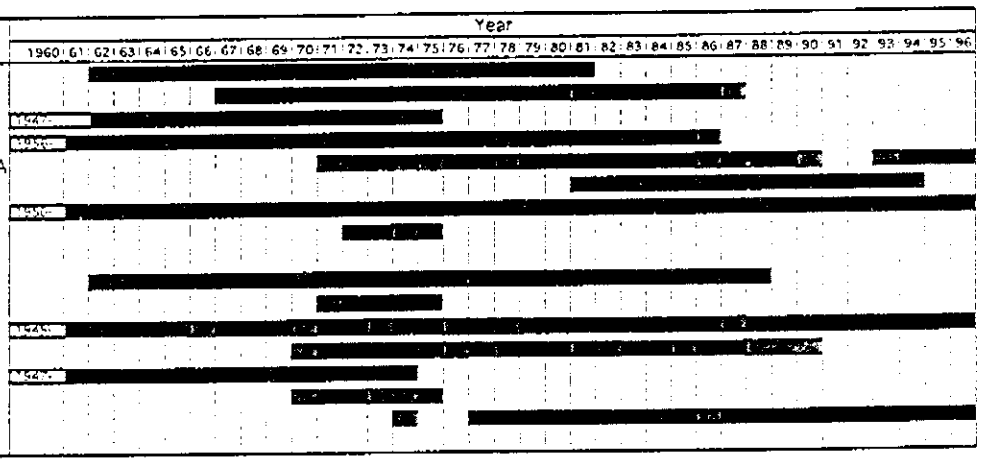
Tables

Table A.3. 1 Inventory of Rainfall and Rivergauge Stations

Rainfall stations

	Station	Province	Agency
1	Pandan	Antique	PAGASA
2	Culasi	Antique	PAGASA
3	Barbasa	Antique	PAGASA
4	Valderama	Antique	PAGASA
5	Miagao	Iloilo	DA/PAGASA
6	Guimbal	Iloilo	DA
7	Iloilo City	Iloilo	PAGASA
8	Cabatuan	Iloilo	PAGASA
9	Wesviarc	Iloilo	DA
10	Barotac Viejo	Iloilo	PAGASA
11	Estancia	Iloilo	PAGASA
12	Roxas City	Capiz	PAGASA
13	Kalibo	Aklan	PAGASA
14	Balete	Aklan	PAGASA
15	Lobacao	Aklan	PAGASA
16	Pototan	Iloilo	NIA

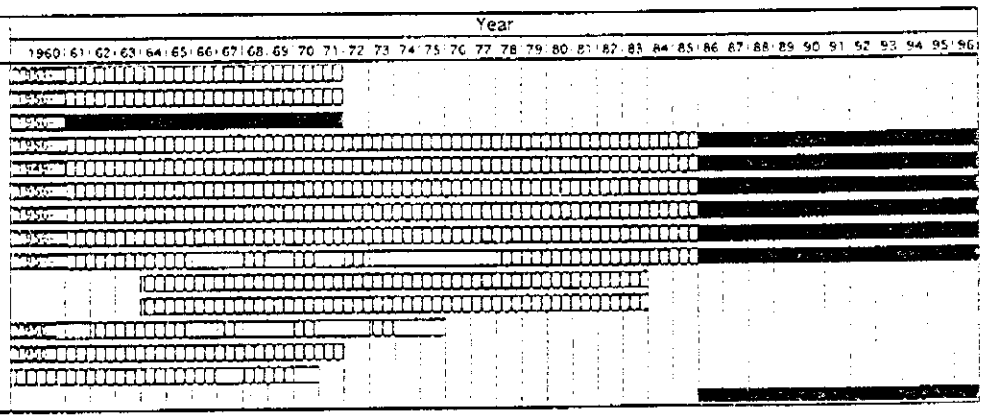


Source: NIA Regional VI office, PAGASA Iloilo office

Note: ■ : partly missing ■ : complete

Rivergauge stations

	Station	DA (km²)	Agency
1	Inabasan R, Coline, Alimosian	97.0	NWRB
2	Jalaur R, Nabitasan, Leganes	1,549.0	NWRB
3	Jalaur R, San Matias,Dingle	1,065.0	NWRB
4	Jalaur R, Callan, Pototan	1,499.0	NWRB
5	Suague R, Mina, Pototan	186.0	NWRB
6	Ulian R, Pador, Duenas	247.0	NWRB
7	Jalaur R, Poblacion, Passi	534.0	NWRB
8	Jalaur R, Simsiman, Calinog	169.0	NWRB
9	Sibalom R, Omambong, Leon	117.0	NWRB
10	Asue R, Agirre, Sara	9.5	JICA-NIA
11	Catipayan R. Armidel, Sara	51.3	JICA-NIA
12	Barotac Viejo R, Rizal, Barotac Viejo	90.0	NWRB
13	Tigum R, Santa Babara	193.0	NWRB
14	Jalaur R, Alibunan, Calinog	120.0	NIA
15	Ulian R. Pajo, Lambunao	112.0	DPWH



Source: NIA Regional VI office, PAGASA Iloilo office

Note: ■ : read three times a day ▥ : read twice a day ▭ : partly missing

Table A.3. 2 Monthly Summary of Rainfall in the Service Area (1/4)

Station: Dongsol, Pototan, Iloilo

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1974	NA	NA	31.0	77.6	63.7	178.6	226.5	324.4	58.6	NA	NA	NA	NA
1975	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1976	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1977	37.9	75.5	35.0	0.8	48.0	153.7	208.5	238.4	626.7	114.4	172.1	32.8	1743.8
1978	35.9	18.7	3.9	174.7	61.5	112.4	125.6	494.6	286.4	339.4	147.3	187.0	1987.4
1979	15.1	24.8	0.0	124.8	74.7	117.4	540.9	465.9	95.5	438.2	71.8	56.8	2025.9
1980	49.0	36.7	112.3	9.0	35.6	460.9	263.4	258.9	244.5	334.1	212.7	104.0	2121.1
1981	51.2	28.5	3.0	32.7	112.4	257.5	173.5	174.4	207.0	327.1	132.5	60.2	1560.0
1982	30.1	4.3	186.2	37.2	141.9	496.5	196.3	465.4	262.6	306.7	101.2	35.3	2263.7
1983	56.7	17.1	3.8	2.0	1.5	116.3	332.3	317.8	343.7	228.4	323.0	133.0	1875.6
1984	59.6	69.5	35.0	53.5	73.8	559.9	256.0	474.5	199.5	218.6	321.6	90.7	2412.2
1985	61.4	44.7	58.2	79.4	77.5	398.6	NA	51.9	212.1	207.0	57.6	68.0	NA
1986	NA	NA	2.3	2.6	6.9	180.7	358.9	266.0	164.0	197.4	141.1	60.6	NA
1987	50.1	0.0	0.0	0.8	8.1	149.4	243.2	220.7	207.8	128.0	352.8	45.5	1406.4
1988	74.8	36.4	9.7	124.4	138.4	352.9	186.7	74.9	371.0	540.1	338.2	51.8	2299.3
1989	106.6	37.4	77.5	155.6	205.8	209.5	265.2	498.5	269.9	241.5	89.6	38.6	2195.7
1990	8.4	2.5	3.3	6.3	19.4	319.2	449.5	613.3	207.6	257.9	355.9	20.6	2263.9
1991	71.1	20.0	66.4	18.8	57.4	295.2	258.9	288.9	97.0	236.1	198.2	62.8	1670.8
1992	2.8	10.0	1.8	22.6	30.0	262.4	329.1	384.6	93.4	303.6	160.9	60.5	1661.7
1993	53.0	22.1	56.7	1.8	18.8	118.1	198.5	324.1	123.4	234.8	133.4	331.9	1616.6
1994	80.8	11.5	24.1	209.2	161.9	209.5	801.1	175.8	199.4	176.5	21.0	115.9	2186.7
1995	35.6	9.6	2.6	19.6	70.4	211.1	406.2	175.8	453.3	411.9	88.9	114.6	1999.6
1996	88.8	47.5	56.6	115.1	110.4	290.2	184.4	238.8	325.9	139.2	372.9	89.7	2059.5
MAX	106.6	75.5	186.2	209.2	205.8	559.9	801.1	613.3	626.7	540.1	372.9	331.9	2412.2
MIN	2.8	0.0	0.0	0.8	1.5	112.4	125.6	51.9	58.6	114.4	21.0	20.6	1406.4
MEAN	51.0	27.2	36.6	60.4	72.3	259.5	300.2	310.8	240.4	269.0	189.6	88.0	1963.9
80%	19.1	2.7	0.9	4.6	16.7	151.5	184.6	160.3	127.8	177.0	82.1	41.3	1703.8
													968.6

Source PAGASA, Iloilo and NIA Region VI office

Note: NA, data not available
80%, 80% reliable rainfall

Table A.3. 2 Monthly Summary of Rainfall in the Service Area (2/4)

Station: Iloilo city, Iloilo

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1950	NA	2.5	81.5	79.3	124.4	297.7	256.3	291.2	257.2	229.4	138.8	80.1	NA
1951	25.1	29.1	10.4	48.5	182.7	410.5	214.1	304.5	198.4	272.9	157.4	301.0	2154.6
1952	22.7	11.6	39.0	3.9	119.4	238.4	291.3	463.4	126.6	396.9	126.1	186.7	2026.0
1953	24.3	32.5	101.7	40.5	50.7	180.3	320.5	411.1	92.2	218.6	116.6	83.5	1672.5
1954	42.2	28.2	70.1	14.2	155.7	174.4	213.2	252.1	395.3	32.1	191.9	187.9	1757.3
1955	77.9	30.8	37.8	122.7	169.1	346.3	102.3	242.6	114.3	282.3	373.5	50.4	1950.0
1956	70.6	21.0	72.8	134.4	356.8	178.2	182.5	360.1	503.4	254.9	154.5	233.5	2522.7
1957	131.8	27.8	6.4	68.7	6.1	244.7	322.9	588.2	346.2	137.4	51.8	22.7	1954.7
1958	30.5	5.1	21.7	25.1	26.4	196.1	307.1	309.6	251.3	184.5	288.5	35.8	1681.7
1959	11.4	20.4	63.1	16.8	62.6	274.7	304.1	286.7	137.9	251.4	210.8	151.0	1790.9
1960	22.6	18.8	15.0	112.5	113.6	283.4	250.1	257.6	268.9	209.2	184.8	50.9	1787.4
1961	0.5	9.8	15.0	27.9	201.2	466.2	349.2	512.0	158.6	371.0	130.1	70.5	2312.0
1962	0.5	29.7	9.3	27.9	123.4	86.6	637.8	360.2	518.1	137.8	131.6	14.3	2077.2
1963	3.3	0.6	12.3	4.8	17.3	274.5	178.8	372.8	348.0	240.3	64.8	81.3	1598.8
1964	483.1	92.3	14.2	44.5	250.2	308.8	96.0	324.0	206.3	195.7	460.8	52.2	2528.1
1965	57.8	18.7	81.8	33.3	70.6	249.3	347.2	274.7	219.0	160.4	251.8	125.2	1889.8
1966	81.1	21.1	10.5	11.1	514.4	255.5	364.7	115.4	235.0	200.5	255.6	70.7	2135.6
1967	184.8	48.8	39.9	12.4	78.1	246.4	325.3	425.0	102.0	322.5	185.4	25.7	1996.3
1968	18.7	7.1	10.7	15.1	75.7	158.4	173.1	409.7	116.5	51.5	190.4	9.9	1236.8
1969	6.4	0.0	8.9	10.0	45.3	152.6	426.1	124.7	183.6	109.6	53.2	71.2	1191.6
1970	25.9	7.2	35.1	5.3	151.0	414.4	195.8	255.1	234.9	235.5	101.8	60.7	1722.7
1971	9.2	4.1	5.6	84.0	54.2	169.5	353.3	185.2	42.6	301.3	77.4	110.5	1396.9
1972	143.4	23.4	28.9	31.2	78.9	236.6	767.4	221.9	376.6	187.9	121.5	150.0	2367.7
1973	3.5	20.5	20.0	12.5	0.0	96.8	392.6	533.9	480.9	272.3	483.5	161.7	2478.2
1974	48.8	22.0	33.1	27.5	36.8	265.2	302.4	326.9	92.9	669.0	147.0	141.2	2112.8
1975	130.5	85.8	11.1	144.9	147.1	378.5	99.5	253.6	297.7	328.2	55.0	130.3	2062.2
1976	47.3	37.9	27.6	22.4	295.3	217.3	509.1	383.7	331.2	174.3	131.6	99.5	2277.2
1977	38.7	60.4	21.0	0.0	8.1	247.1	224.2	280.9	545.3	73.6	76.9	21.7	1597.9
1978	26.1	31.1	9.7	86.8	66.7	149.9	131.5	505.7	320.6	252.7	119.6	162.6	1863.0
1979	12.5	17.7	0.0	125.3	96.9	129.5	501.5	667.4	207.6	706.6	118.6	255.4	2839.0
1980	21.5	73.2	74.8	19.9	44.9	163.4	220.8	206.6	316.9	363.8	203.0	94.3	1803.1
1981	30.3	5.8	7.6	80.4	30.6	423.1	203.0	328.8	283.8	117.1	127.1	84.7	1722.3
1982	15.3	2.0	151.8	60.0	158.0	396.0	285.4	668.1	380.3	215.6	53.4	9.9	2395.8
1983	72.4	5.0	31.2	2.4	9.4	181.7	247.5	278.5	350.2	246.6	284.9	102.1	1811.9
1984	32.3	64.6	97.0	66.8	109.5	508.6	391.6	505.8	411.5	515.8	365.9	72.3	3141.7
1985	37.9	54.1	35.4	267.6	59.2	460.1	271.4	161.7	341.7	470.2	182.7	90.4	2432.4
1986	40.2	15.3	51.5	49.2	70.4	254.2	300.8	892.4	257.5	182.4	248.5	97.4	2459.8
1987	30.1	12.0	1.0	5.7	41.9	162.4	452.7	224.5	517.0	512.0	212.3	21.8	2193.4
1988	13.7	13.3	13.1	85.2	197.6	483.0	323.5	264.9	272.7	561.6	312.7	39.4	2580.7
1989	94.1	32.0	58.8	68.7	253.5	323.5	308.5	672.7	160.0	138.2	37.4	8.8	2156.2
1990	15.1	0.6	8.0	9.1	262.1	602.2	326.6	466.1	182.0	124.6	819.5	22.7	2838.6
1991	3.1	20.0	48.4	26.4	8.2	357.9	371.5	709.3	76.7	94.1	123.4	37.8	1876.8
1992	1.6	5.9	0.0	3.0	48.8	337.6	226.6	449.2	190.1	224.4	188.2	74.4	1749.8
1993	17.6	5.5	49.9	47.4	26.0	175.5	287.3	540.1	120.7	319.6	131.1	320.1	2040.8
1994	40.8	56.1	34.8	226.4	348.2	465.2	986.9	232.1	293.1	218.8	40.0	131.8	3074.2
1995	36.6	10.4	5.3	12.2	36.2	320.4	345.6	314.3	743.4	443.3	150.4	119.6	2537.7
1996	75.1	65.1	250.5	279.5	127.3	274.8	224.8	85.7	350.1	243.9	376.8	180.8	2534.4
MAX	483.1	92.3	250.5	279.5	514.4	602.2	986.9	892.4	743.4	706.6	819.5	320.1	3141.7
MIN	0.5	0.0	0.0	0.0	0.0	86.6	96.0	85.7	42.6	32.1	37.4	8.8	1191.6
MEAN	51.3	25.7	39.0	57.5	117.2	281.2	317.3	368.1	275.7	264.9	191.7	100.1	2094.2
80%	7.6	3.6	2.3	5.1	11.9	177.4	192.0	219.2	144.5	133.8	87.3	33.6	1709.3
													1018.3

Source PAGASA, Iloilo and NIA Region VI office

Note: NA, data not available
80%, 80% reliable rainfall

Table A.3. 2 Monthly Summary of Rainfall in the Service Area (3/4)

Station: Miagao, Iloilo

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1971	NA	NA	NA	135.1	132.8	443.9	684.7	411.5	64.3	406.4	58.0	25.4	NA
1972	41.3	53.1	2.3	15.6	72.3	126.7	473.1	169.3	501.5	84.9	319.7	195.8	2055.6
1973	0.0	0.2	0.0	0.0	63.0	99.7	326.4	485.8	411.5	255.8	441.5	47.4	2131.3
1974	13.5	0.0	0.0	30.0	183.8	480.4	273.4	402.7	22.1	NA	NA	NA	NA
1975	NA	7.0	0.0	176.4	99.2	479.0	103.4	200.8	235.6	365.7	43.0	22.6	NA
1976	1.3	0.0	77.4	16.7	420.3	251.6	390.6	237.9	194.2	89.2	88.6	10.7	1778.5
1977	15.8	0.0	2.3	15.5	4.1	216.0	239.9	220.0	1095.4	18.0	6.1	16.8	1849.9
1978	11.7	11.7	0.0	0.0	80.5	209.6	303.4	606.0	NA	NA	NA	111.0	NA
1979	0.8	50.3	0.0	93.8	305.1	210.1	743.0	273.7	40.7	868.3	61.0	16.3	2663.1
1980	24.4	36.8	147.0	27.5	78.1	374.9	326.9	185.5	186.7	184.1	105.1	18.3	1695.3
1981	0.0	0.0	1.3	0.0	58.7	250.7	114.3	287.6	134.8	187.6	34.0	0.0	1069.0
1982	0.0	15.8	95.3	0.0	132.3	346.8	110.0	557.8	221.9	10.9	47.7	0.0	1538.5
1983	0.0	0.0	0.0	0.0	97.5	156.9	277.9	108.8	352.3	112.4	250.6	0.0	1356.4
1984	56.9	42.2	31.5	167.5	189.3	496.0	180.2	459.7	151.5	234.9	326.1	34.0	2369.8
1985	90.4	37.4	46.0	622.5	11.4	346.5	199.2	390.4	199.8	241.6	65.7	18.5	2269.4
1986	59.7	NA	0.0	0.0	51.1	370.2	526.5	797.6	647.9	218.6	198.7	74.2	NA
1987	26.6	0.0	0.0	0.0	0.0	213.3	435.9	407.3	557.4	625.1	276.5	56.0	2598.1
1988	0.0	8.6	0.0	163.3	499.7	534.1	389.4	321.3	338.2	1195.2	578.7	56.7	4085.2
1989	85.8	39.0	37.0	57.8	245.7	277.8	252.8	469.7	198.0	213.3	18.9	9.4	1905.2
1990	9.1	0.0	0.0	8.1	171.1	415.3	331.9	552.4	161.9	81.5	249.9	NA	NA
MAX	90.4	53.1	147.0	622.5	499.7	534.1	743.0	797.6	1095.4	1195.2	578.7	195.8	4085.2
MIN	0.0	0.0	0.0	0.0	0.0	99.7	103.4	108.8	22.1	10.9	6.1	0.0	1069.0
MEAN	24.3	16.8	23.2	76.5	144.8	315.0	334.1	377.3	300.8	299.6	176.1	39.6	2097.5
80%	0.1	0.0	0.0	0.1	8.6	191.5	182.2	221.2	94.7	65.0	37.0	0.6	1517.6
													801.0

Source PAGASA, Iloilo and NIA Region VI office

Note: NA, data not available
80%, 80% reliable rainfall

Table A.3. 2 Monthly Summary of Rainfall in the Service Area (4/4)

Station: Valderrama, Antique

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1956	19.1	5.1	41.9	265.3	331.5	244.0	922.8	783.7	917.6	405.2	133.2	680.6	4750.0
1957	209.3	0.0	11.4	71.9	48.0	379.5	750.3	NA	975.9	421.1	101.2	5.1	NA
1958	3.9	24.1	34.3	14.0	92.8	268.3	487.6	581.9	528.2	365.9	NA	7.5	NA
1959	1.3	0.0	57.1	7.6	227.3	498.9	487.9	558.1	418.3	263.8	271.7	126.0	2918.0
1960	68.6	22.8	54.6	38.1	565.5	510.6	415.6	503.1	424.9	824.0	117.8	7.6	3553.2
1961	0.0	0.0	8.8	11.7	506.1	736.8	423.9	662.9	497.2	428.9	155.5	19.8	3451.6
1962	7.6	6.4	31.6	67.0	307.3	393.4	827.7	612.2	468.2	166.4	184.3	24.8	3096.9
1963	11.4	0.0	3.8	15.3	108.3	745.3	248.1	792.7	642.3	139.6	48.3	165.0	2920.1
1964	0.0	0.0	0.0	42.0	374.9	541.1	380.5	601.9	499.6	274.0	723.8	48.2	3486.0
1965	71.1	0.0	47.0	115.6	642.7	615.9	788.1	508.0	491.7	152.4	130.2	36.8	3599.5
1966	0.0	2.5	2.5	6.3	857.2	532.4	428.6	419.5	500.9	217.6	199.2	158.5	3325.2
1967	95.3	17.9	57.2	34.3	123.8	567.9	1026.4	977.3	576.6	674.7	362.0	0.0	4513.4
1968	16.5	0.0	0.0	29.0	407.6	347.4	634.3	1090.1	531.8	409.0	187.4	3.8	3656.9
1969	16.5	0.0	0.0	40.6	271.5	636.1	1286.8	418.5	868.5	150.6	98.2	170.8	3958.1
1970	0.0	0.0	0.0	36.8	265.1	534.6	742.9	555.9	430.7	627.2	282.6	100.3	3576.1
1971	25.6	60.9	85.8	64.8	423.4	1001.2	1281.8	550.8	313.7	561.1	105.4	26.0	4500.5
1972	243.3	0.0	23.3	14.0	355.2	559.9	686.9	367.2	527.0	145.1	104.2	125.0	3151.1
1973	0.0	0.0	0.3	57.0	209.7	201.8	358.2	740.9	476.3	411.1	244.7	34.1	2734.1
1974	61.0	0.0	1.0	72.4	147.2	565.8	531.2	497.1	171.0	673.1	0.0	212.8	2932.6
1975	0.0	12.2	0.0	281.5	434.4	460.9	331.0	344.2	381.1	554.8	53.3	91.2	2944.6
1976	53.3	47.0	97.9	14.7	578.8	649.1	515.6	568.8	526.1	108.8	147.3	48.5	3355.9
1977	51.6	17.8	16.8	8.6	267.9	323.3	888.0	678.5	1102.0	132.8	126.7	2.5	3614.0
1978	31.5	0.0	5.1	139.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
1979	NA	NA	NA	NA	NA	255.9	1115.9	702.6	402.9	557.0	86.1	57.2	NA
1980	29.0	21.8	129.5	38.6	119.2	515.7	762.9	567.1	782.4	337.7	NA	169.5	3473.4
1981	81.8	0.0	0.0	56.2	339.1	612.4	NA	371.3	NA	NA	105.5	NA	NA
1982	0.0	0.0	150.3	98.3	391.4	720.4	351.0	591.6	NA	NA	0.0	0.0	NA
1983	0.0	NA	NA	0.0	340.1	907.4	NA	NA	760.0	174.0	596.2	0.0	NA
1984	0.0	0.0	0.0	185.9	0.0	507.6	3.6	528.5	616.9	0.0	103.0	0.0	1945.5
1985	0.0	0.0	0.0	422.1	89.4	715.3	351.4	586.5	13.2	857.9	116.5	0.0	3152.3
1986	0.0	0.0	0.0	15.5	58.7	90.8	267.2	892.6	329.3	0.0	594.5	NA	NA
MAX	243.3	60.9	150.3	422.1	857.2	1001.2	1286.8	1090.1	1102.0	857.9	723.8	680.6	4750.0
MIN	0.0	0.0	0.0	0.0	0.0	90.8	3.6	344.2	13.2	0.0	0.0	0.0	1945.5
MEAN	36.6	8.2	29.7	75.5	306.3	521.3	617.7	609.1	541.9	358.4	192.1	82.9	3417.8
80%	0.0	0.0	0.0	6.6	32.7	311.5	196.1	473.4	232.8	14.7	8.8	0.5	2870.1
													1277.1

Source PAGASA, Iloilo and NIA Region VI office

Note: NA, data not available
80%, 80% reliable rainfall

Table A.3. 3 Catchment Rainfall (1/4)

Location: Jalaur Existing Headworks (CA=1,065 km²) (unit: mm)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1951	69.4	72.4	58.6	86.7	185.8	354.0	209.0	275.7	197.4	252.4	167.1	273.1	2201.4
1952	67.6	59.5	79.7	53.8	139.0	226.9	266.0	393.0	144.4	343.9	144.0	188.7	2106.4
1953	68.8	74.9	126.0	80.8	88.3	184.0	287.5	354.4	119.0	212.3	137.0	112.5	1845.5
1954	82.0	71.7	102.6	61.4	165.8	179.6	208.3	237.0	342.7	74.6	192.6	189.6	1908.1
1955	108.4	73.6	78.8	141.5	175.7	306.6	126.4	230.0	135.3	259.3	326.6	88.1	2050.3
1956	62.6	41.9	70.4	159.8	254.0	167.8	378.9	394.8	483.7	243.0	125.7	321.0	2703.6
1957	141.7	42.6	39.0	78.3	50.2	231.7	372.1	485.1	449.6	209.0	81.8	42.4	2223.5
1958	44.7	42.5	51.1	46.0	70.8	181.2	285.8	315.7	279.8	207.5	263.9	47.5	1836.5
1959	37.5	40.1	71.9	41.3	124.3	278.5	284.9	300.8	208.3	198.2	187.1	122.3	1895.1
1960	62.0	46.6	55.2	82.4	245.7	285.0	244.6	274.1	253.7	357.2	131.0	52.6	2090.2
1961	33.5	36.6	41.0	46.2	256.4	415.5	280.0	407.8	239.5	288.8	124.5	62.8	2232.7
1962	12.4	27.5	24.5	45.3	169.2	177.2	518.2	389.7	428.8	134.2	136.4	45.4	2108.7
1963	15.1	10.1	17.5	17.0	52.4	385.4	181.1	452.1	392.5	180.2	58.9	107.4	1869.7
1964	267.8	58.7	17.3	46.3	258.1	340.5	182.4	367.3	273.4	198.1	477.4	52.3	2539.6
1965	62.4	19.7	67.6	63.1	245.7	332.1	437.1	312.2	277.7	143.9	183.4	87.5	2232.5
1966	52.7	21.7	16.1	17.6	547.0	309.6	335.3	200.5	289.0	183.2	206.7	96.2	2275.7
1967	137.1	41.1	48.6	26.9	89.4	315.7	499.2	536.8	241.9	389.0	219.8	24.8	2570.4
1968	24.8	13.6	15.5	26.7	175.8	201.0	297.5	563.6	235.8	163.4	168.5	16.2	1902.3
1969	18.3	9.8	14.5	27.6	117.7	287.1	633.0	205.1	375.3	114.4	68.3	100.3	1971.3
1970	23.5	13.6	28.4	24.0	171.7	394.4	343.0	316.6	267.3	328.3	151.0	72.9	2134.6
1971	22.5	30.7	39.3	105.4	347.2	475.4	536.5	332.7	168.1	399.2	141.7	69.4	2668.1
1972	164.9	20.1	36.4	29.4	213.9	271.2	394.7	193.7	446.9	151.1	216.3	146.3	2284.9
1973	65.6	19.6	27.8	39.5	155.3	136.6	228.7	362.8	449.1	247.8	321.9	120.3	2175.0
1974	71.8	40.2	19.4	63.5	88.6	324.3	272.6	331.0	111.7	517.1	82.4	134.4	2056.9
1975	99.7	52.5	33.2	160.5	246.0	289.0	250.8	222.0	274.6	329.9	125.0	156.3	2239.4
1976	80.0	86.1	56.2	20.3	401.5	354.6	394.0	296.3	306.3	145.4	140.1	94.4	2375.4
1977	79.4	81.2	27.3	11.4	124.5	162.9	380.4	326.9	614.4	122.8	162.4	64.3	2157.8
1978	44.6	15.3	10.1	95.7	88.0	180.2	152.9	370.5	278.2	376.6	208.8	256.5	2077.5
1979	44.8	37.0	34.3	168.3	98.4	175.9	562.8	389.3	192.0	355.5	79.7	59.6	2197.8
1980	42.9	43.1	96.6	21.4	62.4	340.2	391.3	302.2	352.8	276.6	185.7	141.0	2256.2
1981	89.2	17.9	7.7	54.8	162.1	300.5	201.8	188.7	305.8	196.2	110.9	98.3	1733.9
1982	17.1	9.0	170.7	53.1	178.9	385.8	243.5	389.7	263.9	206.6	34.4	18.1	1970.9
1983	18.3	26.5	33.6	0.5	132.9	322.9	288.1	223.6	338.7	155.5	304.7	73.3	1918.6
1984	29.7	37.1	33.5	82.8	34.1	323.9	89.8	329.1	332.0	85.0	200.2	101.3	1678.4
1985	40.1	23.5	24.0	162.2	70.7	348.9	203.2	211.7	136.7	346.4	106.5	47.5	1721.5
1986	44.3	28.9	27.6	16.1	54.2	213.5	261.4	421.2	225.3	147.1	285.0	142.9	1867.7
1987	106.6	33.1	23.7	24.5	45.6	167.0	365.8	208.4	396.6	310.7	234.2	61.7	1977.9
1988	62.5	39.4	29.9	97.3	152.2	342.5	239.7	187.4	263.2	540.7	340.5	108.5	2404.0
1989	122.7	69.2	95.0	121.4	239.4	280.0	286.3	554.6	203.4	183.6	86.1	56.3	2297.9
1990	51.9	42.1	46.5	47.9	194.7	467.0	345.5	468.1	199.3	180.2	599.8	59.4	2702.5
1991	61.8	57.7	86.2	61.1	61.0	322.2	320.3	519.6	110.3	157.1	163.7	79.2	2000.2
1992	42.8	47.1	41.6	48.8	76.7	302.0	256.9	397.7	173.6	248.9	190.5	99.3	1925.9
1993	65.2	50.1	84.4	68.4	60.8	171.9	256.6	433.1	142.3	284.5	150.8	310.6	2078.7
1994	85.7	75.9	67.2	224.9	281.3	360.2	812.9	219.3	260.1	211.9	69.3	146.6	2815.4
1995	71.3	49.5	44.8	53.2	80.3	278.7	344.8	265.8	582.6	401.6	149.9	139.3	2461.9
1996	107.2	90.6	198.0	230.0	142.5	273.9	217.4	153.1	326.0	216.2	353.6	167.3	2475.9
MAX	267.8	90.6	198.0	230.0	547.0	475.4	812.9	563.6	614.4	540.7	599.8	321.0	2815.4
MIN	12.4	9.0	7.7	0.5	34.1	136.6	89.8	153.1	110.3	74.6	34.4	16.2	1678.4
MEAN	67.9	42.2	52.6	70.3	160.3	285.3	318.9	332.8	284.5	245.1	186.9	109.9	2156.9

