	400	280	17.1	175	1.3	10	5	15
10230	tarampakkae	1.5	13000.0	10400	2.0	1200.0	960	6933	480	150	105	66.0	66	7.3	10	5	15

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		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
10232	Kerabera	1.5	18000.0	14400	2.0	1500.0	1200	9600	600	100	70	137.1	44	13.7	10	5	15
10233	Pilallang	1.5	15000.0	12000	2.0	5100.0	4080	8000	2040	192	134	59.5	84	24.3	10	5	15
10234	Labong(Piam	1.5	2080.0 #	1664	2.0	1350.0	1080	1109	540	150	105	10.6	66	8.2	10	5	15
10235	Tanlung	1.5	13000.0	10400	2.5	1200.0	960	6933	384	200	140	49.5	87	4.4	10	5	15
10236	Salo-Bulo	1.0	1820.0 #	1456	1.5	630.0 #	504	1456	336	150	105	13.9	66	5.1	10	5	15
10238	Lameri	1.2 *	4160.0 #	3328	1.5 *	1440.0 #	1152	2773	768	100	70	39.6	44	17.6	10	5	15
10239	Pacciro/Akk	1.2 *	4420.0 #	3536	1.5 *	1530.0 #	1224	2947	816	20	14	210.5	9	93.4	10	5	15
10240	Lompoe/Cara	1.2 *	5200.0 #	4160	1.5 *	1800.0 #	1440	3467	960	150	105	33.0	66	14.7	10	5	15
10241	Pattiro	1.2 *	10400.0 #	8320	1.5 *	3600.0 #	2880	6933	1920	40	28	247.6	17	109.9	10	5	15
10242	Tanette Pan	1.2 *	6500.0 #	5200	1.5 *	2250.0 #	1800	4333	1200	50	35	123.8	22	54.9	10	5	15
10243	Batu Lotong	1.2 *	1300.0 #	1040	1.5 *	450.0 #	360	867	240	50	35	24.8	22	11.0	10	5	15
10244	Rumbia II	1.2 *	7800.0 #	6240	1.5 *	2700.0 #	2160	5200	1440	100	70	74.3	44	33.0	10	5	15
10245	Rumbia I	1.2 *	6500.0 #	5200	1.5 *	2250.0 #	1800	4333	1200	100	70	61.9	44	27.5	10	5	15
10246	Sambueja	1.2 *	1300.0 #	1040	1.5 *	450.0 #	360	867	240	100	70	12.4	44	5.5	10	5	15
10247	Swadiri	1.2 *	5200.0 #	4160	1.5 *	1800.0 #	1440	3467	960	150	105	33.0	66	14.7	10	5	15
10248	Akkajeng'e	1.2 *	5200.0 #	4160	1.5 *	1800.0 #	1440	3467	960	200	140	24.8	87	11.0	10	5	15
10249	Lamalampe	1.2 *	3900.0 #	3120	1.5 *	1350.0 #	1080	2600	720	150	105	24.8	66	11.0	10	5	15
10250	Labawi	1.2 *	5200.0 #	4160	1.5 *	1800.0 #	1440	3467	960	180	126	27.5	79	12.2	10	5	15
10251	DI. Tobangk	1.2 *	5200.0 #	4160	1.5 *	1800.0 #	1440	3467	960	300	210	16.5	131	7.3	10	5	15
10252	Bontoraja	1.2 *	3900.0 #	3120	1.5 *	1350.0 #	1080	2600	720	80	56	46.4	35	20.6	10	5	15
10253	Batudoli	1.2 *	2600.0 #	2080	1.5 *	900.0 #	720	1733	480	400	280	6.2	175	2.7	10	5	15
10271	LUMARING	1.2 *	6500.0 #	5200	1.5 *	3125.0	2500	4333	1667	102	71	60.7	45	37.4	10	5	15
10272	SAMPANO	1.2 *	11250.0	9000	1.5 *	3750.0	3000	7500	2000	234	164	45.8	102	19.6	10	5	15
10273	LALENTO	1.2 *	9375.0	7500	1.5 *	3125.0	2500	6250	1667	300	210	29.8	131	12.7	10	5	15
10274	TEMBOE	1.2 *	11250.0	9000	1.5 *	3750.0	3000	7500	2000	200	140	53.6	87	22.9	10	5	15
10275	M A L O S O	1.2 *	1600.0	1280	1.5 *	400.0	320	1067	213	60	42	25.4	26	8.1	10	5	15
10276	TOASYIK	1.2 *	3800.0	3040	1.5 *	600.0	480	2533	320	120	84	30.2	52	6.1	10	5	15
10277	B A M B A	1.2 *	3600.0	2880	1.5 *	500.0	400	2400	267	190	133	18.0	83	3.2	10	5	15
10278	KADINGE	1.2 *	7500.0	6000	1.5 *	2500.0	2000	5000	1333	170	119	42.0	74	18.0	10	5	15
10279	KAIYANG/TOM	1.2 *	7500.0	6000	1.5 *	2500.0	2000	5000	1333	280	196	25.5	122	10.9	10	5	15
10280	TIROMUNDA	1.2 *	1600.0	1280	1.5 *	400.0	320	1067	213	100	70	15.2	44	4.9	10	5	15
10281	MURANDE	1.2 *	2000.0	1600	1.5 *	300.0	240	1333	160	60	42	31.7	26	6.1	10	5	15
10282	PADANG LAMB	1.2 *	6000.0	4800	1.5 *	2000.0	1600	4000	1067	317	222	18.0	138	7.7	10	5	15
10283	BARANG MAMA	1.2 *	3500.0	2800	1.5 *	700.0	560	2333	373	200	140	16.7	87	4.3	10	5	15
10284	TALLUARA	1.2 *	2000.0	1600	1.5 *	700.0	560	1333	373	125	88	15.2	55	6.8	10	5	15
10287	MALIMBU	1.2 *	22500.0	18000	1.5 *	7500.0	6000	15000	4000	32	22	669.6	14	286.2	10	5	15
10288	PARARA MALA	1.2 *	13125.0	10500	1.5 *	4375.0	3500	8750	2333	32	22	390.6	14	166.9	10	5	15
10291	POTANTTU	1.2 *	2600.0 #	2080	1.5 *	3000.0	2400	1733	1600	100	70	24.8	44	36.6	10	5	15
10292	BAEBUNTA	1.2 *	2600.0 #	2080	1.5 *	3000.0	2400	1733	1600	40	28	61.9	17	91.6	10	5	15
10293	S A S S A	1.2 *	2600.0 #	2080	1.5 *	2670.0	2136	1733	1424	50	35	49.5	22	65.2	10	5	15
10294	BEBESUK	1.2 *	15750.0	12600	1.5 *	5250.0	4200	10500	2800	240	168	62.5	105	26.7	10	5	15
10295	SALULAIYA	1.2 *	4500.0	3600	1.5 *	1500.0	1200	3000	800	100	70	42.9	44	18.3	10	5	15
10296	WALU-WALU	1.2 *	1560.0 #	1248	1.5 *	4500.0	3600	1040	2400	240	168	6.2	105	22.9	10	5	15
10297	KALUKU	1.2 *	3950.0	3160	1.5 *	1300.0	1040	2633	693	75	53	50.2	33	21.2	10	5	15
10298	TANDUNG	1.2 *	15000.0	12000	1.5 *	5000.0	4000	10000	2667	30	21	476.2	13	203.5	10	5	15

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		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
10299	POMPALANGI	1.2 *	12000.0	9600	1.5 *	4000.0	3200	8000	2133	70	49	163.3	31	69.8	10	5	15
10300	PATILLA II	1.2 *	1000.0	800	1.5 *	500.0	400	667	267	50	35	19.0	22	12.2	10	5	15
10301	PATILLA I	1.2 *	1000.0	800	1.5 *	500.0	400	667	267	150	105	6.3	66	4.1	10	5	15
10302	K A L U A	1.2 *	1000.0	800	1.5 *	200.0	160	667	107	100	70	9.5	44	2.4	10	5	15
10303	TOLIKU	1.2 *	187.5	150	1.5 *	62.5	50	125	33	80	56	2.2	35	1.0	10	5	15
10304	PALINO	1.2 *	4800.0	3840	1.5 *	1600.0	1280	3200	853	60	42	76.2	26	32.6	10	5	15
10305	MEBALI	1.2 *	1560.0	1248	1.5 *	520.0	416	1040	277	55	39	27.0	24	11.5	10	5	15
10306	SAPANRA' BA	1.2 *	3000.0	2400	1.5 *	1000.0	800	2000	533	110	77	26.0	48	11.1	10	5	15
10307	SAMPANG BAT	1.2 *	2000.0	1600	1.5 *	500.0	400	1333	267	50	35	38.1	22	12.2	10	5	15
10308	DI. SAMPANG	1.2 *	600.0	480	1.5 *	500.0	400	400	267	60	42	9.5	26	10.2	10	5	15
10309	DI. KADA	1.2 *	2625.0	2100	1.5 *	875.0	700	1750	467	100	70	25.0	44	10.7	10	5	15
10310	KOMBA II	1.2 *	375.0	300	1.5 *	125.0	100	250	67	100	70	3.6	44	1.5	10	5	15
10311	S A P A N	1.2 *	9000.0	7200	1.5 *	3000.0	2400	6000	1600	100	70	85.7	44	36.6	10	5	15
10312	BOMBO WAY	1.2 *	9000.0	7200	1.5 *	3000.0	2400	6000	1600	100	70	85.7	44	36.6	10	5	15
10313	LOMBOK SODE	1.2 *	8250.0	6600	1.5 *	2750.0	2200	5500	1467	70	49	112.2	31	48.0	10	5	15
10314	MARARA	1.2 *	6000.0	4800	1.5 *	2000.0	1600	4000	1067	100	70	57.1	44	24.4	10	5	15
10315	TO' BATU	1.2 *	500.0	400	1.5 *	180.0	144	333	96	75	53	6.3	33	2.9	10	5	15
10316	BUTU TONGKO	1.2 *	1000.0	800	1.5 *	350.0	280	667	187	95	67	10.0	41	4.5	10	5	15
10317	T A U R A	1.2 *	2080.0 #	1664	1.5 *	6000.0	4800	1387	3200	150	105	13.2	66	48.8	10	5	15
10318	PA' DATTERAN	1.2 *	9000.0	7200	1.5 *	3000.0	2400	6000	1600	100	70	85.7	44	36.6	10	5	15
10319	MATASALU	1.2 *	3000.0	2400	1.5 *	1000.0	800	2000	533	160	112	17.9	70	7.6	10	5	15
10320	SALUASA	1.2 *	750.0	600	1.5 *	250.0	200	500	133	200	140	3.6	87	1.5	10	5	15
10321	BELALANG	1.2 *	15000.0	12000	1.5 *	5000.0	4000	10000	2667	100	70	142.9	44	61.1	10	5	15
10322	BURASEA	1.2 *	6000.0	4800	1.5 *	2000.0	1600	4000	1067	112	78	51.0	49	21.8	10	5	15
10323	SA' TANDUNG	1.2 *	6750.0	5400	1.5 *	2250.0	1800	4500	1200	50	35	128.6	22	54.9	10	5	15
10324	S. PUTTI	1.2 *	6000.0	4800	1.5 *	3000.0	2400	4000	1600	150	105	38.1	66	24.4	10	5	15
10325	SALU RANO	1.2 *	4500.0	3600	1.5 *	1500.0	1200	3000	800	125	88	34.3	55	14.7	10	5	15
10326	O R O N G	1.2 *	1312.5	1050	1.5 *	437.5	350	875	233	80	56	15.6	35	6.7	10	5	15
10327	SINAE	1.2 *	700.0	560	1.5 *	350.0	280	467	187	100	70	6.7	44	4.3	10	5	15
10328	K A N A K A	1.2 *	4500.0	3600	1.5 *	1500.0	1200	3000	800	50	35	85.7	22	36.6	10	5	15
10329	LEWANGAN	1.2 *	3500.0	2800	1.5 *	1200.0	960	2333	640	140	98	23.8	61	10.5	10	5	15
10330	MATANDE	1.2 *	600.0	480	1.5 *	250.0	200	400	133	100	70	5.7	44	3.1	10	5	15
10331	SUNGAI URU	1.2 *	2625.0	2100	1.5 *	875.0	700	1750	467	70	49	35.7	31	15.3	10	5	15
10332	SALU A' KUNG	1.2 *	13500.0	10800	1.5 *	4500.0	3600	9000	2400	26	18	494.5	11	211.3	10	5	15
10333	TO' KARAU	1.2 *	2500.0	2000	1.5 *	1000.0	800	1667	533	90	63	26.5	39	13.6	10	5	15
10334	PASANG	1.2 *	2900.0	2320	1.5 *	700.0	560	1933	373	200	140	13.8	87	4.3	10	5	15
10335	PA' BASEAN D	1.2 *	10500.0	8400	1.5 *	3500.0	2800	7000	1867	90	63	111.1	39	47.5	10	5	15
10336	PASANBONWAY	1.2 *	37500.0	30000	1.5 *	12500.0	10000	25000	6667	100	70	357.1	44	152.6	10	5	15
10337	MATAKALI	1.2 *	1120.0	896	1.5 *	224.0	179.2	747	119	75	53	14.2	33	3.6	10	5	15
10338	B A T U	1.2 *	820.0	656	1.5 *	164.0	131.2	547	87	90	63	8.7	39	2.2	10	5	15
10339	SALUPANGI	1.2 *	950.0	760	1.5 *	190.0	152	633	101	80	56	11.3	35	2.9	10	5	15
10340	TAYANG PAMM	1.2 *	1335.0	1068	1.5 *	267.0	213.6	890	142	90	63	14.1	39	3.6	10	5	15
10341	M A M M I	1.2 *	90.0	72	1.5 *	23.0	18.4	60	12	45	32	1.9	20	0.6	10	3	13
10342	AMOLA	1.2 *	4000.0	3200	1.5 *	1000.0	800	2667	533	70	49	54.4	31	17.4	10	5	15
10343	TANDAKAN	1.2 *	1800.0	1440	1.5 *	360.0	288	1200	192	60	42	28.6	26	7.3	10	5	15

