

INFORMATION DATA OF I. S. F.

P/ARCHI.	COMPART. MENT	SUB-COM PARTMENT	AREA(m ²)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDING	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION IMPACT ON HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	TREE GROWTH POTENTIAL
I	4	Ha	48.00	860	12	SE	6	H	M	M	M	L	H	M	M	M	M
	4	Hb	10.22	790	16	SE	4	H	M	H	H	L	H	L	M	L	M
	4	Hc	8.42	867	24	E	1	H	M	H	M	L	H	M	M	L	M
	4	Hd	8.00	889	19	E	6	H	M	M	M	L	H	M	M	M	M
	4	He	2.09	900	25	E	4	H	L	M	M	L	H	M	L	M	L
	5	E	6.00	800	9	W	6	H	M	H	M	L	H	M	M	L	M
		Total	82.73														
I	4	La	5.67	840	9	S	4	H	L	M	M	L	H	M	L	M	L
	4	Lb	14.39	823	13	SW	6	H	M	M	M	L	H	M	M	M	M
	4	Lc	20.40	810	21	S	4	H	L	H	M	L	H	M	L	L	H
	4	Ld	2.00	840	24	SE	1	H	M	M	M	L	H	M	M	M	M
	4	Le	5.00	860	23	SE	1	H	M	M	M	L	H	M	M	M	M
	4	Lf	8.00	850	19	S	1	H	M	M	M	L	H	M	M	M	M
		Total	55.46														
I	5	H	5.00	765	22	SW	6	H	M	M	M	L	H	M	M	M	M
	6	D	12.00	760	16	SW	6	H	M	H	M	L	H	M	M	L	H
		Total	17.00														
I	7	Fa	8.81	895	21	E	1	H	M	M	M	L	H	M	M	M	M
	7	Fb	26.00	860	18	NE	6	H	M	M	M	L	H	M	M	M	M
		Total	34.81														
I	8	Fa	105.00	810	20	NE	6	H	H	M	M	M	H	M	M	M	M
	8	Fb	14.13	776	13	NE	4	H	H	M	H	M	H	M	M	M	M
		Total	119.13														
I	10	Ha	4.72	920	16	SW	1	H	M	M	M	L	H	M	M	M	L
	10	Hb	2.37	880	12	SW	4	H	M	L	M	L	M	M	M	M	L
	10	Hc	47.00	840	12	N	6	H	M	M	M	L	H	M	M	M	M

PARTICL.	COMPART-MENT	SUB-COM-PARTMENT	AREA(km)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDES(2)	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION IMPACT ON HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	THREE GROWTH POTENTIAL
		Total	54.09														
II	14	Ga	2.49	760	24	W	4	H	M	M	H	L	H	L	M	M	L
	14	Gb	3.04	730	16	SE	4	H	M	M	H	L	H	L	M	M	M
	14	Gc	35.00	720	12	S	6	H	M	M	M	L	H	M	M	M	M
	14	Gd	5.12	670	16	S	4	H	L	L	M	L	M	M	L	M	M
	14	Ce	2.65	720	20	SW	1	H	L	M	L	L	H	H	L	M	M
	14	Gf	10.04	780	16	S	1	H	M	M	M	L	H	M	M	M	M
	14	Gg	15.00	660	20	SW	6	H	M	M	M	L	H	M	M	M	M
		Total	73.34														
II	17	Ma	23.97	775	16	SE	4	M	L	H	L	L	H	M	L	L	H
	17	Mb	21.00	812	18	SE	6	H	M	M	M	L	H	M	M	M	H
		Total	44.97														
II	18	Fa	2.02	830	16	NW	1	H	M	M	M	L	H	M	M	M	L
	18	Fb	23.00	770	12	N	6	H	M	M	M	L	H	M	M	M	M
	18	Fc	4.39	780	16	NW	4	M	L	L	L	L	M	M	L	M	L
		Total	29.41														
II	19	Ja	1.23	770	16	NE	4	H	L	M	M	L	H	M	L	M	M
	19	Jb	20.00	770	13	N	6	H	M	H	M	L	H	M	M	L	M
		Total	21.23														
II	20	I	37.00	830	24	NE	6	H	M	M	M	L	H	M	M	M	M
		Total	37.00														
II	21	Fa	172.00	760	15	S	6	H	H	H	M	M	H	M	M	L	M
	21	Fb	24.83	717	16	SE	4	H	M	H	H	L	H	L	M	L	H
	21	Fc	13.03	734	12	S	4	H	M	M	M	L	H	M	M	M	M
	21	Fd	3.77	750	4	S	4	M	L	M	L	L	H	M	L	M	L

P.A.R.C.E.L.	COMPARTMENT	SUB-COMPARTMENT	AREA(a)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDES(2)	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	TREE GROWTH POTENTIAL
	21	Fe	2.92	750	8	S	4	M	L	M	L	L	H	M	L	M	M
		Total	216.55														
II	22	Ba	5.35	765	8	S	1	H	M	M	M	L	H	M	M	M	M
	22	Bb	3.74	765	21	SE	1	H	M	M	M	L	H	M	M	M	M
	22	Bc	14.49	684	12	SE	4	H	L	H	H	L	H	L	L	L	M
	22	Bd	130.00	747	16	NE	6	H	M	H	M	L	H	M	M	L	H
	22	Be	39.86	710	8	NE	4	H	M	H	H	L	H	L	M	L	H
	22	Bf	8.13	730	3	SW	4	M	L	L	L	L	M	M	L	M	L
	22	Bg	140.00	760	16	NE	6	H	M	H	M	L	H	M	M	L	H
		Total	331.57														
II	23	Aa	10.12	720	24	E	4	L	L	M	L	L	H	L	L	M	M
	23	Ab	85.00	750	14	E	6	H	M	M	M	L	E	M	M	M	H
	23	Ac	6.41	730	8	E	1	H	L	M	L	L	H	H	L	M	M
	23	Ad	1.24	720	16	N	4	E	L	M	M	L	H	M	L	M	L
	23	Ae	12.76	750	12	NE	1	H	M	M	M	L	H	M	M	M	M
	23	Af	5.04	800	16	NE	6	H	M	M	M	L	H	M	M	M	L
	23	Ag	1.14	690	16	NE	4	M	L	M	L	L	H	M	L	M	H
		Total	121.71														
II	23	Ja	7.80	800	8	N	4	L	M	L	L	L	M	L	M	M	M
	23	Jb	50.00	830	9	N	6	H	H	H	M	M	H	M	M	L	H
		Total	57.80														
II	24	Ka	1.78	860	12	SE	4	H	M	M	H	L	E	L	M	M	L
	24	Kb	58.00	858	13	E	6	H	M	M	M	L	H	M	M	M	H
	24	Kc	20.39	800	7	NE	4	M	M	M	L	L	H	M	M	M	H
		Total	80.17														

PARTIC.	COMPART. SECT.	SUBCOM. PARTMENT	AREA(ha)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDES(2)	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION IMPACT ON HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	THREE GROWTH POTENTIAL
III	26	Ja	5.67	460	24	W	4	M	L	H	L	L	H	M	L	L	H
	26	Jb	59.00	516	12	NW	6	H	M	M	M	L	H	M	M	M	H
	26	Jc	3.58	500	15	SW	4	H	L	M	M	L	H	M	L	M	M
		Total	68.25														
III	26	Ka	7.00	480	16	NW	6	H	M	M	M	L	H	M	M	M	H
	26	Kb	25.45	360	10	NW	4	H	L	M	M	L	H	M	L	M	M
		Total	32.45														
III	28	I	1.00	390	16	W	6	H	M	M	M	L	H	M	M	M	M
	29	Ia	10.14	390	11	NE	4	H	M	L	M	L	M	M	M	M	L
	29	Ib	6.64	430	20	NE	1	H	M	M	M	L	H	M	M	M	M
	29	Ic	34.00	440	7	NE	6	H	M	M	M	L	H	M	M	M	M
		Total	51.78														
III	30	Ba	3.54	370	8	SW	4	M	L	M	L	L	H	M	L	M	L
	30	Bb	2.91	400	24	SW	1	H	L	M	L	L	H	H	L	M	M
	30	Bc	13.00	380	8	N	6	H	M	M	M	L	H	M	M	M	H
		Total	19.45														
III	31	Ga	2.09	370	16	NW	7	H	H	L	H	H	L	L	L	L	L
	31	Gb	15.00	370	20	N	6	H	M	M	M	L	H	M	M	M	M
	31	Gc	3.58	360	4	E	4	L	M	M	L	L	H	L	M	M	M
	31	Gd	10.14	460	16	NW	1	H	M	M	M	L	H	M	M	M	M
		Total	30.81														
III	33	Ia	3.67	340	10	S	4	H	L	H	M	L	H	M	L	L	M
	33	Ib	10.00	320	8	SE	6	H	M	M	M	L	H	M	M	M	M
	33	Ic	1.48	340	24	S	5	H	L	M	M	L	H	M	L	M	M
	33	Id	1.25	330	4	S	7	M	L	H	M	L	H	L	L	L	H
		Total	16.40														

P/ARCRIL	COMPART. MENT	SUB-COM. PARTMENT	AREA(ha)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDES(2)	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION IMPACT ON HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	TREE GROWTH POTENTIAL
III	34	Ja	14.00	340	17	SE	6	H	M	M	M	L	H	M	M	M	M
	34	Jb	53.68	324	10	S	4	H	L	H	M	L	H	M	L	L	M
	34	Jc	1.16	320	12	N	5	H	L	M	M	L	H	M	L	M	M
	34	Jd	26.00	340	6	N	6	H	M	H	M	L	H	M	M	L	M
	34	Je	1.23	340	16	W	5	H	M	M	H	L	H	L	M	M	M
	34	Jf	3.15	340	16	NW	5	H	M	M	H	L	H	L	M	M	M
	34	Jg	2.31	330	4	N	4	M	L	M	L	L	H	M	L	M	L
	34	Jh	15.00	364	15	SE	6	H	M	M	M	L	H	H	M	M	M
	34	Ji	3.47	350	12	N	1	H	L	M	L	L	H	H	L	M	M
	34	Jj	8.67	420	25	NW	1	H	M	M	M	L	H	M	M	M	M
	34	Jk	2.06	420	23	W	6	H	L	M	L	L	H	H	L	M	M
	34	Jl	10.83	350	22	W	6	H	L	M	L	L	H	H	L	M	M
	34	Jm	2.53	360	17	N	1	H	M	M	M	L	H	M	M	M	M
	34	Jn	15.39	328	5	NE	1	H	M	M	L	L	H	H	M	M	M
	34	Jo	1.84	320	4	NE	1	M	L	L	L	L	H	M	L	H	M
	34	Jp	12.33	310	4	W	4	L	L	H	L	L	H	L	L	L	M
	34	Jq	3.73	310	2	W	1	L	L	H	L	L	H	L	L	L	M
	34	Jr	1.85	320	4	SW	7	H	L	M	H	L	H	L	L	M	M
	34	Js	15.00	364	14	SE	6	H	M	M	M	L	H	M	M	M	M
	34	Jt	2.56	330	10	SE	1	M	L	L	L	L	H	M	L	H	L
		Total	196.89														
III	35	Fa	3.51	380	23	SW	1	H	M	M	M	L	H	M	M	M	M
	35	Fb	6.00	330	13	W	6	H	M	M	M	L	H	M	M	M	M
	35	Fc	10.00	330	8	N	6	H	M	M	M	L	H	M	M	M	M
	35	Fd	71.36	317	1	N	4	L	L	M	L	L	H	L	L	M	M
	35	Fe	13.00	320	10	W	6	H	M	M	M	L	H	M	M	M	M
	35	Ff	3.41	310	2	NW	1	H	L	M	L	L	H	H	L	M	M
		Total	107.28														
III	36	Pa	1.79	390	8	W	6	H	L	M	L	L	H	H	L	M	M

PARCEL	COMPART- MENT	SUB-COM- PARTMENT	AREA(ha)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COL- LAPSE & SLIDE(2)	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COL- LAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION IMPACT ON HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	TREE GROWTH POTENTIAL
	36	Eb	3.00	380	17	W	1	H	M	M	M	L	H	M	M	M	H
	36	Ec	4.76	340	24	SW	6	H	M	M	M	L	H	M	M	M	M
	36	Ed	38.47	323	3	S	4	H	L	M	M	L	H	M	L	M	M
	36	Ee	16.90	335	7	SE	1	H	M	M	M	L	H	M	M	M	M
	36	Ef	54.00	360	6	SE	6	H	M	M	M	L	H	M	M	M	M
	36	Eg	22.60	315	7	SE	4	M	L	M	L	L	H	M	L	M	M
	36	Uh	2.37	320	11	SE	6	H	L	M	L	L	H	H	L	M	M
	37	Ka	7.33	325	3	S	4	H	L	L	M	L	M	M	L	M	L
	37	Kb	2.00	320	10	NE	6	H	M	M	M	L	H	M	M	M	M
	37	Kc	5.00	360	14	S	6	H	M	M	M	L	H	M	M	M	M
		Total	158.22														
III	39	Fa	9.19	480	16	S	6	H	H	M	M	M	H	M	M	M	M
	39	Fb	12.35	480	9	NW	6	H	H	M	M	M	H	M	M	M	M
	39	Fc	1.99	460	16	W	4	M	M	M	L	L	H	M	M	M	L
		Total	23.53														
IV	41	Ia	3.00	540	16	NW	4	H	M	M	H	L	H	L	M	M	M
	41	Ib	46.00	550	10	NW	6	H	M	M	M	L	H	M	M	M	M
	41	Ic	3.96	570	13	SW	4	M	L	L	L	L	M	M	L	M	L
	41	Id	1.00	590	16	W	4	H	L	L	M	L	M	M	L	M	M
	41	Ie	4.46	540	14	W	4	H	L	M	M	L	H	M	L	M	M
	41	If	2.57	480	15	NW	4	H	L	M	M	L	H	M	L	M	M
	41	Ig	6.88	450	11	NW	1	H	L	M	L	L	H	H	L	M	M
	41	Ih	3.25	450	20	W	4	H	L	M	M	L	H	M	L	M	M
	41	Ii	2.78	405	11	W	4	H	L	H	M	L	H	M	L	L	M
	41	Ij	15.00	460	16	S	6	H	M	M	M	L	H	M	M	M	M
		Total	88.90														
IV	42	Fa	127.00	500	18	NW	6	H	M	H	M	L	H	M	M	L	M
	42	Fb	4.00	580	23	W	4	H	M	M	H	L	H	L	M	M	M

