Table 4.2 Calculation of Population Projection of Urban and Rural by Kabupaten in 2020 (1/7)

Province Code	Kabupaten Adomi Code	Name of Kab./Kota	Projection Year = 2020 Projection BTA 155			Projection Year = 2020 Projection FIDP		
			Total	Urban	Rural	Total	Urban	Rural
11	1101	Kab. Aceh Selatan	470,753	150,517	320,236	491,592	170,032	321,560
11	1102	Kab. Aceh Tenggara	229,838	26,281	203,557	234,087	29,688	204,399
11	1103	Kab. Aceh Timur	970,196	491,931	478,265	1,035,955	555,712	480,242
11	1104	Kab. Aceh Tengah	265,908	70,031	195,877	275,798	79,111	196,687
11	1105	Kab. Aceh Barat	599,261	116,105	483,156	616,312	131,159	485,154
11	1106	Kab. Aceh Besar	307,079	24,948	282,131	311,480	28,183	283,297
11	1107	Kab. Pidie	559,848	102,961	456,887	575,086	116,310	458,776
11	1108	Kab. Aceh Utara	1,344,719	619,636	725,083	1,428,056	699,975	728,081
11	1171	Kod. Banda Aceh	677,566	669,779	7,787	764,439	756,619	7,819
11	1172	Kod. Sabang	25,175	12,571	12,604	26,857	14,201	12,656
		D.I.ACEH	5,450,343	2,284,760	3,165,583	5,759,663	2,580,991	3,178,671
						0		
12	1201	Kab. Nias	794,012	111,162	682,850	758,976	114,268	644,708
12	1202	Kab. Tapanuli Selatan	1,297,002	161,804	1,135,198	1,238,115	166,325	1,071,790
12	1203	Kab. Tapanuli Tengah	297,961	56,426	241,535	286,046	58,003	228,044
12	1204	Kab. Tapanuli Utara	710,773	103,163	607,610	679,716	106,045	573,671
12	1205	Kab. Labuhan Batu	1,094,209	694,372	399,837	1,091,276	713,773	377,503
12	1206	Kab. Asahan	1,036,943	386,690	650,253	1,011,426	397,494	613,932
12	1207	Kab. Simalungun	861,534	107,147	754,387	822,390	110,141	712,250
12	1208	Kab. Dairi	326,595	9,551	317,044	309,153	9,818	299,335
12	1209	Kab. Karo	315,684	75,400	240,284	304,369	77,507	226,863
12	1210	Kab. Deli Serdang	2,250,814	1,777,010	473,804	2,273,998	1,826,659	447,339
12	1211	Kab. Langkat	971,664	128,347	843,317	928,145	131,933	796,212
12	1271	Kod. Sibolga	90,377	90,377	0	92,902	92,902	0
12	1272	Kod. Tanjung Balai	683,499	680,596	2,903	702,353	699,612	2,741
12	1273	Kod. Pematang Siantar	379,753	369,605	10,148	389,513	379,932	9,581
12	1274	Kod. Tebing Tinggi	159,482	159,482	0	163,938	163,938	0
12	1275	Kod. Medan	2,338,313	2,307,155	31,158	2,401,034	2,371,616	29,418
12	1276	Kod. Binjai	935,338	898,167	37,171	958,356	923,262	35,095
		SUMATERA UTARA	14,543,953	8,116,454	6,427,499	14,411,707	8,343,226	6,068,481
						0		
13	1301	Kab. Pesisir Selatan	474,107	17,888	456,219	498,209	20,021	478,188
13	1302	Kab. Solok	564,498	9,654	554,844	592,367	10,805	581,562
13	1303	Kab. Sawah Lunto/Sijunjung	466,204	227,938	238,266	504,855	255,115	249,740
13	1304	Kab. Tanah Datar	376,174	43,570	332,604	397,385	48,765	348,620
13	1305	Kab. Padang Pariaman	567,707	184,468	383,239	608,156	206,462	401,694
13	1306	Kab. Agam	434,949	177,519	257,430	468,511	198,685	269,827
13	1307	Kab. Limapuluh Koto	336,175	31,436	304,739	354,598	35,184	319,414
13	1308	Kab. Pasaman	639,657	11,095	628,562	671,248	12,418	658,830
13	1371	Kod. Padang	975,535	912,436	63,099	1,087,365	1,021,227	66,138
13	1372	Kod. Solok	69,209	61,653	7,556	76,924	69,004	7,920
13	1373	Kod. Sawah Lunto	18,202	17,843	359	20,347	19,970	376
13	1374	Kod. Padang Panjang	45,386	41,505	3,881	50,522	46,454	4,068
13	1375	Kod. Bukit Tinggi	107,904	102,806	5,098	120,407	115,064	5,343
13	1376	Kod. Payakumbuh	111,928	93,432	18,496	123,959	104,572	19,387
		SUMATERA BARAT	5,187,635	1,933,243	3,254,392	5,574,854	2,163,747	3,411,107

Table 4.2 Calculation of Population Projection of Urban and Rural by Kabupaten in 2020 (2/7)

Province Code	Kabupaten Adomi Code	Name of Kab./Kota	Projection Year = 2020 Projection BTA 155 Total	Urban	Rural	Projection Year = 2020 Projection FIDP Total	Urban	Rural
						0		
14	1401	Kab. Indragiri Hulu	755,448	316,623	438,825	776,169	332,323	443,845
14	1402	Kab. Indragiri Hilir	596,822	54,885	541,937	605,744	57,607	548,137
14	1403	Kab. Kepulauan Riau	502,022	328,370	173,652	520,291	344,653	175,639
14	1404	Kab. Kampar	1,337,696	69,313	1,268,383	1,355,644	72,750	1,282,894
14	1405	Kab. Bengkalis	1,821,058	507,365	1,313,693	1,861,246	532,523	1,328,723
14	1471	Kod. Pekan Baru	1,529,750	1,457,069	72,681	1,602,832	1,529,320	73,513
14	1472	Kod. Batam	642,710	558,786	83,924	671,378	586,494	84,884
		RIAU	7,185,506	3,292,411	3,893,095	7,393,304	3,455,670	3,937,635
						0		
15	1501	Kab. Kerinci	345,249	139,648	205,601	406,823	167,531	239,292
15	1502	Kab. Bungo Tebo	735,150	324,892	410,258	867,247	389,762	477,486
15	1503	Kab. Sarolangun Bangko	806,086	129,719	676,367	942,820	155,619	787,201
15	1504	Kab. Batanghari	638,126	197,251	440,875	749,755	236,635	513,120
15	1505	Kab. Tanjung Jabung	470,632	35,895	434,737	549,038	43,062	505,976
15	1571	Kod. Jambi	655,176	631,233	23,943	785,135	757,268	27,866
		JAMBI	3,650,419	1,458,638	2,191,781	4,300,818	1,749,877	2,550,941
						0		
16	1601	Kab. Ogan Komering Ulu	1,458,543	191,776	1,266,767	1,547,646	205,873	1,341,773
16	1602	Kab. Ogan Komering Ilir	1,317,633	288,413	1,029,220	1,399,774	309,613	1,090,161
16	1603	Kab. Muara Enim (LIOT)	970,915	182,664	788,251	1,031,015	196,091	834,924
16	1604	Kab. Lahat	853,925	199,998	653,927	907,346	214,699	692,647
16	1605	Kab. Musi Rawas	914,534	121,693	792,841	970,424	130,638	839,786
16	1606	Kab. Musi Banyuasin	1,818,385	480,245	1,338,140	1,932,918	515,546	1,417,372
16	1607	Kab. Bangka	777,570	162,857	614,713	825,939	174,828	651,111
16	1608	Kab. Belitung	249,843	177,610	72,233	267,175	190,665	76,510
16	1671	Kod. Palembang	2,200,489	2,032,558	167,931	2,359,837	2,181,962	177,874
16	1672	Kod. Pangkal Pinang	164,032	155,084	8,948	175,961	166,484	9,478
		SUMATERA SELATAN	10,725,869	3,992,898	6,732,971	11,418,034	4,286,398	7,131,636
						0		
17	1701	Kab. Bengkulu Selatan	380,626	48,572	332,054	372,757	51,689	321,068
17	1702	Kab. Rejang Lebong	477,917	143,336	334,581	476,046	152,535	323,511
17	1703	Kab. Bengkulu Utara	894,513	31,196	863,317	867,951	33,198	834,753
17	1771	Kod. Bengkulu	919,902	901,897	18,005	977,188	959,778	17,409
		BENGKULU	2,672,958	1,125,001	1,547,957	2,693,942	1,197,201	1,496,741
						0		
18	1801	Kab. Lampung Selatan	2,388,989	134,134	2,254,855	2,389,441	139,464	2,249,977
18	1802	Kab. Lampung Tengah	2,320,266	241,917	2,078,349	2,325,382	251,529	2,073,853
18	1803	Kab. Lampung Utara	3,472,116	96,531	3,375,585	3,468,649	100,367	3,368,282
18	1871	Kod. Bandar Lampung	1,242,497	894,023	348,474	1,277,267	929,546	347,720
		LAMPUNG	9,423,868	1,366,605	8,057,263	9,460,738	1,420,906	8,039,832
						0		
31	3171	Wil. Jakarta Selatan	2,438,525	2,438,525	0	2,626,558	2,626,558	0
31	3172	Wil. Jakarta Timur	3,458,303	3,458,303	0	3,724,971	3,724,971	0
31	3173	Wil. Jakarta Pusat	933,272	933,272	0	1,005,236	1,005,236	0
31	3174	Wil. Jakarta Barat	3,273,394	3,273,394	0	3,525,803	3,525,803	0
31	3175	Wil. Jakarta Utara	2,222,881	2,222,881	0	2,394,286	2,394,286	0
		D.K.I.JAKARTA	12,326,375	12,326,375	0	13,276,854	13,276,854	0

Table 4.2 Calculation of Population Projection of Urban and Rural by Kabupaten in 2020 (3/7)

Province Code	Kabupaten Adomi Code	Name of Kab./Kota	Projection Year = 2020 Projection BTA 155			Projection Year = 2020 Projection FIDP		
			Total	Urban	Rural	Total	Urban	Rural
						0		
32	3201	Kab. Pandeglang	1,137,202	74,353	1,062,849	1,095,008	80,399	1,014,609
32	3202	Kab. Lebak	1,222,615	193,145	1,029,470	1,191,595	208,849	982,745
32	3203	Kab. Bogor	6,907,316	6,089,620	817,696	7,365,344	6,584,761	780,583
32	3204	Kab. Sukabumi	2,395,036	620,088	1,774,948	2,364,895	670,507	1,694,388
32	3205	Kab. Cianjur	2,101,027	364,493	1,736,534	2,051,847	394,130	1,657,717
32	3206	Kab. Bandung	4,054,525	2,940,984	1,113,541	4,243,113	3,180,113	1,063,000
32	3207	Kab. Garut	2,160,049	413,979	1,746,070	2,114,460	447,639	1,666,821
32	3208	Kab. Tasikmalaya	2,135,546	629,993	1,505,553	2,118,437	681,217	1,437,220
32	3209	Kab. Ciamis	1,623,109	251,158	1,371,951	1,581,261	271,579	1,309,682
32	3210	Kab. Kuningan	1,044,014	509,915	534,099	1,061,233	551,376	509,858
32	3211	Kab. Cirebon	2,193,282	1,730,441	462,841	2,312,975	1,871,142	441,834
32	3212	Kab. Majalengka	1,229,794	384,612	845,182	1,222,706	415,884	806,821
32	3213	Kab. Sumedang	991,088	200,311	790,777	971,484	216,598	754,886
32	3214	Kab. Indramayu	1,766,064	809,897	956,167	1,788,518	875,749	912,769
32	3215	Kab. Subang	1,408,877	304,275	1,104,602	1,383,482	329,015	1,054,467
32	3216	Kab. Purwakarta	740,167	242,408	497,759	737,285	262,118	475,167
32	3217	Kab. Karawang	1,905,040	841,200	1,063,840	1,925,152	909,597	1,015,555
32	3218	Kab. Bekasi	5,983,696	5,511,275	472,421	6,410,371	5,959,392	450,979
32	3219	Kab. Tangerang	7,558,044	6,897,670	660,374	8,088,914	7,458,513	630,401
32	3220	Kab. Serang	2,183,351	710,371	1,472,980	2,174,256	768,131	1,406,125
32	3271	Kod. Bogor	304,187	304,187	0	328,920	328,920	0
32	3272	Kod. Sukabumi	133,276	133,276	0	144,113	144,113	0
32	3273	Kod. Bandung	3,386,766	3,370,422	16,344	3,660,070	3,644,468	15,602
32	3274	Kod. Cirebon	299,220	290,704	8,516	322,470	314,341	8,129
		JAWA BARAT	54,863,291	33,818,777	21,044,514	56,657,910	36,568,550	20,089,360
						0		
33	3301	Kab. Cilacap	1,731,983	463,021	1,268,962	1,626,686	467,638	1,159,048
33	3302	Kab. Banyumas	1,539,249	894,099	645,150	1,492,284	903,015	589,269
33	3303	Kab. Purbalingga	834,380	107,062	727,318	772,449	108,130	664,319
33	3304	Kab. Banjarnegara	929,680	131,873	797,807	861,891	133,188	728,703
33	3305	Kab. Kebumen	1,254,691	225,431	1,029,260	1,167,787	227,679	940,108
33	3306	Kab. Purworejo	705,168	160,540	544,628	659,595	162,141	497,454
33	3307	Kab. Wonosobo	769,131	109,328	659,803	713,071	110,418	602,652
33	3308	Kab. Magelang	1,138,122	348,300	789,822	1,073,183	351,773	721,410
33	3309	Kab. Boyolali	937,484	456,191	481,293	900,345	460,740	439,605
33	3310	Kab. Klaten	1,112,663	597,277	515,386	1,073,978	603,233	470,745
33	3311	Kab. Sukoharjo	796,832	628,068	168,764	788,477	634,331	154,146
33	3312	Kab. Wonogiri	990,405	358,310	632,095	939,228	361,883	577,344
33	3313	Kab. Karanganyar	856,606	379,132	477,474	819,029	382,913	436,116
33	3314	Kab. Sragen	926,552	80,310	846,242	854,053	81,111	772,943
33	3315	Kab. Grobogan	1,370,514	493,217	877,297	1,299,443	498,136	801,308
33	3316	Kab. Blora	876,918	197,021	679,897	819,992	198,986	621,006
33	3317	Kab. Rembang	635,864	224,046	411,818	602,428	226,280	376,147
33	3318	Kab. Pati	1,198,880	386,266	812,614	1,132,345	390,118	742,227
33	3319	Kab. Kudus	798,985	667,671	131,314	794,269	674,329	119,940
33	3320	Kab. Jepara	1,054,896	838,140	216,756	1,044,479	846,498	197,981
33	3321	Kab. Demak	1,107,426	467,920	639,506	1,056,700	472,586	584,114
33	3322	Kab. Semarang	911,527	466,691	444,836	877,650	471,345	406,305
33	3323	Kab. Temanggung	711,671	102,206	609,465	659,900	103,225	556,675
33	3324	Kab. Kendal	959,453	343,305	616,148	909,507	346,729	562,779
33	3325	Kab. Batang	688,842	414,523	274,319	669,215	418,657	250,558
33	3326	Kab. Pekalongan	770,773	293,223	477,550	732,333	296,147	436,186

Table 4.2 Calculation of Population Projection of Urban and Rural by Kabupaten in 2020 (4/7)

Province Code	Kabupaten Adomi Code	Name of Kab./Kota	Projection Year = 2020 Projection BTA 155 Total	Urban	Rural	Projection Year = 2020 Projection FIDP Total	Urban	Rural
33	3327	Kab. Pemalang	1,413,402	743,257	670,145	1,362,768	750,669	612,099
33	3328	Kab. Tegal	1,464,990	1,091,319	373,671	1,443,507	1,102,202	341,305
33	3329	Kab. Brebes	1,999,072	1,069,920	929,152	1,929,261	1,080,590	848,671
33	3371	Kod. Magelang	122,896	122,896	0	124,122	124,122	0
33	3372	Kod. Surakarta	554,306	554,306	0	559,834	559,834	0
33	3373	Kod. Salatiga	118,480	118,480	0	119,662	119,662	0
33	3374	Kod. Semarang	1,674,970	1,354,479	320,491	1,660,717	1,367,987	292,731
33	3375	Kod. Pekalongan	750,378	745,314	5,064	757,372	752,747	4,625
33	3376	Kod. Tegal	633,792	632,266	1,526	639,965	638,571	1,394
		JAWA TENGAH	34,340,981	16,265,408	18,075,573	32,937,525	16,427,615	16,509,911
						0		
34	3401	Kab. Kulon Progo	362,120	59,014	303,106	306,866	54,305	252,561
34	3402	Kab. Bantul	792,027	622,489	169,538	714,083	572,817	141,266
34	3403	Kab. Gunung Kidul	640,502	39,844	600,658	537,158	36,665	500,494
34	3404	Kab. Sleman	952,776	750,605	202,171	859,167	690,710	168,458
34	3471	Kod. Yogyakarta	430,854	430,854	0	396,474	396,474	0
		YOGYAKARTA	3,178,279	1,902,806	1,275,473	2,813,749	1,750,970	1,062,779
						0		
						0		
35	3501	Kab. Pacitan	534,338	15,290	519,048	509,251	15,878	493,373
35	3502	Kab. Ponorogo	913,361	274,868	638,493	892,353	285,444	606,909
35	3503	Kab. Trenggalek	714,538	63,280	651,258	684,757	65,715	619,043
35	3504	Kab. Tulungagung	970,487	429,547	540,940	960,256	446,074	514,182
35	3505	Kab. Blitar	1,055,908	348,959	706,949	1,034,364	362,385	671,979
35	3506	Kab. Kediri	1,501,888	718,914	782,974	1,490,818	746,574	744,243
35	3507	Kab. Malang	2,511,067	1,179,287	1,331,780	2,490,562	1,224,660	1,265,902
35	3508	Kab. Lumajang	995,087	371,588	623,499	978,542	385,885	592,657
35	3509	Kab. Jember	2,334,052	618,605	1,715,447	2,272,996	642,406	1,630,590
35	3510	Kab. Banyuwangi	1,499,844	320,581	1,179,263	1,453,845	332,915	1,120,929
35	3511	Kab. Bondowoso	722,389	128,471	593,918	697,953	133,414	564,539
35	3512	Kab. Situbondo	646,505	358,685	287,820	646,068	372,486	273,583
35	3513	Kab. Probolinggo	987,277	110,906	876,371	948,193	115,173	833,020
35	3514	Kab. Pasuruan	1,418,585	420,649	997,936	1,385,405	436,834	948,572
35	3515	Kab. Sidoarjo	1,901,589	1,641,319	260,270	1,951,865	1,704,469	247,395
35	3516	Kab. Mojokerto	912,880	644,895	267,985	924,436	669,708	254,729
35	3517	Kab. Jombang	1,213,522	693,510	520,012	1,214,482	720,193	494,289
35	3518	Kab. Nganjuk	1,034,093	368,560	665,533	1,015,352	382,740	632,612
35	3519	Kab. Madiun	625,788	112,673	513,115	604,741	117,008	487,733
35	3520	Kab. Magetan	651,865	66,212	585,653	625,442	68,760	556,683
35	3521	Kab. Ngawi	843,426	80,937	762,489	808,823	84,051	724,771
35	3522	Kab. Bojonegoro	1,263,239	180,496	1,082,743	1,216,624	187,441	1,029,184
35	3523	Kab. Tuban	1,143,202	232,660	910,542	1,107,113	241,612	865,501
35	3524	Kab. Lamongan	1,281,420	125,159	1,156,261	1,229,040	129,975	1,099,065
35	3525	Kab. Gresik	1,076,113	615,498	460,615	1,077,010	639,180	437,830
35	3526	Kab. Bangkalan	843,198	204,786	638,412	819,497	212,665	606,832
35	3527	Kab. Sampang	868,983	110,189	758,794	835,688	114,429	721,259
35	3528	Kab. Pamekasan	779,069	107,255	671,814	749,964	111,382	638,582
35	3529	Kab. Sumenep	1,050,738	185,183	865,555	1,015,047	192,308	822,739
35	3571	Kod. Kediri	293,519	284,610	8,909	304,029	295,560	8,468
35	3572	Kod. Blitar	237,867	235,197	2,670	246,784	244,246	2,538
35	3573	Kod. Malang	1,122,670	1,077,234	45,436	1,161,869	1,118,681	43,188
35	3574	Kod. Probolinggo	492,737	479,185	13,552	510,503	497,622	12,882
35	3575	Kod. Pasuruan	353,339	347,893	5,446	366,455	361,278	5,177
35	3576	Kod. Mojokerto	183,318	182,114	1,204	190,265	189,121	1,144

Table 4.2 Calculation of Population Projection of Urban and Rural by Kabupaten in 2020 (5/7)

Province Code	Kabupaten Adomi Code	Name of Kab./Kota	Projection Year = 2020 Projection BTA 155 Total	Urban	Rural	Projection Year = 2020 Projection FIDP Total	Urban	Rural
35	3577	Kod. Madiun	201,565	198,110	3,455	209,016	205,732	3,284
35	3578	Kod. Surabaya	3,325,813	3,286,139	39,674	3,450,286	3,412,574	37,711
		JAWA TIMUR	38,505,279	16,819,444	21,685,835	38,079,695	17,466,578	20,613,117
						0		
51	5101	Kab. Jembrana	235,503	66,313	169,190	226,043	69,280	156,763
51	5102	Kab. Tabanan	358,298	165,702	192,596	351,565	173,115	178,450
51	5103	Kab. Badung	1,007,922	883,128	124,794	1,038,265	922,637	115,628
51	5104	Kab. Gianyar	383,036	144,266	238,770	371,953	150,720	221,233
51	5105	Kab. Klungkung	152,738	107,018	45,720	154,168	111,806	42,362
51	5106	Kab. Bangli	198,541	30,077	168,464	187,513	31,423	156,091
51	5107	Kab. Karangasem	386,845	64,884	321,961	366,100	67,787	298,313
51	5108	Kab. Buleleng	621,796	176,307	445,489	596,963	184,194	412,769
		BALI	3,344,679	1,637,695	1,706,984	3,292,569	1,710,961	1,581,609
						0		
52	5201	Kab. Lombok Barat	1,350,464	563,242	787,222	1,333,486	575,854	757,632
52	5202	Kab. Lombok Tengah	874,839	49,995	824,844	844,954	51,115	793,840
52	5203	Kab. Lombok Timur	1,142,418	286,601	855,817	1,116,667	293,019	823,649
52	5204	Kab. Sumbawa	517,024	120,438	396,586	504,814	123,135	381,679
52	5205	Kab. Dompu	304,202	46,641	257,561	295,565	47,685	247,880
52	5206	Kab. Bima	617,300	145,529	471,771	602,826	148,788	454,038
		NUSA TENGGARA BARAT	4,806,247	1,212,446	3,593,801	4,698,313	1,239,595	3,458,718
						0		
53	5301	Kab. Sumba Barat	421,751	60,256	361,495	455,420	69,777	385,643
53	5302	Kab. Sumba Timur	216,162	160,518	55,644	245,243	185,882	59,361
53	5303	Kab. Kupang	799,528	317,608	481,920	881,906	367,793	514,112
53	5304	Kab. Timor Tengah Selatan	463,543	71,748	391,795	501,052	83,085	417,967
53	5305	Kab. Timor Tengah Utara	221,640	0	221,640	236,446	0	236,446
53	5306	Kab. Belu	284,097	42,988	241,109	306,996	49,781	257,215
53	5307	Kab. Alor	180,673	26,174	154,499	195,129	30,310	164,820
53	5308	Kab. Flores Timur	277,137	30,195	246,942	298,404	34,966	263,438
53	5309	Kab. Sikka	293,592	85,898	207,694	321,039	99,471	221,568
53	5310	Kab. Ende	246,552	110,189	136,363	273,072	127,600	145,472
53	5311	Kab. Ngada	243,768	35,714	208,054	263,309	41,357	221,952
53	5312	Kab. Manggarai	720,200	128,050	592,150	779,989	148,283	631,706
		NUSA TENGGARA TIMUR	4,368,643	1,069,338	3,299,305	4,758,004	1,238,305	3,519,699
						0		
54	5401	Kab. Covalima	114,436	0	114,436	105,207	0	105,207
54	5402	Kab. Ainaro	42,510	0	42,510	39,082	0	39,082
54	5403	Kab. Manufahi/Same	47,377	0	47,377	43,556	0	43,556
54	5404	Kab. Viqueque	60,399	0	60,399	55,528	0	55,528
54	5405	Kab. Lautem	66,129	19,449	46,680	61,781	18,866	42,915
54	5406	Kab. Baucau	103,621	0	103,621	95,264	0	95,264
54	5407	Kab. Manatuto	45,147	0	45,147	41,506	0	41,506
54	5408	Kab. Dilli	340,063	121,316	218,747	318,785	117,680	201,106
54	5409	Kab. Aileu	52,381	0	52,381	48,157	0	48,157
54	5410	Kab. Liquica	81,132	0	81,132	74,589	0	74,589
54	5411	Kab. Emera	121,805	0	121,805	111,982	0	111,982
54	5412	Kab. Bobonaro	118,372	0	118,372	108,826	0	108,826
54	5413	Kab. Ambeno	71,128	0	71,128	65,392	0	65,392
		TIMOR TIMUR	1,264,500	140,765	1,123,735	1,169,654	136,546	1,033,108

Table 4.2 Calculation of Population Projection of Urban and Rural by Kabupaten in 2020 (6/7)

Province Code	Kabupaten Adomi Code	Name of Kab./Kota	Projection Year = 2020 Projection BTA 155 Total	Urban	Rural	Projection Year = 2020 Projection FIDP Total	Urban	Rural
						0		
61	6101	Kab. Sambas	1,122,846	182,758	940,088	1,198,298	198,697	999,601
61	6102	Kab. Pontianak	1,196,206	573,864	622,342	1,285,653	623,913	661,740
61	6103	Kab. Sanggau	699,468	88,803	610,665	745,871	96,548	649,323
61	6104	Kab. Ketapang	501,307	58,645	442,662	534,445	63,760	470,685
61	6105	Kab. Sintang	720,132	48,555	671,577	766,881	52,790	714,092
61	6106	Kab. Kapuas Hulu	227,044	33,262	193,782	242,212	36,163	206,049
61	6171	Kod. Pontianak	625,948	620,136	5,812	680,401	674,221	6,180
		KALIMANTAN BARAT	5,092,951	1,606,023	3,486,928	5,453,761	1,746,091	3,707,670
						0		
62	6201	Kab. Kotawaringin Barat	467,388	386,420	80,968	485,238	404,835	80,403
62	6202	Kab. Kotawaringin Timur	777,088	320,211	456,877	789,157	335,471	453,686
62	6203	Kab. Kapuas	768,395	54,753	713,642	766,020	57,362	708,658
62	6204	Kab. Barito Selatan	219,305	59,394	159,911	221,019	62,224	158,794
62	6205	Kab. Barito Utara	208,499	34,596	173,903	208,933	36,245	172,689
62	6271	Kod. Palangka Raya	365,204	348,469	16,735	381,694	365,076	16,618
		KALIMANTAN TENGAH	2,805,879	1,203,843	1,602,036	2,852,061	1,261,213	1,590,848
						0		
63	6301	Kab. Tanah Laut	357,165	28,710	328,455	389,295	32,665	356,630
63	6302	Kab. Kota Baru	675,004	345,207	329,797	750,850	392,763	358,087
63	6303	Kab. Banjar	635,649	353,758	281,891	708,564	402,492	306,072
63	6304	Kab. Barito Kuala	347,108	11,927	335,181	377,503	13,570	363,933
63	6305	Kab. Tapin	157,768	0	157,768	171,302	0	171,302
63	6306	Kab. Hulu Sungai Selatan	197,733	28,929	168,804	216,199	32,914	183,284
63	6307	Kab. Hulu Sungai Tengah	251,616	28,656	222,960	274,690	32,604	242,086
63	6308	Kab. Hulu Sungai Utara	330,110	132,661	197,449	365,323	150,936	214,386
63	6309	Kab. Tabalong	202,450	16,839	185,611	220,692	19,159	201,533
63	6371	Kod. Banjarmasin	680,287	662,248	18,039	773,066	753,479	19,586
		KALIMANTAN SELATAN	3,834,890	1,608,935	2,225,955	4,247,483	1,830,582	2,416,901
						0		
64	6401	Kab. Pasir	1,318,064	66,672	1,251,392	1,598,008	79,622	1,518,386
64	6402	Kab. Kutai	1,360,462	1,331,757	28,705	1,625,257	1,590,428	34,829
64	6403	Kab. Berau	93,283	64,607	28,676	111,950	77,156	34,794
64	6404	Kab. Bulongan	329,752	267,531	62,221	394,991	319,494	75,496
64	6471	Kod. Balikpapan	442,270	417,874	24,396	528,640	499,039	29,601
64	6472	Kod. Samarinda	758,919	719,755	39,164	907,075	859,555	47,520
		KALIMANTAN TIMUR	4,302,750	2,868,196	1,434,554	5,165,921	3,425,294	1,740,627
						0		
71	7101	Kab. Gorontalo	759,202	146,560	612,642	780,489	160,138	620,351
71	7102	Kab. Bolaang Mongondow	512,951	165,554	347,397	532,660	180,892	351,768
71	7103	Kab. Minahasa	881,928	201,512	680,416	909,158	220,181	688,977
71	7104	Kab. Sangihe Talaud	295,713	10,014	285,699	300,236	10,942	289,294
71	7171	Kod. Gorontalo	161,281	148,982	12,299	175,238	162,784	12,454
71	7172	Kod. Manado	594,936	576,333	18,603	648,565	629,728	18,837
		SULAWESI UTARA	3,206,011	1,248,955	1,957,056	3,346,345	1,364,665	1,981,681
						0		
72	7201	Kab. Banggai	538,348	228,129	310,219	606,721	274,099	332,623
72	7202	Kab. Poso	547,430	282,603	264,827	623,502	339,550	283,953
72	7203	Kab. Donggala	1,327,223	693,063	634,160	1,512,679	832,721	679,958
72	7204	Kab. Buol Toli-Toli	366,580	78,336	288,244	403,182	94,121	309,061
		SURAWESI TENGAH	2,779,581	1,282,131	1,497,450	3,146,085	1,540,490	1,605,594

Table 4.2 Calculation of Population Projection of Urban and Rural by Kabupaten in 2020 (7/7)

Province Code	Kabupaten Adomi Code	Name of Kab./Kota	Projection Year = 2020 Projection BTA 155			Projection Year = 2020 Projection FIDP		
			Total	Urban	Rural	Total	Urban	Rural
						0		
73	7301	Kab. Selayar	102,085	17,454	84,631	114,726	20,675	94,052
73	7302	Kab. Bulukumba	384,916	84,415	300,501	433,941	99,991	333,951
73	7303	Kab. Bantaeng	190,774	18,500	172,274	213,364	21,914	191,450
73	7304	Kab. Jeneponto	367,004	0	367,004	407,856	0	407,856
73	7305	Kab. Takalar	257,504	99,955	157,549	293,484	118,398	175,086
73	7306	Kab. Gowa	546,446	205,480	340,966	622,314	243,394	378,920
73	7307	Kab. Sinjai	229,059	47,038	182,021	257,999	55,717	202,282
73	7308	Kab. Maros	299,585	103,566	196,019	340,514	122,675	217,838
73	7309	Kab. Pangkajene Kepulauan	282,270	6,995	275,275	314,202	8,286	305,917
73	7310	Kab. Barru	161,447	29,792	131,655	181,599	35,289	146,310
73	7311	Kab. Bone	596,711	117,663	479,048	671,746	139,374	532,372
73	7312	Kab. Soppeng	215,757	39,086	176,671	242,635	46,298	196,337
73	7313	Kab. Wajo	342,124	130,019	212,105	389,724	154,009	235,715
73	7314	Kab. Sidenreng Rappang	263,727	44,129	219,598	296,313	52,271	244,042
73	7315	Kab. Pinrang	335,921	70,748	265,173	378,492	83,802	294,690
73	7316	Kab. Enrekang	168,334	0	168,334	187,072	0	187,072
73	7317	Kab. Luwu	1,055,733	132,849	922,884	1,182,974	157,362	1,025,613
73	7318	Kab. Tana Toraja	405,954	35,514	370,440	453,741	42,067	411,675
73	7319	Kab. Polewali Mamasa	455,483	213,933	241,550	521,844	253,407	268,438
73	7320	Kab. Majene	102,160	29,218	72,942	115,671	34,609	81,061
73	7321	Kab. Mamuju	470,532	39,628	430,904	525,809	46,940	478,869
73	7371	Kod. Ujung Pandang	1,414,017	1,392,615	21,402	1,673,357	1,649,572	23,784
73	7372	Kod. Pare Pare	124,557	115,282	9,275	146,861	136,553	10,307
		SULAWESI SELATAN	8,772,100	2,973,879	5,798,221	9,966,238	3,522,602	6,443,636
						0		
74	7401	Kab. Buton	549,795	409,439	140,356	622,473	474,746	147,727
74	7402	Kab. Muna	343,348	93,876	249,472	371,422	108,850	262,573
74	7403	Kab. Kendari	1,104,079	492,118	611,961	1,214,711	570,613	644,097
74	7404	Kab. Kolaka	595,014	80,432	514,582	634,866	93,261	541,605
		SULAWESI TENGGARA	2,592,236	1,075,865	1,516,371	2,843,472	1,247,471	1,596,002
						0		
81	8101	Kab. Maluku Tenggara	370,281	179,658	190,623	392,907	197,871	195,036
81	8102	Kab. Maluku Tengah	960,384	284,963	675,421	1,004,909	313,851	691,058
81	8103	Kab. Maluku Utara	1,190,189	494,255	695,934	1,256,406	544,359	712,046
81	8171	Kod. Ambon	447,630	417,774	29,856	490,673	460,125	30,547
		MALUKU	2,968,484	1,376,650	1,591,834	3,144,894	1,516,206	1,628,688
						0		
82	8201	Kab. Merauke	440,966	191,292	249,674	474,658	210,275	264,383
82	8202	Kab. Jaya Wijaya	767,553	80,661	686,892	816,025	88,666	727,360
82	8203	Kab. Jayapura	625,839	308,123	317,716	675,134	338,700	336,434
82	8204	Kab. Paniai	393,229	24,026	369,203	417,365	26,410	390,954
82	8205	Kab. Fak Fak	176,299	49,037	127,262	188,663	53,903	134,760
82	8206	Kab. Sorong	396,905	179,269	217,636	427,517	197,059	230,458
82	8207	Kab. Manokwari	273,533	122,784	150,749	294,599	134,969	159,630
82	8208	Kab. Yapen Waropen	96,538	45,093	51,445	104,044	49,568	54,476
82	8209	Kab. Biak Numfor	136,109	74,791	61,318	147,143	82,213	64,930
		IRIAN JAYA	3,306,971	1,075,076	2,231,895	3,545,148	1,181,763	2,363,385

Source : JICA-FIDP Team calculation based on BTA-155

Table 4.3 Population Projection of Urban by River Basin (1/3)

River Basin	Projection Year						
	1990	1995	2000	2005	2010	2015	2020
1010	170,873	231,540	301,960	387,522	494,330	632,269	771,469
1020	26,903	36,455	47,542	61,013	77,830	99,548	121,464
1030	138,976	188,318	245,592	315,182	402,052	514,242	627,457
1040	63,942	86,644	112,995	145,013	184,981	236,598	288,688
1050	65,278	87,996	114,235	145,974	185,508	236,493	288,005
1060	22,063	29,897	38,989	50,037	63,828	81,639	99,613
1071	28,400	38,483	50,187	64,407	82,159	105,085	128,220
1072	4,996	6,770	8,829	11,330	14,453	18,486	22,556
1080	48,339	61,590	75,864	91,988	111,393	135,829	161,009
1090	616,163	745,520	870,349	994,175	1,132,206	1,296,190	1,473,562
1100	1,880,580	2,275,349	2,656,282	3,034,130	3,455,308	3,955,658	4,496,875
1110	147,648	178,643	208,550	238,216	271,284	310,567	353,060
1121	231,105	279,618	326,431	372,865	424,624	486,112	552,622
1122	201,274	243,525	284,295	324,735	369,813	423,364	481,289
1131	197,404	238,842	278,829	318,491	362,702	415,223	472,035
1132	128,434	155,506	181,653	207,730	236,810	271,353	308,745
1141	112,389	135,982	158,748	181,335	206,515	236,429	268,782
1142	49,837	60,299	70,394	80,407	91,569	104,828	119,171
1150	102,889	127,710	152,318	180,836	213,016	251,152	293,189
1161	244,527	310,043	376,138	459,656	554,426	666,554	791,408
1162	31,167	39,518	47,942	58,588	70,667	84,959	100,873
1171	351,458	445,111	539,532	658,548	793,631	953,536	1,131,343
1172	221,116	280,359	340,126	415,649	501,346	602,739	715,639
1181	264,915	326,237	387,082	458,107	539,459	637,377	741,467
1182	61,347	77,783	94,365	115,317	139,093	167,223	198,546
1191	49,929	60,974	71,935	84,197	98,374	115,654	133,495
1192	15,760	19,066	22,295	25,843	29,930	34,909	40,014
1201	474,542	574,080	671,301	778,144	901,207	1,051,121	1,204,812
1202	40,470	48,959	57,250	66,362	76,858	89,644	102,751
1210	447,098	572,726	705,139	862,725	1,047,190	1,272,384	1,510,378
1220	75,812	89,445	101,420	116,663	133,159	152,175	173,961
1230	228,048	269,056	305,076	350,927	400,548	457,750	523,283
1241	1,401,325	1,657,902	1,885,958	2,174,055	2,487,038	2,848,884	3,262,386
1242	138,014	164,977	189,690	220,704	254,911	294,915	339,865
1250	67,280	78,940	89,097	100,599	112,862	126,923	143,514
1261	112,758	131,647	147,970	164,228	181,240	200,612	224,329
1262	440,248	513,996	577,727	641,207	707,626	783,262	875,862
1270	158,780	185,466	208,576	231,624	255,770	283,288	316,931
1280	204,676	292,426	399,662	511,218	645,092	811,012	989,911
1290	16,677	23,801	32,499	41,552	52,414	65,875	80,389
1300	8,307	11,145	14,368	17,977	22,254	27,513	33,131
2011	145,894	190,056	238,427	279,226	325,266	380,144	438,963
2012	240,306	313,048	392,721	459,921	535,756	626,148	723,030
2020	11,851,086	13,936,515	15,875,977	17,668,106	19,601,039	21,863,145	24,555,668
2030	745,824	971,588	1,218,866	1,427,431	1,662,794	1,943,339	2,244,026
2041	2,148,830	2,799,290	3,511,734	4,112,641	4,790,757	5,599,049	6,465,372

Table 4.3 Population Projection of Urban by River Basin (2/3)

River Basin	Projection Year						
	1990	1995	2000	2005	2010	2015	2020
2042	3,303,153	4,266,151	5,312,450	6,198,784	7,196,803	8,385,380	9,665,873
2051	417,669	544,100	682,578	799,376	931,182	1,088,290	1,256,678
2052	999,153	1,289,165	1,603,864	1,872,924	2,176,868	2,539,754	2,927,575
2060	500,559	652,080	818,041	958,019	1,115,982	1,304,270	1,506,075
2070	483,960	593,774	705,353	810,170	929,378	1,073,223	1,224,099
2080	2,089,344	2,475,331	2,839,651	3,218,866	3,653,012	4,182,280	4,727,389
2091	540,609	640,209	734,112	832,006	944,091	1,080,753	1,221,470
2092	338,400	400,746	459,526	520,803	590,962	676,506	764,588
2101	1,174,237	1,390,575	1,594,540	1,807,171	2,050,626	2,347,465	2,653,111
2102	561,323	664,740	762,242	863,886	980,266	1,122,164	1,268,273
2103	838,848	993,395	1,139,103	1,291,002	1,464,921	1,676,976	1,895,322
2111	510,612	606,481	698,271	755,455	821,476	904,271	997,975
2112	1,111,559	1,324,637	1,532,008	1,570,456	1,616,997	1,684,352	1,792,723
2121	1,669,764	1,970,332	2,251,547	2,540,615	2,870,738	3,272,945	3,689,767
2122	647,323	754,851	852,630	948,110	1,056,018	1,187,061	1,326,368
2123	31,749	37,174	42,159	47,122	52,753	59,600	66,809
2131	4,003,798	4,658,741	5,250,845	5,822,614	6,467,305	7,249,651	8,086,058
2132	1,543,363	1,795,827	2,024,068	2,244,471	2,492,983	2,794,557	3,116,971
2133	373,000	434,015	489,177	542,444	602,504	675,389	753,310
2141	861,984	1,002,987	1,130,462	1,253,559	1,392,355	1,560,788	1,740,859
2142	482,221	561,103	632,417	701,281	778,928	873,155	973,893
2143	341,450	397,305	447,800	496,561	551,542	618,261	689,591
2150	379,279	441,321	497,411	551,575	612,646	686,758	765,990
3011	83,221	102,490	122,215	137,976	155,954	177,832	200,519
3012	651,016	801,753	956,061	1,079,353	1,219,992	1,391,136	1,568,614
3020	432,075	512,044	585,324	665,943	755,121	860,488	975,996
3030	150,105	177,886	203,344	231,352	262,332	298,938	339,066
3040	76,853	95,679	115,060	138,500	166,436	201,284	236,049
3050	128,942	160,528	193,046	232,373	279,243	337,712	396,039
3060	159,530	198,609	238,841	287,498	345,486	417,825	489,989
3070	65,138	80,237	95,065	111,117	129,021	150,150	173,289
4010	172,774	205,656	235,962	273,629	315,981	366,439	420,508
4021	21,494	28,635	36,576	47,690	61,542	79,355	98,123
4022	531,878	634,314	729,291	847,898	981,860	1,142,067	1,313,542
4030	45,755	61,911	80,268	106,538	139,807	183,131	228,363
4040	54,540	73,796	95,674	126,983	166,634	218,267	272,175
4050	21,024	28,447	36,882	48,953	64,239	84,146	104,930
4061	22,994	31,109	40,327	53,519	70,224	91,977	114,689
4062	79,235	106,665	137,686	182,044	238,106	311,008	387,147
4070	61,961	74,160	85,444	100,965	118,615	139,754	162,276
4080	479,769	574,359	661,899	782,282	919,198	1,083,191	1,257,944
4090	99,605	119,200	137,316	162,233	190,560	224,478	260,619
4100	37,919	48,021	58,149	70,573	84,468	100,696	119,097
4110	39,714	50,296	60,903	73,916	88,469	105,465	124,737
4120	20,955	26,538	32,135	39,001	46,680	55,648	65,817
4130	86,810	109,939	133,125	161,569	193,380	230,532	272,657