Table A.3. 3 Catchment Rainfall (2/4)

Location: Suague Existing Headworks (CA=181 km²) (unit: mm)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1951	64.0	67.4	51.6	83.9	197.5	390.4	224.1	300.7	210.8	273.9	176.1	297.7	2338.1
1952	62.0	52.6	75.8	46.1	143.9	244.7	289.5	435.2	150.0	378.9	149.6	200.9	2229.2
1953	63.4	70.3	128.9	77.1	85.7	195.5	314.2	390.9	120.9	227.9	141.5	113.5	1929.8
1954	78.5	66.7	102.1	54.8	174.6	190.5	223.3	256.3	377.6	70.0	205.3	201.9	2001.6
1955	108.8	68.9	74.8	146.7	186.0	336.1	129.4	248.2	139.6	281.9	359.1	85.5	2164.8
1956	63.6	36.9	71.4	166.0	286.7	179.5	384.0	423.1	528.1	262.4	135.7	334.9	2872.4
1957	148.1	38.5	32.1	78.5	42.9	250.1	396.3	540.9	474.2	213.8	79.5	37.7	2332.6
1958	40.8	35.3	45.9	41.4	65.5	194.9	310.7	340.0	297.5	218.8	287.1	44.3	1922.3
1959	31.4	35.1	71.5	35.7	122.1	299.4	309.4	322.5	213.2	218.7	202.6	132.0	1993.6
1960	56.6	41.2	48.9	88.3	246.1	306.8	263.4	292.9	274.7	366.6	144.9	51.2	2181.5
1961	26.1	30.3	35.3	42.0	268.2	457.3	310.8	456.0	246.2	322.2	131.3	63.7	2389.4
1962	28.3	41.2	39.5	58.5	173.5	182.5	562.3	372.0	400.7	138.0	140.6	39.7	2176.9
1963	30.7	26.1	32.6	32.6	66.0	372.8	181.0	431.6	375.4	176.6	69.7	112.0	1907.0
1964	245.1	67.7	32.3	58.6	251.3	327.5	182.9	352.5	268.5	196.4	451.0	63.9	2497.7
1965	73.3	34.3	77.0	75.4	249.6	322.8	418.6	302.1	272.0	144.1	179.0	93.7	2241.8
1966	62.7	36.2	31.3	32.8	515.1	300.7	319.3	203.4	282.0	181.8	201.3	105.2	2271.6
1967	138.2	53.3	61.0	41.7	98.2	307.1	479.7	510.3	244.2	373.5	218.0	37.5	2562.8
1968	39.2	29.1	30.7	41.3	181.8	201.4	293.7	537.1	237.4	171.2	168.2	31.5	1962.5
1969	33.7	25.8	29.9	42.5	127.4	284.9	603.2	207.3	368.3	120.5	79.3	109.1	2031.8
1970	37.6	29.1	41.8	39.2	173.5	373.5	336.4	307.5	261.0	319.9	156.4	83.3	2159.0
1971	37.6	45.9	54.0	83.3	176.8	401.5	568.6	274.2	138.8	330.0	92.4	83.8	2286.9
1972	163.5	36.5	45.9	44.2	167.6	300.3	579.1	236.1	354.0	154.4	112.1	131.2	2325.0
1973	27.4	35.1	35.0	48.5	88.4	130.0	310.9	489.3	386.3	272.1	318.3	109.4	2250.8
1974	66.2	35.8	22.0	76.0	88.6	294.1	317.4	375.9	92.1	530.4	92.6	153.4	2144.6
1975	85.1	68.4	30.9	175.6	222.2	335.2	169.8	243.7	274.7	340.3	66.7	112.2	2124.7
1976	63.2	57.1	67.6	40.4	332.6	318.1	410.8	369.7	333.1	137.4	129.5	85.5	2345.0
1977	42.0	58.3	29.6	3.1	113.6	204.3	411.2	369.7	768.5	119.9	158.6	23.8	2302.5
1978	34.6	13.1	4.3	164.3	86.3	154.7	156.7	562.7	343.9	354.4	167.3	212.0	2254.3
1979	32.5	41.3	16.9	153.7	107.4	158.7	712.4	536.5	187.2	473.6	76.1	56.9	2553.4
1980	43.0	32.3	117.4	17.8	60.5	477.2	412.4	350.8	405.0	335.2	246.0	123.5	2621.3
1981	60.3	20.0	2.1	39.7	180.0	363.4	218.4	233.1	273.7	292.5	124.4	92.5	1900.2
1982	21.1	3.0	175.5	55.4	216.3	563.3	242.5	503.1	350.6	316.9	71.0	24.8	2543.5
1983	39.8	30.9	31.9	1.4	102.5	352.3	347.4	349.4	467.9	212.2	404.5	93.3	2433.4
1984	41.8	48.8	24.6	93.0	51.8	544.3	180.7	490.6	324.0	153.4	256.4	63.6	2273.0
1985	43.1	31.4	40.8	181.6	81.1	493.1	253.9	211.4	152.8	401.2	75.2	47.7	2013.2
1986	44.1	32.8	1.6	6.4	22.4	153.9	331.5	452.9	213.3	138.5	276.4	97.7	1771.6
1987	63.9	21.7	17.3	19.7	39.1	185.6	365.5	260.0	365.9	307.9	347.9	57.4	2052.0
1988	74.8	47.7	28.9	137.7	191.7	454.3	275.1	173.6	384.4	616.6	377.1	68.8	2830.7
1989	128.7	55.8	94.4	153.1	261.0	291.1	324.2	631.0	269.2	240.7	94.5	47.5	2591.2
1990	28.8	18.9	22.4	24.9	133.5	477.5	460.7	630.4	234.1	246.9	588.7	40.3	2907.2
1991	68.1	38.8	82.6	40.5	60.4	364.7	344.6	498.4	115.1	219.6	204.5	75.9	2113.1
1992	19.5	26.3	18.2	34.0	57.2	333.7	336.9	463.3	157.2	318.1	203.8	88.6	2056.8
1993	61.0	34.6	76.3	36.8	40.4	168.8	269.1	456.6	151.0	307.3	162.1	375.6	2139.5
1994	89.7	47.1	47.5	252.7	267.4	346.7	966.8	231.5	272.0	226.8	47.4	150.1	2945.6
1995	56.3	27.8	20.9	35.5	80.6	291.0	437.8	263.8	627.1	480.1	138.4	144.3	2603.5
1996	108.8	75.9	155.1	207.5	144.4	328.5	234.7	218.2	383.2	210.4	426.6	150.9	2644.2
MAX	245.1	75.9	175.5	252.7	515.1	563.3	966.8	631.0	768.5	616.6	588.7	375.6	2945.6
MIN	19.5	3.0	1.6	1.4	22.4	130.0	129.4	173.6	92.1	70.0	47.4	23.8	1771.6
MEAN	64.7	40.7	51.7	74.1	152.8	308.8	351.6	371.9	299.3	269.4	194.2	107.6	2286.8

Table A.3. 3 Catchment Rainfall (3/4)

Location: Aanta Barbara Existing Headworks (CA=193 km²) (unit: mm)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1951	67.2	70.8	53.9	88.3	209.6	415.5	238.0	319.7	223.8	291.2	186.8	316.6	2481.3
1952	65.0	55.0	79.7	48.0	152.4	260.0	307.8	463.3	158.9	403.2	158.5	213.2	2365.1
1953	66.4	73.9	136.4	81.1	90.3	207.5	334.2	416.1	127.8	242.1	149.9	120.0	2045.5
1954	82.6	70.0	107.8	57.3	185.2	202.1	237.2	272.4	401.8	73.5	217.9	214.3	2122.2
1955	114.9	72.3	78.6	155.4	197.3	357.5	136.9	263.8	147.8	299.6	382.1	90.0	2296.4
1956	58.2	33.0	67.8	178.0	292.1	187.3	449.3	466.8	575.3	279.8	135.4	376.8	3100.0
1957	155.5	33.8	29.6	77.7	43.5	265.8	439.2	576.1	535.0	239.0	82.2	33.7	2511.2
1958	36.4	34.0	44.5	38.1	68.8	203.8	332.2	369.3	325.5	236.6	305.3	39.9	2034.2
1959	27.7	30.8	69.8	32.3	134.8	323.6	331.1	351.1	238.1	224.1	211.0	131.3	2105.7
1960	58.0	38.9	49.6	82.2	284.8	331.5	281.8	318.4	292.9	422.1	141.6	45.9	2347.8
1961	22.9	26.6	32.1	38.3	297.0	491.2	324.5	481.1	276.6	335.2	134.2	58.4	2518.2
1962	25.8	37.0	38.5	59.5	189.8	208.1	594.5	401.1	408.9	141.5	145.9	37.9	2288.5
1963	28.4	22.9	29.1	30.5	71.1	418.0	189.2	475.4	407.8	172.1	67.1	118.4	2029.9
1964	215.4	59.5	28.4	56.6	266.3	353.4	206.9	382.7	296.6	205.8	484.0	62.0	2617.6
1965	73.0	30.2	73.4	80.3	297.3	358.3	463.4	327.1	298.6	145.1	173.1	86.8	2406.4
1966	55.1	32.1	27.8	29.5	556.6	328.8	332.5	229.6	308.5	186.1	201.0	111.7	2399.3
1967	133.0	49.0	60.6	40.8	101.3	338.7	546.0	567.0	284.5	410.0	235.5	33.0	2799.3
1968	36.5	25.5	27.0	39.8	209.2	219.1	335.0	604.1	273.1	200.1	170.5	28.1	2168.0
1969	31.6	22.7	26.3	42.3	144.9	327.5	686.1	232.9	428.9	124.2	81.6	116.6	2265.4
1970	33.0	25.6	36.7	38.9	184.6	393.0	385.7	337.6	281.5	357.1	171.7	85.4	2330.8
1971	36.2	47.7	57.8	81.1	206.7	474.2	655.1	307.8	160.0	358.0	94.0	76.8	2555.3
1972	173.2	32.0	43.2	40.5	190.4	331.8	592.2	252.0	375.0	153.3	111.1	130.5	2425.2
1973	24.1	30.9	30.8	49.5	103.1	138.7	316.7	519.8	397.2	289.0	309.4	100.3	2309.4
1974	65.6	31.5	19.5	75.6	95.7	327.1	343.3	390.6	101.7	547.7	81.3	160.6	2240.2
1975	74.8	61.6	27.1	188.4	247.9	350.4	189.3	255.8	287.6	366.4	65.1	109.7	2224.1
1976	62.0	55.8	71.2	37.3	362.4	358.3	423.5	393.9	356.5	134.0	131.7	81.0	2467.6
1977	43.2	53.4	28.0	3.8	132.3	218.7	469.0	407.1	808.9	121.5	154.7	21.2	2461.8
1978	34.2	11.5	4.4	161.3	93.4	166.8	165.6	582.1	360.3	358.6	173.0	219.2	2330.3
1979	37.4	46.0	21.8	162.0	116.8	170.5	761.4	556.7	213.4	483.8	77.3	57.0	2703.8
1980	41.3	31.0	118.9	20.3	67.7	481.9	454.9	377.1	450.7	335.5	255.4	129.1	2763.9
1981	62.9	17.6	1.8	41.7	199.3	393.6	231.3	249.9	292.7	282.6	122.1	101.7	1997.2
1982	18.6	2.7	172.4	60.6	237.6	582.3	255.6	513.8	375.7	319.8	62.4	21.8	2623.2
1983	35.0	34.8	39.9	1.2	131.3	419.6	351.6	358.4	503.3	207.5	427.8	82.0	2592.5
1984	36.7	42.9	21.6	104.3	45.5	539.8	159.2	495.2	359.5	134.8	237.8	55.9	2233.3
1985	37.9	27.6	35.9	210.8	82.1	520.0	265.7	256.9	135.8	456.6	80.2	41.9	2151.3
1986	38.7	28.8	1.4	7.5	26.8	146.2	323.7	506.3	227.4	121.7	314.9	108.3	1851.9
1987	67.9	27.8	22.3	25.1	47.9	195.9	400.3	271.2	411.0	359.2	346.5	60.8	2236.1
1988	74.8	50.9	34.4	141.5	206.9	483.3	300.2	201.7	388.2	638.4	388.2	73.6	2982.2
1989	135.0	61.0	99.3	152.4	276.7	314.3	341.1	668.8	269.0	240.5	95.9	50.0	2704.0
1990	34.6	23.6	27.9	30.3	166.1	522.7	463.9	635.3	241.7	243.7	655.0	45.9	3090.6
1991	67.2	44.2	87.2	46.7	61.3	384.5	369.0	558.1	120.3	214.9	206.3	79.6	2239.2
1992	24.3	30.9	22.9	37.2	64.9	354.0	339.1	485.7	175.4	322.3	216.0	96.7	2169.5
1993	63.3	38.2	81.9	46.8	46.5	183.2	289.2	494.3	158.8	327.9	170.2	388.1	2288.6
1994	92.2	57.2	54.2	265.1	297.4	385.9	1014.1	247.4	292.7	241.1	54.9	159.8	3162.0
1995	62.2	32.9	26.1	40.0	83.5	313.7	446.7	288.9	676.7	499.6	152.5	152.8	2775.7
1996	114.5	83.9	183.2	233.9	154.1	339.5	249.0	212.3	399.5	230.8	442.0	168.4	2811.0
MAX	215.4	83.9	183.2	265.1	556.6	582.3	1014.1	668.8	808.9	638.4	655.0	388.1	3162.0
MIN	18.6	2.7	1.4	1.2	26.8	138.7	136.9	201.7	101.7	73.5	54.9	21.2	1851.9
MEAN	64.0	40.2	52.9	77.4	167.9	332.3	376.6	398.8	322.4	282.1	201.3	110.7	2426.6

Table A.3. 3 Catchment Rainfall (4/4)

Location: Aganan Existing Headworks (CA=104 km²) (unit: mm)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1951	66.2	71.0	48.5	94.3	255.5	529.1	293.2	401.8	274.4	363.8	225.1	397.6	3020.6
1952	63.3	50.0	82.9	40.7	179.5	322.4	385.9	592.7	188.1	512.8	187.5	260.3	2866.1
1953	65.2	75.1	158.2	84.7	96.9	252.6	421.0	529.8	146.8	298.6	176.1	136.3	2441.5
1954	86.7	69.9	120.2	53.1	223.1	245.5	292.1	338.9	510.9	74.6	266.6	261.7	2543.4
1955	129.6	73.0	81.5	183.4	239.2	452.0	158.9	327.5	173.3	375.1	484.7	96.6	2774.8
1956	37.9	10.9	53.2	217.5	340.7	220.0	652.3	628.9	766.3	350.3	141.0	517.2	3936.2
1957	181.0	10.2	9.6	70.7	32.7	330.2	594.1	742.6	745.8	317.4	83.2	11.5	3129.0
1958	13.6	17.2	29.7	18.1	68.5	241.9	421.6	482.4	427.0	299.6	382.6	17.8	2420.1
1959	5.0	7.5	59.3	11.0	167.1	417.0	420.7	458.9	315.8	259.3	249.4	135.1	2506.2
1960	51.8	21.3	40.1	65.3	400.4	427.6	355.1	413.4	367.9	599.4	142.3	23.4	2908.0
1961	0.2	3.6	11.1	17.6	394.7	637.9	396.6	607.8	373.5	407.7	146.2	38.3	3035.2
1962	5.0	14.9	23.5	52.7	240.1	281.3	758.3	520.1	486.4	156.0	165.0	21.0	2724.3
1963	8.4	0.2	6.9	11.5	75.1	573.3	222.8	639.3	534.8	176.4	54.3	134.4	2437.3
1964	176.5	33.7	5.2	42.9	329.3	456.2	276.5	500.4	392.4	245.4	627.7	49.7	3136.0
1965	66.2	6.8	59.7	85.5	433.7	482.0	627.0	422.8	392.1	155.3	174.6	69.1	2974.8
1966	29.6	9.3	5.4	8.1	731.9	431.2	405.3	308.4	403.7	211.4	219.8	126.4	2890.5
1967	128.0	29.2	50.9	26.3	107.1	450.4	770.2	775.5	403.2	546.0	297.5	9.4	3593.7
1968	17.3	2.6	3.9	23.9	286.3	278.3	465.8	841.5	380.1	278.4	188.5	6.0	2772.6
1969	12.8	0.0	3.3	29.4	188.9	459.4	972.3	311.2	618.2	135.6	81.8	134.4	2947.3
1970	9.5	2.6	12.8	25.3	223.4	490.7	543.0	446.0	359.2	484.1	216.5	85.8	2898.9
1971	19.6	40.1	56.5	71.8	288.5	697.3	942.5	417.2	214.6	466.2	95.2	56.9	3366.5
1972	206.8	8.6	25.3	20.3	254.2	441.8	716.3	314.1	472.0	160.7	110.5	134.1	2864.9
1973	1.3	7.5	7.5	40.7	133.1	163.4	370.8	665.3	478.0	360.4	332.0	80.7	2640.6
1974	56.5	8.0	12.7	56.0	106.9	456.0	447.6	434.9	142.5	671.6	53.7	186.6	2633.1
1975	47.7	39.1	4.1	231.6	329.4	430.8	246.4	311.1	350.6	472.0	53.9	105.5	2622.2
1976	51.1	43.7	72.2	17.5	475.2	491.3	513.2	501.2	454.9	132.7	141.6	67.1	2961.8
1977	46.9	33.4	18.3	5.5	173.0	295.5	645.5	533.2	898.6	111.2	108.5	9.5	2878.9
1978	29.5	11.4	6.8	120.4	116.2	216.1	194.0	643.5	421.1	339.6	179.7	231.4	2509.6
1979	51.1	57.3	36.0	186.6	152.4	209.7	891.4	689.7	331.5	611.7	98.0	129.6	3445.1
1980	26.3	40.6	109.5	31.8	92.1	387.0	564.8	435.4	612.3	347.2	279.9	142.0	3068.8
1981	63.0	2.1	2.8	65.0	226.4	543.2	279.9	355.8	376.9	176.7	113.4	137.8	2343.0
1982	5.6	0.7	150.8	84.3	306.1	601.9	327.0	619.6	492.9	295.0	19.5	3.6	2907.0
1983	26.5	42.1	73.5	0.9	219.3	642.2	333.3	370.6	610.3	200.5	482.5	37.3	3038.9
1984	11.8	23.6	35.4	142.4	40.0	508.0	145.4	520.2	541.9	188.5	199.1	26.4	2382.6
1985	13.8	19.8	12.9	365.6	78.4	622.1	322.2	431.3	133.2	716.2	140.7	33.0	2889.3
1986	14.7	5.6	18.8	27.8	63.0	150.5	279.5	892.5	303.1	66.6	468.1	153.0	2443.2
1987	72.2	50.5	37.2	42.9	86.4	231.1	579.8	305.7	657.1	651.0	291.1	62.2	3067.2
1988	52.5	52.0	51.8	138.4	273.4	616.2	424.6	354.2	363.6	710.6	411.7	83.4	3532.4
1989	149.1	74.5	106.7	118.6	340.5	424.6	406.6	844.1	228.2	202.0	81.0	46.6	3022.5
1990	54.2	36.8	45.7	47.0	350.9	759.4	428.3	595.9	254.7	185.7	1020.4	63.3	3842.2
1991	39.8	60.1	94.2	67.8	45.9	465.9	482.3	888.0	128.2	149.1	184.3	81.5	2686.9
1992	38.0	43.1	36.0	39.6	94.7	441.6	308.2	575.6	264.4	305.6	262.1	125.4	2534.4
1993	57.2	42.7	96.0	93.0	67.3	246.9	381.1	684.8	181.0	419.9	193.5	420.5	2883.9
1994	85.1	103.4	77.8	308.0	454.3	594.8	1221.5	314.8	388.1	298.9	84.1	194.4	4125.2
1995	80.0	48.5	42.4	50.7	79.5	420.9	451.2	413.6	929.0	568.5	216.7	179.7	3480.8
1996	126.3	114.2	336.9	371.8	189.0	366.1	306.1	139.0	456.6	329.0	488.6	253.2	3476.8
MAX	206.8	114.2	336.9	371.8	731.9	759.4	1221.5	892.5	929.0	716.2	1020.4	517.2	4125.2
MIN	0.2	0.0	2.8	0.9	32.7	150.5	145.4	139.0	128.2	66.6	19.5	3.6	2343.0
MEAN	56.1	33.0	52.9	85.0	218.5	421.8	470.5	511.8	411.9	334.4	230.9	121.2	2947.9

Table A.3. 4 Actual Runoff at Headworks (1/4)

JALAUR RIS

Drainage Area : 1065.0 sq. km.

Unit : m^3/sec

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
1950	36.68	15.94	47.62	6.29	16.12	48.82	47.77	27.43	234.10	62.30	51.52	11.40	50.50
1951	3.17	10.40	2.99	4.38	55.27	26.20	82.64	47.12	95.97	70.72	81.76	182.55	55.26
1952	57.35	21.63	8.29	2.40	14.24	48.16	77.93	69.53	79.97	152.90	73.12	137.43	61.91
1953	20.08	6.67	13.83	4.92	7.90	39.42	25.49	51.66	59.56	35.54	32.13	59.18	29.70
1954	9.82	14.27	47.51	8.62	19.60	60.20	125.40	70.42	31.32	39.72	57.63	179.45	55.33
1955	58.50	47.36	17.27	11.61	31.66	46.50	37.50	58.45	56.00	88.52	163.75	33.34	54.21
1956	32.97	31.97	63.16	63.58	30.78	23.79	35.10	96.53	76.02	93.98	77.71	85.30	59.24
1957	102.04	36.67	17.84	26.92	15.84	20.28	49.68	75.55	55.70	40.19	19.49	14.56	39.56
1958	18.11	16.71	9.16	8.56	11.93	36.73	21.99	18.67	14.74	69.25	66.21	27.33	26.62
1959	22.22	16.53	30.83	11.04	22.57	40.39	89.37	44.01	60.17	123.31	124.27	70.39	54.59
1960	29.14	32.16	18.52	70.89	30.71	77.73	79.65	56.32	65.60	106.50	86.26	47.12	58.38
1961	25.96	25.19	15.66	13.24	31.90	60.32	76.28	82.04	51.34	72.68	42.70	31.80	44.09
1962	32.05	36.75	24.72	9.13	3.30	42.49	122.33	148.24	132.44	56.36	85.30	48.14	61.77
1963	39.90	34.75	15.85	14.07	13.41	27.84	24.74	81.37	59.10	61.39	24.40	46.79	36.97
1964	18.83	19.80	10.78	8.17	30.38	40.06	79.65	56.04	52.83	62.93	210.80	144.14	61.20
1965	84.89	51.61	50.12	40.84	22.49	63.03	99.45	73.70	42.92	83.09	30.80	83.98	60.58
1966	22.94	13.11	10.19	11.60	80.13	67.41	105.80	51.12	42.80	108.00	65.83	51.52	52.54
1967	143.62	33.60	35.97	75.92	84.94	65.19	15.37	12.35	31.60	98.84	84.14	20.88	58.54
1968	28.50	25.60	10.30	7.75	10.70	25.00	53.00	50.00	23.50	25.00	64.00	30.00	29.45
1969	24.50	16.10	13.00	12.80	19.00	32.00	49.00	25.00	39.00	32.00	32.00	69.00	30.28
1970	27.00	18.50	24.50	26.80	26.00	30.00	62.00	16.50	23.00	135.00	165.00	80.00	52.86
1971	86.00	82.00	3.30	3.90	34.00	49.00	64.00	46.00	33.50	110.00	82.50	52.00	53.85
MAX	143.62	82.00	63.16	75.92	84.94	77.73	125.40	148.24	234.10	152.90	210.80	182.55	61.91
MIN	3.17	6.67	2.99	2.40	3.30	20.28	15.37	12.35	14.74	25.00	19.49	11.40	26.62
MEAN	42.01	27.61	22.34	20.16	27.86	44.12	64.73	57.18	61.87	78.56	78.24	68.47	49.43

Source: DPWH, NIA Region VI Office

Table A.3. 4 Actual Runoff at Headworks (2/4)

SUAGUE RIS

Drainage Area : 1065.0 sq. km.

Drainage Area : 181.0 sq. km.

Unit : m3/sec

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
1950	9.78	8.72	10.34	5.32	6.61	7.64	6.53	3.43	9.57	15.38	7.83	4.03	7.93
1951	2.02	1.94	0.90	0.73	7.39	6.60	9.71	13.59	15.74	11.69	6.10	12.36	7.40
1952	3.25	2.73	2.20	1.35	1.87	1.85	17.29	19.04	14.51	16.80	4.90	8.70	7.87
1953	3.43	2.52	2.13	0.93	0.67	5.83	6.35	10.12	8.99	10.12	7.10	6.24	5.37
1954	2.65	1.82	3.43	0.69	1.16	2.35	5.41	5.34	5.98	5.97	7.52	6.83	4.10
1955	6.68	0.41	0.22	0.15	0.75	2.35	3.62	2.80	3.97	8.70	13.43	4.29	3.95
1956	8.25	0.79	0.56	2.89	3.02	2.12	4.29	6.38	7.56	15.49	9.18	11.46	6.00
1957	9.45	2.23	0.67	2.08	0.78	0.93	7.21	8.66	7.18	7.58	4.24	3.06	4.51
1958	3.40	3.02	1.83	1.20	1.75	2.58	5.86	6.38	4.59	14.60	7.02	2.91	4.60
1959	4.52	1.53	2.46	1.12	1.75	2.16	10.90	4.52	6.71	9.71	13.43	7.50	5.53
1960	5.38	8.06	3.06	2.20	4.85	8.53	6.05	9.26	7.10	13.37	13.35	4.97	7.18
1961	4.11	4.67	1.46	1.77	5.68	11.42	12.66	13.85	6.52	10.34	7.25	5.38	7.09
1962	4.37	5.17	3.88	2.93	3.10	6.52	12.92	12.66	15.35	10.08	9.72	8.48	7.93
1963	6.05	5.04	4.37	2.20	5.38	5.75	7.28	11.46	7.41	7.39	4.48	10.68	6.46
1964	4.70	8.14	3.02	1.04	6.61	7.02	11.87	8.40	5.75	8.74	17.71	33.56	9.71
1965	20.53	12.03	5.04	2.70	3.02	5.13	9.33	7.50	7.02	15.64	4.48	5.15	8.13
1966	4.97	3.51	2.39	6.87	31.59	7.60	9.41	5.86	6.52	8.74	16.44	7.50	9.28
1967	14.60	9.05	5.64	3.94	3.81	4.01	6.91	7.13	6.10	8.40	6.56	1.31	6.45
1968	3.88	2.44	1.75	1.77	3.55	3.97	6.91	6.53	2.93	3.21	8.45	3.77	4.10
1969	1.46	0.66	0.45	0.35	0.63	1.20	6.94	4.97	7.75	8.77	8.10	9.22	4.21
1970	3.43	2.31	1.23	1.20	3.21	3.90	8.18	2.91	6.60	18.48	22.88	10.68	7.08
1971	5.45	5.62	3.06	0.42	4.41	6.33	8.55	6.05	4.28	15.20	11.00	6.80	6.43
MAX	20.53	12.03	10.34	6.87	31.59	11.42	17.29	19.04	15.74	18.48	22.88	33.56	9.71
MIN	1.46	0.41	0.22	0.15	0.63	0.93	3.62	2.80	2.93	3.21	4.24	1.31	3.95
MEAN	6.02	4.20	2.73	1.99	4.62	4.81	8.37	8.04	7.64	11.11	9.60	7.95	6.42

Source: DPWH, NIA Region VI Office

Table A.3. 4 Actual Runoff at Headworks (3/4)

TIGUM RIS

Drainage Area : 193.0 sq. km.

Unit : m3/sec

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
1950	10.45	8.64	10.30	5.13	6.42	7.45	6.27	3.25	9.45	15.42	7.64	3.85	7.86
1951	1.90	1.78	0.82	0.62	7.21	6.44	9.60	13.63	15.86	11.57	5.83	12.28	7.29
1952	3.10	2.56	2.02	1.23	1.68	1.74	17.59	19.30	14.51	16.73	4.90	8.59	7.83
1953	3.17	2.36	1.98	0.85	0.60	5.67	6.20	10.04	9.03	10.12	6.94	6.01	5.25
1954	2.54	1.65	3.17	0.62	1.08	2.20	5.15	5.08	5.83	5.75	6.17	6.61	3.82
1955	6.53	0.33	0.19	0.15	0.67	2.20	3.43	2.58	3.78	8.66	13.46	4.11	3.84
1956	8.14	0.70	0.49	2.70	2.84	2.01	4.03	6.35	7.37	15.42	9.10	11.31	5.87
1957	9.45	2.11	0.60	1.93	0.71	2.01	6.94	8.59	7.02	7.09	4.01	1.94	4.37
1958	3.17	2.81	1.68	1.12	1.61	2.43	5.68	6.27	4.36	14.56	6.87	11.31	5.16
1959	4.37	1.86	2.31	9.88	1.61	3.51	10.79	4.44	7.02	7.09	4.01	1.94	4.90
1960	3.17	0.87	0.63	1.97	1.53	3.09	1.64	2.99	2.43	7.39	6.67	2.24	2.89
1961	1.46	1.03	0.90	0.81	2.35	4.63	11.84	13.96	7.02	9.00	8.14	5.49	5.55
1962	4.70	6.16	5.08	3.16	3.17	7.10	30.88	9.86	25.73	9.63	11.77	9.52	10.56
1963	6.27	5.04	4.37	1.39	1.08	2.58	2.35	0.71	8.14	6.09	1.93	7.09	3.92
1964	2.05	2.60	1.16	0.73	2.31	3.36	10.12	7.47	4.48	3.77	23.57	4.03	5.47
1965	2.54	2.27	2.99	2.35	2.73	5.32	10.72	7.39	6.52	20.42	4.36	5.41	6.09
1966	4.97	3.27	1.68	2.08	12.43	8.33	15.87	4.89	6.87	12.96	21.88	15.42	9.22
1967	7.54	3.43	3.70	3.24	3.17	3.36	5.82	6.01	5.05	7.21	5.56	1.05	4.59
1968	1.01	2.11	1.42	1.43	3.25	4.13	3.43	3.10	1.54	2.54	2.31	0.34	2.22
1969	0.07	0.04	0.11	0.12	0.41	0.85	0.71	0.90	4.28	5.15	1.77	5.41	1.65
1970	2.58	1.74	0.86	0.85	0.34	3.51	2.91	2.58	7.14	9.00	9.10	7.39	4.00
1971	5.68	5.58	3.10	0.39	4.18	6.17	8.59	5.75	4.21	15.42	10.96	6.53	6.38
MAX	10.45	8.64	10.30	9.88	12.43	8.33	30.88	19.30	25.73	20.42	23.57	15.42	10.56
MIN	0.07	0.04	0.11	0.12	0.34	0.85	0.71	0.71	1.54	2.54	1.77	0.34	1.65
MEAN	4.31	2.68	2.25	1.94	2.79	4.00	8.21	6.60	7.62	10.05	8.04	6.27	5.40

Source: DPWH, NIA Region VI Office

Table A.3. 4 Actual Runoff at Headworks (4/4)

AGANAN RIS

Drainage Area : 101.0 sq. km.