P.A.R.C.E.L.	C.O.M.P.A.R.T.M.E.N.T.	S.U.B.-C.O.M.P.A.R.T.M.E.N.T.	A.R.E.A.(a.c.)	E.L.E.V.A.T.I.O.N. (m)	S.L.O.P.E.(%)	A.S.P.E.C.T.	V.E.G.E.T.A.T.I.O.N. & L.A.N.D. U.S.E.	S.O.I.L E.R.O.S.I.O.N. P.O.T.E.N.T.I.A.L (2)	H.A.Z.A.R.D.O.F. L.A.N.D.C.O.L- L.A.P.S.E.& S.L.I.D.E.S?	W.A.T.E.R H.O.L.D.I.N.G. P.O.T.E.N.T.I.A.L (2)	I.N.T.E.G.R.A.T.E.D. S.O.I.L E.R.O.S.I.O.N. P.O.T.E.N.T.I.A.L	I.N.T.E.G.R.A.T.E.D. H.A.Z.A.R.D.O.F. L.A.R.S.E.& S.L.I.D.E.	I.N.T.E.G.R.A.T.E.D. W.A.T.E.R H.O.L.D.I.N.G. P.O.T.E.N.T.I.A.L	V.E.G.E.T.A.T.I.O.N. I.M.P.A.C.T.O.N S.O.I.L.E.R.O.S.I.O.N. P.O.T.E.N.T.I.A.L	V.E.G.E.T.A.T.I.O.N. I.M.P.A.C.T.O.N O.F. L.A.N.D. C.O.L.L.A.P.S.E.& S.L.I.D.E.	V.E.G.E.T.A.T.I.O.N. I.M.P.A.C.T.O.N O.N W.A.T.E.R H.O.L.D.I.N.G. P.O.T.E.N.T.I.A.L	T.R.E.E G.R.O.W.T.H. P.O.T.E.N.T.I.A.L
42		Fc	2.77	610	18	W	4	H	L	L	M	L	M	M	L	M	M
42		Fd	3.12	540	11	W	4	H	L	L	M	L	M	M	L	M	M
42		Fe	9.59	410	11	NW	4	H	L	M	M	L	H	M	L	M	M
		Total	146.48														
IV		E	14.00	460		NW	6	H	M	M	M	L	H	M	M	M	M
		Total	14.00														
IV		Ia	14.00	480	6	N	6	H	H	M	M	M	M	M	M	M	M
48		Ib	1.34	390	11	NW	4	L	M	M	L	L	H	L	M	M	M
48		Ic	4.59	410	1	W	4	M	M	M	L	L	H	M	M	M	L
48		Id	3.72	420	6	W	4	M	L	L	L	L	M	M	L	M	L
51		Aa	3.29	410	24	NE	4	M	L	L	L	L	M	M	L	M	L
51		Ab	5.00	420	24	NE	6	H	H	M	M	M	H	M	M	M	M
		Total	31.94														
IV		Ka	6.83	430	13	SE	1	H	M	L	L	L	H	H	M	H	M
55		Kb	45.00	436	10	S	6	H	H	M	M	L	H	M	H	M	M
55		Kc	4.23	390	10	S	4	H	H	M	M	H	H	M	L	M	H
55		Kd	3.78	420	11	NW	1	H	H	L	L	L	H	H	H	H	M
55		Ke	3.30	440	12	SW	1	H	L	L	L	L	H	H	L	H	M
55		Kf	11.03	440	9	SW	2	H	M	M	L	L	H	H	M	M	M
55		Kg	3.84	380	8	SW	4	M	M	H	L	L	H	M	M	L	H
55		Kh	5.99	440	11	NW	1	H	H	L	L	L	H	H	H	H	M
55		Ki	32.41	430	21	SW	6	H	M	M	M	L	H	M	M	M	M
55		Kj	6.98	390	20	W	2	H	M	L	L	L	H	H	M	H	M
55		Kk	2.84	400	16	SW	6	H	M	L	L	L	M	H	M	M	M
55		Kl	7.55	385	8	SW	1	H	M	M	L	L	H	H	M	M	M
55		Km	2.63	400	16	S	4	M	M	L	L	L	M	M	M	M	L
55		Kn	2.99	400	22	SW	1	H	H	M	M	L	H	M	H	M	M
55		Ko	2.15	380	25	S	1	H	H	M	M	L	H	H	H	M	M

PARCEL	COMPARTMENT	SUB-COMPARTMENT	AREA(ha)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDES(2)	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION IMPACT ON HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	FREE GROWTH POTENTIAL
	55	Kp	3.08	370	22	W	6	H	M	M	L	L	H	H	M	M	M
		Total	144.63														
IV	56	Fa	20.00	425	18	SE	6	H	H	M	M	L	H	M	H	M	M
	56	Fb	1.52	370	9	S	4	L	L	M	L	L	H	L	L	M	M
		Total	21.52														
IV	58	Ba	22.00	420	19	S	6	H	H	M	M	M	H	M	M	M	M
	58	Bb	1.64	400	23	SW	1	H	H	L	L	L	H	H	H	H	M
		Total	23.64														
V	60	Aa	166.00	450	7	SW	6	H	H	M	M	L	H	M	H	M	H
	60	Ab	6.63	460	16	SW	2	H	M	L	L	L	H	H	M	H	M
	60	Ac	5.55	400	20	W	1	H	H	M	M	L	H	M	H	M	M
	60	Ad	1.20	380	16	W	4	L	L	L	L	L	L	L	L	L	L
	60	Ae	8.20	400	20	W	2	L	L	H	L	L	H	L	L	L	H
	60	Af	10.86	380	16	SW	4	L	L	H	L	L	H	L	L	L	H
	60	Ag	8.00	390	23	SW	6	H	H	M	M	L	H	M	H	M	H
		Total	206.44														
V	63	Ja	2.00	420	24	SW	6	H	H	M	M	H	H	M	L	M	H
	63	Jb	1.00	450	16	SW	6	H	H	M	M	H	H	M	L	M	H
	63	Jc	6.09	460	24	SW	4	H	H	L	M	H	L	M	L	L	L
	63	Jd	9.00	480	16	SW	6	H	H	M	M	H	H	M	L	M	H
	63	Je	10.87	490	24	N	4	H	H	L	M	M	M	M	M	M	L
	63	Jf	9.00	600	21	W	6	H	H	M	M	H	H	M	L	M	H
	64	Fa	6.00	440	20	NE	6	H	H	M	M	H	H	M	L	M	M
	64	Fb	2.86	435	19	W	1	H	H	M	M	L	H	M	H	M	M
	64	Fc	1.71	460	24	NW	4	H	H	L	M	M	L	M	M	L	L
	64	Fd	28.00	470	12	NE	6	H	H	M	M	H	H	M	L	M	M
	64	Fe	2.00	480	11	N	6	H	H	M	M	H	H	M	L	M	M

PARCEL	COMPARTMENT	SUB-COMPARTMENT	AREA(ha)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDING	WATER HOLDING POTENTIAL (3)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDING	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION HAZARD OF LAND COLLAPSE & SLIDING	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	TREE GROWTH POTENTIAL
	64	Ff	3.92	510	24	NE	4	H	M	M	H	L	H	L	M	M	M
	64	Fg	3.00	550	17	NE	6	H	H	M	M	H	H	M	L	M	M
	66	Aa	13.00	580	12	N	6	H	M	M	M	L	H	M	M	M	M
	66	Ab	3.50	640	17	NE	4	H	M	M	H	L	H	L	M	M	M
	67	Da	5.05	570	16	W	4	H	M	L	M	L	M	M	M	M	L
	67	Db	6.00	620	18	NE	6	H	H	M	M	M	H	M	M	M	M
		Total	113.00														
V	65	Oa	28.11	400	8	W	4	H	H	M	M	H	H	M	L	M	M
	65	Ob	3.00	440	24	NW	6	H	H	M	M	H	M	M	L	M	M
	65	Oc	7.14	420	20	NW	6	H	H	M	M	H	H	M	L	M	M
	65	Od	1.85	440	16	W	4	H	H	L	M	H	L	M	L	L	L
	65	Oe	4.00	440	16	SW	6	H	H	M	M	H	H	M	L	M	M
	65	Of	4.63	440	10	W	4	M	H	L	L	H	L	M	L	L	L
	65	Og	2.00	460	15	W	6	H	H	M	M	H	H	M	L	M	M
	65	Oh	1.68	440	20	W	4	M	M	L	L	L	L	M	M	L	L
	65	Oi	9.00	460	24	W	6	H	H	M	M	H	H	M	L	M	M
	65	Oj	9.66	467	16	W	4	H	H	M	M	H	H	M	L	M	M
		Total	71.07														
V	72	A	40.00	480	8	NE	6	H	H	M	M	H	H	M	L	M	M
		Total	40.00														
V	74	A	56.00	540	8	NE	6	H	H	M	M	L	H	M	H	M	M
		Total	56.00														
V	75	Ba	5.97	475	24	NW	1	H	H	M	M	L	H	M	H	M	M
	75	Bb	22.85	455	3	W	4	H	M	H	H	L	H	L	M	L	M
	75	Bc	6.00	480	8	SW	6	H	H	M	M	L	H	H	H	M	M
	75	Bd	8.04	520	16	W	1	H	H	M	M	L	H	M	H	M	M
	75	Be	4.88	530	22	W	1	H	H	M	M	L	H	M	H	M	M

PARCEL	COMPARIMENT	SUR-CON. PAINTMENT	AREA(he)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDE(%)	WATER HOLDING POTENTIAL (%)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	TREE GROWTH POTENTIAL
75		Bf	13.00	540	6	N	6	H	H	M	M	L	H	M	H	M	M
		Total	60.74														
V	76	Aa	3.84	450	10	NE	6	M	M	M	L	L	H	M	M	M	L
	76	Ab	2.17	460	8	E	1	M	M	L	L	L	M	M	M	M	L
	76	Ac	5.27	450	8	E	6	M	L	M	L	L	H	M	L	M	L
	76	Ad	1.42	440	10	NE	1	M	L	M	L	L	H	M	L	M	L
	76	Ae	17.35	483	20	NW	4	H	H	H	M	M	H	M	M	L	H
	76	Af	33.00	540	14	NW	6	H	H	M	M	L	H	M	H	M	M
	76	Ag	3.69	580	23	W	4	H	H	L	M	M	L	M	M	L	L
		Total	66.74														
V	78	Ca	8.39	520	8	NE	4	H	H	M	H	M	H	L	M	M	M
	78	Cb	38.00	600	23	NE	6	H	H	M	M	L	H	M	H	M	M
	78	Cc	6.32	580	12	NE	4	M	M	L	L	L	M	M	M	M	L
	78	Cd	13.70	660	24	NE	1	H	H	M	M	L	H	M	H	M	M
		Total	66.41														
V	79	Ga	1.48	480	18	SE	1	H	H	M	M	L	H	M	H	M	M
	79	Gb	66.00	500	11	SE	6	H	H	H	M	H	H	M	L	L	M
	79	Gc	3.51	530	20	S	1	H	H	M	M	L	H	M	H	M	M
	79	Gd	7.34	580	18	S	1	H	H	M	M	L	H	M	H	M	M
	79	Ge	13.31	590	8	NE	1	H	H	M	M	L	H	M	H	M	M
		Total	91.64														
V	79	Aa	12.00	460	18	E	6	H	H	M	M	L	H	M	H	M	M
	79	Ab	1.51	410	16	W	4	L	L	M	L	L	H	L	L	M	M
	80	I	6.99	445	14	E	6	H	H	M	M	L	H	M	H	M	M
		Total	20.50														
V	80	Da	4.18	410	8	NE	1	H	H	L	L	L	H	H	H	H	M

PARCEL	COMPARTMENT	SUB-COMPARTMENT	AREA(ha)	ELEVATION (m)	SLOPE(%)	ASPECT	VEGETATION & LAND USE	SOIL EROSION POTENTIAL (2)	HAZARD OF LAND COLLAPSE & SLIDES(2)	WATER HOLDING POTENTIAL (2)	INTEGRATED SOIL EROSION POTENTIAL	INTEGRATED HAZARD OF LAND COLLAPSE & SLIDE	INTEGRATED WATER HOLDING POTENTIAL	VEGETATION IMPACT ON SOIL EROSION POTENTIAL	VEGETATION IMPACT ON HAZARD OF LAND COLLAPSE & SLIDE	VEGETATION IMPACT ON WATER HOLDING POTENTIAL	TREE GROWTH POTENTIAL
	80	Db	26.00	440	4	SE	6	H	H	M	M	L	H	M	H	M	M
	80	Dc	2.05	430	3	E	1	H	M	M	L	L	H	H	M	M	M
		Total	32.23														
V	80	B	13.00	420	11	SE	6	H	H	M	M	L	H	M	H	M	M
		Total	13.00														
V	81	Da	40.97	450	12	E	6	H	H	M	M	L	H	M	H	M	M
	81	Db	6.24	430	23	E	1	H	H	M	M	L	H	M	H	M	M
		Total	47.21														
		G.Total	3,438.12														

PLANNING DATA OF I. S. F.

Planning data of I. S. F.

ISF No.	Parcel No.	Compartment No.	Sub-compartment No.	Existing vegetation	Area (ha)	Main use objective					
						No of households	Agriculture (ha)	Fruits (ha)	Timber Fuel-wood (ha)	Rattan Coffee (ha)	Livestock (ha)
1	I	4	Ha	6	48.00		2.50		26.00		19.50
		4	Hb	4	10.22		10.22				
		4	Hc	1	8.42					8.42	
		4	Hd	6	8.00		2.78	5.22			
		4	He	4	2.09			2.09			
		5	E	6	6.00		4.00	2.00			
			Sub-total		82.73	13	19.50	9.31	26.00	8.42	19.50
2	I	4	La	4	5.67		3.00		2.67		
		4	Lb	6	14.39		3.00		5.39		6.00
		4	Lc	4	20.40		6.00		8.40		6.00
		4	Ld	1	2.00					2.00	
		4	Le	1	5.00					5.00	
		4	Lf	1	8.00					8.00	
			Sub-total		55.46	8	12.00		16.46	15.00	12.00
3	I	5	H	6	5.00		1.50	1.00	1.00		1.50
		6	D	6	12.00		3.00	1.00	5.00		3.00
					17.00	3	4.50	2.00	6.00		4.50
4	I	7	Fa	1	8.81					8.81	
		7	Fb	6	26.00		7.50		11.00		7.50
					34.81	5	7.50		11.00	8.81	7.50
5	I	8	Fa	6	105.00		18.00	29.13	30.87		27.00
		8	Fb	4	14.13		9.00		5.13		
					119.13	18	27.00	29.13	36.00		27.00
6	I	10	Ha	1	4.72					4.72	
		10	Hb	4	2.37				2.37		
		10	Hc	6	47.00		12.00	9.37	13.63		12.00
					54.09	8	12.00	9.37	16.00	4.72	12.00
7	II	14	Ga	4	2.49				2.49		
		14	Gb	4	3.04				3.04		
		14	Gc	6	35.00		5.38	3.65	15.47		10.50
		14	Gd	4	5.12		5.12				
		14	Ge	1	2.65					2.65	
		14	Gf	1	10.04					10.04	
		14	Gg	6	15.00		6.00	2.00	1.00		6.00
			Sub-total		73.34	11	16.50	5.65	22.00	12.69	16.50
8	II	17	Ma	4	23.97		10.50	7.47			6.00
		17	Mb	6	21.00			2.50	14.00		4.50
					44.97	7	10.50	9.97	14.00		10.50
9	H	18	Fa	1	2.02					2.02	
		18	Fb	6	23.00		3.11	2.39	10.00		7.50
		18	Fc	4	4.39		4.39				
					29.41	5	7.50	2.39	10.00	2.02	7.50
10	H	19	Ja	4	1.23		1.23				
		19	Jb	6	20.00		4.77	1.23	8.00		6.00
					21.23	4	6.00	1.23	8.00		6.00

Planning data of I. S. F.