Table 4.3 Population Projection of Urban by River Basin (3/3)

River Basin	Projection Year						
	1990	1995	2000	2005	2010	2015	2020
4141	462,297	585,463	708,932	860,420	1,029,850	1,227,745	1,452,115
4142	267,933	338,930	410,023	497,254	594,817	708,791	837,929
5011	322,853	384,692	443,102	507,948	581,830	671,231	764,242
5012	21,643	25,788	29,704	34,051	39,004	44,997	51,232
5013	58,996	70,297	80,970	92,820	106,321	122,657	139,653
5021	27,684	32,987	37,995	43,556	49,891	57,557	65,532
5022	89,593	106,754	122,963	140,958	161,461	186,270	212,082
5031	5,392	6,482	7,538	8,742	10,137	11,851	13,624
5032	36,875	44,089	50,972	58,695	67,559	78,350	89,551
5041	34,917	46,849	60,554	78,550	101,343	131,163	161,317
5042	36,320	49,214	64,149	83,879	108,950	141,823	175,038
5050	35,855	48,510	63,153	82,480	107,032	139,219	171,749
5061	9,035	12,246	15,967	20,884	27,132	35,325	43,603
5062	20,612	27,939	36,428	47,645	61,900	80,591	99,477
5070	32,788	44,443	57,946	75,789	98,464	128,197	158,239
5080	23,083	31,239	40,677	53,136	68,964	89,715	110,686
5091	61,784	82,823	106,997	138,718	178,933	231,591	284,889
5092	33,863	44,455	56,412	71,864	91,348	116,782	142,625
5101	42,477	58,221	76,567	100,177	129,781	168,039	207,701
5102	38,500	52,901	69,705	91,288	118,319	153,201	189,457
5111	55,468	76,215	100,426	131,520	170,464	220,720	272,954
5112	79,297	108,958	143,569	188,023	243,696	315,543	390,217
5120	17,786	24,102	31,402	40,711	52,340	67,328	82,929
5131	7,706	8,955	10,076	11,202	12,473	14,022	15,736
5132	25,043	29,147	32,855	36,605	40,860	46,058	51,792
5133	35,737	41,176	45,892	50,384	55,317	61,210	67,894
5141	12,034	13,865	15,453	16,966	18,627	20,611	22,862
5142	11,175	12,876	14,351	15,756	17,298	19,141	21,231
5143	14,123	16,314	18,236	20,097	22,162	24,645	27,437
5144	13,145	15,773	18,371	21,272	24,716	29,039	33,668
5151	72,842	83,927	93,540	102,695	112,751	124,763	138,386
5152	71,557	82,447	91,890	100,884	110,762	122,563	135,945
5153	117,431	135,302	150,799	165,559	181,770	201,135	223,098
5161	53,555	61,705	68,773	75,504	82,897	91,729	101,745
5162	119,176	137,312	153,039	168,019	184,470	204,123	226,412
5171	984,827	1,134,695	1,264,663	1,388,448	1,524,400	1,686,802	1,870,989
5172	137,850	158,828	177,020	194,346	213,376	236,108	261,890
6010	45,994	60,786	77,301	97,921	123,266	155,558	188,339
6020	179,909	237,765	302,367	383,020	482,157	608,471	736,695
6030	126,535	167,227	212,663	269,389	339,115	427,955	518,139
7010	121,974	151,590	180,477	215,403	254,114	299,168	350,055
7020	178,587	221,949	264,244	315,381	372,060	438,025	512,531
7030	48,786	60,632	72,186	86,156	101,639	119,659	140,013
7040	45,784	56,901	67,744	80,854	95,385	112,296	131,397

Source : JICA-FIDP Team Calculation

Table 4.4 Population Projection of Rural by River Basin (1/3)

River Basin	Projection Year						
	1990	1995	2000	2005	2010	2015	2020
1010	331,473	356,937	379,340	394,735	398,158	385,295	365,488
1020	295,798	318,522	338,514	352,252	355,307	343,829	326,154
1030	660,605	711,354	756,002	786,683	793,506	767,871	728,397
1040	304,735	328,146	348,741	362,894	366,042	354,216	336,007
1050	315,203	337,138	356,110	369,258	371,614	359,352	340,828
1060	355,547	382,861	406,891	423,404	427,076	413,279	392,034
1071	339,661	365,754	388,711	404,486	407,994	394,813	374,517
1072	71,847	77,366	82,222	85,559	86,301	83,513	79,220
1080	781,902	816,360	843,016	862,568	860,546	829,859	786,624
1090	1,074,167	1,105,474	1,125,697	1,142,064	1,132,964	1,090,591	1,033,379
1100	858,123	883,038	899,097	912,111	904,804	870,951	825,259
1110	560,265	576,532	587,017	595,514	590,743	568,641	538,809
1121	168,083	172,963	176,109	178,658	177,227	170,596	161,646
1122	503,468	518,086	527,508	535,143	530,856	510,994	484,186
1131	461,064	474,451	483,079	490,071	486,145	467,956	443,406
1132	486,809	502,132	512,618	521,234	518,275	500,113	474,887
1141	1,014,207	1,043,862	1,063,272	1,078,829	1,070,512	1,030,945	977,107
1142	702,608	723,008	736,157	746,812	740,829	713,112	675,700
1150	805,158	880,635	957,088	1,023,147	1,068,910	1,084,311	1,072,150
1161	421,733	489,570	561,812	625,910	677,784	709,885	719,931
1162	145,533	168,943	193,872	215,992	233,892	244,970	248,437
1171	883,127	999,903	1,123,147	1,230,874	1,315,007	1,361,760	1,368,304
1172	96,557	112,089	128,629	143,304	155,181	162,531	164,831
1181	1,305,201	1,418,499	1,533,991	1,630,256	1,695,662	1,714,591	1,688,390
1182	58,516	67,928	77,951	86,844	94,042	98,496	99,890
1191	510,957	531,205	549,891	562,496	565,094	553,489	529,852
1192	76,807	79,553	82,053	83,653	83,790	81,855	78,175
1201	799,159	827,708	853,686	870,328	871,725	851,560	813,260
1202	197,235	204,284	210,703	214,814	215,164	210,195	200,746
1210	1,696,953	1,850,738	2,002,609	2,129,712	2,212,001	2,228,788	2,187,036
1220	376,783	422,952	472,187	514,835	550,084	572,994	576,000
1230	458,741	514,954	574,898	626,823	669,740	697,633	701,292
1241	3,116,015	3,499,377	3,905,906	4,261,297	4,553,553	4,741,088	4,765,148
1242	613,750	687,767	765,600	832,936	886,830	919,109	920,830
1250	1,652,482	1,835,272	2,030,786	2,217,400	2,379,785	2,497,033	2,516,271
1261	1,340,299	1,486,698	1,643,348	1,794,667	1,927,109	2,023,790	2,039,965
1262	1,274,654	1,413,883	1,562,861	1,706,768	1,832,724	1,924,670	1,940,053
1270	1,141,116	1,266,015	1,399,550	1,528,544	1,641,313	1,723,441	1,737,155
1280	233,043	265,741	296,728	329,013	353,288	365,160	366,528
1290	364,149	415,522	463,973	514,818	552,911	571,298	573,397
1300	275,203	312,690	348,287	384,736	411,792	424,429	425,034
2011	1,388,869	1,413,582	1,399,218	1,419,203	1,397,500	1,323,631	1,240,432
2012	1,289,649	1,312,596	1,299,258	1,317,815	1,297,663	1,229,071	1,151,816
2020	1,300,171	1,323,306	1,309,859	1,328,568	1,308,251	1,239,099	1,161,214
2030	4,498,915	4,578,966	4,532,437	4,597,174	4,526,873	4,287,590	4,018,089
2041	1,832,508	1,865,114	1,846,162	1,872,531	1,843,896	1,746,431	1,636,657

Table 4.4 Population Projection of Rural by River Basin (2/3)

River Basin	Projection Year						
	1990	1995	2000	2005	2010	2015	2020
2042	3,906,578	3,976,089	3,935,686	3,991,900	3,930,855	3,723,077	3,489,059
2051	2,589,813	2,635,895	2,609,110	2,646,377	2,605,907	2,468,164	2,313,025
2052	1,307,345	1,327,427	1,315,826	1,329,156	1,305,969	1,236,687	1,157,918
2060	3,659,657	3,724,775	3,686,926	3,739,586	3,682,400	3,487,754	3,268,528
2070	3,073,431	3,106,878	3,087,912	3,095,515	3,029,064	2,867,279	2,680,135
2080	2,615,472	2,624,956	2,620,272	2,594,019	2,521,007	2,384,831	2,222,861
2091	2,801,681	2,811,405	2,806,650	2,777,778	2,699,190	2,553,354	2,379,790
2092	2,688,541	2,697,866	2,693,296	2,665,590	2,590,178	2,450,233	2,283,680
2101	2,084,211	2,091,445	2,087,907	2,066,429	2,007,966	1,899,477	1,770,360
2102	1,939,487	1,946,219	1,942,927	1,922,940	1,868,537	1,767,581	1,647,430
2103	1,510,486	1,515,728	1,513,165	1,497,599	1,455,229	1,376,604	1,283,029
2111	1,972,864	1,931,781	1,873,287	1,859,546	1,816,207	1,731,374	1,622,036
2112	1,267,343	1,151,064	1,010,070	1,013,603	1,008,265	987,266	941,185
2121	5,815,587	5,835,105	5,829,388	5,790,274	5,656,441	5,391,225	5,052,560
2122	4,154,506	4,172,545	4,176,818	4,163,671	4,088,622	3,925,237	3,698,083
2123	601,993	604,634	605,337	603,652	593,085	569,803	537,112
2131	2,863,027	2,875,814	2,879,872	2,873,728	2,826,087	2,718,689	2,565,119
2132	2,641,986	2,653,786	2,657,530	2,651,861	2,607,898	2,508,792	2,367,078
2133	1,342,768	1,348,765	1,350,668	1,347,787	1,325,443	1,275,073	1,203,048
2141	2,469,174	2,480,202	2,483,701	2,478,403	2,437,315	2,344,692	2,212,248
2142	2,415,228	2,426,015	2,429,439	2,424,256	2,384,066	2,293,466	2,163,916
2143	1,876,632	1,885,014	1,887,674	1,883,646	1,852,419	1,782,023	1,681,362
2150	3,274,744	3,289,370	3,294,012	3,286,984	3,232,492	3,109,650	2,933,996
3011	650,820	643,085	627,830	619,994	600,936	566,817	527,259
3012	1,392,299	1,375,753	1,343,117	1,326,353	1,285,581	1,212,591	1,127,965
3020	1,913,518	2,057,816	2,206,907	2,338,330	2,438,410	2,487,893	2,454,808
3030	873,001	938,834	1,006,853	1,066,812	1,112,471	1,135,047	1,119,953
3040	366,107	386,612	407,001	422,352	430,779	428,862	415,059
3050	1,080,074	1,140,566	1,200,719	1,246,005	1,270,866	1,265,209	1,224,489
3060	1,395,251	1,476,405	1,557,526	1,619,876	1,655,998	1,652,657	1,602,681
3070	743,580	829,757	921,724	1,009,839	1,086,247	1,141,046	1,151,884
4010	497,749	533,329	568,766	594,027	608,127	606,324	589,407
4021	234,632	266,294	298,297	322,844	337,397	337,458	329,312
4022	1,623,717	1,756,663	1,889,595	1,986,309	2,041,212	2,036,252	1,980,754
4030	217,609	247,517	277,747	300,955	314,691	314,683	307,018
4040	183,481	208,683	234,159	253,719	265,300	265,304	258,849
4050	105,753	120,288	134,979	146,258	152,933	152,929	149,204
4061	98,341	111,825	125,458	135,927	142,133	142,153	138,706
4062	111,086	124,464	138,149	148,825	155,759	157,171	154,287
4070	376,319	413,728	452,783	484,045	507,208	517,916	512,456
4080	1,422,474	1,564,093	1,711,911	1,830,213	1,917,777	1,958,099	1,937,347
4090	747,420	821,718	899,281	961,370	1,007,374	1,028,646	1,017,803
4100	18,481	21,236	24,057	26,292	27,798	28,266	28,112
4110	19,359	22,244	25,200	27,541	29,119	29,609	29,448
4120	16,550	19,016	21,542	23,544	24,893	25,312	25,174
4130	6,505	7,475	8,468	9,255	9,785	9,950	9,895

Table 4.4 Population Projection of Rural by River Basin (3/3)

River Basin	Projection Year						
	1990	1995	2000	2005	2010	2015	2020
4141	62,000	70,848	79,900	87,039	91,806	93,190	92,491
4142	854,772	981,021	1,110,322	1,212,670	1,281,558	1,302,786	1,295,285
5011	458,191	474,008	488,586	497,554	498,032	486,494	464,696
5012	98,175	101,564	104,688	106,609	106,711	104,239	99,569
5013	620,417	641,834	661,574	673,717	674,365	658,741	629,225
5021	146,401	151,455	156,113	158,978	159,131	155,444	148,479
5022	192,135	198,767	204,881	208,641	208,842	204,003	194,863
5031	51,138	53,168	55,025	56,156	56,209	54,751	52,179
5032	329,241	340,814	351,468	358,014	358,357	349,933	334,161
5041	346,809	374,050	398,302	412,585	412,907	394,379	369,882
5042	151,687	164,110	175,158	181,654	181,794	173,364	162,383
5050	146,996	158,840	169,391	175,645	175,859	167,916	157,435
5061	39,282	42,510	45,381	47,069	47,105	44,915	42,065
5062	114,087	123,463	131,800	136,702	136,807	130,446	122,170
5070	191,641	207,391	221,396	229,630	229,807	219,122	205,220
5080	95,446	103,158	110,026	114,093	114,225	109,044	102,221
5091	278,086	298,504	316,855	328,166	329,234	316,335	298,031
5092	230,598	243,581	255,607	263,953	266,152	259,679	247,529
5101	184,093	205,621	226,400	242,886	251,972	250,503	243,212
5102	255,200	286,374	316,617	340,974	354,976	354,134	344,843
5111	168,340	188,904	208,854	224,921	234,157	233,601	227,472
5112	268,131	300,885	332,660	358,252	372,963	372,078	362,316
5120	263,889	294,628	324,467	348,547	362,378	361,487	351,890
5131	126,531	130,938	135,341	139,209	141,320	140,674	136,090
5132	248,040	256,814	265,553	273,171	277,264	275,854	266,766
5133	152,498	157,724	162,961	167,600	170,173	169,486	164,028
5141	135,945	140,604	145,273	149,408	151,702	151,089	146,223
5142	125,097	129,384	133,680	137,485	139,596	139,032	134,554
5143	156,607	162,015	167,425	172,200	174,829	174,080	168,443
5144	135,229	141,525	147,734	152,992	155,854	155,072	150,083
5151	174,286	180,259	186,244	191,547	194,487	193,702	187,463
5152	555,026	574,048	593,108	609,993	619,357	616,856	596,989
5153	536,264	554,642	573,058	589,372	598,420	596,003	576,808
5161	274,798	284,216	293,653	302,013	306,649	305,411	295,574
5162	696,779	720,659	744,586	765,784	777,540	774,400	749,459
5171	802,971	830,490	858,065	882,493	896,040	892,422	863,680
5172	1,000,088	1,034,363	1,068,706	1,099,131	1,116,004	1,111,498	1,075,700
6010	179,464	193,230	205,451	213,184	214,295	206,531	195,451
6020	663,991	714,923	760,138	788,750	792,858	764,136	723,139
6030	655,194	705,452	750,069	778,302	782,355	754,013	713,559
7010	262,066	303,558	348,415	391,175	428,668	456,401	467,364
7020	577,644	669,102	767,976	862,226	944,867	1,005,997	1,030,162
7030	278,403	322,482	370,136	415,561	455,391	484,854	496,501
7040	115,843	134,184	154,012	172,914	189,487	201,746	206,592

Source : JICA-FIDP Team Calculation

Table 4.5 Domestic, Municipal, and Industrial Water Demand Projection (1/3)

(Unit : '000,000 m3/year)

River Basin Code	Representative Province	Projection Year						
		1990	1995	2000	2005	2010	2015	2020
1010	D.I.Aceh	13.0	16.6	24.5	30.2	37.1	47.2	56.0
1020	D.I.Aceh	4.7	5.5	7.7	8.8	9.9	11.6	12.7
1030	D.I.Aceh	14.8	18.1	26.2	31.0	36.7	45.0	51.9
1040	D.I.Aceh	6.8	8.3	12.1	14.3	16.9	20.7	23.9
1050	D.I.Aceh	7.0	8.5	12.2	14.4	17.0	20.8	23.9
1060	D.I.Aceh	5.1	5.8	8.1	9.1	10.0	11.4	12.3
1071	D.I.Aceh	5.3	6.1	8.6	9.7	10.9	12.7	13.9
1072	D.I.Aceh	1.1	1.2	1.7	1.9	2.1	2.4	2.6
1080	Sumatera Utara	11.2	12.3	16.5	17.8	19.1	21.0	22.1
1090	Sumatera Utara	45.5	52.9	71.2	79.3	129.4	148.4	165.7
1100	Sumatera Utara	181.0	217.3	279.1	317.2	359.4	417.0	471.6
1110	Sumatera Utara	14.2	16.1	21.5	23.5	25.5	28.7	31.1
1121	Sumatera Utara	14.5	17.2	23.3	26.3	29.6	34.4	38.7
1122	Sumatera Utara	16.5	19.0	25.5	28.2	31.0	35.3	38.7
1131	Sumatera Utara	15.9	18.3	24.5	27.1	29.9	34.1	37.5
1132	Sumatera Utara	12.4	14.0	18.7	20.5	22.3	25.1	27.2
1141	Sumatera Utara	17.3	18.9	24.9	26.5	28.0	30.6	31.9
1142	Sumatera Utara	10.4	11.2	14.7	15.5	16.1	17.3	17.7
1150	Riau	14.4	16.6	23.0	25.7	28.4	32.3	34.9
1161	Riau	18.0	22.3	31.8	38.0	44.8	54.2	62.5
1162	Riau	3.3	4.0	5.8	6.7	7.8	9.2	10.3
1171	Riau	28.9	35.3	50.0	59.1	68.9	82.5	135.6
1172	Riau	13.2	16.6	23.5	28.5	34.2	42.0	49.4
1181	Riau	28.8	33.4	46.0	51.9	58.0	66.9	73.4
1182	Riau	4.0	5.0	7.1	8.6	10.2	12.4	14.5
1191	Sumatera Barat	8.3	9.2	12.2	13.2	14.1	15.7	16.5
1192	Sumatera Barat	1.7	1.9	2.6	2.8	3.1	3.5	3.8
1201	Sumatera Barat	34.7	40.5	54.7	61.8	69.7	119.9	135.0
1202	Sumatera Barat	4.4	4.9	6.6	7.2	7.9	9.0	9.7
1210	Jambi	43.1	51.6	72.8	84.6	135.8	162.6	186.3
1220	Sumatera Selatan	8.3	9.5	13.0	14.6	16.1	18.4	19.8
1230	Sumatera Selatan	17.5	20.4	27.5	31.1	34.9	40.3	44.6
1241	Sumatera Selatan	162.0	189.6	243.5	277.3	312.8	360.4	403.0
1242	Sumatera Selatan	14.3	16.6	22.7	25.7	28.6	32.8	35.8
1250	Lampung	21.8	24.4	33.9	37.2	40.2	44.8	46.2
1261	Lampung	20.8	23.5	32.2	35.4	38.3	42.7	44.5
1262	Lampung	38.1	43.6	58.6	64.6	70.6	79.6	85.9
1270	Lampung	21.2	24.0	32.7	36.0	39.1	43.8	46.2
1280	Bengkulu	13.8	18.9	29.6	37.2	46.1	58.6	70.4
1290	Bengkulu	4.9	5.9	8.5	9.8	11.0	12.7	13.7
1300	Bengkulu	3.5	4.0	5.7	6.5	7.1	8.0	8.4
	Sumatera	925.6	1,089.2	1,465.2	1,665.1	1,958.6	2,315.7	2,629.5

Table 4.5 Domestic, Municipal, and Industrial Water Demand Projection (2/3)

(Unit : '000,000 m3/year)

River Basin Code	Representative Province	Projection Year 1990	1995	2000	2005	2010	2015	2020
2011	Jawa Barat	23.2	25.9	34.6	37.5	40.2	44.3	47.0
2012	Jawa Barat	27.3	31.5	43.1	47.7	52.2	59.1	64.3
2020	DKI.Jakarta	1,095.6	1,286.2	1,611.7	1,791.9	1,985.6	2,252.5	2,526.5
2030	Jawa Barat	90.1	103.3	185.2	207.0	229.7	261.2	288.0
2041	Jawa Barat	216.1	275.9	378.1	438.8	506.4	597.7	684.7
2042	Jawa Barat	344.2	432.8	587.8	677.6	776.9	911.3	1,038.8
2051	Jawa Barat	51.2	58.7	79.8	87.8	95.6	147.3	162.2
2052	Jawa Barat	69.0	132.2	179.2	206.4	236.6	277.6	316.1
2060	Jawa Barat	67.5	76.5	103.4	113.1	163.1	184.2	201.6
2070	Jawa Tengah	60.2	66.5	87.9	94.7	101.4	151.5	164.2
2080	Jawa Tengah	219.3	254.6	321.4	359.1	401.6	462.2	515.6
2091	Jawa Tengah	60.3	65.8	85.8	91.7	97.7	147.7	159.6
2092	Jawa Tengah	48.0	51.5	66.7	70.2	73.7	80.2	83.6
2101	Jawa Tengah	130.0	149.8	189.0	210.1	233.7	267.6	297.0
2102	Jawa Tengah	52.0	57.7	75.6	81.9	88.5	140.5	153.7
2103	Jawa Tengah	62.5	71.0	135.3	150.4	167.2	191.5	212.4
2111	Jawa Tengah	49.6	54.4	70.6	74.0	77.7	84.7	89.2
2112	Yogyakarta	115.3	133.5	167.8	171.7	176.3	186.6	197.0
2121	Jawa Tengah	216.0	243.7	306.9	335.3	366.6	413.2	450.9
2122	Jawa Tengah	80.9	87.0	112.4	118.3	162.7	178.6	189.5
2123	Jawa Timur	8.3	8.7	11.1	11.4	11.6	12.2	12.2
2131	Jawa Timur	396.7	456.6	567.0	624.3	688.4	780.6	863.8
2132	Jawa Timur	169.8	192.9	240.0	262.1	286.4	322.2	353.1
2133	Jawa Timur	35.1	38.5	50.0	53.3	56.9	63.0	67.1
2141	Jawa Timur	74.2	118.7	147.9	160.2	173.6	193.7	210.2
2142	Jawa Timur	52.8	57.3	74.1	78.4	82.8	90.9	95.6
2143	Jawa Timur	39.2	42.4	54.8	57.8	60.9	66.6	69.9
2150	Jawa Timur	56.6	60.2	77.5	80.8	84.0	90.5	93.2
	Jawa	3,911.1	4,633.7	6,044.7	6,693.4	7,478.0	8,659.5	9,607.0
3011	Bali	11.7	12.7	16.5	17.4	18.3	20.0	20.9
3012	Bali	50.9	59.0	79.7	126.7	140.3	159.9	176.8
3020	Nusa Tenggara Barat	44.6	50.6	68.0	75.0	82.1	92.9	100.0
3030	Nusa Tenggara Barat	17.8	20.0	27.0	29.6	32.2	36.2	38.6
3040	Nusa Tenggara Timur	8.2	9.5	13.0	14.7	16.6	19.5	21.6
3050	Nusa Tenggara Timur	18.9	21.3	29.0	32.1	35.5	40.7	43.9
3060	Nusa Tenggara Timur	24.0	27.0	36.9	40.8	45.0	51.6	55.6
3070	Timor Timur	11.7	13.5	18.9	21.1	23.3	26.5	28.2
	Bali & NT	187.8	213.5	288.9	357.5	393.2	447.2	485.5
4010	Kalimantan Selatan	14.9	17.1	23.0	25.7	28.6	32.9	36.2
4021	Kalimantan Tengah	3.7	4.5	6.5	7.5	8.6	10.1	11.3
4022	Kalimantan Selatan	46.9	54.0	72.8	81.7	91.0	146.4	163.2
4030	Kalimantan Tengah	4.9	6.1	9.0	11.0	13.3	16.6	19.5
4040	Kalimantan Tengah	5.0	6.3	9.4	11.6	14.3	18.2	21.7
4050	Kalimantan Tengah	2.3	2.9	4.2	5.2	6.2	7.8	9.1
4061	Kalimantan Tengah	2.3	2.9	4.3	5.3	6.5	8.1	9.6
4062	Kalimantan Tengah	5.6	7.2	10.7	13.7	17.4	22.7	27.7
4070	Kalimantan Barat	7.5	8.6	11.7	13.2	14.6	16.7	18.1
4080	Kalimantan Barat	41.8	48.6	66.0	75.4	85.3	139.3	156.8
4090	Kalimantan Barat	13.6	15.5	21.2	23.7	26.1	29.8	32.0
4100	Kalimantan Timur	2.3	2.9	4.0	4.9	5.8	7.0	8.2
4110	Kalimantan Timur	2.4	3.0	4.2	5.1	6.1	7.4	8.6
4120	Kalimantan Timur	1.3	1.7	2.4	2.8	3.3	4.0	4.7
4130	Kalimantan Timur	4.8	6.1	8.6	10.4	12.5	15.3	18.1
4141	Kalimantan Timur	26.0	32.8	46.4	56.2	104.6	126.8	149.8
4142	Kalimantan Timur	24.0	29.3	41.6	48.6	55.8	65.6	74.0
	Kalimantan	209.5	249.4	346.1	401.9	500.1	674.9	768.4

Table 4.5 Domestic, Municipal, and Industrial Water Demand Projection (3/3)

(Unit : '000,000 m3/year)

River Basin Code	Representative Province	Projection Year						
		1990	1995	2000	2005	2010	2015	2020
5011	Sulawesi Utara	22.7	26.3	35.1	39.3	44.1	51.2	57.0
5012	Sulawesi Utara	2.3	2.5	3.3	3.7	4.0	4.5	4.8
5013	Sulawesi Utara	10.0	10.9	14.3	15.3	16.1	17.7	18.4
5021	Sulawesi Utara	3.1	3.5	4.6	5.0	5.4	6.1	6.5
5022	Sulawesi Utara	7.0	8.0	10.7	11.9	13.2	15.2	16.8
5031	Sulawesi Utara	0.9	0.9	1.2	1.3	1.4	1.6	1.7
5032	Sulawesi Utara	5.6	6.1	8.1	8.7	9.3	10.3	10.8
5041	Sulawesi Tengah	5.7	6.7	9.4	10.7	12.2	14.4	16.0
5042	Sulawesi Tengah	3.6	4.5	6.5	7.9	9.5	11.8	13.9
5050	Sulawesi Tengah	3.6	4.4	6.4	7.7	9.3	11.6	13.6
5061	Sulawesi Tengah	0.9	1.1	1.6	2.0	2.4	3.0	3.5
5062	Sulawesi Tengah	2.4	2.9	4.2	4.9	5.9	7.2	8.3
5070	Sulawesi Tengah	3.9	4.7	6.8	8.0	9.5	11.6	13.4
5080	Sulawesi Tengah	2.3	2.8	4.1	5.0	6.0	7.5	8.8
5091	Sulawesi Tengah	6.4	7.8	11.2	13.4	16.0	19.8	23.1
5092	Sulawesi Tengah	4.4	5.1	7.1	8.3	9.5	11.5	13.0
5101	Sulawesi Tenggara	4.3	5.4	8.0	9.8	11.8	14.7	17.2
5102	Sulawesi Tenggara	4.9	6.0	8.8	10.6	12.5	15.2	17.5
5111	Sulawesi Tenggara	4.9	6.2	9.3	11.5	14.1	17.9	21.3
5112	Sulawesi Tenggara	7.3	9.3	13.8	17.0	20.7	26.2	30.9
5120	Sulawesi Tenggara	3.9	4.5	6.5	7.4	8.4	9.7	10.6
5131	Sulawesi Selatan	1.8	1.9	2.5	2.6	2.8	3.0	3.0
5132	Sulawesi Selatan	4.1	4.4	5.8	6.1	6.5	7.1	7.3
5133	Sulawesi Selatan	3.6	4.0	5.2	5.5	5.9	6.5	6.9
5141	Sulawesi Selatan	2.1	2.3	3.0	3.2	3.3	3.6	3.6
5142	Sulawesi Selatan	2.0	2.1	2.8	2.9	3.0	3.3	3.4
5143	Sulawesi Selatan	2.5	2.7	3.5	3.7	3.8	4.2	4.3
5144	Sulawesi Selatan	2.2	2.4	3.2	3.5	3.7	4.2	4.4
5151	Sulawesi Selatan	5.9	6.6	8.6	9.2	9.9	11.0	11.8
5152	Sulawesi Selatan	10.0	10.8	14.1	14.9	15.7	17.1	17.6
5153	Sulawesi Selatan	12.3	13.5	17.6	18.7	19.9	21.9	23.1
5161	Sulawesi Selatan	5.9	6.5	8.5	9.0	9.5	10.5	11.0
5162	Sulawesi Selatan	14.2	15.4	20.1	21.4	22.6	24.7	25.8
5171	Sulawesi Selatan	62.7	112.6	138.8	151.6	165.4	185.4	203.8
5172	Sulawesi Selatan	18.5	20.0	26.1	27.7	29.1	31.7	32.9
	Sulawesi	257.9	335.0	441.1	489.4	542.4	622.6	685.7
6010	Maluku	4.5	5.4	7.8	9.2	10.8	13.2	15.2
6020	Maluku	17.1	20.8	29.9	35.4	41.8	51.1	59.0
6030	Maluku	14.1	16.9	24.0	28.0	32.5	39.1	44.5
7010	Irian Jaya	9.5	11.6	16.4	19.2	22.2	26.3	29.8
7020	Irian Jaya	16.1	19.5	27.5	32.1	36.9	43.5	48.7
7030	Irian Jaya	5.7	6.9	9.7	11.3	12.8	14.9	16.4
7040	Irian Jaya	3.8	4.6	6.5	7.6	8.7	10.3	11.6
	Maluku & IJ	70.9	85.7	121.7	142.7	165.7	198.5	225.3
	INDOONESIA	5,562.7	6,606.4	8,707.7	9,750.0	11,037.9	12,918.4	14,401.4

Source: JICA-FIDP Team Calculation.

Table 4.6 River Maitenance Water Demand Projection (1/3)

(Unit : '000,000 m3/year)

River Basin Code	Representative Province	Projection Year						
		1990	1995	2000	2005	2010	2015	2020
1010	D.I.Aceh	20.6	27.9	39.7	50.9	65.0	69.2	84.5
1020	D.I.Aceh	3.2	4.4	6.2	8.0	10.2	10.9	13.3
1030	D.I.Aceh	16.7	22.7	32.3	41.4	52.8	56.3	68.7
1040	D.I.Aceh	7.7	10.4	14.8	19.1	24.3	25.9	31.6
1050	D.I.Aceh	7.9	10.6	15.0	19.2	24.4	25.9	31.5
1060	D.I.Aceh	2.7	3.6	5.1	6.6	8.4	8.9	10.9
1071	D.I.Aceh	3.4	4.6	6.6	8.5	10.8	11.5	14.0
1072	D.I.Aceh	0.6	0.8	1.2	1.5	1.9	2.0	2.5
1080	Sumatera Utara	5.8	7.4	10.0	12.1	14.6	14.9	17.6
1090	Sumatera Utara	74.2	89.8	114.4	130.6	148.8	141.9	161.4
1100	Sumatera Utara	226.5	274.1	349.0	398.7	454.0	433.1	492.4
1110	Sumatera Utara	17.8	21.5	27.4	31.3	35.6	34.0	38.7
1121	Sumatera Utara	27.8	33.7	42.9	49.0	55.8	53.2	60.5
1122	Sumatera Utara	24.2	29.3	37.4	42.7	48.6	46.4	52.7
1131	Sumatera Utara	23.8	28.8	36.6	41.8	47.7	45.5	51.7
1132	Sumatera Utara	15.5	18.7	23.9	27.3	31.1	29.7	33.8
1141	Sumatera Utara	13.5	16.4	20.9	23.8	27.1	25.9	29.4
1142	Sumatera Utara	6.0	7.3	9.2	10.6	12.0	11.5	13.0
1150	Riau	12.4	15.4	20.0	23.8	28.0	27.5	32.1
1161	Riau	29.5	37.3	49.4	60.4	72.9	73.0	86.7
1162	Riau	3.8	4.8	6.3	7.7	9.3	9.3	11.0
1171	Riau	42.3	53.6	70.9	86.5	104.3	104.4	123.9
1172	Riau	26.6	33.8	44.7	54.6	65.9	66.0	78.4
1181	Riau	31.9	39.3	50.9	60.2	70.9	69.8	81.2
1182	Riau	7.4	9.4	12.4	15.2	18.3	18.3	21.7
1191	Sumatera Barat	6.0	7.3	9.5	11.1	12.9	12.7	14.6
1192	Sumatera Barat	1.9	2.3	2.9	3.4	3.9	3.8	4.4
1201	Sumatera Barat	57.2	69.1	88.2	102.2	118.4	115.1	131.9
1202	Sumatera Barat	4.9	5.9	7.5	8.7	10.1	9.8	11.3
1210	Jambi	53.9	69.0	92.7	113.4	137.6	139.3	165.4
1220	Sumatera Selatan	9.1	10.8	13.3	15.3	17.5	16.7	19.0
1230	Sumatera Selatan	27.5	32.4	40.1	46.1	52.6	50.1	57.3
1241	Sumatera Selatan	168.8	199.7	247.8	285.7	326.8	312.0	357.2
1242	Sumatera Selatan	16.6	19.9	24.9	29.0	33.5	32.3	37.2
1250	Lampung	8.1	9.5	11.7	13.2	14.8	13.9	15.7
1261	Lampung	13.6	15.9	19.4	21.6	23.8	22.0	24.6
1262	Lampung	53.0	61.9	75.9	84.3	93.0	85.8	95.9
1270	Lampung	19.1	22.3	27.4	30.4	33.6	31.0	34.7
1280	Bengkulu	24.7	35.2	52.5	67.2	84.8	88.8	108.4
1290	Bengkulu	2.0	2.9	4.3	5.5	6.9	7.2	8.8
1300	Bengkulu	1.0	1.3	1.9	2.4	2.9	3.0	3.6
	Sumatera	1,119.2	1,371.0	1,767.2	2,070.8	2,415.9	2,358.6	2,733.3

Table 4.6 River Maitenance Water Demand Projection (2/3)

(Unit : '000,000 m3/year)

River Basin Code	Representative Province	Projection Year						
		1990	1995	2000	2005	2010	2015	2020
2011	Jawa Barat	17.6	22.9	31.3	36.7	42.7	41.6	48.1
2012	Jawa Barat	28.9	37.7	51.6	60.4	70.4	68.6	79.2
2020	DKI.Jakarta	1427.5	1678.7	2086.1	2321.6	2575.6	2394.0	2688.8
2030	Jawa Barat	89.8	117.0	160.2	187.6	218.5	212.8	245.7
2041	Jawa Barat	258.8	337.2	461.4	540.4	629.5	613.1	708.0
2042	Jawa Barat	397.9	513.9	698.1	814.5	945.7	918.2	1058.4
2051	Jawa Barat	50.3	65.5	89.7	105.0	122.4	119.2	137.6
2052	Jawa Barat	120.3	155.3	210.7	246.1	286.0	278.1	320.6
2060	Jawa Barat	60.3	78.5	107.5	125.9	146.6	142.8	164.9
2070	Jawa Tengah	58.3	71.5	92.7	106.5	122.1	117.5	134.0
2080	Jawa Tengah	251.7	298.2	373.1	423.0	480.0	458.0	517.6
2091	Jawa Tengah	65.1	77.1	96.5	109.3	124.1	118.3	133.8
2092	Jawa Tengah	40.8	48.3	60.4	68.4	77.7	74.1	83.7
2101	Jawa Tengah	141.4	167.5	209.5	237.5	269.5	257.0	290.5
2102	Jawa Tengah	67.6	80.1	100.2	113.5	128.8	122.9	138.9
2103	Jawa Tengah	101.0	119.7	149.7	169.6	192.5	183.6	207.5
2111	Jawa Tengah	61.5	73.1	91.8	99.3	107.9	99.0	109.3
2112	Yogyakarta	133.9	159.6	201.3	206.4	212.5	184.4	196.3
2121	Jawa Tengah	201.1	237.3	295.9	333.8	377.2	358.4	404.0
2122	Jawa Tengah	78.0	90.9	112.0	124.6	138.8	130.0	145.2
2123	Jawa Timur	3.8	4.5	5.5	6.2	6.9	6.5	7.3
2131	Jawa Timur	482.3	561.1	690.0	765.1	849.8	793.8	885.4
2132	Jawa Timur	185.9	216.3	266.0	294.9	327.6	306.0	341.3
2133	Jawa Timur	44.9	52.3	64.3	71.3	79.2	74.0	82.5
2141	Jawa Timur	103.8	120.8	148.5	164.7	183.0	170.9	190.6
2142	Jawa Timur	58.1	67.6	83.1	92.1	102.4	95.6	106.6
2143	Jawa Timur	41.1	47.9	58.8	65.2	72.5	67.7	75.5
2150	Jawa Timur	45.7	53.2	65.4	72.5	80.5	75.2	83.9
	Jawa	4,617.5	5,553.4	7,061.2	7,962.1	8,970.1	8,481.4	9,585.4
3011	Bali	10.0	12.3	16.1	18.1	20.5	19.5	22.0
3012	Bali	78.4	96.6	125.6	141.8	160.3	152.3	171.8
3020	Nusa Tenggara Barat	52.0	61.7	76.9	87.5	99.2	94.2	106.9
3030	Nusa Tenggara Barat	18.1	21.4	26.7	30.4	34.5	32.7	37.1
3040	Nusa Tenggara Timur	9.3	11.5	15.1	18.2	21.9	22.0	25.8
3050	Nusa Tenggara Timur	15.5	19.3	25.4	30.5	36.7	37.0	43.4
3060	Nusa Tenggara Timur	19.2	23.9	31.4	37.8	45.4	45.8	53.7
3070	Timor Timur	7.8	9.7	12.5	14.6	17.0	16.4	19.0
	Bali & NT	210.4	256.5	329.7	379.0	435.4	420.0	479.6
4010	Kalimantan Selatan	20.8	24.8	31.0	36.0	41.5	40.1	46.0
4021	Kalimantan Tengah	2.6	3.4	4.8	6.3	8.1	8.7	10.7
4022	Kalimantan Selatan	64.1	76.4	95.8	111.4	129.0	125.1	143.8
4030	Kalimantan Tengah	5.5	7.5	10.5	14.0	18.4	20.1	25.0
4040	Kalimantan Tengah	6.6	8.9	12.6	16.7	21.9	23.9	29.8
4050	Kalimantan Tengah	2.5	3.4	4.8	6.4	8.4	9.2	11.5
4061	Kalimantan Tengah	2.8	3.7	5.3	7.0	9.2	10.1	12.6
4062	Kalimantan Tengah	9.5	12.8	18.1	23.9	31.3	34.1	42.4
4070	Kalimantan Barat	7.5	8.9	11.2	13.3	15.6	15.3	17.8
4080	Kalimantan Barat	57.8	69.2	87.0	102.8	120.8	118.6	137.7
4090	Kalimantan Barat	12.0	14.4	18.0	21.3	25.0	24.6	28.5
4100	Kalimantan Timur	4.6	5.8	7.6	9.3	11.1	11.0	13.0
4110	Kalimantan Timur	4.8	6.1	8.0	9.7	11.6	11.5	13.7
4120	Kalimantan Timur	2.5	3.2	4.2	5.1	6.1	6.1	7.2
4130	Kalimantan Timur	10.5	13.2	17.5	21.2	25.4	25.2	29.9
4141	Kalimantan Timur	55.7	70.5	93.2	113.1	135.3	134.4	159.0
4142	Kalimantan Timur	32.3	40.8	53.9	65.3	78.2	77.6	91.8
	Kalimantan	301.9	373.1	483.6	582.8	697.0	695.6	820.4

Table 4.6 River Maitenance Water Demand Projection (3/3)

(Unit : '000,000 m3/year)

River Basin Code	Representative Province	Projection Year						
		1990	1995	2000	2005	2010	2015	2020
5011	Sulawesi Utara	38.9	46.3	58.2	66.7	76.5	73.5	83.7
5012	Sulawesi Utara	2.6	3.1	3.9	4.5	5.1	4.9	5.6
5013	Sulawesi Utara	7.1	8.5	10.6	12.2	14.0	13.4	15.3
5021	Sulawesi Utara	3.3	4.0	5.0	5.7	6.6	6.3	7.2
5022	Sulawesi Utara	10.8	12.9	16.2	18.5	21.2	20.4	23.2
5031	Sulawesi Utara	0.6	0.8	1.0	1.1	1.3	1.3	1.5
5032	Sulawesi Utara	4.4	5.3	6.7	7.7	8.9	8.6	9.8
5041	Sulawesi Tengah	4.2	5.6	8.0	10.3	13.3	14.4	17.7
5042	Sulawesi Tengah	4.4	5.9	8.4	11.0	14.3	15.5	19.2
5050	Sulawesi Tengah	4.3	5.8	8.3	10.8	14.1	15.2	18.8
5061	Sulawesi Tengah	1.1	1.5	2.1	2.7	3.6	3.9	4.8
5062	Sulawesi Tengah	2.5	3.4	4.8	6.3	8.1	8.8	10.9
5070	Sulawesi Tengah	3.9	5.4	7.6	10.0	12.9	14.0	17.3
5080	Sulawesi Tengah	2.8	3.8	5.3	7.0	9.1	9.8	12.1
5091	Sulawesi Tengah	7.4	10.0	14.1	18.2	23.5	25.4	31.2
5092	Sulawesi Tengah	4.1	5.4	7.4	9.4	12.0	12.8	15.6
5101	Sulawesi Tenggara	5.1	7.0	10.1	13.2	17.1	18.4	22.7
5102	Sulawesi Tenggara	4.6	6.4	9.2	12.0	15.5	16.8	20.7
5111	Sulawesi Tenggara	6.7	9.2	13.2	17.3	22.4	24.2	29.9
5112	Sulawesi Tenggara	9.6	13.1	18.9	24.7	32.0	34.6	42.7
5120	Sulawesi Tenggara	2.1	2.9	4.1	5.3	6.9	7.4	9.1
5131	Sulawesi Selatan	0.9	1.1	1.3	1.5	1.6	1.5	1.7
5132	Sulawesi Selatan	3.0	3.5	4.3	4.8	5.4	5.0	5.7
5133	Sulawesi Selatan	4.3	5.0	6.0	6.6	7.3	6.7	7.4
5141	Sulawesi Selatan	1.4	1.7	2.0	2.2	2.4	2.3	2.5
5142	Sulawesi Selatan	1.3	1.6	1.9	2.1	2.3	2.1	2.3
5143	Sulawesi Selatan	1.7	2.0	2.4	2.6	2.9	2.7	3.0
5144	Sulawesi Selatan	1.6	1.9	2.4	2.8	3.2	3.2	3.7
5151	Sulawesi Selatan	8.8	10.1	12.3	13.5	14.8	13.7	15.2
5152	Sulawesi Selatan	8.6	9.9	12.1	13.3	14.6	13.4	14.9
5153	Sulawesi Selatan	14.1	16.3	19.8	21.8	23.9	22.0	24.4
5161	Sulawesi Selatan	6.5	7.4	9.0	9.9	10.9	10.0	11.1
5162	Sulawesi Selatan	14.4	16.5	20.1	22.1	24.2	22.4	24.8
5171	Sulawesi Selatan	118.6	136.7	166.2	182.4	200.3	184.7	204.9
5172	Sulawesi Selatan	16.6	19.1	23.3	25.5	28.0	25.9	28.7
	Sulawesi	332.6	398.9	506.2	585.9	680.2	665.1	769.3
6010	Maluku	5.5	7.3	10.2	12.9	16.2	17.0	20.6
6020	Maluku	21.7	28.6	39.7	50.3	63.4	66.6	80.7
6030	Maluku	15.2	20.1	27.9	35.4	44.6	46.9	56.7
7010	Irian Jaya	14.7	18.3	23.7	28.3	33.4	32.8	38.3
7020	Irian Jaya	21.5	26.7	34.7	41.4	48.9	48.0	56.1
7030	Irian Jaya	5.9	7.3	9.5	11.3	13.4	13.1	15.3
7040	Irian Jaya	5.5	6.9	8.9	10.6	12.5	12.3	14.4
	Maluku & IJ	90.0	115.3	154.7	190.3	232.3	236.6	282.2
	INDONESIA	6,671.6	8,068.1	10,302.5	11,770.9	13,430.9	12,857.3	14,670.3

Source: JICA-FIDP Team Calculation.