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
10344	KALEOK	1.2 *	390.0	312	1.5 *	98.0	78.4	260	52	65	46	5.7	28	1.8	10	5	15
10345	BUTTU LAMBA	1.2 *	9375.0	7500	1.5 *	3125.0	2500	6250	1667	70	49	127.6	31	54.5	10	5	15
10346	SILOPO	1.2 *	6000.0	4800	1.5 *	2000.0	1600	4000	1067	160	112	35.7	70	15.3	10	5	15
10347	PAPANDANGAN	1.2 *	450.0	360	1.5 *	90.0	72	300	48	80	56	5.4	35	1.4	10	5	15
10348	K U N Y I	1.2 *	253.0	202.4	1.5 *	50.0	40	169	27	45	32	5.4	20	1.4	10	5	15
10350	GALUNG LOMB	1.2 *	264.0	211.2	1.5 *	138.0	110.4	176	74	80	56	3.1	35	2.1	10	5	15
10351	LAMASE	1.2 *	200.0	160	1.5 *	105.0	84	133	56	70	49	2.7	31	1.8	10	5	15
10352	TANDUNG	1.2 *	2120.0	1696	1.5 *	424.0	339.2	1413	226	250	175	8.1	109	2.1	10	5	15
10353	BATU ALANG	1.2 *	2250.0	1800	1.5 *	750.0	600	1500	400	60	42	35.7	26	15.3	10	5	15
10354	S. MARIRI	1.2 *	6375.0	5100	1.5 *	2125.0	1700	4250	1133	63	44	96.4	28	41.2	10	5	15
10355	TABONE	1.2 *	9000.0	7200	1.5 *	3000.0	2400	6000	1600	30	21	285.7	13	122.1	10	5	15
10356	SALO RATTE	1.2 *	375.0	300	1.5 *	125.0	100	250	67	55	39	6.5	24	2.8	10	5	15
10357	MAKAU	1.2 *	3000.0	2400	1.5 *	750.0	600	2000	400	115	81	24.8	50	8.0	10	5	15
10358	L O K O	1.2 *	1500.0	1200	1.5 *	700.0	560	1000	373	200	140	7.1	87	4.3	10	5	15
10359	P A R A K	1.2 *	2000.0	1600	1.5 *	1000.0	800	1333	533	200	140	9.5	87	6.1	10	5	15
10360	OROBUA/UEKA	1.2 *	1040.0 #	832	1.5 *	3000.0	2400	693	1600	62	44	15.9	27	58.8	10	5	15
10361	SALO BUE	1.2 *	2250.0	1800	1.5 *	750.0	600	1500	400	58	41	36.9	25	15.8	10	5	15
10362	S. PONGKO	1.2 *	6000.0	4800	1.5 *	2000.0	1600	4000	1067	40	28	142.9	17	61.1	10	5	15
10363	DI. TONDOK B	1.2 *	2080.0 #	1664	1.5 *	720.0 #	576	1387	384	75	53	26.4	33	11.7	10	5	15
10364	DI. TAWANE	1.2 *	600.0	480	1.5 *	200.0	160	400	107	75	53	7.6	33	3.3	10	5	15
10365	OSANGO	1.2 *	1040.0 #	832	1.5 *	600.0	480	693	320	200	140	5.0	87	3.7	10	5	15
10366	SARIAYO	1.2 *	1850.0	1480	1.5 *	370.0	296	1233	197	45	32	39.2	20	10.0	10	5	15
10367	PASOAN	1.2 *	206.0	164.8	1.5 *	40.0	32	137	21	30	21	6.5	13	1.6	10	5	15
10368	MAKALANGKAN	1.2 *	320.0	256	1.5 *	80.0	64	213	43	60	42	5.1	26	1.6	10	5	15
10369	PENANIAN	1.2 *	1950.0	1560	1.5 *	390.0	312	1300	208	60	42	31.0	26	7.9	10	5	15
10370	KADAKE	1.2 *	2050.0	1640	1.5 *	410.0	328	1367	219	25	18	78.1	11	20.0	10	5	15
10371	LALAKI	1.2 *	6000.0	4800	1.5 *	2000.0	1600	4000	1067	35	25	163.3	15	69.8	10	5	15
10372	BAMBANANGKA	1.2 *	780.0 #	624	1.5 *	2250.0	1800	520	1200	50	35	14.9	22	54.9	10	5	15
10373	MAKAKIA	1.2 *	1575.0	1260	1.5 *	525.0	420	1050	280	100	70	15.0	44	6.4	10	5	15
10374	LEKKONG	1.2 *	1800.0	1440	1.5 *	360.0	288	1200	192	35	25	49.0	15	12.6	10	5	15
10376	S. MAMBI	1.2 *	3000.0	2400	1.5 *	1000.0	800	2000	533	100	70	28.6	44	12.2	10	5	15
10377	MUKANAN	1.2 *	3000.0	2400	1.5 *	1000.0	800	2000	533	60	42	47.6	26	20.4	10	5	15
10378	TINGGAS	1.2 *	5625.0	4500	1.5 *	1875.0	1500	3750	1000	42	29	127.6	18	54.5	10	5	15
10379	S E S E	1.2 *	7500.0	6000	1.5 *	2500.0	2000	5000	1333	30	21	238.1	13	101.8	10	5	15
10380	B U R I N G	1.2 *	11250.0	9000	1.5 *	3750.0	3000	7500	2000	48	34	223.2	21	95.4	10	5	15
10381	BALIHANANG/	1.2 *	650.0 #	520	1.5 *	750.0	600	433	400	70	49	8.8	31	13.1	10	5	15
10382	T A O S A	1.2 *	9375.0	7500	1.5 *	3125.0	2500	6250	1667	100	70	89.3	44	38.2	10	5	15
10383	MARURINDING	1.2 *	3000.0	2400	1.5 *	1000.0	800	2000	533	52	36	54.9	23	23.5	10	5	15
10384	A N U S U	1.2 *	11250.0	9000	1.5 *	3750.0	3000	7500	2000	65	46	164.8	28	70.4	10	5	15
10385	KARANAMU	1.2 *	6750.0	5400	1.5 *	2250.0	1800	4500	1200	40	28	160.7	17	68.7	10	5	15
10386	BONDEPUTE	1.2 *	1500.0	1200	1.5 *	500.0	400	1000	267	65	46	22.0	28	9.4	10	5	15
10387	P A N I K I	1.2 *	1820.0 #	1456	1.5 *	2000.0	1600	1213	1067	200	140	8.7	87	12.2	10	5	15
10388	BATU PAPAN	1.2 *	650.0 #	520	1.5 *	1875.0	1500	433	1000	240	168	2.6	105	9.5	10	5	15
10389	PURE II	1.2 *	1040.0 #	832	1.5 *	3000.0	2400	693	1600	150	105	6.6	66	24.4	10	5	15
10390	KALUKKU	1.2 *	4000.0	3200	1.5 *	2000.0	1600	2667	1067	200	140	19.0	87	12.2	10	5	15

EVALUATION OF WATER AVAILABILITY IN SOUTH SELAWESI

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
10391	GULILING PO	1.2 *	16500.0	13200	1.5 *	5500.0	4400	11000	2933	200	140	78.6	87	33.6	10	5	15
10392	PURE I	1.2 *	13187.0	10549.6	1.5 *	4375.0	3500	8791	2333	250	175	50.2	109	21.4	10	5	15

Table III-20 EVALUATION OF WATER AVAILABILITY IN WEST NUSA TENGGARA

(1/4)

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
* LAND DEVELOPMENT *																	
43001	MOYO	1.3 *	2000	1600	1.5 *	600	480	1231	320	827	579	2.1	29	11.1	10	5	15
43002	BERINGIN SILA	1.3 *	3000	2400	1.5 *	1000	800	1846	533	503	352	5.2	18	30.3	10	5	15
43003	KUANG RAKO	1.0	2000	1600	1.0	300	240	1600	240	350	245	6.5	12	19.6	10	5	15
43004	MARENTEH	1.0	556	445	2.0	0	0	445	0	376	263	1.7	13	0.0	10	0	10
43005	LEKONG	1.0	600	480	1.0	96	77	480	77	425	298	1.6	15	5.2	10	5	15
43006	TIWU KAWA	1.0	725	580	1.0	120	96	580	96	703	492	1.2	25	3.9	10	5	15
43007	PLAMPANG	1.0	3000	2400	1.0	250	200	2400	200	400	280	8.6	14	14.3	10	5	15
43010	PLAMPO'D	1.0	140	112	1.0	0	0	112	0	300	210	0.5	11	0.0	5	0	5
43011	TARUSAN	1.0	3000	2400	1.0	750	600	2400	600	510	357	6.7	18	33.6	10	5	15
43012	JURU MAPIN	1.0	1875 #	1500	1.0	0	0	1500	0	400	280	5.4	14	0.0	10	0	10
44007	SANTONG	1.0	2600	2080	1.0	800	640	2080	640	1577	1104	1.9	662	1.0	10	5	15
44008	MAGIK KEMBAR	1.0	350	280	2.0	150	120	280	60	1,305	914	0.3	548	0.1	3	1	4
44010	REMPEK	1.0	2100	1680	2.0	350	280	1680	140	386	270	6.2	162	0.9	10	4	14
44012	PRAWIRA	1.3 *	1500 #	1200	1.5 *	0	0	923	0	40	28	33.0	17	0.0	10	0	10
45004	BILE REMONG	2.0	750	600	2.0	15	12	300	6	300	210	1.4	126	0.0	10	0	10
45010	DEMOR JENGKANG	1.5	400	320	2.0	300	240	213	120	171	120	1.8	72	1.7	10	5	15
45016	PELEMENG	2.0	374	299	2.0 *	245	196	150	98	350	245	0.6	147	0.7	6	3	9
45017	IJO DALIT	1.3 *	200	160	1.5 *	25	20	123	13	388	272	0.5	163	0.1	5	0	5
45023	LENDANG GUAR	1.5	800	640	1.3	75	60	427	46	843	590	0.7	354	0.1	7	1	8
46001	RABA KECIL	1.3	301	241	1.1	160	128	185	116	465	326	0.6	16	7.1	6	5	11
* VILLAGE IRRIGATION *																	
31004	GUNUNG WAKUL	1.3	4000	3200	1.3	550	440	2462	338	314	220	11.2	132	3	10	5	15
31005	REBAN BARU	1.3	360 #	288	1.3	120 #	96	222	74	359	251	0.9	151	0	9	2	11
31006	RUMPANG	1.5	1500	1200	1.5	3	2	800	2	75	53	15.2	32	0	10	0	10
31007	BATU PUTIK	1.5	180 #	144	1.5	60 #	48	96	32	25	18	5.5	11	3	10	5	15
31008	SIDEMEN	1.3	460	368	1.3	250	200	283	154	283	198	1.4	119	1	10	5	15
31009	EYAT TEREP	1.3	420 #	336	1.3	140 #	112	258	86	108	76	3.4	45	2	10	5	15
31010	MELEP	1.0	360 #	288	1.0	120 #	96	288	96	430	301	1.0	181	1	10	3	12
31011	PURI	1.5	180 #	144	1.5	60 #	48	96	32	51	36	2.7	21	1	10	5	15
32002	AMARAD	1.1	420 #	336	1.3	35 #	28	305	22	100	70	4.4	4	6	10	5	15
32003	DORO KORE	1.1	300 #	240	1.3	25 #	20	218	15	70	49	4.5	2	6	10	5	15
32004	KARANG BURA	1.1	600 #	480	1.3	50 #	40	436	31	27	19	23.1	1	33	10	5	15
32005	LORE/SETOLO FOO	1.1	600 #	480	1.3	50 #	40	436	31	80	56	7.8	3	11	10	5	15
32007	KOCABO WAWO	1.1	780 #	624	1.3	65 #	52	567	40	140	98	5.8	5	8	10	5	15
32008	KALATE KOCU	1.1	360 #	288	1.3	30 #	24	262	18	100	70	3.7	4	5	10	5	15
32013	MADA MANINI	1.1	360 #	288	1.3	30 #	24	262	18	100	70	3.7	4	5	10	5	15
32016	LANGGODU	1.1	480 #	384	1.3	40 #	32	349	25	50	35	10.0	2	14	10	5	15
32017	NCANGA	1.1	480 #	384	1.3	40 #	32	349	25	50	35	10.0	2	14	10	5	15
32020	WOKO.I	1.1	780 #	624	1.3	65 #	52	567	40	40	28	20.3	1	29	10	5	15
33002	UMPUNGKA	1.3 *	660 #	528	1.3	60 #	48	406	37	150	105	3.9	5	7	10	5	15
33048	KARUAK	1.1	825 #	660	1.3	75 #	60	600	46	100	70	8.6	4	13	10	5	15
33006	TANONG/LABUHAN	1.1	550 #	440	1.3	50 #	40	400	31	113	79	5.1	4	8	10	5	15
33005	BANETE	1.0	385 #	308	1.2	35 #	28	308	23	148	104	3.0	5	5	10	5	15