ISF No.	Parcel No.	Compartment No.	Sub-compartment No.	Existing vegetation	Area (ha)	Main use objective					
						No of households	Agriculture (ha)	Fruits (ha)	Timber + Fuel-wood (ha)	Rattan + Coffee (ha)	Livestock (ha)
11	II	20	I	6	37.00		9.00	7.00	12.00		9.00
				Sub-total	37.00	6	9.00	7.00	12.00		9.00
12	II	21	Fa	6	172.00		4.95	51.55	66.00		49.50
			Fb	4	24.83		24.83				
			Fc	4	13.03		13.03				
			Fd	4	3.77		3.77				
			Fe	4	2.92		2.92				
			Sub-total	216.55	33	49.50	51.55	66.00		49.50	
13	II	22	Ba	1	5.35					5.35	
			Bb	1	3.74					3.74	
			Bc	4	14.49		14.49				
			Bd	6	120.00		6.15	32.85	43.50		37.50
			Be	4	39.86		39.86				
			Bf	4	8.13				8.13		
			Bg	6	140.00		16.00	34.63	50.37		39.00
			Sub-total	331.57	51	76.50	67.48	102.00	9.09	76.50	
14	II	23	Aa	4	10.12		10.12				
			Ab	6	85.00		17.14	7.54	31.82		28.50
			Ac	1	6.41					6.41	
			Ad	4	1.24		1.24				
			Ae	1	12.76					12.76	
			Af	6	5.04				5.04		
			Ag	4	1.14				1.14		
			Sub-total	121.71	19	28.50	7.54	38.00	19.17	28.50	
15	II	23	Ja	4	7.80		7.80				
			Jb	6	50.00		5.70	12.80	18.00		13.50
			Sub-total	57.80	9	13.50	12.80	18.00		13.50	
16	II	24	Ka	4	1.78				1.78		
			Kb	6	58.00			17.78	22.22		18.00
			Kc	4	20.39		18.00	2.39			
			Sub-total	80.17	12	18.00	20.17	24.00		18.00	
17	II	26	Ja	4	5.67		5.67				
			Jb	6	59.00		7.25	13.25	22.00		16.50
			Jc	4	3.58		3.58				
			Sub-total	68.25	11	16.50	13.25	22.00		16.50	
18	II	26	Ka	6	7.00				7.00		
			Kb	4	25.45		7.50	7.45	3.00		7.50
			Sub-total	32.45	5	7.50	7.45	10.00		7.50	
19	III	28	I	6	1.00		1.00				
			29	Ia	4	10.14		10.14			
			Ib	1	6.64					6.64	
			Ic	6	34.00		0.86	5.14	16.00		12.00
			Sub-total	51.78	8	12.00	5.14	16.00	6.64	12.00	
20	III	30	Ba	4	3.54		3.54				
			Bb	1	2.91					2.91	
			Bc	6	13.00		0.96	1.54	6.00		4.50
			Sub-total	19.45	3	4.50	1.54	6.00	2.91	4.50	

Planning data of I. S. F.

ISP No	Parcel No	Compartment No	Sub-compartment No	Existing vegetation	Area (ha)	Main use objective							
						No of households	Agriculture (ha)	Fruits (ha)	Timber + Fuel-wood (ha)	Rattan + Coffee (ha)	Livestock (ha)		
21	III	31	Ga	7	2.09		2.09						
		31	Gb	6	15.00		0.33		8.67		6.00		
		31	Gc	4	3.58		3.58						
		31	Gd	1	10.14					10.14			
					Sub-total		30.81	4	6.00		8.67	10.14	6.00
22	III	33	1a	4	3.67		3.00		0.67				
		33	1b	6	10.00		0.25		5.25		4.50		
		33	1c	5	1.48			1.48					
		33	1d	7	1.25		1.25						
					Sub-total		16.40	3	4.50	1.48	5.92		4.50
23	III	34	Ja	6	14.00				6.50		7.50		
		34	Jb	4	53.68		28.51	3.06	22.11				
		34	Jc	5	1.16			1.16					
		34	Jd	6	26.00				3.50		22.50		
		34	Je	5	1.23			1.23					
		34	Jf	5	3.15			3.15					
		34	Jj	4	2.31		2.31						
		34	Jh	6	15.00				15.00				
		34	Ji	1	3.47					3.47			
		34	Jg	1	8.67					8.67			
		34	Jk	6	2.06				2.06				
		34	Jl	6	10.83				10.83				
		34	Jm	1	2.53					2.53			
		34	Jn	1	15.39					15.39			
		34	Jo	1	1.84					1.84			
					Sub-total		196.89	30	45.00	8.60	60.00	38.29	45.00
		24	III	35	Fa	1	3.51					3.51	
35	Fb			6	6.00				6.00				
35	Fc			6	10.00				10.00				
35	Fd			4	71.36		25.50	15.36	5.00		25.50		
35	Fe			6	13.00				13.00				
35	Ff			1	3.41					3.41			
			Sub-total		107.28	17	25.50	15.36	34.00	6.92	25.50		
25	III	36	Ea	6	1.79				1.79				
		36	Eb	1	3.00					3.00			
		36	Ec	6	4.76				4.76				
		36	Ed	4	38.47		16.50	7.00	14.97				
		36	Ee	1	16.90					16.90			
		36	Ef	6	54.00				16.50		37.50		
		36	Eg	4	22.60		15.00	4.99	2.61				
		36	Ek	6	2.37				2.37				
		37	Ka	4	7.33		6.00	1.33					
		37	Kb	6	2.00				2.00				
		37	Kc	6	5.00				5.00				
			Sub-total		158.22	25	37.50	13.32	50.00	19.90	37.50		

Planning data of I. S. P.

ISF No.	Parcel No.	Compartment No.	Sub-compartment No.	Existing vegetation	Area (ha)	Main use objective						
						No of households	Agriculture (ha)	Fruits (ha)	Timber • Fuel-wood (ha)	Rattan • Coffee (ha)	Livestock (ha)	
26	III	39	Fa	6	9.19		3.00	1.00	2.19		3.00	
		39	Fb	6	12.35		1.01	2.53	5.81		3.00	
		39	Fc	4	1.99		1.99					
				Sub-total		23.53	4	6.00	3.53	8.00		6.00
27	IV	41	Ia	4	3.00		3.00					
		41	Ib	6	46.00		0.98	8.02	19.00		18.00	
		41	Ic	4	3.96		3.96					
		41	Id	4	1.00				1.00			
		41	Ie	4	4.46		4.46					
		41	If	4	2.57		2.57					
		41	Ig	1	6.88					6.88		
		41	Ih	4	3.25		3.25					
		41	Ii	4	2.78		2.78					
		41	Ij	6	15.00			4.00	8.00		3.00	
				Sub-total		88.90	14	21.00	12.02	28.00	6.88	21.00
		28	IV	42	Fa	6	127.00		24.91	31.48	36.11	
42	Fb			4	4.00				4.00			
42	Fc			4	2.77				2.77			
42	Fd			4	3.12				3.12			
42	Fe			4	9.59		9.59					
				Sub-total		146.48	23	34.50	31.48	46.00		34.50
29	IV	45	E	6	14.00		3.00	4.00	4.00		3.00	
				Sub-total		14.00	2	3.00	4.00	4.00		3.00
30	IV	48	Ia	6	14.00			1.50	5.00		7.50	
		48	Ib	4	1.34			1.34				
		48	Ic	4	4.59		4.21	0.38				
		48	Id	4	3.72			3.72				
		51	Aa	4	3.29		3.29					
		51	Ab	6	5.00				5.00			
				Sub-total		31.94	5	7.50	6.94	10.00		7.50
31	IV	55	Ka	1	6.83					6.83		
		55	Kb	6	45.00		22.30		7.70		15.00	
		55	Kc	4	4.23		4.23					
		55	Kd	1	3.78					3.78		
		55	Ke	1	3.30					3.30		
		55	Kf	2	11.03				11.03			
		55	Kg	4	3.84		3.84					
		55	Kh	1	5.99					5.99		
		55	Ki	6	32.41				14.41		18.00	
		55	Kj	2	6.98				6.98			
		55	Kk	6	2.84				2.84			
		55	Kl	1	7.55					7.55		
		55	Km	4	2.63		2.63					
		55	Kn	1	2.99					2.99		
		55	Ko	1	2.15					2.15		
				Sub-total		144.63	22	33.00		46.04	32.59	33.00
32	IV	56	Fa	6	20.00		4.48	1.52	8.00		6.00	
		56	Fb	4	1.52		1.52					
				Sub-total		21.52	4	6.00	1.52	8.00		6.00

Planning data of I. S. F.

ISP No	Parcel No	Compartment No	Sub-compartment No	Existing vegetation	Area (ha)	Main use objective					
						No of households	Agriculture (ha)	Fruits (ha)	Timber Fuel-wood (ha)	Rattan Coffee (ha)	Livestock (ha)
33	IV	58	Ba	6	22.00		6.00	2.00	8.00		6.00
			Bb	1	1.64					1.64	
			Sub-total		23.64	4	6.00	2.00	8.00	1.64	6.00
34	V	60	Aa	6	166.00		33.30	39.89	46.31		46.50
			Ab	2	6.63				6.63		
			Ac	1	5.55					5.55	
			Ad	4	1.20		1.20				
			Ae	2	8.20				8.20		
			AF	4	10.86		10.86				
			Ag	6	8.00		2.64	1.00	2.86		1.50
			Sub-total		206.44	32	48.00	40.89	64.00	5.55	48.00
35	V	63	Ja	6	2.00			2.00			
			Jb	6	1.00			1.00			
			Jc	4	6.09		6.09				
			Jd	6	9.00			9.00			
			Je	4	10.87		6.78	4.09			
			Jf	6	9.00				4.50		4.50
			Pa	6	6.00			4.05	1.95		
			Fb	1	2.86					2.86	
			Fc	4	1.71		1.71				
			Fd	6	28.00		7.00				21.00
			Fe	6	2.00			2.00			
			Ff	4	3.92		3.92				
			Fg	6	3.00			3.00			
			Aa	6	13.00				13.00		
			Ab	4	3.50				3.50		
			Da	4	5.05				5.05		
Ob	6	6.00				6.00					
Sub-total		113.00	17	25.50	25.14	34.00	2.86	25.50			
36	V	65	Oa	4	28.11		7.50	11.27	7.84		1.50
			Ob	6	3.00				1.50		1.50
			Oc	6	7.14			4.14	1.50		1.50
			Od	4	1.85				1.85		
			Oe	6	4.00				2.50		1.50
			Of	4	4.63				4.63		
			Og	6	2.00				0.50		1.50
			Oh	4	1.68				1.68		
			Oi	6	9.00						9.00
			Oj	4	9.66		9.00	0.66			
Sub-total		71.07	11	16.50	16.07	22.00		16.50			
37	V	72	A	6	40.00		9.00	10.00	12.00		9.00
			Sub-total		40.00	6	9.00	10.00	12.00		9.00
38	V	74	A	6	56.00		13.50	11.00	18.00		13.50
			Sub-total		56.00	9	13.50	11.00	18.00		13.50
39	V	75	Ba	1	5.97					5.97	
			Bb	4	22.85		13.50		3.35		6.00
			Bc	6	6.00				6.00		
			Bd	1	8.04					8.04	
			Be	1	4.88					4.88	
			Bf	6	13.00				5.50		7.50

Planning data of I. S. F.

ISF No.	Parcel No.	Compart. No.	Sub-compart. No.	Existing vegetation	Area (ha)	Main use objective					
						No of households	Agriculture (ha)	Fruits (ha)	Timber · Fuel-wood (ha)	Rattan · Coffee (ha)	Livestock (ha)
39				Sub-total	60.74	9	13.50		14.85	18.89	13.50
40	V	76	Aa	6	3.84			3.84			
		76	Ab	1	2.17					2.17	
		76	Ac	6	5.27			3.27	2.00		
		76	Ad	1	1.42					1.42	
		76	Ae	4	17.35		15.00	2.35			
		76	Af	6	33.00			3.69	14.31		15.00
		76	Ag	4	3.69						
				Sub-total	66.74	10	15.00	13.15	20.00	3.59	15.00
41	V	78	Ca	4	8.39		8.39				
		78	Cb	6	38.00		0.29	2.71	20.00		15.00
		78	Cc	4	6.32		0.32				
		78	Cd	1	13.70					13.70	
				Sub-total	66.41	10	15.00	2.71	20.00	13.70	15.00
42	V	79	Ga	1	1.48					1.48	
		79	Gb	6	66.00		21.00		24.00		21.00
		79	Gc	1	3.51					3.51	
		79	Gd	1	7.34					7.34	
		79	Ge	1	13.31					13.31	
				Sub-total	91.64	14	21.00		24.00	25.64	21.00
43	V	79	Aa	6	12.00		2.99	4.51			4.50
		79	Ab	4	1.51		1.51				
		80	I	6	6.99			0.99	6.00		
				Sub-total	20.50	3	4.50	5.50	6.00		4.50
44	V	80	Da	1	4.18					4.18	
		80	Db	6	26.00		7.50		11.00		7.50
		80	Dc	1	2.05					2.05	
				Sub-total	32.23	5	7.50		11.00	6.23	7.50
45	V	80	B	6	13.00		3.00	3.00	4.00		3.00
				Sub-total	13.00	2	3.00	3.00	4.00		3.00
46	V	81	Da	6	40.97		10.50	5.97	14.00		10.50
		81	Db	1	6.24					6.24	
				Sub-total	47.21	7	10.50	5.97	14.00	6.24	10.50
				Total	3,438.12	531	796.50	496.65	1,059.94	288.53	796.50

QUESTIONNAIRE SURVEY

Questionnaire Survey

1. Forestry and Local Residents

Reduction of forest resources in the Cagayan River Valley is attributable, to a great extent, to the extensive felling of forests followed by kaingin, migratory cultivation, firewood production to meet the basic needs of local populace. To aggravate the situation, no reforestation was made thus delapidated secondary forests, grassland, and bareland.

To cope with the shrinking area of forestland occurring across the country, the Philippine Government called for reforestation in both public and private sectors by the Presidential Decree (PD-155) of 1978. Furthermore, in 1981, the law was amended to make it mandatory for concessionaire companies to reforest 30% of the total concession area. Also, the Program for Forest Ecosystem Management: PROTEM II (PLI-1260) was officially announced, in 1982, to encourage the involvement of local populace in forest conservation and promotion of reforestation.

These efforts, however, are plagued by many difficulties such as burning of grassland for grazing, forest fires due to kaingin and excessive cutting for firewood. Besides, forests continue to be illegally converted into farms and grazing lands.

The reality as such suggests that the Forest Management Planning for the Model Area aimed at rehabilitation of forest resources and forest functions must be such that deserves the approval and support of local residents and that involve them in specific forestry activities in a positive manner formulation of measures to meet those requirements calls for good understanding of the life of local people, their attitudes towards forests and expectations as regards forest management, which must be fully reflected in the Plan and respected in its implementation, so as to contribute to the development of regional economy and improvement of living standards.

2. Questionnaire Survey

To acquire information on local population, a questionnaire survey was conducted polling Barangay Captains and individual residents in the Model Area.

2-1. Survey Method

The consisted of two parts: one is addressed to Captains of Barangays of the Model Area, and the other to individual residents, randomly selected several from each Barangay. Two different questionnaire forms were prepared for the respective parts and the questions were asked in interview. (The questionnaires were prepared in English, Tagalog, and Ilogano. See Attachment.) Assistance of the Philippine counterparts was obtained. The locations of the Barangays covered by the survey are shown in Figure 1.

2-2. Barangay-based survey

2-2-1. Survey items

The questionnaires covered the following subjects.