Table 4.7 Estimation of Cattle/Buffalo/Horse Population Projection by Province

Unit : 1000 heads

Province	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015	2020
11 D.I. Aceh	800.2	835.0	885.9	895.1	898.8	750.6	839.5	832.8	826.0	819.2	812.4	805.7	798.9
12 Sumatera Utara	349.2	344.2	364.6	393.4	402.5	405.7	425.2	494.7	564.1	633.6	703.0	772.5	842.0
13 Sumatera Barat	491.1	512.0	490.7	529.5	547.2	549.3	563.5	625.7	687.9	750.1	812.3	874.5	936.7
14 Riau	73.6	85.6	85.6	105.4	117.5	136.6	143.8	205.3	266.8	328.3	389.8	451.3	512.8
15 Jambi	77.7	90.4	74.1	97.7	136.7	144.0	152.8	223.4	294.0	364.5	435.1	505.7	576.3
16 Sumatera Selatan	356.9	409.1	420.9	432.0	447.7	468.5	491.0	588.8	686.7	784.5	882.4	980.2	1,078.1
17 Bengkulu	139.6	152.6	155.5	170.5	179.3	184.1	195.4	240.7	286.1	331.5	376.8	422.2	467.6
18 Lampung	133.2	157.5	190.0	186.8	201.9	262.8	266.5	377.6	488.8	599.9	711.1	822.2	933.4
31 D.K.I. Jakarta	6.7	7.4	6.7	6.8	7.2	7.7	7.5	8.2	8.8	9.5	10.1	10.7	11.4
32 Jawa Barat	660.2	681.3	930.4	706.3	719.8	751.0	776.0	825.4	874.7	924.1	973.4	1,022.8	1,072.1
33 Jawa Tengah	1413.9	1,471.4	1,513.0	1,498.8	1,523.9	1,536.7	1,568.7	1,676.9	1,785.1	1,893.2	2,001.4	2,109.6	2,217.8
34 Yoguyakarta	199.3	202.6	194.2	204.2	205.1	208.8	208.9	218.2	227.4	236.7	246.0	255.3	264.6
35 Jawa Timur	3071.3	3,125.5	3,160.5	3,226.3	3,237.3	3,261.3	3,315.5	3,508.5	3,701.5	3,894.6	4,087.6	4,280.6	4,473.7
51 Bali	423.6	434.3	439.7	437.7	444.0	457.0	458.8	486.5	514.3	542.0	569.7	597.4	625.2
52 N.T.B.	560	590.0	602.9	619.4	630.3	679.5	687.2	792.2	897.1	1,002.1	1,107.1	1,212.1	1,317.1
53 N.T.T.	893.8	931.4	936.7	952.1	951.9	1,005.3	1,008.6	1,099.3	1,189.9	1,280.5	1,371.2	1,461.8	1,552.4
54 Timor Timur	106.1	108.4	111.6	114.1	114.1	131.0	128.6	149.2	169.8	190.4	211.0	231.6	252.1
61 Kalimantan Barat	89.1	89.2	91.6	96.8	142.6	106.2	127.7	163.5	199.4	235.2	271.0	306.9	342.7
62 Kalimantan Tengah	54.3	53.3	54.2	38.2	45.3	56.0	47.1	42.6	38.1	33.6	29.1	24.6	20.1
63 Kalimantan Selatan	121.7	126.1	130.1	147.9	154.6	164.8	172.7	218.3	263.8	309.4	354.9	400.5	446.0
64 Kalimantan Timur	34.4	35.2	36.0	46.9	50.6	59.8	62.2	88.5	114.8	141.1	167.4	193.7	220.0
71 Sulawesi Utara	223.2	231.9	255.8	246.7	274.6	275.1	289.1	343.1	397.2	451.3	505.4	559.4	613.5
72 Sulawesi Tengah	338.9	352.1	377.9	369.4	981.2	392.5	683.3	990.0	1,296.7	1,603.4	1,910.1	2,216.8	2,523.5
73 Sulawesi Selatan	1890.3	1,930.4	2,109.9	1,884.4	1,927.3	1,945.1	1,951.8	1,957.4	1,963.0	1,968.6	1,974.2	1,979.8	1,985.4
74 Sulawesi Tenggara	104.7	125.3	217.9	169.1	198.3	229.1	253.3	366.5	479.6	592.8	706.0	819.1	932.3
81 Maluku	74	48.7	84.1	91.5	98.5	100.4	111.7	153.0	194.3	235.5	276.8	318.0	359.3
82 Irian Jaya	21.4	51.9	26.9	27.1	27.1	39.2	33.7	35.9	38.0	40.1	42.2	44.3	46.4
INDONESIA	12708.4	13,182.8	13,947.4	13,694.1	14,665.3	14,308.1	14,970.3	16,712.1	18,453.9	20,195.7	21,937.5	23,679.4	25,421.2

Source : JICA-FIDP Team calculation based on Statistic Indonesia

Table 4.8 Estimation of Sheep/Goat Population Projection by Province

Unit : 1000 heads

Province	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015	2020
11 D.I. Aceh	495.0	515.2	545.5	555.0	562.7	466.9	524.5	526.2	527.8	529.5	531.1	532.7	534.4
12 Sumatera Utara	352.8	363.5	373.7	414.4	421.6	451.7	467.2	568.6	669.9	771.3	872.7	974.0	1,075.4
13 Sumatera Barat	183.7	203.0	199.2	217.0	29.4	221.0	143.9	143.9	143.9	143.9	143.9	143.9	143.9
14 Riau	130.2	130.0	129.9	144.7	149.3	159.7	162.7	194.1	225.6	257.0	288.5	319.9	351.4
15 Jambi	85.0	84.6	116.1	131.6	111.4	126.0	139.2	182.2	225.2	268.2	311.1	354.1	397.1
16 Sumatera Selatan	212.0	501.3	440.9	541.6	548.4	560.6	666.0	949.5	1,233.1	1,516.7	1,800.3	2,083.8	2,367.4
17 Bengkulu	212.4	150.0	145.2	169.3	176.1	179.6	165.9	157.1	148.3	139.5	130.7	121.9	113.1
18 Lampung	415.6	230.2	299.1	297.2	312.9	331.7	297.1	272.4	247.6	222.8	198.1	173.3	148.6
31 D.K.I. Jakarta	13.7	11.9	21.5	14.0	14.0	11.9	13.5	12.0	10.6	9.1	7.7	6.2	4.7
32 Jawa Barat	2,961.7	3,159.7	4,084.5	3,879.3	4,085.9	4,680.9	4,925.6	6,521.2	8,116.9	9,712.5	11,308.1	12,903.7	14,499.4
33 Jawa Tengah	3,455.6	3,781.5	3,922.2	3,599.5	3,619.2	3,777.3	3,772.4	3,886.6	4,000.7	4,114.8	4,229.0	4,343.1	4,457.2
34 Yoguyakarta	325.2	331.2	330.4	344.7	335.4	340.5	344.9	359.7	374.4	389.2	404.0	418.8	433.5
35 Jawa Timur	2,920.5	2,912.1	2,977.0	3,010.4	3,034.4	3,061.0	3,096.2	3,253.7	3,411.3	3,568.8	3,726.4	3,883.9	4,041.4
51 Bali	61.7	72.3	74.5	81.0	93.0	87.2	97.9	125.9	153.9	181.9	210.0	238.0	266.0
52 N.T.B.	301.6	300.9	330.2	336.5	306.4	328.8	333.3	356.0	378.7	401.3	424.0	446.7	469.4
53 N.T.T.	410.9	420.0	451.5	477.7	477.7	549.2	553.6	680.8	808.1	935.4	1,062.6	1,189.9	1,317.1
54 Timor Timur	102.5	101.4	103.7	107.4	107.4	121.6	119.1	135.8	152.5	169.3	186.0	202.8	219.5
61 Kalimantan Barat	48.6	48.1	48.8	49.3	49.3	49.4	49.7	50.9	52.0	53.2	54.4	55.5	56.7
62 Kalimantan Tengah	19.5	20.2	20.6	16.8	17.1	13.5	13.6	13.6	13.6	13.6	13.6	13.6	13.6
63 Kalimantan Selatan	55.9	63.5	84.7	87.3	64.8	61.2	72.9	77.6	82.3	87.0	91.7	96.4	101.2
64 Kalimantan Timur	52.0	47.1	53.6	53.6	49.9	52.4	52.5	54.0	55.4	56.9	58.4	59.9	61.4
71 Sulawesi Utara	66.5	69.7	81.1	92.9	86.2	90.1	99.0	124.6	150.2	175.9	201.5	227.1	252.7
72 Sulawesi Tengah	174.2	184.7	203.1	218.5	224.7	238.2	252.8	317.8	382.9	447.9	513.0	578.1	643.1
73 Sulawesi Selatan	575.4	531.9	648.1	605.7	612.2	612.7	636.2	691.2	746.2	801.2	856.2	911.2	966.2
74 Sulawesi Tenggara	86.9	90.3	146.6	101.8	107.0	119.5	125.5	149.6	173.6	197.6	221.7	245.7	269.8
81 Maluku	171.8	168.3	190.5	172.5	172.9	173.5	175.3	176.0	176.6	177.2	177.8	178.4	179.0
82 Irian Jaya	21.7	21.6	33.6	35.8	35.8	39.9	45.0	64.4	83.8	103.2	122.6	142.0	161.4
INDONESIA	13,912.6	14,514.2	16,055.8	15,755.5	15,805.1	16,906.0	17,345.5	20,045.3	22,745.2	25,445.0	28,144.9	30,844.8	33,544.6

Source : JICA-FIDP Team calculation based on Statistic Indonesia

Table 4.9 Estimation of Pig Population Projection by Province

Unit : 1000 heads

Province	1984	1985	1986	1987	1988	1989	1990	1995	2000	2005	2010	2015	2020
11 D.I. Aceh	9.9	9.8	8.6	12.6	13	11.8	13.3	16.6	19.9	23.2	26.5	29.8	33.1
12 Sumatera Utara	1189.4	1210.9	1329.6	1426.5	1458.9	1883.7	1,847.7	2,463.8	3,079.9	3,695.9	4,312.0	4,928.0	5,544.1
13 Sumatera Barat	19.2	20.2	14	22.8	24.2	18.5	21.5	24.0	26.5	29.0	31.4	33.9	36.4
14 Riau	34.1	34.1	33	50.4	51.9	60.8	64.5	93.7	122.9	152.0	181.2	210.4	239.6
15 Jambi	17.9	16.4	22.6	18.2	18.4	6.2	10.9	10.9	10.9	10.9	10.9	10.9	10.9
16 Sumatera Selatan	95.2	97.5	97.1	103.1	107.7	116	116.8	136.9	157.0	177.1	197.2	217.3	237.3
17 Bengkulu	0.3	0.3	0.4	0	1	0.9	1.0	1.6	2.3	3.0	3.6	4.3	5.0
18 Lampung	42.9	42.4	55.2	55.1	59.9	21.8	40.9	40.9	40.9	40.9	40.9	40.9	40.9
31 D.K.I. Jakarta	63.9	54.4	94.9	55.6	55.8	48.6	51.0	51.0	51.0	51.0	51.0	51.0	51.0
32 Jawa Barat	33	34.8	70.2	29.8	30.2	37.4	36.0	31.4	26.8	22.2	17.6	13.0	8.4
33 Jawa Tengah	136.3	141.6	144.4	141.1	128.6	138.5	135.3	130.8	126.3	121.9	117.4	112.9	108.5
34 Yoguyakarta	13.7	14.2	12.3	12.4	13.5	12.5	12.3	11.2	10.0	8.9	7.7	6.6	5.4
35 Jawa Timur	87.9	89	90	84.8	85.7	84.3	83.6	78.9	74.2	69.5	64.7	60.0	55.3
51 Bali	689.5	761.3	919.2	850.6	882.9	969.3	1,015.0	1,257.2	1,499.3	1,741.5	1,983.7	2,225.8	2,468.0
52 N.T.B.	16.3	16.4	17.1	21.9	21.9	20.2	23.0	28.9	34.7	40.5	46.4	52.2	58.0
53 N.T.T.	836.6	883.7	966.6	984.4	984.4	1118.1	1,135.0	1,381.8	1,628.6	1,875.4	2,122.1	2,368.9	2,615.7
54 Timor Timur	165.8	182.4	185.4	204.1	204.1	255.3	252.6	328.5	404.4	480.3	556.2	632.1	708.0
61 Kalimantan Barat	454.1	603.4	623.3	668.8	668.8	564.6	676.6	790.0	903.5	1,017.0	1,130.4	1,243.9	1,357.3
62 Kalimantan Tengah	122.4	145.2	143.3	131.9	132.4	121.7	127.5	119.9	112.3	104.6	97.0	89.4	81.8
63 Kalimantan Selatan	9.2	9.5	16	4.4	6.8	8.8	6.9	6.9	6.9	6.9	6.9	6.9	6.9
64 Kalimantan Timur	64	61.5	59.7	66.6	66.9	72.8	72.0	81.5	91.1	100.7	110.3	119.9	129.5
71 Sulawesi Utara	220	231.4	265.1	265	309.4	338.7	354.3	472.5	590.7	708.9	827.1	945.3	1,063.5
72 Sulawesi Tengah	80	85.9	95.9	106.7	110.7	138	140.4	194.0	247.6	301.2	354.8	408.4	462.0
73 Sulawesi Selatan	320	350.4	350.4	383.9	385.8	410.9	426.3	511.2	596.1	681.0	765.9	850.7	935.6
74 Sulawesi Tenggara	5.4	6.9	9.3	9.6	11.4	12.9	14.4	21.7	29.0	36.4	43.7	51.0	58.4
81 Maluku	73.7	76.6	71.7	79.5	81.5	85.3	86.1	97.6	109.1	120.6	132.1	143.6	155.1
82 Irian Jaya	487.9	505.7	519.4	548.5	548.5	388.1	465.5	416.7	368.0	319.2	270.4	221.6	172.8
INDONESIA	5,288.6	5,685.9	6,214.7	6,338.3	6,464.3	6,945.7	7,230.7	8,800.3	10,370.0	11,939.7	13,509.3	15,079.0	16,648.6

Source : JICA-FIDP Team calculation based on Statistic Indonesia

Table 4.10 Estimation of Poultry Population Projection by Province

Unit : 1000 heads

Province	1987	1988	1989	1990	1995	2000	2005	2010	2015	2020
11 D.I. Aceh	12170.9	10816.1	11767.2	11,181.0	10,171.8	9,162.5	8,153.3	7,144.0	6,134.8	5,125.5
12 Sumatera Utara	16017	16454.4	17176.1	17,708.3	20,606.0	23,503.8	26,401.5	29,299.3	32,197.0	35,094.8
13 Sumatera Barat	9301.4	10704	10788.3	11,751.5	15,468.7	19,186.0	22,903.2	26,620.5	30,337.7	34,055.0
14 Riau	5141.6	5370.9	4628.7	4,534.2	4,534.2	4,534.2	4,534.2	4,534.2	4,534.2	4,534.2
15 Jambi	3655.3	3956.7	3877.2	4,051.6	4,606.4	5,161.1	5,715.9	6,270.6	6,825.4	7,380.1
16 Sumatera Selatan	7646.4	8591	9164	9,984.7	13,778.7	17,572.7	21,366.7	25,160.7	28,954.7	32,748.7
17 Bengkulu	4027.2	4184.9	5077.2	5,479.8	8,104.8	10,729.8	13,354.8	15,979.8	18,604.8	21,229.8
18 Lampung	7573.6	7843.2	10404.9	11,438.5	18,516.8	25,595.0	32,673.3	39,751.5	46,829.8	53,908.0
31 D.K.I. Jakarta	1385.2	1334.1	1213.9	1,139.8	1,139.8	1,139.8	1,139.8	1,139.8	1,139.8	1,139.8
32 Jawa Barat	40251.2	42163.5	44295.2	46,280.6	56,390.6	66,500.6	76,610.6	86,720.6	96,830.6	106,940.6
33 Jawa Tengah	33090.9	33891.3	40035.6	42,617.3	59,979.0	77,340.8	94,702.5	112,064.3	129,426.0	146,787.8
34 Yoguyakarta	6498.4	6517.6	7146.9	7,369.5	8,990.7	10,612.0	12,233.2	13,854.5	15,475.7	17,097.0
35 Jawa Timur	37852.7	39025.7	40254.4	41,446.0	47,450.2	53,454.5	59,458.7	65,463.0	71,467.2	77,471.5
51 Bali	6395.8	6712.6	7567.6	8,063.8	10,993.3	13,922.8	16,852.3	19,781.8	22,711.3	25,640.8
52 N.T.B.	4505.5	4677.5	4696.8	4,817.9	5,296.1	5,774.4	6,252.6	6,730.9	7,209.1	7,687.4
53 N.T.T.	4536.3	4716.6	5143.5	5,406.0	6,924.0	8,442.0	9,960.0	11,478.0	12,996.0	14,514.0
54 Timor Timur	481.4	490.5	783.2	886.8	1,641.3	2,395.8	3,150.3	3,904.8	4,659.3	5,413.8
61 Kalimantan Barat	4662.5	5056.4	3122.8	2,740.9	2,740.9	2,740.9	2,740.9	2,740.9	2,740.9	2,740.9
62 Kalimantan Tengah	2316.9	2333.9	2903.6	3,104.8	4,571.6	6,038.3	7,505.1	8,971.8	10,438.6	11,905.3
63 Kalimantan Selatan	11569.9	11559.8	12288.3	12,524.4	14,320.4	16,116.4	17,912.4	19,708.4	21,504.4	23,300.4
64 Kalimantan Timur	3305.8	3500.9	3641.4	3,818.3	4,657.3	5,496.3	6,335.3	7,174.3	8,013.3	8,852.3
71 Sulawesi Utara	2334.6	2476.8	2811.1	3,017.3	4,208.6	5,399.8	6,591.1	7,782.3	8,973.6	10,164.8
72 Sulawesi Tengah	2169.7	2285.6	2662.5	2,865.4	4,097.4	5,329.4	6,561.4	7,793.4	9,025.4	10,257.4
73 Sulawesi Selatan	19381.1	19573.4	19304.5	19,343.1	19,151.6	18,960.1	18,768.6	18,577.1	18,385.6	18,194.1
74 Sulawesi Tenggara	3840.9	3967.6	4669.2	4,987.5	7,058.3	9,129.0	11,199.8	13,270.5	15,341.3	17,412.0
81 Maluku	2370.1	1753.3	1869.4	1,496.9	1,496.9	1,496.9	1,496.9	1,496.9	1,496.9	1,496.9
82 Irian Jaya	1506.6	1237	1639.7	1,594.2	1,926.9	2,259.7	2,592.4	2,925.2	3,257.9	3,590.7
INDONESIA	253988.9	261195.3	278933.2	289,650.1	358,822.3	427,994.6	497,166.8	566,339.1	635,511.3	704,683.6

Source : JICA-FIDP Team calculation based on Statistic Indonesia

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (1990)

(1/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
1010	D.I.Aceh	772	19.7	59.5	37.2	0.9	792.4	1.1
1020	D.I.Aceh	687	17.6	41.0	25.6	0.6	545.5	0.8
1030	D.I.Aceh	926	23.7	88.0	55.0	1.4	1,172.1	1.6
1040	D.I.Aceh	457	11.7	104.1	65.0	1.6	1,386.0	1.9
1050	D.I.Aceh	439	11.2	96.8	61.4	9.9	1,344.5	1.8
1060	D.I.Aceh	579	14.8	105.3	65.8	1.7	1,402.2	2.0
1071	D.I.Aceh	269	6.9	164.8	103.0	2.6	2,195.1	3.1
1072	D.I.Aceh	61	1.6	29.9	18.7	0.5	398.4	0.6
1080	Sumatera Utara	688	17.6	184.9	132.1	153.9	3,451.0	4.0
1090	Sumatera Utara	509	13.0	47.1	50.8	196.0	1,904.8	1.6
1100	Sumatera Utara	843	21.5	40.3	44.2	175.0	1,677.1	1.4
1110	Sumatera Utara	250	6.4	20.1	22.1	87.5	838.4	0.7
1121	Sumatera Utara	105	2.7	6.8	7.5	29.5	283.0	0.2
1122	Sumatera Utara	613	15.7	29.6	32.5	128.6	1,232.1	1.0
1131	Sumatera Utara	571	14.6	50.2	55.2	218.1	2,090.4	1.8
1132	Sumatera Utara	616	15.7	52.4	57.6	225.7	2,178.6	1.8
1141	Sumatera Utara	1774	45.3	92.5	97.3	380.0	3,745.5	3.2
1142	Sumatera Utara	48	1.2	31.6	34.7	137.1	1,314.0	1.1
1150	Riau	1365	34.9	78.7	62.8	121.9	2,427.2	2.1
1161	Riau	333	8.5	25.9	29.3	11.6	817.9	0.6
1162	Riau	69	1.8	9.0	10.2	4.0	284.5	0.2
1171	Riau	1599	40.9	73.0	56.7	20.6	1,986.8	1.6
1172	Riau	52	1.3	5.6	6.3	2.5	176.4	0.1
1181	Riau	3049	77.9	145.4	72.6	17.7	3,425.6	3.0
1182	Riau	30	0.8	6.3	7.2	2.8	199.4	0.2
1191	Sumatera Barat	239	6.1	97.7	26.2	3.8	2,047.8	1.9
1192	Sumatera Barat	141	3.6	20.4	5.2	0.8	426.0	0.4
1201	Sumatera Barat	2260	57.7	119.9	30.8	5.5	2,505.2	2.4
1202	Sumatera Barat	363	9.3	52.5	13.4	2.0	1,094.0	1.0
1210	Jambi	5370	137.2	225.0	132.7	12.5	5,339.5	4.7
1220	Sumatera Selatan	440	11.2	51.6	69.9	12.3	1,048.5	1.1
1230	Sumatera Selatan	3066	78.3	81.2	110.2	19.3	1,651.6	1.8
1241	Sumatera Selatan	5326	136.1	294.1	385.1	63.8	6,225.7	6.5
1242	Sumatera Selatan	1611	41.2	83.6	107.0	17.5	1,786.2	1.8
1250	Lampung	4631	118.3	118.5	137.4	20.0	4,595.6	3.0
1261	Lampung	1449	37.0	68.8	76.7	10.6	2,954.1	1.8
1262	Lampung	1342	34.3	44.9	50.0	6.9	1,926.1	1.2
1270	Lampung	2350	60.0	56.4	62.4	8.4	2,382.9	1.5
1280	Bengkulu	1962	50.1	74.0	63.2	0.5	2,068.8	1.6
1290	Bengkulu	1211	30.9	60.3	51.3	0.3	1,688.6	1.3
1300	Bengkulu	718	18.3	40.2	34.2	0.5	1,120.2	0.9
	Sumatera		1,256.6					70.4

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (1990)

(2/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
2011	Jawa Barat	430	11.0	41.5	263.1	1.9	2,472.3	1.6
2012	Jawa Barat	333	8.5	41.9	265.7	1.9	2,496.6	1.6
2020	DKI.Jakarta	1337	34.2	63.8	371.7	52.4	4,480.2	2.7
2030	Jawa Barat	3316	84.7	169.6	1,076.3	7.9	10,112.7	6.7
2041	Jawa Barat	3265	83.4	68.1	432.2	3.2	4,061.3	2.7
2042	Jawa Barat	2775	70.9	131.5	834.0	7.4	7,861.9	5.2
2051	Jawa Barat	2069	52.9	72.7	461.6	3.4	4,337.5	2.9
2052	Jawa Barat	3102	79.3	54.0	274.6	3.2	2,658.9	1.9
2060	Jawa Barat	7300	186.5	109.1	692.3	5.1	6,504.5	4.3
2070	Jawa Tengah	3886	99.3	155.5	562.3	11.5	5,776.3	4.6
2080	Jawa Tengah	54	1.4	222.4	538.5	19.1	6,072.3	5.6
2091	Jawa Tengah	713	18.2	171.0	411.3	14.7	4,646.3	4.3
2092	Jawa Tengah	397	10.1	167.0	401.6	14.4	4,537.4	4.2
2101	Jawa Tengah	20	0.5	141.2	339.6	12.2	3,836.7	3.5
2102	Jawa Tengah	79	2.0	172.1	413.9	14.8	4,676.0	4.3
2103	Jawa Tengah	42	1.1	161.5	388.3	13.9	4,386.2	4.1
2111	Jawa Tengah	1014	25.9	140.7	299.6	10.7	4,240.9	3.6
2112	Yogyakarta	251	6.4	164.9	280.8	10.0	5,725.5	4.2
2121	Jawa Tengah	131	3.3	554.2	883.1	29.2	10,632.1	12.1
2122	Jawa Tengah	372	9.5	517.6	566.7	16.5	7,301.1	10.2
2123	Jawa Timur	4	0.1	107.1	108.1	3.0	1,419.5	2.1
2131	Jawa Timur	116	3.0	429.1	400.7	10.8	5,364.0	8.2
2132	Jawa Timur	75	1.9	398.7	372.3	10.1	4,983.4	7.6
2133	Jawa Timur	32	0.8	210.2	196.2	5.3	2,627.0	4.0
2141	Jawa Timur	6	0.2	325.4	303.9	8.2	4,067.9	6.2
2142	Jawa Timur	79	2.0	351.6	328.4	8.9	4,395.4	6.7
2143	Jawa Timur	37	0.9	346.6	323.7	8.7	4,332.6	6.6
2150	Jawa Timur	287	7.3	387.7	362.0	9.8	4,846.4	7.4
	Jawa		805.4					139.1
3011	Bali	12	0.3	121.4	25.9	268.5	2,133.1	2.9
3012	Bali	134	3.4	337.4	72.0	746.5	5,930.7	8.0
3020	Nusa Tenggara Barat	203	5.2	157.1	76.2	5.3	1,101.1	2.7
3030	Nusa Tenggara Barat	425	10.9	530.1	257.1	17.8	3,716.8	9.1
3040	Nusa Tenggara Timur	259	6.6	236.5	129.8	266.1	1,267.5	4.6
3050	Nusa Tenggara Timur	101	2.6	325.9	178.9	366.7	1,746.6	6.3
3060	Nusa Tenggara Timur	555	14.2	430.9	239.0	490.4	2,319.6	8.3
3070	Timor Timur	14	0.4	144.0	125.0	264.4	959.1	3.1
	Bali & NT		43.5					45
4010	Kalimantan Selatan	1017	26.0	77.6	32.7	3.1	5,628.0	2.4
4021	Kalimantan Tengah	2946	75.3	14.0	4.4	34.8	928.9	0.5
4022	Kalimantan Selatan	11435	292.2	97.3	40.3	19.1	7,015.0	3.1
4030	Kalimantan Tengah	827	21.1	5.3	1.5	14.3	347.1	0.2
4040	Kalimantan Tengah	401	10.2	7.2	2.1	19.6	473.9	0.3
4050	Kalimantan Tengah	138	3.5	4.9	1.4	13.3	324.4	0.2
4061	Kalimantan Tengah	135	3.4	4.8	1.4	13.0	312.3	0.2
4062	Kalimantan Tengah	104	2.7	10.7	3.5	40.6	502.6	0.4
4070	Kalimantan Barat	424	10.8	29.2	11.4	154.6	626.4	0.9
4080	Kalimantan Barat	7204	184.1	81.9	31.9	432.9	1,774.0	2.6
4090	Kalimantan Barat	203	5.2	12.3	4.8	65.0	263.4	0.4
4100	Kalimantan Timur	105	2.7	10.0	8.5	11.6	615.2	0.3
4110	Kalimantan Timur	109	2.8	10.5	8.8	12.1	643.3	0.3
4120	Kalimantan Timur	19	0.5	6.1	5.1	7.0	372.5	0.2
4130	Kalimantan Timur	111	2.8	6.5	5.4	7.5	395.9	0.2
4141	Kalimantan Timur	644	16.5	24.8	20.6	29.1	1,519.8	0.8
4142	Kalimantan Timur	3644	93.1	6.9	4.9	5.5	445.6	0.2
	Kalimantan		752.9					13.2

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (1990)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
5011	Sulawesi Utara	947	24.2	39.1	13.4	47.9	408.3	0.8
5012	Sulawesi Utara	126	3.2	24.4	8.4	29.9	254.6	0.5
5013	Sulawesi Utara	666	17.0	67.8	23.2	83.1	707.5	1.4
5021	Sulawesi Utara	176	4.5	34.8	11.9	42.6	363.0	0.7
5022	Sulawesi Utara	187	4.8	39.4	13.5	48.2	410.8	0.8
5031	Sulawesi Utara	48	1.2	11.2	3.9	12.1	106.9	0.2
5032	Sulawesi Utara	333	8.5	69.6	23.9	84.0	718.6	1.4
5041	Sulawesi Tengah	261	6.7	101.3	37.3	26.5	459.3	1.7
5042	Sulawesi Tengah	263	6.7	46.5	17.2	9.8	196.2	0.8
5050	Sulawesi Tengah	196	5.0	106.8	39.4	22.0	467.3	1.8
5061	Sulawesi Tengah	30	0.8	38.8	14.4	8.0	162.7	0.6
5062	Sulawesi Tengah	55	1.4	62.0	22.9	12.7	259.8	1.0
5070	Sulawesi Tengah	81	2.1	87.5	32.4	18.0	367.0	1.5
5080	Sulawesi Tengah	84	2.1	107.1	39.5	22.0	459.9	1.8
5091	Sulawesi Tengah	468	12.0	117.4	41.9	24.6	690.4	2.0
5092	Sulawesi Tengah	193	4.9	139.9	47.0	30.1	1,199.7	2.5
5101	Sulawesi Tenggara	201	5.1	61.3	27.6	6.6	896.2	1.2
5102	Sulawesi Tenggara	818	20.9	53.3	26.4	3.0	1,049.3	1.1
5111	Sulawesi Tenggara	646	16.5	47.0	23.3	2.7	925.8	0.9
5112	Sulawesi Tenggara	873	22.3	67.7	33.5	3.8	1,333.0	1.3
5120	Sulawesi Tenggara	1530	39.1	53.3	24.4	4.9	935.5	1.0
5131	Sulawesi Selatan	11	0.3	107.0	34.9	23.4	1,058.1	1.9
5132	Sulawesi Selatan	189	4.8	175.6	57.3	38.3	1,730.5	3.1
5133	Sulawesi Selatan	22	0.6	103.6	33.8	22.6	1,027.1	1.8
5141	Sulawesi Selatan	180	4.6	91.3	29.8	19.9	905.0	1.6
5142	Sulawesi Selatan	170	4.3	85.3	27.8	18.6	845.1	1.5
5143	Sulawesi Selatan	213	5.4	107.1	35.0	23.4	1,056.3	1.9
5144	Sulawesi Selatan	228	5.8	85.7	28.7	18.1	856.4	1.5
5151	Sulawesi Selatan	123	3.1	85.9	28.0	18.8	850.9	1.5
5152	Sulawesi Selatan	181	4.6	197.5	64.4	43.1	1,957.3	3.5
5153	Sulawesi Selatan	110	2.8	102.6	33.4	22.4	1,016.6	1.8
5161	Sulawesi Selatan	879	22.5	123.6	40.3	27.0	1,224.7	2.2
5162	Sulawesi Selatan	858	21.9	222.5	72.5	48.6	2,205.2	4.0
5171	Sulawesi Selatan	2337	59.7	118.1	38.5	25.8	1,170.3	2.1
5172	Sulawesi Selatan	181	4.6	195.5	63.7	42.7	1,937.7	3.5
	Sulawesi		354.2					56.9
6010	Maluku	0	0.0	26.4	41.5	20.4	354.3	0.6
6020	Maluku	0	0.0	39.8	62.4	30.6	532.7	0.9
6030	Maluku	0	0.0	45.5	71.4	35.1	609.9	1.0
7010	Irian Jaya	0	0.0	8.4	11.2	115.9	397.0	0.5
7020	Irian Jaya	0	0.0	11.3	15.1	155.8	533.4	0.7
7030	Irian Jaya	0	0.0	7.9	10.5	109.0	373.4	0.5
7040	Irian Jaya	0	0.0	6.1	8.2	84.8	290.4	0.4
	Maluku & IJ		0.0					4.6

Remarks: Unit water demand for Fishpond = 7 mm/day/ha; Cattle/Baffalo = 40 lit/day/head; Sheep/Goat = 5 lit/day/head; Pig = 6lit/day/head; Poultry = 0.6 lit/day/head.

