

Table C.5.10(1) Inventory of Major Damagable Assets in Potential Flood Area of 2 Year Return Period: 1996

Item	Probable Flood Area Total	Tangid Laog	Suyo Laog	Poblacion of Laog		Camangaun Laog	Poblacion of San Nicolas	San Manuel Sarat		San Felipe Sarat		Sto. Tomas Sarat		San Marcos Sarat	
				Laog	Laog			Manuel Sarat	Manuel Sarat	Manuel Sarat	Manuel Sarat	Manuel Sarat	Manuel Sarat		
1. Target Area (km <sup>2</sup> ) *1	128.0	1.3	0.3	0.3	0.3	1.8	1.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0
2. Living Quarters															
- Population	35,476	824	0	2,283	967	967	1,295	425	0	0	0	0	0	0	0
- Dwelling Units	6,916	165	0	459	99	99	266	90	0	0	0	0	0	0	0
3. Agricultural Lands (ha)															
- Irrigated Field	7,745	138	0	17	122	122	38	43	23	23	2	2	2	0	0
- Rainfed Field	7,598	138	0	17	122	122	38	18	23	23	0	0	0	0	0
- Rainfed Field	147	0	0	0	0	0	0	25	0	0	2	2	0	0	0
4. Industrial Establishment															
- Manufacturing Industry	165	6	0	32	5	5	8	7	0	0	0	0	0	0	0
- Manufacturing Industry	21	0	0	4	1	1	1	0	0	0	0	0	0	0	0
- Trading Industry	144	6	0	28	4	4	7	7	0	0	0	0	0	0	0
5. Infrastructure															
- Educational Facility	43	1	0	9	1	1	0	0	0	0	0	0	0	0	0
- Pre-school	7	1	0	2	0	0	0	0	0	0	0	0	0	0	0
- Elementary	29	0	0	4	1	1	0	0	0	0	0	0	0	0	0
- Secondary	5	0	0	1	0	0	0	0	0	0	0	0	0	0	0
- Tertiary	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
- Health Facility	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Hospital	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Rural Health Unit	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Barangay Health Station	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Road (km)	403.7	6.6	0.8	0.8	4.2	4.2	4.7	4.5	0.0	0.0	2.5	2.5	0.0	0.0	0.0
- Concrete	23.7	0.6	0.1	0.1	0.4	0.4	0.5	0.4	0.0	0.0	0.3	0.3	0.0	0.0	0.0
- Asphalt	10.9	0.2	0.0	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0
- Gravel	58.2	0.9	0.1	0.1	0.6	0.6	0.7	0.9	0.0	0.0	0.6	0.6	0.0	0.0	0.0
- Earth	310.9	4.9	0.6	0.6	3.1	3.1	3.4	3.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0

Source: Socio-Economic Profile, Ilocos Norte; Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Note: \*1 Excluding river area of 35 km<sup>2</sup> in total.

Table C.5.10(2) Inventory of Major Damageable Assets in Potential Flood Area of 2 Year Return Period: 1996

Item	San Cristobal		Guisit River/ Mandaloque	Suyo Dingras		Poblacion of Dingras	Cura River Basin		Solsona River Basin		Madongan River Basin		Papa River Basin		Lower Bongo		Upper Bongo	
	0.3	5.1		1.5	0.8		33.5	19.0	37.0	17.3	3.3	3.5						
1. Target Area (ha)	16	434	1,356	1,176	8,994	4,721	8,131	3,495	199	1,160								
- Population	3	89	275	231	1,803	919	1,583	682	38	214								
- Dwelling Units	5	176	100	32	2,229	1,333	2,014	1,218	64	191								
3. Agricultural Lands (ha)	0	175	83	32	2,201	1,297	2,009	1,190	64	191								
- Irrigated Field	5	1	17	0	28	36	5	28	0	0								
- Rainfed Field	0	1	4	1	32	23	27	13	0	6								
4. Industrial Establishment	0	0	0	0	5	7	1	2	0	0								
- Manufacturing Industry	0	1	4	1	27	16	26	11	0	6								
- Trading Industry	1	1	0	0	7	9	8	6	0	0								
5. Infrastructure	0	0	0	0	0	2	2	0	0	0								
- Educational Facility	1	1	0	0	0	2	2	0	0	0								
- Pre-school	1	1	0	0	7	5	5	5	0	0								
- Elementary	0	0	0	0	0	2	1	1	0	0								
- Secondary	0	0	0	0	0	0	0	0	0	0								
- Tertiary	0	0	0	0	3	2	2	0	1	1								
- Health Facility	0	0	0	0	0	0	0	0	0	0								
- Hospital	0	0	0	0	0	0	0	0	0	0								
- Rural Health Unit	0	0	0	0	0	1	0	0	0	0								
- Barangay Health Station	0	0	0	0	3	1	2	0	1	1								
- Road (km)	0.9	16.9	6.3	3.0	60.1	35.2	157.6	64.4	19.7	15.5								
- Concrete	0.1	0.7	0.4	0.2	4.1	2.4	6.7	4.3	0.9	1.5								
- Asphalt	0.0	-0.4	0.2	0.1	1.8	1.1	3.7	1.7	0.5	0.6								
- Gravel	0.2	2.3	1.1	0.5	10.0	6.0	22.1	7.5	2.7	1.9								
- Earth	0.6	13.5	4.6	2.3	44.1	25.7	125.1	50.9	15.6	11.6								

Source: Socio-Economic Profile, Ilocos Norte  
Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.11(1) Inventory of Major Damageable Assets in Potential Flood Area of 5 Year Return Period: 1996