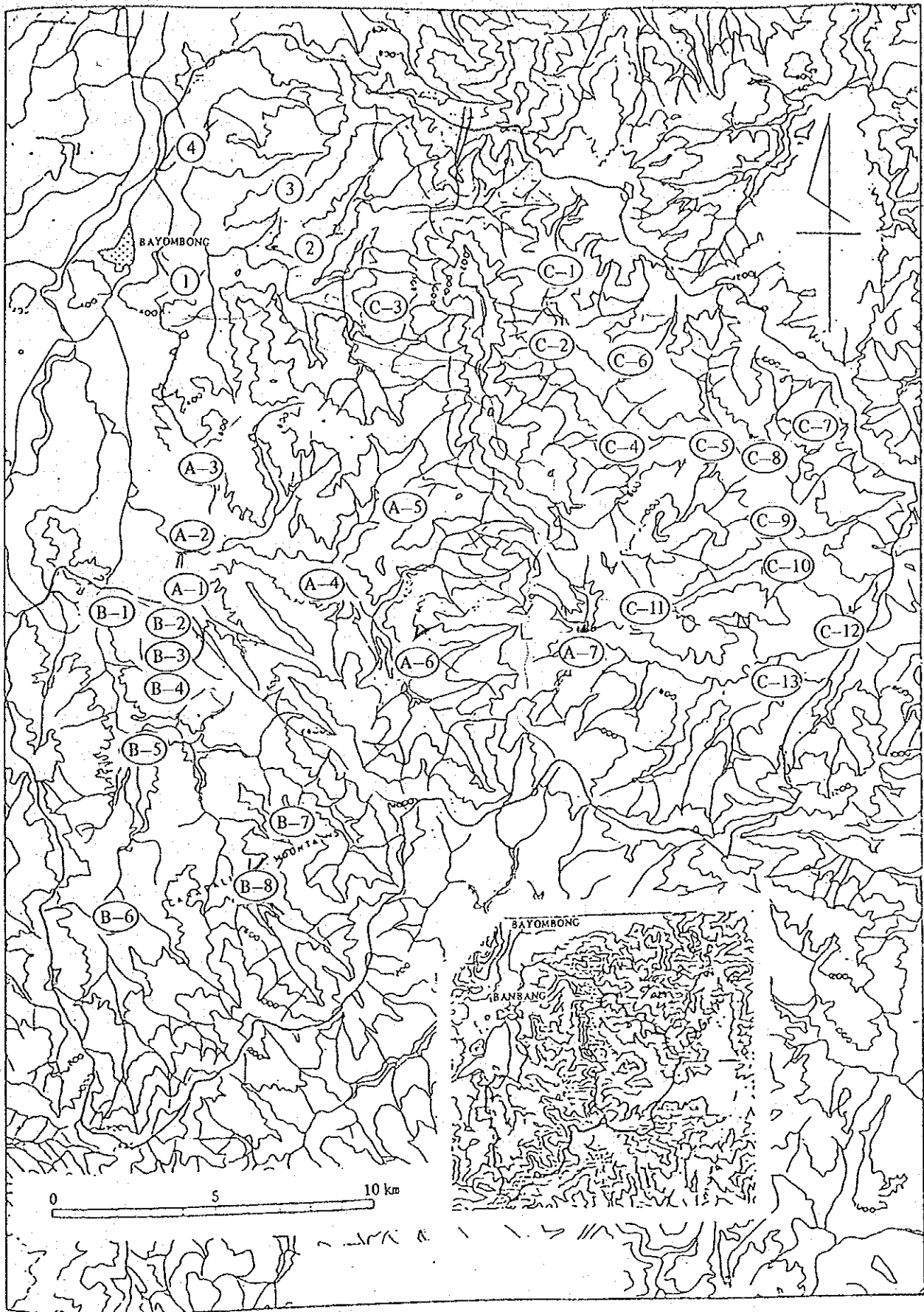


Fig. 1. Location of Barangay

Barangay Name of Model Area

• Bambang

- 1 San Fernando
- 2 Mobuslo
- 3 Labai
- 4 Abian

• Dupax del Norte

- A -
- 1 Malasin
 - 2 Inaban
 - 3 Mabasa
 - 4 Monguia
 - 5 Parai
 - 6 Bitnong
 - 7 Bulala

• Dupax del Sur

- B -
- 1 Sta. Maria
 - 2 Balsain
 - 3 Dupaj
 - 4 Dumang
 - 5 Palabutan
 - 6 Banila
 - 7 Canabay
 - 8 Corolotan

• Kasibu Area

- C -
- 1 Antotot
 - 2 Makalong (Non representative)
 - 3 Mantawakan (")
 - 4 Kongkong
 - 5 Wat wat
 - 6 Alloy
 - 7 Papaya
 - 8 Cordon
 - 9 Poblacion
 - 10 Ludi
 - 11 Lupa
 - 12 Seguem
 - 13 Muta

1. Barangay composition (No. of households, populations, etc.)
2. Industry and economy (Incomes, agriculture, livestock, etc.)
3. Demand for forestry products (forest products, distribution, etc.)
4. Attitudes (consciousness) towards forests (Tending, conservation, etc.)

They were returned from 19 Barangays out of 32 in total, the rate of returns being 59%. The return rates are shown by area in Table 1 and composition of respondents by age in Table 2.

Table 1. Numbers of Barangays and Respondents by Area

Area	Bambang	Dupax		Kasibu	Total
		Del Sur	Del Norte		
No. of Barangays	4	8	7	13	32
No. of Respondents	0	5	2	12	19

Table 2. Composition of Respondents by Age

Age group	30's	40's	50's	60's	Average
No. of respondents (%)	2 (10.5)	11 (58)	4 (21)	2 (10.5)	47.3

2-2-2. Survey Results

The results are summarily described below.

1. Composition

The numbers of years they have lived in the present Barangay are as shown in the figure. "Over 20 years" leads the list in the number of respondents, followed by "over two generations (since their parents came to settle)", and "10 years more or less". There are no respondents who have come to settle recently.

By area, Dupax Del Sur is the oldest to be settled, followed by Del Norte and Kasibu.

The ages of respondents range 32-65, averaging 47.3. Respondents from Kasibu are relatively young.

- No. of households: 3,840 households in 19 Barangays; approx. 200 households/Barangay
- Population: 19,281 in 19 Barangays; 5.02 persons/household
 - Average number of households of 19 Barangays: Approx. 200
 - Average population of 19 Barangays: Approx. 1,000.
 - Average size of household: Approx. 5 persons

With respect to demographic trends, all Barangays replied "Increasing". Ap-

proximately 80% said "Gradually increasing", and about 20% "Rapidly increasing".

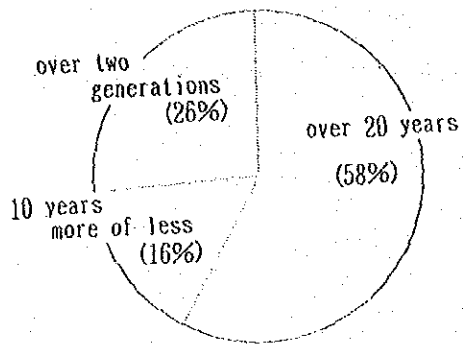


Fig. 2 Numbers of years respondents have lived in

Table-3 Results of Questionnaire Survey to Captains of Barangays (Part I)

Contents of Questionnaire		Total respondents %	Respondents by Area No. of respondents			Remarks	
			Dupax Del Sur	Dupax Del Norte	Kasibu		
Barangay & Composition	No. of years respondents have lived in	Over two generations	26.3	80	0	8.3	
		Over 20 years	57.9	20	100	66.7	
		10 years more or less recent	15.8	0	0	25.0	
			0	0	0	0	
	Age	Average	32 - 65y. 47.3	45 - 65y. 53.2	44 - 55y. 49.5	32 - 57y. 44.5	
	No. of households		3,840	1,047	492	2,301	per Barangay Average: 200 households Population : 1,000
	Population		19,281	3,729	2,822	12,730	
	Average Size of household		5.02	3.56	5.74	5.53	
	Demographic trends	Gradual increasing	78.9	80	100	75	
		Rapid increasing	21.1	20	0	25	
No change		0	0	0	0		
Decreasing		0	0	0	0		
(Demand of Timber) (Agriculture & Livestock)	Major Sources of Income	Agriculture	100	100	100	100	
		Livestock	16	0		25	
		Commercial labour	0	0		0	
		tree cutting	10		50	8	
		Cottage industry	5	0		8	
		Others	5	0	50	0	
	Annual income (per household)		P 3,000- 11,000	4,000- 11,000	5,400- 7,000	3,000- 8,000	
		Average	P 6,800	8,000	6,200	6,150	
	Crop items	Rice	100	100	100	100	
		Other crops	17	25	0	17	
Truck vegetables		56	50	100	50		
Coffee		33	25	0	42		
Fruits		28	25	0	33		
Tobacco		6	0	0	8		
Others		22	0	0	33		
Expansion of farmland	Yes	89	80	100	92		
	None	11	20	0	8		
Livestock	Cattle	95	100	100	92		
	Goat	53	60	50	50		
	Pig	95	100	50	100		
	Water buffalo	100	100	100	100		
	Chicken	95	80	100	100		
	Duck	74	60	50	83		
	Others	10	40	0	17		
Expansion of grazing land	Yes	89	80	100	92		
	None	11	20	0	8		
Felling of forest for expansion of agricultural & grazing land	Necessary	83	100	50	82		
	not necessary	17	0	50	18		
Use of timber (past one year)	For logs	56	75	50	50		
	Board	56	25	50	70		
	Square timber	44	0	0	70		
	Others	0	0	0	0		
Use of timber	For housing	89	80	100	92		
	Fuel material	89	80	100	92		
	Furniture material	32	40	50	25		
	Agriculture & grazing	16	20	50	8		
	Others	5	0	0	8		

(Planting)	Prediction of demand for timber	YES NO	100 0	100 0	100 100	100 0	
	Use of timber predicted	For housing For furniture	87 60	67 67	100 50	90 60	
	Increasing demand	For fuel Others	87 13	100 0	100 0	80 20	
	Experience of tree planting	Have None	79 21	100 0	0 100	83 17	
	Purposes of planting	For timbers For fuel For fruits Others	15 62 92 8	20 100 100 0	0 0 0 0	12 38 88 12	
	Cottage industry	Have None	% 63 37	% 80 20	% 50 50	% 58 42	
	Materials for cottage industry	Timber Lattan Bamboo Tiger-grass Others	50 67 42 33 0	100 25 75 25 0	0 100 0 0 0	29 86 29 43 0	
(Cottage Industry)	Marketing of products	Bayombong Bambang Others	18 94 24	0 100 50	50 50 0	17 92 17	Solano, Manila
	Means of transportation	Jeepney Truck Bus Tricycle Dray Others	79 53 0 32 10 21	100 0 0 60 0 0	100 50 0 50 0 0	67 75 0 0 17 33	Weapon Carrier
	Reduction/Denudation of forests	Gradual shrinking Rapid shrinking No shrinking	67 33 0	75 25 0	0 100 0	75 25 0	
Attitudes Towards Forests	Natural disasters	House Farmland Pastureland Fruit trees Road Others	32 79 16 5 74 16	60 60 20 0 20 0	0 100 50 0 100 0	25 83 8 8 93 25	
	Type of wood for production	Board Timber for industry For fuelwood For furniture For decoration Others	37 42 79 37 0 0	0 20 100 20 0 0	0 100 50 100 0 0	58 42 75 33 8 0	
	Cooperation in reforestation	Planting Protection/Management of planted trees Maintenance of forest roads Prevention of natural disasters Others	42 79 68 37 0	0 100 20 20 0	100 100 100 50 0	50 67 83 42 0	
	Types of trees preferred to planting	For timber For fuelwood For furniture For fruits Others	47 53 37 84 5	20 100 20 100 0	100 50 50 50 0	50 33 42 83 8	
	Guidance in planting techniques	Wish None	100 0	100 0	100 0	100 0	
	Roles of Forests	Timber production Fuelwood supply Employment Prevention of disasters Hunting	72 72 67 78 33	40 100 60 60 0	100 50 100 100 50	82 64 64 82 45	
	Prevention of shrinking forests & increased income	Increased employment opportunities Introduction of timber industry Build-up of park facilities Agroforestry Others	78 44 22 50 0	100 75 0 25 0	100 100 50 50 0	67 25 25 58 0	

2. Industry and Economy

(1) Income

In all Barangays, agriculture is a major source of income, of which 80% comes from rice growing. In 63% of the Barangays, secondary incomes are drawn from livestock and forestry. The average annual household income ranges P3,000--P11,000 (averaging P6,700). It is relatively high in Dupax Del Sur with P8,000 but generally, there is little difference between areas.

(2) Agriculture

The major crop items being raised are shown in Figure 3. In Dupax, rice and truck vegetables are major items, while in Kasibu, crop items are more varied. Based on the areas planted and incomes as indicated by respondents, it is estimated as follows.

Rice: P400--600/ha.

Corn: P400--500/ha.

Coffee: P300--500/ha.

About 90% of Barangays polled are desirous of expansion of their farms.

(3) Livestock

The types of livestock being raised are as shown in Figure 4. Cattle, pigs, and chickens are raised commonly in most Barangays. There is little noticeable difference in the types of livestock between areas.

As in the case of farms, about 90% of Barangays wish to see their grazing land increased. To increase the area of such land use, 83% of Barangays feel that felling of forests may be necessary whereas 17% (3 out of 19 Barangays) feel it is not necessary (because enough open space available ?)

(4) Use of timber

Timber is used for logs, board, and square-cut housing lumber, in nearly equal ratios. As shown in Figure 5, uses for housing and fuelwood are common nearly in all Barangays. Other uses include furniture and agriculture and livestock. No difference is observed between areas in this respect.

(5) Demand for Timber

All of the Barangay Captains asked predicted that demand for timber would increase. Figure 6 shows the uses for which increases are expected. It is noted that there

are many respondents who predict a large increase in the demand for furniture use.

In Dupax, many respondents foresee increased demand for fuelwood, while in Kasibu more demand increase is expected for home building use. The difference appears to reflect the individual development situations.

(6) Tree Planting

Most Barangays, except for those of Dupax Del Norte, have experience in tree planting. Figure 7 shows the purposes of planting and expectations for the future. Fruits trees are most popular for planting, followed by those for fuelwood and timber.

All Barangays wish to receive guidance in planting techniques.

(7) Cottage (household) Industry

63% of the Barangays replied they had cottage industry. By area, Dupax Del Sur has slightly more of the industry than others. In terms of materials, rattan is most common, followed by wood, bamboo, tiger-grass, in that order. In Dupax Del Sur, wood and bamboo are mainly in use, while in Kasibu, rattan is a major material but other materials are also used.

(8) Marketing of Products; Means of Transportation

For a major market for cottage industry products, more than 90% singled out Bambang and about 18% Bayombong. Solano and Manila are included in "Others".

As shown in Figure 9, for means of transportation for both men and products, "gypney" is most common, followed by "truck", "tri-cycle". There is no tri-cycle observed in Kasibu. "Others" include "Weapon Carrier".