Source: JICA-FIDP Team calculation

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (1995)

(1/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
1010	D.I.Aceh	772	19.7	59.0	37.3	1.2	720.9	1.1
1020	D.I.Aceh	687	17.6	40.6	25.7	0.8	496.3	0.8
1030	D.I.Aceh	926	23.7	87.3	55.2	1.7	1,066.3	1.6
1040	D.I.Aceh	457	11.7	103.2	65.2	2.1	1,260.9	1.9
1050	D.I.Aceh	439	11.2	96.4	62.1	13.1	1,243.6	1.8
1060	D.I.Aceh	579	14.8	104.4	66.0	2.1	1,275.6	1.9
1071	D.I.Aceh	269	6.9	163.5	103.3	3.3	1,997.0	3.0
1072	D.I.Aceh	61	1.6	29.7	18.7	0.6	362.4	0.5
1080	Sumatera Utara	688	17.6	189.4	140.7	205.0	3,508.3	4.2
1090	Sumatera Utara	509	13.0	54.5	61.6	261.3	2,209.6	2.0
1100	Sumatera Utara	843	21.5	46.8	53.8	233.3	1,951.5	1.7
1110	Sumatera Utara	250	6.4	23.4	26.9	116.7	975.7	0.9
1121	Sumatera Utara	105	2.7	7.9	9.1	39.4	329.3	0.3
1122	Sumatera Utara	613	15.7	34.4	39.6	171.4	1,433.7	1.3
1131	Sumatera Utara	571	14.6	58.4	67.1	290.8	2,432.5	2.1
1132	Sumatera Utara	616	15.7	61.2	70.1	301.0	2,532.2	2.2
1141	Sumatera Utara	1774	45.3	107.3	118.2	506.6	4,374.5	3.8
1142	Sumatera Utara	48	1.2	36.7	42.2	182.8	1,529.0	1.3
1150	Riau	1365	34.9	96.5	74.2	163.6	2,790.8	2.5
1161	Riau	333	8.5	37.0	35.0	16.9	817.9	0.8
1162	Riau	69	1.8	12.9	12.2	5.9	284.5	0.3
1171	Riau	1599	40.9	94.9	66.2	29.6	2,182.0	2.0
1172	Riau	52	1.3	8.0	7.6	3.6	176.4	0.2
1181	Riau	3049	77.9	176.1	83.4	23.9	4,149.5	3.7
1182	Riau	30	0.8	9.0	8.5	4.1	199.4	0.2
1191	Sumatera Barat	239	6.1	109.1	26.7	4.2	2,686.7	2.2
1192	Sumatera Barat	141	3.6	22.7	5.2	0.9	560.8	0.5
1201	Sumatera Barat	2260	57.7	133.2	30.9	6.4	3,296.3	2.7
1202	Sumatera Barat	363	9.3	58.2	13.4	2.2	1,440.0	1.2
1210	Jambi	5370	137.2	290.0	165.0	13.1	6,483.4	6.0
1220	Sumatera Selatan	440	11.2	61.8	99.7	14.4	1,446.9	1.4
1230	Sumatera Selatan	3066	78.3	97.4	157.1	22.6	2,279.2	2.3
1241	Sumatera Selatan	5326	136.1	354.6	538.0	74.8	8,661.4	8.2
1242	Sumatera Selatan	1611	41.2	103.9	151.1	20.4	2,374.1	2.4
1250	Lampung	4631	118.3	163.2	140.9	20.9	7,333.9	4.3
1261	Lampung	1449	37.0	97.5	70.3	10.6	4,782.1	2.6
1262	Lampung	1342	34.3	63.6	45.9	6.9	3,118.0	1.7
1270	Lampung	2350	60.0	79.5	57.5	8.4	3,847.5	2.1
1280	Bengkulu	1962	50.1	91.1	60.3	0.8	3,058.4	2.1
1290	Bengkulu	1211	30.9	74.3	48.7	0.6	2,496.8	1.7
1300	Bengkulu	718	18.3	50.4	33.6	0.6	1,622.2	1.2
	Sumatera		1,256.6					84.7

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (1995)

(2/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
2011	Jawa Barat	430	11.0	44.1	348.4	1.7	3,012.4	1.9
2012	Jawa Barat	333	8.5	44.5	351.8	1.7	3,042.0	2.0
2020	DKI.Jakarta	1337	34.2	68.1	486.4	52.0	5,216.1	3.1
2030	Jawa Barat	3316	84.7	180.4	1,424.9	6.9	12,321.9	7.9
2041	Jawa Barat	3265	83.4	72.4	572.3	2.8	4,948.5	3.2
2042	Jawa Barat	2775	70.9	139.9	1,104.1	6.6	9,573.0	6.2
2051	Jawa Barat	2069	52.9	77.4	611.2	2.9	5,285.0	3.4
2052	Jawa Barat	3102	79.3	57.5	351.4	2.9	3,328.1	2.2
2060	Jawa Barat	7300	186.5	116.0	916.5	4.4	7,925.5	5.1
2070	Jawa Tengah	3886	99.3	166.0	668.4	10.9	7,591.3	5.3
2080	Jawa Tengah	54	1.4	237.8	556.4	18.5	8,536.0	6.4
2091	Jawa Tengah	713	18.2	182.8	423.7	14.3	6,539.2	4.9
2092	Jawa Tengah	397	10.1	178.5	413.8	13.9	6,385.9	4.8
2101	Jawa Tengah	20	0.5	151.0	349.9	11.8	5,399.7	4.1
2102	Jawa Tengah	79	2.0	184.0	426.4	14.4	6,581.0	4.9
2103	Jawa Tengah	42	1.1	172.6	400.0	13.5	6,173.1	4.6
2111	Jawa Tengah	1014	25.9	149.2	309.7	10.2	5,627.9	4.0
2112	Yogyakarta	251	6.4	172.5	292.5	9.1	7,042.6	4.6
2121	Jawa Tengah	131	3.3	589.1	915.8	28.0	13,941.9	13.4
2122	Jawa Tengah	372	9.5	548.4	592.7	15.7	8,762.5	11.0
2123	Jawa Timur	4	0.1	113.4	113.3	2.9	1,664.5	2.2
2131	Jawa Timur	116	3.0	454.1	421.1	10.2	6,141.1	8.8
2132	Jawa Timur	75	1.9	421.9	391.2	9.5	5,705.4	8.1
2133	Jawa Timur	32	0.8	222.4	206.2	5.0	3,007.6	4.3
2141	Jawa Timur	6	0.2	344.4	319.4	7.7	4,657.2	6.6
2142	Jawa Timur	79	2.0	372.1	345.1	8.4	5,032.2	7.2
2143	Jawa Timur	37	0.9	366.8	340.1	8.2	4,960.2	7.1
2150	Jawa Timur	287	7.3	410.3	380.5	9.2	5,548.5	7.9
	Jawa		805.4					155.2
3011	Bali	12	0.3	128.7	33.3	332.6	2,908.0	3.3
3012	Bali	134	3.4	357.8	92.6	924.6	8,085.3	9.2
3020	Nusa Tenggara Barat	203	5.2	181.0	81.4	6.6	1,210.4	3.1
3030	Nusa Tenggara Barat	425	10.9	611.1	274.6	22.3	4,085.7	10.4
3040	Nusa Tenggara Timur	259	6.6	257.7	159.6	324.0	1,623.5	5.1
3050	Nusa Tenggara Timur	101	2.6	355.2	220.0	446.4	2,237.0	7.1
3060	Nusa Tenggara Timur	555	14.2	470.1	293.4	598.1	2,996.8	9.4
3070	Timor Timur	14	0.4	165.5	143.7	341.8	1,708.1	3.8
	Bali & NT		43.5					51.4
4010	Kalimantan Selatan	1017	26.0	98.1	34.9	3.1	6,435.0	2.9
4021	Kalimantan Tengah	2946	75.3	13.2	4.4	32.8	1,337.5	0.6
4022	Kalimantan Selatan	11435	292.2	120.9	42.8	18.2	8,144.3	3.7
4030	Kalimantan Tengah	827	21.1	4.8	1.5	13.4	511.1	0.2
4040	Kalimantan Tengah	401	10.2	6.5	2.1	18.4	697.6	0.3
4050	Kalimantan Tengah	138	3.5	4.4	1.4	12.5	477.6	0.2
4061	Kalimantan Tengah	135	3.4	4.3	1.4	12.3	459.4	0.2
4062	Kalimantan Tengah	104	2.7	11.4	3.6	43.7	694.2	0.4
4070	Kalimantan Barat	424	10.8	37.4	11.6	180.5	626.5	1.1
4080	Kalimantan Barat	7204	184.1	104.8	32.6	505.3	1,784.3	3.1
4090	Kalimantan Barat	203	5.2	15.7	4.9	75.9	263.4	0.5
4100	Kalimantan Timur	105	2.7	14.3	8.7	13.1	750.4	0.4
4110	Kalimantan Timur	109	2.8	14.9	9.1	13.7	784.6	0.4
4120	Kalimantan Timur	19	0.5	8.6	5.3	8.0	454.4	0.3
4130	Kalimantan Timur	111	2.8	9.2	5.6	8.5	482.9	0.3
4141	Kalimantan Timur	644	16.5	35.1	21.2	32.9	1,855.4	1.0
4142	Kalimantan Timur	3644	93.1	9.4	5.0	6.2	531.4	0.3
	Kalimantan		752.9					15.9

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (1995)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
5011	Sulawesi Utara	947	24.2	46.4	16.9	63.9	569.5	1.0
5012	Sulawesi Utara	126	3.2	29.0	10.5	39.9	355.1	0.6
5013	Sulawesi Utara	666	17.0	80.5	29.2	110.8	986.8	1.7
5021	Sulawesi Utara	176	4.5	41.3	15.0	56.8	506.3	0.9
5022	Sulawesi Utara	187	4.8	46.7	17.0	64.3	573.0	1.0
5031	Sulawesi Utara	48	1.2	13.8	4.9	16.1	149.4	0.3
5032	Sulawesi Utara	333	8.5	83.0	30.1	112.0	1,002.5	1.7
5041	Sulawesi Tengah	261	6.7	145.2	46.9	36.3	654.8	2.4
5042	Sulawesi Tengah	263	6.7	67.3	21.6	13.5	280.5	1.1
5050	Sulawesi Tengah	196	5.0	153.3	49.3	30.3	653.5	2.5
5061	Sulawesi Tengah	30	0.8	56.2	18.0	11.0	232.7	0.9
5062	Sulawesi Tengah	55	1.4	89.8	28.8	17.6	371.5	1.5
5070	Sulawesi Tengah	81	2.1	126.8	40.7	24.8	524.8	2.1
5080	Sulawesi Tengah	84	2.1	154.4	49.6	30.4	649.5	2.6
5091	Sulawesi Tengah	468	12.0	154.6	50.7	32.6	836.0	2.6
5092	Sulawesi Tengah	193	4.9	154.9	53.2	37.4	1,248.1	2.7
5101	Sulawesi Tenggara	201	5.1	87.7	33.3	9.4	1,259.4	1.6
5102	Sulawesi Tenggara	818	20.9	77.1	31.5	4.6	1,484.9	1.5
5111	Sulawesi Tenggara	646	16.5	68.0	27.8	4.0	1,310.1	1.3
5112	Sulawesi Tenggara	873	22.3	97.9	40.0	5.8	1,886.4	1.9
5120	Sulawesi Tenggara	1530	39.1	71.9	28.7	6.6	1,275.0	1.4
5131	Sulawesi Selatan	11	0.3	107.5	38.0	28.0	1,048.5	1.9
5132	Sulawesi Selatan	189	4.8	176.9	62.4	46.0	1,716.7	3.2
5133	Sulawesi Selatan	22	0.6	103.9	36.7	27.1	1,017.0	1.9
5141	Sulawesi Selatan	180	4.6	91.6	32.3	23.9	896.0	1.6
5142	Sulawesi Selatan	170	4.3	85.5	30.2	22.3	836.7	1.5
5143	Sulawesi Selatan	213	5.4	107.9	38.0	28.1	1,047.6	1.9
5144	Sulawesi Selatan	228	5.8	89.3	31.6	22.0	883.2	1.6
5151	Sulawesi Selatan	123	3.1	86.1	30.4	22.5	842.5	1.5
5152	Sulawesi Selatan	181	4.6	198.1	69.9	51.7	1,938.0	3.6
5153	Sulawesi Selatan	110	2.8	102.9	36.3	26.9	1,006.5	1.8
5161	Sulawesi Selatan	879	22.5	123.9	43.8	32.4	1,212.6	2.2
5162	Sulawesi Selatan	858	21.9	223.2	78.8	58.3	2,183.3	4.0
5171	Sulawesi Selatan	2337	59.7	118.4	41.8	30.9	1,158.7	2.1
5172	Sulawesi Selatan	181	4.6	196.1	69.2	51.2	1,918.5	3.5
	Sulawesi		354.2					65.6
6010	Maluku	0	0.0	36.2	41.6	23.1	354.3	0.7
6020	Maluku	0	0.0	54.5	62.6	34.7	532.7	1.1
6030	Maluku	0	0.0	62.3	71.7	39.8	609.9	1.3
7010	Irian Jaya	0	0.0	8.9	16.0	103.8	479.9	0.5
7020	Irian Jaya	0	0.0	12.0	21.5	139.4	644.8	0.7
7030	Irian Jaya	0	0.0	8.4	15.1	97.6	451.4	0.5
7040	Irian Jaya	0	0.0	6.5	11.7	75.9	351.0	0.4
	Maluku & IJ		0.0					5.2

Remarks: Unit water demand for Fishpond = 7 mm/day/ha; Cattle/Baffalo = 40 lit/day/head; Sheep/Goat = 5 lit/day/head; Pig = 6lit/day/head; Poultry = 0.6 lit/day/head.

Source: JICA-FIDP Team calculation

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2000)

(1/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
1010	D.I.Aceh	772	19.7	58.5	37.4	1.4	649.3	1.1
1020	D.I.Aceh	687	17.6	40.3	25.8	1.0	447.0	0.7
1030	D.I.Aceh	926	23.7	86.6	55.3	2.1	960.5	1.6
1040	D.I.Aceh	457	11.7	102.4	65.4	2.5	1,135.8	1.9
1050	D.I.Aceh	439	11.2	95.9	62.7	16.3	1,142.7	1.8
1060	D.I.Aceh	579	14.8	103.6	66.2	2.5	1,149.1	1.9
1071	D.I.Aceh	269	6.9	162.2	103.6	3.9	1,798.8	3.0
1072	D.I.Aceh	61	1.6	29.4	18.8	0.7	326.5	0.5
1080	Sumatera Utara	688	17.6	193.9	149.3	256.2	3,565.5	4.4
1090	Sumatera Utara	509	13.0	61.8	72.3	326.7	2,514.5	2.3
1100	Sumatera Utara	843	21.5	53.4	63.4	291.7	2,225.9	2.0
1110	Sumatera Utara	250	6.4	26.7	31.7	145.8	1,112.9	1.0
1121	Sumatera Utara	105	2.7	9.0	10.7	49.2	375.6	0.3
1122	Sumatera Utara	613	15.7	39.2	46.6	214.3	1,635.3	1.5
1131	Sumatera Utara	571	14.6	66.6	79.1	363.6	2,774.6	2.5
1132	Sumatera Utara	616	15.7	69.9	82.6	376.3	2,885.8	2.6
1141	Sumatera Utara	1774	45.3	122.1	139.0	633.3	5,003.6	4.5
1142	Sumatera Utara	48	1.2	41.9	49.7	228.5	1,744.0	1.6
1150	Riau	1365	34.9	114.2	85.5	205.3	3,154.4	3.0
1161	Riau	333	8.5	48.1	40.7	22.2	817.9	1.0
1162	Riau	69	1.8	16.7	14.2	7.7	284.5	0.3
1171	Riau	1599	40.9	116.7	75.7	38.5	2,377.1	2.4
1172	Riau	52	1.3	10.4	8.8	4.8	176.4	0.2
1181	Riau	3049	77.9	206.9	94.1	30.1	4,873.3	4.3
1182	Riau	30	0.8	11.7	9.9	5.4	199.4	0.2
1191	Sumatera Barat	239	6.1	120.6	27.2	4.6	3,325.7	2.5
1192	Sumatera Barat	141	3.6	24.9	5.2	1.0	695.5	0.5
1201	Sumatera Barat	2260	57.7	146.4	30.9	7.2	4,087.3	3.1
1202	Sumatera Barat	363	9.3	64.0	13.4	2.5	1,786.1	1.4
1210	Jambi	5370	137.2	355.1	197.3	13.6	7,627.3	7.2
1220	Sumatera Selatan	440	11.2	72.1	129.5	16.5	1,845.3	1.7
1230	Sumatera Selatan	3066	78.3	113.6	204.0	26.0	2,906.8	2.7
1241	Sumatera Selatan	5326	136.1	415.1	690.8	85.7	11,097.0	9.9
1242	Sumatera Selatan	1611	41.2	124.3	195.2	23.2	2,962.0	2.9
1250	Lampung	4631	118.3	207.9	144.5	21.8	10,072.2	5.6
1261	Lampung	1449	37.0	126.2	63.9	10.6	6,610.1	3.4
1262	Lampung	1342	34.3	82.3	41.7	6.9	4,309.9	2.2
1270	Lampung	2350	60.0	102.6	52.5	8.4	5,312.1	2.8
1280	Bengkulu	1962	50.1	108.3	57.5	1.1	4,047.9	2.6
1290	Bengkulu	1211	30.9	88.3	46.2	0.8	3,305.1	2.1
1300	Bengkulu	718	18.3	60.5	33.0	0.7	2,124.2	1.4
	Sumatera		1,256.6					98.6

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2000)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
2011	Jawa Barat	430	11.0	46.7	433.6	1.4	3,552.5	2.3
2012	Jawa Barat	333	8.5	47.2	437.9	1.4	3,587.3	2.3
2020	DKI Jakarta	1337	34.2	72.3	601.2	51.7	5,952.1	3.6
2030	Jawa Barat	3316	84.7	191.1	1,773.6	5.9	14,531.0	9.2
2041	Jawa Barat	3265	83.4	76.8	712.3	2.4	5,835.8	3.7
2042	Jawa Barat	2775	70.9	148.3	1,374.1	5.8	11,284.2	7.2
2051	Jawa Barat	2069	52.9	82.0	760.7	2.5	6,232.6	4.0
2052	Jawa Barat	3102	79.3	61.0	428.2	2.7	3,997.2	2.6
2060	Jawa Barat	7300	186.5	122.9	1,140.8	3.8	9,346.4	5.9
2070	Jawa Tengah	3886	99.3	176.5	774.4	10.3	9,406.3	6.1
2080	Jawa Tengah	54	1.4	253.1	574.4	17.9	10,999.7	7.2
2091	Jawa Tengah	713	18.2	194.6	436.2	13.8	8,432.0	5.5
2092	Jawa Tengah	397	10.1	190.1	425.9	13.5	8,234.3	5.4
2101	Jawa Tengah	20	0.5	160.7	360.2	11.4	6,962.7	4.6
2102	Jawa Tengah	79	2.0	195.9	439.0	13.9	8,485.9	5.6
2103	Jawa Tengah	42	1.1	183.7	411.8	13.0	7,960.0	5.2
2111	Jawa Tengah	1014	25.9	157.6	319.8	9.7	7,015.0	4.4
2112	Yogyakarta	251	6.4	180.1	304.1	8.3	8,359.7	5.0
2121	Jawa Tengah	131	3.3	623.9	948.4	26.8	17,251.7	14.7
2122	Jawa Tengah	372	9.5	579.1	618.7	14.9	10,223.8	11.9
2123	Jawa Timur	4	0.1	119.6	118.6	2.7	1,909.6	2.4
2131	Jawa Timur	116	3.0	479.1	441.5	9.6	6,918.2	9.3
2132	Jawa Timur	75	1.9	445.1	410.2	8.9	6,427.3	8.7
2133	Jawa Timur	32	0.8	234.6	216.2	4.7	3,388.2	4.6
2141	Jawa Timur	6	0.2	363.3	334.8	7.3	5,246.6	7.1
2142	Jawa Timur	79	2.0	392.6	361.8	7.9	5,668.9	7.7
2143	Jawa Timur	37	0.9	386.9	356.6	7.8	5,587.9	7.5
2150	Jawa Timur	287	7.3	432.8	398.9	8.7	6,250.6	8.4
	Jawa		805.4					172.1
3011	Bali	12	0.3	136.0	40.7	396.6	3,682.9	3.7
3012	Bali	134	3.4	378.2	113.2	1,102.7	10,239.9	10.4
3020	Nusa Tenggara Barat	203	5.2	205.0	86.5	7.9	1,319.8	3.5
3030	Nusa Tenggara Barat	425	10.9	692.1	292.1	26.8	4,454.6	11.7
3040	Nusa Tenggara Timur	259	6.6	279.0	189.5	381.9	1,979.4	5.7
3050	Nusa Tenggara Timur	101	2.6	384.4	261.1	526.2	2,727.4	7.8
3060	Nusa Tenggara Timur	555	14.2	509.3	347.8	705.8	3,674.0	10.4
3070	Timor Timur	14	0.4	187.0	162.3	419.2	2,457.0	4.5
	Bali & NT		43.5					57.7
4010	Kalimantan Selatan	1017	26.0	118.6	37.0	3.1	7,242.1	3.4
4021	Kalimantan Tengah	2946	75.3	12.4	4.4	30.8	1,746.1	0.6
4022	Kalimantan Selatan	11435	292.2	144.5	45.3	17.2	9,273.6	4.3
4030	Kalimantan Tengah	827	21.1	4.3	1.5	12.6	675.1	0.2
4040	Kalimantan Tengah	401	10.2	5.8	2.1	17.3	921.3	0.3
4050	Kalimantan Tengah	138	3.5	4.0	1.4	11.7	630.9	0.2
4061	Kalimantan Tengah	135	3.4	3.9	1.4	11.6	606.4	0.2
4062	Kalimantan Tengah	104	2.7	12.0	3.6	46.7	885.7	0.5
4070	Kalimantan Barat	424	10.8	45.5	11.9	206.4	626.7	1.3
4080	Kalimantan Barat	7204	184.1	127.7	33.4	577.7	1,794.7	3.6
4090	Kalimantan Barat	203	5.2	19.2	5.0	86.8	263.4	0.5
4100	Kalimantan Timur	105	2.7	18.5	8.9	14.7	885.6	0.5
4110	Kalimantan Timur	109	2.8	19.3	9.3	15.4	925.9	0.5
4120	Kalimantan Timur	19	0.5	11.2	5.4	8.9	536.3	0.3
4130	Kalimantan Timur	111	2.8	11.9	5.7	9.4	569.9	0.3
4141	Kalimantan Timur	644	16.5	45.4	21.8	36.7	2,191.1	1.3
4142	Kalimantan Timur	3644	93.1	12.0	5.2	6.9	617.1	0.3
	Kalimantan		752.9					18.3

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2000)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
5011	Sulawesi Utara	947	24.2	53.7	20.3	79.9	730.7	1.2
5012	Sulawesi Utara	126	3.2	33.5	12.7	49.8	455.6	0.7
5013	Sulawesi Utara	666	17.0	93.1	35.2	138.5	1,266.1	2.0
5021	Sulawesi Utara	176	4.5	47.8	18.1	71.1	649.6	1.0
5022	Sulawesi Utara	187	4.8	54.1	20.5	80.4	735.2	1.2
5031	Sulawesi Utara	48	1.2	16.3	5.9	20.2	191.8	0.3
5032	Sulawesi Utara	333	8.5	96.4	36.2	140.1	1,286.4	2.1
5041	Sulawesi Tengah	261	6.7	189.2	56.5	46.0	850.2	3.2
5042	Sulawesi Tengah	263	6.7	88.2	26.1	17.2	364.9	1.5
5050	Sulawesi Tengah	196	5.0	199.7	59.3	38.5	839.7	3.3
5061	Sulawesi Tengah	30	0.8	73.6	21.7	14.1	302.6	1.2
5062	Sulawesi Tengah	55	1.4	117.6	34.7	22.5	483.3	1.9
5070	Sulawesi Tengah	81	2.1	166.1	49.0	31.7	682.7	2.7
5080	Sulawesi Tengah	84	2.1	201.6	59.7	38.7	839.1	3.3
5091	Sulawesi Tengah	468	12.0	191.8	59.6	40.5	981.6	3.2
5092	Sulawesi Tengah	193	4.9	169.8	59.3	44.6	1,296.4	3.0
5101	Sulawesi Tenggara	201	5.1	114.0	39.0	12.1	1,622.6	2.1
5102	Sulawesi Tenggara	818	20.9	100.9	36.5	6.1	1,920.5	2.0
5111	Sulawesi Tenggara	646	16.5	89.0	32.2	5.4	1,694.5	1.7
5112	Sulawesi Tenggara	873	22.3	128.2	46.4	7.8	2,439.8	2.5
5120	Sulawesi Tenggara	1530	39.1	90.6	33.0	8.3	1,614.5	1.8
5131	Sulawesi Selatan	11	0.3	108.1	41.0	32.7	1,038.9	2.0
5132	Sulawesi Selatan	189	4.8	178.2	67.5	53.7	1,702.8	3.2
5133	Sulawesi Selatan	22	0.6	104.2	39.6	31.7	1,006.8	1.9
5141	Sulawesi Selatan	180	4.6	91.8	34.9	27.9	887.1	1.7
5142	Sulawesi Selatan	170	4.3	85.8	32.6	26.0	828.4	1.6
5143	Sulawesi Selatan	213	5.4	108.6	41.1	32.8	1,038.9	2.0
5144	Sulawesi Selatan	228	5.8	92.9	34.5	25.8	909.9	1.7
5151	Sulawesi Selatan	123	3.1	86.4	32.8	26.2	834.1	1.6
5152	Sulawesi Selatan	181	4.6	198.6	75.5	60.3	1,918.6	3.6
5153	Sulawesi Selatan	110	2.8	103.2	39.2	31.3	996.5	1.9
5161	Sulawesi Selatan	879	22.5	124.3	47.2	37.7	1,200.5	2.2
5162	Sulawesi Selatan	858	21.9	223.8	85.1	68.0	2,161.5	4.0
5171	Sulawesi Selatan	2337	59.7	118.8	45.1	36.1	1,147.2	2.1
5172	Sulawesi Selatan	181	4.6	196.6	74.7	59.7	1,899.3	3.6
	Sulawesi		354.2					75
6010	Maluku	0	0.0	46.0	41.8	25.8	354.3	0.9
6020	Maluku	0	0.0	69.1	62.8	38.8	532.7	1.3
6030	Maluku	0	0.0	79.1	71.9	44.4	609.9	1.5
7010	Irian Jaya	0	0.0	9.5	20.9	91.6	562.7	0.5
7020	Irian Jaya	0	0.0	12.7	28.0	123.1	756.1	0.7
7030	Irian Jaya	0	0.0	8.9	19.6	86.2	529.3	0.5
7040	Irian Jaya	0	0.0	6.9	15.3	67.0	411.6	0.4
	Maluku & IJ		0.0					5.8

Remarks: Unit water demand for Fishpond = 7 mm/day/ha; Cattle/Baffalo = 40 lit/day/head; Sheep/Goat = 5 lit/day/head; Pig = 6lit/day/head; Poultry = 0.6 lit/day/head.

Source: JICA-FIDP Team calculation

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2005)

(1/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
1010	D.I.Aceh	772	19.7	58.1	37.5	1.6	577.8	1.0
1020	D.I.Aceh	687	17.6	40.0	25.8	1.1	397.8	0.7
1030	D.I.Aceh	926	23.7	85.9	55.5	2.4	854.7	1.5
1040	D.I.Aceh	457	11.7	101.6	65.6	2.9	1,010.7	1.8
1050	D.I.Aceh	439	11.2	95.5	63.4	19.4	1,041.8	1.8
1060	D.I.Aceh	579	14.8	102.7	66.4	2.9	1,022.5	1.9
1071	D.I.Aceh	269	6.9	160.8	103.9	4.5	1,600.7	2.9
1072	D.I.Aceh	61	1.6	29.2	18.9	0.8	290.5	0.5
1080	Sumatera Utara	688	17.6	198.4	157.9	307.3	3,622.8	4.7
1090	Sumatera Utara	509	13.0	69.2	83.1	392.0	2,819.4	2.6
1100	Sumatera Utara	843	21.5	60.0	73.0	350.0	2,500.4	2.3
1110	Sumatera Utara	250	6.4	30.0	36.5	175.0	1,250.1	1.2
1121	Sumatera Utara	105	2.7	10.1	12.3	59.1	421.9	0.4
1122	Sumatera Utara	613	15.7	44.1	53.7	257.1	1,836.9	1.7
1131	Sumatera Utara	571	14.6	74.8	91.1	436.3	3,116.7	2.9
1132	Sumatera Utara	616	15.7	78.6	95.1	451.6	3,239.4	3.0
1141	Sumatera Utara	1774	45.3	137.0	159.8	759.9	5,632.6	5.2
1142	Sumatera Utara	48	1.2	47.0	57.2	274.2	1,959.0	1.8
1150	Riau	1365	34.9	132.0	96.9	247.0	3,518.0	3.4
1161	Riau	333	8.5	59.2	46.4	27.4	817.9	1.2
1162	Riau	69	1.8	20.6	16.1	9.5	284.5	0.4
1171	Riau	1599	40.9	138.6	85.2	47.5	2,572.3	2.8
1172	Riau	52	1.3	12.8	10.0	5.9	176.4	0.3
1181	Riau	3049	77.9	237.6	104.9	36.3	5,597.2	5.0
1182	Riau	30	0.8	14.4	11.3	6.7	199.5	0.3
1191	Sumatera Barat	239	6.1	132.0	27.8	5.1	3,964.7	2.9
1192	Sumatera Barat	141	3.6	27.2	5.2	1.0	830.3	0.6
1201	Sumatera Barat	2260	57.7	159.7	31.0	8.1	4,878.4	3.5
1202	Sumatera Barat	363	9.3	69.8	13.4	2.7	2,132.2	1.5
1210	Jambi	5370	137.2	420.1	229.5	14.1	8,771.2	8.5
1220	Sumatera Selatan	440	11.2	82.4	159.3	18.6	2,243.7	2.0
1230	Sumatera Selatan	3066	78.3	129.8	250.9	29.3	3,534.4	3.2
1241	Sumatera Selatan	5326	136.1	475.6	843.7	96.7	13,532.7	11.7
1242	Sumatera Selatan	1611	41.2	144.6	239.3	26.1	3,549.8	3.4
1250	Lampung	4631	118.3	252.6	148.0	22.7	12,810.5	6.8
1261	Lampung	1449	37.0	154.9	57.6	10.6	8,438.1	4.2
1262	Lampung	1342	34.3	101.0	37.5	6.9	5,501.8	2.8
1270	Lampung	2350	60.0	125.6	47.6	8.4	6,776.7	3.4
1280	Bengkulu	1962	50.1	125.4	54.6	1.4	5,037.5	3.0
1290	Bengkulu	1211	30.9	102.2	43.6	1.0	4,113.3	2.5
1300	Bengkulu	718	18.3	70.7	32.4	0.8	2,626.2	1.7
	Sumatera		1,256.6					113

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2005)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
2011	Jawa Barat	430	11.0	49.4	518.8	1.2	4,092.5	2.6
2012	Jawa Barat	333	8.5	49.8	523.9	1.2	4,132.7	2.6
2020	DKI.Jakarta	1337	34.2	76.5	715.9	51.4	6,688.1	4.0
2030	Jawa Barat	3316	84.7	201.9	2,122.3	4.9	16,740.1	10.5
2041	Jawa Barat	3265	83.4	81.1	852.3	1.9	6,723.0	4.2
2042	Jawa Barat	2775	70.9	156.6	1,644.1	5.0	12,995.3	8.1
2051	Jawa Barat	2069	52.9	86.6	910.3	2.1	7,180.1	4.5
2052	Jawa Barat	3102	79.3	64.5	505.0	2.4	4,666.4	2.9
2060	Jawa Barat	7300	186.5	129.9	1,365.0	3.1	10,767.3	6.8
2070	Jawa Tengah	3886	99.3	186.9	880.5	9.7	11,221.3	6.8
2080	Jawa Tengah	54	1.4	268.5	592.3	17.2	13,463.5	8.0
2091	Jawa Tengah	713	18.2	206.4	448.6	13.3	10,324.9	6.1
2092	Jawa Tengah	397	10.1	201.6	438.1	13.0	10,082.8	6.0
2101	Jawa Tengah	20	0.5	170.4	370.4	11.0	8,525.7	5.1
2102	Jawa Tengah	79	2.0	207.7	451.5	13.4	10,390.9	6.2
2103	Jawa Tengah	42	1.1	194.9	423.5	12.5	9,746.9	5.8
2111	Jawa Tengah	1014	25.9	166.0	330.0	9.1	8,402.1	4.9
2112	Yogyakarta	251	6.4	187.7	315.8	7.4	9,676.8	5.5
2121	Jawa Tengah	131	3.3	658.8	981.1	25.7	20,561.5	16.0
2122	Jawa Tengah	372	9.5	609.9	644.7	14.1	11,685.2	12.7
2123	Jawa Timur	4	0.1	125.9	123.8	2.6	2,154.7	2.5
2131	Jawa Timur	116	3.0	504.0	461.9	9.0	7,695.3	9.9
2132	Jawa Timur	75	1.9	468.3	429.1	8.4	7,149.3	9.2
2133	Jawa Timur	32	0.8	246.9	226.2	4.4	3,768.8	4.9
2141	Jawa Timur	6	0.2	382.3	350.3	6.8	5,835.9	7.5
2142	Jawa Timur	79	2.0	413.0	378.5	7.4	6,305.7	8.1
2143	Jawa Timur	37	0.9	407.1	373.1	7.3	6,215.6	8.0
2150	Jawa Timur	287	7.3	455.4	417.3	8.1	6,952.7	9.0
	Jawa		805.4					188.4
3011	Bali	12	0.3	143.4	48.1	460.7	4,457.9	4.2
3012	Bali	134	3.4	398.6	133.8	1,280.8	12,394.4	11.6
3020	Nusa Tenggara Barat	203	5.2	229.0	91.7	9.3	1,429.1	3.8
3030	Nusa Tenggara Barat	425	10.9	773.1	309.6	31.3	4,823.6	13.0
3040	Nusa Tenggara Timur	259	6.6	300.2	219.3	439.7	2,335.3	6.3
3050	Nusa Tenggara Timur	101	2.6	413.7	302.2	605.9	3,217.9	8.6
3060	Nusa Tenggara Timur	555	14.2	548.4	402.1	813.5	4,351.2	11.5
3070	Timor Timur	14	0.4	208.5	181.0	496.6	3,205.9	5.2
	Bali & NT		43.5					64.2
4010	Kalimantan Selatan	1017	26.0	139.0	39.1	3.1	8,049.1	3.9
4021	Kalimantan Tengah	2946	75.3	11.6	4.5	28.9	2,154.7	0.7
4022	Kalimantan Selatan	11435	292.2	168.1	47.8	16.3	10,402.9	4.9
4030	Kalimantan Tengah	827	21.1	3.8	1.5	11.7	839.1	0.3
4040	Kalimantan Tengah	401	10.2	5.2	2.1	16.1	1,145.0	0.4
4050	Kalimantan Tengah	138	3.5	3.5	1.4	10.9	784.1	0.2
4061	Kalimantan Tengah	135	3.4	3.4	1.4	10.9	753.5	0.2
4062	Kalimantan Tengah	104	2.7	12.7	3.7	49.7	1,077.2	0.5
4070	Kalimantan Barat	424	10.8	53.7	12.2	232.3	626.9	1.5
4080	Kalimantan Barat	7204	184.1	150.5	34.1	650.1	1,805.0	4.1
4090	Kalimantan Barat	203	5.2	22.6	5.1	97.7	263.4	0.6
4100	Kalimantan Timur	105	2.7	22.7	9.2	16.2	1,020.8	0.6
4110	Kalimantan Timur	109	2.8	23.8	9.6	17.0	1,067.3	0.6
4120	Kalimantan Timur	19	0.5	13.8	5.6	9.8	618.1	0.4
4130	Kalimantan Timur	111	2.8	14.6	5.9	10.4	656.9	0.4
4141	Kalimantan Timur	644	16.5	55.7	22.4	40.5	2,526.7	1.5
4142	Kalimantan Timur	3644	93.1	14.5	5.4	7.6	702.9	0.4
	Kalimantan		752.9					21.2

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2005)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
5011	Sulawesi Utara	947	24.2	61.1	23.8	95.9	891.9	1.3
5012	Sulawesi Utara	126	3.2	38.1	14.8	59.8	556.1	0.8
5013	Sulawesi Utara	666	17.0	105.8	41.2	166.2	1,545.5	2.3
5021	Sulawesi Utara	176	4.5	54.3	21.2	85.3	792.9	1.2
5022	Sulawesi Utara	187	4.8	61.4	23.9	96.5	897.4	1.3
5031	Sulawesi Utara	48	1.2	18.8	6.9	24.2	234.3	0.4
5032	Sulawesi Utara	333	8.5	109.8	42.4	168.1	1,570.3	2.4
5041	Sulawesi Tengah	261	6.7	233.2	66.1	55.8	1,045.7	3.9
5042	Sulawesi Tengah	263	6.7	109.0	30.5	20.9	449.2	1.8
5050	Sulawesi Tengah	196	5.0	246.2	69.2	46.8	1,025.9	4.0
5061	Sulawesi Tengah	30	0.8	91.1	25.4	17.1	372.6	1.5
5062	Sulawesi Tengah	55	1.4	145.4	40.6	27.3	595.0	2.4
5070	Sulawesi Tengah	81	2.1	205.4	57.4	38.6	840.5	3.4
5080	Sulawesi Tengah	84	2.1	248.9	69.8	47.0	1,028.7	4.1
5091	Sulawesi Tengah	468	12.0	229.0	68.4	48.5	1,127.3	3.8
5092	Sulawesi Tengah	193	4.9	184.8	65.4	51.8	1,344.8	3.2
5101	Sulawesi Tenggara	201	5.1	140.4	44.6	14.8	1,985.8	2.6
5102	Sulawesi Tenggara	818	20.9	124.7	41.6	7.7	2,356.2	2.4
5111	Sulawesi Tenggara	646	16.5	110.0	36.7	6.8	2,078.9	2.1
5112	Sulawesi Tenggara	873	22.3	158.4	52.8	9.7	2,993.3	3.1
5120	Sulawesi Tenggara	1530	39.1	109.2	37.3	10.0	1,954.0	2.1
5131	Sulawesi Selatan	11	0.3	108.6	44.0	37.4	1,029.2	2.0
5132	Sulawesi Selatan	189	4.8	179.5	72.5	61.4	1,688.9	3.3
5133	Sulawesi Selatan	22	0.6	104.5	42.5	36.2	996.6	1.9
5141	Sulawesi Selatan	180	4.6	92.1	37.5	31.9	878.1	1.7
5142	Sulawesi Selatan	170	4.3	86.0	35.0	29.8	820.0	1.6
5143	Sulawesi Selatan	213	5.4	109.3	44.2	37.5	1,030.2	2.0
5144	Sulawesi Selatan	228	5.8	96.5	37.4	29.6	936.6	1.7
5151	Sulawesi Selatan	123	3.1	86.6	35.2	30.0	825.6	1.6
5152	Sulawesi Selatan	181	4.6	199.2	81.1	68.9	1,899.2	3.6
5153	Sulawesi Selatan	110	2.8	103.5	42.1	35.8	986.4	1.9
5161	Sulawesi Selatan	879	22.5	124.6	50.7	43.1	1,188.3	2.3
5162	Sulawesi Selatan	858	21.9	224.4	91.3	77.6	2,139.7	4.1
5171	Sulawesi Selatan	2337	59.7	119.1	48.5	41.2	1,135.6	2.2
5172	Sulawesi Selatan	181	4.6	197.2	80.3	68.2	1,880.1	3.6
	Sulawesi		354.2					83.6
6010	Maluku	0	0.0	55.7	41.9	28.5	354.3	1.0
6020	Maluku	0	0.0	83.8	63.1	42.9	532.7	1.5
6030	Maluku	0	0.0	96.0	72.2	49.1	609.9	1.8
7010	Irian Jaya	0	0.0	10.0	25.7	79.5	645.6	0.5
7020	Irian Jaya	0	0.0	13.4	34.5	106.8	867.4	0.7
7030	Irian Jaya	0	0.0	9.4	24.2	74.8	607.3	0.5
7040	Irian Jaya	0	0.0	7.3	18.8	58.1	472.2	0.4
	Maluku & IJ		0.0					6.4

Remarks: Unit water demand for Fishpond = 7 mm/day/ha; Cattle/Baffalo = 40 lit/day/head; Sheep/Goat = 5 lit/day/head; Pig = 6lit/day/head; Poultry = 0.6 lit/day/head.