EVALUATION OF WATER AVAILABILITY IN WEST NUSA TENGGARA

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
33061	EMPANG SABAWA	1.1	935 #	748	1.3	85 #	68	680	52	80	56	12.1	3	19	10	5	15
33007	LOPOK BAWA	1.1	550 #	440	1.3	50 #	40	400	31	200	140	2.9	7	4	10	5	15
33010	AI PUNTUK	1.1	385 #	308	1.3	35 #	28	280	22	50	35	8.0	2	12	10	5	15
33009	ORONG BALE KEBA	1.1	0 #	0	1.3	0 #	0	0	0	70	49	0.0	2	0	0	0	0
33044	ORONG BATU JANGO	1.1	165 #	132	1.3	15 #	12	120	9	35	25	4.9	1	8	10	5	15
33017	ORONG LENGAS	1.1	165 #	132	1.3	15 #	12	120	9	45	32	3.8	2	6	10	5	15
33013	ORONG MASIN	1.3 *	825 #	660	1.5 *	75 #	60	508	40	40	28	18.1	1	29	10	5	15
33015	ORONG SERADING	1.1	275 #	220	1.3	25 #	20	200	15	50	35	5.7	2	9	10	5	15
33012	ORONG TELAGA	1.1	825 #	660	1.3	75 #	60	600	46	25	18	34.3	1	53	10	5	15
33019	AYAN	1.1	495 #	396	1.3	45 #	36	360	28	90	63	5.7	3	9	10	5	15
33043	KEMANG KUNING	1.1	935 #	748	1.3	85 #	68	680	52	75	53	13.0	3	20	10	5	15
33046	PENYAUNG	1.1	1100 #	880	1.3	100 #	80	800	62	100	70	11.4	4	18	10	5	15
33047	SABURUNG ATAS	1.1	825 #	660	1.3	75 #	60	600	46	65	46	13.2	2	20	10	5	15
33014	UMA BARU (NIJANG)	1.1	220 #	176	1.3	20 #	16	160	12	30	21	7.6	1	12	10	5	15
33042	ORONG BAKO ATAS	1.1	1100 #	880	1.3	100 #	80	800	62	55	39	20.8	2	32	10	5	15
33024	ORONG BAKO BAWAH	1.1	220 #	176	1.3	20 #	16	160	12	45	32	5.1	2	8	10	5	15
33025	PAKAT	1.1	110 #	88	1.3	10 #	8	80	6	155	109	0.7	5	1	7	5	12
33020	SABEDO	1.1	1100 #	880	1.3	100 #	80	800	62	200	140	5.7	7	9	10	5	15
33021	BATU ALANG	1.1	1650 #	1320	1.3	150 #	120	1200	92	100	70	17.1	4	26	10	5	15
33060	SEMINGKAR	1.1	550 #	440	1.3	50 #	40	400	31	47	33	12.2	2	19	10	5	15
33045	ORONG TOAN	1.1	165 #	132	1.3	15 #	12	120	9	60	42	2.9	2	4	10	5	15
33040	AI NUNUNG	1.1	275 #	220	1.3	25 #	20	200	15	40	28	7.1	1	11	10	5	15
33036	AI SELALO	1.1	220 #	176	1.3	20 #	16	160	12	77	54	3.0	3	5	10	5	15
33050	TARUTUM	1.1	1100 #	880	1.3	100 #	80	800	62	60	42	19.0	2	29	10	5	15
33041	ORONG MALA	1.1	275 #	220	1.3	25 #	20	200	15	200	140	1.4	7	2	10	5	15
33039	AI MALIN	1.1	275 #	220	1.3	25 #	20	200	15	75	53	3.8	3	6	10	5	15
33031	GAMENTE	1.1	1100 #	880	1.3	100 #	80	800	62	25	18	45.7	1	70	10	5	15
33056	UMA LEBANG	1.1	1375 #	1100	1.3	125 #	100	1000	77	127	89	11.2	4	17	10	5	15
33030	ORANG PAMONGKA	1.1	825 #	660	1.3	75 #	60	600	46	25	18	34.3	1	53	10	5	15
33059	BANTIL	1.1	770 #	616	1.3	70 #	56	560	43	50	35	16.0	2	25	10	5	15
33054	P E L A T	1.1	935 #	748	1.3	85 #	68	680	52	95	67	10.2	3	16	10	5	15
33053	ORANG LAMEK	1.1	660 #	528	1.3	60 #	48	480	37	40	28	17.1	1	26	10	5	15
33055	TIUKAPAS	1.1	825 #	660	1.3	75 #	60	600	46	60	42	14.3	2	22	10	5	15
33029	PEMANGAL	1.1	1650 #	1320	1.3	150 #	120	1200	92	75	53	22.9	3	35	10	5	15
33018	REBANSAHE	1.1	825 #	660	1.3	75 #	60	600	46	95	67	9.0	3	14	10	5	15
34002	MENDALA	1.5	900 #	720	2.0	300 #	240	480	120	75	53	9.1	32	4	10	5	15
34003	LOKOK PELOK	1.5	720 #	576	2.0	240 #	192	384	96	300	210	1.8	126	1	10	4	14
34004	LOKOK TRIPAS	1.5	480 #	384	2.0	160 #	128	256	64	49	34	7.5	20	3	10	5	15
34005	LENGGORONG	1.5	1500 #	1200	2.0	500 #	400	800	200	200	140	5.7	84	2	10	5	15
34006	LEKOK	1.3	3400	2720	1.5	500	400	2092	267	623	436	4.8	262	1	10	5	15
34007	SOLOH (TODO)	1.3	2000	1600	1.6	350	280	1231	175	115	81	15.3	48	4	10	5	15
34010	SESAOT II (SURANA	1.2	3000	2400	1.6	1500	1200	2000	750	192	134	14.9	81	9	10	5	15
34011	JONTLAK	1.4	120 #	96	2.0	40 #	32	69	16	48	34	2.8	20	1	10	4	14
34012	BURUAN	1.2	1500 #	1200	1.4	500 #	400	1000	286	256	179	5.6	108	3	10	5	15

EVALUATION OF WATER AVAILABILITY IN WEST NUSA TENGGARA (3/4)

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Finai Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
34013	MANGGALA	1.2	1500 #	1200	1.4	500 #	400	1000	286	144	101	9.9	60	5	10	5	15
34014	AMPEL DURI	2.0	600 #	480	2.0	200 #	160	240	80	25	18	13.7	11	8	10	5	15
34015	MONTONG BARU I	2.0	300 #	240	2.0	100 #	80	120	40	25	18	6.9	11	4	10	5	15
34016	BANGKET BAYAN	2.0	120 #	96	2.0	40 #	32	48	16	50	35	1.4	21	1	10	4	14
34017	BANGKET UBAN	2.0	360 #	288	2.0	120 #	96	144	48	52	36	4.0	22	2	10	5	15
34018	TANJUNG BIRU	2.0	180 #	144	2.0	60 #	48	72	24	50	35	2.1	21	1	10	5	15
34021	TERES GENIT	2.0	480 #	384	2.0	160 #	128	192	64	75	53	3.7	32	2	10	5	15
34022	TELAGA SEGOAR	2.0	300 #	240	2.0	100 #	80	120	40	30	21	5.7	13	3	10	5	15
34023	BARUNG BIRAK	2.0	720 #	576	2.0	240 #	192	288	96	50	35	8.2	21	5	10	5	15
34024	KELANJUHAN	2.0	300 #	240	2.0	100 #	80	120	40	100	70	1.7	42	1	10	5	15
34025	LABUHAN POH	1.0	540 #	432	1.0	180 #	144	432	144	30	21	20.6	13	11	10	5	15
35001	MELONG	2.0	420 #	336	2.0	140 #	112	168	56	154	108	1.6	65	1	10	4	14
35002	PEROPOK	1.0	420 #	336	1.0	140 #	112	336	112	197	138	2.4	83	1	10	5	15
35004	MADANG	2.0	480 #	384	2.0	160 #	128	192	64	60	42	4.6	25	3	10	5	15
35007	NYIUR IJO	1.0	200	160	1.0	85	68	160	68	103	72	2.2	43	2	10	5	15
35009	PLANTING	1.0	500	400	1.0	100	80	400	80	226	158	2.5	95	1	10	4	14
35010	OTAK REBAN	2.0	575	460	2.0	525	420	230	210	150	105	2.2	63	3	10	5	15
35011	TERENG BENGKOK	1.0	100	80	2.0	75	60	80	30	75	53	1.5	32	1	10	5	15
35012	TIBBU BUNTAR	2.0	350	280	2.0	250	200	140	100	34	24	5.9	14	7	10	5	15
35014	PENGGADANGAN	1.0	400	320	2.0	250	200	320	100	104	73	4.4	44	2	10	5	15
35015	MENCERIP	2.0	425	340	2.0	375	300	170	150	298	209	0.8	125	1	8	5	13
35017	KEDONGDONG	1.0	275	220	1.0	100	80	220	80	55	39	5.7	23	3	10	5	15
35019	DURIAN	1.0	100	80	2.0	85	68	80	34	57	40	2.0	24	1	10	5	15
35020	GOGE	1.0	400	320	1.0	280	224	320	224	100	70	4.6	42	5	10	5	15
35021	LARUNG	2.0	200	160	2.0	150	120	80	60	117	82	1.0	49	1	10	5	15
35022	AMBUNG	2.0	300	240	2.0	100	80	120	40	86	60	2.0	36	1	10	5	15
35028	BONARE	2.0	48 #	38	2.0	16 #	13	19	6	221	155	0.1	93	0	1	0	2
35029	DADAP/SAMBELIR	2.0	526	421	2.0	122	98	210	49	242	169	1.2	102	0	10	2	12
35030	MUNDAK	1.3	300	240	1.3	100	80	185	62	106	74	2.5	45	1	10	5	15
35031	H. UJABAB	1.0	40	32	1.0	15	12	32	12	82	57	0.6	34	0	6	2	7
35032	SAPTA	2.0	72	58	2.0	40	32	29	16	80	56	0.5	34	0	5	2	8
35034	KETANGGA	2.0	266	213	2.0	100	80	106	40	93	65	1.6	39	1	10	5	15
35035	LINGKOK DUDU	1.0	400	320	1.0	100	80	320	80	37	26	12.3	16	5	10	5	15
35037	KARONG	1.0	120 #	96	1.0	40 #	32	96	32	96	67	1.4	40	1	10	4	14
35045	KELOKOI UDANG	2.0	300 #	240	2.0	100 #	80	120	40	159	111	1.1	67	1	10	3	13
35046	SRIJATA	2.0	420 #	336	2.0	140 #	112	168	56	132	92	1.8	55	1	10	5	15
36002	ABU SANAR/MANGGE	1.1	600 #	480	1.3	50 #	40	436	31	105	74	5.9	4	8	10	5	15
36003	MILA	1.0	480 #	384	1.0	40 #	32	384	32	125	88	4.4	4	7	10	5	15
36004	NTONA NAA	1.0	360 #	288	1.0	30 #	24	288	24	150	105	2.7	5	5	10	5	15
36006	LAPA PAA	1.0	600 #	480	1.0	50 #	40	480	40	100	70	6.9	4	11	10	5	15
36007	LERE	1.0	1500 #	1200	1.0	125 #	100	1200	100	125	88	13.7	4	23	10	5	15
36009	MONTA	1.0	1200 #	960	1.0	100 #	80	960	80	154	108	8.9	5	15	10	5	15
36010	SAPE	1.0	1500 #	1200	1.0	125 #	100	1200	100	225	158	7.6	8	13	10	5	15
36011	DADI	1.0	1260 #	1008	1.0	105 #	84	1008	84	200	140	7.2	7	12	10	5	15