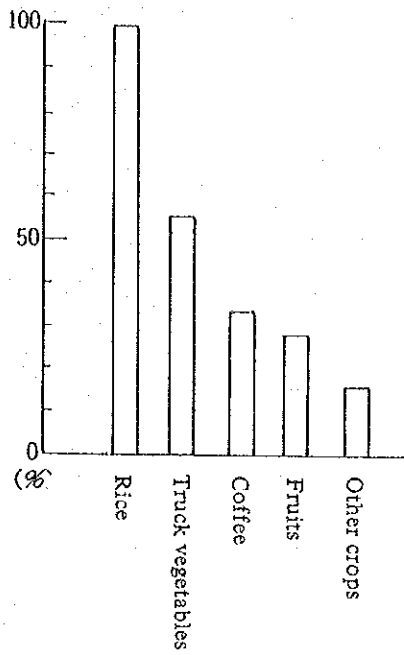


Fig. 3 Crop items

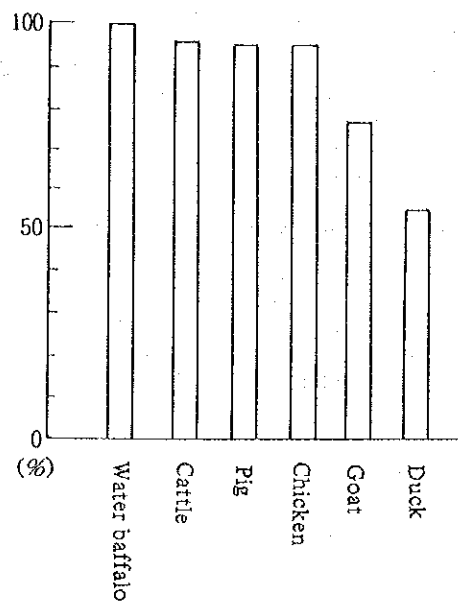


Fig. 4 Livestock

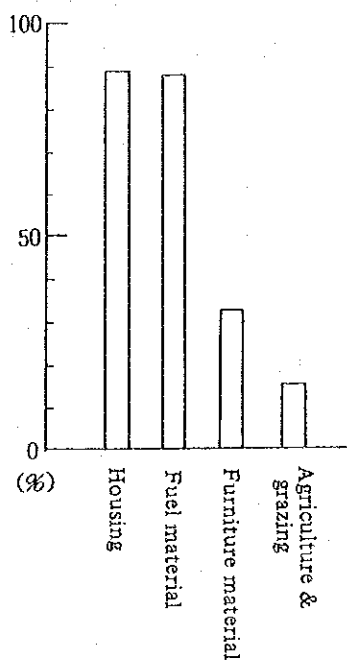


Fig. 5 Use of timber

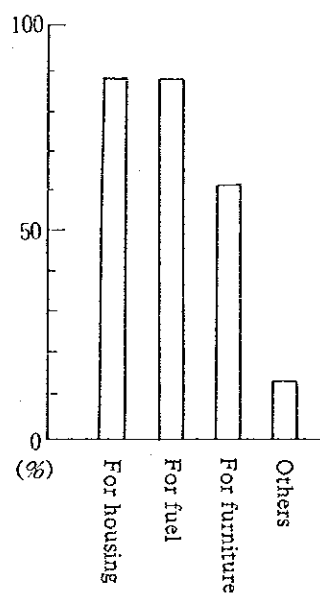


Fig. 6 Use of timber predicted increasing demand





 Use of planting
 Use of purposes of planting

Fig. 7 Purpose of planting

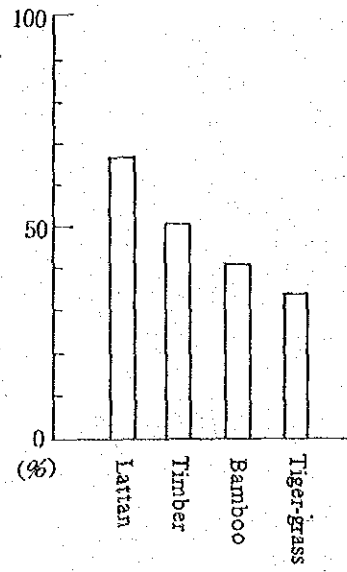


Fig. 8 Materials for cottage industry

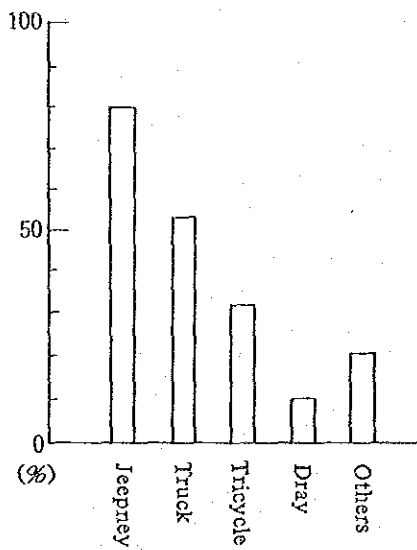


Fig. 9 Means of transportation

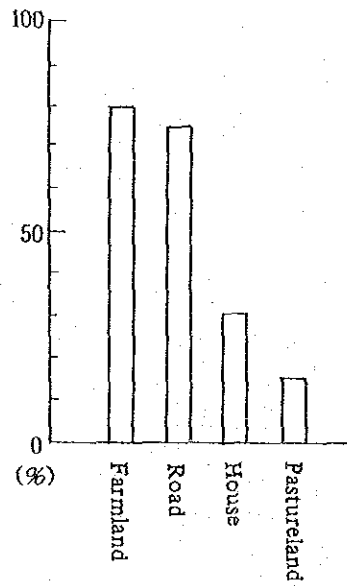


Fig. 10 Natural disasters

3. Attitudes towards Forests

(1) Shrinking forests

All the respondents admitted that "forests are shrinking", 2/3 saying "gradually" and the remaining 1/3 "rapidly".

(2) Natural Disasters

18 out of the 19 Barangays polled have been victimized by natural disasters (flooding and draining of sands and gravels) attributable to the reduced forestland. Damages sustained in such disasters are as shown in Figure 10. Hardest hit is farmland in all areas. Damages to roads are heaviest in Dupax Del Norte and Kasibu, and those to housing are greatest in Dupax Del Sur.

(3) Types of Wood Preferred

Types of wood preferred for production are as shown in Figure 11. Fuelwood leads the list of preference in all the areas. Preference for "industrial timber" is markedly high in Dupax Del Norte, and "Boards" are limited to Kasibu. "Timber for furniture" is desired in all the areas if not much in volume.

(4) Cooperation in Reforestation Efforts

Areas of cooperation in which they are willing to engage are "Protection/Management of Planted Areas", "Maintenance/Management of Forest Roads", and "Prevention of Natural Disasters" in that order. Barangays closer to the mountains have higher priorities for "Planting Work" and "Maintenance/Management of Forest Roads". "Protection/Management of Planted Areas" attracted high rates of returns in all the Barangays.

(5) Roles of Forests

The role of forests that is most relied upon is "Prevention of Disasters", followed by "Timber Production", "Fuelwood Supply", "Employment", in that order. The view expressed as such is common to all the areas. The type of forests they envision is such that produces timber wood and fuelwood and creates employment, while preventing natural disasters. Barangays in Kasibu, where forests abound, characteristically look to forests for "hunting" opportunities.

(6) Prevention of Shrinking Forests and Increased Incomes

"Increased employment opportunities" was pointed out by the largest portion of respondents in all the areas as a way to prevent forests from shrinking and increase employment. In Kasibu, promotion of agroforestry commands a high priority, while in Dupax, introduction of the timber industry is high on the list, reflecting the development statuses of the respective areas. There were a few from Dupax Del Norte and Kasibu, who cited "Build-up of Park Facilities".

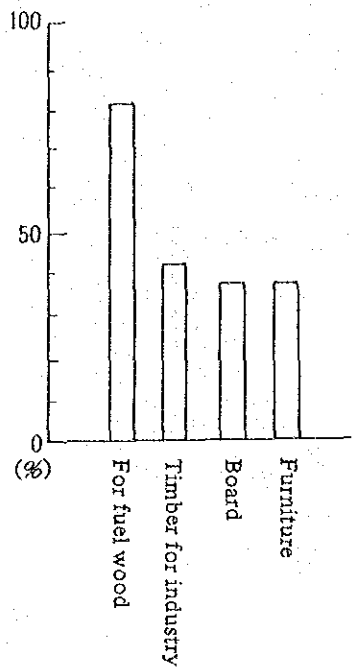


Fig. 11 Type of wood for production

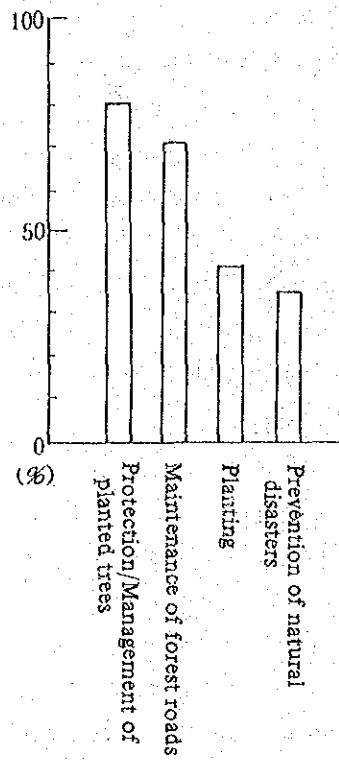


Fig. 12 Cooperation in reforestation

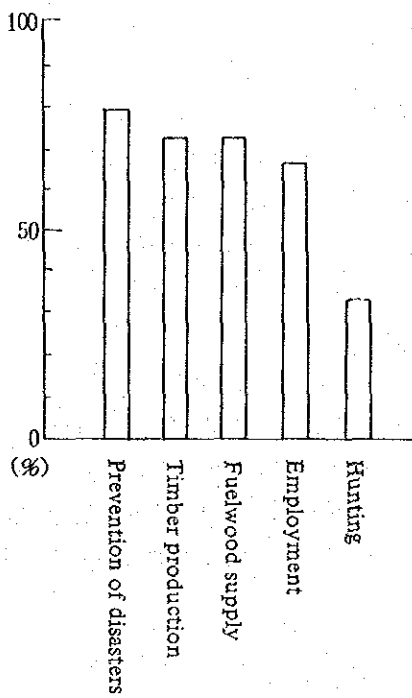


Fig. 13 Roles of Forests

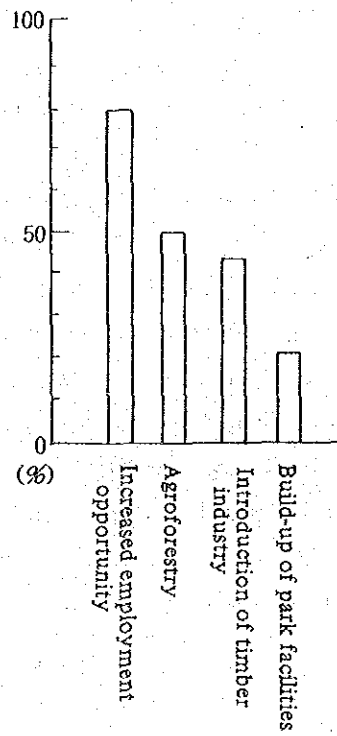


Fig. 14 Prevention of shrinking forests increased income

2-3. Individual Resident-based Survey

2-3-1. Survey Items

The questionnaires covered the following subjects.

1. Natural environment (water supply, natural hazards)
2. Living environment (income, livestock, fuelwood)
3. Attitudes towards forests (planting forestry)

Questionnaires were distributed to 64 individual persons (2 per Barangays), of which 44 responded, the rate of returns being 69%. The breakdown of respondents is given in Table 5. As seen from the table, Kaisbu has a larger weight of respondents than any other area.

Table 5 Numbers of Respondents by Area

Area	Bambang	Dupax		Kasibu	Total
		Del. Sur	Del Norte		
No. of Respondents (%)	0 (0)	8 (18.2)	5 (11.4)	31 (70.4)	44 (100)

Ages of respondents range 25–79, averaging 45.2. Table 6 shows the numbers of respondents by age group. The largest age groups are the 30's and the 40's, followed by the 50's and the 60's. There are some in their 20's and 70's. The average age for Dupax Del Norte is slightly younger compared with the other two areas where the average ages are similar.

Table 6 Composition of Respondents by Age

Age group	20's	30's	40's	50's	60's	70's	Total
No. of Respondents (%)	3 (7.0)	15 (35.0)	12 (28.0)	7 (16.2)	5 (11.5)	1 (2.3)	43 (100)

Table-7 Results of Questionnaire Survey to Individual Resident

Contents of Questionnaire		Total number of respondents %(no. of respondents)	Respondents by Area %(no. of respondents)			Remarks	
			Dupax Del Sur	Dupax De Norte	Kasibu		
Competition	Over two generations	23	62	60	6		
	One generation	77	38	40	94		
	Recent	0	0	0	0		
	Age	25 - 79y.	37 - 60y.	27 - 54y.	25 - 79y.		
	Average of age	45.2	47.3	38.2	45.8		
	Numbership of cooperatives	73	100	80	64		
(Water Availabilities & Natural Disasters)	Household water supply	River	52	62	40	52	
		Well	48	38	0	58	
		Others	16	12	60	10	Pumping well
		Water shortage : Yes	39	12	20	48	
		: No	61	88	80	52	
		Every year (shortage)	18	0	0	20	
		Irregular	41	0	0	47	
		Once or twice a year	41	100	100	33	
		Others		0	0	0	
	Agricultural water supply	Constant shortages	9	12	20	6	
		Seasonal shortages	68	88	80	61	
		Satisfactory	23	0	0	32	
	Natural hazards	Several times	73	50	60	81	
Once		20	50	0	16		
None		2	0	0	3		
Others		5	0	40	0	Every years	
		A few years ago	70	88	20	73	1983
	One or two years ago	16	0	40	17	1985	
	Last year (1986)	9	12	20	7	1986	
	Others	9	0	20	10	This year (1987)	
Income from agriculture and livestock	Average income	5,550	6,900	9,500	5,150		
	Desirable increased income	2,100	1,600	1,900	2,300	1,200-12,000/year	
Others means of income	Have	78	100	25	80		
Income besides agriculture & livestock	From tree cutting work	24	12	0	29		
	reforestation work	24	50	100	12		
	fuelwood selling	18	62	0	4		
	cottage industry	52	38	0	58		
	others	12	25	0	8		
Livestock	Cattle	50	62	67	45		
	Goat	26	25	33	26		
	Pig	81	88	67	81		
	Water buffalo	90	75	33	100		
	Chicken	86	88	100	84		
	Duck	60	50	67	61		
	Others	14	50	0	6		
Desirable increased livestock	Cow	90	100	80	90		
	Goat	43	38	60	41		
	Pig	78	88	80	76		
	Water buffalo	81	75	100	79		
	Chikin	76	88	60	76		
	Duck	31	25	60	28		
	Others	14	25	0	14		
Purchase of fuelwood	Yes	24	75	20	17		
	Often	0	0	0	0		
	Sometimes	67	100	100	20		
	Rarely	33	0	0	80		
Increased farmland	By felling forests	50	14	75	56		
	By purchasing	55	86	50	48		
	Others	5	0	25	4		

Altitudes towards forests	Experience of planting	Yes	73	100	20	73	
	Aims of planting	For timber	38	25	80	33	Fruit trees, coffee
		Fuelwood	63	100	40	56	
		furniture	25	0	60	26	
		Others	33	0	60	37	
	Planting location	Terrain	54	75	0	58	Garden
Terrace		9	12	0	10		
Gentle slope		57	75	60	52		
Lowland		45	75	40	39		
Others		7	0	0	10		
Types of forestry as expected income source	Employment for tree cutting	26	12	40	27	Fruit trees, Coffee	
	Employment for planting	35	50	100	20		
	Fuelwood production	37	62	60	27		
	Materials for cottage industry	58	38	80	60		
	Others	14	25	0	13		
Types of forests desired	Timber production forest	44	0	75	52	Park etc.	
	Fuelwood production forest	63	62	75	61		
	Agroforestry	32	38	25	32		
	Grazing forest	21	0	100	16		
	Others	9	0	25	10		

In terms of the numbers of years they have settled, 77% of all the respondents are the first generation, 23% the second generation. In Dupax, about 2/3 are the second generation, whereas the second generation accounts for only 6% (2 respondents) in Kasibu. Most of the respondents are members of a cooperative or other local organizations but in Kasibu only 1/3 are organized.

2-3-2. Survey Results

1. Living environment

(1) Household water supply

Two major sources of household water supply are "river" and "well". There are many who rely on both. There are only 16% who use "pumping". About 2/3 of the respondents have experienced water shortage in the past while the remaining 1/3 have not. A relatively small number of respondents (18%) has a water shortage every year but those who replied once or twice a year when it occurs though not regularly accounted for 40%. Water shortage is notable particularly in Kasibu.

(2) Agricultural water supply

About 1/3 of the Kasibu respondents replied "satisfactory", but most others, and all of Dupax respondents, said they have "shortages". "Seasonal shortages" were most common in all the areas with 80%--90% for Dupax and 60% for Kasibu. 10% more or less have "constant shortages".

(3) Natural hazards

98% of the respondents have sustained damages from natural hazards. Those who had damages several times amounted to 73%, the figure reaching 80% among Kasibu respondents. Damages occurred most often in 1983 (88% for Dupax Del Sur and 73% for Kasibu), followed by 1985 (40% for Dupax Del Norte and 17% for Kasibu), 1986, and 1987.

2. Industry and Economy

(1) Incomes

All the respondents rely on agriculture and livestock as a major source of income while having secondary incomes as shown in Figure 15. Major secondary incomes include "cottage industry", employment for tree cutting, afforestation, fuelwood production, in that order. Nearly half of the respondents have income from "cottage industry".