Unit : m3/sec

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
1951	0.22	0.04	0.04	0.04	3.17	0.69	1.05	0.93	2.74	2.43	1.16	8.18	1.72
1952	0.07	0.04	0.04	0.04	0.11	2.24	3.47	3.70	8.95	12.92	0.81	3.02	2.95
1953	0.07	0.08	0.07	0.12	0.07	1.04	0.30	1.61	4.13	0.26	0.31	0.04	0.68
1954	0.04	0.12	1.46	0.08	0.37	0.81	1.38	2.61	0.66	0.52	4.13	0.52	1.06
1955	13.22	0.29	0.15	0.08	0.30	1.62	1.19	0.67	3.47	4.67	4.28	0.34	2.52
1956	0.07	0.04	0.04	9.38	0.78	0.89	1.34	4.67	6.29	17.70	0.08	0.71	3.50
1957	2.46	0.04	0.04	0.19	0.07	0.04	9.22	13.78	0.15	1.90	0.04	0.04	2.33
1958	0.04	0.00	0.04	0.04	0.07	0.39	8.33	6.94	0.96	10.12	2.58	0.49	2.50
1959	0.04	0.04	0.04	0.77	1.49	1.00	5.08	1.98	0.58	1.38	0.69	0.52	1.13
1960	0.19	0.12	0.75	0.69	1.16	2.43	1.64	4.97	1.89	1.72	0.93	0.34	1.40
1961	0.15	0.08	1.01	0.04	1.94	1.89	2.76	1.98	1.16	3.17	0.73	0.26	1.26
1962	0.19	0.17	0.04	0.04	0.04	0.35	2.73	4.52	6.67	0.19	0.85	0.04	1.32
1963	0.04	0.00	0.04	0.19	0.07	0.15	0.34	1.05	0.93	0.15	0.04	0.37	0.28
1964	0.04	0.04	0.04	0.04	1.05	1.12	0.63	0.86	0.69	1.05	5.56	0.26	0.95
1965	0.07	0.04	0.04	0.04	0.22	1.43	3.02	0.15	1.27	1.34	0.23	0.30	0.68
1966	0.04	0.00	0.04	0.04	1.16	2.20	1.38	0.11	0.31	0.41	0.31	1.01	0.58
1967	0.37	0.12	0.07	0.04	0.04	2.39	2.58	4.85	1.27	2.28	0.31	0.07	1.20
1968	0.04	0.79	0.15	0.04	0.04	0.04	0.26	2.02	1.35	1.05	1.77	0.60	0.68
1969	0.15	0.04	0.04	0.04	0.04	0.62	4.97	3.10	1.08	3.14	1.27	0.97	1.29
1970	0.56	0.08	0.04	0.04	0.04	4.71	3.81	1.46	1.89	1.79	8.56	3.88	2.24
1971	2.54	2.48	3.55	0.35	3.92	7.52	19.38	0.26	2.55	15.42	8.22	4.67	5.90
MAX	13.22	2.48	3.55	9.38	3.92	7.52	19.38	13.78	8.95	17.70	8.56	8.18	5.90
MIN	0.04	0.00	0.04	0.04	0.04	0.04	0.26	0.11	0.15	0.15	0.04	0.04	0.28
MEAN	0.98	0.22	0.37	0.59	0.77	1.60	3.56	2.96	2.33	3.98	2.04	1.27	1.72

Source: DPWH, NIA Region VI Office

Table A.3. 5 Estimated Runoff (1/4)

Location: Jalaur Existing Headworks (CA=1065 km²) (unit: m³/sec)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1986	37.8	35.8	3.5	6.4	21.0	33.8	50.0	67.7	41.9	56.3	111.9	75.6	45.1
1987	53.6	35.3	12.6	14.3	23.1	38.8	57.4	44.8	60.4	120.2	120.6	49.8	52.6
1988	57.4	49.2	17.8	66.3	38.6	67.7	47.7	38.1	58.1	195.2	132.2	56.7	68.7
1989	90.1	55.2	45.9	71.2	45.4	50.7	51.7	83.6	46.1	88.3	51.0	43.9	60.2
1990	35.5	32.7	15.0	16.5	34.6	71.7	63.6	80.3	43.4	89.1	206.3	41.7	60.9
1991	53.2	45.1	40.6	23.9	24.4	57.7	54.4	72.8	31.2	81.4	81.7	60.0	52.2
1992	29.9	37.1	12.8	19.7	24.8	54.7	51.5	65.7	36.7	110.2	84.4	69.3	49.7
1993	51.2	41.5	38.4	23.9	23.0	37.5	46.6	66.6	35.0	111.8	71.7	227.8	64.6
1994	66.8	52.9	26.4	121.5	47.4	57.9	117.2	42.5	48.5	88.4	39.7	103.6	67.7
1995	50.5	38.3	14.2	20.9	26.6	50.6	61.9	46.6	87.2	157.9	66.8	99.8	60.1
1996	79.0	69.0	82.2	107.6	33.4	53.2	42.7	39.1	59.3	85.6	147.2	108.3	75.5
MAX	90.1	69.0	82.2	121.5	47.4	71.7	117.2	83.6	87.2	195.2	206.3	227.8	75.5
MIN	29.9	32.7	3.5	6.4	21.0	33.8	42.7	38.1	31.2	56.3	39.7	41.7	45.1
MEAN	55.0	44.7	28.1	44.7	31.1	52.2	58.6	58.9	49.8	107.7	101.2	85.1	59.8

Note: December to February: Runoff (y) = 0.599 x Catchment rainfall (x) + 34.75 (mm)
March to April: Runoff (y) = 0.185 x Catchment rainfall (x) + 12.08 (mm)
May to September: Runoff (y) = 0.255 x Catchment rainfall (x) + 23.93 (mm)
October to November: Runoff (y) = 0.320 x Catchment rainfall (x) + 89.62 (mm)

Table A.3. 5 Estimated Runoff (2/4)

Location: Suague Existing Headworks (CA=181 km2) (unit: m³/sec)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1986	3.92	3.89	0.83	0.94	2.08	4.27	7.20	10.34	5.72	8.69	13.30	6.73	5.659
1987	5.10	3.85	1.09	1.17	2.44	5.16	8.52	6.29	8.99	13.82	14.00	4.81	6.270
1988	5.38	4.88	1.25	2.67	5.18	10.28	6.79	5.09	8.58	19.86	14.93	5.33	7.519
1989	7.81	5.33	2.06	2.81	6.38	7.27	7.49	13.14	6.46	11.26	8.40	4.37	6.900
1990	3.75	3.66	1.16	1.23	4.48	10.98	9.61	12.56	5.97	11.33	20.90	4.21	7.487
1991	5.07	4.58	1.91	1.45	2.67	8.52	7.98	11.23	3.81	10.70	10.87	5.57	6.196
1992	3.33	3.99	1.10	1.32	2.74	7.98	7.46	9.99	4.79	13.03	11.09	6.26	6.089
1993	4.91	4.31	1.84	1.45	2.42	4.93	6.60	10.14	4.50	13.15	10.06	18.06	6.864
1994	6.08	5.16	1.49	4.27	6.74	8.54	19.09	5.88	6.88	11.27	7.49	8.82	7.643
1995	4.87	4.08	1.14	1.36	3.06	7.26	9.32	6.60	13.72	16.86	9.67	8.53	7.204
1996	6.98	6.36	3.11	3.87	4.27	7.72	5.91	5.28	8.78	11.05	16.13	9.16	7.385
MAX	7.814	6.362	3.106	4.268	6.743	10.978	19.092	13.143	13.720	19.861	20.895	18.057	7.643
MIN	3.332	3.659	0.834	0.941	2.078	4.275	5.908	5.093	3.813	8.688	7.486	4.208	5.659
MEAN	5.199	4.554	1.544	2.049	3.861	7.536	8.724	8.776	7.111	12.819	12.439	7.442	6.838

Note: December to February: Runoff (y) = 0.599 x Catchment rainfall (x) + 34.75 (mm)
March to April: Runoff (y) = 0.185 x Catchment rainfall (x) + 12.08 (mm)
May to September: Runoff (y) = 0.255 x Catchment rainfall (x) + 23.93 (mm)
October to November: Runoff (y) = 0.320 x Catchment rainfall (x) + 89.62 (mm)

Table A.3. 5 Estimated Runoff (3/4)

Location: Santa Barbara Existing Headworks (CA=193 km²) (unit: m3/sec)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1986	3.22	3.27	0.73	0.83	1.02	3.20	6.18	9.35	4.66	9.60	14.38	5.09	5.13
1987	4.00	3.24	0.97	1.04	1.39	4.09	7.51	5.27	7.95	14.90	15.11	3.81	5.77
1988	4.19	3.93	1.11	2.44	4.15	9.25	5.77	4.06	7.55	21.14	16.07	4.16	6.99
1989	5.81	4.23	1.87	2.57	5.36	6.22	6.48	12.17	5.41	12.25	9.32	3.52	6.27
1990	3.11	3.11	1.04	1.10	3.44	9.96	8.62	11.59	4.92	12.32	22.23	3.41	7.07
1991	3.98	3.73	1.73	1.30	1.62	7.48	6.97	10.25	2.74	11.68	11.87	4.32	5.64
1992	2.83	3.33	0.98	1.19	1.69	6.93	6.45	9.00	3.73	14.08	12.09	4.78	5.59
1993	3.88	3.55	1.67	1.30	1.37	3.87	5.58	9.14	3.43	14.20	11.04	12.63	5.97
1994	4.66	4.11	1.35	3.93	5.73	7.50	18.17	4.86	5.83	12.26	8.38	6.48	6.94
1995	3.85	3.39	1.02	1.22	2.01	6.21	8.32	5.58	12.72	18.04	10.63	6.29	6.61
1996	5.26	4.91	2.85	3.56	3.24	6.67	4.88	4.25	7.75	12.03	17.31	6.71	6.62
MAX	5.81	4.91	2.85	3.93	5.73	9.96	18.17	12.17	12.72	21.14	22.23	12.63	7.07
MIN	2.83	3.11	0.73	0.83	1.02	3.20	4.88	4.06	2.74	9.60	8.38	3.41	5.13
MEAN	4.07	3.71	1.39	1.86	2.82	6.49	7.72	7.77	6.06	13.87	13.49	5.56	6.24

Note: December to February Runoff (y) = 0.374 x Catchment rainfall (x) + 30.170 (mm)
March to April: Runoff (y) = 0.162 x Catchment rainfall (x) + 9.889 (mm)
May to September: Runoff (y) = 0.241 x Catchment rainfall (x) + 7.770 (mm)
October to November: Runoff (y) = 0.310 x Catchment rainfall (x) + 95.470 (mm)

Table A.3. 5 Estimated Runoff (4/4)

Location: Aganan Existing Headworks (CA=104 km²) (unit: m³/sec)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1986	0.361	0.389	0.455	0.543	0.743	1.253	1.903	5.188	2.097	0.893	5.175	1.779	1.732
1987	0.950	0.777	0.599	0.664	0.869	1.699	3.513	2.044	4.057	6.884	3.300	0.848	2.184
1988	0.748	0.791	0.712	1.434	1.871	3.831	2.681	2.304	2.433	7.495	4.578	1.065	2.495
1989	1.738	0.985	1.141	1.274	2.231	2.770	2.585	4.929	1.683	2.281	1.075	0.688	1.948
1990	0.766	0.659	0.664	0.697	2.286	4.624	2.701	3.599	1.829	2.114	11.026	0.859	2.652
1991	0.618	0.860	1.043	0.865	0.652	2.999	2.990	5.164	1.129	1.738	2.169	1.045	1.773
1992	0.599	0.714	0.589	0.638	0.913	2.864	2.057	3.490	1.883	3.343	2.994	1.496	1.798
1993	0.796	0.710	1.057	1.068	0.766	1.786	2.448	4.075	1.422	4.515	2.267	4.521	2.119
1994	1.082	1.235	0.916	2.802	2.840	3.713	6.951	2.093	2.568	3.274	1.108	2.203	2.565
1995	1.030	0.760	0.639	0.727	0.832	2.750	2.823	2.622	5.563	6.038	2.513	2.052	2.363
1996	1.504	1.328	2.938	3.317	1.418	2.447	2.046	1.151	2.947	3.583	5.393	2.806	2.573
MAX	1.738	1.328	2.938	3.317	2.840	4.624	6.951	5.188	5.563	7.495	11.026	4.521	2.652
MIN	0.361	0.389	0.455	0.543	0.652	1.253	1.903	1.151	1.129	0.893	1.075	0.688	1.732
MEAN	0.927	0.837	0.977	1.275	1.402	2.794	2.973	3.333	2.510	3.833	3.782	1.760	2.200

Note: October to January: Runoff (y) = 0.264 x Catchment rainfall (x) + 5.414 (mm)
May to September: Runoff (y) = 0.138 x Catchment rainfall (x) + 10.450 (mm)
February to April: Runoff (y) = (0.264 x Catchment rainfall (x) + 5.414)+(0.138 x (x) + 10.450) / 2 (mm)

Table A.3. 6 List of Water Permit Grantees in Iloilo Province

Source ID	Permit No.	Owner/Permittee	Location/Diversion	Water Source	Related RIS of the Study	Type	Latitude	Longitude	Charges (pesos)	Granted Q (liter/sec)	Purpose	Date Approved
35532S	000026	NIA	Barotac Viejo	Barotac Viejo R.	-	SW	11 05 50	122-54-55	0 00	2400 000	Irrigation	04/15/75
35532S	000057	I. Doligosa	Barotac, Viejo	Alacaygan R.	-	SW	11-02-47	122 48 10	9 50	48 000	Irrigation	04/15/75
	000059	G. Baltesa	Barotac, Viejo	Calawag CK.	-	SW			20 25	37 000	Irrigation	04/15/75
	000063	Jumamile Jr.	Bongo, Pototan	Jalaur R.	Jalaur RIS(d)	SW	10-52-11	122-33 05	0 00	22 000	Irrigation	04/15/75
	000075	T. Beron	Calagang, Barotac Viejo	Tin-Ayon R.	-	SW			21 00	38 000	Irrigation	04/03/75
	000079	A. Mayco (Cancelled)	N Invention, Barotac Vie	Barotac Viejo R.	-	SW			256 00	276 000	Irrigation	04/30/75
	000084	B. Mateno	Durog Dawag, Miag ao	Tumagboc R.	-	SW			30 00	50 000	Irrigation	06/16/75
	000087	E. Zaldariaga	Vista Alegre, Barotac Viej	Barotac Viejo R.	-	SW			380 00	400 000	Irrigation	04/30/75
	000092	L. Villa	Ilong Bukid, Barotac Viej	B Cabugao CK.	-	SW			0 00	10 000	Irrigation	04/15/75
	000411	B. Abellar	Abuniansan, Lemery	Badbaran R.	-	SW			8 75	18 000	Irrigation	04/30/75
	000532	A. Bicliar	Nabitasan, Ajuy	Gubaton R.	-	SW			18 75	35 000	Irrigation	05/14/75
	000574	N. Tarosa	Merced, Banate	Taras CK.	-	SW			10 00	20 000	Irrigation	05/29/75
35533S	000581	Sugar Mill	Tambunao	Ulian R.	Jalaur RIS(u)	SW	11-06-39	122-31-26	0 00	864 000	Irrigation	05/29/75
	000595	D. Dumalogdog	Anabo, Lemery	Abuak CK.	-	SW			11 00	22 000	Irrigation	05/29/75
	000614	P. Vales	Ba. De Lapaz	Tubod R.	-	SW			14 00	28 000	Irrigation	05/29/75
	000615	V. Patangan	Cabalawan, Barotac Nuevo	Jalaur CK.	-	SW			15 75	31 000	Irrigation	05/29/75
	000625	A. Canicula	Lanjagan, Ajuy	Gubaton R.	-	SW			0 00	8 000	Irrigation	05/29/75
35532S	000632	F. Bacong	Banate	Bobog CK.	-	SW	11-04 07	122-46-50	0 00	48 000	Irrigation	05/29/75
	000632	F. Bacong	Banateff	Bobog CK.	-	SW	11-04 00	122-46 42	0 00	0 000	Irrigation	05/29/75
	000654	J. Aldeguer	Quisan, Balasan	Sibajao R.	-	SW			26 25	45 000	Irrigation	05/29/75
	000656	A. Arroyo	Libertad, Banate	Binalbalan CK.	-	SW			7 00	14 000	Irrigation	05/29/75
	000661	P. Delfin	Fuentabong Ilas, Ajuy	Pinangtan CK.	-	SW			0 00	4 000	Irrigation	05/29/75
	000662	C. Pons	Abangay, Pototan	Abangay CK.	-	SW			0 00	5 000	Irrigation	05/29/75
	000664	C. Casor	Capinahan, Lemery	Abuac CK.	-	SW			0 00	10 000	Irrigation	05/29/75
	000928	P. Aguino	Polao, Dumangas	Polao R.	-	SW			12 00	24 000	Irrigation	06/16/75
	000936	C. Balmaceda	Capoling, Dueñas	Ulian R.	Jalaur RIS(u)	SW			60 00	80 000	Irrigation	06/17/75
	000947	N. Barana	Tipolo-Bohon, Banate	Bobog CK.	-	SW			0 00	5 000	Irrigation	06/16/75
	000954	V. Capulla	Pinangtan, Ajuy	Gubaton R.	-	SW			15 60	30 000	Irrigation	06/16/75
	000960	S. Cascallueta	San Lucas, Barotac Viejo	Barotac Viejo R.	-	SW			71 00	91 000	Irrigation	12/19/75
35523S	000996	F. Gonzaga	Balabag, Pavia	Aganan R.	Aganan RIS(d)	SW	10-46-17	122-32-30	10 00	20 000	Irrigation	06/16/75
	001035	A. Maravilla	Balasan, Janjuay	Suague R.	Suague RIS(u)	SW			7 50	15 000	Irrigation	06/16/75
	001053	E. Penaflor	Aswe, Bara	Aswe CK.	-	SW			34 00	54 000	Irrigation	06/16/75
	001081	R. Silvco	Inagdangan, S. Zuraga	Inagdangan CK.	-	SW			0 00	10 000	Irrigation	06/16/75
	001091	R. Ticao	Cabuloan, Oton	Cabuloan CK.	-	SW			13 50	27 000	Irrigation	06/16/75
	001120	V. Fuentes	Cabilisan, Barotac Nuevo	Jalaur R.	Jalaur RIS(d)	SW			13 50	27 000	Irrigation	06/17/75
	001343	B. Gregorio	San Isidro, Mandurria	Calajunan CK.	-	SW			0 00	7 000	Irrigation	07/28/75
	001414	J. Baltao	Cabunga an, Lemery	Badbaran R.	-	SW			7 00	14 000	Irrigation	08/20/75
	001436	P. Espanola	P. Princesa, Barotac Viejo	San Nicolas R.	-	SW			40 00	60 000	Irrigation	08/20/75
	001450	P. Marcoso (cancelled)	Igpecolo, Guimbal	Jar-ao R.	-	SW			8 50	17 000	Irrigation	08/20/75
	001468	M. Florete	Tinari an, Barotac Nuevo	Talabaan R.	-	SW			169 00	189 000	Irrigation	08/20/75
	001493	B. Marcoso	Durog, Miag ao	Tumagboc R.	-	SW			30 00	50 000	Irrigation	08/20/75
	001496	P. Delfin	Fuentabong Ilas, Ajuy	Pinangtan CK.	-	SW			0 00	8 000	Irrigation	08/20/75
	001501	R. Sivko	Inaglangan, Zarraga	Inaglangan CK.	-	SW			0 00	10 000	Irrigation	08/20/75
35523S	001643	B. Valenzuela	STA. Monica, Oton	Anbawan CK.	-	SW	10-41-03	122-30 03	12 00	24 000	Irrigation	10/09/75
	001675	A. Quiroy	Caguyuman, Dingle	Caguyuman CK	-	SW			0 00	6 000	Irrigation	10/09/75
34532S	002405	NPC	Abbungan, Calinog	Jalaur R.	Jalaur RIS(u)	SW	11-09 20	122-29 00	0 00	9000 000	Power	03/15/77
34522S	002622	SEAFDEC	Guimbal	Guimbal R.	-	SW	10-40-12	122-19 00	7 50	15 000	Domestic	05/23/77
35523S	002762	SMC	Dagoc, Pavia	Salog R.	-	SW	10-45-37	122-32-19	0 00	7 000	Industrial	07/12/77
35524S	003009	FSIC	Kamico, Janiuay	Magapa CK.	Suague RIS (u)	SW	10-57-34	122-30-54	30 00	90 000	Irrigation	03/24/77
36543S	003010	Irrigation Association	STA. Ana, Batad	Sibajao R.	-	SW	11-26 05	123 05 59	435 00	455 000	Irrigation	08/24/77
34532S	003081	FSIC	Pajo, Tambunao	Ulian R.	Jalaur RIS(u)	SW	11-04 38	122-24-56	610 00	630 000	Irrigation	09/08/77
35523S	003082	FSIC	San Miguel	Morobuan CK.	-	SW	10-47-24	122-28 55	97 00	117 000	Irrigation	09/08/77
35533S	003083	FSIC	Bugaray, Passi	Mamberanan CK.	Jalaur RIS(u)	SW	11-09-31	122-36-50	71 00	91 000	Irrigation	09/01/77
35524S	003084	FSIC	Zarraga	Janipaan CK.	-	SW	10-50-12	122-36-03	65 00	85 000	Irrigation	09/08/77
35533S	003085	FSIC	Pagaypay, Passi	Mali ao CK.	Jalaur RIS(u)	SW	11-08-26	122-32-34	74 00	94 000	Irrigation	09/08/77
35523S	003086	FSIC	Cabugao Sur, Pavia	Tigum R.	Tigum RIS(d)	SW	10 45 05	122-32-08	130 00	150 000	Irrigation	09/08/77
35523S	003089	R. Gonkera	Nabitasan, Leganes	Guigui CK.	-	SW	10 47-38	122-37-10	120 00	140 000	Fishery	09/08/77
35521S	003206	J. Solnap	Pototan	Jalaur R.	Jalaur RIS(d)	SW	10-54 33	122-40 45	40 00	60 000	Irrigation	10/11/77
35533S	003294	FSIC	STO. Nino, Dueñas	Ulian CK.	-	SW	11-04 05	122-34 45	180 00	200 000	Irrigation	11/29/77
34534S	003380	Santibanes	STO. Tomas, Passi	STO. Tomas	-	SW	11-23-53	122-18 14	7 00	14 000	Irrigation	12/22/77
35534S	003381	Palabrica	Potacion, Bingawan	Kinalyan CK.	-	SW	11-13-59	122-34-23	0 00	6 000	Irrigation	12/22/77
35524S	003410	C. Cardenas	Mangusu, Cabatuan	Morobuan CK.	-	SW	10-50-00	122-38-14	0 00	3 000	Irrigation	03/10/78
34532S	003496	A. Latoza	Tambunao	Ulian R.	Jalaur RIS(u)	SW	11-04 30	122-27-51	0 00	3 000	Irrigation	02/14/78
34522S	003506	SEAFDEC	Guimbal	Guimbal R.	-	SW	10-40-12	122-19 00	18 75	35 000	Domestic	02/14/78
35533G	003508	P. Gabiana	Agdaboo, Passi	Deep well	-	GW	11-07-15	122-26-19	3 00	6 000	Irrigation	02/14/78
35521G	003515	J. Doromal	Dumangas	Deep well	-	GW	10-51-42	122-44-18	0 00	5 000	Irrigation	02/14/78
34532S	003579	E. Africate	Baluguian, Tambunao	Taybacan R.	Jalaur RIS(u)	SW	11-06-36	122-27 05	7 50	14 500	Irrigation	02/14/78
35524S	003580	A. Cortes	Tambunac, Dingle	Guimbal-an	-	SW	10-59 45	122-36-32	0 00	10 000	Irrigation	02/14/78
35533S	003581	Bustillino	Progreso, Ajuy	Balogo CK.	-	SW	11-09 14	122-59 42	0 00	5 000	Irrigation	03/14/78
35533G	003601	Palmares	Tambunao	Deep well	-	GW	11-06-20	122-32-09	0 60	15 500	Irrigation	03/14/78
35524S	003664	Sumagaysay	New Lucena	Janipaan CK.	-	SW	10-52-06	122-36-17	0 00	5 200	Irrigation	03/21/78
35524S	003666	D. Sobnap	Ubang, Pototan	Abangay CK.	-	SW	10-59 15	122-36-50	30 00	50 000	Irrigation	03/21/78
35534S	003690	J. Celerian	Nueva Union, Passi	Mangadlao CK.	Jalaur RIS(u)	SW	11-13-50	122-33-27	0 00	8 000	Irrigation	04/11/78
34522S	003957	J. Estacio	Miag ao	Oyaoy R.	-	SW	10 44 44	122-12-19	12 50	25 000	Irrigation	07/10/78
35523S	004148	SMC	Ungco, Pavia	Salog R.	-	SW	10 45-37	122-32-19	6 00	12 000	Industrial	09/12/78
35521S	004232	FSIC	Calicuang, Dingle	Jalaur R.	Jalaur RIS(d)	SW	10-58-55	122-40-58	108 00	128 000	Irrigation	04/23/79
35533G	004382	NPC	Tubigon, Dingle	Deep well	-	GW	11-01-36	122-37-49	10 50	18 070	Domestic	11/21/78
35523S	004475	L. Calubia	STA. Barbara	Tigum R.	Tigum RIS(d)	SW	10 47-34	122-32-19	0 00	3 400	Irrigation	01/23/79
35523S	004476	A. Caballero	STA. Rita, Oton	Anbawan CK.	-	SW	10-43-13	122-27-03	0 00	3 000	Irrigation	01/23/79
36543G	004557	Sugar Corp.	Jelig, Estancia	Deep well	-	GW	11-27-31	123-07-59	0 00	0 120	Domestic	02/13/79
35523S	005004	M. Saneeda	Galang, Oton	Cadinglisan	-	SW	10 43 09	122-26-36	0 00	1 500	Irrigation	03/12/79
35524S	005158	A. Jimenez	Danao, Pototan	Malusgod CK.	-	SW	10-57-51	122-37-30	0 00	4 500	Irrigation	03/26/79
34522S	005738	FSDC	Cairib, Miag ao	Maalid CK.	-	SW	10-41-30	122-14-55	22 50	40 000	Irrigation	08/30/79
34522S	005739	FSDC	Durog, Miag-ao	Tumagboc R.	-	SW	10-40 49	122-13-20	180 00	200 000	Irrigation	08/30/79
34522S	005740	FSDC	Lanag Sur, Tabongan	Jarao R.	-	SW	10 45 42	122-16-53	65 00	85 000	Irrigation	08/30/79
34522S	005741	FSDC	Camangoban, Guimbal	Jarao R.	-	SW	10 43 06	122-18-31	80 00	100 000	Irrigation	08/30/79
34522S	005742	FSDC	Datong an	Tacuyong R.	-	SW	10 42 20	122-22 02	103 00	123 000	Irrigation	08/30/79
35521S	005752	FSDC	Calicuang, Dingle	Jalaur R.	Jalaur RIS(d)	SW	10-58-55	122-41-00	102 00	122 000	Irrigation	08/30/79
35521S	005940	FSDC	Balabag, Dumangas	Jalaur R.	Jalaur RIS(d)	SW	10-51-17	122-39 20	59 00	79 000	Irrigation	09/26/79
35533S	007107	NIA	Dingle	Jalaur R.	Jalaur RIS	SW	11-00-52	122-39 28	0 00	29500 000	Irrigation	04/30/80