Item	Probable Flood Area Total	Tangid Laoag	Suyo Laoag	Poblacion of Laoag	Camagaan Laoag	Poblacion of San Nicolas	San Manuel		San Felipe		Sto. Tomas		San Marcos	
							Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Target Area (km <sup>2</sup> ) *1	148.0	4.0	1.3	0.5	2.5	1.5	1.5	0.5	0.5	1.0	1.0	0.3	0.3	0.3
2. Living Quarters														
- Population	45,404	2,190	1,026	3,376	1,020	1,851	425	55	55	25	25	102	102	102
- Dwelling Units	8,967	433	185	684	203	374	90	11	11	5	5	20	20	20
3. Agricultural Lands (ha)														
- Irrigated Field	9,371	344	59	17	190	69	43	55	55	2	2	22	22	22
- Rainfed Field	9,209	344	59	17	190	69	18	55	55	0	0	14	14	14
- Rainfed Field	162	0	0	0	0	0	25	0	0	2	2	8	8	8
4. Industrial Establishment														
- Manufacturing Industry	228	15	7	41	8	10	7	4	4	1	1	3	3	3
- Manufacturing Industry	28	0	0	5	1	1	0	0	0	0	0	0	0	0
- Trading Industry	200	15	7	36	7	9	7	4	4	1	1	3	3	3
5. Infrastructure														
- Educational Facility	66	3	1	20	1	0	0	0	0	0	0	0	0	0
- Pre-school	15	2	0	5	0	0	0	0	0	0	0	0	0	0
- Elementary	40	1	1	9	1	0	0	0	0	0	0	0	0	0
- Secondary	8	0	0	3	0	0	0	0	0	0	0	0	0	0
- Tertiary	3	0	0	3	0	0	0	0	0	0	0	0	0	0
- Health Facility	17	0	1	2	1	0	0	0	0	0	0	0	0	0
- Hospital	3	0	0	1	1	0	0	0	0	0	0	0	0	0
- Rural Health Unit	2	0	0	0	0	0	0	0	0	0	0	0	0	0
- Barangay Health Station	12	0	1	1	0	0	0	0	0	0	0	0	0	0
- Road (km)	472.4	20.4	3.3	1.4	5.9	7.1	6.7	1.4	1.4	2.5	2.5	0.8	0.8	0.8
- Concrete	28.8	1.9	0.3	0.1	0.6	0.7	0.6	0.2	0.2	0.3	0.3	0.1	0.1	0.1
- Asphalt	13.0	0.6	0.1	0.1	0.2	0.2	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0
- Gravel	68.2	2.7	0.4	0.2	0.8	1.1	1.3	0.3	0.3	0.6	0.6	0.1	0.1	0.1
- Earth	362.5	15.1	2.5	1.0	4.3	5.1	4.4	0.8	0.8	1.5	1.5	0.6	0.6	0.6

Source: Socio-Economic Profile, Ilocos Norte; Data presented by DECS, DOH, BAS, DTL, Assessors in Provincial and Municipal Offices

Note: \*1 Excluding river area of 35 km<sup>2</sup> in total.

Table C.5.11(2) Inventory of Major Damageable Assets in Potential Flood Area of 5 Year Return Period: 1996

Item	San Cristobal		Gusit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin		Solsona River Basin		Madongan River Basin		Papa River Basin		Lower Bongo	Upper Bongo
	0.5	5.6				1.5	2.8	36.3	21.5	39.3	18.8	3.8	4.8		
1. Target Area (ha)	0.5	5.6	1.5	2.8	36.3	21.5	39.3	18.8	3.8	4.8					
2. Living Quarters															
- Population	40	691	1,438	3,267	10,231	5,358	8,605	3,926	280	1,498					
- Dwelling Units	8	137	291	642	2,065	1,045	1,678	767	54	275					
3. Agricultural Lands (ha)															
- Irrigated Field	25	238	122	256	2,550	1,484	2,194	1,302	98	301					
- Rainfed Field	18	237	105	256	2,521	1,448	2,189	1,270	98	301					
	7	1	17	0	29	36	5	32	0	0					
4. Industrial Establishment															
- Manufacturing Industry	2	7	5	7	35	24	30	14	1	7					
- Trading Industry	2	0	1	3	5	7	1	2	0	0					
	0	7	4	4	30	17	29	12	1	7					
5. Infrastructure															
- Educational Facility															
- Pre-school	2	1	2	4	8	9	9	6	0	0					
- Elementary	1	0	1	2	0	2	2	0	0	0					
- Secondary	1	1	0	2	8	5	6	5	0	0					
- Tertiary	0	0	1	0	0	2	1	1	0	0					
- Health Facility	0	0	0	0	0	0	0	0	0	0					
- Hospital	1	0	0	2	4	2	2	0	1	1					
- Rural Health Unit	0	0	0	1	0	0	0	0	0	0					
- Barangay Health Station	0	0	0	1	0	1	0	0	0	0					
- Road (km)	1	0	0	0	4	1	2	0	1	1					
- Concrete	1.5	18.5	6.3	10.5	65.1	39.8	167.4	70.0	22.6	21.2					
- Asphalt	0.2	0.8	0.4	0.5	4.4	2.8	7.2	4.7	1.0	2.0					
- Gravel	0.1	0.4	0.2	0.3	2.0	1.2	3.9	1.8	0.6	0.8					
- Earth	0.3	2.5	1.1	1.8	10.8	6.8	23.5	8.2	3.1	2.6					
	0.9	14.8	4.6	7.9	47.8	29.1	132.8	55.3	17.9	15.9					

Source: Socio-Economic Profile, Ilocos Norte  
Data presented by DECS, DOI, BAS, DTT, Assessors in Provincial and Municipal Offices

Table C.S.12(1) Inventory of Major Damageable Assets in Potential Flood Area of 10 Year Return Period: 1996

Item	Probable Flood Area Total	Tangid Laog	Suvo Laog	Poblacion of Laog	Camangaan Laog	Poblacion of San Nicolas	San Manuel		San Felipe		San Tomas		San Marcos	
							Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Target Area (km <sup>2</sup> ) *1	159.5	5.5	1.5	1.0	2.5	1.8	1.8	0.8	1.3	0.3				
2. Living Quarters														
- Population	50,826	3,338	1,054	3,376	1,020	2,596	573	130	76	102				
- Dwelling Units	10,050	663	191	684	203	526	119	26	15	20				
3. Agricultural Lands (ha)														
- Irrigated Field	9,982	382	77	40	207	74	55	72	37	22				
- Rainfed Field	9,796	382	77	40	207	74	24	72	35	14				
	186	0	0	0	0	0	31	0	2	8				
4. Industrial Establishment														
- Manufacturing Industry	265	24	7	41	9	15	8	12	4	3				
- Trading Industry	33	0	0	5	1	3	0	0	0	0				
	232	24	7	36	8	12	8	12	4	3				
5. Infrastructure														
- Educational Facility	76	3	1	22	1	2	0	0	0	0				
Pre-school	18	2	0	6	0	1	0	0	0	0				
Elementary	44	1	1	9	1	0	0	0	0	0				
Secondary	11	0	0	4	0	1	0	0	0	0				
Tertiary	3	0	0	3	0	0	0	0	0	0				
- Health Facility	18	0	1	3	1	0	0	0	0	0				
Hospital	3	0	0	1	1	0	0	0	0	0				
Rural Health Unit	3	0	0	1	0	0	0	0	0	0				
Barangay Health Station	12	0	1	1	0	0	0	0	0	0				
- Road (km)	514.1	28.1	3.8	2.8	5.9	8.5	8.1	2.2	3.3	0.8				
Concrete	31.7	2.6	0.4	0.3	0.6	0.8	0.7	0.3	0.4	0.1				
Asphalt	14.2	0.9	0.1	0.1	0.2	0.3	0.4	0.1	0.1	0.0				
Gravel	74.7	3.7	0.5	0.4	0.8	1.3	1.6	0.4	0.7	0.1				
Earth	393.6	20.8	2.9	2.0	4.3	6.1	5.3	1.3	2.0	0.6				

Source: Socio-Economic Profile, Ilocos Norte; Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Note: \*1 Excluding river area of 35 km<sup>2</sup> in total.