EVALUATION OF WATER AVAILABILITY IN WEST NUSA TENGGARA

Code No.	Name of Scheme	Wet Sea. Water Requir. lit/s/ha	Wet Sea. River Discharge lit/s	Wet Sea. Availa. Discharge lit/s	Dry Sea. Water Requir. lit/s/ha	Dry Sea. River Discharge lit/s	Dry Sea. Availa. Discharge lit/s	Wet Sea. Available Irr. Area ha	Dry Sea. Available Irr. Area ha	Future Paddy Area ha	Wet Sea. Irr. Area ha	Wet Sea. Ratio	Dry Sea. Irr. Area ha	Dry Sea. Ratio	Point 1	Point 2	Final Point
		(1)	(2)	(3) (2)x0.8	(4)	(5)	(6) (5)x0.8	(7) (3)/(1)	(8) (6)/(4)	(9)	(10) (9)x0.7	(11) (7)/(10)	(12) (9)x0.62	(13) (8)/(12)	(14)	(15)	(16) (14)+(15)
36012	UMAKEKA	1.0	1200 #	960	1.0	100 #	80	960	80	155	109	8.8	5	15	10	5	15
36013	OI ROKO	1.0	1800 #	1440	1.0	150 #	120	1440	120	15	11	137.1	1	229	10	5	15
36014	DAM BROJONG	1.0	1800 #	1440	1.0	150 #	120	1440	120	125	88	16.5	4	27	10	5	15
36015	RABA JATI	1.0	1200 #	960	1.0	100 #	80	960	80	60	42	22.9	2	38	10	5	15
36016	RABA SANGGA	1.0	720 #	576	1.0	60 #	48	576	48	159	111	5.2	6	9	10	5	15
36017	RADE	1.0	1200 #	960	1.0	100 #	80	960	80	127	89	10.8	4	18	10	5	15
36018	DAM NGGERU	1.1	2100 #	1680	1.3	175 #	140	1527	108	150	105	14.5	5	21	10	5	15
36019	PANDE	1.0	1500 #	1200	1.0	125 #	100	1200	100	210	147	8.2	7	14	10	5	15
36020	DAM MBODA II	1.0	1500 #	1200	1.0	125 #	100	1200	100	110	77	15.6	4	26	10	5	15
36023	OI KARONI	1.0	900 #	720	1.0	75 #	60	720	60	85	60	12.1	3	20	10	5	15
36024	LASOKI	1.0	900 #	720	1.0	75 #	60	720	60	144	101	7.1	5	12	10	5	15
36026	NOE	1.0	1800 #	1440	1.0	150 #	120	1440	120	196	137	10.5	7	17	10	5	15
36027	NAE	1.0	600 #	480	1.0	50 #	40	480	40	150	105	4.6	5	8	10	5	15
36029	MANGGE/NGGAWU-NGG	1.0	900 #	720	1.0	75 #	60	720	60	116	81	8.9	4	15	10	5	15
36031	DAM NDOLO	1.0	900 #	720	1.0	75 #	60	720	60	50	35	20.6	2	34	10	5	15
37001	JURANG JEMBOK	1.0	300 #	240	1.0	100 #	80	240	80	90	63	3.8	38	2	10	5	15
37002	EYAT KUBUR KELANJ	1.5	600 #	480	1.5	200 #	160	320	107	150	105	3.0	63	2	10	5	15
37003	MONTONG SAPAH I	1.3	1200 #	960	1.3	400 #	320	738	246	47	33	22.4	20	12	10	5	15
37004	NANGKER	1.0	840 #	672	1.0	280 #	224	672	224	200	140	4.8	84	3	10	5	15
37005	TIBU PETUNG	1.3	2400 #	1920	1.3	800 #	640	1477	492	250	175	8.4	105	5	10	5	15
37006	SUKA RAJA	1.3	1200 #	960	1.3	400 #	320	738	246	300	210	3.5	126	2	10	5	15
136002	TOLOTUY	1.3 *	1650 #	1320	1.5 *	150 #	120	1015	80	150	105	9.7	63	1	10	5	15
136003	DAM BOJA	1.3 *	825 #	660	1.5 *	75 #	60	508	40	100	70	7.3	42	1	10	5	15
136004	DAM DIWU MPINGA	1.3 *	2860 #	2288	1.5 *	260 #	208	1760	139	75	53	33.5	32	4	10	5	15
136005	SORI TOLO LERE	1.3 *	4715	3772	1.5 *	1125	900	2902	600	100	70	41.5	42	14	10	5	15
136006	SONCO KATIPU	1.3 *	4500	3600	1.5 *	750	600	2769	400	155	109	25.5	65	6	10	5	15
136007	OYI FANDA	1.3 *	1210 #	968	1.5 *	110 #	88	745	59	175	123	6.1	74	1	10	4	14

Table III-21 ESTIMATED UNIT RIVER DISCHARGE IN NORTH SUMATRA (1/3)

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
15.0	14400	960	15.0	7200	480
10.0	9375	938	10.0	4720	472
8.0	7000	875	10.0	4688	469
12.0	9996	833	30.0	13500	450
15.0	12495	833	8.0	3500	438
5.0	4165	833	6.0	2578	430
3.0	2499	833	7.0	2916	417
7.0	5830	833	15.0	6247	416
1.8	1478	821	15.0	6247	416
10.0	8000	800	7.0	2915	416
5.0	4000	800	5.0	2082	416
11.0	8785	799	20.0	8000	400
3.0	2250	750	8.0	3200	400
20.0	15000	750	8.0	3000	375
10.0	7500	750	6.0	2250	375
2.0	1485	743	8.0	3000	375
6.0	4248	708	7.0	2624	375
1.0	700	700	3.0	1100	367
3.0	2100	700	8.0	2760	345
2.0	1389	694	3.0	1020	340
8.0	5520	690	10.0	3332	333
20.0	13750	688	10.0	3328	333
3.0	2040	680	10.0	3250	325
2.0	1345	673	5.0	1563	313
1.2	800	667	5.0	1563	313
5.0	3200	640	1.2	375	313
10.0	6250	625	5.0	1563	313
20.0	12500	625	2.5	781	312
20.0	12500	625	5.0	1500	300
8.0	5000	625	4.0	1200	300
5.0	3125	625	20.0	6000	300
5.0	3125	625	4.0	1200	300
5.0	3125	625	10.0	3000	300
20.0	12500	625	12.0	3500	292
2.5	1562	625	7.0	2060	286
14.0	8747	625	3.0	833	278
6.0	3718	620	1.5	415	277
8.0	4900	613	2.0	540	270
4.0	2440	610	1.4	374	267
40.0	23615	590	1.2	315	263
10.0	5875	588	2.0	520	260
0.7	400	571	5.0	1300	260
1.2	680	567	8.0	2000	250
12.0	6500	542	6.0	1500	250
1.5	800	533	6.0	1500	250
1.5	786	524	15.0	3750	250
30.0	15200	507	5.0	1250	250
6.0	3000	500	6.0	1500	250
6.0	3000	500	3.0	750	250
4.0	2000	500	6.0	1450	242
4.0	2000	500	6.0	1450	242
8.0	4000	500	4.0	952	238
6.0	3000	500	2.0	475	238
15.0	7500	500	2.0	475	238
7.0	3499	500	6.2	1450	234
30.0	14670	489	6.0	1400	233
6.0	2900	483	5.0	1160	232
6.0	2900	483	2.0	450	225
6.2	2900	468	4.0	871	218
1.5	700	467	3.0	640	213
6.0	2700	450	1.5	320	213
1.5	675	450	1.5	318	212
20.0	9000	450	3.0	620	207
1.4	625	446	4.0	816	204
3.0	1300	433	2.0	403	202
2.0	860	430	10.0	2000	200
1.5	625	417	8.0	1600	200
7.0	2916	417	40.0	8000	200
10.0	4165	417	8.0	1563	195
2.0	833	417	4.0	781	195
7.0	2875	411	4.0	750	188
4.0	1619	405	8.5	1593	187
1.5	600	400	1.5	277	184
1.0	400	400	1.5	264	176
8.0	3125	391	1.8	309	172
10.0	3895	390	2.0	342	171
1.2	458	382	5.0	850	170
5.0	1900	380	20.0	3320	166
10.0	3786	379	3.0	480	160

ESTIMATED UNIT RIVER DISCHARGE IN NORTH SUMATRA (2/3)

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
8.5	3188	375	1.5	240	160
5.0	1870	374	8.0	1280	160
6.0	2215	369	2.0	318	159
5.0	1820	364	7.0	1100	157
2.0	700	350	1.5	230	153
2.0	700	350	2.0	306	153
2.0	690	345	30.0	4560	152
8.0	2720	340	20.0	3015	151
5.0	1700	340	4.0	601	150
2.0	678	339	3.0	450	150
20.0	6640	332	8.0	1200	150
1.5	497	331	1.2	178	148
30.0	9750	325	1.0	148	148
2.0	641	321	5.0	725	145
1.5	460	307	5.0	700	140
8.0	2400	300	1.5	207	138
1.0	300	300	2.0	275	138
1.0	300	300	5.0	667	133
3.0	900	300	2.0	264	132
2.0	589	295	12.0	1536	128
3.0	854	285	8.0	1000	125
2.0	568	284	8.0	1000	125
2.0	550	275	2.0	248	124
2.0	550	275	5.0	614	123
3.0	820	273	2.0	240	120
10.0	2700	270	2.5	300	120
3.0	800	267	3.0	360	120
12.0	3072	256	6.0	715	119
5.0	1250	250	6.0	700	117
20.0	5000	250	3.0	350	117
4.0	1000	250	1.5	171	114
2.0	499	250	4.0	450	113
5.0	1226	245	2.0	225	113
8.0	1920	240	11.0	1200	109
2.5	600	240	2.0	216	108
5.0	1190	238	10.0	1000	100
8.0	1900	238	20.0	2000	100
2.0	468	234	4.0	400	100
3.0	700	233	45.0	4500	100
4.0	900	225	2.0	196	98
4.0	875	219	2.0	196	98
2.0	432	216	1.8	175	97
4.0	850	213	2.0	190	95
4.0	850	213	3.0	281	94
20.0	4165	208	4.0	370	93
3.0	624	208	5.0	450	90
3.0	600	200	2.0	179	90
2.0	400	200	2.0	179	89
0.5	100	200	2.0	178	89
4.0	800	200	2.5	200	80
2.0	396	198	5.0	400	80
7.0	1346	192	7.0	550	79
3.0	563	188	3.0	235	78
8.0	1500	188	20.0	1500	75
5.0	937	187	8.0	600	75
2.0	367	184	2.0	150	75
5.0	900	180	4.0	300	75
2.0	360	180	6.0	450	75
2.0	350	175	8.0	600	75
2.0	348	174	2.5	175	70
2.0	348	174	3.0	210	70
45.0	7650	170	8.0	550	69
6.0	999	167	4.5	300	67
1.5	241	161	6.0	400	67
2.5	400	160	4.0	250	63
3.0	475	158	4.0	250	63
2.0	310	155	30.0	1850	62
4.5	680	151	4.0	240	60
3.0	450	150	2.5	150	60
2.0	300	150	1.0	60	60
6.0	900	150	4.0	240	60
6.0	900	150	2.0	117	59
10.0	1500	150	0.7	40	57
2.0	300	150	15.0	855	57
11.0	1586	144	1.5	80	53
3.0	425	142	2.0	100	50
2.5	350	140	0.5	25	50
5.0	700	140	10.0	500	50

ESTIMATED UNIT RIVER DISCHARGE IN NORTH SUMATRA (3/3)