Source: NIA Region VI office

Note : SW= surface water, GW=ground water

Table A.3. 6 List of Water Permit Grantees in Iloilo Province

Source ID	Permit No	Owner/Permittee	Location/Diversion	Water Source	Related RIS of the Study	Type	Latitude	Longitude	Charges (pesos)	Granted Q (liters/sec)	Purpose	Date Approved
35524S	007108 NIA		Pototan	Suague R	Suague RIS	SW	10-58-22	122-33-12	0 00	6000 000	Irrigation	04/30/80
35523S	007109 NIA		Oton	Agnaya R	Agnaya RIS	SW	10 46 50	122-27-00	0 00	7965 000	Irrigation	04/30/80
35524S	007110 NIA		SFA Barbara	Tigum R.	Tigum RIS	SW	10 50-15	122-31 41	0 00	7450 000	Irrigation	04/30/80
35524S	007112 S Cordero		Bongloy, Dingle	Guinbalisan	-	SW	10 58 25	122-38 19	9 00	18 000	Irrigation	04/30/80
35531S	007113 Pakanal		Maligayagay, Sara	ASWE CK	-	SW	11-16 49	122 59 22	12 50	25 000	Irrigation	04/30/80
35532S	007114 J Vencer		Barotac Viejo	Aghuacan CK	-	SW	11 05 45	122 47-51	24 50	48 000	Irrigation	04/30/80
35532S	007115 Valderama		Liberiad, Banate	Binalbalan	-	SW	11 02-31	122 46 19	26 25	45 000	Irrigation	04/30/80
35532S	007116 Valderama		Liberiad, Banate	Dalipe CK	-	SW	11 02-19	122-45-57	26 25	45 000	Irrigation	04/30/80
35521S	007117 F. Jison		Barotac Viejo	Pafiavjecan	-	SW	10-54 38	122-44 36	72 00	92 000	Irrigation	04/30/80
35521S	007118 F. Jison		Dadiangan, Anilao	Anilao R.	-	SW	10-59 46	122-43 31	160 00	180 000	Irrigation	04/30/80
35521S	007119 Montenola		Badiangan, Anilao	Bafagon CK.	-	SW	10 57-36	122 43 36	13 00	26 000	Irrigation	04/30/80
35523G	007122 SMC		Iloilo City	Deep well	-	GW	10 41 44	122-34 51	0 00	0 300	Domestic	04/30/80
35523G	007123 SMC		Iloilo City	Deep well	-	GW	10 41 44	122-34 23	0 00	0 100	Domestic	04/30/80
35533G	007124 SMC WHSE		Passi	Deep well	-	GW	11-04 15	122-37-10	0 00	0 100	Domestic	04/30/80
34522S	007773 M. Gilba		Oanog, Guimbal	Suganob CK	-	SW	10 40 21	122-19 41	0 00	3 100	Irrigation	09/23/80
35521S	007774 Vinmont Corp.		Ipil, Dingle	Jalaur R.	Jalaur RIS(J)	SW	10 59 48	122-40-48	60 00	80 000	Irrigation	09/23/80
35533S	007775 Vinmont AIC		Ipil, Dingle	Ipil CK.	-	SW	11-00 04	122-41-23	49 00	68 000	Irrigation	09/23/80
35533S	007776 Vinmont AIC		Ipil, Dingle	Hajas CK.	-	SW	11 00-37	122 40 44	35 00	54 000	Irrigation	09/23/80
35521S	007778 R. Roces		Tabogon, Dingle	Jalaur R.	Jalaur RIS(u)	SW	10-50-59	122 40 11	24 00	42 000	Irrigation	09/23/80
35533S	007786 Vinmont AIC		Ipil, Dingle	Nabajo Spring	-	SW	11 00 40	122-40-43	46 00	66 000	Irrigation	09/23/80
35524S	007934 C. Jalandoni		Pototan	Seague R.	Suague RIS (L	SW	10-56-51	122-37-57	14 50	28 200	Irrigation	10/30/80
35524S	007935 C. Jalandoni		Pototan	Mabugbog CK	-	SW	10-57-20	122-38-12	13 50	26 800	Irrigation	10/30/80
35533G	007986 A Celis		Cagayuman, Dingle	Bito SPR.	-	GW	11-01-03	122-41-32	60 00	80 000	Irrigation	11/26/80
35522G	009087 VGL Industries		Mandurriao, Iloilo City	Deep well	-	GW	10 43 20	122-43-20	0 00	0 150	Domestic	02/04/82
35523S	009175 R Poblanica		Zarraga	Janipaan R.	-	SW	10-49-20	122-36 02	3 50	7 000	Irrigation	
34514S	009245 Siwaragan IAI		Mayence, San Joaquin	Siwaragan R.	-	SW	10-36 54	122-06 10	280 00	300 000	Irrigation	
35534S	009420 Irig. Association		Ngingi an, Bingawan	Manbiraran	Jalaur RIS(u)	SW	11-10-52	122-33 45	80 00	100 000	Irrigation	11/11/82
36543S	009421 Inciila IGA		San Dionisio	Odiergan R.	-	SW	11-21-38	123 04 28	149 00	169 000	Irrigation	11/11/82
35524S	009422 Irig. Association		Palaypay, Anilao	Anilao R.	-	SW	10-59 50	122 45 00	160 00	180 000	Irrigation	11/11/82
36543S	009423 Balanti an		Sabog, Balasan	Balanti an	-	SW	11-26-33	123 02 40	4 50	9 000	Irrigation	11/11/82
35532S	009458 De La Pena		Barotac Viejo	Alagaygan CK.	-	SW	11 05-19	122 48 49	36 00	56 000	Irrigation	12/27/82
35523S	009462 Irig. Association		SFA. Barbara	Tigum R.	Tigum RIS(J)	SW	10-48 45	122-32-45	32 00	51 500	Irrigation	12/27/82
35531S	009564 Scenico ISA		San Luis, Sara	Scenico R.	-	SW	11-14-02	123-00-00	380 00	400 000	Irrigation	04/23/83
35533S	009927 Irig. Association		San Enrique	Agutayan CK.	Jalaur RIS(u)	SW	11-04-36	122 41-03	210 00	230 000	Irrigation	03/05/84
34514S	010228 F. Sapatanan		Matambog, San Joaquin	Siwaragan R.	-	SW	10-32-30	122-05-44	0 00	0 700	Irrigation	01/18/85
35532S	010297 Santiago ISA		Barotac Viejo	Sibariw CK.	-	SW	11-03 20	122-54 25	8 50	17 000	Irrigation	03/29/85
35521S	010333 C. Villanueva		Magsaysay, Buenavista	Beer-sha sha	-	SW	10-43-19	122-36-57	0 00	2 500	Industrial	04/26/85
35521G	010460 M. Iloilo WD		Cabolotan N, Oton	Deep well	-	GW	10-45-12	122-28 40	0 00	40 000	Domestic	08/30/85
35524S	010526 Yabon Agri.		Yabon, Janiway	Suague R.	Suague RIS (u'	SW	10-59 20	122-24 30	2 50	15 000	Irrigation	11/29/85
	011054 Buenavista WD		Buenavista, Iloilo	Deep well DW#1	-	GW	10 41 46	122-33 04	0 00	9 370	Domestic	04/13/88
	011055 Buenavista WD		Buenavista, Iloilo	Tarus Spring	-	GW	10 41-26	122-32 10	0 00	3 000	Domestic	04/13/88
	011056 Buenavista WD		Buenavista, Iloilo	Mabolo Spring	-	GW	10 41-24	122-32-23	0 00	4 000	Domestic	04/13/88
	011057 Buenavista WD		Buenavista, Iloilo	Guma Spring	-	GW	10 41-32	122-32 48	0 00	5 000	Domestic	04/13/88
	011059 Blas T. Tadeodo		Nabafay, Guimbal	Ayao Ayao CK	-	SW	10 43 45	122-18-59	0 00	1 500	Irrigation	08/26/88
	011361 Citizens Dev., INC.		Dungan, Jaro, Iloilo City	Deep well #1	-	GW	10 43-50	012-23-20	0 00	1 600	Domestic	11/22/88
	011765 Alimodian WD		Liberation St., Alimodian	Deep well	-	GW	10 48 46	122-25-55	0 00	8 700	Domestic	07/25/89
	011831 Sitio Ilaca Irrig's		Poscoban, San Rafael	Alawihaw, Aripdip	-	SW	11-09-08	122-50-23	0 00	67 000	Irrigation	09/26/89
	011839 Antalon Communal Irig		Antalon, San Joaquin	Antalon R.	-	SW	10-37-20	122-07-00	0 00	53 000	Irrigation	
	011844 Cantros Irrig's Association		Cantros, Anilao, Iloilo	Bagonrong CK.	-	SW	10-59-14	122-42-12	0 00	45 000	Irrigation	10/24/89
	012180 MIWD		BRGY. Cabolo-an Norte	Deep well	-	GW	10 45-20	122-28 25	0 00	40 000	Domestic	06/14/90
	012181 MIWD		BRGY. Cabolo-an Sur, Ot	Deep well	-	GW	10 45 08	122-28 04	0 00	40 000	Domestic	06/14/90
	012182 MIWD		BRGY. Bita Norte, Oton	Deep well	-	GW	10 44 42	122-27-52	0 00	40 000	Domestic	06/14/90
	012233 Lagos BRGY. Irig		Buneian, Igbaras, Iloilo	Tangyan R.	-	SW	10 44-23	122-14 28	0 00	472 500	Irrigation	07/10/90
	012407 San Jose IRAI		San Jose, Lemery	Agbayaling CK.	-	SW	11-10-16	122-55-50	0 00	82 600	Irrigation	10/09/90
	012408 San Jose IRAI		San Jose, Lemery	Gerongan R.	-	SW	11-10 00	122-55-40	0 00	95 600	Irrigation	10/09/90
	012481 Tulip I.A. Inc.		Tubatubaan, Dingle	Tubatubaan CK.	-	SW	11-03-12	122-41-33	0 00	90 000	Irrigation	12/18/90
	012501 Gipa Irrig. Assoc. Inc.		Cantambugan, Dingle	Bajas CK.	-	SW	11-01-25	122 41-11	67 00	47 200	Irrigation	01/15/91
	012563 Pontoc Irig. Ass. Inc.		Pontoc, Lemery	Badbaran R.	-	SW	11-15-56	122-56-25	284 00	161 000	Irrigation	02/26/91
	012567 Justino Yaptango Jr.		Libong Cogon, Zarraga	Jalaur R.	Jalaur RIS(d)	SW	10 47-50	122-37-57	68 00	88 200	Fishery	02/26/91
	012610 Pacific Aqua Ventures		Libong Cogon, Zarragoza	Janipa CK.	-	SW	10-48 03	122-37 40	30 00	50 000	Fishery	08/13/91
	012611 Pacific Aqua Ventures		Libong Cogon, Zarragoza	Janipa CK.	-	SW	10 47-46	122-37-49	30 00	50 000	Fishery	08/13/91
	012673 George Go		Int. Luna St. La Paz	Shallow well	-	GW	10 43-28	122-33-52	0 00	1 000	Domestic	10/15/91
	012905 Tandayan Farmers IAI		Tadiyan, Ajuy	Tandayan R.	-	SW	11-12-56	123-00-01	100 00	94 100	Irrigation	10/28/91
	012906 Hin ayan IA Inc.		San Andres, San Rafael	Hin-ayan CK.	-	SW	11-10 00	122-49 16	302 00	121 900	Irrigation	10/28/91
	012926 Pacific Aqua Ventures		Libong Cogon, Zarragoza	Deep well	-	GW	10 48-27	122-37 46	0 00	0 150	Domestic	11/12/91
	012927 Fed. of Sto Domingo WWA		Magaway, Nueva Valencia	Bonga spring	-	GW	10-39 32	122-30-58	0 00	4 060	Domestic	11/12/91
	012962 Iloilo Seal Ice Making		Suba, Jaro, Iloilo City	Shallow well	-	GW	10 44 01	122-33-28	0 00	1 200	Industrial	11/26/91
	013040 Lee Chuan		Cumpania, Molo, Iloilo	Shallow well	-	GW	10-43-31	122-32-23	0 00	1 500	Industrial	01/14/92
	013041 Lee Chuan		Buhang Jaro, Iloilo City	Shallow well	-	GW	10 45 05	122-34 04	0 00	1 500	Industrial	01/14/92
	013211 Jurgenne Primavera		SFA Cruz, Iloilo City	Deep well	-	GW	10 41-15	122-31 00	0 00	0 040	Domestic	04/28/92
	013388 Glass Towers Corp.		Gen. Luna St.	Deep well	-	GW	10 42-12	122-34 02	0 00	2 000	Domestic	07/28/92
	013441 Atilano J. Gofingay		San Roque, Estancia	Pasi an R.	-	SW	11-28 23	123 07 40	0 00	1 000	Fishery	
	013488 Ildefonsa Gonzales		SFA. Rita, Anilao	Anilao R.	-	SW	10-57-49	122-46-27	53 30	68 040	Fishery	
	013587 SFA Barbara Agro Ind		SFA. Barbara	Shallow well	-	GW	10-40-58	122-31-32	0 00	2 900	Domestic	12/21/92
	013593 SFA Barbara Agro Ind		SFA. Barbara	Shallow well	-	GW	10-48-59	122-31-32	0 00	2 900	Domestic	12/21/92
	013602 Pepsi Cola Products		San Miguel, Iloilo	Deepwell	-	GW	10 45 26	122-29 58	5 50	9 700	Industrial	12/21/92
	013634 Nelson Canto		Abilay, Norte, Oton	Shallow well	-	GW	10 44 04	122-30-37	4 95	9 000	Irrigation	01/21/93
	013665 Charles Frederick Kanaan		Figueroa St., Arevalo, Iloil	Shallow well	-	GW	10 44-25	122-30-34	0 00	3 280	Commercial	02/09/93
	014067 Dingle-Pototan WD		Moroboro, Dingle	Moroboro Spring	-	GW	11 05 07	122-29 34	9 90	18 240	Domestic	11/12/93
	014068 Dingle Pototan WD		Lincud, Dingle	Morobo Spring	-	GW	11 02-49	122-27-41	4 95	9 050	Domestic	11/12/93
	014069 Dingle Pototan WD		Abangay, Pototan	Abangay Spring	-	GW	10-57-27	122-38 48	4 40	8 700	Domestic	11/12/93
	014076 Alapasco Srip		Arapasco, Batad	Sipajao R.	-	SW	11-23-26	123 04 13	754 00	675 000	Irrigation	11/12/93
	014163 Norberto A. Dasong		BRGY. Cubay, San Dionis	Water Pass	-	SW	11-24-16	123 05-20	0 00	3 000	Irrigation	01/18/94
	014299 Bacitisa Isai		Casabang, Miagao	Tamagroe R.	-	SW	10 41-25	122-12-20	242 00	240 000	Irrigation	04/15/94
	014547 Ofelia L. Jalandoni		BGY. Bulalog Pavia	Shallow well	-	GW	10 45 59	122-31-30	0 00	0 200	Domestic	12/15/94

Source: NIA Region VI office

Note : SW= surface water, GW=ground water

Table A.3. 7 Stratigraphic Correlation in Iloilo Basin

Age		Western part		Eastern part
Pleistocene		Iday formation		Cabatuan Formation
Pliocene		Tarao Formation	Guimbal Mudstone	Ulian Formation
Miocene	Late		Tubungan Siltstone	
	Middle	Singit Formation	Barasan Sandstone	Dingle -Passi Formation
			Igtalongon Shale	
	Early		SewaraganComplex	
Oligocene			Basement	Bayuso Volcanics

Table A.3. 8 List of Existing Wells (1/3)

WQ	No.	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	IWL	Q	WL	DWL	WD	Tw	EC	pH	Complet	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m		-ted	
	D24	2/18	Barangay	Ungka-I,Pavia	A	PB	HD		24.4	6.40					28.3	74	7.4	9211	
	D24	2/18	Barangay	Ungka-I,Pavia	A	PB	HD		9.1						28.7	72	6.9		
	D25	1/29	Sambag E.S.	Sambag Jaro	O	PB	HD	600							28.6	59	6.7		
	D26	1/24	Barangay Hall	HibaonNorte,Mandorr	A	PB	HD	101	25.0						29.2	80	7.7	R93	
	D27	2/18	Hibao-an E.S.	Hibao-an,Mandurriao	O	PB	HD	700	4.4			2.90		1.50	28.5	134	7.2		
	D28	1/24	Barangay Hall	Hibaon Sur,Mandorria	A	PB	HD		100.0						29.0	176	8.5		
	D29	2/18	Sta Clara E.S.	Oton	A	PB	hd			4.88								8612	
	D29	2/18	Sta Clara E.S.	Oton	O	PB	HD								27.7	78			
	D29	2/18	Sta Clara E.S.	Oton	A	PB	hd												
06	D30	1/30	Sta Monica E.S.	Oton	O	PB	HD	600	5.6			3.30	4.36	2.30	30.1	68	7.1		
	D30	1/30	Sta Monica E.S.	Oton	A	PB	hd												
	D31	2/19	8821	Sta Monica,Oton		PB	hd												
	D32	1/23	Barangay	Sta Monica,Oton	A	PB	HD		40.0						28.0	84	7.3		
	D33	2/19		Rizal,Oton	A	PB	hd												
	D34	2/19		Sta Rita,Oton	A	PB	hd		13.7	4.57								8512	
22	D35	2/19	Sta Rita E.S.	Sta Rita,Oton	O	PB	HD	600	8.2			4.10	5.90	2.05	28.0	77	7.2		
	D35	2/19	Sta Rita E.S.	Sta Rita,Oton	O	PB	HD	600	5.2			4.15		1.05	28.0	144	7.1		
	D35	2/19	Sta Rita E.S.	Sta Rita,Oton	A	PB	hd			2.44								8302	
	D36	2/19	Barangay	Sta Rita,Oton	A	PB	HD		45.7						28.8	62	7.8	8701	
	D37	2/19	MPWH	Buray,Oton	A	PB	HD								28.4	118	7.8	5801	
	D38	2/19	MPWH	Buray,Oton	A	PB	HD					0.70			28.8	176	6.8		
	D39	2/13	Barangay Hall	Tagbao Sur,Oton	A	PB	HD	50							30.1	154	7.2		
	D40	14	Public plaza	Oton	A	PB	FL		56.0						29.3			7611	
	D41	19	Oton Central E.S.	Oton	A	PB	FL		66.0						29.2			7604	
	D41	2/13	Oton Central E.S.	Oton	A	PB	FL	150	73.2						28.8	350	7.5	8600	
	D41	2/13	Oton Central E.S.	Oton	O	PB	PL	620	2.0			1.10		0.90	27.4	192	7.8		
	D41	2/13	Oton Central E.S.	Oton	O	PB													
	D42	2/13	Lambyao E.S.	Oton	A	PB	HD		76.2						29.3	266	7.3	8704	
	D42	2/13	Lambyao E.S.	Oton	A	PB	HD		48.8	1.22					30.1	414	7.4	8407	
	D42	2/13	Lambyao E.S.	Oton	O	PB	PL	720	4.0			2.25		1.75	27.8	181	7.1		
	D43	2/19	San Nicolas E.S.	San Antonio,Oton	O	PB	PL	70	4.0			1.80		2.20					
	D43	2/19	San Nicolas E.S.	San Antonio,Oton	O	PB	PL	700	3.2			1.70		1.45	27.2	126	7.8		
	D43	2/19	San Nicolas E.S.	San Antonio,Oton	A	PB	FL								28.1	289	7.7	8000	
	D44	2/13	Cagbang E.S.	Oton	O	PB	SC	820	6.3			2.60		3.50	29.1	89	7.1		0.5
	D44	2/13	Cagbang E.S.	Oton	O	PB	SC	200	5.8			2.55		3.00					
	D44	2/13	Cagbang E.S.	Oton	A	PB	HD								28.8	99	8.2		
18	D45	2/13	Barangay Hall	Oton	A	PB	hd		9.1	0.91		2.06						8602	
	D46	18	Aravalo Plaza	Aravalo	A	PB		150	102.0						28.9			8201	
	D47	22	E.Yusay Memorial S.		A	PB									29.0			8001	
	D48	2/13	Pakiad E.S.	Oton	A	PB	HD								28.5	268	6.9		
	D48	2/13	Pakiad E.S.	Oton	A	PB	SC								28.2	262	7.2		0.5
	D49	2/13	Mandurriao Plaza	Mandurriao	O	PB	hd	800	2.8			2.60		0.20					
	D50	2/19	MPWH	Mandurriao	A	PB	hd												
	D51	1/24	Mandoriao Sentral I	Mandurriao	A	PB	hd		15.2										
	D51	1/24	Mandoriao Sentral I	Mandurriao	O	PB	HD	800	4.7			1.60		3.05	28.2	82	7.3		
	D52	18	San Rafael-Balilao	Mandurriao	A	PB			58.0									7706	
	D53	17	Public market	La Paz	A	PB		100	43.0									8006	
WQ	No.	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	IWL	Q	WL	DWL	WD	Tw	EC	pH	Complet	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m		-ted	
	E01	2/17		Cagbang,Oton	A	IR	SC	100	10.1						29.5	126	7.5		
	E02	1/24	Agripina Kuatson	Kagbang,Oton	A	IR	SC	67	7.0						28.3	134	7.4		8
	E02	1/24	Agripina Kuatson	Kagbang,Oton	A	IR	SC	67											
	E03	1/24	Vicente Flores	Abily Sur,Oton	A	IR	SC		10.0						29.3	216	7.4		8
	E04	1/24	Teodoro Olivares	Abily Sor,Oton	A	IR	o-g	100	12.2			2.80						9701	
	E04	1/24	Teodoro Olivares	Abily Sor,Oton	A	IR	SC	78	10.0						28.2	104	7.2		
	E05	1/24	Elviro Santander	Abily Norte,Oton	A	IR	SC	78	12.0						28.3	105	7.3		
	E06	1/24		Abily Norte,Oton	A	IR	SC	60							28.2	115	7.3		8
	E07	1/24	Puro Maestra	Vita,Oton	O	IR	PL	800	2.8			2.20		0.60	28.5	123	7.4		
	E07	1/24	Puro Maestra	Vita,Oton	A	IR	SC	60										9500	
	E08	2/08	Marcelo Sulaton	Abily Norte,Oton	A	IR	SC	78	13.7						28.1	112	7.1		8
	E08	2/08	Marcelo Sulaton	Abily Norte,Oton	A	IR	SC	60							27.9	100	7.1		7.5
	E09	2/19	Demetrio Lagis	Sta Clara,Oton	A	IR	SC												
	E10	2/25		Abily Norte,Oton	O	IR	PL												
WQ	No.	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	IWL	Q	WL	DWL	WD	Tw	EC	pH	Complet	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m		-ted	
	F01	2/06	Juan Sugal	Ungka,Pavia	O	HH	HD	750	5.6			3.00		2.55	28.9	141	7.3	5104	
07	F02	1/30	Romy Guelos	Balabag,Sta Barbara	O	HH	SC	750	6.0			3.05	6.00	2.95	27.9	167	7.8	8200	
12	F03	2/07	Lydia Echang	Barangay I,San Migue	O	HH	PL	620	3.4			0.40	1.58	2.95	27.0	130	6.9		
	F04	2/19	Noel Saraman	Rizal,Oton	O	HH	SC	700	10.4			7.75		2.60	28.9	74	7.1		
23	F04	2/19	Noel Saraman	Rizal,Oton	O	HH	SC	800	7.4			5.49		1.91	28.3	62	7.2		
13	F05	2/07	Ernesto Morano	Bita Norte,Oton	O	HH	HD	660	5.4			1.55	2.28	3.85	28.0	128	6.7		
	F06	2/08	Cristad	Jibao-an,Pavia	O	HH	PL	700	4.7			2.55		2.10	28.9	117	7.2		
21	F07	2/18	Paul-Leen Ent.	Hibao-an,Mandurriao	O	HH	SC	700	3.8			2.42	2.79	1.38	28.3	153	7.1		
09	F08	1/24	Teodoro Olivares	Abily Sor,Oton	O	HH	SC	700	5.2			2.50	4.25	2.65	27.0	109	7.1	8000	
25	F09		DSW	Abily Sor,Oton	O	HH	PL					1.52	2.05						
	F10	1/24	Vicente Flores	Abily Sur,Oton	O	HH	PL	800	3.6						27.1	189	7.1	9701	
	F11	1/24	PangPang	Pakiad,Oton	O	HH	HD		5.0						29.4	192	7.3	9500	

Table A.3. 8 List of Existing Wells (2/3)

WG	No.	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	SWL	Q	WL	DWL	WD	Tw	EC	pH	Completed	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m			
	A1	1/23	MIWD #1	San Jose,San Miguel	T	WS	SM	350		5.59	97	46.20			28.4	91	7.5	8402	
	A2	1/23	MIWD #2	San Jose,San Miguel	T	WS	TB	350	62.0	8.76	54				28.8	74	7.5	8308	20
19	A3	1/23	MIWD #3A	Jibaon,Pavia	T	WS	SM	350	124.0	2.78	125	45.00	>52m		28.0	100	7.9	8311	50
	A4	2/18	MIWD #7	San Jose,San Miguel	T	WS	SM	350	42.7	2.1		41.55			28.3	81	7.7	8003	
	A5	1/23	MIWD #8	Caboloan,Oton	T	WS	SM	300		5.81	153				28.5	78	7.9		
14	A6	2/06	MIWD #9	Bita Norte,Oton	T	WS	SM	300	101.0	8.44	138	34.97	42.78		27.4	111	7.6	8910	
24	A7	2/06	MIWD #10	Bita Norte,Oton	T	WS	SM	300	84.0	4.87	145	29.75	41.86		27.9	89	7.6	8910	
10	A8	1/23	MIWD #11	Sta Monica,Oton	T	WS		300	100.0			16.38						9701	
	A9	1/24	MIWD #12	San Jose,San Miguel	T	WS	o-g												
WG	No.	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	SWL	Q	WL	DWL	WD	Tw	EC	pH	Completed	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m			
	B1	1/23	Pepsi #1	San Jose,San Miguel	T	FO	SM	300				>50m							
	B2	1/23	Pepsi #2	San Jose,San Miguel	T	FO	SM	300	139.0		9	41.47	44.20	(9504)	30.3	83	7.9	9504	
	B3		Coca Cola	Pavia	T	FO	o-g												
02	B4	1/24	Jumbo Ice Plant	Kalahonan,Mandurriao	T	FO	SC	125	18.0			2.89	5.50	15.11	29.2	127	7.4		
	B5	1/29	Vitarich Food	Maliao,Pavia	A	FO	SC	90							28.6	83	7.4		1.5
	B6	1/29	KIMWA Const Dev.C	Maliao,Pavia	A	FO	SC	78	18.9						28.4	51	7.2	9810	7.5
	B7	2/06	Felix Grocia	Abiy Norte,Oton	A	FO	SC		18.9						26.7	87	7.5		1.5
WG	No.	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	SWL	Q	WL	DWL	WD	Tw	EC	pH	Completed	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m			
03	C01	1/24	Post Harvest Facil	Manbug Oton	T	OF	SM	200	55.0	5.1	8	3.47	3.74		26.6	105	8.4	9811	
04	C01	1/24	Post Harvest Facil	Manbug Oton	O	OF		900	4.4			1.31		3.04					
05	C01	1/24	Post Harvest Facil	Manbug Oton	O	OF		900	3.7			1.31		2.34					
	C02	2/17	Pavia Town Hall	Poblacion,Pavia	T	OF	SG	150				4.80							
15	C03	2/06	Univ of Iloilo	Ungka,Pavia	T	OF	SM	150	30.5			4.82							
	C03	2/06	Univ of Iloilo	Ungka,Pavia	A	OF	SC		18.3			2.85			27.3	98	7.5		
	C04	1/24	Carmen Ledesma V	Tacas,Jaro	T	OF	SM	150	50.0						27.3	92	7.6		
	C05	2/06	Roseta Rice Mill	San Jose,San Miguel	O	OF	SC	810	4.9			1.00		3.90	27.2	128	7.1		
	C06	2/18	Concrete	Balabag,Pavia	O	OF	SC	850	3.5			1.80		1.65	31.3	127	7.1		
01	C07	1/22	NIA Tacas	Tacas,Jaro	O	OF	SC	1000	8.3			1.62	2.00	6.63	27.7	93	7.6		0.75
	C08	2/18	Paul-Leon Ent.	Hibao-an,Mandurriao	O	OF	SC	940	6.4			2.75		3.65					
	C09	2/15	Central Philip. Univ	Jaro	O	OF	SC	1800	9.5			5.75		3.75	28.0	124	7.4		
20	C09	2/15	Central Philip. Univ	Jaro	O	OF	SC	1000	8.6			3.03	3.92	5.57	28.5	131	7.6		1.5
	C10	2/19	Rice Mill	Oton	O	OF	SC	600	3.4			2.05		1.35					
	C11	2/13	Ware house	Tagbac Sur,Oton	O	OF	HD	800							32.0	115	7.2		
	C12	1/24	Rice Mill	Kalahonan,Mandurriao	O	OF	SC	800							29.6	112	7.1	7800	
	C13	2/13	Seminary	Mandurriao	O	OF	SC	730	4.1			2.20		1.90	27.6	170	8.0		
	C13	2/13	Church	Mandurriao	O	OF	HD	730							28.1	116	8.6		
	C14	23	Hotel Del Rio	Molo	T	OF	SM												
WG	No.	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	SWL	Q	WL	DWL	WD	Tw	EC	pH	Completed	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m			
	D01	03	Municipal Hall	Sta Barbara	A	PB									29.0				
	D02	1/29	Arturo Licup	Sta Barbara	A	PB	FL		177.4						29.3	145	8.3	7700	
	D03	1/29	Sta Barbara I E.S.	Sta Barbara	A	PB	FL	100	106.7			-2.00			28.1	142	8.6	7509	
	D03	1/29	Sta Barbara I E.S.	Sta Barbara	O	PB	HD												
	D04	04	Sta B.Market	Sta Barbara	A	PB	FL	132							28.3			8112	
	D05	05	Sta B.Highway	Sta Barbara	A	PB	FL	137							28.8			7512	
	D06	1/29	Bolong E.S.	Sta Barbara	A	PB	hd		21.3	1.22								8611	
08	D06	1/29	Bolong E.S.	Sta Barbara	O	PB	SC	700	5.3			2.59	2.78	2.71	28.6	80	7.4		
	D07	1/29	Cabugao Sur E.S.	Pavia	A	PB	hd		54.9									9500	
	D07	1/29	Cabugao Sur E.S.	Pavia	O	PB	PL		5.1			4.15		0.95					
	D08	1/29	Pavia Pilot E.S.	Pavia	A	PB	hd		20.7									7508	
	D08	1/29	Pavia Pilot E.S.	Pavia	O	PB	HD								28.8	70	7.0	9500	
	D08	1/29	Pavia Pilot E.S.	Pavia	O	PB	HD								26.0	51	7.4	7900	
	D09	1/29	Barangay	Pagsangan,Jaro	A	PB	hd		42.7	1.52		1.25						9102	
	D10	2/18	Igtambo E.S.	San Muigel	A	PB	hd		12.2	1.22								8612	
	D10	2/18	Igtambo E.S.	San Muigel	O	PB	HD					2.10			28.4	89	7.2		
	D11	2/18	Poblacion	San Muigel	A	PB	hd		51.8	6.71								8512	
	D12	2/18	Poblacion	San Muigel	A	PB	hd		76.2	3.96								9101	
	D13	2/18	Poblacion Plaza	San Muigel	A	PB	HD		45.7						28.5	92	6.8	9012	
	D14	1/23	SanMiguel E.S.	San Jose,San Miguel	O	PB	SC	700	6.4			2.20		4.20	27.2	73	7.2		
	D14	1/23	SanMiguel E.S.	San Jose,San Miguel	O	PB	HD	700							28.9	67	6.9		
	D14	1/23	SanMiguel E.S.	San Jose,San Miguel	A	PB	hd												
	D15	1/30	Balabag Jibao-an E	Jibaon,Sta Barbara	O	PB	HD		5.0					5.00	28.4	103	6.8		
	D15	1/30	Balabag Jibao-an E	Jibaon,Sta Barbara	A	PB	hd												
	D16	1/30	Barangay Hall	Balabag,Sta.Barbara	A	PB	HD	203	48.8						29.8	116	7.3	9406	
	D16	1/30	Barangay Hall	Balabag,Sta.Barbara	O	PB		650	5.7			2.40		3.30					
	D17	1/29	Balabag E.S.	Balabag,Pavia	O	PB	SC	700	7.0			2.53		4.47					
	D17	1/29	Balabag E.S.	Balabag,Pavia	A	PB	hd			0.91								8408	
	D18	2/06	San Jose E.S.	San Miguel	A	PB	HD	51	9.1						28.0	92	7.5		
	D18	2/06	San Jose E.S.	San Miguel	O	PB	SC	720	2.5			2.10		0.35	28.9	125	7.3		
	D19	13	San Jose Higway	San Miguel	A	PB			122.0						27.9			8000	
11	D20	2/06	Jibao-an E.S.	Jibao-an,Pavia	O	PB	SC	700	6.4			1.16	2.06	5.24	27.9	123	7.0		
	D21	2/18	MPWH	Jibao-an,Pavia	O	PB	hd		33.5	7.62								9206	
	D22	2/06	Padoc E.S.	Padoc,Pavia	A	PB	HD		19.8						28.2	63	7.5	8412	
	D22	2/06	Padoc E.S.	Padoc,Pavia	O	PB	HD	820	4.4			2.00		2.35	27.9	94	7.1		
	D23	15	Agenan E.S.	Pavia	A	PB			67.0						27.9			8103	

Table A.3. 8 List of Existing Wells (3/3)