Source: JICA-FIDP Team calculation

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2010)

(1/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
1010	D.I.Aceh	772	19.7	57.6	37.6	1.9	506.3	1.0
1020	D.I.Aceh	687	17.6	39.6	25.9	1.3	348.5	0.7
1030	D.I.Aceh	926	23.7	85.2	55.7	2.8	748.9	1.5
1040	D.I.Aceh	457	11.7	100.7	65.8	3.3	885.6	1.8
1050	D.I.Aceh	439	11.2	95.0	64.0	22.6	940.9	1.8
1060	D.I.Aceh	579	14.8	101.9	66.6	3.3	895.9	1.8
1071	D.I.Aceh	269	6.9	159.5	104.3	5.2	1,402.5	2.8
1072	D.I.Aceh	61	1.6	28.9	18.9	0.9	254.5	0.5
1080	Sumatera Utara	688	17.6	202.9	166.5	358.4	3,680.0	4.9
1090	Sumatera Utara	509	13.0	76.5	93.8	457.3	3,124.3	3.0
1100	Sumatera Utara	843	21.5	66.6	82.6	408.4	2,774.8	2.6
1110	Sumatera Utara	250	6.4	33.3	41.3	204.2	1,387.3	1.3
1121	Sumatera Utara	105	2.7	11.2	13.9	68.9	468.2	0.4
1122	Sumatera Utara	613	15.7	48.9	60.7	300.0	2,038.5	1.9
1131	Sumatera Utara	571	14.6	83.0	103.0	509.0	3,458.8	3.3
1132	Sumatera Utara	616	15.7	87.3	107.6	526.9	3,593.0	3.4
1141	Sumatera Utara	1774	45.3	151.8	180.7	886.6	6,261.7	5.9
1142	Sumatera Utara	48	1.2	52.2	64.8	319.9	2,174.0	2.1
1150	Riau	1365	34.9	149.8	108.2	288.7	3,881.5	3.9
1161	Riau	333	8.5	70.3	52.0	32.7	817.9	1.4
1162	Riau	69	1.8	24.5	18.1	11.4	284.5	0.5
1171	Riau	1599	40.9	160.4	94.7	56.4	2,767.5	3.2
1172	Riau	52	1.3	15.2	11.2	7.1	176.4	0.3
1181	Riau	3049	77.9	268.4	115.7	42.4	6,321.0	5.6
1182	Riau	30	0.8	17.1	12.7	8.0	199.5	0.3
1191	Sumatera Barat	239	6.1	143.4	28.3	5.5	4,603.7	3.2
1192	Sumatera Barat	141	3.6	29.4	5.2	1.1	965.1	0.7
1201	Sumatera Barat	2260	57.7	172.9	31.0	8.9	5,669.4	3.8
1202	Sumatera Barat	363	9.3	75.6	13.4	2.9	2,478.2	1.7
1210	Jambi	5370	137.2	485.1	261.8	14.7	9,915.0	9.8
1220	Sumatera Selatan	440	11.2	92.7	189.0	20.7	2,642.1	2.3
1230	Sumatera Selatan	3066	78.3	146.0	297.8	32.6	4,162.0	3.7
1241	Sumatera Selatan	5326	136.1	536.1	996.6	107.6	15,968.4	13.4
1242	Sumatera Selatan	1611	41.2	165.0	283.4	28.9	4,137.7	3.9
1250	Lampung	4631	118.3	297.3	151.6	23.6	15,548.8	8.1
1261	Lampung	1449	37.0	183.6	51.2	10.6	10,266.2	5.0
1262	Lampung	1342	34.3	119.7	33.4	6.9	6,693.7	3.3
1270	Lampung	2350	60.0	148.7	42.7	8.4	8,241.4	4.1
1280	Bengkulu	1962	50.1	142.6	51.7	1.7	6,027.0	3.5
1290	Bengkulu	1211	30.9	116.2	41.1	1.2	4,921.5	2.9
1300	Bengkulu	718	18.3	80.8	31.8	1.0	3,128.2	1.9
	Sumatera		1,256.6					127.2

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2010)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
2011	Jawa Barat	430	11.0	52.0	604.1	0.9	4,632.6	2.9
2012	Jawa Barat	333	8.5	52.5	610.0	1.0	4,678.1	2.9
2020	DKI Jakarta	1337	34.2	80.7	830.6	51.0	7,424.1	4.4
2030	Jawa Barat	3316	84.7	212.7	2,470.9	3.8	18,949.2	11.8
2041	Jawa Barat	3265	83.4	85.4	992.3	1.5	7,610.2	4.7
2042	Jawa Barat	2775	70.9	165.0	1,914.1	4.3	14,706.5	9.1
2051	Jawa Barat	2069	52.9	91.2	1,059.8	1.7	8,127.6	5.0
2052	Jawa Barat	3102	79.3	68.0	581.8	2.1	5,335.6	3.2
2060	Jawa Barat	7300	186.5	136.8	1,589.3	2.5	12,188.2	7.6
2070	Jawa Tengah	3886	99.3	197.4	986.5	9.1	13,036.3	7.6
2080	Jawa Tengah	54	1.4	283.8	610.3	16.6	15,927.2	8.8
2091	Jawa Tengah	713	18.2	218.2	461.1	12.8	12,217.7	6.7
2092	Jawa Tengah	397	10.1	213.1	450.2	12.5	11,931.3	6.6
2101	Jawa Tengah	20	0.5	180.2	380.7	10.6	10,088.7	5.6
2102	Jawa Tengah	79	2.0	219.6	464.0	12.9	12,295.8	6.8
2103	Jawa Tengah	42	1.1	206.0	435.2	12.1	11,533.8	6.4
2111	Jawa Tengah	1014	25.9	174.5	340.1	8.6	9,789.1	5.3
2112	Yogyakarta	251	6.4	195.3	327.5	6.5	10,993.9	5.9
2121	Jawa Tengah	131	3.3	693.6	1,013.7	24.5	23,871.3	17.3
2122	Jawa Tengah	372	9.5	640.6	670.8	13.2	13,146.6	13.5
2123	Jawa Timur	4	0.1	132.2	129.0	2.4	2,399.7	2.7
2131	Jawa Timur	116	3.0	529.0	482.3	8.4	8,472.3	10.5
2132	Jawa Timur	75	1.9	491.5	448.1	7.8	7,871.2	9.7
2133	Jawa Timur	32	0.8	259.1	236.2	4.1	4,149.3	5.1
2141	Jawa Timur	6	0.2	401.2	365.7	6.4	6,425.2	7.9
2142	Jawa Timur	79	2.0	433.5	395.2	6.9	6,942.5	8.6
2143	Jawa Timur	37	0.9	427.3	389.5	6.8	6,843.2	8.5
2150	Jawa Timur	287	7.3	478.0	435.7	7.6	7,654.8	9.5
	Jawa		805.4					204.6
3011	Bali	12	0.3	150.7	55.5	524.7	5,232.8	4.6
3012	Bali	134	3.4	419.0	154.4	1,458.9	14,549.0	12.8
3020	Nusa Tenggara Barat	203	5.2	253.0	96.9	10.6	1,538.4	4.2
3030	Nusa Tenggara Barat	425	10.9	854.1	327.1	35.8	5,192.5	14.3
3040	Nusa Tenggara Timur	259	6.6	321.5	249.1	497.6	2,691.2	6.8
3050	Nusa Tenggara Timur	101	2.6	443.0	343.3	685.6	3,708.3	9.4
3060	Nusa Tenggara Timur	555	14.2	587.6	456.5	921.2	5,028.5	12.5
3070	Timor Timur	14	0.4	230.0	199.6	574.0	3,954.8	5.8
	Bali & NT		43.5					70.4
4010	Kalimantan Selatan	1017	26.0	159.5	41.2	3.1	8,856.2	4.4
4021	Kalimantan Tengah	2946	75.3	10.8	4.5	26.9	2,563.3	0.8
4022	Kalimantan Selatan	11435	292.2	191.7	50.3	15.4	11,532.2	5.4
4030	Kalimantan Tengah	827	21.1	3.3	1.5	10.9	1,003.0	0.3
4040	Kalimantan Tengah	401	10.2	4.5	2.1	15.0	1,368.7	0.4
4050	Kalimantan Tengah	138	3.5	3.0	1.4	10.1	937.3	0.3
4061	Kalimantan Tengah	135	3.4	3.0	1.4	10.1	900.6	0.3
4062	Kalimantan Tengah	104	2.7	13.4	3.7	52.8	1,268.8	0.6
4070	Kalimantan Barat	424	10.8	61.9	12.4	258.2	627.0	1.6
4080	Kalimantan Barat	7204	184.1	173.4	34.9	722.5	1,815.3	4.6
4090	Kalimantan Barat	203	5.2	26.0	5.2	108.6	263.4	0.7
4100	Kalimantan Timur	105	2.7	27.0	9.4	17.8	1,156.0	0.7
4110	Kalimantan Timur	109	2.8	28.2	9.8	18.6	1,208.6	0.7
4120	Kalimantan Timur	19	0.5	16.3	5.7	10.8	700.0	0.4
4130	Kalimantan Timur	111	2.8	17.4	6.1	11.4	743.9	0.5
4141	Kalimantan Timur	644	16.5	66.0	22.9	44.2	2,862.4	1.7
4142	Kalimantan Timur	3644	93.1	17.1	5.5	8.3	788.6	0.5
	Kalimantan		752.9					23.9

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2010)

(3/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
5011	Sulawesi Utara	947	24.2	68.4	27.3	111.9	1,053.1	1.5
5012	Sulawesi Utara	126	3.2	42.6	17.0	69.8	656.7	0.9
5013	Sulawesi Utara	666	17.0	118.5	47.2	193.9	1,824.8	2.6
5021	Sulawesi Utara	176	4.5	60.8	24.2	99.5	936.2	1.4
5022	Sulawesi Utara	187	4.8	68.8	27.4	112.6	1,059.6	1.5
5031	Sulawesi Utara	48	1.2	21.4	7.9	28.3	276.8	0.4
5032	Sulawesi Utara	333	8.5	123.1	48.6	196.2	1,854.2	2.7
5041	Sulawesi Tengah	261	6.7	277.2	75.7	65.6	1,241.2	4.6
5042	Sulawesi Tengah	263	6.7	129.8	34.9	24.6	533.5	2.1
5050	Sulawesi Tengah	196	5.0	292.6	79.2	55.0	1,212.1	4.8
5061	Sulawesi Tengah	30	0.8	108.5	29.1	20.1	442.6	1.8
5062	Sulawesi Tengah	55	1.4	173.2	46.5	32.2	706.7	2.8
5070	Sulawesi Tengah	81	2.1	244.7	65.7	45.4	998.3	4.0
5080	Sulawesi Tengah	84	2.1	296.1	79.8	55.4	1,218.3	4.9
5091	Sulawesi Tengah	468	12.0	266.2	77.3	56.5	1,272.9	4.4
5092	Sulawesi Tengah	193	4.9	199.7	71.6	59.0	1,393.1	3.5
5101	Sulawesi Tenggara	201	5.1	166.8	50.3	17.5	2,349.0	3.1
5102	Sulawesi Tenggara	818	20.9	148.5	46.6	9.2	2,791.8	2.9
5111	Sulawesi Tenggara	646	16.5	131.0	41.1	8.1	2,463.3	2.5
5112	Sulawesi Tenggara	873	22.3	188.7	59.2	11.7	3,546.7	3.7
5120	Sulawesi Tenggara	1530	39.1	127.9	41.6	11.7	2,293.5	2.5
5131	Sulawesi Selatan	11	0.3	109.1	47.1	42.1	1,019.6	2.0
5132	Sulawesi Selatan	189	4.8	180.8	77.6	69.1	1,675.0	3.3
5133	Sulawesi Selatan	22	0.6	104.8	45.5	40.7	986.5	1.9
5141	Sulawesi Selatan	180	4.6	92.4	40.1	35.8	869.2	1.7
5142	Sulawesi Selatan	170	4.3	86.3	37.4	33.5	811.6	1.6
5143	Sulawesi Selatan	213	5.4	110.1	47.3	42.2	1,021.5	2.0
5144	Sulawesi Selatan	228	5.8	100.1	40.3	33.4	963.3	1.8
5151	Sulawesi Selatan	123	3.1	86.8	37.7	33.7	817.2	1.6
5152	Sulawesi Selatan	181	4.6	199.8	86.6	77.5	1,879.8	3.7
5153	Sulawesi Selatan	110	2.8	103.8	45.0	40.3	976.4	1.9
5161	Sulawesi Selatan	879	22.5	125.0	54.2	48.5	1,176.2	2.3
5162	Sulawesi Selatan	858	21.9	225.1	97.6	87.3	2,117.9	4.1
5171	Sulawesi Selatan	2337	59.7	119.4	51.8	46.3	1,124.0	2.2
5172	Sulawesi Selatan	181	4.6	197.8	85.8	76.7	1,861.0	3.6
	Sulawesi		354.2					92.3
6010	Maluku	0	0.0	65.5	42.1	31.3	354.3	1.2
6020	Maluku	0	0.0	98.5	63.3	47.0	532.7	1.8
6030	Maluku	0	0.0	112.8	72.4	53.8	609.9	2.0
7010	Irian Jaya	0	0.0	10.5	30.5	67.3	728.5	0.5
7020	Irian Jaya	0	0.0	14.1	41.0	90.5	978.8	0.7
7030	Irian Jaya	0	0.0	9.9	28.7	63.3	685.2	0.5
7040	Irian Jaya	0	0.0	7.7	22.3	49.2	532.8	0.4
	Maluku & IJ		0.0					7.1

Remarks: Unit water demand for Fishpond = 7 mm/day/ha; Cattle/Baffalo = 40 lit/day/head; Sheep/Goat = 5 lit/day/head; Pig = 6lit/day/head; Poultry = 0.6 lit/day/head.

Source: JICA-FIDP Team calculation

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2015)

(1/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
1010	D.I.Aceh	772	19.7	57.1	37.8	2.1	434.8	1.0
1020	D.I.Aceh	687	17.6	39.3	26.0	1.5	299.3	0.7
1030	D.I.Aceh	926	23.7	84.5	55.8	3.1	643.1	1.5
1040	D.I.Aceh	457	11.7	99.9	66.0	3.7	760.5	1.8
1050	D.I.Aceh	439	11.2	94.6	64.7	25.8	840.0	1.7
1060	D.I.Aceh	579	14.8	101.0	66.8	3.7	769.4	1.8
1071	D.I.Aceh	269	6.9	158.2	104.6	5.8	1,204.4	2.8
1072	D.I.Aceh	61	1.6	28.7	19.0	1.1	218.6	0.5
1080	Sumatera Utara	688	17.6	207.4	175.1	409.5	3,737.3	5.1
1090	Sumatera Utara	509	13.0	83.9	104.6	522.7	3,429.2	3.3
1100	Sumatera Utara	843	21.5	73.2	92.2	466.7	3,049.2	2.9
1110	Sumatera Utara	250	6.4	36.6	46.1	233.3	1,524.5	1.5
1121	Sumatera Utara	105	2.7	12.3	15.6	78.8	514.5	0.5
1122	Sumatera Utara	613	15.7	53.7	67.8	342.9	2,240.1	2.1
1131	Sumatera Utara	571	14.6	91.2	115.0	581.8	3,800.8	3.6
1132	Sumatera Utara	616	15.7	96.0	120.1	602.2	3,946.7	3.8
1141	Sumatera Utara	1774	45.3	166.6	201.5	1,013.2	6,890.7	6.5
1142	Sumatera Utara	48	1.2	57.3	72.3	365.7	2,389.0	2.3
1150	Riau	1365	34.9	167.5	119.6	330.4	4,245.1	4.3
1161	Riau	333	8.5	81.4	57.7	38.0	817.9	1.6
1162	Riau	69	1.8	28.3	20.1	13.2	284.5	0.5
1171	Riau	1599	40.9	182.2	104.2	65.3	2,962.6	3.6
1172	Riau	52	1.3	17.6	12.4	8.2	176.4	0.3
1181	Riau	3049	77.9	299.1	126.5	48.6	7,044.9	6.2
1182	Riau	30	0.8	19.8	14.1	9.3	199.5	0.4
1191	Sumatera Barat	239	6.1	154.9	28.8	5.9	5,242.6	3.5
1192	Sumatera Barat	141	3.6	31.7	5.2	1.2	1,099.8	0.7
1201	Sumatera Barat	2260	57.7	186.1	31.1	9.7	6,460.5	4.2
1202	Sumatera Barat	363	9.3	81.4	13.4	3.2	2,824.3	1.8
1210	Jambi	5370	137.2	550.2	294.1	15.2	11,058.9	11.0
1220	Sumatera Selatan	440	11.2	102.9	218.8	22.8	3,040.5	2.6
1230	Sumatera Selatan	3066	78.3	162.1	344.7	35.9	4,789.6	4.1
1241	Sumatera Selatan	5326	136.1	596.7	1,149.4	118.5	18,404.1	15.1
1242	Sumatera Selatan	1611	41.2	185.3	327.4	31.7	4,725.5	4.4
1250	Lampung	4631	118.3	342.0	155.1	24.5	18,287.1	9.3
1261	Lampung	1449	37.0	212.3	44.8	10.6	12,094.2	5.9
1262	Lampung	1342	34.3	138.5	29.2	6.9	7,885.6	3.8
1270	Lampung	2350	60.0	171.8	37.7	8.5	9,706.0	4.7
1280	Bengkulu	1962	50.1	159.7	48.8	1.9	7,016.6	4.0
1290	Bengkulu	1211	30.9	130.2	38.5	1.4	5,729.8	3.2
1300	Bengkulu	718	18.3	90.9	31.2	1.1	3,630.3	2.2
	Sumatera		1,256.6					140.8

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2015)

(2/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
2011	Jawa Barat	430	11.0	54.6	689.3	0.7	5,172.7	3.2
2012	Jawa Barat	333	8.5	55.2	696.1	0.7	5,223.5	3.2
2020	DKI.Jakarta	1337	34.2	84.9	945.4	50.7	8,160.0	4.9
2030	Jawa Barat	3316	84.7	223.5	2,819.6	2.8	21,158.4	13.0
2041	Jawa Barat	3265	83.4	89.8	1,132.4	1.1	8,497.4	5.2
2042	Jawa Barat	2775	70.9	173.4	2,184.2	3.5	16,417.7	10.1
2051	Jawa Barat	2069	52.9	95.9	1,209.4	1.2	9,075.1	5.6
2052	Jawa Barat	3102	79.3	71.6	658.6	1.9	6,004.7	3.6
2060	Jawa Barat	7300	186.5	143.7	1,813.6	1.8	13,609.1	8.4
2070	Jawa Tengah	3886	99.3	207.9	1,092.6	8.6	14,851.3	8.3
2080	Jawa Tengah	54	1.4	299.1	628.2	16.0	18,390.9	9.6
2091	Jawa Tengah	713	18.2	230.0	473.5	12.3	14,110.6	7.3
2092	Jawa Tengah	397	10.1	224.6	462.4	12.0	13,779.7	7.2
2101	Jawa Tengah	20	0.5	189.9	391.0	10.2	11,651.7	6.1
2102	Jawa Tengah	79	2.0	231.5	476.5	12.4	14,200.8	7.4
2103	Jawa Tengah	42	1.1	217.1	447.0	11.6	13,320.7	6.9
2111	Jawa Tengah	1014	25.9	182.9	350.2	8.0	11,176.2	5.8
2112	Yogyakarta	251	6.4	202.9	339.2	5.7	12,311.0	6.3
2121	Jawa Tengah	131	3.3	728.5	1,046.4	23.4	27,181.1	18.5
2122	Jawa Tengah	372	9.5	671.4	696.8	12.4	14,608.0	14.3
2123	Jawa Timur	4	0.1	138.5	134.2	2.2	2,644.8	2.9
2131	Jawa Timur	116	3.0	554.0	502.7	7.8	9,249.4	11.0
2132	Jawa Timur	75	1.9	514.7	467.0	7.2	8,593.2	10.3
2133	Jawa Timur	32	0.8	271.3	246.2	3.8	4,529.9	5.4
2141	Jawa Timur	6	0.2	420.1	381.2	5.9	7,014.5	8.4
2142	Jawa Timur	79	2.0	454.0	411.9	6.4	7,579.2	9.1
2143	Jawa Timur	37	0.9	447.5	406.0	6.3	7,470.9	8.9
2150	Jawa Timur	287	7.3	500.5	454.2	7.0	8,356.9	10.0
	Jawa		805.4					220.9
3011	Bali	12	0.3	158.0	62.9	588.8	6,007.7	5.0
3012	Bali	134	3.4	439.4	175.0	1,637.0	16,703.6	14.0
3020	Nusa Tenggara Barat	203	5.2	277.0	102.1	11.9	1,647.7	4.6
3030	Nusa Tenggara Barat	425	10.9	935.1	344.6	40.3	5,561.5	15.6
3040	Nusa Tenggara Timur	259	6.6	342.7	279.0	555.4	3,047.2	7.4
3050	Nusa Tenggara Timur	101	2.6	472.3	384.4	765.3	4,198.7	10.2
3060	Nusa Tenggara Timur	555	14.2	626.8	510.9	1,028.9	5,705.7	13.6
3070	Timor Timur	14	0.4	251.5	218.3	651.4	4,703.8	6.5
	Bali & NT		43.5					76.9
4010	Kalimantan Selatan	1017	26.0	180.0	43.3	3.1	9,663.2	4.8
4021	Kalimantan Tengah	2946	75.3	10.0	4.5	24.9	2,971.9	0.9
4022	Kalimantan Selatan	11435	292.2	215.3	52.8	14.5	12,661.6	6.0
4030	Kalimantan Tengah	827	21.1	2.7	1.5	10.0	1,167.0	0.3
4040	Kalimantan Tengah	401	10.2	3.8	2.1	13.8	1,592.3	0.4
4050	Kalimantan Tengah	138	3.5	2.6	1.4	9.3	1,090.6	0.3
4061	Kalimantan Tengah	135	3.4	2.6	1.4	9.4	1,047.7	0.3
4062	Kalimantan Tengah	104	2.7	14.1	3.7	55.8	1,460.3	0.7
4070	Kalimantan Barat	424	10.8	70.1	12.7	284.1	627.2	1.8
4080	Kalimantan Barat	7204	184.1	196.3	35.6	794.9	1,825.7	5.1
4090	Kalimantan Barat	203	5.2	29.5	5.3	119.5	263.4	0.8
4100	Kalimantan Timur	105	2.7	31.2	9.7	19.3	1,291.2	0.8
4110	Kalimantan Timur	109	2.8	32.6	10.1	20.2	1,350.0	0.8
4120	Kalimantan Timur	19	0.5	18.9	5.8	11.7	781.8	0.5
4130	Kalimantan Timur	111	2.8	20.1	6.2	12.4	830.9	0.5
4141	Kalimantan Timur	644	16.5	76.2	23.5	48.0	3,198.1	2.0
4142	Kalimantan Timur	3644	93.1	19.6	5.7	9.1	874.4	0.5
	Kalimantan		752.9					26.5

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2015)

(3/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
5011	Sulawesi Utara	947	24.2	75.7	30.7	127.9	1,214.3	1.7
5012	Sulawesi Utara	126	3.2	47.2	19.2	79.8	757.2	1.1
5013	Sulawesi Utara	666	17.0	131.2	53.2	221.7	2,104.1	3.0
5021	Sulawesi Utara	176	4.5	67.3	27.3	113.7	1,079.6	1.5
5022	Sulawesi Utara	187	4.8	76.2	30.9	128.7	1,221.8	1.7
5031	Sulawesi Utara	48	1.2	23.9	8.9	32.3	319.2	0.5
5032	Sulawesi Utara	333	8.5	136.5	54.8	224.2	2,138.1	3.1
5041	Sulawesi Tengah	261	6.7	321.2	85.3	75.4	1,436.6	5.3
5042	Sulawesi Tengah	263	6.7	150.6	39.3	28.3	617.8	2.5
5050	Sulawesi Tengah	196	5.0	339.1	89.1	63.3	1,398.3	5.6
5061	Sulawesi Tengah	30	0.8	125.9	32.8	23.2	512.5	2.1
5062	Sulawesi Tengah	55	1.4	201.0	52.4	37.0	818.4	3.3
5070	Sulawesi Tengah	81	2.1	284.0	74.0	52.3	1,156.1	4.6
5080	Sulawesi Tengah	84	2.1	343.4	89.9	63.7	1,407.9	5.6
5091	Sulawesi Tengah	468	12.0	303.4	86.1	64.5	1,418.5	5.0
5092	Sulawesi Tengah	193	4.9	214.7	77.7	66.3	1,441.5	3.7
5101	Sulawesi Tenggara	201	5.1	193.1	56.0	20.3	2,712.2	3.6
5102	Sulawesi Tenggara	818	20.9	172.3	51.7	10.7	3,227.4	3.3
5111	Sulawesi Tenggara	646	16.5	152.0	45.6	9.5	2,847.6	2.9
5112	Sulawesi Tenggara	873	22.3	218.9	65.7	13.6	4,100.1	4.2
5120	Sulawesi Tenggara	1530	39.1	146.5	45.8	13.5	2,633.1	2.8
5131	Sulawesi Selatan	11	0.3	109.6	50.1	46.7	1,010.0	2.0
5132	Sulawesi Selatan	189	4.8	182.1	82.7	76.8	1,661.1	3.3
5133	Sulawesi Selatan	22	0.6	105.1	48.4	45.2	976.3	1.9
5141	Sulawesi Selatan	180	4.6	92.6	42.6	39.8	860.2	1.7
5142	Sulawesi Selatan	170	4.3	86.5	39.8	37.2	803.3	1.6
5143	Sulawesi Selatan	213	5.4	110.8	50.4	46.9	1,012.8	2.0
5144	Sulawesi Selatan	228	5.8	103.7	43.3	37.3	990.1	1.9
5151	Sulawesi Selatan	123	3.1	87.1	40.1	37.4	808.8	1.6
5152	Sulawesi Selatan	181	4.6	200.3	92.2	86.1	1,860.5	3.7
5153	Sulawesi Selatan	110	2.8	104.1	47.9	44.7	966.3	1.9
5161	Sulawesi Selatan	879	22.5	125.4	57.7	53.9	1,164.1	2.3
5162	Sulawesi Selatan	858	21.9	225.7	103.9	97.0	2,096.0	4.2
5171	Sulawesi Selatan	2337	59.7	119.8	55.1	51.5	1,112.4	2.2
5172	Sulawesi Selatan	181	4.6	198.3	91.3	85.2	1,841.8	3.7
	Sulawesi		354.2					101.1
6010	Maluku	0	0.0	75.3	42.2	34.0	354.3	1.3
6020	Maluku	0	0.0	113.2	63.5	51.1	532.7	2.0
6030	Maluku	0	0.0	129.6	72.7	58.5	609.9	2.3
7010	Irian Jaya	0	0.0	11.0	35.4	55.2	811.3	0.5
7020	Irian Jaya	0	0.0	14.8	47.5	74.1	1,090.1	0.7
7030	Irian Jaya	0	0.0	10.4	33.3	51.9	763.1	0.5
7040	Irian Jaya	0	0.0	8.1	25.9	40.4	593.4	0.4
	Maluku & IJ		0.0					7.7

Remarks: Unit water demand for Fishpond = 7 mm/day/ha; Cattle/Baffalo = 40 lit/day/head; Sheep/Goat = 5 lit/day/head; Pig = 6lit/day/head; Poultry = 0.6 lit/day/head.

Source: JICA-FIDP Team calculation

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2020)

(1/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
1010	D.I.Aceh	772	19.7	56.6	37.9	2.3	363.2	1.0
1020	D.I.Aceh	687	17.6	39.0	26.1	1.6	250.1	0.7
1030	D.I.Aceh	926	23.7	83.7	56.0	3.5	537.3	1.4
1040	D.I.Aceh	457	11.7	99.0	66.2	4.1	635.4	1.7
1050	D.I.Aceh	439	11.2	94.1	65.3	29.0	739.1	1.7
1060	D.I.Aceh	579	14.8	100.2	67.0	4.1	642.8	1.7
1071	D.I.Aceh	269	6.9	156.8	104.9	6.5	1,006.3	2.7
1072	D.I.Aceh	61	1.6	28.5	19.0	1.2	182.6	0.5
1080	Sumatera Utara	688	17.6	211.9	183.7	460.6	3,794.6	5.3
1090	Sumatera Utara	509	13.0	91.2	115.3	588.0	3,734.0	3.6
1100	Sumatera Utara	843	21.5	79.7	101.8	525.1	3,323.7	3.2
1110	Sumatera Utara	250	6.4	39.9	50.9	262.5	1,661.7	1.6
1121	Sumatera Utara	105	2.7	13.5	17.2	88.6	560.8	0.5
1122	Sumatera Utara	613	15.7	58.6	74.8	385.7	2,441.7	2.4
1131	Sumatera Utara	571	14.6	99.4	126.9	654.5	4,142.9	4.0
1132	Sumatera Utara	616	15.7	104.7	132.6	677.5	4,300.3	4.2
1141	Sumatera Utara	1774	45.3	181.5	222.3	1,139.8	7,519.8	7.2
1142	Sumatera Utara	48	1.2	62.5	79.8	411.4	2,604.0	2.5
1150	Riau	1365	34.9	185.3	131.0	372.1	4,608.7	4.8
1161	Riau	333	8.5	92.5	63.4	43.2	817.9	1.7
1162	Riau	69	1.8	32.2	22.0	15.0	284.5	0.6
1171	Riau	1599	40.9	204.1	113.7	74.3	3,157.8	4.0
1172	Riau	52	1.3	20.0	13.7	9.3	176.4	0.4
1181	Riau	3049	77.9	329.9	137.2	54.8	7,768.7	6.9
1182	Riau	30	0.8	22.6	15.5	10.5	199.5	0.4
1191	Sumatera Barat	239	6.1	166.3	29.3	6.3	5,881.6	3.8
1192	Sumatera Barat	141	3.6	34.0	5.2	1.3	1,234.6	0.8
1201	Sumatera Barat	2260	57.7	199.4	31.1	10.6	7,251.6	4.6
1202	Sumatera Barat	363	9.3	87.2	13.4	3.4	3,170.3	2.0
1210	Jambi	5370	137.2	615.2	326.4	15.7	12,202.8	12.3
1220	Sumatera Selatan	440	11.2	113.2	248.6	24.9	3,438.9	2.9
1230	Sumatera Selatan	3066	78.3	178.3	391.6	39.3	5,417.2	4.6
1241	Sumatera Selatan	5326	136.1	657.2	1,302.3	129.5	20,839.8	16.8
1242	Sumatera Selatan	1611	41.2	205.7	371.5	34.6	5,313.4	4.9
1250	Lampung	4631	118.3	386.6	158.7	25.4	21,025.4	10.6
1261	Lampung	1449	37.0	241.0	38.4	10.6	13,922.2	6.7
1262	Lampung	1342	34.3	157.2	25.0	6.9	9,077.5	4.3
1270	Lampung	2350	60.0	194.8	32.8	8.5	11,170.6	5.4
1280	Bengkulu	1962	50.1	176.9	46.0	2.2	8,006.1	4.4
1290	Bengkulu	1211	30.9	144.2	35.9	1.6	6,538.0	3.6
1300	Bengkulu	718	18.3	101.1	30.6	1.2	4,132.3	2.4
	Sumatera		1,256.6					154.8

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2020)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
2011	Jawa Barat	430	11.0	57.3	774.6	0.4	5,712.8	3.5
2012	Jawa Barat	333	8.5	57.8	782.2	0.5	5,768.9	3.5
2020	DKI.Jakarta	1337	34.2	89.1	1,060.1	50.4	8,896.0	5.3
2030	Jawa Barat	3316	84.7	234.3	3,168.2	1.8	23,367.5	14.3
2041	Jawa Barat	3265	83.4	94.1	1,272.4	0.7	9,384.6	5.8
2042	Jawa Barat	2775	70.9	181.7	2,454.2	2.7	18,128.8	11.1
2051	Jawa Barat	2069	52.9	100.5	1,358.9	0.8	10,022.7	6.1
2052	Jawa Barat	3102	79.3	75.1	735.5	1.6	6,673.9	3.9
2060	Jawa Barat	7300	186.5	150.7	2,037.8	1.2	15,030.1	9.2
2070	Jawa Tengah	3886	99.3	218.3	1,198.7	8.0	16,666.3	9.0
2080	Jawa Tengah	54	1.4	314.5	646.2	15.3	20,854.6	10.4
2091	Jawa Tengah	713	18.2	241.8	485.9	11.8	16,003.4	7.9
2092	Jawa Tengah	397	10.1	236.1	474.5	11.5	15,628.2	7.8
2101	Jawa Tengah	20	0.5	199.7	401.3	9.8	13,214.7	6.6
2102	Jawa Tengah	79	2.0	243.3	489.1	11.9	16,105.7	8.0
2103	Jawa Tengah	42	1.1	228.3	458.7	11.2	15,107.6	7.5
2111	Jawa Tengah	1014	25.9	191.4	360.4	7.5	12,563.2	6.2
2112	Yogyakarta	251	6.4	210.5	350.9	4.8	13,628.2	6.7
2121	Jawa Tengah	131	3.3	763.4	1,079.0	22.2	30,490.9	19.8
2122	Jawa Tengah	372	9.5	702.1	722.8	11.6	16,069.4	15.1
2123	Jawa Timur	4	0.1	144.8	139.5	2.1	2,889.9	3.0
2131	Jawa Timur	116	3.0	579.0	523.0	7.2	10,026.5	11.6
2132	Jawa Timur	75	1.9	537.9	485.9	6.6	9,315.1	10.8
2133	Jawa Timur	32	0.8	283.6	256.2	3.5	4,910.5	5.7
2141	Jawa Timur	6	0.2	439.1	396.7	5.4	7,603.8	8.8
2142	Jawa Timur	79	2.0	474.4	428.6	5.9	8,216.0	9.5
2143	Jawa Timur	37	0.9	467.7	422.5	5.8	8,098.5	9.4
2150	Jawa Timur	287	7.3	523.1	472.6	6.5	9,059.0	10.5
	Jawa		805.4					237
3011	Bali	12	0.3	165.4	70.4	652.9	6,782.7	5.5
3012	Bali	134	3.4	459.8	195.6	1,815.2	18,858.1	15.2
3020	Nusa Tenggara Barat	203	5.2	301.0	107.3	13.3	1,757.0	5.0
3030	Nusa Tenggara Barat	425	10.9	1,016.1	362.1	44.8	5,930.4	16.9
3040	Nusa Tenggara Timur	259	6.6	364.0	308.8	613.3	3,403.1	8.0
3050	Nusa Tenggara Timur	101	2.6	501.6	425.5	845.1	4,689.2	11.0
3060	Nusa Tenggara Timur	555	14.2	666.0	565.3	1,136.6	6,382.9	14.6
3070	Timor Timur	14	0.4	273.0	237.0	728.7	5,452.7	7.2
	Bali & NT		43.5					83.4
4010	Kalimantan Selatan	1017	26.0	200.4	45.5	3.1	10,470.3	5.3
4021	Kalimantan Tengah	2946	75.3	9.3	4.6	22.9	3,380.5	0.9
4022	Kalimantan Selatan	11435	292.2	238.9	55.3	13.6	13,790.9	6.6
4030	Kalimantan Tengah	827	21.1	2.2	1.5	9.2	1,331.0	0.3
4040	Kalimantan Tengah	401	10.2	3.1	2.1	12.7	1,816.0	0.5
4050	Kalimantan Tengah	138	3.5	2.1	1.4	8.5	1,243.8	0.3
4061	Kalimantan Tengah	135	3.4	2.1	1.4	8.7	1,194.7	0.3
4062	Kalimantan Tengah	104	2.7	14.8	3.8	58.8	1,651.8	0.7
4070	Kalimantan Barat	424	10.8	78.3	12.9	310.0	627.3	2.0
4080	Kalimantan Barat	7204	184.1	219.2	36.3	867.3	1,836.0	5.6
4090	Kalimantan Barat	203	5.2	32.9	5.4	130.4	263.4	0.8
4100	Kalimantan Timur	105	2.7	35.5	9.9	20.9	1,426.4	0.9
4110	Kalimantan Timur	109	2.8	37.1	10.3	21.8	1,491.3	0.9
4120	Kalimantan Timur	19	0.5	21.5	6.0	12.6	863.7	0.5
4130	Kalimantan Timur	111	2.8	22.8	6.4	13.4	917.9	0.6
4141	Kalimantan Timur	644	16.5	86.5	24.1	51.8	3,533.7	2.2
4142	Kalimantan Timur	3644	93.1	22.2	5.9	9.8	960.1	0.6
	Kalimantan		752.9					29

Table 4.11 Annual Water Demand of Fishpond and Livestock by River Basin (2020)

(3/3)

River Basin Code	Representative Province	Fishpond		Livestock				
		Fishpond Area (ha)	Water Demand (million m3)	Cattle/Buffalo Horse ('000 heads)	Sheep/ Goat ('000 heads)	Pig ('000 heads)	Poultry ('000 heads)	Water Demand (million m3)
5011	Sulawesi Utara	947	24.2	83.0	34.2	143.9	1,375.5	1.9
5012	Sulawesi Utara	126	3.2	51.8	21.3	89.7	857.7	1.2
5013	Sulawesi Utara	666	17.0	143.9	59.3	249.4	2,383.4	3.3
5021	Sulawesi Utara	176	4.5	73.8	30.4	127.9	1,222.9	1.7
5022	Sulawesi Utara	187	4.8	83.5	34.4	144.8	1,384.0	1.9
5031	Sulawesi Utara	48	1.2	26.4	9.9	36.4	361.7	0.6
5032	Sulawesi Utara	333	8.5	149.9	61.0	252.2	2,422.1	3.4
5041	Sulawesi Tengah	261	6.7	365.2	94.9	85.2	1,632.1	6.0
5042	Sulawesi Tengah	263	6.7	171.5	43.8	32.0	702.1	2.8
5050	Sulawesi Tengah	196	5.0	385.5	99.0	71.6	1,584.5	6.3
5061	Sulawesi Tengah	30	0.8	143.3	36.5	26.2	582.5	2.3
5062	Sulawesi Tengah	55	1.4	228.8	58.3	41.9	930.1	3.7
5070	Sulawesi Tengah	81	2.1	323.2	82.4	59.2	1,313.9	5.3
5080	Sulawesi Tengah	84	2.1	390.6	100.0	72.1	1,597.5	6.4
5091	Sulawesi Tengah	468	12.0	340.6	95.0	72.5	1,564.2	5.6
5092	Sulawesi Tengah	193	4.9	229.7	83.8	73.5	1,489.8	4.0
5101	Sulawesi Tenggara	201	5.1	219.5	61.6	23.0	3,075.4	4.0
5102	Sulawesi Tenggara	818	20.9	196.1	56.8	12.3	3,663.1	3.8
5111	Sulawesi Tenggara	646	16.5	173.1	50.1	10.8	3,232.0	3.4
5112	Sulawesi Tenggara	873	22.3	249.2	72.1	15.6	4,653.5	4.8
5120	Sulawesi Tenggara	1530	39.1	165.2	50.1	15.2	2,972.6	3.2
5131	Sulawesi Selatan	11	0.3	110.1	53.2	51.4	1,000.3	2.0
5132	Sulawesi Selatan	189	4.8	183.4	87.7	84.5	1,647.2	3.4
5133	Sulawesi Selatan	22	0.6	105.4	51.3	49.7	966.1	2.0
5141	Sulawesi Selatan	180	4.6	92.9	45.2	43.8	851.2	1.7
5142	Sulawesi Selatan	170	4.3	86.7	42.2	40.9	794.9	1.6
5143	Sulawesi Selatan	213	5.4	111.5	53.5	51.5	1,004.1	2.1
5144	Sulawesi Selatan	228	5.8	107.3	46.2	41.1	1,016.8	2.0
5151	Sulawesi Selatan	123	3.1	87.3	42.5	41.2	800.4	1.6
5152	Sulawesi Selatan	181	4.6	200.9	97.8	94.7	1,841.1	3.7
5153	Sulawesi Selatan	110	2.8	104.3	50.8	49.2	956.2	1.9
5161	Sulawesi Selatan	879	22.5	125.7	61.2	59.2	1,152.0	2.3
5162	Sulawesi Selatan	858	21.9	226.3	110.1	106.7	2,074.2	4.2
5171	Sulawesi Selatan	2337	59.7	120.1	58.5	56.6	1,100.8	2.2
5172	Sulawesi Selatan	181	4.6	198.9	96.8	93.7	1,822.6	3.7
	Sulawesi		354.2					110
6010	Maluku	0	0.0	85.0	42.4	36.7	354.3	1.5
6020	Maluku	0	0.0	127.9	63.7	55.2	532.7	2.2
6030	Maluku	0	0.0	146.4	72.9	63.2	609.9	2.5
7010	Irian Jaya	0	0.0	11.6	40.2	43.0	894.2	0.5
7020	Irian Jaya	0	0.0	15.5	54.0	57.8	1,201.4	0.7
7030	Irian Jaya	0	0.0	10.9	37.8	40.5	841.1	0.5
7040	Irian Jaya	0	0.0	8.5	29.4	31.5	654.0	0.4
	Maluku & IJ		0.0					8.3

Remarks: Unit water demand for Fishpond = 7 mm/day/ha; Cattle/Baffalo = 40 lit/day/head; Sheep/Goat = 5 lit/day/head; Pig = 6lit/day/head; Poultry = 0.6 lit/day/head.