Per household income from agriculture and livestock ranges widely from ₱1,200--₱12,000/year, averaging, among the respondents, ₱5,550/year. The average is slightly higher in Dupax Del Sur with ₱6,900. It is ₱5,500 for Dupax Del Norte and ₱5,150 for Kasibu. In reply to how much more they wanted, the amounts cited averaged ₱2,100, with a high of ₱2,300 for Kasibu. Dupax Del Sur follows Kasibu this time with ₱1,600. From the replies, an average amount of income required for living is estimated at ₱7,500/year.

(2) Livestock

The types of livestock being raised include water buffaloes, chicken, pigs, which share the larger portions, followed by ducks, cattle, goats. The types of animals they want to raise more of in the future are cattle, water buffaloes, pigs, chicken, in that order. Goats have a higher percentage for the future but ducks are relatively

little in demand.

(3) Purchase of fuelwood/charcoal

About 1/4 or 12 respondents purchase Fuelwood/charcoal, but there are disparities between areas. 75% of those representing Dupax Del Sur purchase them leading by far the other areas where the figure is 20%. Among those who 'purchase', there was none who purchased them "often". Two thirds purchase them "sometimes", and one third "rarely". Nearly all of Dupax respondents replied "sometimes" in sharp contrast with Kasibu respondents, of whom 80% said "rarely".

(4) Increased farmland

All of the respondents want to have their farmland increased. As for the method, they are divided nearly equally between "by felling forests" and "by purchasing". For Dupax Del Sur, however, "purchasing" reached 86%. In other areas, "felling" slightly exceeds "purchasing".

3. Attitudes towards forest

(1) Planting

70% of all the respondents have experienced planting with 100% for Dupax Del Sur, 73% for Kasibu but only one out of five for Dupax Del Norte. The purchase of planting was mostly "fuelwood" followed by "timber". The other purposes include fruit trees and coffee, etc., accounting for 1/3 of the replies.

Planting locations are as shown in Figure 18. There is little difference between terrain conditions including mild slopes and flat lowland in the mountains. Planting in Dupax Del Norte is limited to mild slopes and flat lowland, whereas it occurs in three types of locations equally in other areas.

(2) Types of forestry as expected income source

Types of forestry they expect as a source of income are, as shown in Figure 19, led by "materials for cottage industry" in all areas, followed by "fuelwood production" and "employment for planting work" with similar percentages. "Employment for felling" is relatively low in percentage. Four respondents cited "Fruit trees and coffee" as others.

(3) Types of forests desired

"Fuelwood/charcoal production forest" is desired most in all the areas accounting for 2/3 of the replies. It was followed by "timber production with 44%, but it was limited to Dupax Del Norte and Kasibu and none in Dupax Del Sur. "Agroforestry" accounted for 32% of all the replies, with little difference between areas. "Grazing forest" is desired by all Dupax Del Norte and 16% of Kasibu but none of Del Sur respondents. There were a few from Dupax Del Norte and Kasibu who replied "Parks".

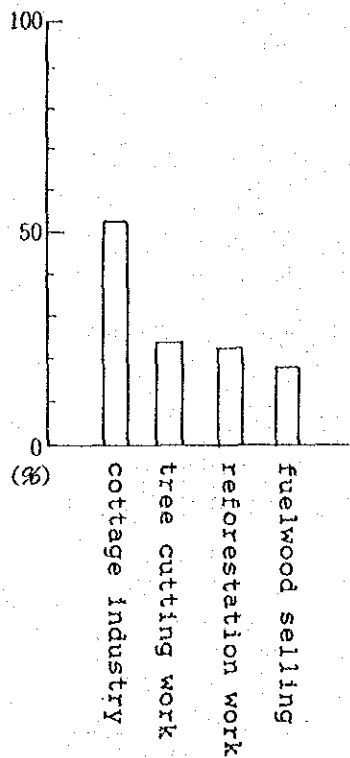


Fig. 15 Income besides agriculture & livestock

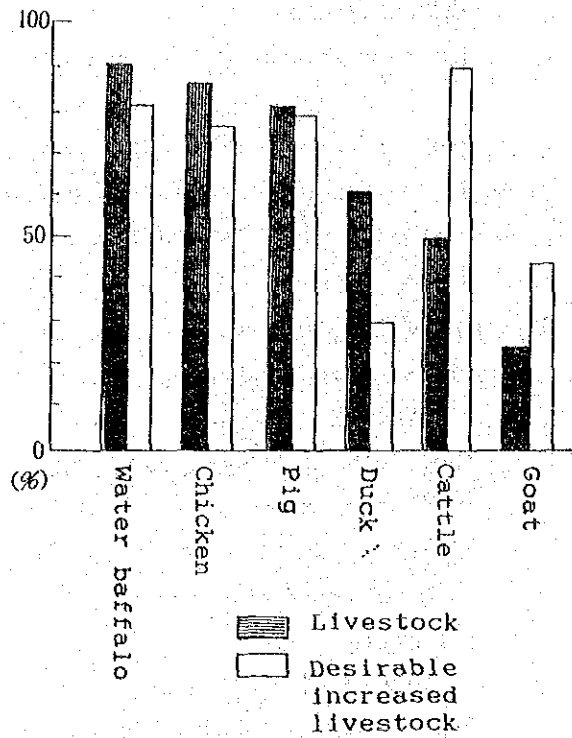


Fig. 16 Livestock & Desirable increased livestock

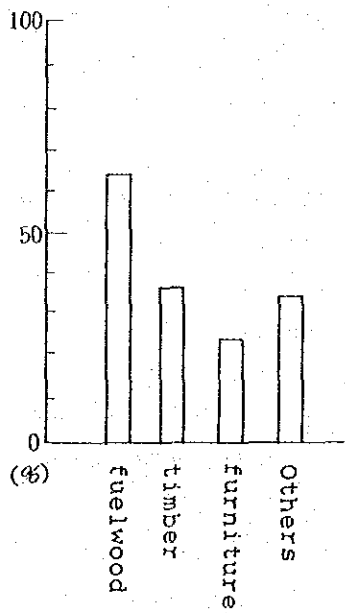


Fig. 17 Aims of planting

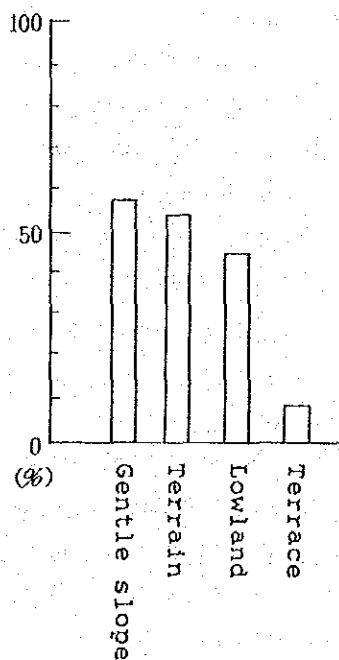


Fig. 18 Planting location

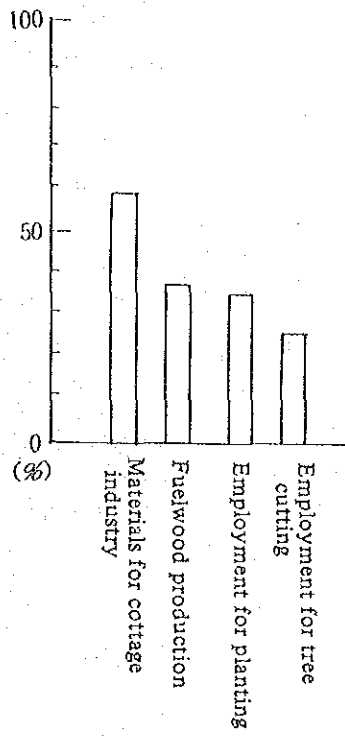


Fig. 19 Types of forestry as expected income source

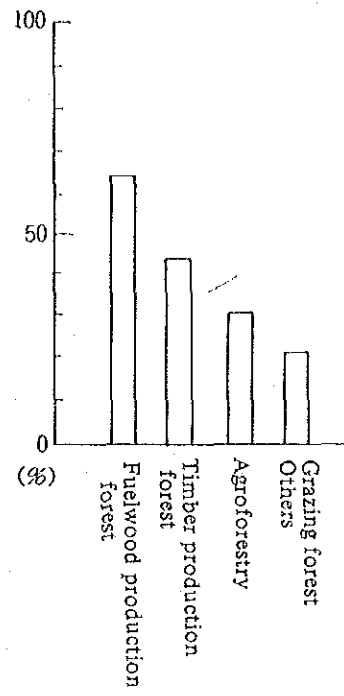


Fig. 20 Types of forests desired

3. Summary

The regional characteristics as found by the surveys are summarily compared in the table below.

Table 6-7. Comparison of Regional Characteristics

Subject	Area	Dupax del Sur	Dupax del Norte	Kasibu
Composition	Years of settlement, Population/ household, Cooperative membership,	Many second generations, Small per household, 100%	First & second generations, Large village size, 80%	Many first gen- erations, 1 village— 200 households/ 1000 persons, 64%
Living environ- ment, Industry, Economy	Water supply, Average income per household, Wish to expand land, Way to expand, Income outside of agriculture & livestock, Cottage industry, Fuelwood pur- chase, Past disasters,	Shortage infre- quent, ₱8,000. Many, Purchase, tree cutting, Yes, Many (timber, rattan), Often (some- times), Many (involving housing, farm),	Small supply, ₱6,200 Many, Purchase, tree cutting, Yes, but little, Few (rattan), Not often (sometimes), Few (involving farm, road),	Half supplied, ₱6,150 Many, Purchase, tree cutting, Yes, About half (rattan, tiger grass) Not often (rare), Many (involving farm, road)
Observa- tion Attitude	Reduction/ tion of forest Gradually/rapidly Planting experi- ence, Forestry desired, Expected role of forest	75/25 % Many experi- enced (fuelwood) Fuelwood, Fuelwood pro- duction,	0/100 % Few experienced (timber) Timber, Timber, employ- ment, disaster prevention,	75/25 % Many experi- enced (fuelwood, fruits) Fuelwood, Timber produc- tion, disaster prevention,
Observa- tion	Ways to help forest,	Planting, protec- tion management,	Same as left, forest road main- tenance,	Forest road, plan- ting, protection,
Considera- tion		Developed, esta- blished farm community	In transition to farming com- munity	Primitive community

The questionnaire survey was conducted in two parts, one polling Barangay Captains as representatives of Barangays and the other addressing individual residents. The replies of the two parts are very similar except for differences in incomes and disaster experience and, therefore, they can be taken as reflecting the actual life in the region properly.

Differences between the areas appear to reflect the differences in the attitudes of residents towards forests due to their respective levels of development and geographical conditions. The findings can be summarized as follows.

- a) Population is increasing in Barangays due to migration from outside as well as to natural increase.
- b) In all Barangays, agriculture, rice growing in particular, is a main source of income with other items being raised varying substantially.
- c) Livestock raising is very common though its contribution to income apparently is not so significant, but there are many who wish to have more of livestock and it is expected to contribute to increased income in the future.
- d) There are many who wish to expand their farms and grazing land.
- e) Woodworking in cottage industry is in wide practice providing a secondary source of income. There are many who wish to see increased production of materials for wood working.
- f) Incomes average P5,000. – P6,000. Since they wish to see this increased by an average of P2,000., the income to support the standard living level can be assumed P7,000. – P8,000.
- g) There are frequent seasonal shortages of water for both household and agricultural use, posing a problem in the living environment. Almost all of them have sustained cyclone damages to housing, farms, and roads. With the most recent damages still fresh in their mind, and prompted by shrinking forests, they show their increasing awareness of forests serving to prevent natural disasters.
- h) With respect to forest products, the present demand is greater for fuelwood, which also leads others in the future demands as surveyed (all of those asked anticipated a future increase.). Timber for housing is expected to command no less demand in the future, obviously an indication of its shortages in many Barangays.
- i) There are many who have experience of planting. Planting of fuelwood and fruit trees is very much in demand, indicating the importance of agro-forestry as a source of increased incomes.
- j) local residents are highly motivated to cooperate for forest development. Specifically, tending of seedlings, road maintenance, and planting work, that

are involved in forest development should provide increased employment opportunities giving a further impetus and thus helping to prevent forests from shrinking.

Note: There was one questionnaire survey conducted in the past over a period from December 1980 to February 1981. The survey polled Kaingineros covering the Aaidi area, which was a site of a Maqat reforestation project, Nueva Viscaya, and the Atok area along the Baguio-Bontoc Road. (See Progress Report of June 1986.)

The survey differs from the present one in the types of subject people and subject matters, but the forms farming and cattle raising are very similar in both surveys. The findings of this present survey can be said to properly reflect the way people live in the Cagayan River Valley from the mountain foothills up into the mountains.

QUESTIONNAIRE
ON
SOCIO-ECONOMIC CONDITION
OF
BARANGAY

The objective of the questionnaire is to collect relevant information on the bio-physical, socio-cultural and environmental conditions in the model area in order to formulate advisable forest management plans to improve the welfare of the occupants for the present and in the future.

To increase the income of each household and at the same time preserve the environment various kinds of problems such as proper land use (cultivation, stockfarm, tree planting, etc.), sufficient supply of timber, fuelwood and raw materials for cottage industries, financial support, techniques for rural industrial development, increased employment opportunities, improved accessibility to farms, market and other social amenities and many others, must be solved.

To recommend solutions to the above-mentioned problems the whole planning procedure must take full cognizance of what forestry contributes to the whole process.

Taking into consideration the needs, desires and total welfare of the forest occupants and their families as contained in this questionnaire and recognizing the need for the preservation of the forests in order to sustain their prime source of livelihood a most suitable forest management plan shall be prepared for the model area.

Thank you for your kind consideration.