WG	No	Date	Name	Location	Type	Usage	Pump	Dia.	Depth	IWL	Q	WL	DWL	WD	Tw	EC	pH	Completed	HP
								mm	m	m	m3/h	m	m	m	deg	mS/m			
	F12	2/13		Mandurriao	O	HH	HD	800							28.0	153	7.0		
	F13	2/13	Jaime Haro	Lambyao,Oton	A	HH	HD	50	6.7						30.5	89	7.5		
17	F13	2/13	Jaime Haro	Lambyao,Oton	O	HH	PL	700	5.5			2.60	3.06	2.90	27.4	112	7.3		
	F14	2/13		Lambyao,Oton	O	HH	PL	720	4.7			2.85		1.85	27.7	184	7.3		
	F15	2/13		Tagbac Sur,Oton	O	HH	PL	750	3.7			1.70		1.95	28.9	133	7.2		
16	F16	2/13	Rolando Trancild	Tagbac Sur,Oton	O	HH	PL	600	6.4			1.75	2.32	4.64	27.8	208	7.0		
	F17	2/19	Ste Filomena Subdi	Oton	O	HH	PL	700	5.6			1.35		4.25	27.7	189	7.2		

WG : Water Gauge No.
Usage WS=Water Supply
FC=Facrory
OF=Office
PB=Pubulic
IR=Irrigation
HH=Household
Well Type: T =Tube
A =Artesian
O =Open
Pump Type: SM=Submergible pump
TB=Turbin pump
SC=Suction pump
HD=Handpump
hd=Handpump(Out of function)
PL=Pail
FL=Flowing

Dia: Diameter
IWL : Initial Water Level
Q : Pump Capacity
WL : Static Water Level
DWL: Dinamic Water Level
Tw : Water Temperature
EC : Electric Conductivity
Completed : Year and Month of Completed
HP :Horse Power of Pump

Table A.3. 9 Pumping Test Records of Deep Wells

Well No.	Date	SWL	PWL	Draw Down	Test Q	Specific Capacity	Designed Q
		m	m	m	l/s	l/s/m	l/s
1	02/84	5.59	21.60	16.01	52.88	3.3	30
	1995	45.20	53.00	7.80	20	2.6	
2	08/83	6.78	25.13	18.35	14.77	0.8	15
	1995	33.80	51.10	17.30	13	0.8	
3A	11/83	2.76	21.20	18.44	38.4	2.1	40
	1995	30.10	33.55	3.45	33	9.6	
	01/97	45.00	52.00	7.00	35	5.0	
7	03/80	2.10	6.14	4.04	38.45	9.5	30
	1995	42.65			15		
	01/97	34.97	42.76	7.79	30	3.9	
8	10/89	5.81	28.69	22.88	40.13	1.8	30
	1995	19.77	29.61	9.84	22	2.2	
9	10/89	8.44	27.30	18.86	38.46	2.0	30
	1995	19.65	26.50	6.85	19	2.8	
	01/97	34.97	42.76	7.79	38	4.9	
10	10/89	4.87	22.75	17.88	40.15	2.2	30
	1995	25.65	37.20	11.55	30	2.6	
	01/97	29.75	41.86	12.11	40	3.3	

Table A.3. 10 Chemical Contents of Groundwater on Deep Wells

No.	Date	Name	Na+	K+	Ca++	Mg++	Cl-	HCO3-	SO4--	Na+	K+	NK	Ca++	Mg++	Cl-	HCO3-	SO4--
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	meq/l	meq/l	meq/l	meq/l	meq/l	meq/l	meq/l	meq/l
A5	10/89	MIWD#08	50	15	14	22	23	259	1	2.17	0.38	2.56	0.70	1.81	0.65	4.24	0.02
A6	10/89	MIWD #9	55	38	27	39	37	390	10	2.39	0.97	3.36	1.35	3.21	1.04	6.39	0.21
A7	10/89	MIWD #10	64	18	15	35	38	343	2	2.78	0.46	3.24	0.75	2.88	1.07	5.62	0.04
C14	11/81	Hotel Del Rio	484	9.4	129	62	526	1000	0	21.04	0.24	21.28	6.44	5.10	14.83	16.39	0.00
D01	11/81	Municipal Hall	395	11	10	7	373	780	10	17.17	0.28	17.46	0.50	0.58	10.52	12.78	0.21
D04	11/81	Sta.B.Market	375	26	6	3	152	793	10	16.30	0.66	16.97	0.30	0.25	4.29	13.00	0.21
D05	11/81	Sta.B.Highway	540	30	14	7	294	1290	0	23.48	0.77	24.25	0.70	0.58	8.29	21.14	0.00
D19	11/81	San Jose Higway	84	10	35	27	3	427	0	3.65	0.26	3.91	1.75	2.22	0.08	7.00	0.00
D23	11/81	Aganan E.S.	624	31	9	15	564	525	0	27.13	0.79	27.92	0.45	1.23	15.91	8.60	0.00
D40	11/81	Public plaza	468	9.4	138	68	563	1280	5	20.35	0.24	20.59	6.89	5.59	15.88	20.98	0.10
D41	11/81	Oton Central E.S.	377	7	71	44	263	1050	0	16.39	0.18	16.57	3.54	3.62	7.42	17.21	0.00
D46	11/81	Arevalo Plaza	753	56	27	188	924	952	5	32.74	1.43	34.17	1.35	15.46	26.06	15.60	0.10
D47	11/81	E.Yusay Memorial S.	950	19	126	74	977	1570	0	41.30	0.49	41.79	6.29	6.09	27.55	25.73	0.00
D52	11/81	San Rafael-Balilao E.	810	49	53	55	996	1070	0	35.22	1.25	36.47	2.64	4.52	28.09	17.54	0.00
D53	11/81	Public market	1230	35	90	61	2060	836	0	53.48	0.90	54.37	4.49	5.02	58.09	13.70	0.00

after JICA(1982) and MIWD

Table A.3.11 Soil Distribution by RISs and Extension Areas

(Unit: ha)

Soil Series / Mapping Unit	Sta. Rita			Uningan	Faraon		Hill & Hillock	Residential & Built-up	River & Creak	Total
	10A	10Af3	10B	20Af1	30A	30B1				
Existing RIS										
Jalaur Proper	10,770	990		90	140		80	420	440	12,930
Jalaur Extension	1,520			460	2,570	50	640	310	120	5,670
Suague	3,430		160				220	450	20	4,280
Aganan	5,030							1,460	30	6,520
Sta. Barbara	3,410							1,390	20	4,820
Subtotal	24,160	990	160	550	2,710	50	940	4,030	630	34,220
Ratio (%)	70.6	2.9	0.5	1.6	7.9	0.1	2.7	11.8	1.8	100.0
Extension Area										
1. Pototan	490							10		500
2. New Lucena	400							10		410
3. Sta. Barbara			990				30	10		1,030
4. San Miguel	2,470							30	10	2,510
5. Oton	1,350							70	10	1,430
6. Barotac Nuevo					2,720	70		20	20	2,830
Subtotal	4,710	0	990	0	2,720	70	30	150	40	8,710
Ratio (%)	54.1	0.0	11.4	0.0	31.2	0.8	0.3	1.7	0.5	100.0
Total	28,870	990	1,150	550	5,430	120	970	4,180	670	42,930
Ratio (%)	67.2	2.3	2.7	1.3	12.6	0.3	2.3	9.7	1.6	100.0

Table A.3.12 (1/5) Physical and Chemical Properties of Soils by Laboratory Test

Location / Pit No.	Horizon / Pit No.	Depth	pH	Phosphate	Organic Carbon	Organic Matter	Total Nitrogen	C/N Ratio	EC	Exchangeable Bases					CEC	Base Saturation	Particle Size Distribution (%)			Texture Class
			(H2O)							Ca	Mg	Na	K	Total			Sand	Silt	Clay	
		cm	1 : 1	ppm	%	%	%		mmho	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	2-.05mm	.05-.002mm	<.002mm	
Salangan, Oton																				
	1	0-30	5.8	2.1	0.87	1.50	0.06	14.5	0.08	12.2	14.3	0.2	0.3	27.0	39.1	69	1.8	30.4	67.8	Clay
		30-60	6.3	1.8	0.48	0.83	0.04	12.0	0.12	18.5	21.1	0.4	0.3	40.3	52.5	77	1.8	23.4	74.8	Clay
		60-90	6.5		0.34	0.58	0.03	11.3	0.12	21.0	21.8	0.6	0.3	43.7	56.7	77	7.8	26.4	65.8	Clay
Rizal, Oton																				
	2	0-30	6.8	3.2	0.56	0.96	0.03	18.7	0.05	11.1	12.9	0.4	0.2	24.6	31.1	79	13.8	33.4	52.8	Clay
		30-60	6.9	2.2	0.55	0.95	0.04	13.8	0.06	13.5	16.2	0.4	0.2	30.3	38.2	79	13.8	27.4	58.8	Clay
		60-90	6.7		0.39	0.67	0.02	19.5	0.08	16.8	19.8	0.4	0.2	37.2	47.9	78	17.8	26.4	55.8	Clay
Tuburan, Oton																				
	3	0-30	5.6	6.2	1.42	2.44	0.10	14.2	1.04	16.0	11.5	0.7	0.2	28.4	35.3	80	20.8	26.4	52.8	Clay
		30-60	6.2	7.0	0.57	0.98	0.03	19.0	0.27	18.4	17.3	0.7	0.2	36.6	45.5	80	13.8	29.4	56.8	Clay
		60-90	6.4		0.34	0.58	0.02	17.0	0.30	21.5	19.1	0.9	0.2	41.7	51.8	81	14.8	38.4	46.8	Clay
Abilay Norte, Oton																				
	7	0-30	6.8	4.7	1.42	2.44	0.10	14.2	0.43	34.1	14.8	0.9	0.5	50.3	60.6	83	1.8	22.4	75.8	Clay
		30-60	6.8	2.7	0.78	1.34	0.03	26.0	0.30	29.7	20.8	1.1	0.4	52.0	58.1	90	1.8	20.4	77.8	Clay
		60-90	7.0		0.47	0.81	0.01	47.0	0.44	25.7	30.2	1.3	0.4	57.6	64.0	90	0.8	27.4	71.8	Clay
Brgy. Hibao-an, Mandurriao																				
	8	0-30	6.6	18.0	1.10	1.89	0.09	12.2	0.12	12.7	7.2	0.3	0.4	20.6	24.4	84	17.8	38.4	43.8	Clay
		30-60	6.9	13.6	0.41	0.70	0.03	13.7	0.20	19.2	13.9	0.5	0.2	33.8	39.9	85	17.8	27.4	54.8	Clay
		60-90	6.9		0.33	0.57	0.02	16.5	0.15	20.5	16.5	0.7	0.2	37.9	45.8	83	3.8	52.4	43.8	Silty Clay
Brgy. San Jose, San Miguel																				
	9	0-30	6.3	3.5	1.14	1.96	0.07	16.3	0.36	26.5	15.4	0.7	0.3	42.9	53.7	80	1.8	24.4	73.8	Clay
		30-60	6.6	3.4	0.65	1.12	0.03	21.7	0.38	30.5	21.0	1.3	0.3	53.1	60.6	88	11.8	7.4	80.8	Clay
		60-90	6.6		0.42	0.72	0.02	21.0	0.41	32.5	21.0	1.4	0.3	55.2	63.2	87	3.8	29.4	66.8	Clay
Brgy. Pandac, Pavia																				
	10	0-30	6.7	25.5	0.71	1.22	0.05	14.2	0.47	29.7	16.0	1.2	0.3	47.2	59.5	79	3.8	22.4	73.8	Clay
		30-60	6.7	8.2	0.93	1.60	0.04	23.3	0.40	31.6	16.0	0.8	0.3	48.7	56.7	86	11.8	11.4	76.8	Clay
		60-90	6.6		0.42	0.72	0.02	21.0	0.22	32.6	13.6	1.0	0.2	47.4	54.4	87	2.8	42.4	54.8	Silty Clay
Brgy. Consolacion, San Miguel																				
	11	0-30	6.3	3.7	1.23	2.12	0.06	20.5	0.17	22.9	18.7	0.5	0.4	42.5	54.6	78	1.8	23.4	74.8	Clay
		30-60	6.8	9.3	0.67	1.15	0.02	33.5	0.22	30.0	22.5	0.7	0.4	53.6	60.9	88	1.8	25.4	72.8	Clay
		60-90	6.7		0.40	0.69	0.03	13.3	0.25	35.1	22.2	1.1	0.3	58.7	65.4	90	9.8	31.4	58.8	Clay
Brgy. Inangayan, Sta. Barbara																				
	12	0-30	6.8	6.1	0.63	1.08	0.06	10.5	0.15	20.5	17.1	0.4	0.3	38.3	47.8	80	17.8	20.4	61.8	Clay
		30-60	6.5	55.6	0.49	0.84	0.04	12.3	0.20	23.5	17.7	0.5	0.3	42.0	51.9	81	47.8	0.4	51.8	Snady Clay
		60-90	6.8		0.24	0.41	0.02	12.0	0.12	23.9	13.2	0.5	0.2	37.8	42.9	88	14.8	52.4	32.8	Silty Clay Loam
Abilay Norte, Oton																				
	4	0-30	6.5	3.9	1.32	2.27	0.12	11.0	0.31	27.8	17.1	0.6	0.5	46.0	58.7	78	1.8	23.4	74.8	Clay
		30-60	6.4	2.9	0.73	1.26	0.03	24.3	0.46	27.6	24.6	1.0	0.4	53.6	58.7	91	0.8	18.4	80.8	Clay
		60-90	6.4		0.41	0.70	0.02	20.5	0.52	27.6	30.4	1.1	0.4	59.5	57.8	103	1.8	20.4	77.8	Clay
Pakiad, Mandurriao																				
	5	0-30	6.2	6.4	1.24	2.13	0.10	12.4	0.12	14.0	11.1	0.2	0.5	25.8	34.6	75	7.8	30.4	61.8	Clay
		30-60	6.6	2.5	0.52	0.89	0.03	17.3	0.13	19.7	16.1	0.4	0.3	36.5	45.8	80	1.8	26.4	71.8	Clay
		60-90	7.1		0.40	0.69	0.02	20.0	0.12	25.6	17.8	0.5	0.3	44.2	55.8	79	3.8	29.4	66.8	Clay

Table A.3.12 (2/5) Physical and Chemical Properties of Soils by Laboratory Test

Location / Pit No.	Pit No.	Horizon	Depth	pH (H2O)	Phosphate	Organic Carbon	Organic Matter	Total Nitrogen	C/N Ratio	EC	Exchangeable Bases					CEC	Base Saturation	Particle Size Distribution (%)			Texture Class
											Ca	Mg	Na	K	Total			Sand	Silt	Clay	
			cm	1 : 1	ppm	%	%	%		mmho	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	2-.05mm	.05-.002mm	≤.002mm	
San Jose, Oton																					
	6		0-30	7.1	5.4	1.72	2.96	0.12	14.3	0.40	29.4	14.1	0.6	1.5	45.6	57.3	80	31.8	13.4	54.8	Clay
			30-60	6.6	3.5	0.68	1.17	0.04	17.0	0.39	31.9	16.8	1.2	0.4	50.3	57.6	87	3.8	19.4	76.8	Clay
			60-90	6.6		0.31	0.53	0.02	15.5	0.33	28.1	15.1	1.1	0.3	44.6	52.3	85	17.8	27.4	54.8	Clay
Tacas, Jaro																					
	13		0-30	6.7	71.4	0.85	1.46	0.06	14.2	0.19	22.8	9.7	0.5	0.4	33.4	42.2	79	15.8	34.4	49.8	Clay
			30-60	6.3	80.4	0.68	1.17	0.04	17.0	0.11	28.6	13.3	0.5	0.3	42.7	49.0	87	9.8	39.4	50.8	Clay
			60-90	7.1		0.45	0.77	0.03	15.0	0.09	32.0	12.9	0.5	0.3	45.7	54.1	84	3.8	47.4	48.8	Silty Clay
Tacas, Jaro																					
	14		0-30	6.5	26.3	1.53	2.63	0.11	13.9	0.40	28.2	14.0	0.6	0.5	43.3	55.6	78	3.8	28.4	67.8	Clay
			30-60	7.0	48.5	1.07	1.84	0.06	17.8	0.35	30.2	15.1	0.8	0.3	46.4	55.6	83	5.4	38.4	56.2	Clay
			60-90	7.0		0.72	1.24	0.04	18.0	0.12	30.4	15.5	0.6	0.3	46.8	54.8	85	9.4	43.4	47.2	Silty Clay
Butatala, Jaro																					
	15		0-30	6.8	13.7	1.33	2.29	0.10	13.3	0.12	21.2	9.8	0.5	0.4	31.9	40.2	79	19.4	34.4	46.2	Clay
			30-60	7.0	29.5	0.47	0.81	0.04	11.8	0.14	22.1	10.7	0.6	0.3	33.7	41.1	82	27.4	36.4	36.2	Clay Loam
			60-90	7.1		0.45	0.77	0.03	15.0	0.13	26.3	14.2	0.7	0.4	41.6	51.3	81	12.4	34.4	53.2	Clay
Tigum, Pavia																					
	16		0-30	6.5	16.3	1.57	2.70	0.12	13.1	0.72	28.7	13.6	0.7	0.5	43.5	53.7	81	7.4	33.4	59.2	Clay
			30-60	6.8	81.2	0.94	1.62	0.05	18.8	0.27	27.6	15.3	0.7	0.6	44.2	52.0	85	6.4	32.4	61.2	Clay
			60-90	6.9		0.78	1.34	0.04	19.5	0.21	25.2	13.4	0.8	0.5	39.9	45.7	87	16.4	34.4	49.2	Clay
San Vicente, Leganes																					
	17		0-30	6.5	6.0	1.38	2.37	0.10	13.8	0.47	18.8	9.5	0.8	0.2	29.3	33.0	89	19.4	36.4	44.2	Clay
			30-60	6.8	4.6	0.73	1.26	0.05	14.6	0.28	20.3	12.3	0.7	0.2	33.5	40.9	82	19.4	31.4	49.2	Clay
			60-90	7.0		0.43	0.74	0.02	21.5	0.20	22.1	13.2	0.7	0.2	36.2	43.6	83	25.4	36.4	38.2	Clay Loam
Lapayon, Leganes																					
	18		0-30	7.1	4.4	1.17	2.01	0.09	13.0	0.27	47.2	7.3	0.4	0.5	55.4	50.5	110	1.4	41.4	57.2	Silty Clay
			30-60	7.0	16.8	0.62	1.07	0.05	12.4	0.15	27.9	6.3	0.4	0.4	35.0	37.0	99	16.4	34.4	49.2	Clay
			60-90	6.9		0.51	0.88	0.03	17.0	0.12	22.9	7.3	0.4	0.2	30.8	38.5	80	24.4	32.4	43.2	Clay
Lagamutan, Leganes																					
	19		0-30	6.3	12.3	1.41	2.42	0.10	14.1	0.16	21.6	8.1	0.6	0.3	30.6	40.9	75	20.4	32.4	47.2	Clay
			30-60	6.6	32.6	0.43	0.74	0.04	10.8	0.14	20.8	8.1	0.6	0.2	29.7	39.5	75	29.4	35.4	35.2	Clay Loam
			60-90	6.9		0.47	0.81	0.03	15.7	0.12	25.0	14.0	0.9	0.4	40.3	51.3	78	11.4	36.4	52.2	Clay
Mambuyo, Sta Barbara																					
	20		0-30	6.5	1.2	1.08	1.86	0.08	13.5	0.04	15.7	14.5	0.2	0.4	30.8	39.6	78	17.4	30.4	52.2	Clay
			30-60	6.9	9.1	0.35	0.60	0.03	11.7	0.01	21.7	18.9	0.4	0.3	41.3	54.4	76	10.4	51.4	38.2	Silty Clay Loam
			60-90	6.9		0.16	0.27	0.01	16.0	0.01	24.4	16.3	0.7	0.2	41.6	47.8	87	19.4	59.4	21.2	Silt Loam
Cabilaoan, New Lucena																					
	21		0-30	5.8	1.0	0.95	1.63	0.09	10.6	0.11	16.2	16.7	0.5	0.3	33.7	44.9	75	5.4	25.4	69.2	Clay
			30-60	6.2	0.6	0.66	1.13	0.06	11.0	0.08	17.1	15.8	0.4	0.3	33.6	40.4	83	0.4	34.4	65.2	Clay
			60-90	7.0		0.34	0.58	0.03	11.3	0.07	20.3	21.1	0.5	0.4	42.3	53.3	79	5.4	20.4	74.2	Clay
Pob. Zarraga																					
	22		0-30	6.6	5.6	1.38	2.37	0.10	13.8	0.15	18.4	11.4	0.2	0.4	30.4	39.3	77	4.4	38.4	57.2	Clay
			30-60	6.7	2.7	0.63	1.08	0.05	12.6	0.11	21.1	18.4	0.4	0.4	40.3	51.6	78	13.4	23.4	63.2	Clay
			60-90	6.8		0.22	0.38	0.02	11.0	0.13	21.4	21.6	0.9	0.4	44.3	56.7	78	9.4	38.4	52.2	Clay

Table A.3.12 (3/5) Physical and Chemical Properties of Soils by Laboratory Test

Location / Pit No.	Horizon / Pit No.	Depth	pH (H2O)	Phospbate	Organic Carbon	Organic Matter	Total Nitrogen	C/N Ratio	EC	Exchangeable Bases					CEC	Base Saturation	Particle Size Distribution (%)			Texture Class
										Ca	Mg	Na	K	Total			Sand	Silt	Clay	
		cm	1 : 1	ppm	%	%	%		mmho	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	2-.05mm	.05-.002mn	< 002mm	
Dawis Sur, Zarraga																				
23		0-30	7.1	2.2	1.17	2.01	0.11	10.6	0.07	20.6	11.0	0.3	0.3	32.2	41.5	78	11.4	31.4	57.2	Clay
		30-60	6.9	1.8	0.76	1.31	0.07	10.9	0.10	20.5	12.9	0.4	0.3	34.1	43.4	79	9.4	29.4	61.2	Clay
		60-90	7.1		0.52	0.89	0.04	13.0	0.08	22.6	15.2	0.5	0.3	38.6	49.6	78	5.4	33.4	61.2	Clay
Jalaud, Zarraga																				
24		0-30	7.0	1.2	1.01	1.74	0.09	11.2	0.08	19.2	11.9	0.3	0.3	31.7	39.6	80	11.4	29.4	59.2	Clay
		30-60	6.8	1.0	0.55	0.95	0.04	13.8	0.07	19.0	19.8	0.5	0.3	39.6	46.5	85	8.4	30.4	61.2	Clay
		60-90	6.8		0.35	0.60	0.02	17.5	0.07	20.1	22.0	0.9	0.4	43.4	53.1	82	7.4	26.4	66.2	Clay
Dongol, Pototan																				
25		0-30	6.4	0.8	1.39	2.39	0.13	10.7	0.24	29.6	20.2	0.8	0.4	51.0	61.3	83	5.4	30.4	64.2	Clay
		30-60	6.4	1.0	0.92	1.58	0.09	10.2	0.32	29.4	20.2	0.9	0.3	50.8	63.2	80	6.4	19.4	74.2	Clay
		60-90	6.5		0.52	0.89	0.05	10.4	0.31	31.3	21.3	0.8	0.4	53.8	60.2	89	7.4	37.4	55.2	Clay
Culut, Pototan																				
26		0-30	6.5	1.5	1.58	2.72	0.14	11.3	0.24	31.1	10.5	0.4	0.4	42.4	47.7	89	8.4	33.4	58.2	Clay
		30-60	6.9	2.2	0.81	1.39	0.07	11.6	0.06	20.3	14.1	0.4	0.4	35.2	45.0	78	2.4	35.4	62.2	Clay
		60-90	6.9		0.39	0.67	0.03	13.0	0.06	18.1	20.7	0.4	0.3	39.5	49.2	80	3.4	44.4	52.2	Silty Clay
Casalvagan, Lucena																				
27		0-30	6.8	0.8	1.07	1.84	0.10	10.7	0.17	24.4	13.9	0.4	0.4	39.1	50.7	77	5.4	50.4	44.2	Silty Clay
		30-60	6.5	0.5	0.78	1.34	0.06	13.0	0.23	24.0	19.1	0.6	0.3	44.0	54.0	81	8.4	21.4	70.2	Clay
		60-90	6.6		0.44	0.76	0.03	14.7	0.41	27.0	21.8	0.9	0.4	50.1	62.3	80	7.4	17.4	75.2	Clay
Monavilla, Pototan																				
28		0-30	6.6	1.8	1.81	3.11	0.15	12.1	0.13	16.2	10.1	0.4	2.4	29.1	34.9	83	14.8	39.8	45.4	Clay
		30-60	6.7	0.6	1.10	1.89	0.08	13.8	0.11	19.9	16.8	0.8	0.5	38.0	46.5	82	12.8	33.8	53.4	Clay
		60-90	6.8		0.41	0.70	0.03	13.7	0.09	23.7	19.6	1.0	0.3	44.6	56.3	79	26.8	32.8	40.4	Clay
Cahaquican, Pototan																				
29		0-30	6.5	0.7	0.78	1.34	0.06	13.0	0.14	11.3	6.1	0.4	0.2	18.0	23.0	78	18.8	41.8	39.4	Silty Clay Loam
		30-60	6.9	1.3	0.43	0.74	0.04	10.8	0.23	19.2	16.4	0.9	0.3	36.8	46.2	80	12.8	28.8	58.4	Clay
		60-90	6.6		0.36	0.62	0.03	12.0	0.27	22.5	19.8	0.9	0.4	43.6	53.5	81	12.8	35.8	51.4	Clay
Amamaros, Pototan																				
30		0-30	7.1	1.5	0.39	1.19	0.06	6.5	0.14	19.4	15.2	0.5	0.3	35.4	39.1	91	19.8	25.8	54.4	Clay
		30-60	6.9	6.1	0.47	0.81	0.04	11.8	0.15	19.1	11.3	0.9	0.3	31.6	44.3	71	34.8	20.8	44.4	Clay
		60-90	6.8		0.18	0.31	0.01	18.0	0.08	16.4	11.2	0.9	0.2	28.7	33.5	86	62.8	12.8	24.4	Sandy Clay Loam
Poblacion, Pototan																				
31		0-30	6.7	2.1	1.44	2.48	0.11	13.1	0.11	15.9	10.1	0.5	2.5	29.0	35.2	82	14.8	39.8	45.4	Clay
		30-60	6.4	2.3	0.87	1.50	0.06	14.5	0.12	19.9	17.6	0.9	0.4	38.8	49.7	78	12.8	42.8	44.4	Silty Clay
		60-90	7.0		0.24	0.41	0.02	12.0	0.13	20.3	16.6	0.9	0.2	38.0	44.3	86	25.8	34.8	39.4	Clay Loam
Tuburan, Pototan																				
32		0-30	6.9	10.5	1.29	2.22	0.10	12.9	0.08	25.5	23.3	0.5	0.4	49.7	63.3	78	2.8	21.8	75.4	Clay
		30-60	7.0	23.2	1.28	2.20	0.11	11.6	0.05	26.5	24.0	0.6	0.5	51.6	65.8	78	1.8	16.8	81.4	Clay
		60-90	7.1		0.63	1.08	0.05	12.6	0.08	29.5	27.4	0.7	0.5	58.1	66.4	88	1.8	19.8	78.4	Clay
Gibuangan, Pototan																				
33		0-30	6.8	9.7	0.83	1.43	0.08	10.4	0.06	18.0	12.0	0.6	0.3	30.9	37.1	83	22.8	38.8	38.4	Clay Loam
		30-60	6.7	26.2	0.46	0.79	0.04	11.5	0.05	22.5	15.0	0.6	0.2	38.3	50.6	76	18.8	42.8	38.4	Silty Clay Loam
		60-90	7.0		0.31	0.53	0.03	10.3	0.10	23.5	18.6	0.9	0.2	43.2	54.2	80	30.8	33.8	35.4	Clay Loam