Source: JICA-FIDP Team calculation

Table 4.12 Typical Cropping Pattern and Estimated Planted Area (per 100 ha) by Province (1/4)

Province		Wet Season			Dry Season					CIp	CIp
		Month	Paddy* (ha)	Paddy** (/100ha)	Month	Paddy* (ha)	Paddy** (/100ha)	Palawija* (ha)	Palawija** (/100ha)	Paddy	Paddy + palawija
11 D.I.Aceh									0.05		
	1st	Aug	10.2	4.4	Feb	7.2	3.1	6.7	0.3		
	2nd	Sep	15.7	6.7	Mar	1.6	0.7	36.5	1.8		
	3rd	Oct	46.0	19.7	Apr	3.7	1.6	3.4	0.2		
	4th	Nov	66.2	28.4	May	8.8	3.8	1.4	0.1		
	5th	Dec	57.7	24.8	Jun	10.8	4.6	10.6	0.5		
	6th	Jan	37.3	16.0	Jul	13.0	5.6	44.4	2.2		
		Total	233.1	100.0		45.1	19.4	103.0	5.1	1.194	1.245
12 Sumatera Utara									0.50		
	1st	Aug	28.8	6.9	Feb	19.2	4.6	9.9	8.5		
	2nd	Sep	17.9	4.3	Mar	7.0	1.7	10.6	9.2		
	3rd	Oct	51.8	12.4	Apr	13.1	3.1	9.5	8.2		
	4th	Nov	117.9	28.3	May	38.8	9.3	7.9	6.8		
	5th	Dec	138.1	33.1	Jun	60.1	14.4	8.9	7.7		
	6th	Jan	62.8	15.0	Jul	51.8	12.4	11.1	9.6		
		Total	417.3	100.0		190.0	45.5	57.9	50.0	1.455	1.955
13 Sumatera Barat									0.30		
	1st	Oct	21.5	10.7	Apr	16.8	8.4	1.2	2.5		
	2nd	Nov	36.2	18.0	May	18.3	9.1	1.4	2.9		
	3rd	Dec	47.0	23.4	Jun	22.5	11.2	2.6	5.3		
	4th	Jan	38.1	19.0	Jul	28.2	14.1	3.3	6.8		
	5th	Feb	30.8	15.3	Aug	27.1	13.5	2.6	5.3		
	6th	Mar	27.1	13.5	Sep	27.6	13.8	3.5	7.2		
		Total	200.7	99.9		140.5	70.1	14.6	30.0	1.700	2.000
14 Riau									0.400		
	1st	Sep	9.4	13.8	Mar	5.7	8.4	2.3	8.8		
	2nd	Oct	7.0	10.3	Apr	2.3	3.4	0.9	3.4		
	3rd	Nov	7.3	10.8	May	2.0	2.9	1.2	4.6		
	4th	Dec	10.8	15.9	Jun	3.2	4.7	1.4	5.3		
	5th	Jan	22.3	32.8	Jul	4.5	6.6	2.0	7.6		
	6th	Feb	11.1	16.3	Aug	5.9	8.7	2.7	10.3		
		Total	67.9	99.9		23.6	34.7	10.5	40.0	1.346	1.746
15 Jambi									0.550		
	1st	Sep	8.3	9.0	Mar	3.0	3.2	2.3	14.9		
	2nd	Oct	14.4	15.6	Apr	1.9	2.1	1.0	6.5		
	3rd	Nov	29.0	31.3	May	3.0	3.2	0.9	5.8		
	4th	Dec	16.4	17.7	Jun	7.2	7.8	1.3	8.4		
	5th	Jan	12.8	13.8	Jul	11.0	11.9	1.1	7.1		
	6th	Feb	11.7	12.6	Aug	7.0	7.6	1.9	12.3		
		Total	92.6	100.0		3.0	35.8	8.5	55.0	1.358	1.908
16 Sumatera Selatan									0.036		
	1st	Sep	4.0	2.5	Mar	16.3	10.2	3.0	0.8		
	2nd	Oct	12.0	7.5	Apr	11.1	7.0	2.2	0.6		
	3rd	Nov	35.6	22.3	May	18.0	11.3	1.8	0.5		
	4th	Dec	53.4	33.5	Jun	37.0	23.2	2.7	0.7		
	5th	Jan	41.1	25.8	Jul	16.0	10.0	2.3	0.6		
	6th	Feb	13.4	8.4	Aug	7.2	4.5	2.2	0.6		
		Total	159.5	100.0		105.6	66.2	14.2	3.6	1.662	1.698
17 Bengkulu									0.08		
	1st	Sep	4.5	8.4	Mar	3.7	6.9	1.4	1.1		
	2nd	Oct	5.4	10.1	Apr	2.8	5.2	1.3	1.1		
	3rd	Nov	10.3	19.3	May	2.0	3.7	1.3	1.1		
	4th	Dec	13.7	25.7	Jun	2.0	3.7	1.8	1.5		
	5th	Jan	13.4	25.1	Jul	2.7	5.1	2.3	1.9		
	6th	Feb	6.1	11.4	Aug	3.5	6.6	1.8	1.5		
		Total	53.4	100.0		16.7	31.2	9.9	8.0	1.312	1.392

Table 4.12 Typical Cropping Pattern and Estimated Planted Area (per 100 ha) by Province (2/4)

Province		Wet Season			Dry Season					CIp	CIp
		Month	Paddy* (ha)	Paddy** (/100ha)	Month	Paddy* (ha)	Paddy** (/100ha)	Palawija* (ha)	Palawija** (/100ha)	Paddy	Paddy + palawija
18 Lampung									0.072		
	1st	Sep	5.7	3.1	Apr	7.5	4.1	23.3	1.6		
	2nd	Oct	12.3	6.8	May	27.2	15.0	32.5	2.2		
	3rd	Nov	52.4	29.0	Jun	21.4	11.8	13.5	0.9		
	4th	Dec	67.6	37.3	Jul	12.2	6.7	7.2	0.5		
	5th	Jan	29.9	16.5	Aug	8.0	4.4	5.8	0.4		
	6th	Feb	13.1	7.2	Sep	2.3	1.3	25.9	1.7		
		Total	181.0	99.9		78.6	43.3	108.2	7.2	1.432	1.504
31 D.K.I. Jakarta									0.001		
	1st	Oct	0.0	0.0	Apr	0.0	0.0	0.004	0.0		
	2nd	Nov	0.2	3.9	May	0.1	2.0	0.003	0.0		
	3rd	Dec	1.0	19.6	Jun	1.5	29.4	0.002	0.0		
	4th	Jan	2.9	56.9	Jul	1.2	23.5	0.001	0.0		
	5th	Feb	0.8	15.7	Aug	0.3	5.9	0.001	0.0		
	6th	Mar	0.2	3.9	Sep	0.0	0.0	0.004	0.0		
		Total	5.1	100.0		3.1	60.8	0.0	0.1	1.608	1.609
32 Jawa Barat									0.179		
	1st	Oct	48.2	4.7	Apr	192.9	18.9	18.0	5.1		
	2nd	Nov	172.5	16.9	May	288.0	28.2	10.4	2.9		
	3rd	Dec	372.0	36.4	Jun	201.9	19.8	10.8	3.0		
	4th	Jan	279.1	27.3	Jul	77.1	7.6	9.7	2.7		
	5th	Feb	104.2	10.2	Aug	50.1	4.9	9.6	2.7		
	6th	Mar	44.7	4.4	Sep	28.9	2.8	5.3	1.5		
		Total	1,020.7	99.9		838.9	82.2	63.8	17.9	1.821	2.000
33 Jawa Tengah									0.412		
	1st	Oct	44.8	4.5	Apr	114.9	11.6	35.7	4.6		
	2nd	Nov	152.2	15.4	May	135.4	13.7	45.5	5.9		
	3rd	Dec	307.9	31.1	Jun	96.8	9.8	58.0	7.5		
	4th	Jan	223.5	22.6	Jul	48.5	4.9	65.1	8.4		
	5th	Feb	134.4	13.6	Aug	32.9	3.3	59.5	7.7		
	6th	Mar	128.0	12.9	Sep	49.6	5.0	56.2	7.2		
		Total	990.8	100.1		478.1	48.3	320.0	41.2	1.484	1.896
34 Yogyakarta									0.640		
	1st	Nov	8.2	11.7	May	6.9	9.8	4.1	7.0		
	2nd	Dec	18.7	26.7	Jun	2.8	4.0	4.6	7.9		
	3rd	Jan	9.3	13.3	Jul	2.2	3.1	3.7	6.3		
	4th	Feb	7.1	10.1	Aug	3.8	5.4	2.4	4.1		
	5th	Mar	10.6	15.1	Sep	4.7	6.7	1.3	2.2		
	6th	Apr	16.2	23.1	Oct	4.8	6.8	21.4	36.5		
		Total	70.1	100.0		25.2	35.8	37.5	64.0	1.358	1.998
35 Jawa Timur									0.480		
	1st	Oct	22.4	2.2	Apr	144.2	14.3	138.2	12.2		
	2nd	Nov	107.5	10.7	May	119.6	11.9	72.8	6.4		
	3rd	Dec	315.2	31.3	Jun	87.9	8.7	72.4	6.4		
	4th	Jan	371.1	36.8	Jul	56.2	5.6	141.0	12.4		
	5th	Feb	114.2	11.3	Aug	32.9	3.3	73.4	6.5		
	6th	Mar	76.8	7.6	Sep	22.2	2.2	47.6	4.2		
		Total	1,007.2	99.9		463.0	46.0	545.4	48.0	1.459	1.939
51 Bali									0.258		
	1st	Oct	6.4	6.7	Apr	5.9	6.2	8.5	7.7		
	2nd	Nov	8.6	9.1	Mar	8.0	8.4	7.0	6.3		
	3rd	Dec	14.0	14.8	Jun	9.3	9.8	4.7	4.2		
	4th	Jan	26.0	27.4	Jul	12.2	12.9	3.1	2.8		
	5th	Feb	24.0	25.3	Aug	19.9	21.0	3.3	3.0		
	6th	Mar	15.9	16.8	Sep	15.0	15.8	2.0	1.8		
		Total	94.9	100.1		70.3	74.1	28.6	25.8	1.742	2.000

Table 4.12 Typical Cropping Pattern and Estimated Planted Area (per 100 ha) by Province (3/4)

Province		Wet Season			Dry Season					Clp	Clp
		Month	Paddy* (ha)	Paddy** (/100ha)	Month	Paddy* (ha)	Paddy** (/100ha)	Palawija* (ha)	Palawija** (/100ha)	Paddy	Paddy + palawija
52 N.T.B.									0.429		
	1st	Oct	3.7	1.9	Apr	27.8	14.5	25.2	13.7		
	2nd	Nov	23.5	12.3	May	18.8	9.8	13.5	7.3		
	3rd	Dec	70.4	36.7	Jun	3.2	1.7	6.3	3.4		
	4th	Jan	59.3	30.9	Jul	1.4	0.7	17.2	9.4		
	5th	Feb	26.4	13.8	Aug	1.8	0.9	14.4	7.8		
	6th	Mar	8.4	4.4	Sep	2.1	1.1	2.3	1.3		
		Total	191.7	100.0		55.1	28.7	78.9	42.9	1.287	1.716
53 N.T.T.									0.001		
	1st	Oct	1.9	4.5	Apr	6.1	14.3	7.1	0.0		
	2nd	Nov	2.4	5.6	May	5.5	12.9	2.4	0.0		
	3rd	Dec	4.1	9.6	Jun	6.2	14.6	1.6	0.0		
	4th	Jan	10.2	23.9	Jul	5.5	12.9	1.7	0.0		
	5th	Feb	14.6	34.3	Aug	7.0	16.4	1.7	0.0		
	6th	Mar	9.4	22.1	Sep	2.9	6.8	3.7	0.0		
		Total	42.6	100.0		33.2	77.9	18.2	0.1	1.779	1.780
54 Timor Timur											
(same as N.T.	1st	Oct		4.5	Apr		14.3		0.0		
	2nd	Nov		5.6	May		12.9		0.0		
	3rd	Dec		9.6	Jun		14.6		0.0		
	4th	Jan		23.9	Jul		12.9		0.0		
	5th	Feb		34.3	Aug		16.4		0.0		
	6th	Mar		22.1	Sep		6.8		0.0		
		Total	0.0	100.0		0.0	77.9	0.0	0.0	1.779	1.779
61 Kalimantan Barat									0.005		
	1st	Aug	9.4	6.0	Feb	2.9	1.8	0.9	0.1		
	2nd	Sep	23.8	15.1	Mar	0.7	0.4	1.5	0.1		
	3rd	Oct	62.2	39.5	Apr	2.3	1.5	1.0	0.1		
	4th	Nov	40.4	25.7	May	4.4	2.8	1.1	0.1		
	5th	Dec	13.7	8.7	Jun	4.1	2.6	0.7	0.1		
	6th	Jan	8.0	5.1	Jul	3.5	2.2	1.1	0.1		
		Total	157.5	100.1		17.9	11.3	6.3	0.5	1.114	1.119
62 Kalimantan Tengah									0.019		
	1st	Jan	1.4	2.0	Jul	0.2	0.3	0.2	0.1		
	2nd	Feb	8.2	11.6	Aug	0.1	0.1	0.2	0.1		
	3rd	Mar	22.0	31.1	Sep	1.1	1.6	1.1	0.3		
	4th	Apr	19.5	27.6	Oct	3.9	5.5	3.1	1.0		
	5th	May	13.5	19.1	Nov	8.9	12.6	0.8	0.3		
	6th	Jun	6.1	8.6	Dec	3.5	5.0	0.6	0.2		
		Total	70.7	100.0		17.7	25.1	6.0	1.9	1.251	1.270
63 Kalimantan Selatan									0.058		
	1st	Nov	9.5	6.2	May	19.4	12.7	1.4	1.0		
	2nd	Dec	24.1	15.8	Jun	14.3	9.3	1.4	1.0		
	3rd	Jan	33.4	21.8	Jul	21.9	14.3	1.5	1.1		
	4th	Feb	32.7	21.4	Aug	8.7	5.7	1.1	0.8		
	5th	Mar	38.3	25.0	Sep	1.9	1.2	0.7	0.5		
	6th	Apr	15.0	9.8	Oct	1.0	0.7	1.7	1.3		
		Total	153.0	100.0		67.2	43.9	7.8	5.8	1.439	1.497
64 Kalimantan Timur									0.000		
	1st	Oct	2.9	14.4	Apr	0.4	2.0	0.7	0.0		
	2nd	Nov	5.2	25.9	May	0.8	4.0	0.9	0.0		
	3rd	Dec	5.5	27.4	Jun	1.5	7.5	1.2	0.0		
	4th	Jan	4.2	20.9	Jul	2.4	11.9	1.1	0.0		
	5th	Feb	1.6	8.0	Aug	3.0	14.9	1.3	0.0		
	6th	Mar	0.7	3.5	Sep	1.7	8.5	1.1	0.0		
		Total	20.1	100.1		9.8	48.8	6.3	0.0	1.489	1.489

Table 4.12 Typical Cropping Pattern and Estimated Planted Area (per 100 ha) by Province (4/4)

Province		Wet Season			Dry Season					CIp	CIp
	Month	Paddy* (ha)	Paddy** (/100ha)	Month	Paddy* (ha)	Paddy** (/100ha)	Palawija* (ha)	Palawija** (/100ha)	Paddy	Paddy + palawija
71 Sulawesi Utara								0.008		
1st	Oct	5.3	12.4	Apr	3.9	9.2	10.9	0.2		
2nd	Nov	6.6	15.5	May	7.1	16.7	8.1	0.1		
3rd	Dec	9.5	22.3	Jun	7.1	16.7	7.7	0.1		
4th	Jan	9.0	21.1	Jul	4.4	10.3	10.2	0.1		
5th	Feb	7.0	16.4	Aug	5.0	11.7	9.3	0.1		
6th	Mar	5.2	12.2	Sep	4.4	10.3	9.5	0.1		
	Total	42.6	99.9		31.9	74.9	55.7	0.8	1.748	1.756
72 Sulawesi Tengah								0.110		
1st	Dec	10.9	16.1	Jun	11.9	17.5	2.2	1.5		
2nd	Jan	17.8	26.2	Jul	12.5	18.4	2.3	1.6		
3rd	Feb	13.5	19.9	Aug	12.4	18.3	2.9	2.0		
4th	Mar	8.2	12.1	Sep	8.8	13.0	2.5	1.7		
5th	Apr	8.0	11.8	Oct	8.2	12.1	3.3	2.3		
6th	May	9.5	14.0	Nov	6.5	9.6	2.7	1.9		
	Total	67.9	100.1		60.3	88.9	15.9	11.0	1.890	2.000
73 Sulawesi Selatan								0.008		
1st	Oct	13.8	3.8	Apr	63.0	17.5	33.9	0.4		
2nd	Nov	26.6	7.4	May	97.8	27.2	8.9	0.1		
3rd	Dec	73.9	20.6	Jun	101.1	28.1	4.7	0.1		
4th	Jan	146.3	40.7	Jul	44.7	12.4	4.2	0.1		
5th	Feb	57.2	15.9	Aug	30.5	8.5	4.0	0.1		
6th	Mar	41.5	11.6	Sep	19.9	5.5	7.9	0.1		
	Total	359.3	100.0		357.0	99.2	63.6	0.8	1.992	2.000
74 Sulawesi Tenggara								0.000		
1st	Dec	0.9	4.5	Jun	2.0	10.0	1.7	0.0		
2nd	Jan	3.4	17.0	Jul	5.0	25.0	1.3	0.0		
3rd	Feb	7.2	36.0	Aug	5.3	26.5	0.9	0.0		
4th	Mar	5.5	27.5	Sep	2.7	13.5	0.5	0.0		
5th	Apr	1.4	7.0	Oct	0.7	3.5	1.1	0.0		
6th	May	1.6	8.0	Nov	0.5	2.5	14.6	0.0		
	Total	20.0	100.0		16.2	81.0	20.1	0.0	1.810	1.810
81 Maluku								0.0		
1st	Apr	0.4	17.4	Jan	0.3	13.0	0	0.0		
2nd	May	0.3	13.0	Feb	0.2	8.7	0	0.0		
3rd	Jun	0.6	26.1	Mar	0.0	0.0	0	0.0		
4th	Jul	0.1	4.3	Oct	0.2	8.7	0	0.0		
5th	Aug	0.6	26.1	Nov	0.1	4.3	0	0.0		
6th	Sep	0.3	13.0	Dec	0.1	4.3	0	0.0		
	Total	2.3	99.9		0.9	39.0	0.0	0.0	1.389	1.389
82 Irian Jaya								0.0		
(same as Malu 1st	Apr		17.4	Jan		13.0		0.0		
2nd	May		13.0	Feb		8.7		0.0		
3rd	Jun		26.1	Mar		0.0		0.0		
4th	Jul		4.3	Oct		8.7		0.0		
5th	Aug		26.1	Nov		4.3		0.0		
6th	Sep		13.0	Dec		4.3		0.0		
	Total		99.9			39.0		0.0	1.389	1.389

Notes : * Average planted area based on CBS. ** Estimated planted area per 100 ha
Source : JICA-FIDP Team estimation

Table 4.13 Estimated Average Reference Crop Evapotranspiration (1/6)

River Basin Code	Station Code	Station Name	Reference Crop Evapotranspiration												
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	CA1	SABANG	116	112	129	129	128	118	115	121	114	121	97	109	117
	CA2	BANDA ACEH	96	100	120	117	117	114	120	132	121	123	101	100	113
	CA3	SAREE	92	104	118	92	102	95	102	120	110	92	81	83	99
1010		Average	101	105	122	113	116	109	112	124	115	112	93	97	110
	CA4	KOTA BAKTI	106	115	129	122	113	126	141	133	136	120	102	92	120
	CA5	TAKENGON	107	111	128	122	111	111	109	115	105	105	98	102	110
	CA6	COT GIREK	105	99	130	123	122	111	116	119	111	111	97	97	112
1020 1030	CA7	BOBASAN	101	106	121	115	103	106	102	109	97	97	91	94	104
1040 1050		Average	105	108	127	121	112	114	117	119	112	108	97	96	111
1060															
1071 1080	CA8	PULAU IE	119	124	138	130	125	118	116	126	101	110	108	114	119
	CNS5	BEGADING TANAH KARO	104	104	115	103	104	109	98	111	100	102	87	95	103
	CNS1	BELAWAN	107	103	130	122	122	123	118	120	112	123	98	102	115
	CNS2	SAMPALI	108	104	131	123	120	113	117	119	111	112	96	101	113
	CNS3	TANJUNG MORAWA	98	98	120	117	117	108	112	114	105	107	95	100	108
	CNS4	POLONIA MEDAN	105	101	127	120	116	110	115	117	110	113	106	101	112
1090 1100		Average	104	102	125	117	116	113	112	116	108	111	96	100	110
	CNS6	MARIHAT	112	110	131	120	118	107	113	119	116	117	101	109	114
	CNS7	SEI DADAP / KISARAN	113	113	136	127	125	115	120	126	121	122	107	114	120
1121 1122	CNS9	RANTAU PRAPAT	116	120	139	131	133	122	135	131	127	129	115	114	126
1131 1132		Average	114	114	135	126	125	115	123	125	121	123	108	112	120
1141	CJ3	BANGKO	112	123	138	134	120	117	114	127	127	117	97	124	121
1142 1072															
1192 1202	CNS10	LOLOFITU/LOLOWAU	102	95	107	111	121	108	104	111	104	109	106	108	107
	CR1	BANGKO JAYA	109	119	135	123	123	122	134	127	118	127	119	114	123
	CWS2	PADANG GELUGUR	96	92	114	101	107	93	96	106	104	107	97	99	101
1150		Average	103	106	125	112	115	108	115	117	111	117	108	107	112
	CR2	BUANTAN	119	129	142	131	116	103	129	126	134	130	116	114	124
	CR4	AIR MOLEK	114	118	132	122	119	112	120	115	119	126	112	105	118
1161 1162		Average	117	124	137	127	118	108	125	121	127	128	114	110	121
	CR10	RANAI	112	109	131	123	108	98	108	120	116	107	97	97	111
	CR8	TANJUNG PINANG	117	110	132	115	114	105	113	122	113	115	96	108	113
	CR9	TAREMPA	96	101	124	122	122	108	107	102	105	110	112	93	109
1172		Average	108	107	129	120	115	104	109	115	111	111	102	99	111
	CR3	PAKANBARU	106	98	121	115	117	106	114	114	112	120	106	107	111
	CR5	JAPURA	115	94	124	101	114	108	104	100	101	111	97	97	106
	CR6	TEMBILAHAN	122	122	135	120	127	115	122	128	127	125	111	102	121
	CWS4	SUKARAMI	86	83	101	95	105	85	90	86	99	99	89	95	93
1181		Average	107	99	120	108	116	104	108	107	110	114	101	100	108
1182	CR7	DABO	120	119	131	112	115	104	112	125	112	117	103	115	115
	CWS3	TABING	102	96	111	101	101	92	96	100	96	101	92	97	99
	CWS5	SIRANTIH	133	126	143	135	130	123	128	135	127	131	120	121	129
	CWS7	TAPAN	123	119	127	126	124	109	122	126	118	121	110	118	120
1191		Average	119	114	127	121	118	108	115	120	114	118	107	112	116
1201	CWS1	SUKAMENANTI	138	121	134	128	126	121	122	129	122	122	111	121	125
	CJ1	PELAYANG/DSN PANJANG	119	108	129	127	121	106	110	127	125	123	104	118	118
	CJ2	KOTA BARU HIANG	93	99	119	114	109	103	106	109	111	118	103	101	107
	CJ4	JAMBI	107	100	116	108	112	103	110	116	108	117	105	107	109
	CWS6	LUBUK GADANG	91	97	116	113	109	102	105	106	109	116	99	97	105
1210		Average	103	101	120	116	113	104	108	115	113	119	103	106	110
1230	CSS2	PANGKAL PINANG	109	101	118	115	114	111	116	127	117	127	107	99	113
1241 1242	CSS1	PALEMBANG	110	103	121	118	119	108	111	122	119	128	114	111	115

Table 4.13 Estimated Average Reference Crop Evapotranspiration (2/6)

River Basin Code	Station Code	Station Name	Reference Crop Evapotranspiration											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	CL1	KASUI	124	118	128	122	119	104	111	122	127	139	124	119	121
	CL2	ASTRA KSETRA	115	110	119	116	109	97	104	112	109	118	109	118	111
	CL3	PAJAR BULAN CL3	104	97	117	102	104	93	101	104	105	117	104	123	106
1250 1220		Average	114	108	121	113	111	98	105	113	114	125	112	120	113
	CL4	GUNUNG MEGANG	105	100	123	117	114	104	104	112	123	128	133	109	114
	CL5	TANJUNG KARANG	112	106	124	118	113	104	107	112	110	134	113	117	114
1261 1262		Average	109	103	124	118	114	104	106	112	117	131	123	113	114
	CB1	KURO TIDUR	105	101	118	106	116	112	115	120	108	106	99	106	109
	CB2	BENGKULU	120	115	129	121	119	108	113	118	116	122	114	116	118
	CB3	PAJAR BULAN	117	107	119	108	98	108	110	109	113	117	111	116	111
1270 1280		Average	114	108	122	112	111	109	113	116	112	115	108	113	113
2011 2012	CWJ1	SERANG	120	115	128	125	119	111	121	133	138	141	130	125	126
	CJK1	KEMAYORAN	124	122	142	142	136	125	141	153	156	165	145	139	141
	CWJ2	CURUG-TANGERANG	123	121	137	135	134	122	134	147	148	156	140	138	136
	CWJ3	ATANG SANJAYA-BOGOR	132	125	139	134	125	109	130	142	151	160	144	135	136
2020		Average	126	123	139	137	132	119	135	147	152	160	143	137	138
	CWJ4	CIPANAS	102	97	109	108	96	89	97	100	116	114	98	100	102
	CWJ5	CIBENTENG-CIANJUR	100	98	114	99	97	94	103	116	107	125	117	110	107
	CWJ6	CIRANJANG	101	111	130	126	127	111	117	133	137	150	129	128	125
	CWJ8	KALIJATI	122	113	127	112	109	103	110	128	130	135	128	118	120
	CWJ9	GEOFISIKA-BANDUNG	118	111	123	119	113	109	123	136	132	140	121	119	122
2041		Average	109	106	121	113	108	101	110	123	124	133	119	115	115
2042	CWJ7	PUSAKA NEGARA	117	109	124	119	116	108	120	128	132	137	125	121	121
	CCJ1	KERSANA-BREBES	123	125	140	131	119	103	128	137	142	157	148	132	132
	CWJ10	MAJASARI-GARUT	119	103	114	113	107	103	112	121	122	148	129	123	118
	CWJ11	JATIWANGI	126	120	131	133	128	116	136	151	158	171	140	131	137
	CWJ14	CIREBON	132	121	137	138	137	122	144	151	162	168	147	140	142
2051 2052		Average	125	117	131	129	123	111	130	140	146	161	141	132	132
	CCJ3	CILACAP	132	119	132	129	119	109	122	134	131	147	127	129	128
	CWJ12	TASIKMALAYA	118	111	123	117	103	95	99	108	110	119	115	119	111
2030	CWJ13	KUNINGAN	111	112	123	120	115	99	108	126	133	142	130	129	121
2060 2070		Average	120	114	126	122	112	101	110	123	125	136	124	126	120
	CCJ2	TEGAL	129	115	126	126	125	113	129	142	149	160	138	124	131
	CCJ5	GAMAR-PEKALONGAN	131	133	148	147	139	127	134	148	154	165	151	140	143
2080		Average	130	124	137	137	132	120	132	145	152	163	145	132	137
	CCJ4	SEMPOR	136	119	131	118	110	100	99	112	117	129	119	128	118
	CCJ6	SINGOMERTO-BANJAR NE	129	122	136	117	107	102	106	119	126	144	121	125	121
	CCJ7	KLEDUNG	103	93	99	93	83	82	90	126	103	112	102	105	99
2091 2092		Average	123	111	122	109	100	95	98	119	115	128	114	119	113
	CCJ12	RENDOLE-PATI	130	116	130	129	126	125	146	162	182	185	161	141	144
	CCJ15	Wd.TEMPURAN BLORA	114	110	136	120	128	124	124	145	149	159	130	122	130
	CCJ8	AHMAD YANI-SEMARANG	128	121	126	137	133	124	141	155	158	163	143	134	139
2101	CCJ9	UNGARAN	121	111	129	130	131	122	142	157	161	161	134	124	135
2102 2103		Average	123	115	130	129	130	124	138	155	163	167	142	130	137
	CCJ11	BOROBUDUR	130	118	134	127	115	105	114	127	135	146	130	129	126
	CCJ16	SENENG MAGELANG	106	98	117	107	96	88	94	108	110	116	105	106	104
	CYK1	WATES-KULON PROGO	143	147	133	122	119	108	124	126	136	141	132	136	131
	CYK2	ADISUCIPTO-YOKJAKART	123	123	121	121	114	101	113	126	132	145	127	127	123
2111 2112		Average	126	122	126	119	111	101	111	122	128	137	124	125	121

Table 4.13 Estimated Average Reference Crop Evapotranspiration (3/6)

River Basin Code	Station Code	Station Name	Reference Crop Evapotranspiration												
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	CCJ13	ADISUMARNO-SURAKARTA	116	107	129	117	107	101	131	144	152	145	136	130	126
	CCJ14	KEDUNG ULIN	150	127	154	140	145	132	136	157	163	175	146	133	147
	CEJ1	PADANGAN-BOJONEGORO	125	121	142	130	130	126	134	155	161	177	151	122	140
	CEJ4	BALONG PANG-GANG	134	132	142	136	137	131	134	169	177	192	158	168	151
	CEJ5	ISWAHYUDI-MADIUN	135	116	136	142	139	148	178	190	209	206	172	153	160
2121	CYK3	PLAYEN GUNUNG KIDUL	122	114	124	124	110	99	115	130	131	156	126	117	122
2122 2123		Average	130	120	138	132	128	123	138	158	166	175	148	137	141
	CEJ10	PASURUHAN	147	134	142	136	127	131	124	139	155	175	154	141	142
	CEJ11	PERAK I-SURABAYA	142	134	143	145	135	132	149	168	175	184	164	152	152
	CEJ2	BENDO	137	107	124	126	114	93	117	122	130	133	110	136	121
	CEJ6	SELOREJO	111	104	111	117	105	98	108	120	124	134	119	120	114
	CEJ7	WLINGI RAYA-BLITAR	134	123	134	129	124	120	122	137	155	160	130	136	134
	CEJ8	SUMBERASIN	116	104	116	108	98	85	94	102	107	124	116	116	107
2131	CEJ9	ABD. RAHMAN SALEH-MA	118	107	127	121	94	95	106	118	128	136	123	114	116
2132 2133		Average	129	116	128	126	114	108	117	129	139	149	131	131	126
	CEJ12	JATIROTO	164	143	137	139	134	113	123	145	144	156	155	154	142
	CEJ13	GENTENG	136	123	137	126	118	92	101	112	117	141	145	139	124
2141	CEJ14	BANYUWANGI	153	138	152	135	134	105	123	134	139	152	159	157	140
2142 2143		Average	151	135	142	133	129	103	116	130	133	150	153	150	135
	CEJ15	JRENGIK-MADURA	130	125	144	126	139	141	147	162	171	178	146	133	145
	CEJ16	KALIANGET-MADURA	140	130	142	143	132	132	152	168	170	181	152	140	149
2150		Average	135	128	143	135	136	137	150	165	171	180	149	137	147
	CB1	DENPASAR	162	145	157	151	142	130	147	152	154	166	156	163	152
	CB2	BESAKIH	106	101	108	110	96	86	90	103	110	110	102	105	102
	CB3	CANDI KUNING	92	88	97	91	82	70	79	93	97	103	103	103	92
	CB4	SINGARAJA	127	108	130	136	123	121	132	144	150	158	146	139	135
3011 3012		Average	122	111	123	122	111	102	112	123	128	134	127	128	120
	CNB1	SELOPARANG	160	138	145	144	124	118	130	138	151	173	152	145	143
	CNB2	REMBIGA	151	134	143	135	126	116	127	138	145	156	150	147	139
	CNB3	SOPAK BAYAN	132	113	134	134	136	122	130	147	154	169	151	134	138
	CNB4	TIMBANUH	123	109	122	111	107	91	96	109	121	138	130	123	115
	CNB5	KOPANG	130	120	132	121	114	99	107	118	129	147	136	132	124
	CNB6	SELONG	147	135	154	143	131	123	129	148	159	175	159	150	146
	CNB7	KERUAK	147	134	152	141	133	121	128	145	157	178	159	152	146
	CNB8	SEMBELIA	140	124	135	138	143	137	142	148	172	186	165	151	148
	CNB9	SENGKOL	144	132	149	142	130	119	125	135	152	173	156	148	142
3020		Average	142	127	141	134	127	116	124	136	149	166	151	142	138
3030	CNB10	SUMBAWA BESAR	133	124	128	133	135	127	139	154	163	176	160	147	143
3040	CNT1	WAINGAPU	152	132	136	138	138	121	135	150	162	186	170	147	147
3050	CNT3	MAUMERE	143	128	144	148	136	129	143	160	177	187	184	157	153
	CNT4	KUPANG	144	122	132	160	172	173	190	203	204	194	177	146	168
	CNT5	NAIBONAT KUPANG	142	130	148	144	129	118	116	131	160	175	173	151	143
	CNT6	OEBOBO TIMOR	140	115	139	137	120	104	113	131	148	172	163	149	136
	CNT7	PASIR PANJANG TIMOR	162	121	141	143	177	179	189	202	202	199	165	147	169
	CT26	OE CUSSEPANTE MAKASSAR	140	120	136	143	137	124	137	144	141	165	158	156	142
3060		Average	146	122	139	145	147	140	149	162	171	181	167	150	152

Table 4.13 Estimated Average Reference Crop Evapotranspiration (4/6)

River Basin Code	Station Code	Station Name	Reference Crop Evapotranspiration												
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	CT1	AINARO	134	116	128	134	108	86	99	128	162	160	151	140	129
	CT4	BAUCAU	114	107	116	125	117	110	123	137	138	156	136	123	125
	CT5	BETANO	156	141	152	147	124	110	118	131	151	171	168	169	145
	CT8	DILLI	157	138	149	145	135	123	129	142	156	175	168	161	148
	CT9	ERMERA	125	111	124	120	108	99	105	119	135	151	139	132	122
	CT16	LAGA	138	127	133	145	133	133	147	161	161	183	150	144	146
	CT17	LAUTEM	137	127	131	144	131	125	143	162	164	183	145	139	144
	CT18	LIQUISA	156	144	150	147	133	129	139	154	165	183	182	158	153
	CT19	LOSPALOS	124	117	121	125	116	103	116	137	137	154	134	129	126
	CT20	MALIANA	139	128	143	142	139	138	147	158	168	180	166	153	150
	CT21	MANATUTO	157	141	154	152	140	131	143	149	153	175	170	165	153
	CT25	OSSU	126	118	122	122	110	93	111	129	136	155	141	134	125
	CT28	SOIBADA	122	110	124	124	111	100	114	128	137	155	132	132	124
	CT29	SUAI	158	145	160	147	130	108	119	142	160	179	179	171	150
	CT30	TUTUALA	125	117	132	140	126	114	127	137	144	151	157	130	133
	CT31	VIQUEQUE	150	138	140	136	119	104	111	131	150	170	172	167	141
3070		Average	139	127	136	137	124	113	124	140	151	168	156	147	138
4021	CC5	LANJAS	128	116	152	121	122	111	119	137	129	140	134	131	128
	CS1	SEI MALANG-AMUNTAI	137	128	141	137	138	122	127	139	133	147	134	128	134
	CS2	PANTAI HAMBAWANG	126	117	138	131	131	110	125	135	131	145	132	121	129
	CS3	TATAKAN RANTAU	121	106	128	129	120	112	125	140	142	149	125	112	126
	CS4	PENGARON	113	98	117	91	119	96	85	128	134	131	118	106	111
	CS5	BANJARMASIN	110	111	120	114	118	110	115	129	126	145	115	111	119
	CS6	BANJAR BARU	105	98	111	114	108	92	101	112	123	124	125	103	110
4010 4022		Average	119	110	126	119	122	107	113	131	132	140	125	114	121
4030	CC4	BERENG BENGKEL	123	112	132	125	133	117	122	136	126	134	132	121	126
4040	CC3	PALANGKARAYA	123	112	132	125	133	117	122	136	126	134	132	121	126
	CC1	PANGKALANBUN	135	123	123	122	123	115	116	139	129	157	121	136	128
4050	CC2	SAMPIT	126	117	128	125	126	122	131	134	108	118	126	121	124
4061 4062		Average	131	120	126	124	125	119	124	137	119	138	124	129	126
	CW14	SANDAI	117	106	127	117	124	115	122	130	123	129	111	109	119
	CW14		126	109	130	122	127	109	124	128	125	132	115	116	122
4070		Average	122	108	129	120	126	112	123	129	124	131	113	113	121
	CW10	SANGGAU	112	109	112	132	134	120	126	127	121	130	110	104	120
	CW11	SUSILO-SINTANG	116	105	135	126	133	102	121	122	122	123	111	113	119
	CW12	NANGA-PINOH	109	100	116	120	116	107	110	122	110	120	111	114	113
	CW13	MADYA RAYA	109	101	123	115	115	124	110	122	111	121	113	103	114
	CW5	KEMBAYAN	118	111	134	125	123	113	118	122	121	131	115	119	121
	CW6	NGABANG	120	113	133	128	129	117	126	129	119	131	116	113	123
	CW8	SIANTAN-PONTIANAK	128	122	146	135	130	132	132	138	130	138	128	121	132
	CW9	SUPADIO-PONTIANAK	130	117	139	123	130	121	128	135	129	127	119	120	127
4080		Average	118	110	130	126	126	117	121	127	120	128	115	113	121
	CW1	PALOH-SAMBAS	95	99	133	118	118	118	118	124	115	120	107	103	114
	CW2	SAMBAS	103	101	125	121	123	114	116	125	115	120	106	103	114
	CW3	SILUAS	101	102	125	125	124	118	120	125	118	125	111	100	116
	CW4	SINGKAWANG II	102	98	120	115	115	105	112	108	116	120	112	106	111
	CW7	ANJUNGAN	124	118	130	122	118	118	123	129	115	124	115	118	121
4090		Average	105	104	127	120	120	115	118	122	116	122	110	106	115
4100 4110															
4120 4130	CE1	TARAKAN	128	134	150	133	142	129	132	148	127	142	131	121	135

Table 4.13 Estimated Average Reference Crop Evapotranspiration (5/6)

River Basin Code	Station Code	Station Name	Reference Crop Evapotranspiration											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	CE2	MUARA MARAH	125	131	154	142	137	119	124	138	133	144	124	122	133
	CE3	TABANG	124	126	148	128	135	117	122	134	122	141	128	115	128
	CE4	MELAK	124	127	138	147	119	115	123	136	119	134	121	113	126
	CE5	KOTA BANGUN	132	127	148	134	135	125	129	146	133	144	132	131	135
	CE6	TEMENGGUNG	116	118	134	123	119	106	119	142	126	135	125	121	124
	CE7	TEMINDUNG-SAMARINDA	126	122	134	128	123	107	118	136	122	129	121	117	124
	CE8	SEI KUNJANG-AMUNTAI	104	100	126	110	109	98	108	111	123	113	111	119	111
	CE9	LOA JANAN	124	116	128	116	116	100	113	129	116	122	114	113	117
4141		Average	122	121	139	129	124	111	120	134	124	133	122	119	125
4142	CE10	SEPINGGAN-BALIKPAPAN	120	109	126	120	128	103	110	116	125	133	118	117	119
	CNS2	MAPANGET	114	98	132	128	129	120	136	153	147	144	127	120	129
	CNS3	SAM RATULANGI	105	99	122	120	119	113	125	136	136	131	115	108	119
	CNS4	KAYUWATU	107	100	118	115	117	110	126	144	134	134	115	112	119
	CNS5	BITUNG	141	141	154	147	146	136	152	173	180	165	134	145	151
	CNS6	KAWANGKOAN	98	96	115	105	105	97	107	123	125	120	101	97	107
5011 5012		Average	113	107	128	123	123	115	129	146	144	139	118	116	125
5013	CNS1	NAHASANGIHE TALAUD	155	116	146	138	131	118	129	141	138	136	124	118	133
5021 5022															
5031 5032	CNS7	JALALUDIN	124	121	138	132	130	115	135	152	134	140	126	126	131
5041 5042	CCS1	LALOS	120	116	143	140	137	130	122	145	142	147	136	129	134
5050	CCS4	KASIGUNCU	126	115	138	134	130	121	116	143	148	148	132	132	132
5061 5062															
5070 5080	CCS3	BABANG LUWUK	140	126	149	137	130	103	102	128	135	156	143	139	132
5091 5092	CCS2	MUTIARA	143	135	163	152	147	128	127	151	147	163	148	147	146
	CSES1	KENDARI	134	122	140	132	114	101	113	121	140	163	145	138	130
5101 5102	CSES3	PALANGGA	131	117	134	120	113	97	90	110	144	147	144	134	123
5111 5120		Average	133	120	137	126	114	99	102	116	142	155	145	136	127
5112	CSES2	BETO AMBARI	137	120	140	127	113	102	117	130	147	162	146	133	131
5131															
5132 5133	CSS4	MAJENE	133	128	175	145	142	128	130	156	161	165	162	136	147
	CSS1	WONOREJO	132	120	143	131	131	112	125	140	144	162	142	133	135
5141 5142	CSS2	SETIOREJO	133	123	145	132	138	114	127	142	142	164	143	135	137
5143 5144		Average	133	122	144	132	135	113	126	141	143	163	143	134	136
	CSS12	TABO-TABO	122	112	143	138	133	122	136	153	165	180	143	129	140
	CSS15	MAROS	117	104	123	132	131	110	131	155	158	164	139	120	132
	CSS3	MAMASA	115	102	115	112	107	95	104	116	121	131	112	110	112
5151	CSS5	LANGA	134	124	166	142	160	127	139	166	170	175	160	134	150
5152 5153		Average	122	111	137	131	133	114	128	148	154	163	139	123	133
	CSS10	UJUNG LAMURU	130	113	132	124	117	106	111	130	145	159	141	125	128
	CSS13	CAMMING	136	128	145	130	123	102	114	132	150	160	155	133	134
	CSS6	LANRANG	141	132	149	142	133	116	124	149	152	176	154	145	143
	CSS7	KAYUARA	135	127	145	139	128	109	118	140	146	168	144	141	137
	CSS8	TEMPE	143	140	152	141	135	110	125	142	151	166	151	142	142
5161 6162		Average	137	128	145	135	127	109	118	139	149	166	149	137	137
	CSS14	PANAKUKANG	118	105	140	140	130	119	131	151	161	173	146	126	137
	CSS16	HASANUDIN	118	108	130	127	127	115	130	151	158	164	134	119	132
	CSS18	BONTO SUNGU	115	106	134	135	105	109	127	144	150	169	128	114	128
	CSS19	BONTOBILI	105	103	137	133	124	111	115	131	136	151	123	105	123
5171		Average	114	106	135	134	122	114	126	144	151	164	133	116	130
	CSS9	AWANGPONE	124	114	133	124	128	103	117	145	155	166	138	121	131
	CSS11	ARASOE	120	110	133	125	117	106	105	131	140	157	136	127	126
	CSS17	CAILE	115	109	128	119	99	106	102	125	129	163	126	107	119
	CSS20	BULUKUMBA	121	108	144	128	106	114	120	159	154	174	151	131	134
5172		Average	120	110	135	124	113	107	111	140	145	165	138	122	127

Table 4.13 Estimated Average Reference Crop Evapotranspiration (6/6)

River Basin Code	Station Code	Station Name	Reference Crop Evapotranspiration											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	CML10	TUAL-P.KAI	114	105	120	106	115	113	123	134	140	152	125	112	122
	CML11	SAUMLAKI P.YAMDENA	123	117	136	121	119	122	127	145	147	153	144	135	132
	CT22	MAUMETA-ATAURO	167	145	158	157	145	135	146	153	161	185	177	169	158
6010		Average	135	122	138	128	126	123	132	144	149	163	149	139	137
	CML3	SANANA	128	125	139	116	114	132	118	125	131	143	130	122	127
	CML4	KAIRATU-SERAM	124	121	139	140	113	95	88	105	115	137	133	134	120
	CML5	NAMLEA P.BURA	120	109	136	129	129	111	149	136	138	160	153	126	133
	CML6	AMAHAI P.SERAM	126	118	138	121	107	81	83	98	109	127	126	125	113
	CML7	LAHA-AMBON	127	122	131	119	108	90	98	101	115	134	133	127	117
	CML8	GESER-P.CERAM LAUT	134	135	145	139	128	118	117	121	120	132	147	146	132
	CML9	BANDANAIRA	126	141	132	136	123	112	120	122	135	133	129	141	129
6020		Average	126	124	137	129	117	106	110	115	123	138	136	132	125
	CML1	GAMAR MALAMO-GALELA	123	112	135	131	126	113	133	134	127	133	134	128	127
	CML2	TERNATE	136	123	147	134	132	119	129	139	135	146	124	126	133
6030		Average	130	118	141	133	129	116	131	137	131	140	129	127	130
	CIJ10	KAIMANA	146	119	143	135	124	105	112	124	123	143	138	143	130
	CIJ11	MANOKWARI	124	113	124	117	121	108	118	121	135	133	123	112	121
	CIJ12	SORONG/JEFMAN	149	147	146	132	140	123	133	140	129	136	123	133	136
7010		Average	140	126	138	128	128	112	121	128	129	137	128	129	129
	CIJ4	JAYAPURA/DOK II	124	110	127	126	127	117	121	127	138	136	132	127	126
	CIJ5	SENTANIA	146	127	136	129	127	108	118	127	135	136	132	133	130
	CIJ6	SARMI	115	107	115	117	121	108	109	105	117	124	114	112	114
	CIJ7	SERUI YAPEN	127	119	130	126	121	96	102	115	126	130	126	127	120
	CIJ8	BIAK MOKMER	130	119	127	129	130	111	121	121	129	136	129	127	126
	CIJ9	NABIRE	152	136	133	144	124	108	118	140	120	152	141	143	134
7020		Average	132	120	128	129	125	108	115	123	128	136	129	128	125
	CIJ3	WAMENA	115	105	115	114	115	99	102	105	120	118	117	121	112
	CIJ13	KOKENAU	118	107	115	105	96	81	81	87	96	105	111	115	101
7030		Average	117	106	115	110	106	90	92	96	108	112	114	118	107
	CIJ1	MERAUKE/MOPAH	143	130	140	129	124	108	112	118	135	155	162	146	134
	CIJ2	TANAH MERAH	130	116	124	114	99	78	87	90	108	133	129	121	111
7040		Average	137	123	132	122	112	93	100	104	122	144	146	134	122