QUESTIONNAIRE
ON
SOCIO ECONOMIC CONDITION
OF
BARANGAY

1. How long have you stayed here?

1. Since the last generation
2. More than 20 years
3. Approx. 10 years
4. Recently

2. How many households and population are there in your barangay?

1. Number of Households _____
2. Number of Population _____

3. Do you think the latest population is increasing or decreasing in your barangay?

1. Increasing Gradually
2. Increasing Remarkably
3. Decreasing
4. No Changed

4. What do you think is the general income sources of your barangay?

1. Agriculture
2. Stockfarm
3. Trade
4. Labor Work
5. Logging
6. Family Industry
7. Others ()

5. What is the average income of a general household per year in your barangay?

₱ _____ /year

6. What is the main agricultural product in your barangay?

1. Rice
2. Other Crop
3. Vegetables
4. Coffee
5. Fruit
6. Tobacco
7. Others ()

7. What's the average income from the agricultural products?
Please specify crop species, cultivated area (ha) and income derived from them.

species	area	income
_____	_____	_____
_____	_____	_____
_____	_____	_____

8. Do you think your barangay has enough cultivated area at present? or do you think your barangay needs much more area?
1. Enough
 2. Much more
9. What kind of livestocks are you keeping in your barangay?
Please specify the numbers of the livestocks.
1. Cattle ()
 2. Goat ()
 3. Pig ()
 4. Carabao ()
 5. Chicken ()
 6. Duck ()
 7. Others ()
10. Do you think you have enough pasture area? If not, do you think you will have much more pasture area?
1. Enough
 2. Much more
11. What kind of timber do you use in a year? And also how much is their approximate volumes?
1. Log ()
 2. Board ()
 3. Pole ()
 4. Others ()
12. What is the main purpose of such timber needs and/or requirement? Please specify the items to be purchased.
1. House Construction
 2. Fuel Wood
 3. Furniture
 4. Agro-forestry
 5. Others ()
-
13. Do you think the timber use will increase in near future? If think so, please specify the main usage.
- Yes, No
1. House Construction
 2. Furniture
 3. Fuel Wood
 4. Others ()
14. Did you plant trees in the past? If you did, please specify the kinds and number of the planted trees.
- Yes, No
1. Timber ()
 2. Fuel ()
 3. Fruit ()
 4. Others ()
15. Do you produce any family manufactured products (cottage industries) in your barangay? If yes, please specify the wood and other Forest Products needed as raw materials.
- Yes, No
1. Timber
 2. Rattan
 3. Bamboo
 4. Tiger Grass
 5. Others ()
16. Where do you sell your products?
1. Bayombong
 2. Bambang
 3. Other city ()

17. What is the main transportation between your barangay and neighboring one? Please specify the transportation for your agricultural products and family manufactured products.
1. Jeepney
 2. Truck
 3. Bus
 4. Tricycle
 5. Wagon
 6. Others
-
18. Forests are decreasing everywhere. Do you think the forest around your barangay is decreasing?
1. Decreasing Slowly
 2. Decreasing Rapidly
 3. No Change
19. Generally the forest decrease causes land collapse and flood. Did you have any damages in your barangay recently? If yes, please specify the kind of damages.
1. House
 2. Farm
 3. Pasture
 4. Orchard
 5. Road
 6. Others ()
20. Do you think your barangay needs forest clearing for the expansion of cultivated area and pasture land in near future?
1. Yes
 2. No
21. What kind of timber products are expected to be produced in your barangay?
1. Board
 2. Industrial Materials
 3. Fuel Wood
 4. Furniture
 5. Decoration
 6. Others ()
22. To obtain the above timbers, reforestation/afforestation shall be required. In this case, what kind of cooperation will you make as a barangay?
1. Reforestation/Afforestation Work
 2. Plantation, Protection & Maintenance
 3. Forest Road Maintenance & Management
 4. Prevention of Disasters
 5. Others ()
23. If you get seedlings free of charge, or at very minimal cost, what kind of trees (including fruit trees) will you plant?
1. Timber Tree
 2. Fuel Tree
 3. Fertilizing Tree
 4. Fruit
 5. Others ()
24. If you have a chance will you learn how to plant and cultivate?
1. Yes
 2. No

25. What do you think is the main purpose of our forests?

1. Timber Production
2. Fuel Supply
3. Labor Employment
4. Prevention of Disaster
5. Hunting
6. Others ()

26. How in your opinion can you increase the income of your barangay without decreasing forest area?

1. Increasing Employment Opportunity
2. Promoting Wood Industry
3. Improving Park Facilities
4. Agro-forestry
5. Others ()

27. Where do you think are the priority areas for road construction for the transport of your agricultural and wood products?

Date

Place

Name

Age

Person in charge

QUESTIONNAIRE

ON

GENERAL IMPRESSIONS/KNOWLEDGE ABOUT THE FOREST

1. How long have you stayed here?
 - Mano nga tawen yon nga agna-naed ditoy?
 - Kaano pay nga tawen nga nagna-naed kayo ditoy?
 1. Since the last generation
 2. Several years ago
 3. Recently
 4. Other ()
2. Where do you get water for daily need?
 - Sadino iti pagal-alaan iti danum nga masapul yo iti inaldaw-aldaw?
 1. River
 2. Well
 3. Others ()
3. Have you ever had water shortage for daily needs?
 - Napadasan yon iti naawanan iti danum nga kasapulan iti biag yo?
 1. Every year
 2. Often
 3. Never
 4. Others ()
 5. Once a year
4. Have you ever had water shortage for cultivation and/or stockfarming?
 - Napadasan yo kadin ditoy nga lugar iti naawanan iti danum nga para iti talon wenno irrigasyon?
 - Napadasan yon iti naawanan ti danum nga para iti mul-mula ken animales yo?
 1. Usually
 2. Seasonally
 3. Never
 4. Others ()
5. Have you ever been damage on the agricultural area and/or house by typhoon? natural calamities? (landslide or land collapse)
 - Napadasan kadin daytoy nga lugar iti nadalawan iti bagyo wenno calamidad?
 1. Several times - namin-ano
 2. Once before - naminsan
 3. Never - saan pulos
 4. Others (dadduma)

6. If you have had the above damage, please specify when it was.
- Ket no napadasan yo iti nabagyo. kaano kadi dayta nga calamidad.
 1. Several years ago
 2. A couple of years ago
 3. Last year
 4. Others ()
7. Where do you plant crop trees and/or Fruit trees?
- Sadino kadi iti pagmul-mulaan yo kadagiti agbunga nga kaykayo?
 1. Mountainous area
 2. Terrace
 3. Gentle slope site
 4. Low flat area
 5. Others ()
8. Are you expecting more farm areas for cultivation? If yes, please specify the approach?
- Adda kadi nam-namaen yo nga manay-nayunan a lugar a a pagmulaan? Ket no adda, Ania iti napintas nga wagas ti panangaywan.

Yes, No

 1. Forest clearing
 2. Purchase of cultivated area
 3. Others ()
9. Do you keep any livestock? If yes, please specify the kind of livestock.
- Adda ay-aywan yo nga animales? Ket no wen, naganan yo ida, cas iti nuang, baca, kabayo, etc.

Yes, No

 1. Cattle - baka
 2. Goat - calding
 3. Pig - baboy
 4. Carabao - nuang
 5. Chicken - manok
 6. Duck - pato
 7. Others (dadduma pay)
10. Are you expecting to keep more livestock? If yes, please specify the livestock.
- Mangnamanama cayo kadi nga agtaraken pay ti ado. No wen paki surat yo no annia pay nga klase ti tarakenen yo.

Yes, No

 1. Cattle - baka
 2. Goat - calding
 3. Pig - baboy
 4. Carabao - nuang
 5. Chicken - manok
 6. Duck - pato
 7. Others (Dadumamapay)

11. Do you plant forest trees?
 - Agmul-mula kayo kadi bakir nga kayo?
 Yes, - Wen
 No - No
12. If you were to plant forest trees, please specify tree species and usages.
 - No agmul kayo ti bakir nga kayo pakebagam ken annia ti usar na.
 Tree species _____
 1. Timber and board
 2. Fuel
 3. Furniture
 4. Others ()
13. Have you ever bought fuel wood and/or charcoal?
 - Aggatgatang kayo kadi ti kayo wenno uring a pagsungrod?
 1. Often - canayon
 2. Sometimes - sumagmamano
 3. Never - Saan
 4. Seldom - Sagpaminsan
14. How much income do you make from agriculture and stock farming?
 - Mano ti tinawen nga namnamaen yo nga apit gapo ti panagmulmula ken panagtaraken.
 ₱ _____
15. Are there any income sources except agriculture and stockfarming in your barangay?
 - Addaan kayo pay kadi iti sabali nga pag-gapuan iti apit yo malaksid iti panag-mula ken panag-taraken idia'y lugar yo?
 1. Logging - mag-troso
 2. Reforestation work - panag-mula
 3. Production of fuel trees - panaguging
 4. Production of by-products
 5. Others ()
16. How much monthly income is necessary for life? In case of shortage, please specify how much you need more monthly.
 - Mano ti rebbeng nga apiten wenno kit-kitaen yo iti binulan tapno mabiag kayo. No kaspangarigan agkur-kurang kayo, pakibaga yo no mano pay ti masapul yo iti binulan.
 ₱ _____
 ₱ _____

17. What are your possible income sources in the forestry?

- Ania iti mabalin yo nga pagbiagan iti kabakiran?

1. Logging
2. Reforestation work
3. Production of fuel trees
4. Production of by-products
5. Others ()

18. Are you member of the community cooperative organization or cultural minority group?

- Miembro kayo kadi iti Kooperatiba wenno Bario organisasyon?

1. Yes
2. No

19. What kind of forest land uses do you have in your area?

- Ania nga panag-bakir iti inkayo us-usaren ti daytoy nga lugar?

1. Timber production
2. Fuel wood
3. Agro-forestry
4. Park
5. Others ()
6. Grazing/Pasture

Date (Petsa)	Place (Lugar)	Name (nagan)	Age (tawen)	Mor F (lalaki/babae)
-----------------	------------------	-----------------	----------------	-------------------------

Family member and their ages		()	()	()
		()	()	()

(Miembro ti familia
ken ti tawen da)

Person in charge

Aerial Photographing and Phot-Interpretation of Model Area

I. Aerial Photographing of Model Area

Certeza Surveying & Aerophoto Systems, Inc., Philippines largest surveying company, was contracted to undertake aerial photographing of the Model Area. Meetings were held with the company personnel to discuss the work plan and procedures. In its implementation, supervision and guidance was provided by the Japanese side. After the work done, the results were checked to make sure they met with the specifications and terms/conditions.

A) Checked results: Specifications and Terms/Conditions

1. Photographing area: The whole area of the planned Model Area encompassing some 50,000 ha.
2. Photo scale and Flight Courses: 1/20,000 North-south 10 courses (The Index Map in Figure 1 details of flight courses in Table 1.)
3. Date of Photographing: January 3, 10, and 17, 1987
4. Quality of Photographs: Despite the presence of partial cloud covers, the photography was found to have duly met requirements of the specifications and the terms and conditions, and their quality such as not to adversely affect the subsequent work.

B) Delivered Products

- (a) Contact photo prints: 10 flight courses; Total of 153 photo sheets
- (b) Double-sized enlargements of above photos: Same as above
- (c) Uncontrolled mosaic photos: Uncontrolled mosaic photo index map based on contact prints.
- (d) Index map: Scale 1/50,000; original manuscript for cartography, blue print

II. Aerial Photo Interpretation of Model Area

Aerial photo interpretation of the Model Area and the production of the Reconnaissance Map were conducted at site. Aerial photo interpretation was made of (1) drainage patterns, watersheds, (2) geomorphology, (3) vegetation and land use, (4) surface geology (soil texture), (5) supplementation and correction of map data (mainly roads, rivers), in consultation with BFD-LC. Classifications for the legend are as shown in Table 2, 3, 4.

Aerial photo interpretation was conducted as follows. (1) Aerial photos were stereoscopically studied and classifications delineated on the photo, (2) and then transcribed to the 1/25,000 scale topographic map. (3) The interpretations were verified on site for consistency (in delineation). The results of interpretations were incorporated into the 1/25,000 reconnaissance map. The findings of reconnaissance survey are described below.

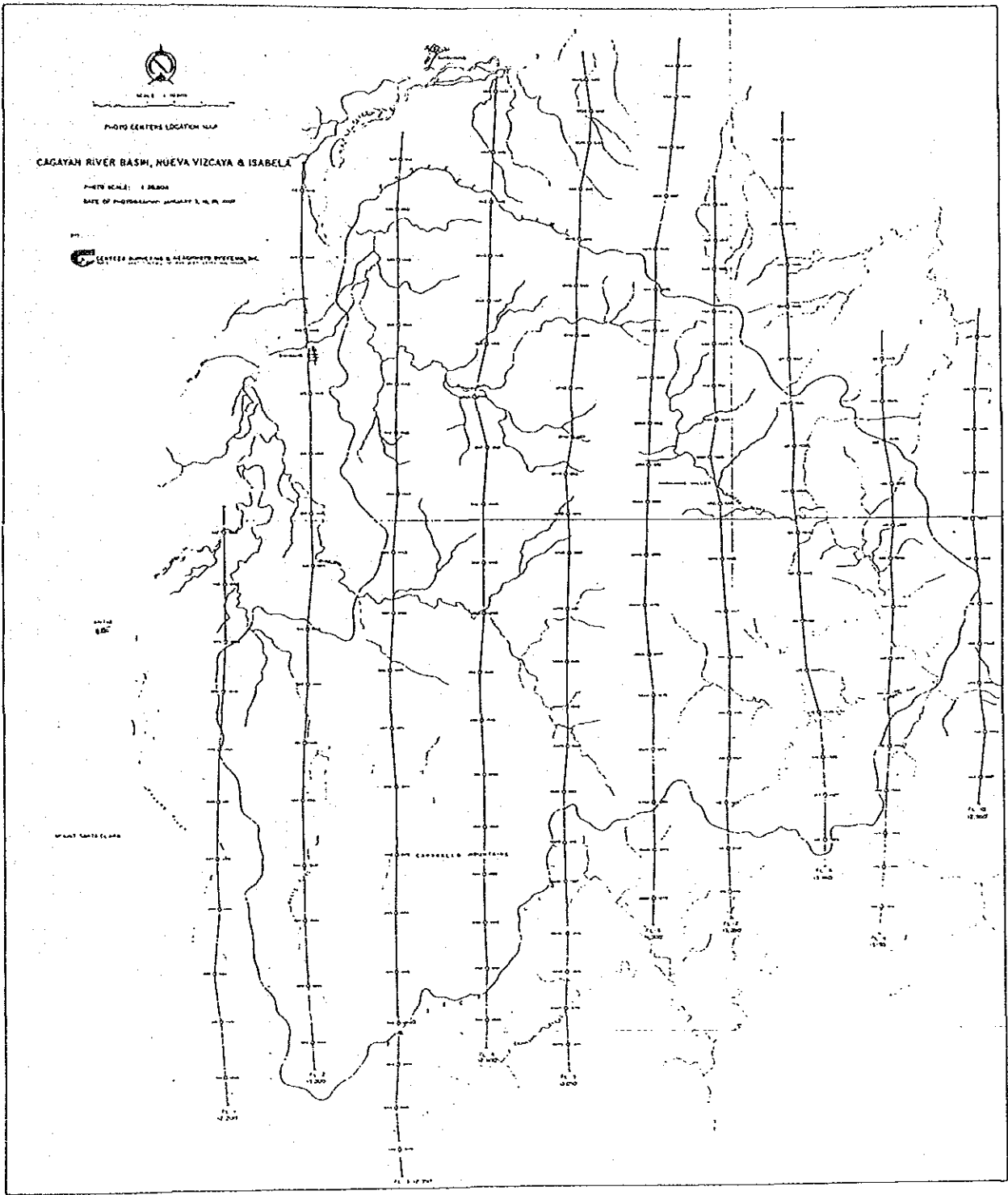


Fig. 1 Index of Aero Photograph

Table 1. Details of Flight Courses

Air photo (1:20,000)

Date of Photography: J A N 3. 10. 17, 1987

Roll Number	Flight course	Photo number	Photo Sheet	Remarks
R - 0 1	FL - 1	001-011	11	
R - 1	FL - 2	012-026	15	
R - 1	FL - 3	027-045	19	
R - 1	FL - 4	061-069	9	(First one set only)
R - 0 1	FL - 4	058A-061A 062-064	7	Retry
R - 1	FL - 5	65B-87B	23	"
R - 0 1	FL - 6	085-099	15	(First one set only)
R - 0 1	FL - 6	88A-106A	19	Retry
R - 0 1	FL - 7	100-115	16	(First one set only)
R - 0 2	FL - 7	107A-116A	10	Retry
R - 0 2	FL - 8	116-132	17	
R - 0 2	FL - 9	133-146	14	
R - 2	FL - 1 0	147-157	11	

1. Drainage patterns; watersheds

The watersheds in the north-west of the model area were not clearly recognized on the topographic map and therefore they were determined from the aerial photos.

2. Geomorphology

Geomorphology of the model area was studied by applying the same legend for the larger study area. In the course of the reconnaissance survey, it became known that there was no occurrence of Plateau of Highland and that there was the need to add Riverbed and Old River to Lowland. It was also known that the area can be classified into two major parts of Dupax and kasibu from the distributions of macro-medium reliefs.

3. Vegetation and land use

Based on the findings of photo interpretation and field verification, the following points were made as reminders for the formulation of the Forest Management Plan for the model area scheduled for next year. The minimum areal unit for areal photo interpretation was set at 5mm by 5mm on photo (about 1/20,000 in scale).