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
3.0	415	138	1.0	50	50
4.0	550	138	1.0	50	50
1.8	246	137	3.0	150	50
1.5	200	133	6.0	290	48
2.5	320	128	6.0	288	48
4.0	500	125	5.0	200	40
8.0	1000	125	2.5	100	40
4.0	500	125	5.0	200	40
4.0	500	125	20.0	800	40
2.0	244	122	10.0	400	40
5.0	600	120	20.0	800	40
6.0	690	115	4.0	150	38
8.0	917	115	3.0	110	37
8.0	917	115	2.0	70	35
2.5	270	108	1.5	50	33
20.0	2100	105	1.5	50	33
7.0	729	104	2.0	65	33
10.0	1000	100	6.0	188	31
8.0	800	100	10.0	310	31
3.0	300	100	10.0	310	31
1.0	100	100	10.0	310	31
15.0	1250	83	3.0	90	30
5.0	400	80	3.0	90	30
10.0	800	80	2.0	60	30
30.0	2343	78	1.0	30	30
6.0	462	77	3.0	83	28
3.0	230	77	2.0	55	28
4.0	300	75	12.0	300	25
3.0	225	75	2.0	50	25
6.0	450	75	3.0	70	23
4.0	300	75	5.0	90	18
7.0	450	64	6.0	100	17
10.0	625	63	20.0	330	17
10.0	625	63	30.0	488	16
10.0	625	63	20.0	135	7
6.0	375	63	7.0	40	6
2.0	120	60	5.0	17	3
1.5	80	53			
12.0	600	50			
20.0	974	49			
20.0	974	49			
6.0	200	33			
20.0	570	29			
20.0	480	24			
5.0	25	5			
	AVERAGE	342 lit./s/m		AVERAGE	163 lit./s/m
		Rounded			Rounded
		340 lit./s/m			160 lit./s/m

Table III-22 ESTIMATED UNIT RIVER DISCHARGE IN SOUTH SULAWESI

(1/4)

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
20.0	7500.0	375	3.0	200.0	67
30.0	11250.0	375	12.0	800.0	67
8.0	3000.0	375	5.0	350.0	70
17.0	6375.0	375	10.0	700.0	70
7.0	2625.0	375	5.0	350.0	70
8.0	3000.0	375	7.0	520.0	74
25.0	9375.0	375	5.0	400.0	80
30.0	11250.0	375	15.0	1200.0	80
6.0	2250.0	375	15.0	1200.0	80
8.0	3000.0	375	6.0	500.0	83
8.0	3000.0	375	8.0	700.0	88
12.0	4500.0	375	4.0	350.0	88
18.0	6750.0	375	5.0	500.0	100
20.0	7500.0	375	20.0	2000.0	100
15.0	5625.0	375	5.0	500.0	100
25.0	9375.0	375	9.0	1000.0	111
1.0	375.0	375	1.8	200.0	111
30.0	11250.0	375	6.0	700.0	117
8.0	3080.0	375	10.0	1200.0	120
7.0	2625.0	375	25.0	3125.0	125
9.0	3440.0	382	8.0	1000.0	125
8.0	3190.0	399	2.0	250.0	125
20.0	8000.0	400	30.0	3750.0	125
20.0	8000.0	400	7.0	875.0	125
15.0	6000.0	400	30.0	3750.0	125
15.0	6000.0	400	30.0	3750.0	125
7.0	2840.0	406	25.0	3125.0	125
4.0	1700.0	425	17.0	2125.0	125
8.0	3500.0	438	18.0	2250.0	125
10.0	4500.0	450	8.0	1000.0	125
10.0	4500.0	450	15.0	1875.0	125
5.0	2350.0	470	20.0	2500.0	125
15.0	7120.0	475	8.0	1000.0	125
1.5	720.0	480	6.0	750.0	125
5.0	2410.0	482	8.0	1000.0	125
10.0	4840.0	484	1.0	125.0	125
30.0	15000.0	500	8.0	1000.0	125
4.0	2000.0	500	25.0	3125.0	125
8.0	4000.0	500	12.0	1500.0	125
6.0	3000.0	500	8.0	1000.0	125
6.0	3000.0	500	20.0	2500.0	125
20.0	10000.0	500	6.0	750.0	125
4.0	2000.0	500	7.0	875.0	125
3.0	1575.0	525	5.0	660.0	132
4.0	2100.0	525	15.0	2000.0	133
12.0	6500.0	542	5.0	675.0	135
12.0	7000.0	583	5.0	730.0	146
25.0	15000.0	600	7.0	1030.0	147
3.0	1800.0	600	4.0	600.0	150
8.0	4800.0	600	8.0	1300.0	163
20.0	12000.0	600	30.0	5000.0	167
30.0	18000.0	600	8.0	1350.0	169
5.5	3360.0	611	3.0	525.0	175
10.0	6500.0	650	15.0	2800.0	187
12.0	8000.0	667	8.0	1500.0	188
3.5	2400.0	686	7.0	1350.0	193
20.0	14000.0	700	8.0	1600.0	200
50.0	37500.0	750	4.0	800.0	200
8.0	6000.0	750	7.0	1400.0	200
8.0	6000.0	750	9.0	1800.0	200
20.0	15000.0	750	12.0	2500.0	208
10.0	7500.0	750	12.0	2500.0	208
8.0	6000.0	750	8.5	1860.0	219
8.0	6000.0	750	4.0	900.0	225
12.0	9000.0	750	25.0	6000.0	240
11.0	8250.0	750	2.0	500.0	250
6.0	4500.0	750	3.0	750.0	250
12.0	9000.0	750	8.0	2000.0	250
3.0	2250.0	750	12.0	3000.0	250
4.0	3000.0	750	6.0	1500.0	250
8.0	6000.0	750	50.0	12500.0	250
14.0	10500.0	750	6.0	1500.0	250
2.0	1500.0	750	4.0	1000.0	250
15.0	11500.0	767	14.0	3500.0	250
28.0	22400.0	800	11.0	2750.0	250
15.0	12000.0	800	10.0	2500.0	250
15.0	13000.0	867	8.0	2000.0	250
45.0	42000.0	933	12.0	3000.0	250

ESTIMATED UNIT RIVER DISCHARGE IN SOUTH SULAWESI (2/4)

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
30.0	2120.0	71	11.0	187.0	17
20.0	1467.0	73	17.5	300.0	17
15.0	1120.0	75	7.0	124.0	18
8.0	600.0	75	28.0	500.0	18
10.0	764.0	76	15.0	278.0	19
5.0	400.0	80	7.0	131.0	19
18.0	1500.0	83	8.0	150.0	19
3.0	250.0	83	5.0	100.0	20
20.0	1764.0	88	15.0	300.0	20
4.0	360.0	90	5.0	100.0	20
13.0	1200.0	92	10.0	200.0	20
10.0	1000.0	100	15.0	301.0	20
2.0	200.0	100	6.0	125.0	21
9.0	900.0	100	12.0	267.0	22
5.0	500.0	100	20.0	448.0	22
10.0	1000.0	100	10.0	225.0	23
6.0	600.0	100	30.0	700.0	23
15.0	1600.0	107	15.0	360.0	24
15.0	1600.0	107	9.0	217.0	24
12.0	1335.0	111	6.0	150.0	25
30.0	3500.0	117	5.0	125.0	25
15.0	1800.0	120	3.0	75.0	25
4.0	500.0	125	4.0	100.0	25
15.0	2000.0	133	6.0	150.0	25
7.0	950.0	136	2.0	50.0	25
6.0	820.0	137	5.0	130.0	26
5.0	700.0	140	34.0	900.0	26
7.0	1000.0	143	15.0	400.0	27
10.0	1500.0	150	15.0	400.0	27
1.8	300.0	167	7.0	190.0	27
9.0	1510.0	168	6.0	164.0	27
10.0	1850.0	185	9.0	250.0	28
2.0	375.0	188	10.0	278.0	28
7.0	1312.5	188	3.6	102.0	28
8.0	1500.0	188	7.0	200.0	29
4.0	750.0	188	5.0	150.0	30
7.0	1336.0	191	5.0	150.0	30
15.0	2980.0	199	5.0	150.0	30
10.0	2000.0	200	10.0	300.0	30
3.0	600.0	200	10.0	300.0	30
5.0	1000.0	200	10.0	300.0	30
10.0	2000.0	200	15.0	458.0	31
5.0	1000.0	200	7.0	225.0	32
5.0	1000.0	200	5.0	166.0	33
20.0	4000.0	200	3.0	100.0	33
20.0	4000.0	200	6.0	200.0	33
7.0	1560.0	223	6.0	204.0	34
15.0	3500.0	233	6.0	215.0	36
8.5	2040.0	240	6.3	233.0	37
6.0	1450.0	242	10.0	370.0	37
8.0	1950.0	244	10.0	392.7	39
8.0	2000.0	250	20.0	800.0	40
6.0	1500.0	250	5.5	225.0	41
4.0	1000.0	250	5.0	212.6	42
8.0	2050.0	256	13.0	560.0	43
7.0	1800.0	257	4.0	180.0	45
12.0	3120.0	260	10.0	460.0	46
10.0	2600.0	260	15.0	700.0	47
5.0	1320.0	264	8.0	390.0	49
9.0	2500.0	278	30.0	1500.0	50
7.0	2000.0	286	10.0	500.0	50
2.0	600.0	300	6.0	300.0	50
1.0	300.0	300	4.0	200.0	50
13.0	4000.0	308	4.0	200.0	50
13.0	4000.0	308	10.0	500.0	50
9.0	2870.0	319	8.0	410.0	51
7.0	2240.0	320	7.0	360.0	51
7.0	2300.0	329	2.0	108.0	54
9.0	2960.0	329	13.0	800.0	62
9.0	2960.0	329	13.0	800.0	62
6.0	2000.0	333	8.0	500.0	63
12.0	4000.0	333	2.0	125.0	63
4.5	1500.0	333	4.0	250.0	63
12.0	4000.0	333	7.0	437.5	63
45.0	15000.0	333	8.0	500.0	63
4.0	1350.0	338	3.5	220.0	63
3.6	1298.0	361	3.0	200.0	67
8.0	2900.0	363	4.5	300.0	67

ESTIMATED UNIT RIVER DISCHARGE IN SOUTH SULAWESI

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
25.0	75.0	3	30.0	50.0	2
30.0	120.0	4	25.0	50.0	2
25.0	150.0	6	25.0	60.0	2
45.0	300.0	7	15.0	50.0	3
25.0	200.0	8	30.0	100.0	3
25.0	200.0	8	45.0	150.0	3
24.0	207.0	9	15.0	50.0	3
12.0	125.0	10	25.0	100.0	4
20.0	250.0	13	25.0	100.0	4
15.0	200.0	13	25.0	100.0	4
15.0	200.0	13	12.0	50.0	4
15.0	200.0	13	20.0	90.0	5
10.0	150.0	15	8.0	40.0	5
10.0	150.0	15	20.0	100.0	5
15.0	250.0	17	20.0	100.0	5
15.0	253.0	17	12.0	75.0	6
20.0	400.0	20	15.0	98.0	7
20.0	400.0	20	15.0	100.0	7
15.0	300.0	20	15.0	100.0	7
15.0	300.0	20	15.0	100.0	7
12.0	250.0	21	15.0	105.0	7
20.0	450.0	23	10.0	75.0	8
10.0	249.0	25	20.0	150.0	8
10.0	250.0	25	20.0	150.0	8
6.0	150.0	25	20.0	150.0	8
10.0	250.0	25	15.0	114.0	8
12.0	300.0	25	3.0	23.0	8
2.0	50.0	25	13.0	100.0	8
8.0	206.0	26	10.0	80.0	8
15.0	390.0	26	24.0	194.0	8
10.0	264.0	26	12.0	100.0	8
7.0	200.0	29	6.0	50.0	8
7.0	200.0	29	6.0	50.0	8
17.0	500.0	29	12.0	100.0	8
10.0	300.0	30	10.0	85.0	9
10.0	300.0	30	10.0	90.0	9
3.0	90.0	30	5.0	50.0	10
5.0	150.0	30	10.0	100.0	10
10.0	320.0	32	20.0	200.0	10
6.0	200.0	33	10.0	100.0	10
30.0	1000.0	33	9.0	97.0	11
10.0	350.0	35	12.0	130.0	11
20.0	700.0	35	9.0	100.0	11
5.5	200.0	36	18.0	200.0	11
4.0	150.0	38	7.0	80.0	11
6.0	225.0	38	7.0	80.0	11
10.0	382.0	38	20.0	235.0	12
20.0	764.0	38	17.0	200.0	12
20.0	764.0	38	15.0	187.0	12
6.0	233.0	39	12.0	150.0	13
10.0	400.0	40	12.0	150.0	13
5.0	200.0	40	9.0	114.0	13
5.0	200.0	40	9.0	114.0	13
5.0	200.0	40	17.0	223.0	13
6.3	255.0	40	15.0	200.0	13
12.0	500.0	42	5.5	75.0	14
6.0	250.0	42	15.0	205.0	14
17.0	731.0	43	10.0	138.0	14
20.0	932.0	47	10.0	138.0	14
15.0	700.0	47	20.0	278.0	14
34.0	1600.0	47	20.0	278.0	14
15.0	732.0	49	10.0	139.0	14
5.0	250.0	50	20.0	278.0	14
10.0	500.0	50	30.0	424.0	14
20.0	1000.0	50	15.0	224.0	15
6.0	300.0	50	10.0	150.0	15
5.0	250.0	50	20.0	300.0	15
7.0	356.0	51	10.0	150.0	15
15.0	764.0	51	10.0	150.0	15
9.0	500.0	56	20.0	300.0	15
17.5	1000.0	57	10.0	150.0	15
25.0	1500.0	60	20.0	315.0	16
5.0	300.0	60	5.0	80.0	16
13.0	800.0	62	5.0	80.0	16
11.0	687.0	62	1.8	30.0	17
8.0	500.0	63	30.0	500.0	17
3.0	200.0	67	30.0	500.0	17