Source : JICA_FIDP team calculation based on RePPProT

Table 4.14 Monthly Crop Evapotranspiration by River Basin (1/3)

River Basin	Eto (mm/month)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1010	101	105	122	113	116	109	112	124	115	112	93	97
1020	105	108	127	121	112	114	117	119	112	108	97	96
1030	105	108	127	121	112	114	117	119	112	108	97	96
1040	105	108	127	121	112	114	117	119	112	108	97	96
1050	105	108	127	121	112	114	117	119	112	108	97	96
1060	119	124	138	130	125	118	116	126	101	110	108	114
1071	119	124	138	130	125	118	116	126	101	110	108	114
1072	102	95	107	111	121	108	104	111	104	109	106	108
1080	119	124	138	130	125	118	116	126	101	110	108	114
1090	104	102	125	117	116	113	112	116	108	111	96	100
1100	104	102	125	117	116	113	112	116	108	111	96	100
1110	114	114	135	126	125	115	123	125	121	123	108	112
1121	114	114	135	126	125	115	123	125	121	123	108	112
1122	114	114	135	126	125	115	123	125	121	123	108	112
1131	114	114	135	126	125	115	123	125	121	123	108	112
1132	114	114	135	126	125	115	123	125	121	123	108	112
1141	112	123	138	134	120	117	114	127	127	117	97	124
1142	102	95	107	111	121	108	104	111	104	109	106	108
1150	103	106	125	112	115	108	115	117	111	117	108	107
1161	117	124	137	127	118	108	125	121	127	128	114	110
1162	117	124	137	127	118	108	125	121	127	128	114	110
1171	107	99	120	108	116	104	108	107	110	114	101	100
1172	108	107	129	120	115	104	109	115	111	111	102	99
1181	107	99	120	108	116	104	108	107	110	114	101	100
1182	120	119	131	112	115	104	112	125	112	117	103	115
1191	119	114	127	121	118	108	115	120	114	118	107	112
1192	102	95	107	111	121	108	104	111	104	109	106	108
1201	138	121	134	128	126	121	122	129	122	122	111	121
1202	102	95	107	111	121	108	104	111	104	109	106	108
1210	103	101	120	116	113	104	108	115	113	119	103	106
1220	114	108	121	113	111	98	105	113	114	125	112	120
1230	109	101	118	115	114	111	116	127	117	127	107	99
1241	110	103	121	118	119	108	111	122	119	128	114	111
1242	110	103	121	118	119	108	111	122	119	128	114	111
1250	114	108	121	113	111	98	105	113	114	125	112	120
1261	109	103	124	118	114	104	106	112	117	131	123	113
1262	109	103	124	118	114	104	106	112	117	131	123	113
1270	114	108	122	112	111	109	113	116	112	115	108	113
1280	114	108	122	112	111	109	113	116	112	115	108	113
1290	119	114	127	121	118	108	115	120	114	118	107	112
1300	119	114	127	121	118	108	115	120	114	118	107	112

Table 4.14 Monthly Crop Evapotranspiration by River Basin (2/3)

River Basin	Eto (mm/month)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	126	123	139	137	132	119	135	147	152	160	143	137
2012	126	123	139	137	132	119	135	147	152	160	143	137
2020	126	123	139	137	132	119	135	147	152	160	143	137
2041	109	106	121	113	108	101	110	123	124	133	119	115
2042	117	109	124	119	116	108	120	128	132	137	125	121
2051	125	117	131	129	123	111	130	140	146	161	141	132
2052	125	117	131	129	123	111	130	140	146	161	141	132
2030	120	114	126	122	112	101	110	123	125	136	124	126
2060	120	114	126	122	112	101	110	123	125	136	124	126
2070	120	114	126	122	112	101	110	123	125	136	124	126
2080	130	124	137	137	132	120	132	145	152	163	145	132
2091	123	111	122	109	100	95	98	119	115	128	114	119
2092	123	111	122	109	100	95	98	119	115	128	114	119
2101	123	115	130	129	130	124	138	155	163	167	142	130
2102	123	115	130	129	130	124	138	155	163	167	142	130
2103	123	115	130	129	130	124	138	155	163	167	142	130
2111	126	122	126	119	111	101	111	122	128	137	124	125
2112	126	122	126	119	111	101	111	122	128	137	124	125
2121	130	120	138	132	128	123	138	158	166	175	148	137
2122	130	120	138	132	128	123	138	158	166	175	148	137
2123	130	120	138	132	128	123	138	158	166	175	148	137
2131	129	116	128	126	114	108	117	129	139	149	131	131
2132	129	116	128	126	114	108	117	129	139	149	131	131
2133	129	116	128	126	114	108	117	129	139	149	131	131
2141	151	135	142	133	129	103	116	130	133	150	153	150
2142	151	135	142	133	129	103	116	130	133	150	153	150
2143	151	135	142	133	129	103	116	130	133	150	153	150
2150	135	128	143	135	136	137	150	165	171	180	149	137
3011	122	111	123	122	111	102	112	123	128	134	127	128
3012	122	111	123	122	111	102	112	123	128	134	127	128
3020	142	127	141	134	127	116	124	136	149	166	151	142
3030	133	124	128	133	135	127	139	154	163	176	160	147
3040	152	132	136	138	138	121	135	150	162	186	170	147
3050	143	128	144	148	136	129	143	160	177	187	184	157
3060	146	122	139	145	147	140	149	162	171	181	167	150
3070	139	127	136	137	124	113	124	140	151	168	156	147
4021	128	116	152	121	122	111	119	137	129	140	134	131
4010	119	110	126	119	122	107	113	131	132	140	125	114
4022	119	110	126	119	122	107	113	131	132	140	125	114
4030	123	112	132	125	133	117	122	136	126	134	132	121
4040	123	112	132	125	133	117	122	136	126	134	132	121
4061	131	120	126	124	125	119	124	137	119	138	124	129
4062	131	120	126	124	125	119	124	137	119	138	124	129
4050	131	120	126	124	125	119	124	137	119	138	124	129
4070	122	108	129	120	126	112	123	129	124	131	113	113
4080	118	110	130	126	126	117	121	127	120	128	115	113
4090	105	104	127	120	120	115	118	122	116	122	110	106
4100	128	134	150	133	142	129	132	148	127	142	131	121
4110	128	134	150	133	142	129	132	148	127	142	131	121
4120	128	134	150	133	142	129	132	148	127	142	131	121
4130	128	134	150	133	142	129	132	148	127	142	131	121
4141	122	121	139	129	124	111	120	134	124	133	122	119
4142	120	109	126	120	128	103	110	116	125	133	118	117

Table 4.14 Monthly Crop Evapotranspiration by River Basin (3/3)

River Basin	Eto (mm/month)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5011	113	107	128	123	123	115	129	146	144	139	118	116
5012	113	107	128	123	123	115	129	146	144	139	118	116
5013	155	116	146	138	131	118	129	141	138	136	124	118
5021	124	121	138	132	130	115	135	152	134	140	126	126
5022	124	121	138	132	130	115	135	152	134	140	126	126
5031	124	121	138	132	130	115	135	152	134	140	126	126
5032	124	121	138	132	130	115	135	152	134	140	126	126
5041	120	116	143	140	137	130	122	145	142	147	136	129
5042	120	116	143	140	137	130	122	145	142	147	136	129
5050	126	115	138	134	130	121	116	143	148	148	132	132
5061	140	126	149	137	130	103	102	128	135	156	143	139
5062	140	126	149	137	130	103	102	128	135	156	143	139
5070	140	126	149	137	130	103	102	128	135	156	143	139
5080	140	126	149	137	130	103	102	128	135	156	143	139
5091	143	135	163	152	147	128	127	151	147	163	148	147
5092	143	135	163	152	147	128	127	151	147	163	148	147
5101	133	120	137	126	114	99	102	116	142	155	145	136
5102	133	120	137	126	114	99	102	116	142	155	145	136
5111	133	120	137	126	114	99	102	116	142	155	145	136
5120	133	120	137	126	114	99	102	116	142	155	145	136
5112	137	120	140	127	113	102	117	130	147	162	146	133
5131	133	128	175	145	142	128	130	156	161	165	162	136
5132	133	128	175	145	142	128	130	156	161	165	162	136
5133	133	128	175	145	142	128	130	156	161	165	162	136
5141	133	122	144	132	135	113	126	141	143	163	143	134
5142	133	122	144	132	135	113	126	141	143	163	143	134
5143	133	122	144	132	135	113	126	141	143	163	143	134
5144	133	122	144	132	135	113	126	141	143	163	143	134
5151	122	111	137	131	133	114	128	148	154	163	139	123
5152	122	111	137	131	133	114	128	148	154	163	139	123
5153	122	111	137	131	133	114	128	148	154	163	139	123
5161	137	128	145	135	127	109	118	139	149	166	149	137
5162	137	128	145	135	127	109	118	139	149	166	149	137
5171	114	106	135	134	122	114	126	144	151	164	133	116
5172	120	110	135	124	113	107	111	140	145	165	138	122
6010	135	122	138	128	126	123	132	144	149	163	149	139
6020	126	124	137	129	117	106	110	115	123	138	136	132
6030	130	118	141	133	129	116	131	137	131	140	129	127
7010	140	126	138	128	128	112	121	128	129	137	128	129
7020	132	120	128	129	125	108	115	123	128	136	129	128
7030	117	106	115	110	106	90	92	96	108	112	114	118
7040	137	123	132	122	112	93	100	104	122	144	146	134

Source : JICA-FIDP Team calculation based on RePPProt

Table 4.15 Proportion of Monthly Mean Rainfall to Effective Rainfall

Paddy

Monthly Mean Rainfall (mm)	Monthly Effective Rainfall (mm)	Proportion
(1)	(2)	(1)/(2)
12.5	10.5	84%
25.0	20.5	82%
37.5	30.5	81%
50.0	40.5	81%
62.5	50.5	81%
75.0	60.2	80%
87.5	69.7	80%
100.0	78.7	79%
112.5	87.2	78%
125.0	95.7	77%
137.5	104.0	76%
150.0	112.0	75%
162.5	120.0	74%
175.0	127.0	73%
187.5	134.0	71%
200.0	140.0	70%
225.0	151.0	67%
250.0	161.0	64%
275.0	171.0	62%
>300	175.0	

Source : FAO

Palawija

Monthly Mean Rainfall (mm)	Monthly Effective Rainfall (mm)	Proportion
(1)	(2)	(1)/(2)
12.5	9.0	72%
25.0	18.0	72%
37.5	27.5	73%
50.0	35.7	71%
62.5	44.5	71%
75.0	52.7	70%
87.5	60.2	69%
100.0	67.7	68%
112.5	75.0	67%
125.0	81.5	65%
137.5	88.7	65%
150.0	95.2	63%
>160	100.0	

Source : FAO

Table 4.16 Estimated Effective Rainfall by River Basin for Paddy (1/3)

River basin	Effective Rainfall (mm/month)												
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1010	60	31	31	51	21	2	0	10	21	51	87	70	432
1020	87	41	51	51	21	1	0	11	21	60	96	87	524
1030	79	21	41	51	51	11	7	21	51	79	79	87	574
1040	79	11	31	41	51	21	21	31	70	79	96	112	638
1050	79	11	41	60	87	51	60	87	120	140	127	112	974
1060	120	79	140	161	120	70	70	112	112	151	175	127	1,436
1071	87	70	127	140	87	60	51	96	104	134	151	112	1,219
1072	79	51	96	104	79	79	87	120	104	134	151	112	1,195
1080	79	51	104	127	87	41	51	79	87	127	140	112	1,083
1090	60	6	21	41	96	51	41	79	104	134	96	104	830
1100	51	21	41	60	79	60	60	79	104	134	104	70	861
1110	60	21	51	60	79	51	60	87	112	140	104	79	903
1121	51	31	60	70	60	21	21	41	79	104	104	79	718
1122	51	31	60	70	60	21	21	41	79	104	104	79	718
1131	79	21	41	70	70	41	51	70	112	140	120	87	899
1132	120	70	104	96	60	11	7	51	70	104	120	120	931
1141	96	87	120	134	87	51	51	96	112	140	151	140	1,264
1142	96	70	112	140	96	87	87	140	140	171	175	151	1,465
1150	112	60	104	96	60	41	11	60	79	127	134	140	1,023
1161	79	60	96	96	70	31	31	60	87	120	120	96	944
1162	70	41	87	104	79	31	31	51	60	104	127	112	895
1171	120	79	112	104	96	41	31	60	79	120	140	140	1,120
1172	96	31	60	87	87	60	60	60	60	96	112	104	913
1181	112	79	104	112	70	21	21	41	79	112	120	127	996
1182	87	41	87	96	96	70	70	79	70	104	112	127	1,037
1191	151	120	134	151	127	87	79	120	151	175	175	175	1,645
1192	134	134	134	151	120	96	104	161	140	175	175	175	1,699
1201	104	87	127	151	104	60	60	104	127	161	161	151	1,398
1202	104	60	96	120	87	96	79	112	127	151	151	140	1,323
1210	127	104	120	120	79	41	31	51	70	96	120	140	1,097
1220	127	104	120	120	79	41	31	51	70	96	120	140	1,097
1230	140	79	96	104	96	60	51	31	31	79	120	151	1,036
1241	140	120	134	120	79	31	21	41	41	79	120	140	1,063
1242	104	70	127	104	96	41	21	31	31	87	104	140	954
1250	134	112	127	104	60	21	11	9	21	31	87	134	849
1261	140	112	112	70	41	31	21	10	11	31	96	134	806
1262	120	112	112	87	51	41	21	11	11	51	79	120	813
1270	96	79	79	87	60	51	51	70	79	140	127	104	1,021
1280	134	112	127	134	79	70	51	79	112	151	171	151	1,370
1290	151	134	140	151	120	79	60	104	134	171	171	161	1,576
1300	120	79	104	112	87	51	51	87	127	171	151	151	1,290
2011	161	140	140	104	87	41	31	21	41	87	120	151	1,122
2012	140	134	134	140	104	60	51	60	60	96	104	127	1,210
2020	140	134	104	87	70	31	11	11	31	60	79	87	843
2030	161	140	161	140	96	51	31	21	41	127	171	171	1,309
2041	161	140	134	96	70	21	5	0	0	31	96	127	879
2042	120	104	120	104	70	11	5	1	11	60	120	120	845
2051	127	104	120	104	87	51	60	31	60	140	161	140	1,185
2052	79	70	87	120	140	140	151	104	104	175	175	127	1,472

Table 4.16 Estimated Effective Rainfall by River Basin for Paddy (2/3)

River basin	Effective Rainfall (mm/month)												
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2060	175	161	161	112	70	11	0	0	0	21	96	151	956
2070	161	140	151	112	79	31	21	7	11	79	127	151	1,068
2080	175	171	140	87	60	21	8	0	0	31	79	140	911
2091	171	151	171	151	112	41	31	21	41	127	171	175	1,361
2092	151	134	140	96	60	31	11	0	0	96	151	151	1,020
2101	151	127	120	87	51	10	0	0	0	31	70	120	766
2102	127	104	104	60	31	0	0	0	0	31	79	120	655
2103	171	134	104	60	31	10	0	0	0	11	51	104	675
2111	151	140	151	96	60	11	0	0	0	41	104	140	893
2112	151	140	127	60	21	0	0	0	0	11	79	127	715
2121	140	140	140	96	51	6	0	0	0	21	96	127	815
2122	120	112	120	60	21	0	0	0	0	11	60	112	615
2123	127	112	104	41	51	10	21	0	11	87	120	134	816
2131	151	140	140	70	41	0	0	0	0	4	51	112	708
2132	151	140	140	104	70	11	5	0	0	51	120	151	942
2133	134	104	112	70	51	41	41	6	8	87	112	134	898
2141	151	140	120	51	31	0	0	0	0	0	51	112	655
2142	151	134	140	87	60	11	11	0	7	60	120	151	932
2143	127	127	120	41	51	31	21	0	0	21	51	112	699
2150	112	87	96	60	31	1	0	0	0	0	31	96	513
3011	140	127	112	41	11	0	0	0	0	0	21	87	538
3012	140	120	87	31	21	21	31	0	2	41	70	120	681
3020	120	96	79	11	10	0	0	0	0	0	31	96	441
3030	112	104	79	21	0	0	0	0	0	0	31	96	441
3040	134	120	104	51	11	0	0	0	0	10	41	112	582
3050	127	112	96	41	11	0	0	0	0	3	41	104	533
3060	104	96	70	11	8	0	0	0	0	0	11	79	377
3070	120	112	96	51	60	31	0	0	0	0	41	96	605
4010	112	104	120	79	79	96	79	41	31	21	51	79	889
4021	134	120	140	140	112	79	41	51	60	96	134	151	1,257
4022	134	120	127	96	70	41	21	11	11	41	96	134	899
4030	134	112	120	134	120	104	60	51	112	96	151	140	1,333
4040	96	96	104	112	87	70	41	31	60	96	96	140	1,027
4050	96	96	127	120	87	70	41	51	60	87	104	104	1,042
4061	96	87	104	104	104	79	51	31	41	87	96	112	990
4062	96	87	104	104	104	79	51	31	41	87	96	112	990
4070	127	96	112	120	112	79	41	41	70	120	140	140	1,196
4080	134	112	127	127	104	79	60	79	104	134	140	134	1,334
4090	134	70	60	70	79	51	41	51	70	120	140	140	1,024
4100	70	60	79	104	120	112	112	120	120	104	140	96	1,236
4110	112	96	112	112	112	87	79	96	112	120	134	112	1,283
4120	79	70	60	60	60	21	31	31	41	51	87	87	676
4130	60	51	70	70	60	51	21	41	31	41	60	87	640
4141	96	79	104	112	96	70	41	31	51	70	104	112	963
4142	79	60	96	79	79	70	60	41	31	21	60	87	761
5011	140	120	104	104	96	79	51	31	31	51	104	127	1,035
5012	140	112	112	96	87	60	41	21	31	51	96	120	965
5013	120	79	79	96	96	104	87	51	41	51	96	104	1,001
5021	151	127	96	87	104	79	41	21	31	79	104	112	1,030
5022	31	31	31	41	41	31	21	10	0	10	31	41	315

Table 4.16 Estimated Effective Rainfall by River Basin for Paddy (3/3)

River basin	Effective Rainfall (mm/month)												
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
5031	151	127	96	87	104	79	41	21	31	79	104	112	1,030
5032	31	31	31	41	41	31	21	10	0	10	31	41	315
5041	112	96	79	60	60	60	41	31	31	31	79	96	773
5042	0	0	9	31	51	60	60	31	11	0	8	0	259
5050	51	60	87	140	127	96	60	31	31	41	70	60	852
5061	79	51	79	104	140	134	140	140	87	41	51	60	1,104
5062	79	51	79	104	140	134	140	140	87	41	51	60	1,104
5070	11	11	31	51	87	134	120	51	21	1	0	21	536
5080	104	104	127	140	127	112	96	70	21	21	70	104	1,094
5091	41	31	41	51	51	41	31	21	21	21	31	41	416
5092	41	31	41	51	51	41	31	21	21	21	31	41	416
5101	51	51	60	70	96	79	51	21	8	0	21	31	535
5102	51	51	60	70	96	79	51	21	8	0	21	31	535
5111	70	70	87	60	96	96	51	9	1	0	11	51	600
5112	79	79	70	70	87	70	21	0	0	0	11	70	554
5120	87	79	104	112	127	79	60	31	21	31	41	51	820
5131	96	104	134	140	120	87	41	21	31	41	96	104	1,013
5132	96	104	134	140	120	87	41	21	31	41	96	104	1,013
5133	96	51	60	70	70	60	21	11	21	41	79	96	672
5141	120	134	151	151	140	112	60	21	11	41	104	134	1,178
5142	140	127	151	161	161	140	96	79	51	41	70	140	1,355
5143	112	112	140	151	140	112	87	60	31	31	79	104	1,158
5144	104	96	140	151	127	104	79	41	41	31	79	87	1,078
5151	60	51	60	96	96	60	41	21	31	51	51	70	685
5152	87	96	127	140	112	79	41	11	11	41	87	112	942
5153	175	161	140	96	60	11	0	0	0	21	112	175	950
5161	21	6	41	96	171	140	120	70	79	41	21	11	814
5162	51	41	51	87	120	87	51	11	0	11	31	41	578
5171	175	161	140	79	51	21	0	0	0	0	79	171	875
5172	51	51	79	120	161	140	87	11	0	0	21	60	779
6010	120	87	87	87	87	41	4	0	0	0	11	96	620
6020	41	41	51	87	140	151	151	120	70	21	11	41	922
6030	60	51	60	79	104	96	79	60	41	31	51	70	779
7010	112	104	112	112	112	104	87	87	79	70	70	96	1,144
7020	112	112	120	96	87	79	79	79	79	79	79	96	1,095
7030	79	87	104	104	112	120	127	127	104	70	70	79	1,182
7040	127	120	140	112	96	51	41	41	51	60	79	127	1,043

Source : JICA-FIDP Team calculation based on FAO

Table 4.17 Estimated Effective Rainfall by River Basin for Palawija (1/3)

River basin	Effective Rainfall (mm/month)												
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1010	53	28	28	45	18	2	0	8	18	45	75	60	378
1020	75	36	45	45	18	1	0	9	18	53	82	75	455
1030	68	18	36	45	45	9	7	18	45	68	68	75	499
1040	68	9	28	36	45	18	18	28	60	68	82	95	553
1050	68	9	36	53	75	45	53	75	100	100	100	95	808
1060	100	68	100	100	100	60	60	100	95	100	100	100	1,083
1071	75	60	100	100	75	53	45	82	89	100	100	95	973
1072	68	45	82	89	68	68	75	100	89	100	100	95	977
1080	68	45	89	100	75	36	45	68	75	100	100	95	894
1090	53	6	18	36	82	45	36	68	89	100	82	89	701
1100	45	18	36	53	68	53	53	68	89	100	89	60	729
1110	53	18	45	53	68	45	53	75	95	100	89	68	759
1121	45	28	53	60	53	18	18	36	68	89	89	68	622
1122	45	28	53	60	53	18	18	36	68	89	89	68	622
1131	68	18	36	60	60	36	45	60	95	100	100	75	752
1132	100	60	89	82	53	9	7	45	60	89	100	100	793
1141	82	75	100	100	75	45	45	82	95	100	100	100	997
1142	82	60	95	100	82	75	75	100	100	100	100	100	1,068
1150	100	53	89	82	53	36	9	53	68	100	100	100	841
1161	68	53	82	82	60	28	28	53	75	100	100	82	808
1162	60	36	75	89	68	28	28	45	53	89	100	95	763
1171	100	68	95	89	82	36	28	53	68	100	100	100	917
1172	82	28	53	75	75	53	53	53	53	82	95	89	788
1181	95	68	89	95	60	18	18	36	68	95	100	100	842
1182	75	36	75	82	82	60	60	68	60	89	100	100	886
1191	100	100	100	100	100	75	68	100	100	100	100	100	1,143
1192	100	100	100	100	100	82	89	100	100	100	100	100	1,170
1201	89	75	100	100	89	53	53	89	100	100	100	100	1,047
1202	89	53	82	100	75	82	68	95	100	100	100	100	1,042
1210	100	89	100	100	68	36	28	45	60	82	100	100	906
1220	100	89	100	100	68	36	28	45	60	82	100	100	906
1230	100	68	82	89	82	53	45	28	28	68	100	100	839
1241	100	100	100	100	68	28	18	36	36	68	100	100	852
1242	89	60	100	89	82	36	18	28	28	75	89	100	792
1250	100	95	100	89	53	18	9	8	18	28	75	100	692
1261	100	95	95	60	36	28	18	8	9	28	82	100	658
1262	100	95	95	75	45	36	18	9	9	45	68	100	694
1270	82	68	68	75	53	45	45	60	68	100	100	89	850
1280	100	95	100	100	68	60	45	68	95	100	100	100	1,031
1290	100	100	100	100	100	68	53	89	100	100	100	100	1,109
1300	100	68	89	95	75	45	45	75	100	100	100	100	991
2011	100	100	100	89	75	36	28	18	36	75	100	100	856
2012	100	100	100	100	89	53	45	53	53	82	89	100	962
2020	100	100	89	75	60	28	9	9	28	53	68	75	692
2030	100	100	100	100	82	45	28	18	36	100	100	100	907
2041	100	100	100	82	60	18	5	0	0	28	82	100	674
2042	100	89	100	89	60	9	5	1	9	53	100	100	714
2051	100	89	100	89	75	45	53	28	53	100	100	100	930
2052	68	60	75	100	100	100	100	89	89	100	100	100	1,080

Table 4.17 Estimated Effective Rainfall by River Basin for Palawija (2/3)

River basin	Effective Rainfall (mm/month)												
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2060	100	100	100	95	60	9	0	0	0	18	82	100	664
2070	100	100	100	95	68	28	18	7	9	68	100	100	792
2080	100	100	100	75	53	18	8	0	0	28	68	100	649
2091	100	100	100	100	100	36	28	18	36	100	100	100	917
2092	100	100	100	82	53	28	9	0	0	82	100	100	752
2101	100	100	100	75	45	8	0	0	0	28	60	100	615
2102	100	89	89	53	28	0	0	0	0	28	68	100	553
2103	100	100	89	53	28	8	0	0	0	9	45	89	519
2111	100	100	100	82	53	9	0	0	0	36	89	100	668
2112	100	100	100	53	18	0	0	0	0	9	68	100	547
2121	100	100	100	82	45	6	0	0	0	18	82	100	632
2122	100	95	100	53	18	0	0	0	0	9	53	95	523
2123	100	95	89	36	45	8	18	0	9	75	100	100	674
2131	100	100	100	60	36	0	0	0	0	4	45	100	544
2132	100	100	100	89	60	9	5	0	0	45	100	100	707
2133	100	89	95	60	45	36	36	6	8	75	95	100	744
2141	100	100	100	45	28	0	0	0	0	0	45	95	512
2142	100	100	100	75	53	9	9	0	7	53	100	100	705
2143	100	100	100	36	45	28	18	0	0	18	45	95	583
2150	100	75	82	53	28	1	0	0	0	0	28	82	447
3011	100	100	95	36	9	0	0	0	0	0	18	75	433
3012	100	100	75	28	18	18	28	0	2	36	60	100	564
3020	100	82	68	9	8	0	0	0	0	0	28	82	375
3030	100	89	68	18	0	0	0	0	0	0	28	82	383
3040	100	100	89	45	9	0	0	0	0	8	36	95	481
3050	100	95	82	36	9	0	0	0	0	3	36	89	449
3060	89	82	60	9	8	0	0	0	0	0	9	68	324
3070	100	100	82	45	53	28	0	0	0	0	36	82	523
4010	95	89	100	68	68	82	68	36	28	18	45	68	762
4021	100	100	100	100	95	68	36	45	53	82	100	100	977
4022	100	100	100	82	60	36	18	9	9	36	82	100	731
4030	100	100	100	100	100	89	53	45	95	82	100	100	1,063
4040	82	82	89	95	75	60	36	28	53	82	82	100	861
4050	82	82	100	100	75	60	36	45	53	75	89	89	884
4061	82	75	89	89	89	68	45	28	36	75	82	95	850
4062	82	75	89	89	89	68	45	28	36	75	82	95	850
4070	100	82	95	100	95	68	36	36	60	100	100	100	971
4080	100	95	100	100	89	68	53	68	89	100	100	100	1,061
4090	100	60	53	60	68	45	36	45	60	100	100	100	826
4100	60	53	68	89	100	95	95	100	100	89	100	82	1,030
4110	95	82	100	95	95	75	68	82	95	100	100	95	1,082
4120	68	60	53	53	53	18	28	28	36	45	75	75	589
4130	53	45	60	60	53	45	18	36	28	36	53	75	559
4141	82	68	89	100	82	60	36	28	45	60	89	95	831
4142	68	53	82	68	68	60	53	36	28	18	53	75	659
5011	100	100	89	89	82	68	45	28	28	45	89	100	859
5012	100	95	95	82	75	53	36	18	28	45	82	100	807
5013	100	68	68	82	82	89	75	45	36	45	82	89	857
5021	100	100	82	75	89	68	36	18	28	68	89	100	851
5022	28	28	28	36	36	28	18	8	0	8	28	36	279
5031	100	100	82	75	89	68	36	18	28	68	89	100	851
5032	28	28	28	36	36	28	18	8	0	8	28	36	279
5041	100	82	68	53	53	53	36	28	28	28	68	82	675

Table 4.17 Estimated Effective Rainfall by River Basin for Palawija (3/3)

River basin	Effective Rainfall (mm/month)												
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
5042	0	0	8	28	45	53	53	28	9	0	8	0	230
5050	45	53	75	100	100	82	53	28	28	36	60	53	710
5061	68	45	68	89	100	100	100	100	75	36	45	53	877
5062	68	45	68	89	100	100	100	100	75	36	45	53	877
5070	9	9	28	45	75	100	100	45	18	1	0	18	447
5080	89	89	100	100	100	95	82	60	18	18	60	89	899
5091	36	28	36	45	45	36	28	18	18	18	28	36	368
5092	36	28	36	45	45	36	28	18	18	18	28	36	368
5101	45	45	53	60	82	68	45	18	8	0	18	28	467
5102	45	45	53	60	82	68	45	18	8	0	18	28	467
5111	60	60	75	53	82	82	45	8	1	0	9	45	518
5112	68	68	60	60	75	60	18	0	0	0	9	60	478
5120	75	68	89	100	100	68	53	28	18	28	36	45	705
5131	82	89	100	100	100	75	36	18	28	36	82	89	832
5132	82	89	100	100	100	75	36	18	28	36	82	89	832
5133	82	45	53	60	60	53	18	9	18	36	68	82	582
5141	100	100	100	100	100	95	53	18	9	36	89	100	899
5142	100	100	100	100	100	100	82	68	45	36	60	100	990
5143	100	95	100	100	100	95	75	53	28	28	68	89	930
5144	89	82	100	100	100	89	68	36	36	28	68	75	868
5151	53	45	53	82	82	53	36	18	28	45	45	60	596
5152	75	82	100	100	100	68	36	9	9	36	75	95	784
5153	100	100	100	82	53	9	0	0	0	18	95	100	656
5161	18	6	36	82	100	100	100	60	68	36	18	9	632
5162	45	36	45	75	100	75	45	9	0	9	28	36	500
5171	100	100	100	68	45	18	0	0	0	0	68	100	598
5172	45	45	68	100	100	100	75	9	0	0	18	53	611
6010	100	75	75	75	75	36	4	0	0	0	9	82	530
6020	36	36	45	75	100	100	100	100	60	18	9	36	714
6030	53	45	53	68	89	82	68	53	36	28	45	60	676
7010	95	89	100	95	100	89	75	75	68	60	60	82	987
7020	95	95	100	82	75	68	68	68	68	68	68	82	935
7030	68	75	89	89	95	100	100	100	89	60	60	68	992
7040	100	100	100	95	82	45	36	36	45	53	68	100	858

Source : JICA-FIDP Team calculation based on FAO

Table 4.18 Water Requirement of Land Preparation for Paddy (1/3)

River Basin	Water Requirement (mm/month)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1010	355	362	369	365	364	362	362	370	367	362	351	352
1020	357	364	372	370	362	366	365	367	365	359	354	351
1030	357	364	372	370	362	366	365	367	365	359	354	351
1040	357	364	372	370	362	366	365	367	365	359	354	351
1050	357	364	372	370	362	366	365	367	365	359	354	351
1060	367	376	380	377	371	369	365	371	357	361	362	363
1071	367	376	380	377	371	369	365	371	357	361	362	363
1072	355	355	359	364	368	362	356	361	359	360	360	359
1080	367	376	380	377	371	369	365	371	357	361	362	363
1090	357	360	371	368	364	365	362	365	361	361	354	354
1100	357	360	371	368	364	365	362	365	361	361	354	354
1110	363	369	378	374	371	366	369	371	371	369	361	362
1121	363	369	378	374	371	366	369	371	371	369	361	362
1122	363	369	378	374	371	366	369	371	371	369	361	362
1131	363	369	378	374	371	366	369	371	371	369	361	362
1132	363	369	378	374	371	366	369	371	371	369	361	362
1141	362	375	380	380	367	368	363	372	375	365	354	370
1142	355	355	359	364	368	362	356	361	359	360	360	359
1150	355	362	370	364	364	361	364	365	364	365	362	358
1161	365	376	379	375	366	361	370	368	375	373	366	360
1162	365	376	379	375	366	361	370	368	375	373	366	360
1171	359	358	368	361	364	358	359	359	363	363	357	354
1172	359	363	374	370	364	359	360	364	364	361	357	353
1181	359	358	368	361	364	358	359	359	363	363	357	354
1182	367	372	375	364	364	359	362	371	364	365	358	364
1191	367	368	372	371	366	362	364	368	366	366	361	362
1192	355	355	359	364	368	362	356	361	359	360	360	359
1201	380	374	377	376	371	371	369	374	372	369	364	368
1202	355	355	359	364	368	362	356	361	359	360	360	359
1210	355	359	367	367	362	358	359	364	365	366	358	358
1220	363	364	368	365	361	355	357	362	366	371	365	367
1230	360	359	366	367	363	364	365	372	368	372	361	353
1241	361	361	368	369	367	362	361	369	369	373	366	361
1242	361	361	368	369	367	362	361	369	369	373	366	361
1250	363	364	368	365	361	355	357	362	366	371	365	367
1261	360	361	370	368	363	359	358	362	368	375	372	363
1262	360	361	370	368	363	359	358	362	368	375	372	363
1270	363	364	369	364	361	363	362	364	365	364	362	362
1280	363	364	369	364	361	363	362	364	365	364	362	362
1290	367	368	372	371	366	362	364	368	366	366	361	362
1300	367	368	372	371	366	362	364	368	366	366	361	362
2011	372	375	381	382	375	369	378	386	393	396	387	379
2012	372	375	381	382	375	369	378	386	393	396	387	379
2020	372	375	381	382	375	369	378	386	393	396	387	379
2030	368	369	371	372	362	357	360	369	373	378	373	371
2041	360	363	368	365	359	357	361	369	373	376	369	364
2042	365	365	370	369	365	362	367	373	379	379	374	368
2051	371	371	375	376	369	364	374	381	389	396	385	375

Table 4.18 Water Requirement of Land Preparation for Paddy (2/3)

River Basin	Water Requirement (mm/month)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2052	371	371	375	376	369	364	374	381	389	396	385	375
2060	368	369	371	372	362	357	360	369	373	378	373	371
2070	368	369	371	372	362	357	360	369	373	378	373	371
2080	374	376	379	382	376	370	375	385	393	397	388	376
2091	369	367	369	363	354	352	353	367	367	373	366	367
2092	369	367	369	363	354	352	353	367	367	373	366	367
2101	370	369	374	377	374	373	380	392	401	400	386	374
2102	370	369	374	377	374	373	380	392	401	400	386	374
2103	370	369	374	377	374	373	380	392	401	400	386	374
2111	371	374	372	370	361	356	361	369	376	379	373	370
2112	371	374	372	370	361	356	361	369	376	379	373	370
2121	374	373	380	378	373	372	380	394	403	406	390	379
2122	374	373	380	378	373	372	380	394	403	406	390	379
2123	374	373	380	378	373	372	380	394	403	406	390	379
2131	374	370	373	374	363	361	365	374	384	388	378	375
2132	374	370	373	374	363	361	365	374	384	388	378	375
2133	374	370	373	374	363	361	365	374	384	388	378	375
2141	389	384	383	380	373	358	364	374	380	388	394	388
2142	389	384	383	380	373	358	364	374	380	388	394	388
2143	389	384	383	380	373	358	364	374	380	388	394	388
2150	378	379	383	381	378	382	388	399	407	409	391	379
3011	369	366	369	372	361	357	362	369	376	377	375	373
3012	369	366	369	372	361	357	362	369	376	377	375	373
3020	382	378	382	380	372	367	370	379	391	400	392	383
3030	376	376	373	379	378	375	381	391	401	407	399	386
3040	390	382	378	383	380	371	378	388	401	414	407	386
3050	383	379	384	390	378	377	383	395	412	415	417	393
3060	385	374	381	388	386	384	388	397	407	411	405	388
3070	380	378	379	382	370	365	370	381	393	401	396	386
4010	366	365	371	370	369	361	363	375	378	381	374	363
4021	373	370	390	371	369	364	367	379	377	381	380	375
4022	366	365	371	370	369	361	363	375	378	381	374	363
4030	369	367	376	374	376	368	369	378	374	377	379	368
4040	369	367	376	374	376	368	369	378	374	377	379	368
4050	375	373	371	373	370	369	370	379	369	379	373	373
4061	375	373	371	373	370	369	370	379	369	379	373	373
4062	375	373	371	373	370	369	370	379	369	379	373	373
4070	368	364	373	370	371	364	369	374	373	375	365	362
4080	366	366	374	374	372	368	368	372	370	373	367	363
4090	357	361	372	370	367	366	366	369	367	369	363	358
4100	373	383	388	379	383	377	376	387	375	383	378	368
4110	373	383	388	379	383	377	376	387	375	383	378	368
4120	373	383	388	379	383	377	376	387	375	383	378	368
4130	373	383	388	379	383	377	376	387	375	383	378	368
4141	369	374	380	376	370	364	367	377	373	376	372	367
4142	367	365	371	370	373	358	361	365	374	376	369	365
5011	363	363	373	372	370	367	374	385	388	380	369	365
5012	363	363	373	372	370	367	374	385	388	380	369	365

Table 4.18 Water Requirement of Land Preparation for Paddy (3/3)

River Basin	Water Requirement (mm/month)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5013	392	370	385	383	375	369	374	382	383	378	373	366
5021	370	374	380	379	374	367	378	390	380	381	374	371
5022	370	374	380	379	374	367	378	390	380	381	374	371
5031	370	374	380	379	374	367	378	390	380	381	374	371
5032	370	374	380	379	374	367	378	390	380	381	374	371
5041	367	370	383	384	379	377	369	385	386	386	382	374
5042	367	370	383	384	379	377	369	385	386	386	382	374
5050	371	369	380	380	374	371	365	383	390	387	379	376
5061	381	378	388	382	374	358	355	373	381	393	387	381
5062	381	378	388	382	374	358	355	373	381	393	387	381
5070	381	378	388	382	374	358	355	373	381	393	387	381
5080	381	378	388	382	374	358	355	373	381	393	387	381
5091	383	384	397	393	386	376	372	389	390	397	390	386
5092	383	384	397	393	386	376	372	389	390	397	390	386
5101	376	373	379	374	363	355	355	364	386	392	388	378
5102	376	373	379	374	363	355	355	364	386	392	388	378
5111	376	373	379	374	363	355	355	364	386	392	388	378
5112	379	373	381	375	363	357	365	374	390	397	389	376
5120	376	373	379	374	363	355	355	364	386	392	388	378
5131	376	379	406	388	383	376	374	393	400	399	401	378
5132	376	379	406	388	383	376	374	393	400	399	401	378
5133	376	379	406	388	383	376	374	393	400	399	401	378
5141	376	374	384	378	377	365	371	382	387	397	386	377
5142	376	374	384	378	377	365	371	382	387	397	386	377
5143	376	374	384	378	377	365	371	382	387	397	386	377
5144	376	374	384	378	377	365	371	382	387	397	386	377
5151	369	366	379	378	376	366	373	386	394	397	383	370
5152	369	366	379	378	376	366	373	386	394	397	383	370
5153	369	366	379	378	376	366	373	386	394	397	383	370
5161	379	379	384	381	372	362	366	380	391	400	391	379
5162	379	379	384	381	372	362	366	380	391	400	391	379
5171	363	362	378	380	368	366	371	384	393	398	379	365
5172	367	366	377	373	362	361	361	381	388	399	383	368
6010	377	375	380	376	372	372	376	384	391	398	391	380
6020	372	376	379	376	366	360	361	364	372	380	381	375
6030	374	371	382	379	374	367	375	379	378	381	377	372
7010	381	378	380	376	373	364	368	373	377	379	376	374
7020	376	373	373	376	371	362	364	369	375	378	377	373
7030	365	363	364	363	358	349	348	351	362	362	366	366
7040	379	375	376	371	362	351	353	356	371	384	388	377