Table C.5.12(2) Inventory of Major Damagable Assets in Potential Flood Area of 10 Year Return Period: 1996

Item	San Cristobal		Guisit River/ Mandalocque		Suyo Dingras		Poblacion of Dingras		Cura River Basin		Solsona River Basin		Madongan River Basin		Papa River Basin		Lower Bongo		Upper Bongo	
	0.8	6.3	2.0	4.8	37.5	22.3	41.3	19.0	4.0	5.0										
1. Target Area (ha)	0.8	6.3	2.0	4.8	37.5	22.3	41.3	19.0	4.0	5.0										
2. Living Quarters																				
- Population	73	917	2,317	4,228	10,552	5,358	8,745	4,494	379	1,498										
- Dwelling Units	15	182	465	832	2,130	1,045	1,707	880	72	275										
3. Agricultural Lands (ha)																				
- Irrigated Field	43	311	139	319	2,634	1,501	2,296	1,336	111	326										
- Rainfed Field	18	310	122	319	2,605	1,465	2,291	1,304	111	326										
	25	1	17	0	29	36	5	32	0	0										
4. Industrial Establishment																				
- Manufacturing Industry	3	11	6	7	36	24	30	16	2	7										
- Trading Industry	3	1	2	3	5	7	1	2	0	0										
	0	10	4	4	31	17	29	14	2	7										
5. Infrastructure																				
- Educational Facility	3	3	2	5	8	9	10	6	0	1										
Pre-school	1	1	1	2	0	2	2	0	0	0										
Elementary	2	1	0	3	8	5	7	5	0	1										
Secondary	0	1	1	0	0	2	1	1	0	0										
Tertiary	0	0	0	0	0	0	0	0	0	0										
- Health Facility	1	0	0	2	4	2	2	0	1	1										
Hospital	0	0	0	1	0	0	0	0	0	0										
Rural Health Unit	0	0	0	1	0	1	0	0	0	0										
Barangay Health Station	1	0	0	0	4	1	2	0	1	1										
- Road (km)	2.5	20.9	8.4	18.0	67.2	41.3	175.9	70.7	23.8	22.1										
Concrete	0.3	0.9	0.5	0.9	4.6	2.9	7.5	4.7	1.1	2.1										
Asphalt	0.1	0.5	0.3	0.5	2.0	1.2	4.1	1.8	0.6	0.8										
Gravel	0.5	2.8	1.5	3.1	11.2	7.0	24.7	8.3	3.3	2.7										
Earth	1.5	16.6	6.1	13.5	49.4	30.1	139.6	55.9	18.9	16.5										

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DII, Assessors in Provincial and Municipal Offices

Table C.S.13(1) Inventory of Major Damagcable Assets in Potential Flood Area of 25 Year Return Period: 1996

Item	Probable Flood Area Total	Tangid Laoag	Suyo Laoag	Poblacion of Laoag	Camangaan Laoag	Poblacion of San Nicolas	San Manuel		San Felipe		Sto. Tomas		San Marcos	
							Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Target Area (km <sup>2</sup> ) *1	172.9	6.0	2.0	1.3	4.8	2.3	5.5	1.0	1.5	0.3				
2. Living Quarters														
- Population	61,118	3,945	1,054	5,149	2,039	5,835	1,339	182	107	102				
- Dwelling Units	12,113	780	191	1,043	406	1,189	274	36	21	20				
3. Agricultural Lands (ha)														
- Irrigated Field	10,988	432	120	45	379	96	395	111	42	22				
- Rainfed Field	10,789	432	120	45	379	96	356	111	35	14				
	199	0	0	0	0	0	39	0	7	8				
4. Industrial Establishment														
- Manufacturing Industry	365	28	7	55	22	47	23	18	5	3				
- Trading Industry	54	0	0	5	2	21	2	0	0	0				
	311	28	7	50	20	26	21	18	5	3				
5. Infrastructure														
- Educational Facility	85	3	1	25	2	5	0	0	0	0				
Pre-school	21	2	0	7	0	2	0	0	0	0				
Elementary	48	1	1	10	2	1	0	0	0	0				
Secondary	13	0	0	5	0	2	0	0	0	0				
Tertiary	3	0	0	3	0	0	0	0	0	0				
- Health Facility	21	1	1	4	1	1	0	0	0	0				
Hospital	4	0	0	2	1	0	0	0	0	0				
Rural Health Unit	3	0	0	1	0	0	0	0	0	0				
Barangay Health Station	14	1	1	1	0	1	0	0	0	0				
- Road (km)	559.9	30.6	5.1	3.6	11.3	10.8	24.6	2.7	3.8	0.8				
Concrete	35.4	2.9	0.5	0.3	1.1	1.0	2.2	0.3	0.4	0.1				
Asphalt	16.0	1.0	0.2	0.2	0.3	0.3	1.3	0.2	0.2	0.0				
Gravel	82.1	4.1	0.6	0.5	1.5	1.6	4.8	0.6	0.9	0.1				
Earth	426.4	22.7	3.8	2.6	8.3	7.8	16.3	1.7	2.3	0.6				

Source: Socio-Economic Profile, Ilocos Norte; Data presented by DECS, DOH, EAS, DTI, Assessors in Provincial and Municipal Offices

Note: \*1 Excluding river area of 35 km<sup>2</sup> in total.