Open*/Barren land

Initially, Open Land was included in the legend but since it was hardly distinguishable from Grassland (including pasture), Barren land alone was interpreted and classified under this category leaving what could be Open Land in the Grassland category.

Barelands possibly resulting from land collapses were observed in parts in the Model Area, but due to fast recovery and growth of vegetation (grasses), what still remain as Bareland and limited to those in the south caused by collapses of granite rocks and lands bared by road construction and other development works.

* Openland – all denuded forest lands, cropland and grazing lands that have been abandoned; also areas of exposed soil resulting from landslides of erosion.

Grassland (including Pasture)

Field verification revealed that what had been interpreted as Reproduction and Brushland were mostly Grassland. Most of Brush as interpreted turned out to be graminaceae such as Cogon and Talahib. They were misleading because they were 3 to 4 meters in height appearing to have crowns.

In most Grasslands, except for the western part of the Model Area which is covered all over by Grassland, there are scattered growths of Brush, but

in the presence of such vigorous vegetations like Cogon and talahib, plant succession to high forests (mostly shade-bearing trees) is not very likely and, considering also the repeated Kaingin, there appeared little possibility of their growing into Reproduction Brush (Reproduction Stand), and therefore scattered growths of Brush were included in Grassland in delineation.

Tree plantation

In the Model Area, there were observed afforestation projects under way such as the Reforestation Project, and I.S.F. (Integrated Social Forestry) project, but there appeared to be many of them which were yet to accomplish the targets.

As a result of photo interpretation and field verification, there were no tree plantations that were large enough to be delineated in terms of the 5mm by 5mm units and, therefore, these projects were represented by their locations.

Nursery

As in the case of Tree Plantation, there were no projects that were large enough to be delineated in terms of the 5mm by 5mm areal units set for photo interpretation, so that they were represented by their locations.

Virgin forest

Forest represent approximately 32% of the Model Area and virgin areas are found in Mossy Forests, escarpment, and mountain valleys but not in as much as to delineate as Virgin Forest.

Logged-over, secondary

Most of the areas delineated as Forest (except for Mossy Forest) are Logged-over or Secondary Logging in Progress. Usually, after first and secondary logging, succeeding stands continue to grow to form the secondary forests for subsequent logging in a continuous process. But in the Model Area, after logging the sites are mostly cultivated for farming (kaingin) by burning and eliminating the trees. Logged-over, secondary, areas were further sub-divided into thin stands and close stands.

Reproduction and Brushland

As mentioned under Grassland, initially Reproduction and Brushland were expected to take up a sizable portion at the time of photo interpretation. But field verification found that they were mostly graminaceae (reaching 3 to 4 meters in height) like Cogon and Talahib.

Mossy forest

Distributions of mossy forest were observed in parts of the uppermost

areas of forests. Being medium to low in height, mossy forest remains intact from logging. But there are such areas turned into cultivated area (grassland) by burning.

Bamboo forest

Distributions of bamboos were found to be limited in the Model Area so that they were not delineated.

Kaingin

According to the Philippine Forestry Statistics, Kaingin is defined as follows.

Kaingin – a portion of the forest land, whether occupied or not, which is subjected to shifting and/or permanent slash and burn cultivation having little or no provision to prevent soil erosion (P.D. 705). Statistically, kaingin is classified as cultivated land outside of A and D (Alienable or Disposable Lands).

According to Table 4, kaingin accounts for only about 2% of the total area, but it must be noted that there are many such areas that were not represented because they are not large enough to be expressed in terms of 5mm by 5mm areal minimum units as specified for photo interpretation.

Therefore it must be understood that there are a substantial number of kaingins, too small in size to be represented, scatteredly distributed in areas delineated as Forest and Grassland. Depending on how to look at cultivation in terms of its intensity, even among A and D, there are areas which are cultivated though loosely.

Table 2. Legend of Vegetation Land Use

—Legend for vegetation and land use for aerial-photo-interpretation of model area—

(1:20,000 average scale)

- W — Body of Water
- O — Open/Barren Land
- B — Built-up Area—Settlement, Village, town
- G — Grassland (include Pasture)
- M — Man-made Vegetation
- Mc — Cropland
- Mc₁ — Seasonal—rice, corn, sugar cane
- Mc₂ — Permanent—coconut, orchard
- MT — Tree Plantation
- MN — Nurseries
- MO — Others

- Nv -- Virgin forest
- NL -- Logged-over, secondary
- NR -- Reproduction and Brushland
- Ny -- Mossy Forest
- NB -- Bamboo Forest
- Ns -- Sub-marginal Forest
- K -- Kaingin

Table 3. Legend for Geomorphology for Aerial Photo-Interpretation of Model Area
(1:20,000 average scale)

Lowland

- B -- Back Marsh
- N -- Natural Levee
- Fp -- Flood Plain
- V -- Valley Bottom Lowland
- F -- Fan
- O -- Old River
- R -- Riverbed (River)




Midland

- T -- Terrace
- C -- Colluvial Slope & Talus
- D -- Dissected Upland
- G -- Hill
- Pr -- Piedmont (Rolling)
- Pd -- Piedmont (Dissected)

Highland

- E -- Escarpment
- L -- Low Relief Surface on Mountain
- Sd -- Dissected Slope on Mountain
- Sg -- Gentle Slope on Mountain
- Ss -- Steeply Dissected Slope

Miscellaneous

- W -- Water Body (Reservoir)
-  -- Cliff
-  -- Landslide
-  -- Collapse
- X -- Collapse (Small size)
- △ -- Boulder Flow (Rock stream)

Legend for Surface Geology & Soil Texture


A	Alluvial	mud sand gravel	unconsolidated
D	Diluvial	sand gravel	unconsolidated
G	Granite Rock	partly heavy weathered appear coarse~ medium sand sand	
V	Volcanic Rock	Complex of lava, intrusive rock andesitic, volcanic breccia, partly heavy weathered appear clay	
	-----	Lineament	
		Heavy weathered area	

Table 4. Areas of Vegetation and Land Use

	(ha)	%
Logged-over, secondary (NL)	14,709	30.0
Reproduction and Brushland (NR)	732	1.5
Mossy Forest (NY)	39	0.1
Sub-total	15,480	31.6
Seasonal cropland (Mc ₁)	5,439	11.1
Permanent cropland (Mc ₂)	53	0.1
Sub-total	5,492	11.2
Grassland (include Pasture)(G)	26,718	54.6
Built-up Area (B)	163	0.3
Kaingin (K)	1,127	2.3
Total	48,980ha	100.0%

Note) The high density area in NL and NR is approx. 827 ha. (5.4%)
This figures are measured on the map.

REFERENCE

- | | | |
|-----|--|------------------------|
| 1. | The BFD Annual Report for 1983 | BFD |
| 2. | The BFD Annual Report for 1984 | BFD |
| 3. | Philippine Forestry Statistics (1981) | BFD |
| 4. | Philippine Forestry Statistics (1982) | BFD |
| 5. | Philippine Forestry Statistics (1984) | BFD |
| 6. | Philippine Forestry Statistics (1985) | BFD |
| 7. | Forest Protection and Law Enforcement Division Profile | |
| 8. | Presidential Decree-705 (1975)
Revised Forestry Code of Philippines | |
| 9. | Presidential Decree-1559 (1978)
Further Amending Presidential Decree No. 705 | |
| 10. | Ministry Order No.1 (1978)
Creation of a Special Forest Law | |
| 11. | Ministry Order No. 50 (1982)
Regulations Governing the Administration, Management and Disposition of Grazing Land | |
| 12. | Ministry Order No. 48 (1982)
Regulations and Guidelines implementing LOI 1260, which launched the Integrated Social Forestry Program | |
| 13. | Ministry Order No. 54 (1982)
Creation of Organizational Units in the Central, Regional and District Offices of the Bureau of Forest Development to Implement the Integrated Social Forestry Program | |
| 14. | Industrial Tree Plantation Lease Agreement | MNR |
| 15. | The Integrated Social Forestry Program of the Ministry of Natural Resources (1982) | MNR |
| 16. | A Better Deal for Forest Occupants
A Primer on the Integrated Social Forestry Program | BFD |
| 17. | Letter of Instruction No. 1260 (1982) | |
| 18. | Letter of Instruction No. 1312 (1983) | |
| 19. | First Asean Forestry Congress (1983) | |
| 20. | Vintar River Watershed Reforestation Project (1983) | |
| 21. | Demonstration and Training in Forest, Forest Range and Watershed Management-FAO (1971)
Land-Use Economics
Range Management
Watershed Management
Logging and Transport | |
| 22. | Philippine Forestry Development Project Final Report (1983) | Asian Development Bank |
| 23. | Appraisal of the Forestry Development Project in the Republic of the Philippines (1983) | Asian Development Bank |
| 24. | Integrated Management System for Palawan | |
| 25. | Smallholder tree farming in the Philippines, A Comparison of two credit Programmes (1983) | UNASILVER |
| 26. | Guidelines for Watershed Management, FAO 1977 | |
| 27. | Proceedings of the Joint FAO/U.S.S.R. International Symposium on Forest Influences and Watershed Management, FAO 1970 | |
| 28. | An Integrated Project for Kaingin Control in the Philippines-Fourth Annual Report 1980 | |

29.	A Study of Two Pilot Agro-Forestry Projects in the Philippines 1981	FAO
30.	Case Study of Forest Occupancy Management Program in Dona Remedios, Trinidad, Bulacan (1982)	BFD
31.	Loan Financing of Smallholder Tree Farming in the Ilocos Norte and Ilocos Sur, the Philippines Agroforestry Systems 1:225-243 (1983)	
32.	Agro-Forestry Farm Lease Agreement	MNR
33.	Energy from the Forest, FAO (1982)	
34.	How to grow Bamboo (1982)	MNR
35.	Abstracts of References on Mangroves	
36.	Communal Tree Farming (1979)	MNR
37.	International Consultation on IPIL-IPIL Research (1977)	PCAR, U.S. NAS
38.	Geological Map (1/250,000)	
39.	Region II Statistics	
40.	Applications of Remote Sensing to Resources and Agricultural Development (1983)	NRMC
41.	Assessment of Forestry Management Problems and Issues (1980)	NRMC
42.	ESCAP/NRMC Regional Training on Digital Image (Report) Interpretation for Forestry Application (1984)	
43.	ESCAP/NRMC Regional Training on Digital Image (Proceeding of the Conference) Interpretation for Forestry Application (1984)	
44.	Geology and Mineral Resources of the Philippines (1982)	MNR
45.	Analysis of the Process of Implementing Remote Sensing Technology for Economic Development (1984)	MNR
46.	Cagayan Valley (Upper Cagayan River Basin) (1980)	NWRC
47.	Cagayan Valley (Lower Cagayan Basin) (1980)	NWRC
48.	Cagayan Valley (Chico River Basin) (1980)	NWRC
49.	Cagayan (Magat River Basin) (1981)	NWRC
50.	Cagayan (Iligan River Basin) (1981)	NWRC
51.	Philippines Water Resources (1976)	NWRC
52.	Water Availability in Philippine (1977)	NWRC
53.	Philippine Water Code (1982)	NWRC
54.	Philippines Flood Control (1977)	NWRC
55.	Irrigation Inventory (1977)	NWRC
56.	Integrated Census of the Population and its Economic Activities (Phase II)	
57.	Accomplishment Reports of BFD R-2 Tuguegarao Cagayan for the month of June, Second Quarter and Mid-Year (1985)	OIC
58.	Social, Economic and Demographic Factors Relating to Interregional Migration Streams in the Philippines: 1960-1970	NCASO · NEDA
59.	Handbook on Land and Other Physical Resources (1984)	NEDA
60.	Project Development Manual (1984)	NEDA
61.	Five-Year Philippine Development Plan 1983-1987	NEDA
62.	Updated Philippine Development Plan 1984-1987	NEDA
63.	Integrated Survey of Households Bulletin (1984)	NCASO · NEDA
64.	MPWH Infrastructure (1983)	MPWH
65.	Soil Survey of Cagayan Province (1967)	DANR
66.	Soil Survey of Isabela Province (1969)	DANR
67.	Soil Survey of Nueva Vizcaya Province (1963)	DANR

68.	Land-Use Opportunity Map Philippine in support to the Implementation of E.O. 803, 1983 Land-Use (NE-51-5, -6, -9, -10, -13, -14, ND-51-02) Present Land-Use (NE-51-5, -6, -9, -10, -13, -14, ND-51-02) Land Capability Classes & Subclasses (NE-51-5, -6, -9, -10, -13, -14, ND-51-02)	
69.	Soil Map (Cagayan, Ifugao, Kalinga-Apayao Mountain, Qurino, Nueva Vizcaya 1/150,000, 1/250,000)	
70.	Regional Development (1978)	NEDA
71.	1984 Philippine Forestry Statistics	BFD
72.	Municipal Land-Use Inventory Map 1/40,000	
73.	Land-Use Map 1/1,000,000	
74.	Guidelines in the Preparation of Land-Use Control Map and Land-Use Inventory of Natural Resources (1975)	DNR
75.	Annual Climatological Review of 1971	PAGASA
76.	Annual Climatological Review of 1972	PAGASA
77.	Annual Climatological Review of 1973	PAGASA
78.	Annual Climatological Review of 1974	PAGASA
79.	Annual Climatological Review of 1975	PAGASA
80.	Climatological Data Region I, II, III, IV 1982	PAGASA
81.	The Climates of the Philippines	PAGASA
82.	Tropical Cyclone Summaries from 1948 to 1978	PAGASA
83.	The Philippines Recommends for Citrus	PCARRD
84.	The Philippines Recommends for Beef Cattle Production 1976	PCARRD
85.	The Philippines Recommends for Rubber 1977	PCARRD
86.	The Philippines Recommends for Cacao 1979	PCARRD
87.	The Philippines Recommends for Integrated Farming Systems (1976)	PCARRD
88.	The Philippines Recommends for Soybean 1976	PCARRD
89.	The Philippines Recommends for Pineapple 1977	PCARRD
90.	The Philippines Recommends for Vegetable Crops 1975	PCARRD
91.	Philippines Land Ver Tebrates (A College Textbook)	
92.	Region I Ilocos Norte, Abra, Ilocos Sur, Mountain Province Benguet, La Union and Pangasinan	
93.	Medicinal Plants of the Cordillera Region (1984)	CHESTCORE
94.	A Database on Shifting Cultivation, Agroforestry & Social forestry	
95.	The Philippines Recommends for Reforestation	
96.	The Philippines Recommends for Rattan	
97.	The Philippines Recommends for Bamboo	
98.	The Philippines Recommends for Dipterocarps	
99.	Guide Book to Grassland Plants	
100.	Agroecosystem Analysis for Research and Development	
101.	Scientia Filipinas, vol 2, No. 2, 11, 1982	
102.	Scientia Filipinas, vol 3, No. 1, 1, 1983	
103.	Forest Management	
104.	Charcoal	AGRIX, How to series 26
105.	Rambutan	AGRIX, How to series 41
106.	A Home Orchard	AGRIX, How to series 38
107.	Citrus Culture	AGRIX, How to series 15

108.	Aids in Orchard Site Selection the Philippines	AGRIX, How to series 37
109.	Sorghum Production Manual	AGRIX, How to series 45
110.	Raise Vine Vegetables	AGRIX, How to series 44
111.	Multiple Cropping Means More Money	AGRIX, How to series 5
112.	Growing Pineapple for the Fresh Fruit Market	AGRIX, How to series 30
113.	Ranching Ideas That Work	AGRIX, How to series 16
114.	Forestland Evaluation for Integrated Land Use Planning	
115.	Regional Volume Equations and Tables for Philippine Timber Species	
116.	Magat Smallholder Agroforestry Pilot Project	
117.	Submission of Annual Report for CY1987 of Tabciar Site, Aritao and Dupax Del Sur	
118.	Forest Resources of Region 2, 1987	BFD, DENR