Source : JICA-FIDP Team calculation

Table 4.19 Calculation of Irrigation Diversion Requirement for 2012 Ciujung River Basin (Paddy on Wet Season)

			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ETo		(mm/month)	126	123	139	137	132	119	135	147	152	160	143	137
kc			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	1.05	0.95
ETc		(mm/month)	0	0	0	0	0	0	0	0	0	176	150	130
Replacement		(mm/month)	0	0	0	0	0	0	0	0	0	0	50	50
Land Preparation		(mm/month)	0	0	0	0	0	0	0	0	393	0	0	0
Percolation		(mm/month)	0	0	0	0	0	0	0	0	0	62	60	62
Effective Rainfall		(mm/month)	0	0	0	0	0	0	0	0	60	96	104	127
Sub-total		(mm/month)	0	0	0	0	0	0	0	0	333	143	156	115
Net WR	*4.7	(m3/month)	0	0	0	0	0	0	0	0	15604	6674	7332	5405
kc			0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	1.05
ETc		(mm/month)	120	0	0	0	0	0	0	0	0	0	157	144
Replacement		(mm/month)	50	0	0	0	0	0	0	0	0	0	0	50
Land Preparation		(mm/month)	0	0	0	0	0	0	0	0	0	396	0	0
Percolation		(mm/month)	62	0	0	0	0	0	0	0	0	0	60	62
Effective Rainfall		(mm/month)	140	0	0	0	0	0	0	0	0	96	104	127
Sub-total		(mm/month)	92	0	0	0	0	0	0	0	0	300	113	129
Net WR	*16.9	(m3/month)	15548	0	0	0	0	0	0	0	0	50531	19097	21801
kc			1.05	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10
ETc		(mm/month)	133	117	0	0	0	0	0	0	0	0	0	151
Replacement		(mm/month)	50	50	0	0	0	0	0	0	0	0	0	0
Land Preparation		(mm/month)	0	0	0	0	0	0	0	0	0	0	387	0
Percolation		(mm/month)	62	58	0	0	0	0	0	0	0	0	0	62
Effective Rainfall		(mm/month)	140	134	0	0	0	0	0	0	0	0	104	127
Sub-total		(mm/month)	105	91	0	0	0	0	0	0	0	0	283	86
Net WR	*36.4	(m3/month)	37856	32760	0	0	0	0	0	0	0	0	102648	31304
kc			1.10	1.05	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ETc		(mm/month)	139	129	132	0	0	0	0	0	0	0	0	0
Replacement		(mm/month)	0	50	50	0	0	0	0	0	0	0	0	0
Land Preparation		(mm/month)	0	0	0	0	0	0	0	0	0	0	0	379
Percolation		(mm/month)	62	58	62	0	0	0	0	0	0	0	0	0
Effective Rainfall		(mm/month)	140	134	134	0	0	0	0	0	0	0	0	127
Sub-total		(mm/month)	61	103	110	0	0	0	0	0	0	0	0	252
Net WR	*27.3	(m3/month)	16380	27846	30030	0	0	0	0	0	0	0	0	68796
kc			0.00	1.10	1.05	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	135	146	130	0	0	0	0	0	0	0	0
Replacement		(mm/month)	0	0	50	50	0	0	0	0	0	0	0	0
Land Preparation		(mm/month)	372	0	0	0	0	0	0	0	0	0	0	0
Percolation		(mm/month)	0	58	62	60	0	0	0	0	0	0	0	0
Effective Rainfall		(mm/month)	140	134	134	140	0	0	0	0	0	0	0	0
Sub-total		(mm/month)	232	59	124	100	0	0	0	0	0	0	0	0
Net WR	*10.2	(m3/month)	23562	5916	12648	10200	0	0	0	0	0	0	0	0
kc			0.00	0.00	1.10	1.05	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	0	153	144	125	0	0	0	0	0	0	0
Replacement		(mm/month)	0	0	0	50	50	0	0	0	0	0	0	0
Land Preparation		(mm/month)	0	375	0	0	0	0	0	0	0	0	0	0
Percolation		(mm/month)	0	0	62	60	62	0	0	0	0	0	0	0
Effective Rainfall		(mm/month)	0	134	134	140	104	0	0	0	0	0	0	0
Sub-total		(mm/month)	0	241	81	114	133	0	0	0	0	0	0	0
Net WR	*4.4	(m3/month)	0	10604	3564	4972	5852	0	0	0	0	0	0	0
Total Net WR		(m3/month)	93346	77126	46242	15172	5852	0	0	0	15604	57205	129077	127306
Net WR		(mm/month/100ha)	93.3	77.1	46.2	15.2	5.9	0.0	0.0	0.0	15.6	57.2	129.1	127.3
IDR		(mm/month/100ha)	170	140	84	28	11	0	0	0	28	104	235	231

Remarks : ETo = Reference Crop Evapotranspiration, kc =Crop Coefficient, ETc = Crop Evapotranspiration, WR = Water Requirement
IDR = Irrigation Diversion Requirement, Irrigation Efficiency = 55 %, Percolation = 2 mm/day, * = Planted Area (ha) /100 ha

Source : JICA-FIDP team calculation

Table 4.19 Calculation of Irrigation Diversion Requirement for 2012 Ciujung River Basin (Paddy on Dry Season)

			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ETo		(mm/month)	126	123	139	137	132	119	135	147	152	160	143	137
kc			0.00	0.00	0.00	1.10	1.05	0.95	0.00	0.00	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	151	138	113	0	0	0	0	0	0
Replacement		(mm/month)	0	0	0	0	50	50	0	0	0	0	0	0
Land Preparation		(mm/month)	0	0	381	0	0	0	0	0	0	0	0	0
Percolation		(mm/month)	0	0	0	60	62	60	0	0	0	0	0	0
Effective Rainfall		(mm/month)	0	0	134	140	104	60	0	0	0	0	0	0
Sub-total		(mm/month)	0	0	247	71	146	163	0	0	0	0	0	0
Net WR	*18.9	(m3/month)	0	0	46494	13230	27594	30618	0	0	0	0	0	0
kc			0.00	0.00	0.00	0.00	1.10	1.05	0.95	0.00	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	0	145	125	128	0	0	0	0	0
Replacement		(mm/month)	0	0	0	0	0	50	50	0	0	0	0	0
Land Preparation		(mm/month)	0	0	0	382	0	0	0	0	0	0	0	0
Percolation		(mm/month)	0	0	0	0	62	60	62	0	0	0	0	0
Effective Rainfall		(mm/month)	0	0	0	140	104	60	51	0	0	0	0	0
Sub-total		(mm/month)	0	0	0	242	103	174	190	0	0	0	0	0
Net WR	*28.2	(m3/month)	0	0	0	68244	28764	49068	53298	0	0	0	0	0
kc			0.00	0.00	0.00	0.00	0.00	1.10	1.05	0.95	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	0	0	131	142	140	0	0	0	0
Replacement		(mm/month)	0	0	0	0	0	0	50	50	0	0	0	0
Land Preparation		(mm/month)	0	0	0	0	375	0	0	0	0	0	0	0
Percolation		(mm/month)	0	0	0	0	0	60	62	62	0	0	0	0
Effective Rainfall		(mm/month)	0	0	0	0	104	60	51	60	0	0	0	0
Sub-total		(mm/month)	0	0	0	0	271	130	203	192	0	0	0	0
Net WR	*19.8	(m3/month)	0	0	0	0	53658	25740	40194	37818	0	0	0	0
kc			0.00	0.00	0.00	0.00	0.00	0.00	1.10	1.05	0.95	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	0	0	0	149	155	144	0	0	0
Replacement		(mm/month)	0	0	0	0	0	0	0	50	50	0	0	0
Land Preparation		(mm/month)	0	0	0	0	0	369	0	0	0	0	0	0
Percolation		(mm/month)	0	0	0	0	0	0	62	62	60	0	0	0
Effective Rainfall		(mm/month)	0	0	0	0	0	60	51	60	60	0	0	0
Sub-total		(mm/month)	0	0	0	0	0	309	160	207	194	0	0	0
Net WR	*7.6	(m3/month)	0	0	0	0	0	23408	12160	15656	14668	0	0	0
kc			0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	1.05	0.95	0.00	0.00
ETc		(mm/month)	0	0	0	0	0	0	0	162	159	152	0	0
Replacement		(mm/month)	0	0	0	0	0	0	0	0	50	50	0	0
Land Preparation		(mm/month)	0	0	0	0	0	0	378	0	0	0	0	0
Percolation		(mm/month)	0	0	0	0	0	0	0	62	60	62	0	0
Effective Rainfall		(mm/month)	0	0	0	0	0	0	51	60	60	96	0	0
Sub-total		(mm/month)	0	0	0	0	0	0	327	164	209	169	0	0
Net WR	*4.9	(m3/month)	0	0	0	0	0	0	16023	7987	10241	8232	0	0
kc			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	1.05	0.95	0.00
ETc		(mm/month)	0	0	0	0	0	0	0	0	167	168	136	0
Replacement		(mm/month)	0	0	0	0	0	0	0	0	0	50	50	0
Land Preparation		(mm/month)	0	0	0	0	0	0	0	386	0	0	0	0
Percolation		(mm/month)	0	0	0	0	0	0	0	0	60	62	60	0
Effective Rainfall		(mm/month)	0	0	0	0	0	0	0	60	60	96	104	0
Sub-total		(mm/month)	0	0	0	0	0	0	0	326	167	185	142	0
Net WR	*2.8	(m3/month)	0	0	0	0	0	0	0	9128	4648	5152	3948	0
Total Net WR		(m3/month)	0	0	46494	81474	110016	128834	121675	70589	29557	13384	3948	0
Net WR		(mm/month/100ha)	0.0	0.0	46.5	81.5	110.0	128.8	121.7	70.6	29.6	13.4	3.9	0.0
IDR		(mm/month/100ha)	0	0	85	148	200	234	221	128	54	24	7	0

Remarks : ETo = Reference Crop Evapotranspiration, kc =Crop Coefficient, ETc = Crop Evapotranspiration, WR = Water Requirement
IDR = Irrigation Diversion Requirement, Irrigation Efficiency = 55 %, Percolation = 2 mm/day, * = Planted Area (ha) /100 ha

Source : JICA-FIDP team calculation

Table 4.19 Calculation of Irrigation Diversion Requirement for 2012 Ciujung River Basin (Palawija on Dry Season)

			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ETo		(mm/month)	126	123	139	137	132	119	135	147	152	160	143	137
kc			0.00	0.00	0.00	0.67	1.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	92	132	83	0	0	0	0	0	0
Effective Rainfall		(mm/month)	0	0	0	100	89	53	0	0	0	0	0	0
Sub-total		(mm/month)	0	0	0	0	43	30	0	0	0	0	0	0
Net WR	*5.1	(m3/month)	0	0	0	0	2142	1530	0	0	0	0	0	0
kc			0.00	0.00	0.00	0.00	0.67	1.00	0.70	0.00	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	0	88	119	95	0	0	0	0	0
Effective Rainfall		(mm/month)	0	0	0	0	89	53	45	0	0	0	0	0
Sub-total		(mm/month)	0	0	0	0	0	66	50	0	0	0	0	0
Net WR	*2.9	(m3/month)	0	0	0	0	0	1885	1450	0	0	0	0	0
kc			0.00	0.00	0.00	0.00	0.00	0.67	1.00	0.70	0.00	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	0	0	80	135	103	0	0	0	0
Effective Rainfall		(mm/month)	0	0	0	0	0	53	45	53	0	0	0	0
Sub-total		(mm/month)	0	0	0	0	0	27	91	50	0	0	0	0
Net WR	*3	(m3/month)	0	0	0	0	0	780	2700	1500	0	0	0	0
kc			0.00	0.00	0.00	0.00	0.00	0.00	0.67	1.00	0.70	0.00	0.00	0.00
ETc		(mm/month)	0	0	0	0	0	0	90	147	106	0	0	0
Effective Rainfall		(mm/month)	0	0	0	0	0	0	45	53	53	0	0	0
Sub-total		(mm/month)	0	0	0	0	0	0	45	53	53	0	0	0
Net WR	*2.7	(m3/month)	0	0	0	0	0	0	1188	1404	1404	0	0	0
kc			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	1.00	0.70	0.00	0.00
ETc		(mm/month)	0	0	0	0	0	0	0	99	152	112	0	0
Effective Rainfall		(mm/month)	0	0	0	0	0	0	0	53	53	82	0	0
Sub-total		(mm/month)	0	0	0	0	0	0	0	53	53	82	0	0
Net WR	*2.7	(m3/month)	0	0	0	0	0	0	0	1404	1404	2187	0	0
kc			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	1.00	0.70	0.00
ETc		(mm/month)	0	0	0	0	0	0	0	0	102	160	100	0
Effective Rainfall		(mm/month)	0	0	0	0	0	0	0	0	53	82	89	0
Sub-total		(mm/month)	0	0	0	0	0	0	0	0	53	82	89	0
Net WR	*1.5	(m3/month)	0	0	0	0	0	0	0	0	780	1215	1320	0
Total Net WR		(m3/month)	0	0	0	0	2142	4195	5338	4308	3588	3402	1320	0
Net WR		(mm/month/100ha)	0.0	0.0	0.0	0.0	2.1	4.2	5.3	4.3	3.6	3.4	1.3	0.0
IDR		(mm/month/100ha)	0	0	0	0	4	8	11	9	7	7	3	0

Remarks : ETo = Reference Crop Evapotranspiration, kc =Crop Coefficient, ETc = Crop Evapotranspiration, WR = Water Requirement
IDR = Irrigation Diversion Requirement, Irrigation Efficiency = 50 %, * = Planted Area (ha) /100 ha

Source : JICA-FIDP team calculation

Table 4.20 Irrigation Diversion Requirement for Paddy in Wet Season (1/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1010	181	135	57	0	0	0	29	59	161	244	214	249
1020	151	129	53	0	0	0	29	58	160	230	207	219
1030	161	143	56	0	0	0	29	56	143	210	232	219
1040	161	151	59	0	0	0	28	54	132	210	207	179
1050	161	151	56	0	0	0	24	42	104	144	161	179
1060	127	113	30	0	0	0	24	39	103	134	107	183
1071	168	119	34	0	0	0	25	42	107	152	142	207
1072	158	112	34	0	0	0	22	34	109	151	139	197
1080	201	156	38	0	0	0	39	38	83	151	177	199
1090	206	176	57	0	0	0	40	36	79	146	225	189
1100	220	164	52	0	0	0	38	36	79	146	213	245
1110	219	174	52	0	0	0	39	36	80	149	228	250
1121	232	166	49	0	0	0	44	46	95	183	228	250
1122	232	166	49	0	0	0	44	46	95	183	228	250
1131	193	174	55	0	0	0	40	40	80	149	205	236
1132	136	131	37	0	0	0	45	44	98	183	205	183
1141	167	123	34	0	0	0	39	35	83	145	147	170
1142	153	115	28	0	0	0	34	23	62	109	125	126
1150	159	171	116	36	0	0	0	76	79	85	111	171
1161	224	193	134	40	0	0	0	77	82	96	129	230
1162	236	216	142	37	0	0	0	80	93	107	122	210
1171	154	141	105	32	0	0	0	75	79	88	99	164
1172	190	207	159	40	0	0	0	76	87	102	125	209
1181	165	141	112	30	0	0	0	80	79	93	117	180
1182	217	210	137	36	0	0	0	73	83	100	127	197
1191	135	156	81	41	24	0	0	0	42	65	89	95
1192	136	114	63	36	26	0	0	0	42	61	88	90
1201	224	207	94	45	31	0	0	0	47	75	105	137
1202	177	210	97	52	34	0	0	0	45	74	111	135
1210	140	74	54	23	0	0	0	51	102	204	148	134
1220	166	131	68	15	0	0	0	14	45	132	193	191
1230	135	153	81	18	0	0	0	16	53	143	187	140
1241	138	105	59	16	0	0	0	15	52	144	195	177
1242	196	167	64	18	0	0	0	15	53	138	214	177
1250	158	108	45	15	0	0	0	20	52	212	263	177
1261	138	102	52	20	0	0	0	20	54	215	264	165
1262	171	102	52	18	0	0	0	20	54	201	288	188
1270	220	144	66	17	0	0	0	17	41	129	202	213
1280	147	109	69	17	0	0	0	44	57	94	107	152
1290	130	90	64	15	0	0	0	40	50	82	107	137
1300	176	153	88	23	0	0	0	43	53	82	130	151
2011	135	132	80	37	12	0	0	0	30	108	218	194
2012	170	140	84	28	11	0	0	0	28	104	235	231
2020	172	171	197	55	12	0	0	0	0	24	119	359
2030	126	120	53	24	10	0	0	0	28	84	147	146
2041	106	108	70	33	12	0	0	0	32	121	221	198
2042	187	164	83	32	12	0	0	0	31	111	201	218
2051	189	176	88	35	11	0	0	0	28	87	173	202

Table 4.20 Irrigation Diversion Requirement for Paddy in Wet Season (2/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2052	269	224	113	31	7	0	0	0	24	73	158	222
2060	102	90	53	31	12	0	0	0	32	126	226	177
2070	126	143	67	57	33	0	0	0	30	95	167	150
2080	120	112	87	77	42	0	0	0	32	120	229	173
2091	114	123	46	32	22	0	0	0	27	75	118	110
2092	144	147	74	59	34	0	0	0	30	86	137	142
2101	146	162	99	73	43	0	0	0	33	121	235	198
2102	182	196	113	86	48	0	0	0	33	121	227	198
2103	115	152	113	86	48	0	0	0	33	128	253	219
2111	149	153	67	64	37	0	0	0	31	109	188	163
2112	97	119	159	237	162	147	91	0	0	0	62	133
2121	172	151	88	70	43	0	0	0	33	127	216	197
2122	202	191	106	87	50	0	0	0	33	131	249	217
2123	193	195	139	68	25	0	0	0	16	69	179	236
2131	152	145	93	57	25	0	0	0	15	83	224	260
2132	152	145	93	45	21	0	0	0	15	73	167	202
2133	180	202	121	57	23	0	0	0	15	64	174	227
2141	188	174	127	66	28	0	0	0	15	85	238	286
2142	188	184	107	53	24	0	0	0	15	70	182	229
2143	227	195	127	69	25	0	0	0	15	80	238	286
2150	225	246	153	63	29	0	0	0	16	90	252	292
3011	173	168	143	145	63	0	0	0	46	88	152	217
3012	173	179	174	153	60	0	0	0	45	76	124	182
3020	242	217	150	76	18	0	0	0	13	98	293	285
3030	241	200	138	72	19	0	0	0	14	100	300	292
3040	237	231	196	200	93	0	0	0	33	62	105	165
3050	235	237	220	221	92	0	0	0	34	63	110	179
3060	269	254	251	249	98	0	0	0	33	63	115	194
3070	239	235	209	199	68	0	0	0	32	61	100	178
4010	56	168	201	275	251	114	72	30	0	0	0	10
4021	243	281	182	54	23	0	0	0	0	60	147	209
4022	51	155	192	248	265	170	102	35	0	0	0	8
4030	236	285	178	60	23	0	0	0	0	59	139	207
4040	277	305	194	74	29	0	0	0	0	59	161	207
4050	287	318	163	67	28	0	0	0	0	60	152	244
4061	287	328	186	78	25	0	0	0	0	60	156	237
4062	287	328	186	78	25	0	0	0	0	60	156	237
4070	71	30	11	0	0	0	36	109	271	228	140	126
4080	63	26	10	0	0	0	34	94	230	202	144	136
4090	54	35	16	0	0	0	35	103	263	214	136	117
4100	259	200	104	28	8	0	0	0	67	161	176	254
4110	196	162	84	27	9	0	0	0	69	149	184	228
4120	246	190	115	38	12	0	0	0	87	200	241	267
4130	273	210	109	36	12	0	0	0	90	207	274	267
4141	211	166	82	26	9	0	0	0	84	180	210	224
4142	234	173	80	31	10	0	0	0	90	216	259	262
5011	143	145	114	66	30	0	0	0	80	130	161	168
5012	143	155	107	71	31	0	0	0	80	130	168	177

Table 4.20 Irrigation Diversion Requirement for Paddy in Wet Season (3/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5013	225	210	153	79	31	0	0	0	77	128	173	199
5021	142	154	131	80	29	0	0	0	79	116	167	199
5022	307	280	189	104	43	0	0	0	86	151	234	292
5031	142	154	131	80	29	0	0	0	79	116	167	199
5032	307	280	189	104	43	0	0	0	86	151	234	292
5041	169	193	243	224	120	84	48	0	0	0	90	164
5042	296	322	331	256	127	84	43	0	0	0	111	238
5050	245	240	225	135	70	64	41	0	0	0	92	194
5061	228	268	250	175	61	37	17	0	0	0	100	198
5062	228	268	250	175	61	37	17	0	0	0	100	198
5070	305	322	311	232	97	37	22	0	0	0	115	229
5080	200	195	188	138	70	47	29	0	0	0	94	164
5091	274	307	316	246	134	93	51	0	0	0	107	219
5092	274	307	316	246	134	93	51	0	0	0	107	219
5101	310	307	222	83	26	0	0	0	26	69	181	369
5102	310	307	222	83	26	0	0	0	26	69	181	369
5111	281	275	189	87	26	0	0	0	27	69	187	343
5112	274	262	215	83	28	0	0	0	27	70	187	314
5120	253	261	169	61	19	0	0	0	25	63	169	343
5131	231	251	245	177	95	41	28	0	0	0	25	93
5132	231	251	245	177	95	41	28	0	0	0	25	93
5133	231	335	362	278	134	49	31	0	0	0	26	97
5141	205	196	167	143	74	30	25	0	0	0	23	81
5142	184	207	167	128	58	23	20	0	0	0	26	79
5143	213	230	185	143	74	30	21	0	0	0	25	93
5144	221	255	185	143	84	32	22	0	0	0	25	99
5151	258	309	300	221	107	44	28	0	0	0	27	103
5152	230	238	193	158	95	40	28	0	0	0	24	86
5153	138	138	173	221	134	58	34	0	0	0	22	62
5161	313	403	344	227	44	22	15	0	0	0	30	130
5162	282	350	328	239	84	36	25	0	0	0	29	119
5171	131	130	171	249	133	55	34	0	0	0	25	61
5172	266	308	267	176	41	21	19	0	0	0	30	106
6010	0	0	92	104	211	205	364	333	199	194	57	0
6020	0	0	104	104	149	63	153	147	122	161	54	0
6030	0	0	102	111	196	136	268	248	152	155	43	0
7010	0	0	84	90	188	122	246	204	120	126	38	0
7020	0	0	80	99	210	146	250	208	119	118	36	0
7030	0	0	82	85	167	80	163	115	82	108	35	0
7040	0	0	74	87	189	160	281	233	136	137	40	0

Source : JICA-FIDP Team calculation

Table 4.21 Irrigation Diversion Requirement for Paddy in Dry Season (1/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1010	17	12	24	37	49	73	53	42	20	0	0	0
1020	15	12	22	38	48	74	54	41	20	0	0	0
1030	16	13	23	38	43	72	53	39	17	0	0	0
1040	16	14	24	40	43	69	49	37	15	0	0	0
1050	16	14	23	37	35	60	39	27	10	0	0	0
1060	14	10	14	21	31	56	36	23	9	0	0	0
1071	16	11	16	25	38	59	41	26	10	0	0	0
1072	16	10	16	28	39	51	29	19	11	0	0	0
1080	24	22	32	59	106	156	108	77	27	0	0	0
1090	25	25	44	85	98	145	112	72	24	0	0	0
1100	26	23	40	78	106	138	99	72	24	0	0	0
1110	25	24	40	81	111	146	106	73	25	0	0	0
1121	26	23	39	77	120	167	132	96	33	0	0	0
1122	26	23	39	77	120	167	132	96	33	0	0	0
1131	24	24	42	77	116	153	113	81	25	0	0	0
1132	20	19	31	68	120	175	141	91	35	0	0	0
1141	22	18	29	58	104	148	107	69	27	0	0	0
1142	22	17	25	49	100	116	76	40	15	0	0	0
1150	0	46	31	40	68	70	107	55	40	15	0	0
1161	0	48	35	44	65	73	102	57	42	18	0	0
1162	0	51	37	41	62	73	102	60	49	20	0	0
1171	0	43	28	36	56	69	96	52	39	16	0	0
1172	0	51	41	44	58	63	84	54	45	19	0	0
1181	0	43	30	34	65	76	100	59	39	17	0	0
1182	0	51	36	40	55	60	81	52	42	19	0	0
1191	0	0	36	42	76	130	153	132	45	27	9	0
1192	0	0	34	40	81	124	122	84	45	23	9	0
1201	0	0	38	45	92	161	175	155	69	36	14	0
1202	0	0	40	50	98	124	144	131	55	35	15	0
1210	0	15	14	23	60	104	116	82	54	18	0	0
1220	0	48	45	79	185	167	172	114	40	11	0	0
1230	0	52	52	88	172	160	163	138	51	13	0	0
1241	0	45	41	81	192	185	185	128	49	13	0	0
1242	0	54	43	89	176	176	185	135	52	12	0	0
1250	0	0	18	77	110	138	148	94	45	21	3	0
1261	0	0	19	90	123	135	142	94	47	22	3	0
1262	0	0	19	84	117	128	142	93	47	20	3	0
1270	0	0	22	83	111	125	126	69	31	9	2	0
1280	0	32	31	32	57	59	73	37	23	8	0	0
1290	0	29	30	29	45	55	71	31	19	6	0	0
1300	0	36	38	40	57	64	74	36	21	6	0	0
2011	0	0	82	179	221	261	243	154	59	26	6	0
2012	0	0	85	148	200	234	221	128	54	24	7	0
2020	0	0	0	11	168	237	263	261	121	22	0	0
2030	0	0	72	137	187	223	216	139	52	17	3	0
2041	0	0	80	168	215	264	244	151	63	30	6	0
2042	0	0	86	165	223	287	256	154	62	26	5	0
2051	0	0	87	173	210	237	205	143	52	18	4	0

Table 4.21 Irrigation Diversion Requirement for Paddy in Dry Season (2/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2052	0	0	99	159	146	116	105	96	40	13	3	0
2060	0	0	72	161	219	278	250	151	63	32	7	0
2070	0	0	46	82	109	137	120	104	50	26	9	0
2080	0	0	50	99	133	158	140	116	59	37	15	0
2091	0	0	42	59	80	125	108	97	41	17	4	0
2092	0	0	48	84	113	132	119	106	50	22	6	0
2101	0	0	54	96	137	168	148	120	62	38	16	0
2102	0	0	57	108	150	175	148	120	62	38	15	0
2103	0	0	57	108	150	168	148	120	62	41	18	0
2111	0	0	46	88	120	151	133	107	53	32	11	0
2112	0	0	0	55	54	71	101	94	108	78	38	13
2121	0	0	50	93	136	170	148	121	63	40	14	0
2122	0	0	55	110	156	175	148	121	63	42	17	0
2123	0	0	72	116	135	172	127	99	52	20	5	0
2131	0	0	60	99	132	168	127	89	49	26	7	0
2132	0	0	60	83	114	160	124	89	49	21	5	0
2133	0	0	68	99	126	138	105	87	47	17	5	0
2141	0	0	68	112	148	165	126	90	47	26	8	0
2142	0	0	63	94	129	157	120	90	46	20	5	0
2143	0	0	68	117	135	143	115	90	47	24	8	0
2150	0	0	75	107	152	188	144	102	55	29	9	0
3011	0	0	29	68	113	170	255	278	205	164	60	0
3012	0	0	32	70	109	157	227	278	203	137	46	0
3020	0	0	80	118	107	110	57	22	12	10	4	0
3030	0	0	78	113	116	115	60	23	13	10	5	0
3040	0	0	71	120	210	252	285	246	175	120	29	0
3050	0	0	75	129	208	259	293	256	185	123	30	0
3060	0	0	81	143	218	270	299	257	181	122	32	0
3070	0	0	73	119	161	214	275	237	167	116	27	0
4010	37	10	0	0	0	1	1	11	41	109	87	59
4021	0	0	0	53	63	125	149	110	71	21	4	1
4022	30	8	0	0	0	2	2	12	44	102	67	35
4030	0	0	0	55	64	112	136	109	49	20	3	1
4040	0	0	0	60	77	135	151	120	70	20	5	1
4050	0	0	0	58	73	136	152	109	67	21	4	2
4061	0	0	0	62	67	130	145	120	75	21	5	2
4062	0	0	0	62	67	130	145	120	75	21	5	2
4070	8	5	12	19	21	28	25	17	6	0	0	0
4080	8	4	11	19	22	28	22	14	5	0	0	0
4090	7	5	16	25	25	33	25	16	6	0	0	0
4100	0	0	11	24	48	83	120	119	69	63	15	0
4110	0	0	10	23	50	95	143	138	74	56	15	0
4120	0	0	12	29	63	126	177	189	120	86	23	0
4130	0	0	12	27	63	112	183	181	127	90	27	0
4141	0	0	10	22	50	95	161	178	112	73	19	0
4142	0	0	10	25	55	92	142	157	126	94	25	0
5011	0	0	45	97	138	156	213	218	125	80	22	0
5012	0	0	44	100	145	174	223	226	125	80	24	0

Table 4.21 Irrigation Diversion Requirement for Paddy in Dry Season (3/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5013	0	0	51	107	144	134	176	196	115	79	25	0
5021	0	0	48	108	137	156	229	232	118	69	23	0
5022	0	0	58	130	186	202	249	241	136	97	37	0
5031	0	0	48	108	137	156	229	232	118	69	23	0
5032	0	0	58	130	186	202	249	241	136	97	37	0
5041	20	0	0	0	101	151	224	295	269	234	99	57
5042	39	0	0	0	104	151	205	295	292	263	143	95
5050	32	0	0	0	79	123	199	292	276	225	102	72
5061	29	0	0	0	74	87	108	141	198	232	121	75
5062	29	0	0	0	74	87	108	141	198	232	121	75
5070	41	0	0	0	91	87	128	250	273	270	153	90
5080	25	0	0	0	79	102	151	227	273	252	109	58
5091	36	0	0	0	107	163	239	314	286	258	137	86
5092	36	0	0	0	107	163	239	314	286	258	137	86
5101	0	0	101	191	224	215	238	211	113	67	23	0
5102	0	0	101	191	224	215	238	211	113	67	23	0
5111	0	0	93	199	224	188	238	222	116	67	24	0
5112	0	0	99	192	235	233	301	245	119	69	24	0
5120	0	0	88	157	182	215	225	201	107	60	21	0
5131	6	0	0	0	48	151	273	353	299	199	59	16
5132	6	0	0	0	48	151	273	353	299	199	59	16
5133	6	0	0	0	57	169	295	367	311	199	65	16
5141	5	0	0	0	43	128	247	333	301	197	50	12
5142	4	0	0	0	39	110	207	254	251	197	62	11
5143	6	0	0	0	43	128	217	278	276	206	58	15
5144	6	0	0	0	45	133	226	305	264	206	58	17
5151	8	0	0	0	51	161	270	341	290	188	67	18
5152	6	0	0	0	48	149	270	355	315	197	54	13
5153	2	0	0	0	57	193	316	369	328	213	45	6
5161	10	0	0	0	37	108	172	262	223	200	82	26
5162	9	0	0	0	46	141	250	343	322	225	78	23
5171	2	0	0	0	58	187	314	365	325	232	55	6
5172	8	0	0	0	37	107	201	345	316	233	78	19
6010	62	52	110	63	56	57	37	19	0	0	0	67
6020	90	71	129	63	37	17	11	8	0	0	0	79
6030	84	64	126	68	51	37	26	14	0	0	0	71
7010	67	47	96	53	49	34	23	11	0	0	0	66
7020	64	41	87	60	56	40	23	12	0	0	0	65
7030	71	45	89	50	42	21	12	6	0	0	0	68
7040	60	39	78	51	49	44	27	13	0	0	0	59

Source : JICA-FIDP Team calculation

Table 4.22 Irrigation Diversion Requirement for Palawija in Dry Season (1/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1010	0	0	3	3	3	0	0	0	1	0	0	0
1020	0	0	2	3	3	0	0	0	1	0	0	0
1030	0	0	2	3	2	0	0	1	2	0	0	0
1040	0	0	3	3	2	0	1	1	3	0	0	0
1050	0	0	2	3	0	1	3	4	4	0	0	0
1060	0	0	0	1	0	1	3	5	4	0	0	0
1071	0	0	0	1	1	1	2	4	4	0	0	0
1072	0	0	0	1	1	1	4	5	4	0	0	0
1080	0	6	9	6	21	18	21	23	14	0	0	0
1090	0	11	30	30	17	18	17	23	17	0	0	0
1100	0	9	24	21	19	19	25	23	17	0	0	0
1110	0	10	24	24	22	19	25	26	18	0	0	0
1121	0	8	21	20	25	15	9	12	13	0	0	0
1122	0	8	21	20	25	15	9	12	13	0	0	0
1131	0	10	27	20	24	17	21	21	18	0	0	0
1132	0	3	8	9	25	14	3	15	12	0	0	0
1141	0	1	6	6	19	19	21	28	18	0	0	0
1142	0	1	2	2	18	22	36	35	19	0	0	0
1150	0	0	0	5	11	13	9	24	24	21	0	0
1161	0	0	2	8	9	13	12	24	27	21	0	0
1162	0	0	3	7	7	13	12	20	19	18	0	0
1171	0	0	0	3	2	12	11	24	24	21	0	0
1172	0	0	6	8	4	11	16	24	19	17	0	0
1181	0	0	0	2	9	13	10	16	24	20	0	0
1182	0	0	2	5	2	11	17	31	21	18	0	0
1191	0	0	0	0	1	2	15	24	39	25	14	0
1192	0	0	0	0	1	2	14	24	39	25	14	0
1201	0	0	0	0	2	8	16	21	39	25	14	0
1202	0	0	0	0	3	2	13	23	39	25	14	0
1210	0	0	0	4	10	18	14	24	23	20	0	0
1220	0	0	0	0	1	2	1	2	1	1	0	0
1230	0	0	0	0	0	2	2	1	1	1	0	0
1241	0	0	0	0	1	2	1	1	1	1	0	0
1242	0	0	0	0	0	2	1	1	1	1	0	0
1250	0	0	0	0	3	6	5	1	1	1	3	0
1261	0	0	0	1	4	6	4	1	0	1	3	0
1262	0	0	0	0	4	5	4	1	0	2	2	0
1270	0	0	0	0	3	4	3	1	3	4	3	0
1280	0	0	0	0	1	3	4	7	6	3	0	0
1290	0	0	0	0	0	3	4	9	7	3	0	0
1300	0	0	0	1	1	3	4	7	7	3	0	0
2011	0	0	0	0	6	12	12	7	5	6	3	0
2012	0	0	0	0	4	8	11	9	7	7	3	0
2020	0	0	0	0	0	0	0	0	0	0	0	0
2030	0	0	0	0	3	7	9	6	5	8	3	0
2041	0	0	0	0	6	13	11	5	0	2	2	0
2042	0	0	0	0	7	16	12	5	1	4	3	0
2051	0	0	0	0	5	9	10	7	7	8	3	0

Table 4.22 Irrigation Diversion Requirement for Palawija in Dry Season (2/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2052	0	0	0	0	2	1	7	10	12	8	3	0
2060	0	0	0	0	6	15	11	5	0	2	2	0
2070	0	0	0	0	5	19	24	14	4	20	14	0
2080	0	0	0	1	11	27	30	15	0	8	10	0
2091	0	0	0	0	0	14	20	16	16	30	14	0
2092	0	0	0	0	6	17	22	12	0	24	14	0
2101	0	0	0	1	13	32	32	16	0	8	9	0
2102	0	0	0	3	16	35	32	16	0	8	10	0
2103	0	0	0	3	16	32	32	16	0	3	6	0
2111	0	0	0	0	8	25	26	13	0	10	13	0
2112	0	0	0	0	8	25	38	29	11	8	52	73
2121	0	0	0	1	12	32	32	17	0	5	12	0
2122	0	0	0	3	18	35	32	17	0	3	7	0
2123	0	0	0	13	26	43	30	14	4	16	8	0
2131	0	0	0	6	24	41	25	12	0	1	4	0
2132	0	0	0	0	15	37	25	12	0	9	8	0
2133	0	0	0	6	21	23	25	13	4	16	8	0
2141	0	0	0	11	32	40	25	12	0	0	4	0
2142	0	0	0	3	23	35	25	12	3	11	8	0
2143	0	0	0	13	26	26	25	12	0	4	4	0
2150	0	0	0	9	34	52	32	15	0	0	2	0
3011	0	0	0	7	24	29	19	7	0	0	1	0
3012	0	0	0	8	21	23	15	7	0	3	2	0
3020	0	0	0	22	44	44	21	6	0	0	1	0
3030	0	0	0	19	50	48	24	7	0	0	1	0
3040	0	0	0	0	0	0	0	0	0	0	0	0
3050	0	0	0	0	0	0	0	0	0	0	0	0
3060	0	0	0	0	0	0	0	0	0	0	0	0
3070	0	0	0	0	0	0	0	0	0	0	0	0
4010	1	0	0	0	0	0	0	0	1	1	1	2
4021	0	0	0	0	0	1	4	4	2	4	4	3
4022	1	0	0	0	0	0	0	0	1	1	2	3
4030	0	0	0	0	0	1	3	4	2	4	4	3
4040	0	0	0	0	0	1	4	4	2	4	3	3
4050	0	0	0	0	0	2	4	4	2	4	3	2
4061	0	0	0	0	0	1	3	4	2	4	3	2
4062	0	0	0	0	0	1	3	4	2	4	3	2
4070	0	0	0	0	0	0	0	0	0	0	0	0
4080	0	0	0	0	0	0	0	0	0	0	0	0
4090	0	0	0	0	0	0	0	0	0	0	0	0
4100	0	0	0	0	0	0	0	0	0	0	0	0
4110	0	0	0	0	0	0	0	0	0	0	0	0
4120	0	0	0	0	0	0	0	0	0	0	0	0
4130	0	0	0	0	0	0	0	0	0	0	0	0
4141	0	0	0	0	0	0	0	0	0	0	0	0
4142	0	0	0	0	0	0	0	0	0	0	0	0
5011	0	0	0	0	0	0	0	0	0	0	0	0
5012	0	0	0	0	0	0	0	0	0	0	0	0

Table 4.22 Irrigation Diversion Requirement for Palawija in Dry Season (3/3)

River Basin	Water Requirement (mm/month/100ha)											
Code	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5013	0	0	0	0	0	0	0	0	0	0	0	0
5021	0	0	0	0	0	0	0	0	0	0	0	0
5022	0	0	0	0	0	0	0	0	0	0	0	0
5031	0	0	0	0	0	0	0	0	0	0	0	0
5032	0	0	0	0	0	0	0	0	0	0	0	0
5041	4	0	0	0	0	1	4	9	8	5	8	7
5042	0	0	0	0	0	1	3	9	9	4	1	0
5050	2	0	0	0	0	0	3	9	8	5	7	4
5061	3	0	0	0	0	0	0	1	6	6	5	4
5062	3	0	0	0	0	0	0	1	6	6	5	4
5070	0	0	0	0	0	0	0	6	8	4	0	2
5080	3	0	0	0	0	0	1	4	8	5	7	7
5091	1	0	0	0	0	2	5	10	8	5	3	3
5092	1	0	0	0	0	2	5	10	8	5	3	3
5101	0	0	0	0	0	0	0	0	0	0	0	0
5102	0	0	0	0	0	0	0	0	0	0	0	0
5111	0	0	0	0	0	0	0	0	0	0	0	0
5112	0	0	0	0	0	0	0	0	0	0	0	0
5120	0	0	0	0	0	0	0	0	0	0	0	0
5131	0	0	0	0	0	0	0	0	0	0	0	0
5132	0	0	0	0	0	0	0	0	0	0	0	0
5133	0	0	0	0	0	0	0	0	0	0	0	0
5141	0	0	0	0	0	0	0	0	0	0	0	0
5142	0	0	0	0	0	0	0	0	0	0	0	0
5143	0	0	0	0	0	0	0	0	0	0	0	0
5144	0	0	0	0	0	0	0	0	0	0	0	0
5151	0	0	0	0	0	0	0	0	0	0	0	0
5152	0	0	0	0	0	0	0	0	0	0	0	0
5153	0	0	0	0	0	0	0	0	0	0	0	0
5161	0	0	0	0	0	0	0	0	0	0	0	0
5162	0	0	0	0	0	0	0	0	0	0	0	0
5171	0	0	0	0	0	0	0	0	0	0	0	0
5172	0	0	0	0	0	0	0	0	0	0	0	0
6010	0	0	0	0	0	0	0	0	0	0	0	0
6020	0	0	0	0	0	0	0	0	0	0	0	0
6030	0	0	0	0	0	0	0	0	0	0	0	0
7010	0	0	0	0	0	0	0	0	0	0	0	0
7020	0	0	0	0	0	0	0	0	0	0	0	0
7030	0	0	0	0	0	0	0	0	0	0	0	0
7040	0	0	0	0	0	0	0	0	0	0	0	0

Source : JICA-FIDP Team calculation