Table C.5.13(2) Inventory of Major Damagable Assets in Potential Flood Area of 25 Year Return Period: 1996

Item	San	Guait	Suyo	Poblacion	Cura	Solsona	Madongan	Papa	Lower	Upper
	Cristobal Sarral	River/ Mandaloque	Dingras	of Dingras	River Basin	River Basin	River Basin	River Basin	Bongo	Bongo
1. Target Area (ha)	0.8	7.3	2.0	5.5	39.0	22.8	41.8	19.5	4.0	5.5
2. Living Quarters										
- Population	73	1,058	2,317	4,228	11,115	7,152	8,764	4,651	480	1,528
- Dwelling Units	15	208	465	832	2,243	1,396	1,711	910	92	281
3. Agricultural Lands (ha)										
- Irrigated Field	43	333	139	344	2,748	1,551	2,312	1,383	145	348
- Rainfed Field	18	332	122	344	2,719	1,515	2,307	1,351	145	348
	25	1	17	0	29	36	5	32	0	0
4. Industrial Establishment										
- Manufacturing Industry	3	16	6	7	38	31	30	16	3	7
- Trading Industry	3	1	2	3	5	7	1	2	0	0
	0	15	4	4	33	24	29	14	3	7
5. Infrastructure										
- Educational Facility	3	3	2	6	9	9	10	6	0	1
Pre-school	1	1	1	2	1	2	2	0	0	0
Elementary	2	1	0	4	8	5	7	5	0	1
Secondary	0	1	1	0	0	2	1	1	0	0
Tertiary	0	0	0	0	0	0	0	0	0	0
- Health Facility	1	0	0	2	4	2	2	0	1	1
Hospital	0	0	0	1	0	0	0	0	0	0
Rural Health Unit	0	0	0	1	0	1	0	0	0	0
Barangay Health Station	1	0	0	0	4	1	2	0	1	1
- Road (km)	2.5	24.2	8.4	20.6	69.9	42.2	178.0	72.6	23.8	24.3
Concrete	0.3	1.1	0.5	1.0	4.8	2.9	7.6	4.8	1.1	2.3
Asphalt	0.1	0.6	0.3	0.5	2.1	1.3	4.1	1.9	0.6	0.9
Gravel	0.5	3.3	1.5	3.6	11.7	7.2	25.0	8.5	3.3	2.9
Earth	1.5	19.3	6.1	15.5	51.4	30.8	141.3	57.4	18.9	18.2

Source: Socio-Economic Profile, Ilocos Norte  
Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices



Table C.5.1-4(1) Inventory of Major Damageable Assets in Potential Flood Area of 50 Year Return Period: 1996

Item	Probable Flood Area Total		Tangid Laoag	Suyo Laoag	Poblacion of Laoag		Camangaan Laoag	Poblacion of San Nicolas		San Manuel Sarrat		San Felipe Sarrat		Sto. Tomas Sarrat		San Marcos Sarrat	
	189.9				10.5	2.3		1.5	6.3	5.8	5.5	1.3	1.5	0.3			
1. Target Area (km <sup>2</sup> ) *1																	
2. Living Quarters	72,768		8,428	1,528	5,149	2,404	10,499	1,339	182	107	102						
- Population	14,432		1,680	271	1,043	477	2,144	274	36	21	20						
- Dwelling Units	12,340		803	125	50	515	448	395	111	42	22						
3. Agricultural Lands (ha)	12,084		803	125	50	503	413	356	111	35	14						
- Irrigated Field	256		0	0	0	12	35	39	0	7	8						
- Rainfed Field	452		61	13	55	27	88	23	18	5	3						
4. Industrial Establishment	72		0	0	5	2	37	2	0	0	0						
- Manufacturing Industry	380		61	13	50	25	51	21	18	5	3						
- Trading Industry																	
5. Infrastructure	98		6	2	29	3	7	0	0	0	0						
- Educational Facility	24		3	0	8	0	2	0	0	0	0						
- Pre-school	54		3	1	11	2	3	0	0	0	0						
- Elementary	16		0	1	6	1	2	0	0	0	0						
- Secondary	4		0	0	4	0	0	0	0	0	0						
- Tertiary	24		2	1	4	1	2	0	0	0	0						
- Health Facility	6		1	0	2	1	1	0	0	0	0						
- Hospital	3		0	0	1	1	1	0	0	0	0						
- Rural Health Unit	15		1	1	1	0	0	0	0	0	0						
- Barangay Health Station	630.6		53.6	5.9	4.2	14.8	27.3	24.6	3.5	3.8	0.8						
- Road (km)	41.4		5.0	0.6	0.4	1.5	2.6	2.2	0.4	0.4	0.1						
- Concrete	18.2		1.7	0.2	0.2	0.5	0.9	1.3	0.2	0.2	0.0						
- Asphalt	92.2		7.1	0.7	0.6	1.9	4.1	4.8	0.7	0.9	0.1						
- Gravel	478.8		39.7	4.4	3.0	10.9	19.7	16.3	2.2	2.3	0.6						
- Earth																	

Source: Socio-Economic Profile, Ilocos Norte; Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices.

Note: \*1 Excluding river area of 35 km<sup>2</sup> in total.

Table C.S.1.4(2) Inventory of Major Damagable Assets in Potential Flood Area of 50 Year Return Period: 1996

Item	San Cristobal		Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin		Solsona River Basin		Madongan River Basin		Papa River Basin		Lower Bongo	Upper Bongo
	0.8	7.3				2.0	7.8	39.8	23.0	42.8	19.8	4.3	7.3		
1. Target Area (ha)															
2. Living Quarters															
- Population	73	1,058	2,317	5,283	11,115	7,152	8,918	4,769	1,865						
- Dwelling Units	15	208	465	1,031	2,243	1,396	1,741	934	341						
3. Agricultural Lands (ha)															
- Irrigated Field	43	333	139	561	2,765	1,551	2,377	1,423	467						
- Rainfed Field	18	332	122	561	2,736	1,515	2,362	1,391	467						
	25	1	17	0	29	36	15	32	0						
4. Industrial Establishment															
- Manufacturing Industry	3	16	6	9	38	31	30	16	7						
- Trading Industry	3	1	2	5	5	7	1	2	0						
	0	15	4	4	33	24	29	14	3						
5. Infrastructure															
- Educational Facility															
Pre-school	3	3	2	7	10	9	10	6	1						
Elementary	1	1	1	2	2	2	2	0	0						
Secondary	2	1	0	5	8	5	7	5	1						
Tertiary	0	1	1	0	0	2	1	1	0						
- Health Facility															
Hospital	0	0	0	3	4	2	2	0	1						
Rural Health Unit	0	0	0	1	0	0	0	0	0						
Barangay Health Station	1	0	0	1	4	1	2	0	0						
- Road (km)	2.5	24.2	8.4	29.3	71.4	42.6	182.3	73.7	25.6						
Concrete	0.3	1.1	0.5	1.5	4.9	2.9	7.8	4.9	1.2						
Asphalt	0.1	0.6	0.3	0.7	2.2	1.3	4.2	1.9	0.6						
Gravel	0.5	3.3	1.5	5.1	11.9	7.3	25.6	8.6	3.5						
Earth	1.5	19.3	6.1	22.0	52.4	31.1	144.7	58.2	20.3						