ESTIMATED UNIT RIVER DISCHARGE IN SOUTH SULAWESI (4/4)

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
8.0	7500.0	938	20.0	5000.0	250
			8.0	2000.0	250
			45.0	12000.0	267
			15.0	4000.0	267
			10.0	2670.0	267
			7.0	2000.0	286
			2.5	750.0	300
			10.0	3000.0	300
			10.0	3000.0	300
			8.0	2400.0	300
			4.5	1365.0	303
			8.0	2600.0	325
			1.5	520.0	347
			3.5	1300.0	371
			4.0	1500.0	375
			4.0	1500.0	375
			8.0	3000.0	375
			4.0	1500.0	375
			4.0	1500.0	375
			6.0	2250.0	375
			8.0	3000.0	375
			10.0	3750.0	375
			10.0	3850.0	385
			5.0	2000.0	400
			1.0	450.0	450
			11.0	5100.0	464
	AVERAGE	264 lit/s/m Rounded 260 lit/s/m		AVERAGE	94 lit/s/m Rounded 90 lit/s/m

Table III-23 ESTIMATED UNIT RIVER DISCHARGE IN LOMBOK ISLAND

WET SEASON			DRY SEASON		
RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)	RIVER WIDTH (m)	RIVER DISCHARGE (lit./s)	UNIT DISCHARGE (lit./s/m)
5.0	100.0	7	3.0	100.0	33
5.0	400.0	18	4.0	85.0	21
7.0	100.0	25	4.0	525.0	131
7.0	300.0	20	5.0	85.0	17
7.0	266.0	27	5.0	150.0	30
7.5	400.0	27	7.0	280.0	40
8.0	300.0	27	7.5	375.0	50
8.0	526.0	35	8.0	250.0	31
9.0	500.0	38	9.0	250.0	28
10.0	200.0	40	10.0	3.0	0
10.0	200.0	40	10.0	100.0	10
11.0	350.0	44	11.0	100.0	9
13.0	460.0	51	13.0	100.0	8
15.0	3400.0	67	15.0	100.0	7
15.0	400.0	57	15.0	75.0	5
15.0	425.0	57	15.0	250.0	17
15.0	275.0	92	15.0	122.0	8
16.0	2000.0	125	16.0	350.0	22
22.0	575.0	144	22.0	100.0	5
25.0	1500.0	159	25.0	550.0	22
51.0	4000.0	160	51.0	500.0	10
		60 lit./s/m			24 lit./s/m Rounded 20 lit./s/m

APPENDIX-IV

IRRIGATION AND DRAINAGE

APPENDIX IV. IRRIGATION AND DRAINAGE

1. FIELD SURVEY

Land development schemes and village irrigation schemes in North Sumatra Province (9 districts), South Sulawesi Province (18 districts), and West Nusa Tenggara (6 districts) were surveyed. Duration of the survey was one (1) month for preliminary field survey, two (2) months for selecting representative schemes, and two and half months (2.5) for detailed survey of the representative schemes.

At the starting time of entrusting survey for representative schemes, the schemes to be entrusted were divided into thirty(30), and the surveys were carried out under the instruction of other specialists.

In Phase I, a field survey was conducted for about 80 schemes in the objective inventory survey schemes, about 980. Further, a field survey for the representative schemes which were grouped in about 30 was made in Phase II. The survey was accentuated in intake facilities, conveyance facilities, and possibility of land reclamation. The results of study and analysis were reflected in the whole schemes.

Through the field survey and inventory survey, the principle findings are as follows:

(1) Village irrigation scheme has the possibility of considerable extension of paddy field as well as rehabilitation works.

(2) There still exist some schemes which are not identified to be village irrigation scheme in inventory survey.

(3) It was found that the decisive reason to delay the land development was due to the shortage of irrigation water in many cases. In the case where the swamp or forest are selected for development area, the development cost becomes high, which causes the suspension of land development. However, it may account for small ratio.

(4) In village irrigation scheme, the life year of irrigation facilities is very short, perhaps five(5) years. It may result from insufficient survey, investigation,design, and small investment.

2. CONSIDERATIONS OF PLANNING

2.1 Evaluation of Potential Scheme

Concerning the potentiality of land development, it can not be expected very much by such reasons as water shortage, change in the category of land, damage of principal facilities,etc.

In village irrigation scheme, there is no potential new scheme to be developed largely because of scheme size.

Accordingly, it is necessary to expand paddy formation area in proportion to water source discharge, to raise the facility level by rehabilitation of the existing facilities, and to carry out the additional work following the extension of paddy formation area.

2.2 Problems on Planning

(1) Since no topographical map is available in village irrigation scheme, survey is required for planning of individual scheme in advance.

(2) In village irrigation, water is derived from river through plural intake facilities in accordance with customary practice. Therefore, a scheme area should be decided after full negotiation with villages in development planning.

(3) Durable duration of present intake facilities is considered to be five(5) years at most, but one(1) year if the worst happens. Therefore, to fulfil their function over long period, the facilities should be improved.

(4) The acreage based on inventory survey appears to be rather larger comparing those of detailed survey result. Thus, they should be re-evaluated in as much as 70%.

2.3 Potential Acreage of Paddy Field Development

Through survey results of 30 representative schemes, the potential acreage of paddy field is decreased to 70% which is used for inventory survey data and planning as in the following table:

Item	Schemes	Present		Plan		Potential	Schemes.
		Paddy field	Rainfed	Paddy field	Rainfed	Area	No.
	nos	ha	ha	ha	ha	ha	nos
Inventory Listed	795	70,600	44,000	108,300	21,400	15,000	240
Potential evaluated	795	49,400	30,800	75,800	15,000	10,500	240
Implement.(LD) Plan	30	-		2,300		2,300	30
	(VI)310	17,000		28,100		2,000	67

2.4 Others

(1) Types of Water Source Works

According to the inventory survey, the water source of which about 85 % depends on river, and about 10% on spring. The existing facilities consist of headworks(70%), free intake(16%),dams,small reservoirs, pumps,etc.

(2) Topography of Schemes

The lands of schemes slope gently with an average fall of less 5% or with 5-10%, which occupy 86% of the whole schemes. As for a scale of schemes, they fall under the areas of 25 ha-250 ha according to the screening criteria of the initial inventory survey. The land of more than 250 ha is considered to an exception. Most of the schemes in three(3) provinces fall under the areas of 50-100 ha.

(3) Division of Types of Constructions

Types of constructions are paddy field formation works, improvement and renewal of intake facilities, and canal systems, repairing of peripheral facilities, additional works,etc. Concerning the principal facility such as headworks, judgement as to whether or not the facility is required for rehabilitation or renewal, or the facility is in good condition, was made based on the results of inventory survey.

3. BASIC CONCEPT OF FACILITY PLAN

3.1 Size of Planned Schemes

The average acreage of planned paddy field per scheme is as follows:

Province	LD Scheme	VI Scheme	Average
	ha/nos	ha/nos	ha/nos
North Sumatra	142	87	98
South Sulawesi	93	89	89
NTB	192	100	103

3.2 Irrigation and Drainage Facilities

(1) General

In order to achieve agricultural development in planned schemes, the construction of the following infrastructures and improvement of agricultural supporting organization are required:

a) Construction of irrigation network consisting of a weir, linking, main, secondary, delivery and field canals.

b) Construction of secondary drainage canal and facilities.

c) Construction of inspection road and link road consisting of trunk road and farm road.

d) Construction of tertiary network consisting of tertiary and quaternary canals, tertiary and quaternary drains, farm road, and related structures.

e) Reclamation of new farm lands.

f) Maintenance of irrigation and drainage facilities, and

g) Improvement of the present agricultural supporting services.

(2) Improvement of Irrigation Efficiency

The target of irrigation efficiency used in planning is as follows:

Main Canal	: 90%
Secondary Canal	: 90%
Tertiary Canal	: 70%
Overall Efficiency	: 50%

(3) Planting Area of Paddy Field

Rainy Season Paddy	:	100%	
Dry Season Paddy	:	Present	Future
North Sumatra	:	50%	60%
South Sulawesi	:	50%	60%
Lombok Island	:	50%	60%
Sumbawa Island	:	0%	5%

(4) Scale of Irrigation Block

-Tertiary Unit : 50-100 ha
-Quaternary Unit : 8- 15 ha
(tertiary unit can cover from 15 ha to 150 ha due to topographical condition)
-Tertiary Canal Length : Less than 1,500 m
-Quaternary Canal : Less than 500 m
-Quaternary Drainage : Interval less than 300m
-Plot to plot irrigation : Inter terrace flow should be restricted to about 8 rice fields or 300 m maximum length

3.3 Standard Design of Major Structure

Attached drawings show standard design of major structures for rehabilitation, improvement and/or replacing of irrigation and drainage structures. Names of attached drawings are as follows:

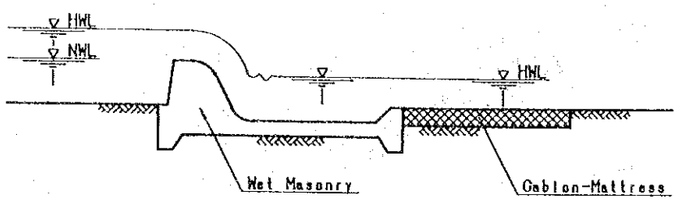
a. Standard design of weir body
The following five(5) types are adopted.

1. Wet masonry fixed weir type
2. Tyroller type
3. Gabion type
4. Protect type by wet masonry cover
5. Masonry cut-off & gabion type

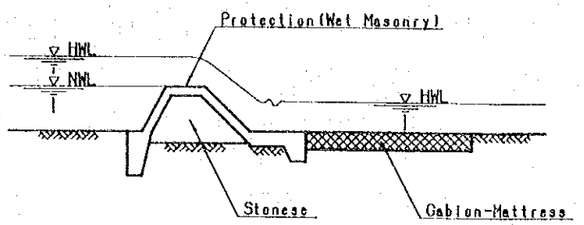
b. Standard design of weir plan & section
c. Standard pump station
d. Standard section of irrigation canal
e. Standard section of drainage canal

STANDARD OF WEIR SECTION

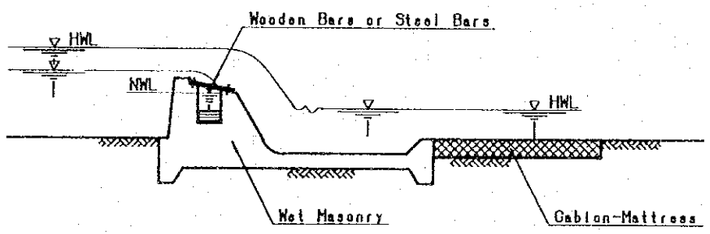
WET MASONRY TYPE



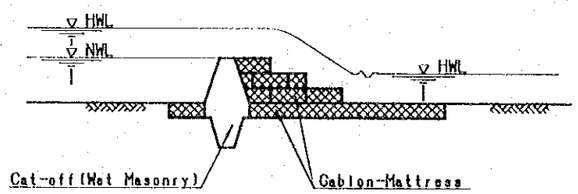
PROTECT TYPE



TYROLLER TYPE



MASONRY CUT-OFF AND GABION TYPE



GABION TYPE

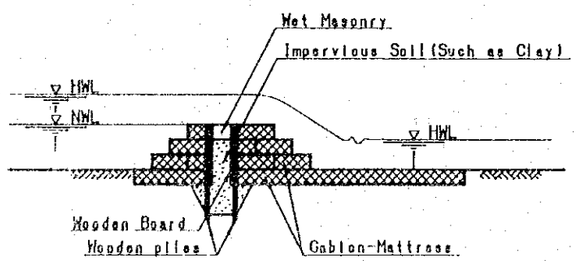


Fig. IV-1 STANDARD DESIGN OF WEIR BODY

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IMPROVEMENT OF LAND AND IRRIGATION SYSTEMS
AT FARM LEVEL

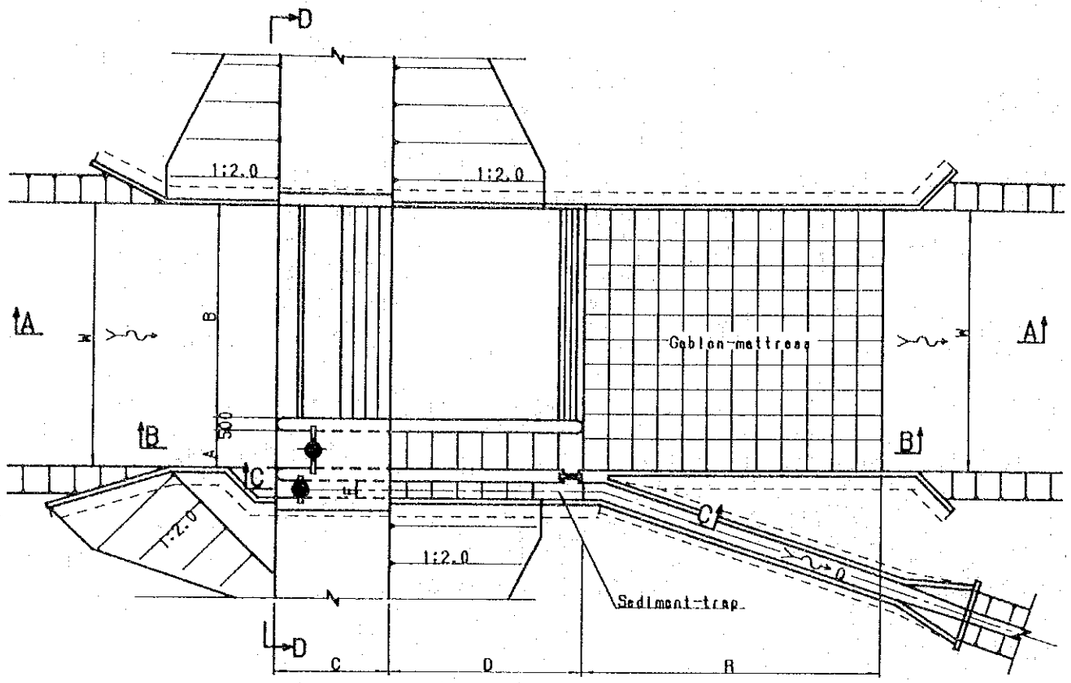
STANDARD OF WEIR SECTION

SCHEME: PROVINCE:

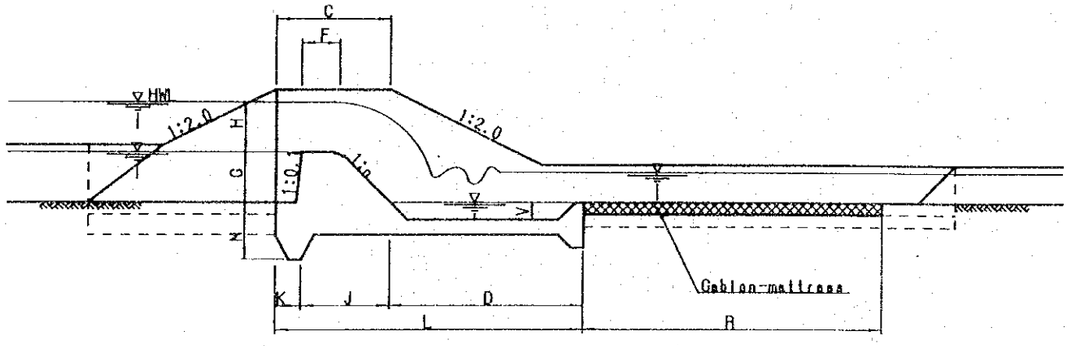
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO (JICA)

DWG.NO. 80

PLAN



SECTION A-A



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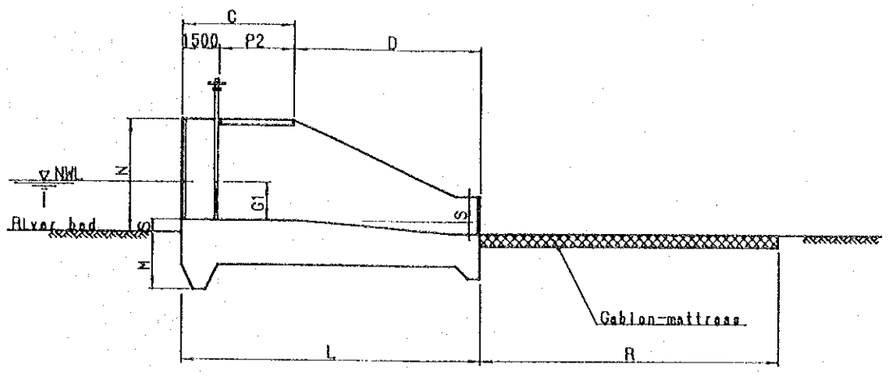
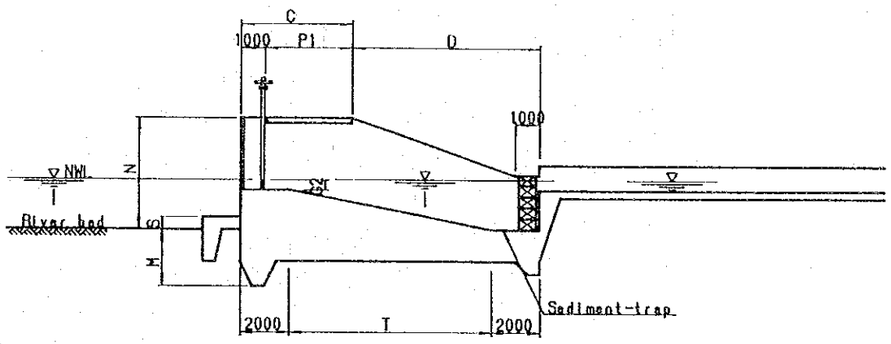
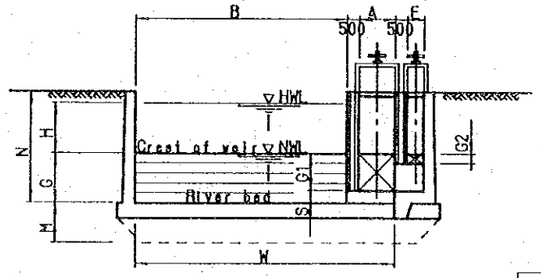


SECTION C-C



SECTION D-D



DIMENSION OF WEIR

Remarks: River width(w) shown in this drawing is a representative one as an example.

W(m)	B(m)	A(m)	G(m)	H(m)	C(m)	D(m)	F(m)	1:n	J(m)	K(m)	L(m)	R(m)	V(m)	M(m)	N(m)	P1(m)	P2(m)	T(m)	S(m)	G1(m)	Q (m3/s)	E(m)	G2(m)
10.50	8.50	1.50	1.00	1.00	2.15	5.40	1.05	0.6	1.65	0.50	7.55	3.00	0.30	1.30	2.50	1.15	0.65	3.55	0.25	0.75	0.500	1.30	1.00
10.50	8.50	1.50	1.00	1.50	2.55	5.40	1.25	0.8	2.05	0.50	7.95	6.00	0.30	1.30	3.00	1.55	1.05	3.95	0.25	0.75	0.450	1.30	0.90
10.50	8.50	1.50	1.00	2.00	3.00	5.40	1.50	1.0	2.50	0.50	8.40	8.00	0.30	1.30	3.50	2.00	1.50	4.40	0.25	0.75	0.400	1.30	0.80
10.50	8.50	1.50	1.50	1.00	2.70	6.65	1.05	0.6	1.95	0.75	9.35	4.00	0.50	1.50	3.00	1.70	1.20	5.35	0.35	1.15	0.350	1.20	0.75
10.50	8.50	1.50	1.50	1.50	3.25	6.65	1.30	0.8	2.50	0.75	9.90	7.00	0.50	1.50	3.50	2.25	1.75	5.90	0.35	1.15	0.300	1.10	0.70
10.50	8.50	1.50	1.50	2.00	3.75	6.65	1.50	1.0	3.00	0.75	10.40	10.00	0.50	1.50	4.00	2.75	2.25	6.40	0.35	1.15	0.250	1.10	0.60
10.50	8.50	1.50	2.00	1.00	3.50	7.65	1.30	0.6	2.50	1.00	11.15	4.00	0.70	2.30	3.50	2.50	2.00	7.15	0.50	1.50	0.200	1.00	0.50
10.50	8.50	1.50	2.00	1.50	3.90	7.65	1.30	0.8	2.90	1.00	11.55	8.00	0.70	2.30	4.00	2.90	2.40	7.55	0.50	1.50	0.150	0.90	0.45
10.50	8.50	1.50	2.00	2.00	4.50	7.65	1.50	1.0	3.50	1.00	12.15	12.00	0.70	2.30	4.50	3.50	3.00	8.15	0.50	1.50	0.100	0.70	0.40

THIS DRAWING IS THE RESULT OF PRELIMINARY DESIGN AND IS FOR COST ESTIMATION ONLY AND SHOULD NOT BE USED FOR CONSTRUCTION

REPUBLIC OF INDONESIA MINISTRY OF AGRICULTURE
DIRECTORATE GENERAL OF FOOD CROPS AGRICULTURE
FEASIBILITY STUDY OF LAND DEVELOPMENT PROJECT
IMPROVEMENT OF LAND AND IRRIGATION SYSTEMS AT FARM LEVEL

STANDARD DESIGN OF WEIR

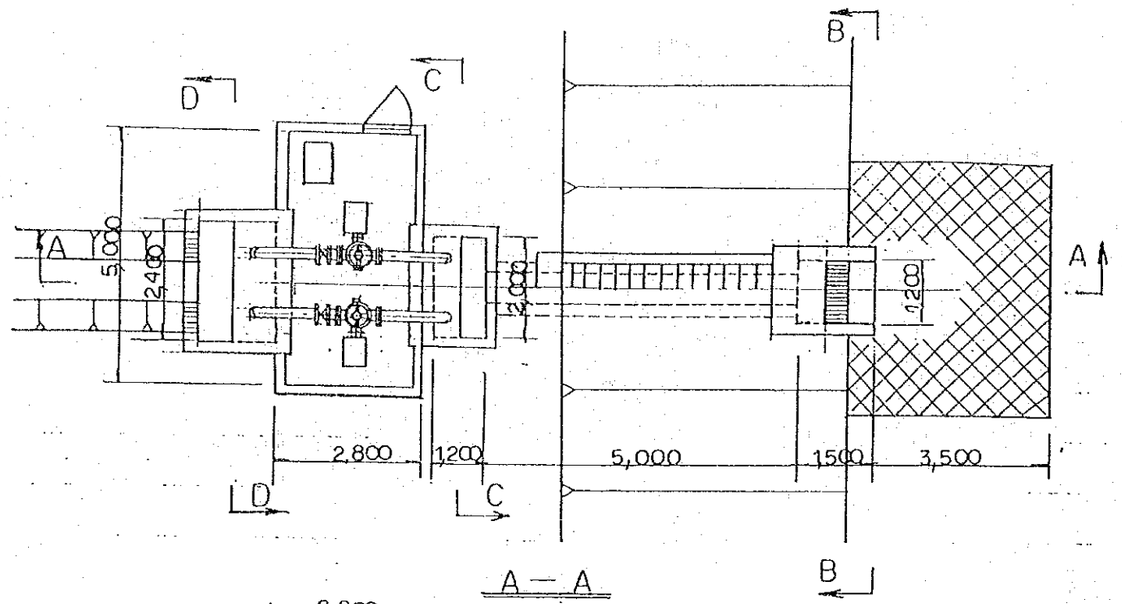
SCHEME: PROVINCE:

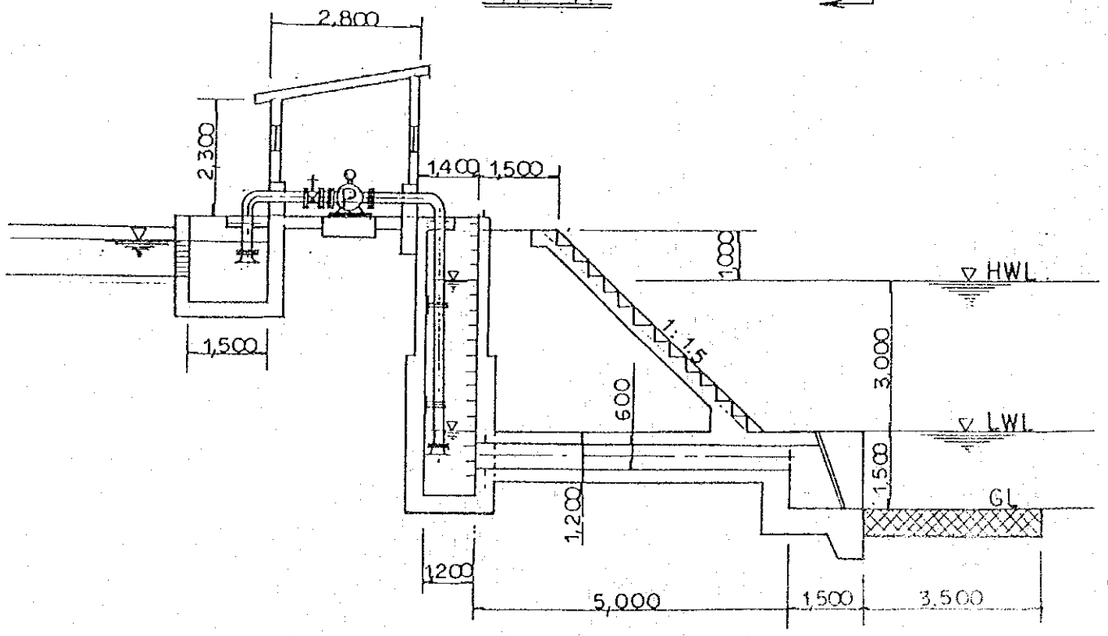
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO (JICA)