Table A.3.12 (4/5) Physical and Chemical Properties of Soils by Laboratory Test

Location / Pit No.	Horizon / Pit No.	Depth	pH	Phosphate	Organic Carbon	Organic Matter	Total Nitrogen	C/N Ratio	EC	Exchangeable Bases					CEC	Base Saturation	Particle Size Distribution (%)			Texture Class
			(H2O)						1 : 1	Ca	Mg	Na	K	Total			Sand	Silt	Clay	
		cm	1 : 1	ppm	%	%	%		mmho	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	2-.05mm	.05-.002mm	<.002mm	
Cayos, Dumangas																				
	34	0-30	6.5	0.7	1.09	1.87	0.09	12.1	0.03	18.2	15.4	0.3	0.4	34.3	40.8	84	6.8	27.8	65.4	Clay
		30-60	6.9	0.6	0.65	1.12	0.05	13.0	0.05	18.9	17.9	0.4	0.4	37.6	43.3	87	4.8	23.8	71.4	Clay
		60-90	7.0		0.32	0.55	0.03	10.7	0.08	20.5	23.1	0.4	0.4	44.4	55.0	81	5.8	27.8	66.4	Clay
Bacong, Dumangas																				
	35	0-30	6.8	52.3	0.14	0.24	0.02	7.0	0.03	20.2	15.0	0.5	0.2	35.9	41.9	86	50.8	24.8	24.4	Shady Clay Loam
		30-60	6.6	16.3	0.39	0.67	0.04	9.8	0.06	20.4	16.6	0.6	0.2	37.8	46.9	81	30.8	33.8	35.4	Clay Loam
		60-90	6.4		1.00	1.72	0.09	11.1	0.03	13.7	11.6	0.3	0.2	25.8	33.5	77	10.8	46.8	42.4	Silty Clay
Pulaao, Dumangas																				
	36	0-30	6.4	1.6	1.29	2.22	0.10	12.9	0.21	20.0	17.7	0.4	0.3	38.4	50.0	77	1.8	26.8	71.4	Clay
		30-60	6.8	40.6	0.54	0.93	0.05	10.8	0.04	24.9	24.2	0.5	0.4	50.0	61.7	81	6.8	19.8	73.4	Clay
		60-90	6.7		0.77	1.32	0.04	19.3	0.07	20.0	19.2	0.5	0.4	40.1	50.1	80	5.8	18.8	75.4	Clay
Bacong, Dumangas																				
	37	0-30	6.5	9.4	1.47	2.53	0.13	11.3	0.03	23.2	20.0	0.4	0.5	44.1	56.0	79	6.8	27.8	65.4	Clay
		30-60	6.9	30.0	0.64	1.10	0.05	12.8	0.08	24.9	19.0	0.9	0.3	45.1	55.3	82	6.8	43.8	49.4	Silty Clay
		60-90	6.8		0.30	0.52	0.02	15.0	0.08	23.4	15.1	0.7	0.2	39.4	43.6	90	7.8	63.8	28.4	Silty Caly Loam
Pagdagi, Dumangas																				
	38	0-30	6.3	56.4	1.34	2.30	0.12	11.2	0.07	14.5	8.9	0.3	0.4	24.1	30.5	79	8.8	45.8	45.4	Silty Clay
		30-60	6.4	42.0	0.66	1.13	0.05	13.2	0.30	14.5	10.2	1.2	0.4	26.3	31.6	83	7.8	39.8	52.4	Clay
		60-90	6.2		0.42	0.72	0.04	10.5	0.69	19.9	20.0	1.6	0.3	41.8	49.0	85	7.8	36.8	55.4	Clay
Tamboilan, Dumangas																				
	39	0-30	6.8	25.2	1.30	2.24	0.10	13.0	0.10	26.6	13.1	0.7	0.6	41.0	50.3	82	2.8	44.8	52.4	Silty Clay
		30-60	7.1	45.3	0.78	1.34	0.06	13.0	0.05	26.8	13.9	0.8	0.4	41.9	51.4	82	1.8	44.8	53.4	Silty Clay
		60-90	7.0		0.57	0.98	0.04	14.3	0.07	21.4	13.3	0.6	0.2	35.5	43.2	82	30.8	28.8	40.4	Clay
Brgy. Barotac Nuevo & Lublub, Dumangas																				
	40	0-30	6.7	19.1	1.18	2.03	0.10	11.8	0.06	19.5	13.9	0.3	0.4	34.1	38.9	88	12.4	30.4	57.2	Clay
		30-60	7.0	22.7	0.72	1.24	0.06	12.0	0.03	21.0	17.3	0.4	0.3	39.0	50.2	78	17.4	27.4	55.2	Clay
		60-90	6.9		0.39	0.67	0.03	13.0	0.03	19.7	15.7	0.4	0.3	36.1	45.7	79	33.4	25.4	41.2	Clay
Bantad Cabulawan, Barotac Nuevo																				
	41	0-30	5.4	5.5	0.48	0.83	0.05	9.6	0.03	2.8	2.1			4.9	7.9	62	39.4	40.4	20.2	Loam
		30-60	6.4	1.6	0.22	0.38	0.03	7.3	0.07	9.2	6.5	0.2	0.1	16.0	22.2	72	31.4	31.4	37.2	Clay Loam
		60-90	6.7		0.20	0.34	0.02	10.0	0.11	18.5	16.4	0.5	0.2	35.6	43.9	81	29.4	23.4	47.2	Clay
Agcyawan Kalsada, Barotac Nuevo																				
	42	0-30	6.2	7.0	1.05	1.81	0.08	13.1	0.30	21.9	18.8	0.5	0.3	41.5	53.5	78	3.4	27.4	69.2	Clay
		30-60	6.3	18.7	0.90	1.55	0.07	12.9	0.24	23.7	20.3	0.5	0.3	44.8	54.5	82	3.4	26.4	70.2	Clay
		60-90	5.8		0.41	0.70	0.04	10.3	0.15	23.1	19.8	0.5	0.3	43.7	56.1	78	5.4	33.4	61.2	Clay
Tabucan, Barotac Nuevo																				
	43	0-30	6.5	15.9	1.90	3.27	0.17	11.2	0.31	24.1	15.5	0.5	1.0	41.1	53.0	78	5.4	28.4	66.2	Clay
		30-60	6.6	33.8	0.90	1.55	0.06	15.0	0.18	24.0	19.2	0.5	0.7	44.4	56.3	79	2.4	28.4	69.2	Clay
		60-90	6.7		0.73	1.26	0.04	18.3	0.20	25.0	22.3	0.6	0.4	48.3	62.4	77	13.4	12.4	74.2	Clay
Sitio Cabantad, Tinurian, Barotac Nuevo																				
	44	0-30	7.1	42.9	1.53	2.63	0.13	11.8	0.16	25.7	11.8	0.4	0.7	38.6	42.4	91	11.4	42.4	46.2	Silty Clay
		30-60	6.8	31.3	0.48	0.83	0.03	16.0	0.09	26.8	18.0	0.8	0.3	45.9	50.6	91	11.4	41.4	47.2	Silty Clay
		60-90	7.0		0.19	0.33	0.02	9.5	0.07	24.2	14.8	1.1	0.2	40.3	43.9	92	36.4	40.4	23.2	Loam

Table A.3.12 (5/5) Physical and Chemical Properties of Soils by Laboratory Test

Location Pit No.	Pit No.	Horizon	Depth	pH (H2O)	Phosphate	Organic Carbon	Organic Matter	Total Nitrogen	C/N Ratio	EC	Exchangeable Bases					CEC	Base Saturation	Particle Size Distribution (%)			Texture Class
											Ca	Mg	Na	K	Total			Sand	Silt	Clay	
			cm	1 : 1	ppm	%	%	%		mmho	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	meq/100g	%	2-.05mm	.05-.002mm	≤.002mm	
Datangbaron, Dingle																					
	45		0-30	6.9	29.8	0.65	1.12	0.06	10.8	0.02	20.2	5.7	0.3	0.5	26.7	36.9	72	39.4	35.4	25.2	Loam
			30-60	6.7	35.7	0.26	0.45	0.03	8.7	0.01	19.2	5.4	0.4	0.4	25.4	33.5	76	57.4	24.4	18.2	Sandy Loam
			60-90	6.5		0.11	0.19	0.01	11.0	0.01	16.2	4.4	0.5	0.3	21.4	28.1	76	76.8	3.6	19.6	Sandy Loam
Singay Mira, Dingle																					
	46		0-30	7.0	5.2	1.24	2.13	0.10	12.4	0.30	24.0	6.1	0.4	0.4	30.9	40.9	76	9.4	25.4	65.2	Clay
			30-60	6.8	1.4	0.49	0.84	0.04	12.3	0.22	22.3	12.2	0.4	0.4	35.3	43.8	81	9.4	30.4	60.2	Clay
			60-90	7.2		0.38	0.65	0.03	12.7	0.20	22.3	21.6	0.7	0.4	45.0	55.6	81	7.4	9.4	83.2	Clay
Naslo, Pototan																					
	47		0-30	5.3	0.9	1.41	2.42	0.11	12.8	0.21	17.3	17.5	0.3	0.4	35.5	55.4	64	13.4	13.4	73.2	Clay
			30-60	6.5	1.9	0.49	0.84	0.04	12.3	0.09	20.9	18.8	0.6	0.4	40.7	52.7	77	2.4	15.4	82.2	Clay
			60-90	6.2		0.44	0.76	0.03	14.7	0.37	23.3	22.9	0.8	0.4	47.4	60.5	78	35.4	28.4	36.2	Clay Loam
Bangay, Dingle																					
	48		0-30	6.6	49.4	0.64	1.10	0.06	10.7	0.05	21.1	10.6	0.4	0.3	32.4	41.7	78	13.4	34.4	52.2	Clay
			30-60	6.7	19.6	0.54	0.93	0.05	10.8	0.06	22.4	15.2	0.3	0.2	38.1	49.6	77	9.8	32.6	57.6	Clay
			60-90	6.5		0.28	0.48	0.02	14.0	0.07	16.5	6.2	0.3	0.1	23.1	30.2	76	11.4	20.4	68.2	Clay
Sinibaan, Dingle																					
	49		0-30	6.7	7.7	1.19	2.05	0.11	10.8	0.11	24.3	18.6	0.3	0.4	43.6	58.1	75	10.4	16.4	73.2	Clay
			30-60	6.7	34.9	0.71	1.22	0.06	11.8	0.06	22.1	22.0	0.3	0.3	44.7	59.1	76	13.4	31.4	55.2	Clay
			60-90	6.6		0.37	0.64	0.03	12.3	0.15	19.2	12.2	0.4	0.2	32.0	35.6	90	11.4	39.4	49.2	Clay
Lauhan, Pototan																					
	50		0-30	6.8	3.9	0.44	0.76	0.04	11.0	0.12	15.1	10.8	0.2	1.5	27.6	32.9	84	12.4	6.4	81.2	Clay
			30-60	6.2	1.6	0.98	1.69	0.07	14.0	0.27	21.2	22.1	0.4	0.2	43.9	57.6	76	13.4	28.4	58.2	Clay
			60-90	6.8		0.31	0.53	0.03	10.3	0.11	20.2	12.4	0.5	0.2	33.3	41.8	80	15.4	27.4	57.2	Clay

Table A.3.13 Land Suitability Criteria by NIA

Land Use	S1	S2	S3	N
	Limitation: Drainage Classes (USDA Drainage Classes)			
DC, TC	Well	Not used	Imperfectly drained	Poor, Excessive
WR	Poor - well	Not used	Not used	Excessive
	Limitation: Rooting Zone Depth (cm)			
DC	> 75	75 - 50	50 - 25	< 25
TC	> 150	150 - 100	100 - 50	< 50
WR	> 50	40 - 50	20 - 40	< 20
	Limitation: Dominant Texture in Rooting Zone (FAO Texture)			
DC, TC	Fine - Medium fine	Not used	Coarse	Very coarse
WR	Fine	Medium	Moderate coarse	Coarse
	Limitation: Flooding (apply only from June to Mid October)			
DC, TC	None	None	Slight	Moderate
WR	Not used	Slight	Moderate	High
	Limitation: Slope (%)			
DC	0 - 5	5 - 15	15 - 20	> 20
TC	0 - 8	8 - 15	15 - 25	> 25
WR	0 - 3	3 - 5	5 - 8	> 8
	Limitation : Erosion (FAO Classes)			
DC, TC	Non - Slight	Sheet	Sheet - Rill	Sheet - Gully
WR	Not used	Not used	Not used	Not used
	Limitation : CEC (pH 7) of Dominant Mineral Subsoil			
DC, TC	> 24	16 - 24	< 16	Not used
WR	> 24	16 - 24	< 16	Not used
	Limitation : Total P (25%) of Dominant Subsoil (ppm)			
DC, TC	> 300	100 - 300	< 100	Not used
WR	> 200	50 - 200	< 50	Not used
	Limitation : pH (H2O) of Dominant Subsoil			
DC, TC	5.0 - 7.0	4.5 - 5.5, 7.0 - 8.0	4.0 - 4.5	< 4.0, > 8.0
WR	5.0 - 7.5	4.5 - 5.0	4.0 - 4.5	< 4.0, > 7.5
	Limitation : Total Nitrogen %			
DC, TC	Medium	Low	Very low	-
WR	Medium	Low	Very low	-
	Limitation : Rock Outcrops (% in surface)			
DC, TC	Non	< 1	< 2	> 2
WR	Non	< 1	< 2	> 2

Note : Flooding limitation apply only from June to Mid October
DC : Diversified crop, TC : Tree crops, WR : Wet land rice (Lowland rice)

Table A.3. 14 Land Suitability by RIS and Extension Areas

(Unit: ha)

Land Use Type / Sutability Class	Total Land Area	Wet Land Rice				Diversified Crops				Hill & Hillock	Residential & Built-up	River & Creak
		S1	S2f	S3s	N	S1	S2	S3d	N			
Existing RIS												
Jalaur Proper	12,930	10,910	990	90	0	230	0	10,770	990	80	420	440
Jalaur Extension	5,670	4,140	0	460	0	3,080	0	1,520	0	640	310	120
Suague	4,280	3,590	0	0	0	0	0	3,590	0	220	450	20
Aganan	6,520	5,030	0	0	0	0	0	5,030	0	0	1,460	30
Sta. Barbara	4,820	3,410	0	0	0	0	0	3,410	0	0	1,390	20
Subtotal	34,220	27,080	990	550	0	3,310	0	24,320	990	940	4,030	630
Ratio (%)	100.0	79.1	2.9	1.6	0.0	9.7	0.0	71.1	2.9	2.7	11.8	1.8
Extension Area												
1. Pototan	500	490	0	0	0	0	0	490	0	0	10	0
2. New Lucena	410	400	0	0	0	0	0	400	0	0	10	0
3. Sta. Barbara	1,030	990	0	0	0	0	0	990	0	30	10	0
4. San Miguel	2,510	2,470	0	0	0	0	0	2,470	0	0	30	10
5. Oton	1,430	1,350	0	0	0	0	0	1,350	0	0	70	10
6. Barotac Nuevo	2,830	2,790	0	0	0	2,790	0	0	0	0	20	20
Subtotal	8,710	8,490	0	0	0	2,790	0	5,700	0	30	150	40
Ratio (%)	100.0	97.5	0.0	0.0	0.0	32.0	0.0	65.4	0.0	0.3	1.7	0.5
Total	42,930	35,570	990	550	0	6,100	0	30,020	990	970	4,180	670
Ratio (%)	100.0	82.9	2.3	1.3	0.0	14.2	0.0	69.9	2.3	2.3	9.7	1.6

Limitation : s - texture, t - slope, d - drainage, f - flooding

Suitability class : S1 - Highly suitable, S2 - Moderately suitable, S3 - Marginally suitable, N - Not suitable

Table A.3. 15 Present Road Networks

Municipality	Road Networks (km)				
	National	Provincial	Municipal	Barangay	NIA service road
Jalaur RIS area					
1 Dumangas	29.90	25.10	59.80	57.80	
2 Zarraga	12.30	6.90	1.20	21.10	
3 Barotac Nuevo	30.50	28.90	3.90	29.50	
4 Dingle	21.00	53.50	4.20	66.20	
Subtotal	93.70	114.40	69.10	174.60	87.50
Suague RIS area					
5 Mina	4.40	11.60	3.40	82.20	
6 New Lucena	11.30	21.60	4.20	61.30	
7 Pototan	46.50	15.00	7.30	114.00	
Subtotal	57.80	36.60	11.50	175.30	20.50
Sta. Barbara RIS area					
8 Leganes	5.50	8.70	3.30	21.10	
9 Pavia	8.20	13.90	4.30	8.90	
10 Santa Barbara	6.20	25.50	8.90	71.30	
Subtotal	19.90	48.10	16.50	101.30	43.00
Aganan RIS area					
11 Oton	33.10	32.30	9.30	31.40	
12 San Miguel	9.20	6.80	6.10	15.20	
Subtotal	42.30	39.10	15.40	46.60	45.00
Total	213.70	238.20	112.50	497.80	196.00
Total of Province	867.7	685.7	225.3	2817.6	-

Table A.3.16 Constraint to Rural Development

No.	Municipality	Rural Road	Potable Water	Irrigation	Flood and Drainage
Jalaur - Suague Basin					
1-1	Dumingas	non	non	Water shortage of tail portion of the irrigated area	Inundation water / water logging in the tail portion of 3 IA areas
1-2	Zarraga	Maintenance problem due to financial shortage	Shortage of new water resources for new town area	Water shortage of tail portion of the irrigated area	non
1-3	Barotac Nuevo	Maintenance problem of NIA services roads	non	Water shortage of tail portion of the irrigated area	Overtopping of flood water from Jalaur river
1-4	Dingle	Maintenance problem of NIA services roads due to non integration with LGU	non	non	non
2-1	New Lucena	Lack of bridges for link road system	Shortage of new water resource for town areas	Lack of irrigation facilities	non
2-2	Pototan	Maintenance problem of NIA services roads due to non integration with LGU Lack of bridges for formulation of link roads	non	non	Backwater problem caused by confluence with 2 rivers Jalaur and Suague
2-3	Mina	Maintenance problem of NIA services roads due to non integration with LGU	non	Lack of irrigation facilities	Overtopping of flood in partial sections of the Suague river
Tigum River Basin					
3-1	Leganes	non	Shortage of new water resource development for new town and future industrial development area	Change in land use from irrigated area to industrial area due to the industrial development plan	non
3-2	Pavia	non	Shortage of new water resource development for new town and future industrial development area	Change in land use from irrigated area to industrial area due to the industrial development plan	non
3-3	Santa Barbara	Lack of bridge crossing Tigum river to provide inter link roads for industrial development center areas	Shortage of new water resource for town development	Change in land use from rainfed to housing area due to town planing	non
3-4	Maasin	Lack of bridge crossing the Tigum river and functioning as farm to market road for the LGU Lack of link roads between Maasin - Janiuay	Shortage of new water resource for town development	non	non
Aganan River Basin					
4-1	Oton	Maintenance problem of NIA services roads due to non integration with LGU	non	Water shortage in the existing irrigation area and the change in land use due to urbanization	non
4-2	San Miguel	Bottle neck of road system due to a small bridge crossing with main with main canal of Aganan RIS	Shortage of new water resource for town development	Water shortage in the upland areas located outside the existing irrigation areas	non

Table A.3. 17 Status of Potable Water Supply in 1993

Municipality	Total household	Beneficiary (household)							
		Level 1		Level 2		Level 3		Doubtful Sources	
		Household	%	Household	%	Household	%	Household	%
Jalaur RIS area									
1 Dumangas	9,188	805	8.8	0	0.0	2,683	29.2	5,700	62.0
2 Zarraga	2,907	2,245	77.2	0	0.0	0	0.0	662	22.8
3 Barotac Nuevo	7,930	3,810	48.0	79	1.0	488	6.2	3,553	44.8
4 Dingle	6,659	5,055	75.9	0	0.0	1,458	21.9	146	2.2
Subtotal	26,684	11,915	44.7	79	0.3	4,629	17.3	10,061	37.7
Suague RIS area									
5 Mina	2,286	1,139	49.8	0	0.0	0	0.0	1,147	50.2
6 New Lucena	3,326	1,958	58.9	0	0.0	8	0.2	1,360	40.9
7 Pototan	10,200	8,660	84.9	0	0.0	1,103	10.8	437	4.3
Subtotal	15,812	11,757	74.4	0	0.0	1,111	7.0	2,944	18.6
Sta. Barbara RIS area									
8 Leganes	3,389	2,141	63.2	72	2.1	216	6.4	960	28.3
9 Pavia	4,386	2,424	55.3	118	2.7	1,313	29.9	531	12.1
10 Santa Barbara	6,764	4,056	60.0	22	0.3	545	8.1	2,141	31.7
Subtotal	14,539	8,621	59.3	212	1.5	2,074	14.3	3,632	25.0
Aganan RIS area									
11 Oton	8,516	3,583	42.1	372	4.4	0	0.0	4,561	53.6
12 San Miguel	2,841	990	34.8	56	2.0	16	0.6	1,779	62.6
Subtotal	11,357	4,573	40.3	110	1.0	16	0.1	6,658	58.6
Total	68,392	36,866	53.9	401	0.6	7,830	11.4	23,295	34.1

Table A.3.18 Present Land Use of Existing RISs and Potential Extension Areas

(Unit: ha)

	Total Land Area	Paddy Land *					Other Agricultural Land			Non-agricultural Land			
		(PA) Pri-Pri	(PB) Pri-Pri(p)	(PC) Pr-Pri(p)	(PF) Pr-F	Subtotal	Sugar-cane	Tree Crops	Pasture	Open Forest Hill	Open Forest Plain	Residential & Built-up	River/creek /road/canal
Existing RIS													
Jalaur Proper	12,930	8,120	700	0	0	8,820	440	40	0	80	1,710	420	1,420
Jalaur Extension	5,670	2,460	160	0	0	2,620	850	80	0	640	760	310	410
Suague	4,280	2,370	590	0	0	2,960	50	0	0	220	250	450	350
Aganan	6,520	1,450	2,910	0	0	4,360	0	0	0	0	190	1,460	510
Sta. Barbara	4,820	2,040	960	0	0	3,000	0	0	0	0	80	1,390	350
Subtotal	34,220	16,440	5,320	0	0	21,760	1,340	120	0	940	2,990	4,030	3,040
Ratio (%)	100.0	48.0	15.5	0.0	0.0	63.6	3.9	0.4	0.0	2.7	8.7	11.8	8.9
Extension Area													
1. Pototan	500	0	0	50	430	480	0	0	0	0	10	10	0
2. New Lucena	410	0	0	0	390	390	0	0	0	0	10	10	0
3.Sta. Barbara	1,030	0	0	0	800	800	0	0	160	30	30	10	0
4. San Miguel	2,510	0	0	540	1,890	2,430	0	0	0	0	40	30	10
5. Oton	1,430	0	0	250	1,000	1,250	0	0	0	0	100	70	10
6. Barotac Nuev	2,830	0	0	0	680	680	2,030	0	0	0	80	20	20
Subtotal	8,710	0	0	840	5,190	6,030	2,030	0	160	30	270	150	40
Ratio (%)	100.0	0.0	0.0	9.6	59.6	69.2	23.3	0.0	1.8	0.3	3.1	1.7	0.5
Total	42,930	16,440	5,320	840	5,190	27,790	3,370	120	160	970	3,260	4,180	3,080
Ratio (%)	100.0	38.3	12.4	2.0	12.1	64.7	7.8	0.3	0.4	2.3	7.6	9.7	7.2

Note * : Typical cropping pattern

PA (Pri-Pri) : 2 crops of irrigated paddy by RIS, and some portion planted third paddy, water melon or mung bean after dry season (second) paddy

PB (Pri-Prip) : wet season paddy irrigated by RIS, dry season paddy irrigated by pumps from creeks or shallow tube wells, and some portion planted water melon or mung bean after dry season (second) paddy

PC (Pr-Prip) : wet season paddy rainfed, and dry season paddy irrigated by pumps from creeks or shallow tube wells

PF (Pr-F) : one crop of paddy in wet season only

Table A.3.19 Benefited Area by Irrigation Division

	Service Area	1992				1993				1994				1995				1996				Average			
		Dry	Wet	Total	C.I. **	Dry	Wet	Total	C.I. **	Dry	Wet	Total	C.I.	Dry	Wet	Total	C.I. **	Dry	Wet	Total	C.I. **	Dry	Wet	Total	C.I. **
Aganan RIS																									
Div. 1	921	96	876	972	106	88	903	991	108	304	900	1,204	131	426	888	1,314	143	423	808	1,231	134	267	875	1,142	124
Div. 2	372	250	362	612	165	250	359	609	164	291	359	650	175	311	353	664	178	323	356	679	183	285	358	643	173
Div. 3	892	261	806	1,067	120	100	890	990	111	422	878	1,300	146	331	795	1,126	126	334	878	1,212	136	290	849	1,139	128
Div. 4	938	0	990	990	106	0	925	925	99	12	988	1,000	107	0	927	927	99	150	806	956	102	32	927	960	102
Div. 5	942	7	920	927	98	0	884	884	94	0	938	938	100	0	848	848	90	0	870	870	92	1	892	893	95
Div. 6 *	798	0	703	703	88	0	720	720	90	0	627	627	79	0	505	505	63	0	692	692	87	0	649	649	81
Total	4,863	614	4,657	5,271	108	438	4,681	5,119	105	1,029	4,690	5,719	118	1,068	4,316	5,384	111	1,230	4,410	5,640	116	876	4,551	5,427	112
Sta. Barbara IRS																									
Div. 1	901	550	856	1,406	156	812	841	1,653	183	832	841	1,673	186	813	833	1,646	183	805	832	1,637	182	762	841	1,603	178
Div. 2 *	958	5	894	899	94	0	838	838	87	92	736	828	86	0	738	738	77	231	453	684	71	66	732	797	83
Div. 3	820	296	771	1,067	130	530	784	1,314	160	662	827	1,489	182	532	806	1,338	163	693	762	1,455	177	543	790	1,333	163
Div. 4	720	372	678	1,050	146	339	678	1,017	141	596	672	1,268	176	376	677	1,053	146	613	666	1,279	178	459	674	1,133	157
Total	3,399	1223	3199	4,422	130	1681	3141	4,822	142	2182	3076	5,258	155	1721	3054	4,775	140	2342	2713	5,055	149	1,830	3,037	4,866	143
Jalaur Proper RIS																									
Div. 1	764	713	721	1,434	188	692	709	1,401	183	476	723	1,199	157	632	625	1,257	165	713	722	1,435	188	645	700	1,345	176
Div. 2	731	627	637	1,264	173	611	643	1,254	172	620	591	1,211	166	515	541	1,056	144	537	700	1,237	169	582	622	1,204	165
Div. 3	892	769	821	1,590	178	784	869	1,653	185	752	780	1,532	172	755	735	1,490	167	719	830	1,549	174	756	807	1,563	175
Div. 4	947	813	807	1,620	171	803	910	1,713	181	817	934	1,751	185	687	872	1,559	165	838	847	1,685	178	792	874	1,666	176
Div. 5	780	245	409	654	84	286	395	681	87	266	461	727	93	268	421	689	88	228	480	708	91	259	433	692	89
Div. 6	750	507	696	1,203	160	517	690	1,207	161	592	688	1,280	171	312	632	944	126	410	650	1,060	141	468	671	1,139	152
Div. 7	812	94	482	576	71	240	439	679	84	263	568	831	102	103	386	489	60	228	550	778	96	186	485	671	83
Div. 8	738	547	554	1,101	149	571	554	1,125	152	591	508	1,099	149	507	627	1,134	154	598	710	1,308	177	563	591	1,153	156
Div. 9	813	96	444	540	66	153	329	482	59	159	309	468	58	121	255	376	46	148	440	588	72	135	355	491	60
Div. 10	788	79	210	289	37	907	399	1,306	166	398	273	671	85	78	261	339	43	172	560	732	93	327	341	667	85
Div. 11	811	133	125	258	32	250	453	703	87	315	148	463	57	63	157	220	27	227	330	557	69	198	243	440	54
Total	8,826	4623	5906	10,529	119	5814	6390	12,204	138	5249	5983	11,232	127	4041	5512	9,553	108	4818	6819	11,637	132	4,909	6,122	11,031	125
Jalaur Extension IRS																									
Div. 1	590	537	489	1,026	174	491	496	987	167	523	572	1,095	186	500	600	1,100	186	432	520	952	161	497	535	1,032	175
Div. 2	585	414	453	867	148	408	453	861	147	407	456	863	148	307	441	748	128	237	555	792	135	355	472	826	141
Div. 3	685	585	618	1,203	176	595	613	1,208	176	472	592	1,064	155	251	605	856	125	286	618	904	132	438	609	1,047	153
Div. 4	757	632	681	1,313	173	663	690	1,353	179	296	565	861	114	18	547	565	75	88	500	588	78	339	597	936	124
Total	2,617	2168	2241	4,409	168	2157	2252	4,409	168	1698	2185	3,883	148	1076	2193	3,269	125	1043	2193	3,236	124	1,628	2,213	3,841	147
Suague IRS																									
Div. 1	956	745	728	1,473	154	462	724	1,186	124	707	653	1,360	142	437	732	1,169	122	703	750	1,453	152	611	717	1,328	139
Div. 2	660	602	662	1,264	192	655	649	1,304	198	656	657	1,313	199	424	660	1,084	164	613	660	1,273	193	590	658	1,248	189
Div. 3	640	375	566	941	147	254	544	798	125	384	523	907	142	193	539	732	114	379	534	913	143	317	541	858	134
Div. 4	702	359	685	1,044	149	318	701	1,019	145	510	648	1,158	165	313	693	1,006	143	282	600	882	126	356	665	1,022	146
Total	2,958	2081	2641	4,722	160	1689	2618	4,307	146	2257	2481	4,738	160	1367	2624	3,991	135	1977	2544	4,521	153	1,874	2,582	4,456	151
Grand Total	22,663	10,709	18,644	29,353	130	11,779	19,082	30861	136	12,415	18,415	30,830	136	9,273	17,699	26,972	119	11,410	18,679	30,089	133	11,117	18,504	29,621	131

Note * : It is suppose that benefited areas of division 6 of Aganan RIS and division 2 of Sta. Barbara RIS include illegal converted paddy to subdivisions.