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.15(1) Inventory of Major Damageable Assets in Potential Flood Area of 100 Year Return Period: 1996

Item	Probable Flood Area Total	Targid Laog	Suvo Laog	Poblacion Laog	Camangan Laog	Poblacion of San Nicolas	San Manuel		San Felipe		San Tomas		San Marcos	
							Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Target Area (km <sup>2</sup> ) *1	202.2	13.0	2.3	1.8	7.8	8.3	6.5	1.3	1.8	0.3				
2. Living Quarters														
- Population	78,858	9,758	1,528	5,149	2,404	12,730	2,416	258	156	102				
- Dwelling Units	15,630	1,938	271	1,043	477	2,588	485	51	31	20				
3. Agricultural Lands (ha)														
- Irrigated Field	13,222	966	125	50	636	571	484	125	64	22				
- Rainfed Field	12,934	966	125	50	619	531	445	125	35	14				
	288	0	0	0	17	40	39	0	29	8				
4. Industrial Establishment														
- Manufacturing Industry	511	71	13	55	29	114	31	27	6	3				
- Trading Industry	87	0	0	5	2	51	3	0	0	0				
	424	71	13	50	27	63	28	27	6	3				
5. Infrastructure														
- Educational Facility	107	7	2	29	4	11	1	1	0	0				
- Pre-school	26	3	0	8	0	4	0	0	0	0				
- Elementary	61	4	1	11	3	5	1	1	0	0				
- Secondary	16	0	1	6	1	2	0	0	0	0				
- Tertiary	4	0	0	4	0	0	0	0	0	0				
- Health Facility	29	3	1	4	1	4	0	1	0	0				
- Hospital	6	1	0	2	1	1	0	0	0	0				
- Rural Health Unit	4	0	0	1	0	1	0	0	0	0				
- Barangay Health Station	19	2	1	1	0	2	0	1	0	0				
- Road (km)	675.6	66.3	5.9	5.0	18.3	39.0	29.1	3.5	4.5	0.8				
- Concrete	45.3	6.2	0.6	0.5	1.8	3.7	2.6	0.4	0.5	0.1				
- Asphalt	19.7	2.1	0.2	0.2	0.6	1.2	1.6	0.2	0.2	0.0				
- Gravel	98.9	8.8	0.7	0.7	2.4	5.8	5.7	0.7	1.0	0.1				
- Earth	511.8	49.1	4.4	3.6	13.5	28.2	19.2	2.2	2.8	0.6				

Source: Socio-Economic Profile, Ilocos Norte; Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Note: \*1 Excluding river area of 35 km<sup>2</sup> in total.

Table C.5.15(2) Inventory of Major Damageable Assets in Potential Flood Area of 100 Year Return Period: 1996

Item	San Cristobal	Sarrat	Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Gura River Basin	Solsona River Basin	Madongan River Basin	Papa River Basin	Lower Bongo	Upper Bongo
1. Target Area (ha)	0.8		7.6	2.0	7.8	40.0	25.5	43.8	20.0	4.3	7.3
2. Living Quarters											
- Population	73		1,286	2,317	5,283	11,115	7,811	9,358	4,769	480	1,865
- Dwelling Units	15		256	465	1,031	2,243	1,520	1,829	934	92	341
3. Agricultural Lands (ha)											
- Irrigated Field	43		349	139	561	2,765	1,748	2,491	1,446	170	467
- Rainfed Field	18		348	122	561	2,736	1,712	2,476	1,414	170	467
	25		1	17	0	29	36	15	32	0	0
4. Industrial Establishment											
- Manufacturing Industry	3		17	6	9	38	33	30	16	3	7
- Trading Industry	3		1	2	5	5	7	1	2	0	0
	0		16	4	4	33	26	29	14	3	7
5. Infrastructure											
- Educational Facility											
- Pre-school	3		3	2	7	10	9	11	6	0	1
- Elementary	1		1	1	2	2	2	2	0	0	0
- Secondary	2		1	0	5	8	5	8	5	0	1
- Tertiary	0		1	1	0	0	2	1	1	0	0
- Health Facility	0		0	0	0	0	0	0	0	0	0
- Hospital	1		0	0	3	4	2	2	1	1	1
- Rural Health Unit	0		0	0	1	0	0	0	0	0	0
- Barangay Health Station	0		0	0	1	0	1	0	0	0	0
- Road (km)	1		0	0	1	4	1	2	1	1	1
- Concrete	2.5		25.2	8.4	29.3	71.7	47.2	186.5	74.4	25.6	32.3
- Asphalt	0.3		1.1	0.5	1.5	4.9	3.3	8.0	5.0	1.2	3.1
- Gravel	0.1		0.6	0.3	0.7	2.2	1.4	4.3	1.9	0.6	1.2
- Earth	0.5		3.4	1.5	5.1	12.0	8.1	26.2	8.7	3.5	3.9
	1.5		20.1	6.1	22.0	52.7	34.5	148.0	58.8	20.3	24.1

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DIL Assessors in Provincial and Municipal Offices

Table C.5.16(1) Present Value of Major Damagable Assets in Potential Flood Area of 2 Year Return Period