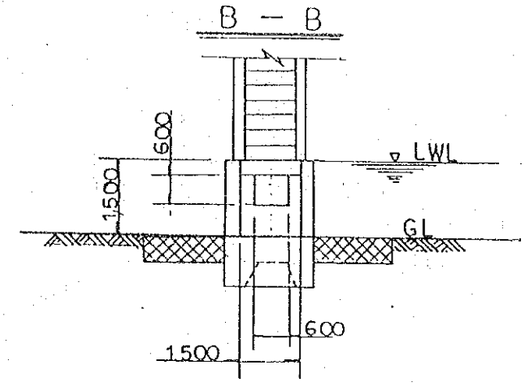
DWG. NO. 79

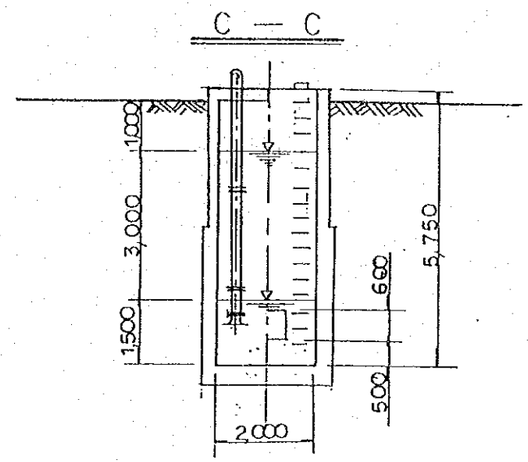
Fig. IV-2 STANDARD DESIGN OF WEIR PLAN & SECTION

STNDARD OF PUMP STATION









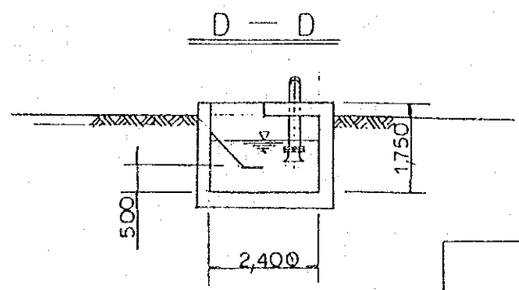


Fig. IV-3 STANDARD PUMP STATION

REPUBLIC OF INDONESIA MINISTRY OF AGRICULTURE
DIRECTORATE GENERAL OF FOOD CROPS AGRICULTURE
FEASIBILITY STUDY OF LAND DEVELOPMENT PROJECT
IMPROVEMENT OF LAND AND IRRIGATION SYSTEMS
AT FARM LEVEL

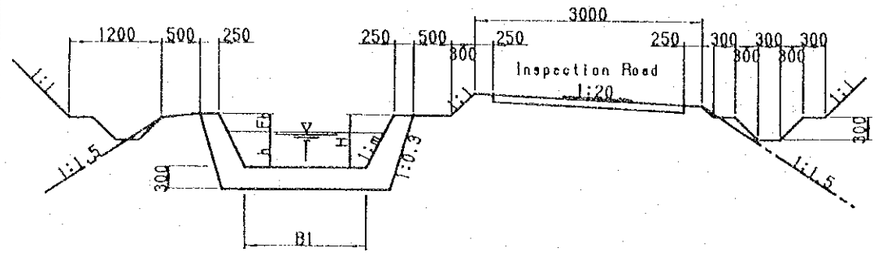
STANDARD OF PUMP STATION

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO (JICA)

DWG NO 82

STANDARD SECTION OF HEAD REACH AND MAIN DELIVERY CANAL

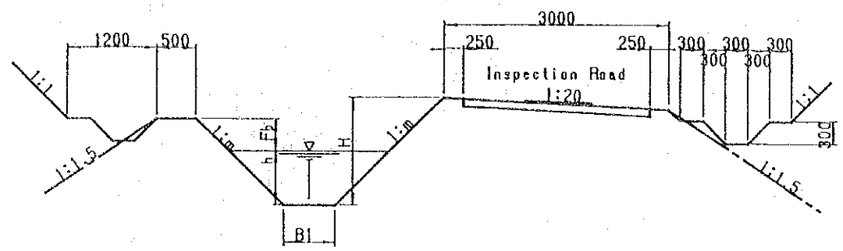
Masonry Lining Inclined Type



DIMENSION OF MASONRY LINING CANAL (Inclined Type)

TYPE	Q (m3/s)	H (m)	h (m)	Fb (m)	B1 (m)	m (1:m)	k	V (m/s)	I (1/1)
M- 1	0.50	0.70	0.47	0.23	1.60	0.5	60	0.580	2,400
M- 2	0.45	0.70	0.47	0.23	1.50	0.5	60	0.552	2,600
M- 3	0.40	0.70	0.47	0.23	1.50	0.5	60	0.491	3,300
M- 4	0.35	0.70	0.47	0.23	1.40	0.5	60	0.455	3,700

Main Delivery Canal

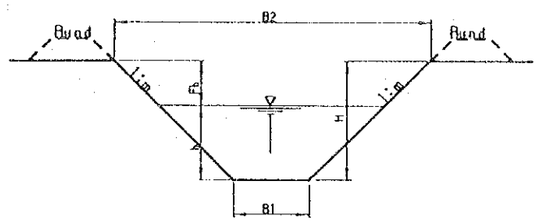


DIMENSION OF EARTH CANAL

TYPE	Q (m3/s)	H (m)	h (m)	Fb (m)	B1 (m)	m (1:m)	k	V (m/s)	I (1/1)
E- 1	0.50	1.15	0.73	0.42	0.70	1.0	35	0.479	1,500
E- 2	0.45	1.15	0.71	0.44	0.70	1.0	35	0.450	1,600
E- 3	0.40	1.10	0.69	0.41	0.70	1.0	35	0.417	1,800
E- 4	0.35	1.10	0.66	0.44	0.70	1.0	35	0.390	2,000
E- 5	0.30	0.95	0.64	0.31	0.60	1.0	35	0.378	1,900
E- 6	0.25	0.90	0.60	0.30	0.60	1.0	35	0.347	2,200
E- 7	0.20	0.90	0.58	0.32	0.60	1.0	35	0.316	2,400
E- 8	0.15	0.80	0.50	0.30	0.50	1.0	35	0.300	2,300
E- 9	0.10	0.75	0.41	0.34	0.40	1.0	35	0.313	1,500
E-10	0.05	0.60	0.29	0.31	0.30	1.0	35	0.364	600

STANDARD SECTION OF DRAINAGE CANAL

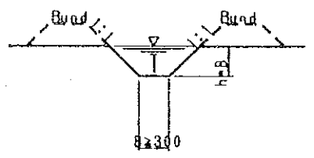
Main Drainage Canal



DIMENSION OF MAIN DRAINAGE CANL

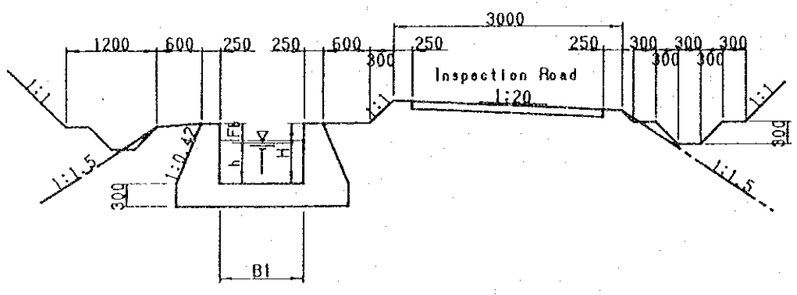
TYPE	Q (m3/s)	H (m)	h (m)	Fb (m)	B1 (m)	B2 (m)	m (1:m)
D- 1	0.50	1.50	1.00	0.50	1.00	4.00	1.0
D- 2	1.00	1.50	1.00	0.50	1.00	4.00	1.0
D- 3	2.00	1.60	1.00	0.60	1.00	4.20	1.0

Sub Drainage Canal



0.20m/s≤V≤0.40m/s
K=25

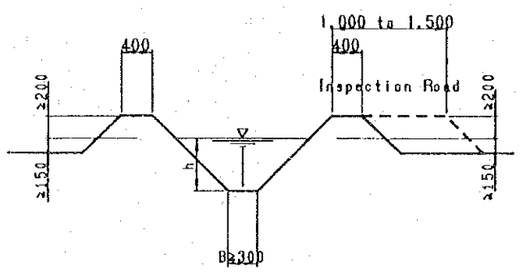
Masonry Lining Vertical Type



DIMENSION OF MASONRY LINING CANAL (Vertical Type)

TYPE	Q (m3/s)	H (m)	h (m)	Fb (m)	B1 (m)	m (1:m)	k	V (m/s)	I (1/1)
C- 5	0.30	0.80	0.58	0.22	1.10	-	60	0.470	3,000
C- 6	0.25	0.75	0.55	0.20	1.10	-	60	0.413	3,800
C- 7	0.20	0.75	0.55	0.20	1.00	-	60	0.364	4,500
C- 8	0.15	0.70	0.46	0.24	0.90	-	60	0.362	3,800
C- 9	0.10	0.60	0.38	0.22	0.70	-	60	0.376	2,600
C-10	0.05	0.45	0.25	0.20	0.50	-	60	0.400	1,400

Sub Delivery Canal



0.20m/s≤V≤0.40m/s
K=30

Fig. IV-4 STANDARD SECTION OF IRRIGATION & DRAINAGE CANAL

REPUBLIC OF INDONESIA MINISTRY OF AGRICULTURE
DIRECTORATE GENERAL OF FOOD CROPS AGRICULTURE
FEASIBILITY STUDY OF LAND DEVELOPMENT PROJECT
IMPROVEMENT OF LAND AND IRRIGATION SYSTEMS
AT FARM LEVEL

STANDARD SECTION OF CANAL

SCHEME: PROVINCE:

JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO (JICA)

DWG.NO. 81

APPENDIX--V

SOIL AND LAND USE

APPENDIX-V SOIL AND LAND USE

1. GENERAL

In Appendix-V, soil and land use features are described regarding to the objective provinces, the Project areas, and the representative scheme areas, in turn. The provincial overviews are based on the statistical data and existing maps representing soils and land use. As for the project area, the results of the inventory survey conducted by the Study Team provide general information, although the data are not always reliable. As to the representative schemes, soil investigation and land use mapping were carried out within the Study. The results of these works show detail conditions on the sites, moreover contribute on future land use plans on the schemes.

2. SOIL

2.1 Provincial Overview of Soil

Soils are regarded as one of main factors which determine how land can be used. There are numerous large-scale soil maps for the country's regions but no for the whole country in Indonesia. The criteria or category of soils are not uniformed for long time. The Research Center for Soil and Agro-climate is now preparing comprehensive criteria and category for soil, but the works are still on the way. The existing criteria are basically in line with FAO-UNESCO system (refer to Table V-1). Although there are slight differences in the soil classification, basic information of soils comes from provincial soil maps prepared by National Land Agency (BPN) in the province level.

The soil maps covering whole provincial area are slightly modified and presented in Fig. V-1, V-2, and V-3 by province, and soil distribution is shown in Table V-2.

2.2 Soil in the Project

Soil maps in the three provinces are available to understand general condition of soils for this project scattered in whole provincial area. Soil name on each survey area can be distinguished by overlaying location maps on soil maps. General soil maps are attached as Fig. V-1, V-2 and V-3. Soil names on these maps are in line with Indonesian soil classification system that is based on FAO-Unesco soil units. The major soils in the three provinces are as follows.

Sumut:	Organosol, Alluvial, Regosol, Grumusol, Andosol, Podosolik, Latosol
Sulsel:	Alluvial, Gley, Latosol, Regosol, Grumusol, Rensina, Podosolik, Mediteran
NTB:	Mediteran(23.4%), Regosol(19.4%), Alluvial(7.3%), Grumusol(5.1%), Latosol(2.0%)

Results of the inventory survey on soil name, ground slope, soil suitability for paddy and secondary crops (palawija) and other physical conditions at the project areas are summarized as shown in Table V-3. Soil distribution on the projects has some difference among the provinces. Soils which have over 10 % share in number of sub projects are listed as follows by provinces (refer to Fig. V-4).