Note **: C.I. - Cropping Intencity

Source : NIA Aganan-Sta. Barbara and Jalaur-Suague Offices

Table A.3.20 Paddy Production in Iloilo Province

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average 5 years	Average 10 years
A Production (ton)												
	534,167	504,763	469,288	352,413	500,749	560,220	682,782	669,467	553,488	608,926	614,977	543,626
Irrigated	161,353	206,008	198,483	165,678	193,951	260,914	392,646	390,272	335,339	364,587	348,752	266,923
Rainfed	372,814	298,755	270,805	186,735	306,798	299,306	290,136	279,195	218,149	244,339	266,225	276,703
Jan - Mar	189,039	167,542	191,280	89,763	180,431	134,427	215,481	256,546	145,791	231,770	196,803	180,207
Irrigated	58,187	81,691	64,347	34,560	68,024	57,719	104,471	118,772	98,516	134,940	102,884	82,123
Rainfed	130,852	85,851	126,933	55,203	112,407	76,708	111,010	137,774	47,275	96,830	93,919	98,084
Apr - Jun	20,481	1,409	14,419	1,383	7,145	9,950	14,676	28,008	12,251	27,816	18,540	13,754
Irrigated	14,743	1,256	13,224	1,364	7,096	9,950	14,676	28,008	12,251	27,060	18,389	12,963
Rainfed	5,738	153	1,195	19	49	0	0	0	0	756	151	791
Jul - Sep	29,885	123,755	131,954	144,145	47,543	38,809	62,642	250,870	185,315	195,173	146,562	121,009
Irrigated	6,823	57,985	58,080	62,292	25,787	20,571	48,657	152,520	99,932	116,543	87,645	64,919
Rainfed	23,062	65,770	73,874	81,853	21,756	18,238	13,985	98,350	85,383	78,630	58,917	56,090
Oct - Dec	294,762	212,057	131,635	117,122	265,630	377,034	389,983	134,043	210,131	154,167	253,072	228,656
Irrigated	81,600	65,076	62,832	67,462	93,044	172,674	224,842	90,972	124,640	86,044	139,834	106,919
Rainfed	213,162	146,981	68,803	49,660	172,586	204,360	165,141	43,071	85,491	68,123	113,237	121,738
B Harvested Area (ha)												
	213,870	208,750	190,870	150,680	206,010	203,380	205,100	208,540	194,350	220,254	206,325	200,180
Irrigated	52,460	62,370	62,910	53,890	57,440	67,200	92,230	96,420	93,900	113,310	92,612	75,213
Rainfed	161,410	146,380	127,960	96,790	148,570	136,180	112,870	112,120	100,450	106,944	113,713	124,967
Jan - Mar	81,400	80,440	82,990	61,020	86,710	72,830	77,190	83,760	66,830	87,080	77,538	78,025
Irrigated	21,270	26,270	22,260	18,740	25,000	22,030	29,100	30,770	34,450	44,980	32,266	27,487
Rainfed	60,130	54,170	60,730	42,280	61,710	50,800	48,090	52,990	32,380	42,100	45,272	50,538
Apr - Jun	8,520	610	5,280	1,120	3,380	3,840	4,950	7,780	4,210	8,810	5,918	4,850
Irrigated	6,030	440	4,560	1,100	3,340	3,840	4,950	7,780	4,210	8,430	5,842	4,468
Rainfed	2,490	170	720	20	40	0	0	0	0	380	76	382
Jul - Sep	14,040	46,280	54,560	54,060	16,420	11,910	17,000	74,330	56,300	69,503	45,809	41,440
Irrigated	1,850	16,520	19,740	18,900	7,540	5,130	11,650	36,210	24,080	35,316	22,477	17,694
Rainfed	12,190	29,760	34,820	35,160	8,880	6,780	5,350	38,120	32,220	34,187	23,331	23,747
Oct - Dec	109,910	81,420	48,040	34,480	99,500	114,800	105,960	42,670	67,010	54,861	77,060	75,865
Irrigated	23,310	19,140	16,350	15,150	21,560	36,200	46,530	21,660	31,160	24,584	32,027	25,564
Rainfed	86,600	62,280	31,690	19,330	77,940	78,600	59,430	21,010	35,850	30,277	45,033	50,301
C Unit Yield (ton/ha)												
Palay	2.50	2.42	2.46	2.34	2.43	2.75	3.33	3.21	2.85	2.76	2.98	2.71
Irrigated	3.08	3.30	3.16	3.07	3.38	3.88	4.26	4.05	3.57	3.22	3.80	3.50
Rainfed	2.31	2.04	2.12	1.93	2.07	2.20	2.57	2.49	2.17	2.28	2.34	2.22
Jan - Mar	2.32	2.08	2.30	1.47	2.08	1.85	2.79	3.06	2.18	2.66	2.51	2.28
Irrigated	2.74	3.11	2.89	1.84	2.72	2.62	3.59	3.86	2.86	3.00	3.19	2.92
Rainfed	2.18	1.58	2.09	1.31	1.82	1.51	2.31	2.60	1.46	2.30	2.04	1.92
Apr - Jun	2.40	2.31	2.73	1.23	2.11	2.59	2.96	3.60	2.91	3.16	3.04	2.60
Irrigated	2.44	2.85	2.90	1.24	2.12	2.59	2.96	3.60	2.91	3.21	3.06	2.68
Rainfed	2.30	0.90	1.66	0.95	1.23					1.99		
Jul - Sep	2.13	2.67	2.42	2.67	2.90	3.26	3.68	3.38	3.29	2.81	3.28	2.92
Irrigated	3.69	3.51	2.94	3.30	3.42	4.01	4.18	4.21	4.15	3.30	3.97	3.67
Rainfed	1.89	2.21	2.12	2.33	2.45	2.69	2.61	2.58	2.65	2.30	2.57	2.38
Oct - Dec	2.68	2.60	2.74	3.40	2.67	3.28	3.68	3.14	3.14	2.81	3.21	3.01
Irrigated	3.50	3.40	3.84	4.45	4.32	4.77	4.83	4.20	4.00	3.50	4.26	4.08
Rainfed	2.46	2.36	2.17	2.57	2.21	2.60	2.78	2.05	2.38	2.25	2.41	2.38

Average: 5 years (1987 - 1996), 10 years (1992 - 1996)
Source : DA Region VI, BAS

Table A.3.21 Summary of Cropped Area and Cropping Intensity

	unit	Existing River Irrigation System					
		Aganan	Sta. Barbara	Jalaur Proper	Jalaur Extn.	Suage	Total
1 Gross Area	ha	6,520	4,820	12,930	5,670	4,280	34,220
2 Service Area	ha	4,863	3,399	8,825	2,616	2,958	22,661
Area which has been converted to non-agricultural utilization	ha	500	400	0	0	0	900
Area after review by team	ha	4,360	3,000	8,820	2,620	2,960	21,760
3 Reported Area by NIA *1							
Irrigated area (Planted area)							
Wet season *2	ha	4,050	2,710	6,870	2,310	2,600	18,540
Dry season *3	ha	1,230	2,110	6,450	2,010	2,460	14,260
Benefited Area							
Wet season *2	ha	4,050	2,710	6,120	2,210	2,580	17,670
Dry season *3	ha	1,230	2,110	4,910	1,630	1,870	11,750
Cropping Intensity (benefited area)							
Wet season	%	93%	90%	69%	84%	87%	81%
Dry season	%	28%	70%	56%	62%	63%	54%
Year-round	%	121%	161%	125%	147%	150%	135%
5 Other Cropping Area							
Rainfed paddy (1st paddy) *4	ha	300	250	2,600	410	380	3,940
Rainfed paddy (2nd paddy) *4	ha	900	100	1,940	580	610	4,130
3rd Paddy *5	ha	200	200	1,200	250	50	1,900
Diversified Crops							
Mungbean (rainfed)	ha	400	200	600	100	150	1,450
Water melon *6	ha	500	150	100	10	20	780
Total	ha	2,300	900	6,440	1,350	1,210	12,200
6 Cropping Intensity							
Cropping Intensity of Paddy	%	153%	179%	190%	194%	185%	181%
1st Paddy	%	100%	98.7%	98.9%	100%	100%	99%
2nd Paddy	%	49%	74%	78%	84%	84%	73%
3rd Paddy	%	5%	7%	14%	10%	2%	9%
Cropping Intensity of Diversified Crops	%	21%	12%	8%	4%	6%	10%
Total Cropping intensity of Whole Crops	%	174%	191%	198%	198%	191%	191%

*1 Aganan & Sta. Barbara : 1996, Jalaur Prop., Jalaur Extn. & Suage: Average of 5 years (1992-1996)

*2 Reduced 360 ha of benefited/irrigated area in the Aganan RIS which has been converted to subdivision

*3 Reduced 230 ha of benefited/irrigated area in the Sta. Barbara RIS which has been converted to subdivision

*4 Partially irrigated from shallow tube wells or creeks by pumping

*5 Partially irrigated using canal water and shallow tube well/creek water

*6 Irrigated by manual using dug well water

Table A.3.22 Crop Production in the Study Area

Cropped Area (Unit: ha)

	Paddy Rice								Mung Bean	Water Melon	Sugar Cane	Total of Cropped Area
	Irrigated			Rainfed				Paddy Total				
	Wet	Dry	Subtotal	Wet	Dry	3rd	Subtotal					
Exsiting RIS												
Aganan	4,050	1,230	5,280	300	900	200	1,400	6,680	400	500	0	7,580
Sta. Barbara	2,710	2,110	4,820	250	100	200	550	5,370	200	150	0	5,720
Jalaur Proper	6,120	4,910	11,030	2,600	1,940	1,200	5,740	16,770	600	100	0	17,470
Jalaur Extension	2,210	1,630	3,840	410	580	250	1,240	5,080	100	10	0	5,190
Suage	2,580	1,870	4,450	380	610	50	1,040	5,490	150	20	0	5,660
Subtotal	17,670	11,750	29,420	3,940	4,130	1,900	9,970	39,390	1,450	780	0	41,620
Potential Area												
Oton			0	1,250	120		1,370	1,370				1,370
San Miguel			0	2,430	240		2,670	2,670				2,670
Sta. Barbara			0	800	80		880	880				880
New Lucena			0	390	40		430	430				430
Pototan			0	480	50		530	530				530
Barotac Nuevo			0	680	70		750	750			2,030	2,780
Subtotal	0	0	0	6,030	600		6,630	6,630	0	0	2,030	8,660
Total	17,670	11,750	29,420	9,970	4,730		16,600	46,020	1,450	780	2,030	50,280

Unit Yield (Unit : ton/ha)

	Paddy Rice								Mung Bean	Water Melon	Sugar Cane
	Irrigated			Rainfed				Paddy Average			
	Wet	Dry	Average	Wet	Dry	3rd	Average				
Exsiting RIS											
Aganan	3.56	3.40	3.52	2.24	2.24	2.00	2.21	3.25	0.40	4.0	
Sta. Barbara	3.86	3.56	3.73	2.24	2.24	2.00	2.15	3.57	0.40	4.0	
Jalaur Proper	3.40	3.30	3.36	2.24	2.24	2.00	2.19	2.96	0.40	4.0	
Jalaur Extension	3.70	3.43	3.59	2.24	2.24	2.00	2.19	3.25	0.40	4.0	
Suague	3.64	3.41	3.54	2.24	2.24	2.00	2.23	3.29	0.40	4.0	
Average	3.58	3.39	3.51	2.24	2.24	2.00	2.19	3.17	0.40	4.0	
Potential Area											
Oton				2.24	2.24		2.24	2.24			
San Miguel				2.24	2.24		2.24	2.24			
Sta. Barbara				2.24	2.24		2.24	2.24			
New Lucena				2.24	2.24		2.24	2.24			
Pototan				2.24	2.24		2.24	2.24			
Barotac Nuevo				2.24	2.24		2.24	2.24			45
Average				2.24	2.24		2.24	2.24			45
Average	3.58	3.39	3.51	2.24	2.24		2.21	3.04	0.40	4.0	45

Production (Unit: ton)

	Paddy Rice								Mung Bean	Water Melon	Sugar Cane
	Irrigated			Rainfed				Paddy Total			
	Wet	Dry	Subtotal	Wet	Dry	3rd	Subtotal				
Exsiting RIS											
Aganan	14,418	4,182	18,600	672	2,016	400	3,088	21,688	160	2,000	
Sta. Barbara	10,461	7,512	17,972	560	224	400	1,184	19,156	80	600	
Jalaur Proper	20,808	16,203	37,011	5,824	4,346	2,400	12,570	49,581	240	400	
Jalaur Extension	8,177	5,591	13,768	918	1,299	500	2,718	16,486	40	40	
Suage	9,391	6,377	15,768	851	1,366	100	2,318	18,086	60	80	
Subtotal	63,255	39,864	103,119	8,826	5,251	3,800	21,877	124,996	580	3,120	0
Potential Area											
Oton			0	2,800	269		3,069	3,069			
San Miguel			0	5,443	538		5,981	5,981			
Sta. Barbara			0	1,792	179		1,971	1,971			
New Lucena			0	874	90		963	963			
Pototan			0	1,075	112		1,187	1,187			
Barotac Nuevo			0	1,523	157		1,680	1,680			91,350
Subtotal	0	0	0	13,507	1,344	0	14,851	14,851	0	0	91,350
Total	63,255	39,864	103,119	22,333	10,595	3,800	36,728	139,847	580	3,120	91,350

Table A.3. 23 Status of Existing Communal and Pump Irrigation Systems in and around the RIS

No.	River Basin	Name of System	Location	Current Status of Irrigation System	Irrigation Area (ha)	Water Resources	Remarks
1	Aganan	Coline CIS	Municipality Leon	No operation	50	Aganan river	because of deteriorated irrigation facilities
2	Jelicuon	Jelicuon CIS	Municipality New Lucena	Operational CIS	99	Jelicuon river	
3	Jilicoan	Inagdangan PIP	Municipality Zarraga	Under construction	60	Jelicuon river	
4	Jalaur	Jalaud-balud PIP	Municipality Zarraga	Under construction	120	Jalaur river	
5	Jalaur	Magbato CIS	Municipality Lambuano	No operation	50		because of deteriorated irrigation facilities
6	Jalaur	Mambiranan CIS	Municipality Bingawan	No operation	50	Jalaur river	because of internal problem of IA such as lack of leadership and technical support services and deteriorated irrigation facilities
7	Suage	Ladana CIS	Municipality Pototan	No operation	50	Abangay creek	because of deteriorated irrigation facilities
8	Jalaur	Agutayan CIS	Municipality San Enrique	Operational CIS	120	tributary of Jalaur river	
9	Jalaur	Tulatula-an CIS	Municipality Dingle	Operational CIS	110	tributary of Jalaur river	
10	Jalaur	Camambugan CIS	Municipality Dingle	Operational CIS	76	tributary of Jalaur river	
			Operational CIS		405		
			No operational / under construction		330		
			Total		735		

Table A.3.24 Present Problem of Diversion Dam

Name	Items	Condition
Jalaur Diversion Dam	Main gate	Rubber seals is rotten
		(13 main gates)
		Machine driven lifting
	Scouring sluice gate	Rubber seals is rotten
		(2 sluice gates)
		Technical trouble of lifting system
	Apron	Floor slab at the downstream apron
		is abraded
	Intake gates (right side)	Skin plate of gate is damaged
		(10 sluice gates)
		Lifting portion of gate are damaged
		Technical trouble of lifting system
		(10 sluice gates)
	Trashrack	No installation
	Communication System	No facilities
Suague Diversion Dam	Scouring sluice gate	Rubber seals is rotten
		Technical trouble of lifting system
	Scouring sluice	Floor slab at the scouring sluice
		is abraded
	Apron	Energy disputing system is abraded
		Floor slab at the downstream apron
		is abraded
		No cut-off wall at the downstream
		from scouring sluice (right bank)
	Retaining wall	Crack of retaining wall (right bank)
		Retaining wall is damaged (right bank)
	Riverbed Protection	Steel sheet pile is exposed.
		Concrete block length is insufficient
		along scouring sluice
		Steel sheet pile at downstream is
		exposed
	Intake gates	Lifting portion of gate are damaged
		Technical trouble of lifting system
		(2 sluice gates)
	Communication System	No facilities
	Trashrack	No installation
Agamin Diversion Dam	Sluice gates	Rubber seals is rotten
	Scouring sluice	Floor slab at the scouring sluice
		is abraded
	Intake gates	Lifting portion of gate are damaged
		Technical trouble of lifting system
		(2 sluice gates)
	Trashrack	No installation
	Communication System	No facilities
Sta. Barbara Diversion Dam	Intake gates	One (1) gate is not functional
		Concrete wall at left side is damaged
		Damaged inlet portion of intake
	Trashrack	No installation
	Gate keeper's quarter	Dilapidated quarter
	Communication System	No facilities

Table A.3.25 Constraints and Problem of the Irrigation and Drainage Development

Description	Jalaur Proper	Jalaur Extension	Suague	Sta. Barbara	Aganan
Irrigation services area	- Flood and inundation in tail portion of the RIS area - Water absorption by portable pump is carried out along head race - Low irrigation efficiency	- Slow progress of land reform program & land use of many sugar cane farms - Low irrigation efficiency	- Inundation area in tail portion of the RIS area - Water absorption by portable pump is carried out along head race - Low irrigation efficiency	- Urbanization and change in land use from irrigated area to build -up area in the tail portion of the RIS - Water absorption by portable pump is carried out along head race - Low irrigation efficiency	- Urbanization and change in land use from irrigated area to build -up area in the tail portion of the RIS - Water absorption by portable pump is carried out along head race - Low irrigation efficiency
Main Irrigation System					
Main canal and Lateral canals	- Reducing of the flow capacity of canal due to sedimentation - Low embankment in lateral canals	- Reducing of the flow capacity of canal due to sedimentation Low embankment in lateral canals	- Reducing of the flow capacity of canal due to sedimentation Low embankment in lateral canals	- Reducing of the flow capacity of canal due to sedimentation	- Reducing of the flow capacity of canal due to sedimentation in lateral canal
Related structures					
Settling basin	- No facilities	- No facilities	- No facilities	- No facilities	- No facilities
Discharge Measuremen	- Backwater caused by the structure affects the existing measurement section - Sedimentation in canal affects the measuring section (H-Q curve)	- Backwater caused by the structure affects the existing measurement section - Sedimentation in canal affects the measuring section (H-Q curve)	- Backwater caused by the box culvert affects the existing measurement section - Sedimentation in canal affects the measuring section (H-Q curve)	Sedimentation in canal affects the measuring section (H-Q curve)	- Backwater caused by the check structure affects the existing measurement section - Sedimentation in canal affects the measuring section (H-Q curve)
Head gate/ Turnout	- No measuring system of water discharge	- No measuring system of water discharge	- No measuring system of water discharge	- No measuring system of water discharge	- No measuring system of water discharge
Check structure	- Deterioration of gates & stop log - Illegal turnout and water absorption by pump during water shortage period	- Deterioration of gates & stop log - Illegal turnout and water absorption by pump during water shortage period	- Deterioration of gates & stop log - Illegal turnout and water absorption by pump during water shortage period	- Deterioration of gates & stop log - Illegal turnout and water absorption by pump during water shortage period	- Deterioration of gates & stop log - Illegal turnout and water absorption by pump during water shortage period
Bridge / Cross Conduit	- Hydraulic choking due t sedimentation	- Hydraulic choking due t sedimentation	Hydraulic choking due to sedimentation	- Hydraulic choking due t sedimentation	- Hydraulic choking due to sedimentation
Spillway	- Spillway is not provided for emergency case				- Spillway is not provided for emergency case
Siphon	- No provision of trashrack	- No provision of trashrack	- No provision of trashrack	- No provision of trashrack	- No provision of trashrack
Main drainage facilities					
Cross drain	- Shortage of cross drain at some section - Choking of drain / river sections		- Shortage of cross drain at some section		
Service road	- Deterioration of pavement and no passable at some sections in the rainy season due to deterioration of canal sections	- Deterioration of pavement and no passable at some sections in the rainy season due to deterioration of canal sections - No passable sections of the road are found out along main canal	- Deterioration of pavement and no passable at some sections in the rainy season due to deterioration of canal sections	- Deterioration of pavement and no passable at some sections in the rainy season due to deterioration of canal sections - No passable sections of the road are found out along lateral canal	- Deterioration of pavement and no passable at some sections in the rainy season due to deterioration of canal sections
On-Farm development					
Canals and drains	- Slow water run - No proper water operation due to double function such as irrigation and drainage	- Slow water run - No proper water operation due to double function such as irrigation and drainage	- Slow water run - No proper water operation due to double function such as irrigation and drainage	- Slow water run - No proper water operation due to double function such as irrigation and drainage	- No proper water operation due to double function such as irrigation and drainage

Table A.3.26 Maintenance Cost for the Existing Facilities

Year	RIS	Maintenance Cost (Pesos 1,000)					
		IOSP II				GAA	Total
		Repair	Canal Maintenance	Urgent Repair	Sub-Total	Repair	
1992	JSRIS	-	-	-	-	0	0
	ASB RIS	-	-	-	-	338	338
1993	JSRIS	-	-	-	-	1,057	1,057
	ASB RIS	-	-	-	-	422	422
1994	JSRIS	905	1,413	0	2,318	4,450	6,768
	ASB RIS	1,152	1,215	0	2,367	2,029	4,396
1995	JSRIS	0	1,131	12,363	13,494	899	14,393
	ASB RIS	0	645	7,168	7,813	1,110	8,923
1996	JSRIS	2,145	1,910	1,748	5,803	-	5,803
	ASB RIS	727	1,635	0	2,362	-	2,362
Total	JSRIS	3,050	4,454	14,111	21,615	6,406	28,021
	ASB RIS	1,879	3,495	7,168	12,542	3,899	16,441

Notes: JS : Jalaur - Suague
ASB : Aganan - Sta. Barbara

Source: NIA Region VI Office

Table A.3.27 Collection of Irrigation Service Fee

Year	RIS	ISF Collectibles (Pesos 1,000)			ISF Actual Collection (Pesos 1,000)			ISF Collection Efficiency
		Dry Paddy	Wet Paddy	Total	Current Account	Back Account	Total	
1992	Jalaur Proper	3,745	3,189	6,934	2,696	423	3,119	39 %
	Jalaur Extension	1,756	1,210	2,966	1,181	221	1,402	40 %
	Suague	1,686	1,426	3,112	858	268	1,126	28 %
	Aganan	497	2,515	3,012	1,084	417	1,501	36 %
	Sta. Barbara	991	1,727	2,718	1,029	545	1,574	38 %
1993	Jalaur Proper	4,304	3,451	7,755	2,583	642	3,225	33 %
	Jalaur Extension	1,747	1,216	2,963	1,329	227	1,556	45 %
	Suague	1,368	1,414	2,782	996	434	1,430	36 %
	Aganan	355	2,528	2,883	1,438	172	1,610	50 %
	Sta. Barbara	1,362	1,696	3,058	1,523	470	1,993	50 %
1994	Jalaur Proper	4,252	3,231	7,483	1,797	796	2,593	24 %
	Jalaur Extension	1,375	1,180	2,555	816	245	1,061	32 %
	Suague	1,828	1,340	3,168	1,139	530	1,669	36 %
	Aganan	833	2,533	3,366	891	1,279	2,170	26 %
	Sta. Barbara	1,767	1,661	3,428	1,203	1,179	2,382	35 %
1995	Jalaur Proper	3,273	2,976	6,249	1,300	704	2,004	21 %
	Jalaur Extension	872	1,184	2,056	679	227	906	33 %
	Suague	1,107	1,417	2,524	782	410	1,192	31 %
	Aganan	865	2,331	3,196	520	2,199	2,719	16 %
	Sta. Barbara	1,394	1,649	3,043	1,166	995	2,161	38 %
1996	Jalaur Proper	3,903	4,910	8,813	2,111	1,152	3,263	24 %
	Jalaur Extension	845	1,579	2,424	807	310	1,117	33 %
	Suague	1,601	1,832	3,433	1,306	605	1,911	38 %
	Aganan	996	3,175	4,171	765	946	1,711	18 %
	Sta. Barbara	1,897	1,953	3,850	1,652	2,075	3,727	43 %
Average	Jalaur Proper	3,895	3,551	7,447	2,097	743	2,841	28 %
	Jalaur Extension	1,319	1,274	2,593	962	246	1,208	37 %
	Suague	1,518	1,486	3,004	1,016	449	1,466	34 %
	Aganan	709	2,616	3,326	940	1,003	1,942	29 %
	Sta. Barbara	1,482	1,737	3,219	1,315	1,053	2,367	41 %

Notes: ISF : Irrigation Service Fee
Current Account (CA) : ISF charge for the current cropping (wet & dry) year which such cropping was done.
Back Account (BA) : ISF charge for the previous cropping year which ISF were not collected in the previous year.
ISF Collection Efficiency = ISF Actual Collection (CA) / ISF Collectibles (CA)

Source: NIA ISRIS Office and ASRIS Office

Table A.3.28 Collection of Irrigation Service Fee of All of the NISs

Year	Region	ISF Collectibles (Pesos 1,000)	ISF Actual Collection (Pesos 1,000)			ISF Collection Efficiency
			Current Account	Back Account	Total	
1994	1	29,072	10,535	3,944	14,479	36 %
	2	41,474	24,411	4,878	29,289	59 %
	3	45,869	17,439	6,139	23,578	38 %
	4	41,874	22,547	6,316	28,863	54 %
	5	18,809	8,127	3,743	11,870	43 %
	6	48,306	14,652	9,631	24,283	30 %
	7&8	13,101	6,345	1,300	7,645	48 %
	9	12,126	5,330	780	6,110	44 %
	10	21,780	12,511	3,193	15,704	57 %
	11	41,547	21,887	3,778	25,665	53 %
	12	36,704	16,717	5,841	22,558	46 %
	MRIIS	112,517	66,828	11,002	77,830	59 %
	UPRIIS	128,912	58,616	5,267	63,883	45 %
	Total	592,094	285,945	65,812	351,757	47 %
1995	1	29,699	9,509	3,632	13,141	32 %
	2	41,273	23,858	5,549	29,407	58 %
	3	44,568	17,778	7,506	25,284	40 %
	4	38,062	18,060	7,885	25,945	47 %
	5	21,197	9,675	5,441	15,116	46 %
	6	43,922	14,896	8,427	23,323	34 %
	7&8	13,814	6,702	2,730	9,432	49 %
	9	11,945	6,405	2,540	8,945	54 %
	10	21,667	15,225	4,242	19,467	70 %
*1	11	-	-	-	-	-
	12	34,919	15,848	6,230	22,078	45 %
	MRIIS	104,542	58,059	10,049	68,108	56 %
	UPRIIS	99,015	44,058	9,884	53,942	44 %
	Total	504,623	240,073	74,115	314,188	48 %
Average	1	29,386	10,022	3,788	13,810	34 %
	2	41,374	24,135	5,214	29,348	58 %
	3	45,219	17,609	6,823	24,431	39 %
	4	39,968	20,304	7,101	27,404	51 %
	5	20,003	8,901	4,592	13,493	44 %
	6	46,114	14,774	9,029	23,803	32 %
	7&8	13,459	6,524	2,015	8,539	48 %
	9	12,036	5,868	1,660	7,528	49 %
	10	21,724	13,868	3,718	17,586	64 %
	11	41,547	21,887	3,778	25,665	53 %
	12	35,812	16,283	6,036	22,318	45 %
	MRIIS	108,530	62,444	10,526	72,969	57 %
	UPRIIS	113,964	51,337	7,576	58,913	45 %
	Total	569,132	273,953	71,853	345,805	48 %

Notes: ISF : Irrigation Service Fee
Current Account (CA) : ISF charge for the current cropping (wet & dry) year which such cropping was done.
Back Account (BA) : ISF charge for the previous cropping year which ISF were not collected in the previous year.
ISF Collection Efficiency = ISF Actual Collection (CA) / ISF Collectibles (CA)
*1: No available data

Source: NIA Central Office

Table A.3.29 Income and Expenses of JSRIS & ASBRIS Office

Jalaur - Suague River Irrigation System (JSRIS) Office

(Unit : Pesos 1,000)

Year	Actual Income	Actual Expenses		
		Personal Services	Maintenance & Other Operation Expenses	Total
1992	6,648	5,228	576	5,804
1993	6,664	4,981	646	5,627
1994	7,340	6,814	471	7,285
1995	5,311	8,230	322	8,552
1996	9,991	9,149	309	9,458

Note : Actual expenses for CY 1994 to 1996 include expenses of Barotac Viejo RIS office

Aganan - Sta. Barbara River Irrigation System (ASBRIS) Office

(Unit : Pesos 1,000)

Year	Actual Income	Actual Expenses		
		Personal Services	Maintenance & Other Operation Expenses	Total
1992	3,865	3,000	240	3,240
1993	3,888	3,193	269	3,462
1994	5,377	4,090	463	4,553
1995	5,185	4,974	282	5,256
1996	5,595	5,512	47	5,559

Source : NIA Region VI Office

Table A.3.30 Agricultural Extension Personnel of Relevant Municipalities

	MAO	MCDO	Crops	Livestock	Fishery	Soil	HMT	Total
1 Anilao	1	1	2	2	2	0	1	9
2 Barotac Nuevo	1	1	9	1	6	0	0	18
3 Dingle	1	0	8	0	0	0	0	9
4 Dumangas	1	1	6	1	4	1	1	15
5 Iloilo city	1	1	8	2	5	1	1	19
6 Leganes	1	1	7	1	3	0	1	14
7 Mina	1	0	4	1	0	0	1	7
8 New Lucena	1	1	10	1	0	0	1	14
9 Oton	1	1	10	3	3	0	2	20
10 Pavia	1	1	9	2	0	0	2	15
11 Pototan	1	1	9	2	0	1	3	17
12 San Miguel	1	1	3	1	0	0	1	7
13 Santa Barbara	1	1	14	1	0	1	1	19
14 Zarraga	1	1	10	1	0	0	1	14
Total	14	12	109	19	23	4	16	197

MAO: Municipal Agricultural Officer

MCDO: Municipal Community Development Officer

HMT: Home Management Technician

Source: Municipal Agricultural Offices

Table A.3. 31 Profile of Irrigators' Associations in the Study Area

RIS / IA Name	Number of Members			IA Farm Area** (ha)	NIS Service Area** (ha)	Year Formed
	Actual*		Potential			
Jalaur proper	2,431	2,974	3,991	7,350	8,820	
SISADA	128	125	175	250	250	1983
BAPZAT	254	254	358	450	510	1982
J.P. 2	233	233	380	630	730	1990
J.P. 3	297	456	431	890	890	1990
JADD	216	266	239	560	560	1982
J-JIN	73	162	162	380	390	1989
POZA	177	254	250	780	780	1991
CIDD	125	245	240	750	750	1990
LOJAPRO	189	292	250	810	810	1991
CAMP	223	222	300	590	740	1989
BAMAPA	168	160	194	330	330	1983
MACAPA	92	49	200	110	480	1991
CANROSCA	130	130	540	330	790	1991
PAGKAPUSU	126	126	272	490	810	1991
Jalaur extension	873	1,739	1,782	2,080	2,620	
DAB	208	500	240	560	590	1990
B.N. NORTH	106	240	240	450	580	1989
LUD	170	145	216	200	260	1984
J.B. TRES	105	504	504	430	430	1989
PASBIGTABA	178	199	401	290	610	1984
TAPABIA	106	152	181	150	150	1989
Suague	1,061	1,770	1,363	2,850	2,960	
JEBADA	200	300	300	440	440	1983
SMEWBAT	200	300	300	510	520	1983
AGDABASICA	220	660	253	560	660	1989
SUAGUE THREE	263	310	310	640	640	1989
DIVISION 4 SUAGUE	178	200	200	700	700	1991
Sta Barbara	1,043	1,445	1,379	2,560	3,000	
PALACATI-AN	422	559	471	870	900	1985
TACAS-BUHANG	103	n.d.	181	300	630	1991
CABUGLASAN	210	535	372	770	770	1984
LACASAN	308	351	355	620	700	1989
Aganan	1,728	2,014	2,279	3,900	4,360	
PASAMISBA	389	608	608	910	910	1989
SAMICASA	248	248	260	370	370	1990
MACABITU	315	429	429	890	890	1990
SALAMBITU	228	387	351	930	930	1990
LAMPACAPA	342	342	360	470	930	1990
JIPADUSA	206	n.d.	271	330	330	1990
TOTAL	7,136	9,942	10,794	18,740	21,760	

Source: NIA-ASBRIS and JSRIS Offices, January 1997

*Actual members: the first column reflects data from NIA ASBRIS and JSRIS Offices; the second column is based on the interview survey of IA presidents conducted from 31 January to 26 February 1997

**Rounded figure.

Table A.3. 32 Basic Organizational Characteristics of Irrigators' Associations in the Study Area

Characteristics	Jalaur proper	Jalaur extension	Suague	Sta. Barbara	Aganan	Totals/ Averages
						Totals
1. Number of IA per RIS	14	6	5	6	4	35
2. Actual members of IA (no.)*	2,431	873	1,061	1,043	1,728	7,136
2.1 % of actual to potential members						
3. Gender and tenurial status of IA presidents (no.)						
3.1 Gender						
Male	12	6	5	3	5	31
Female	2	0	0	0	0	2
3.2 Tenurial status						
Owner cultivator	13	6	4	2	2	27
Tenant farmer	1	0	1	1	3	6
4. Gender of committee chairpersons (no.)						
4.1 Membership, education and training						
Male	7	6	5	0	3	21
Female	6	0	0	3	2	11
4.2 Service						
Male	14	6	4	3	5	32
Female	0	0	1	0	0	1
4.3 Finance						
Male	9	6	4	2	5	26
Female	4	0	1	1	0	6
4.4 All 3 Committees						
Male	30	18	13	5	13	79
Female	10	0	2	4	2	18
5. Tenurial status of committee chairpersons (no.)						
5.1 Membership, education and training						
Owner cultivator	4	5	5	0	3	17
Owner-noncultivator	0	0	0	0	1	1
Tenant farmers	9	1	0	3	1	14
5.2 Service						
Owner cultivator	12	6	5	0	3	26
Tenant farmer	2	0	0	3	2	7
5.3 Finance						
Owner cultivator	9	6	5	2	3	25
Tenant farmer	4	0	0	1	2	7
5.4 All 3 Committees						
Owner cultivator	25	17	15	2	9	68
Owner-noncultivator	0	0	0	0	1	1
Tenant farmer	15	1	0	7	5	28
						Averages
6. Average age of IAs (years)	9	10	10	10	7	9
7. Average size of working committees (no.)						
7.1 Membership, education and training	15	13	17	4	3	12
7.2 Service	15	13	17	8	6	12
7.3 Finance	15	13	17	3	4	10
8. Participation rate of IA members (%): Average of 6 years**						
8.1 Education and training programs	91	99	100*	82	90	91
8.2 Meetings	inc.	inc.	inc	95	100	
9. Average number of trainings attended per year (1991-1996)	2	1	inc.	3	5	2 to 3

*Based on the results of interview survey of IA presidents undertaken from 31 January to 26 February 1997.