Item	Probable Flood Area Total	Tangid Laog	Suyo Laog	Poblacion of Laog	Camangaan Laog	Poblacion of San Nicolas		San Manuel		San Felipe		Sto. Tomas		San Marcos		Sarrat	
						Laog	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat		
1. Total Value	1,340.0	28.9	0.2	64.3	21.0	29.1	12.6	1.6	1.0	-	-	-	-	-	-	-	-
2. Living Quarters	608.6	14.5	-	40.4	8.7	23.4	7.9	-	-	-	-	-	-	-	-	-	-
- Housing Units	345.8	8.3	-	23.0	5.0	13.3	4.5	-	-	-	-	-	-	-	-	-	-
- Household Effects	262.8	6.3	-	17.4	3.8	10.1	3.4	-	-	-	-	-	-	-	-	-	-
3. Crop Production	160.7	2.9	-	0.4	2.5	0.8	0.7	0.5	0.0	-	-	-	-	-	-	-	-
- Irrigated Fields	158.6	2.9	-	0.4	2.5	0.8	0.4	0.5	-	-	-	-	-	-	-	-	-
- Reinifed Fields	2.0	-	-	-	-	-	0.3	-	0.0	-	-	-	-	-	-	-	-
4. Industrial Establishment:	34.9	1.4	-	6.8	1.0	1.7	1.6	-	-	-	-	-	-	-	-	-	-
- Manufacturing Industry	2.5	-	-	0.5	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-
- Trading Industry	32.4	1.4	-	6.3	0.9	1.6	1.6	-	-	-	-	-	-	-	-	-	-
5. Infrastructure	535.8	10.2	0.2	16.8	8.7	3.2	2.4	1.1	0.9	-	-	-	-	-	-	-	-
- Social Infrastructure	79.2	1.8	-	15.8	1.8	-	-	-	-	-	-	-	-	-	-	-	-
a Educational Facility	75.3	1.8	-	15.8	1.8	-	-	-	-	-	-	-	-	-	-	-	-
- Pre-school	12.3	1.8	-	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-
- Elementary	50.8	-	-	7.0	1.8	-	-	-	-	-	-	-	-	-	-	-	-
- Secondary	8.8	-	-	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-
- Tertiary	3.5	-	-	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-
b Health Facility	3.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Hospital	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Rural Health Unit	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Barangay Health Station	2.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
- Physical Infrastructure	456.7	8.4	0.2	1.1	7.0	3.2	2.4	1.1	0.9	-	-	-	-	-	-	-	-
a Road	101.1	2.0	0.2	0.3	1.3	1.4	1.5	-	0.9	-	-	-	-	-	-	-	-
- Concrete	31.8	0.8	0.1	0.1	0.6	0.6	0.5	-	0.4	-	-	-	-	-	-	-	-
- Asphalt	13.6	0.3	0.0	0.0	0.2	0.2	0.3	-	0.1	-	-	-	-	-	-	-	-
- Gravel	28.1	0.4	0.0	0.1	0.3	0.3	0.4	-	0.3	-	-	-	-	-	-	-	-
- Earth	27.6	0.4	0.1	0.1	0.3	0.3	0.3	-	0.1	-	-	-	-	-	-	-	-
b Irrigation Facility	355.6	6.5	-	0.8	5.7	1.8	0.8	1.1	-	-	-	-	-	-	-	-	-

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.16(2) Present Value of Major Damageable Assets in Potential Flood Area of 2 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	San Cristobal		Guisit	Suyo	Poblacion of Dingras		Cura	Solsona	Madongan	Papa	Lower	Upper
	Sarrat	Mandaloque	River/	Dingras	Dingras	Dingras	River	River	River	River	Bongo	Bongo
							Basin	Basin	Basin	Basin		
1. Total Value	2.4	25.5	25.5	32.7	23.5	344.5	200.5	331.4	170.1	12.5	38.1	
2. Living Quarters	0.5	7.8	7.8	24.2	20.3	158.7	80.9	139.3	60.0	3.3	18.8	
- Housing Units	0.2	4.5	4.5	13.8	11.6	90.2	46.0	79.2	34.1	1.9	10.7	
- Household Effects	0.1	3.4	3.4	10.5	8.8	68.5	34.9	60.2	25.9	1.4	8.1	
3. Crop Production	0.1	3.7	3.7	2.0	0.7	46.3	27.6	42.0	25.2	1.3	4.0	
- Irrigated Fields	-	3.7	3.7	1.7	0.7	46.0	27.1	41.9	24.8	1.3	4.0	
- Reinfed Fields	0.1	0.0	0.0	0.2	-	0.4	0.5	0.1	0.4	-	-	
4. Industrial Establishment	-	0.2	0.2	0.9	0.2	6.7	4.4	6.0	2.7	-	1.4	
- Manufacturing Industry	-	-	-	-	-	0.6	0.8	0.1	0.2	-	-	
- Trading Industry	-	0.2	0.2	0.9	0.2	6.1	3.6	5.9	2.5	-	1.4	
5. Infrastructure	2.1	13.7	13.7	5.6	2.2	132.9	87.6	144.1	82.2	7.9	13.9	
- Social Infrastructure	1.8	1.8	1.8	-	-	13.3	17.2	14.7	10.5	0.4	0.4	
a Educational Facility	1.8	1.8	1.8	-	-	12.3	15.8	14.0	10.5	-	-	
Pre-school	-	-	-	-	-	-	3.5	3.5	-	-	-	
Elementary	1.8	1.8	1.8	-	-	12.3	8.8	8.8	8.8	-	-	
Secondary	-	-	-	-	-	-	3.5	1.8	1.8	-	-	
Tertiary	-	-	-	-	-	-	-	-	-	-	-	
b Health Facility	-	-	-	-	-	1.1	1.4	0.7	-	0.4	0.4	
Hospital	-	-	-	-	-	-	-	-	-	-	-	
Rural Health Unit	-	-	-	-	-	-	1.0	-	-	-	-	
Barangay Health Station	-	-	-	-	-	1.1	0.4	0.7	-	0.4	0.4	
- Physical Infrastructure	0.4	12.0	12.0	5.6	2.2	119.5	70.5	129.4	71.7	7.5	13.6	
a Road	0.4	3.8	3.8	1.7	0.7	16.5	9.8	35.4	16.0	4.5	4.6	
Concrete	0.2	1.0	1.0	0.5	0.2	5.5	3.3	9.1	5.8	1.2	2.0	
Asphalt	0.0	0.5	0.5	0.2	0.1	2.3	1.3	4.6	2.1	0.6	0.7	
Gravel	0.1	1.1	1.1	0.5	0.2	4.8	2.9	10.7	3.6	1.3	0.9	
Earth	0.0	1.2	1.2	0.4	0.2	3.9	2.3	11.1	4.5	1.4	1.0	
b Irrigation Facility	-	8.2	8.2	3.9	1.5	103.0	60.7	94.0	55.7	3.0	8.9	

Source: Socio-Economic Profile, Ilocos Norte

Data presented by D/CS, DOI, BAS, DTL, Assessors in Provincial and Municipal Offices