**Average for the period 1991-1996.

inc. means incomplete/insignificant information

Source: NIA-ASBRIS and JSRIS Offices, January 1997; and results of interview survey of IA presidents and committee chairpersons during the period mentioned above. No response was received from one IA president each in Aganan RIS and Sta. Barbara RIS.

Table A.3. 33 Decision-Making Processes of the Irrigators' Associations

Name of IAs	General assembly		Organization officers		Other processes	
	Cases	%	Cases	%	Cases	%
Jalaur proper RIS	26	36.1	95	38.1	21	32.8
1. SISADA	3	4.2	3	1.2	0	0
2. BAPZAT	3	4.2	10	4	0	0
3. J.P. 2	4	5.5	6	2.4	1	1.6
4. J.P. 3	1	1.4	8	3.2	7	10.9
5. JADD	3	4.2	5	2	1	1.6
6. J-JIN	2	2.8	4	1.6	0	0
7. POZA	0	0	8	3.2	1	1.6
8. CIDD	0	0	8	3.2	1	1.6
9. LOJAPRO	1	1.4	5	2	4	6.2
10. CAMP	2	2.8	10	4	0	0
11. BAMAPA	1	1.4	6	2.4	0	0
12. MACAPA	1	1.4	5	2	1	1.6
13. CANROSCA	3	4.2	8	3.2	4	6.2
14. PAGCAPUSU	2	2.8	9	3.6	1	1.6
Jalaur extension RIS	19	26.4	35	14	11	17.2
15. DAB	2	2.8	7	2.7	1	1.6
16. B.N. NORTH	4	5.5	8	3.2	0	0
17. LUD	4	5.5	2	0.8	1	1.6
18. J.E.TRES	5	6.9	11	4.4	6	9.4
19. PASBIGTABA	0	0	4	1.6	3	4.7
20. TAPABIA	4	5.5	3	1.2	0	0
Suague RIS	8	11.1	36	14.5	7	10.9
21. JEBADA	5	6.9	7	2.7	1	1.6
22. SMEWBAT	0	0	6	2.4	3	4.7
23. AGDABASICA	0	0	10	4	0	0
24. SUAGUE THREE	2	2.8	10	4	0	0
25. DIVISION 4 SUAGUE	1	1.4	3	1.2	3	4.7
Sta. Barbara RIS	9	12.5	36	14.5	5	7.8
26. PALACATI-AN	2	2.8	13	5.2	1	1.6
27. TACAS-BUHANG	2	2.8	6	2.4	0	0
28. CABUGLASAN	2	2.8	10	4	1	1.6
29. LACASAN	3	4.2	7	2.7	3	4.7
Aganan RIS	10	13.9	47	18.9	20	31.3
30. PASAMISBA	1	1.4	16	6.4	8	12.5
31. SAMICASA	2	2.8	4	1.6	2	3.1
32. MACABITU	3	4.2	7	2.8	3	4.7
33. SALAMBITU	2	2.8	5	2	3	4.7
34. LAMPACAPA	1	1.4	9	3.6	3	4.7
35. JIPADUSA	1	1.4	6	2.4	1	1.6
TOTAL	72	100	249	100	64	100

Source: Socio-economic survey conducted from 31 January to 26 February 1997.

Note: Percentage totals/subtotals do not add up to 100% or subtotal share due to rounding off.

Table A.3. 34 Types of Contracts Implemented by Irrigators' Associations, 1991-1997

Name of IA	Types of Contracts				Length of Canal Contracted (Km)
	1991-1993	1995	1996	1997	
Jalaur proper RIS					73.6
1. SISADA	1	1	1	1	
2. BAPZAT	1	1	1	1	
3. J.P. 2	1	0	1	1	
4. J.P. 3	1	1	1	1	
5. JADD	1 & 2	0	1	1	
6. J-JIN	1	1	1	1	
7. POZA	1	1	1	1	
8. CIDD	1 & 2	1	1	1	
9. LOJAPRO	1	1	1	1	
10. CAMP	1 & 2	1 & 2	1 & 2	1 & 2	
11. BAMAPA	1	0	0	0	
12. MACAPA	1	0	0	0	
13. CANROSCA	1	0	1	1	
14. PAGKAPUSU	1	1	1	1	
Jalaur extension RIS					27.8
15. DAB	1	0	0	0	
16. B.N. NORTH	1	1	1	1	
17. LUD	1	1	1	1	
18. J.E. TRES	1	1	1	1	
19. PASBIGTABA	1	0	1	1	
20. TAPABIA	0	0	1	1	
Suague RIS					32.9
21. JEBADA	1	1	1	1	
22. SMEWBAT	1	1	1	1	
23. AGDABASICA	1	1	1	1	
24. SUAGUE THREE	1	1	1	1	
25. DIVISION 4 SUAGUE	1	0	1	1	
Sta. Barbara RIS					26.4
26. PALACATI-AN	1 & 2	0	0	1 & 2	
27. TACAS-BUHANG	2	0	0	0	
28. CABUGLASAN	1 & 2	1 & 2	1 & 2	1 & 2	
29. LACASAN	2	1 % 2	1 & 2	1 & 2	
Aganan RIS					18.5
30. PASAMISBA	1	1 & 2	1 & 2	1 & 2	
31. SAMICASA	2	1 & 2	1 & 2	1 & 2	
32. MACABITU	2	1 & 2	1 & 2	1 & 2	
33. SALAMBITU	2	0	0	0	
34. LAMPACAPA	2	0	0	0	
35. JIPADUSA	1	0	0	0	

Source: NIA-ASBRIS and JSRIS Offices

Notes: Types of contracts-1 Maintenance of irrigation canals
2 Collection of ISF payments
3 Full management turnover

Table A.3. 35 Farmers' Perceptions on the Best Way to Manage and Improve Existing NIS

Farmers' Perceptions	IA		Farmers' Cooperatives	
	Cases	%	Cases	%
1. Regular maintenance	165	25.3	45	23.7
2. Building reservoir/pumping station	122	18.7	38	20
3. Proper distribution of water	84	12.9	24	12.6
4. Competent NIA personnel	65	10	22	11.6
5. Drainage system	48	7.4	12	6.3
6. Urgent response from NIA personnel	37	5.7	12	6.3
7. Financial assistance	26	4	7	3.7
8. Reforestation	22	3.4	9	4.7
9. Discipline for non-payors	15	2.3	7	3.7
10. Other ways	68	10.4	14	7.4
Total	652	100	190	100

Source: Socio-economic survey conducted from 31 January to 26 February 1997.
Note: Multiple responses occured in many cases.

Table A.3. 36 Perceptions About the Proper Role of Farmers' Organizations in the O&M of NIS

Perceived Role of Farmers' Organizations	Jalaur-Suague RIS		Aganan-Sta. Barbara RIS		Total	
	Cases	%	Cases	%	Cases	%
1. Adopting organizational solution to water distribution	78	25.4	17	12.1	95	21.2
2. Defining roles and responsibilities in O&M	49	16	36	25.7	85	19
3. Provision of manpower for O&M	52	16.9	15	10.7	67	15
4. Collection/payment of ISF	27	8.8	18	12.9	45	10.1
5. Federation of IAs for proper coordination	20	6.5	13	9.3	33	7.4
6. Vigilance	17	5.5	11	7.9	28	6.3
7. Information dissemination	10	3.2	5	3.6	15	3.3
8. Other roles	54	17.6	25	17.8	79	17.7
Total	307	100	140	100	447	100

Source: Socio-economic survey conducted from 31 January to 26 February 1997.

Note: Multiple responses occurred in some cases.

Table A.3. 37 Training Courses Conducted by NIA Region VI Training Center in Pototan, 1989-1994

Year	Title of Training Course	Number of Days	Number of Training Hours	Type of Participants	Number of Participants	Expenses (pesos)
1989	Orientation/Seminar on Local Minor Contract	2	16	NIA staff	40	17,050.00
	Seminar/Workshop on Integrated CIP Development Program	3	24	NIA staff	41	10,416.00
	Pre-Deployment Training	6	48	NIA staff	11	14,939.00
	Basic Leadership Development Course Echo Training	3	30	NIA staff	17	11,289.50
	Seminar on Local Minor Contract	2	24	NIA staff	50	17,050.00
	Pre-Fielding Training	17	56	NIA staff	24	67,273.00
	Financial Management Training (NIS)	5	40	NIA staff	33	43,951.00
	Financial Management Training (CIS)	5	40	NIA staff	44	50,275.50
1990	Seminar/Workshop on Integrated CIP Development Program	3	24	NIA staff	41	10,416.00
	Pre-Deployment Training	6	48	NIA staff	11	14,939.00
	Basic Leadership Development Course Echo Training	3	30	NIA staff	17	11,289.50
	Seminar/Workshop on Irrigation Project Maintenance	3	30	NIA staff	51	28,894.80
	CIS-IDO Pre-Deployment Training	8	65	NIA staff	36	58,909.70
	Seminar/Re-orientation on the Role of IDO	3	24	NIA staff	59	16,176.35
	Seminar/Workshop on the Government Non-Performing Assets	3	30	NIA staff	39	26,336.46
	Seminar/Workshop for Project In-Charge	5	55	NIA staff	36	28,351.32
1991	Financial Management Training (6 batches)	2	16	IA officers	192	32,440.00
	Cooperative Pre-Membership Education Seminar (4 batches)	2	16	IA members	220	9,000.00
	Irrigators' Association Leadership Installation Conference (10 batches)	5	40	IA officers	393	296,405.00
	O&M Conference	2	8	IA officers	50	2,500.00
	System Management Training (3 batches)	4	32	IA officers	117	42,664.00
	Essential Structural Maintenance (ESM) Training (2 batches)	12	96	NIA staff	58	188,610.11
	ESM and Water Management Planning Workshop	4	32	NIA staff	39	85,000.00
	Accounting, Budgeting, Cashiering and Disbursing Training	6	32	NIA staff	29	42,116.53
1992	Seminar/Workshop on Contract Works and Program of Work Preparation	2	16	NIA staff	41	11,835.97
1993	Value Formation Seminar	5	40	NIA staff	20	9,000.00
	Orientation of Values, Moral Regeneration and Supervisory Development	5	40	NIA staff	36	77,600.00
	Moral Recovery Program Training (5 batches)	1	8	NIA staff	145	16,865.00
	Diversified Crops Patterns of Planting Formulation	10	64	NIA staff	2	n.a.
	Water Management for Diversified Cropping	10	72	NIA staff	2	n.a.
	Investigators Studies on Crop Diversification	4	32	NIA staff	2	n.a.
	Training on Optimum Productivity (2 batches)	1	8	NIA staff	131	n.a.
1994	Moral Recovery Program Training (8 batches)	3	24	NIA staff	295	61,500.00
	Training on Tubewells	5	40	NIA staff	32	50,000.00
TOTAL						1,353,094.74

Source: NIA Region VI Office.

Table A.3. 38 Institutional Development Program Activities of NIA in 1996-1997

Title of Training Course	Unit Cost (P/participant)	1996 Number	1996 Cost (pesos)	1997 Number	1997 Cost (pesos)
Jalaur-Suague RIS					
1. For IA Officers					
1.1 Field trips	133.33	75	10,000.00		
1.2 IAMIS	85.70	105	9,000.00		
1.3 NIA-IA conference	60.00	450	27,000.00	300	***22,500.00
1.4 BLDC/leadership training	171.43	105	18,000.00	105	18,000.00
1.5 Value formation	171.43	630	108,000.00		
1.6 SMT/water management	107.14			280	30,000.00
1.7 Seminar/workshop	120.00			250	30,000.00
2. For IA Members					
2.1 IA planning assessment	33.88	369	12,500.00		
2.2 ISF collection strategy	171.43	105	18,000.00	70	12,000.00
2.3 Value formation	171.43			595	102,000.00
3. For NIA Staff					
3.1 Systems RPW	70.00	240	16,800.00	120	****12,000.00
3.2 IMIS	171.43	35	6,000.00	35	6,000.00
3.3 Trainers' training on collection strategy	171.43	35	6,000.00	35	6,000.00
3.4 Field trip	333.33			30	10,000.00
3.5 Basic computer	240.00			25	6,000.00
Sub-total			231,300.00		254,500.00
Aganan-Sta. Barbara RIS					
1. For the IAs					
1.1 Training of farmers' trainers 1/	200.00			5	1,000.00
1.2 Seminar workshop 1/	162.86	35	5,700.00		
1.3 ISF collection strategy 1/	140.63	80	11,250.00		
1.4 BLDC/leadership 3/	162.86	140	22,800.00		
1.5 Newsletter writing 2/	150.00			20	3,000.00
1.6 NIA-IA dialogue 1/	1.67			180	3,000.00
1.7 NIA-IA O&M conference 1/	66.67	*75	6,000.00	150	10,000.00
1.8 Field trips 2/	150.00			30	2,000.00
1.9 IA assessment/planning 2/	11.03			408	4,500.00
1.10 IAMIS/SMT 2/	162.86			70	11,400.00
1.11 Capacity building for agriculture (IPM, postharvest management) 2/	162.86			70	11,400.00
1.12 Value formation 3/	162.86	175	28,500.00	35	5,700.00
2. For NIA Staff					
2.1 System RPW	45.45	**70	4,000.00	33	1,500.00
2.2 Basic computer	200.00			10	2,000.00
Sub-total			78,250.00		55,500.00
TOTAL			309,550.00		310,000.00

Unit cost: *P80/pax; **P57.14/pax; ***P75/pax; ****P100/pax

Notes: 1/ For IA officers only
2/ For both IA officers and members
3/ For IA members only

Source: NIA-ASBRIS and JSRIS Offices

Table A.3. 39 Types of Farmers' Cooperatives in the Study Area

Municipality	Types of Cooperatives							
	Credit	Producer	Marketing & trading	Consumer	Consumer & marketing	Consumer, credit & trading	Others	Total
A. Jalaur-Suague RIS	49	1	7	21	8	13	55	166
1. Anilao	5	0	0	1	0	1	4	11
2. Barotac Nuevo	2	1	3	12	2	0	5	25
3. Dingle	17	0	0	0	0	0	4	21
4. Dumangas	17	0	1	3	1	0	5	27
5. Mina	1	0	1	1	1	10	10	24
6. New Lucena	1	0	1	11	4	0	1	18
7. Pototan	6	0	1	3	0	2	6	38
8. Zarraga	0	0	0	2	0	0	0	2
B. Aganan-Sta. Barbara RIS	5	0	13	48	7	5	12	90
9. Leganes	2	0	1	0	2	1	2	8
10. Oton	0	0	8	9	4	0	2	23
11. Pavia	2	0	3	11	0	0	0	16
12. San Miguel	0	0	1	6	1	0	0	8
13. Sta. Barbara	1	0	0	22	0	4	8	35
TOTAL	54	1	20	69	15	18	67	256

Source: Cooperative Development Authority (CDA) Region VI Office

Notes: Cooperatives with incomplete or no available data on type/s of business were excluded. The cooperatives classified under "others" have been generally involved in more than three types of businesses identified in the table.

Table A.3.40 Present Land Use in the Watershed Area

(Unit: ha)

Mapping Code and Land Cover Items	Watershed								Grand Total	
	Aganan		Tigum		Suage		Jalaur			
1. F: Forest (*1)	0	0%	400	2%	1,000	6%	7,600	7%	9,000	6%
Fp Pine forest	0	0%	0	0%	0	0%	0	0%	0	0%
Fy Mossy forest	0	0%	0	0%	0	0%	0	0%	0	0%
Fd Dipterocarp and/or other broad-leaved forest										
Fdc Closed canopy, mature trees covering > 50%	0	0%	0	0%	0	0%	0	0%	0	0%
Fdo Open canopy, mature trees coverung < 50%	0	0%	400	2%	1,000	6%	7,600	7%	9,000	6%
Fm Mangrove vegetation	0	0%	0	0%	0	0%	0	0%	0	0%
2. E: Extensive Land Use (*2)	5,500	53%	14,000	73%	12,700	70%	68,000	64%	100,200	65%
Ec Cultivated area mixed with brush & grass	5,500	53%	14,000	73%	12,700	70%	64,400	60%	96,600	63%
Eg Grassland, grass covering > 70%	0	0%	0	0%	0	0%	3,600	3%	3,600	2%
3. I: Intensive Land Use (*3)	4,900	47%	4,900	25%	4,400	24%	30,800	29%	45,000	29%
Ip Plantations larger than 100 ha										
Ipc Coconuts plantations	0	0%	0	0%	0	0%	0	0%	0	0%
Ipo Other plantations	0	0%	0	0%	0	0%	0	0%	0	0%
Ic Arable land, crops mainly paddy and sugarcane	1,700	16%	4,000	21%	4,400	24%	30,800	29%	40,900	27%
Im Mixed intensive cultivation (crop land and plantations less than 100 ha)										
Imc Crop land mixed with coconut plantation	3,200	31%	600	3%	0	0%	0	0%	3,800	2%
Imo Crop land mixed with other	0	0%	300	2%	0	0%	0	0%	300	0%
If Fishponds										
Ifm Fishponds derived from mangrove	0	0%	0	0%	0	0%	0	0%	0	0%
Ifo Other fishponds	0	0%	0	0%	0	0%	0	0%	0	0%
4. Others (Eroded area, Quarry, Other barren land, Riverbeds, Buit-up area, Marshy area and swamp, Lake, Siltation patter in lake or along the coast, Coral reef)										
B Built-up area	0	0%	0	0%	0	0%	100	0%	100	0%
Total	10,400	100%	19,300	100%	18,100	100%	106,500	100%	154,300	100%

Note: *1; Forest: forest trees and reproduction brush, < 10% cultivated and other open areas.
*2: Extensive Land Use: populated areas in uplands and grasslands, > 10% cultivated and other open areas, < 70% cultivatd area.
*3: Intensive Land Use: crop lands, plantations and fishponds, > 70% cultivated area.

Source: Digital data of Land Cover Maps (Iloilo City:P.C.G.S 2528, Roxas City:P.C.G.S 2523, Bogo:P.C.G.S 2524) at the scale of 250,000, prepared by NAMRIA under the assistancce of Swedish Space Corporation, August 1988. Digital data was originally obtained from 1987 SPOT Satellite images.

Table A.3.41 Existing Forest Management Program and Reserved Areas in Public Forest Land

Program / Reserved Area	Aganan Area		Tigum Area		Suage Area	
	Alimodian		Maasin		Janiuay	
	ha	%	ha	%	ha	%
1. Reforestation Program Area						
1.1 Regular Reforestation	0	0	0	0	0	0
1.2 Contract Reforestation	180	7	215	3	188	3
1.3 Integrated Social Forestry Program	0	0	0	0	459	8
1.4 Industrial Tree Plantation	0	0	0	0	0	0
Sub-total	180	7	215	3	646	12
2. Demarcated Area						
2.1 National Park	0	0	0	0	0	0
2.2 Watershed Area	0	0	5,800	83	0	0
2.3 Civil Reserve	0	0	0	0	0	0
2.4 Military Reserve Forest	0	0	0	0	0	0
2.5 Communal Forestry Program	0	0	0	0	0	0
2.6 Grazing Land	0	0	0	0	0	0
Sub-total	0	0	5,800	83	0	0
3. Un-designated Area	2,356	93	965	14	4,803	88
4. Total land	2,536	100	6,980	100	5,449	100

Source : Provincial Environmental Natural Resource Office (PENRO), Iloilo

Program / Reserved Area	Jalaur Area					
	Lambunao		San Enrique		Calinog	
	ha	%	ha	%	ha	%
1. Reforestation Program Area						
1.1 Regular Reforestation	143	2	0	0	735	5
1.2 Contract Reforestation	250	3	300	13	519	3
1.3 Integrated Social Forestry Program	376	4	873	38	1,144	8
1.4 Industrial Tree Plantation	0	0	28	1	0	0
Sub-total	769	9	1,201	52	2,398	16
2. Demarcated Area						
2.1 National Park	0	0	124	5	0	0
2.2 Watershed Area	0	0	0	0	9,228	62
2.3 Civil Reserve	2,335	27	0	0	695	5
2.4 Military Reserve Forest	0	0	0	0	20	0
2.5 Communal Forestry Program	306	4	376	16	34	0
2.6 Grazing Land	0	0	176	8	0	0
Sub-total	2,640	31	676	29	9,977	67
3. Un-designated Area	5,136	60	437	19	2,579	17
4. Total land	8,546	100	2,314	100	14,954	100

Source : Provincial Environmental Natural Resource Office (PENRO), Iloilo

Table A.3.42 Result of Water Quality Test

Description					Parameters											
Sample No.	Sampled river	Related RIS	Barangay	Municipality	Temp.	pH	DO mg/l	TDS ppm	EC uS/cm	Turbidity ppm	BOD mg/l	Hardness ppm	Cl ppm	N N/l	Org.-P ppm	TSS ppm
1	Jalaur	Jalaur P&E	Poblacion	Calinog	27.0	7.70	3.77	60	1.56	500	2.7	224	5	0.63	1.53	245
2	Jalaur	Jalaur P&E	Gines	Passi	27.5	7.60	6.26	100	0.21	200	30.0	206	9	0.08	nil	622
3	Jagdonb	Jalaur P&E	Mobong	Calinog	29.2	7.73	5.43	100	0.21	500	34.0	128	10	0.24	0.98	1524
4	Jalaur	Jalaur P&E	Dam site	Dingle	29.0	7.02	1.46	190	0.33	10	128.0	108	12	0.03	nil	39
5	Magapa	Suague	Magappa	Janiuay	32.0	7.59	3.01	160	0.34	500	2.9	78	11	0.43	1.71	5792
6	Suague	Suague	Bongolon	Janiuay	31.0	7.76	3.01	180	0.35	200	32.0	104	10	0.18	4.13	375
7	Suague	Suague	Tolarucan	Janiuay	32.0	7.80	2.81	180	0.37	100	22.0	68	9	0.1	nil	581
8	Jalaur	Jalaur P	Pototan	Pototan	29.5	7.56	4.25	200	0.29	10	6.2	46	12	0.09	nil	138
9	creak	Jalaur P	Dongsol	Zarraga	30.0	7.68	1.58	100	0.38	150	1.6	18	9	0.18	nil	595
10	creak		Cabilawan	New lucena	29.0	7.59	1.92	180	0.69	20	3.0	22	48	0.12	nil	22
11	Tigum	St. Barbara	Dasa	Massin	26.0	6.92	3.80	190	0.39	500	3.0	96	13	0.02	1.85	822
12	Tigum	St. Barbara	Dam site	Sta. Barbara	32.5	7.54	2.73	210	0.45	500	1.3	74	14	0.18	2.71	520
13	Aganan	Aganan	Cagay	Alimodian	26.0	7.59	1.99	180	0.68	10	1.6	24	16	0.12	nil	35
14	canal	St. Barbara	Cabugao	Sta. Barbara	30.0	7.86	1.80	160	0.57	10	2.2	2	15	0.17	nil	85
15	creak	St. Barbara		Leganes	29.0	7.18	3.70	410	0.87	20	5.3	44	10	0.26	nil	41
16	canal	Aganan	Cadolona	San Miguel	27.5	7.50	2.40	180	0.68	500	1.0	14	19	0.21	1.04	438
17	Aganan	Aganan	Dam site	San Miguel	27.0	8.02	2.56	180	0.75	50	2.0	24	20	0.03	nil	173
18	creak	Aganan	Mambog	Oton	31.0	7.46	1.05	180	0.69	20	4.8	20	22	0.64	2.22	86
19	canal	Suague	Tolarucan	Janiuay	31.0	7.80	2.64	150	0.30	500	0.5	44	9	0.24	0.11	5880
20	canal	Suague	Casalsagan	Pototan	27.0	7.27	1.30	240	0.60	500	5.4	32	15	0.04	1.08	1160
21	creak	Suague	Casalsagan	Pototan	27.0	7.30	5.07	280	0.57	10	4.0	36	21	0.55	nil	65
22	canal	Jalaur P	Tanghawan	Dingle	29.0	7.22	1.04	160	0.35	10	5.2	8	9	0.03	1.43	69
23	canal	Jalaur P	Rombang	Pototan	29.0	7.32	2.25	280	0.34	10	5.4	38	11	0.05	1.71	117
24	Jalaur	Jalaur P	Banga Bante	Zarraga	29.6	7.68	1.74	70	0.26	20	1.6	16	9	0.05	nil	179
25	canal	Jalaur E	Acuit	B. Nuevo	30.0	7.36	1.60	60	0.24	10	9.0	5	119	0.08	0.46	124
26	canal	Jalaur E	San Jose	Dingle	30.0	7.25	1.59	160	0.34	10	2.8	74	10	0.06	0.94	199
27	canal	Jalaur E	Bunca	B. Nuevo	32.0	8.01	3.20	100	0.39	20	6.5	22	99	0.03	nil	93
28	well	St. Barbara	E. School	Sta. Barbara	29.0	8.18	-	500	0.18	20	29.0	12	99	0.08	nil	26
29	well	Aganan	Cagbang	Oton	29.5	7.10	2.00	310	1.10	10	1.5	26	45	0.08	nil	45
30	well	Aganan	Abilay	Oton	27.0	7.77	-	580	2.00	20	15.0	114	61	0.03	nil	650

	Trace Element										SAR				Microbiological test	
Sample No.	Al mg/l	As mg/l	B mg/l	Cd mg/l	Cu mg/l	Pb mg/l	Mo mg/l	Zn mg/l	Cr mg/l	Hg ug/l	Na meq/l	Ca meq/l	Mg meq/l	SAR	Org. No. colon./ml	F. Coliforms
1	3.3	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.232	< 0.001	< 0.500	0.3	4.35	0.21	0.21	197	Negative
2	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.800	< 0.001	< 0.500	0.6	1.85	0.22	0.59	173	Negative
3	ND	ND	< 0.01	< 0.004	< 0.032	< 0.050	ND	0.120	< 0.001	< 0.500	0.6	4.25	0.22	0.40	333	Negative
4	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.028	< 0.001	< 0.500	0.6	4.3	0.23	0.42	156	Negative
5	ND	ND	< 0.01	< 0.004	< 0.032	< 0.050	ND	0.060	< 0.001	< 0.500	0.8	0.875	0.23	1.02	207	Negative
6	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.022	< 0.001	< 0.500	0.7	1.05	0.16	0.95	249	Negative
7	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.022	< 0.001	< 0.500	0.8	0.55	0.41	1.13	292	Negative
8	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	0.5	0.5	0.39	0.81	213	Negative
9	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	0.9	1.32	0.42	0.92	228	Negative
10	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	2.8	4.2	0.23	1.87	292	Negative
11	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	0.9	1.25	0.39	1.01	234	Negative
12	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	1.1	1.125	0.41	1.29	232	Negative
13	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	2.5	3.15	0.24	1.89	200	Negative
14	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	1.7	1.35	0.24	1.87	219	Negative
15	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	2.9	2.2	0.24	2.66	302	Negative
16	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	2.3	2.2	0.24	2.10	266	Negative
17	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	2.4	1.15	0.23	2.83	266	Negative
18	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	1.7	3.15	0.23	1.31	240	Negative
19	ND	ND	< 0.01	< 0.004	< 0.078	< 0.050	ND	0.090	< 0.001	< 0.500	0.6	0.55	0.39	0.92	248	Negative
20	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.042	< 0.001	< 0.500	1.0	1.1	0.43	1.11	235	Negative
21	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.015	< 0.001	< 0.500	1.1	0.75	0.41	1.50	240	Negative
22	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.025	< 0.001	< 0.500	0.5	1	0.40	0.63	223	Negative
23	0.8	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.022	< 0.001	< 0.500	0.6	1.35	0.39	0.60	243	Negative
24	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	0.6	1.65	0.39	0.59	314	Negative
25	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	0.5	1.4	0.37	0.52	400	Negative
26	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	0.6	0.625	0.40	0.88	251	Negative
27	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	0.8	3.65	0.39	0.55	223	Negative
28	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	0.240	< 0.001	< 0.500	0.5	1.175	0.21	0.66	46	Negative
29	ND	ND	< 0.01	< 0.004	< 0.020	< 0.050	ND	< 0.010	< 0.001	< 0.500	2.8	2.3	0.24	2.49	10	Negative
30	1.2	ND	< 0.01	< 0.004	< 0.039	< 0.050	ND	< 0.010	< 0.001	< 0.500	1.7	0.6	0.39	2.36	118	Negative

Table A.3.43 Present Environmental Issues and Tentative Mitigation Measures

Environmental Issues	Main Causes	Significance at present	Remedial Measures to be considered	Significance in future	Relating project
1. Silt deposition in the sluice and canal	• Soil erosion from watershed, due to improper land use	sever	• Applying proper watershed management • Installation of settling basin at dam site	moderate	all project
2. Watershed degradation	• Disordering logging, improper land use	sever - moderate	• Reforestation and introduction of soil conservation measures to watershed area with settlers involvement	moderate	all project
3. Inequality of water distribution	• Deterioration of irrigation facilities, • Overuse of water canal upstream • Out-of-schedule cropping • Water use without water right river upstream	sever - moderate	• Improvement of facility • Making a consensus among RIS by using participatory approach • Applying social supports to fill their economical gaps up	moderate - minor	all project
4. Seasonal inundation in RIS	• Flood at conjunction of river • Poor drainability at the cross of highway due to small capacity of culvert • High tide water	moderate - minor (occasional occurrence)	• Improvement of the structures	minor - moderate	Jalaur Pro. Suague
5. Deterioration of irrigation water quality	• Effluent from sugarcane milling factory • Contamination of domestic waste water from populated area	minor	• Investigation to identify the source of polluted water • Installation of the water treatment facility to the factory	minor	Jalaur Pro. Jalaur Ext. Suague
6. Urbanization in RIS areas	• Expansion of Iloilo city	sever - moderate	• Promotion of modern and suburban type farming • Strengthening of agricultural support system • Strengthening of marketing system	minor	Aganan Sta. Barbara
7. Sinking of riverbed on intake dam site	• Quarry activities in downstream of intake dam site by several individuals and private companies	minor	• Investigation to identify the relevance between quarry activity and the sinking of riverbed • Limiting the quarry activity in downstream of intake dam site	minor	Suague