Table C.S.17(1) Present Value of Major Damageable Assets in Potential Flood Area of 5 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	Probable Flood Area Total	Tangid Laoag	Suyo Laoag	Poblacion of Laoag		Camuangan Laoag	Poblacion of San Nicolas		Manupal Sarat	Felipe Sarat	Sto. Tomas Sarat		San Marcos Sarat
				Poblacion Laoag	Poblacion Laoag		Manupal Sarat	Felipe Sarat			Sto. Tomas Sarat	San Marcos Sarat	
1. Total Value	1,751.9	76.0	24.9	121.5	51.6	41.9	13.3	6.1	1.6	3.7			
2. Living Quarters	789.1	38.1	16.3	60.2	17.9	32.9	7.9	1.0	0.4	1.8			
- Housing Units	448.4	21.7	9.3	34.2	10.2	18.7	4.5	0.6	0.3	1.0			
- Household Effects	340.7	16.5	7.0	26.0	7.7	14.2	3.4	0.4	0.2	0.8			
3. Crop Production	194.5	7.2	1.2	0.4	4.0	1.4	0.7	1.1	0.0	0.4			
- Irrigated Fields	192.3	7.2	1.2	0.4	4.0	1.4	0.4	1.1	-	0.3			
- Reinfed Fields	2.2	-	-	-	-	-	0.3	-	0.0	0.1			
4. Industrial Establishment	48.3	3.4	1.6	8.7	1.7	2.1	1.6	0.9	0.2	0.7			
- Manufacturing Industry	3.3	-	-	0.6	0.1	0.1	-	-	-	-			
- Trading Industry	45.0	3.4	1.6	8.1	1.6	2.0	1.6	0.9	0.2	0.7			
5. Infrastructure	719.9	27.4	5.8	52.3	28.1	5.4	3.1	3.1	0.9	0.9			
- Social Infrastructure	169.0	5.3	2.1	51.1	17.5	-	-	-	-	-			
a Educational Facility	115.5	5.3	1.8	35.0	1.8	-	-	-	-	-			
Pre-school	26.3	3.5	-	8.8	-	-	-	-	-	-			
Elementary	70.0	1.8	1.8	15.8	1.8	-	-	-	-	-			
Secondary	14.0	-	-	5.3	-	-	-	-	-	-			
Tertiary	5.3	-	-	5.3	-	-	-	-	-	-			
b Health Facility	53.5	-	0.4	16.1	15.7	-	-	-	-	-			
Hospital	47.1	-	-	15.7	15.7	-	-	-	-	-			
Rural Health Unit	2.1	-	-	-	-	-	-	-	-	-			
Barangay Health Station	4.4	-	0.4	0.4	-	-	-	-	-	-			
- Physical Infrastructure	550.9	22.1	3.7	1.2	10.7	5.4	3.1	3.1	0.9	0.9			
a Road	119.9	6.0	1.0	0.4	1.8	2.1	2.3	0.5	0.9	0.2			
Concrete	38.7	2.6	0.4	0.2	0.8	0.9	0.8	0.2	0.4	0.1			
Asphalt	16.2	0.8	0.1	0.1	0.2	0.3	0.4	0.1	0.1	0.0			
Gravel	32.9	1.3	0.2	0.1	0.4	0.5	0.6	0.1	0.3	0.0			
Earth	32.2	1.3	0.2	0.1	0.4	0.5	0.4	0.1	0.1	0.1			
b Irrigation Facility	431.0	16.1	2.8	0.8	8.9	3.2	0.8	2.6	-	0.7			

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.17(2) Present Value of Major Damageable Assets in Potential Flood Area of 5 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	San Cristobal		Guisit River/ Mandalogue		Suyo Dingras		Poblacion of Dingras		Cura River Basin		Solsona River Basin		Madongan River Basin		Papa River Basin		Lower Bongo		Upper Bongo	
	Cristobal	Sarrat	River/ Mandalogue	Dingras	Dingras	Dingras	Dingras	Dingras	River Basin	River Basin	River Basin	River Basin	River Basin	River Basin	River Basin	River Basin	Bongo	Bongo	Bongo	Bongo
1. Total Value	6.7	35.6	39.2	101.4	393.4	223.3	356.6	184.7	17.2	52.9										
2. Living Quarters	0.7	12.1	25.6	56.5	181.7	92.0	147.7	67.5	4.8	24.2										
- Housing Units	0.4	6.9	14.6	32.1	103.3	52.3	83.9	38.4	2.7	13.8										
- Household Effects	0.3	5.2	11.1	24.4	78.5	39.7	63.8	29.1	2.1	10.5										
3. Crop Production	0.5	5.0	2.4	5.3	53.0	30.7	45.8	27.0	2.0	6.3										
- Irrigated Fields	0.4	4.9	2.2	5.3	52.6	30.2	45.7	26.5	2.0	6.3										
- Reinfed Fields	0.1	0.0	0.2	-	0.4	0.5	0.1	0.4	-	-										
4. Industrial Establishment	0.2	1.6	1.0	1.3	7.3	4.7	6.6	2.9	0.2	1.6										
- Manufacturing Industry	0.2	-	0.1	0.4	0.6	0.8	0.1	0.2	-	-										
- Trading Industry	-	1.6	0.9	0.9	6.8	3.8	6.5	2.7	0.2	1.6										
5. Infrastructure	5.3	17.0	10.2	38.3	151.3	96.0	156.5	87.3	10.1	20.8										
- Social Infrastructure	3.9	1.8	3.5	23.7	15.5	17.2	16.5	10.5	0.4	0.4										
a Educational Facility	3.5	1.8	3.5	7.0	14.0	15.8	15.8	10.5	-	-										
- Pre-school	1.8	-	1.8	3.5	-	3.5	3.5	-	-	-										
- Elementary	1.8	1.8	-	3.5	14.0	8.8	10.5	8.8	-	-										
- Secondary	-	-	1.8	-	-	3.5	1.8	1.8	-	-										
- Tertiary	-	-	-	-	-	-	-	-	-	-										
b Health Facility	0.4	-	-	16.7	1.5	1.4	0.7	-	0.4	0.4										
- Hospital	-	-	-	15.7	-	-	-	-	-	-										
- Rural Health Unit	-	-	-	1.0	-	1.0	-	-	-	-										
- Barangay Health Station	0.4	-	-	-	1.5	0.4	0.7	-	0.4	0.4										
- Physical Infrastructure	1.4	15.3	6.7	14.6	135.9	78.8	140.0	76.8	9.8	20.4										
a Road	0.6	4.2	1.7	2.6	17.9	11.1	37.6	17.4	5.2	6.4										
- Concrete	0.3	1.1	0.5	0.7	6.0	3.7	9.6	6.3	1.4	2.8										
- Asphalt	0.1	0.6	0.2	0.3	2.5	1.5	4.8	2.3	0.7	1.0										
- Gravel	0.2	1.2	0.5	0.9	5.2	3.3	11.3	3.9	1.5	1.2										
- Earth	0.1	1.3	0.4	0.7	4.2	2.6	11.8	4.9	1.6	1.4										
b Irrigation Facility	0.8	11.1	4.9	12.0	118.0	67.8	102.4	59.4	4.6	14.1										

Source: Socio-Economic Profile, Ilocos Norte  
Data presented by DECS, DOI, BAS, DTI, Assessors in Provincial and Municipal Offices



Table C.5.18(1) Present Value of Major Damageable Assets in Potential Flood Area of 10 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	Probable Flood Area Total	Tangid Laoag	Suyo Laoag	Poblacion of Laoag	Camangaan Laoag	Poblacion of San Nicolas	San Manuel		San Felipe		Sto. Tomas		San Marcos	
							Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Total Value	1,924.9	103.1	26.8	128.1	53.0	60.4	17.1	10.7	5.8	3.7				
2. Living Quarters	884.4	58.3	16.3	60.2	17.9	46.3	10.5	2.3	1.3	1.8				
- Housing Units	502.5	33.2	9.6	34.2	10.2	26.3	6.0	1.3	0.8	1.0				
- Household Effects	381.9	25.2	7.3	26.0	7.7	20.0	4.5	1.0	0.6	0.8				
3. Crop Production	207.1	8.0	1.6	0.8	4.3	1.5	0.9	1.5	0.8	0.4				
- Irrigated Fields	204.5	8.0	1.6	0.8	4.3	1.5	0.5	1.5	0.7	0.3				
- Reinfeed Fields	2.5	-	-	-	-	-	0.4	-	0.0	0.1				
4. Industrial Establishment	56.1	5.4	1.6	8.7	1.9	3.1	1.8	2.7	0.9	0.7				
- Manufacturing Industry	3.9	-	-	0.6	0.1	0.4	-	-	-	-				
- Trading Industry	52.2	5.4	1.6	8.1	1.8	2.7	1.8	2.7	0.9	0.7				
5. Infrastructure	777.3	31.4	6.8	58.4	28.9	9.5	3.9	4.2	2.9	0.9				
- Social Infrastructure	187.6	5.3	2.1	55.6	17.5	3.5	-	-	-	-				
a Educational Facility	133.0	5.3	1.8	38.5	1.8	3.5	-	-	-	-				
- Pre-school	31.5	3.5	-	10.5	-	1.8	-	-	-	-				
- Elementary	77.0	1.8	1.8	15.8	1.8	-	-	-	-	-				
- Secondary	19.3	-	-	7.0	-	1.8	-	-	-	-				
- Tertiary	5.3	-	-	5.3	-	-	-	-	-	-				
b Health Facility	54.6	-	0.4	17.1	15.7	-	-	-	-	-				
- Hospital	47.1	-	-	15.7	15.7	-	-	-	-	-				
- Rural Health Unit	3.1	-	-	1.0	-	-	-	-	-	-				
- Barangay Health Station	4.4	-	0.4	0.4	-	-	-	-	-	-				
- Physical Infrastructure	589.7	26.2	4.7	2.8	11.5	6.0	3.9	4.2	2.9	0.9				
a Road	131.3	8.3	1.1	0.9	1.8	2.6	2.7	0.8	1.2	0.2				
- Concrete	42.6	3.5	0.5	0.4	0.8	1.1	1.0	0.3	0.5	0.1				
- Asphalt	17.8	1.1	0.1	0.2	0.2	0.3	0.5	0.2	0.2	0.0				
- Gravel	36.0	1.8	0.2	0.2	0.4	0.6	0.8	0.2	0.4	0.0				
- Earth	34.9	1.8	0.3	0.2	0.4	0.5	0.5	0.2	0.2	0.1				
b Irrigation Facility	458.5	17.9	3.6	1.9	9.7	3.5	1.1	3.4	1.6	0.7				

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.S.18(2) Present Value of Major Damageable Assets in Potential Flood Area of 10 Year Return Period

Item	(Unit: Million Pesos at 1996 Market Prices)										
	San Cristobal Sarrat	Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Curra River Basin	Solsona River Basin	Madongan River Basin	Papa River Basin	Lower Bongo	Upper Bongo	
1. Total Value	9.8	49.3	56.4	126.0	405.6	224.9	369.7	197.6	20.1	56.6	
2. Living Quarters	1.3	16.0	40.9	73.2	187.4	92.0	150.2	77.4	6.3	24.2	
- Housing Units	0.8	9.1	23.3	41.6	106.5	52.3	85.4	44.0	3.6	13.8	
- Household Effects	0.6	6.9	17.7	31.6	80.9	39.7	64.9	33.4	2.7	10.5	
3. Crop Production	0.7	6.5	2.8	6.7	54.8	31.1	47.9	27.7	2.3	6.8	
- Irrigated Fields	0.4	6.5	2.5	6.7	54.4	30.6	47.8	27.2	2.3	6.8	
- Reinfed Fields	0.3	0.0	0.2	-	0.4	0.5	0.1	0.4	-	-	
4. Industrial Establishment	0.4	2.4	1.1	1.3	7.6	4.7	6.6	3.4	0.5	1.6	
- Manufacturing Industry	0.4	0.1	0.2	0.4	0.6	0.8	0.1	0.2	-	-	
- Trading Industry	-	2.3	0.9	0.9	7.0	3.8	6.5	3.2	0.5	1.6	
5. Infrastructure	7.4	24.4	11.5	44.9	155.9	97.2	164.9	89.1	11.0	24.0	
- Social Infrastructure	5.6	5.3	3.5	25.5	15.5	17.2	18.2	10.5	0.4	2.1	
a Educational Facility	5.3	5.3	3.5	8.8	14.0	15.8	17.5	10.5	-	1.8	
- Pre-school	1.8	1.8	1.8	3.5	-	3.5	3.5	-	-	-	
- Elementary	3.5	1.8	-	5.3	14.0	8.8	12.3	8.8	-	1.8	
- Secondary	-	1.8	1.8	-	-	3.5	1.8	1.8	-	-	
- Tertiary	-	-	-	-	-	-	-	-	-	-	
b Health Facility	0.4	-	-	16.7	1.5	1.4	0.7	-	0.4	0.4	
- Hospital	-	-	-	15.7	-	-	-	-	-	-	
- Rural Health Unit	-	-	-	1.0	-	1.0	-	-	-	-	
- Barangay Health Station	0.4	-	-	-	1.5	0.4	0.7	-	0.4	0.4	
- Physical Infrastructure	1.8	19.2	8.0	19.4	140.4	80.0	146.7	78.6	10.7	21.9	
a Road	1.0	4.7	2.3	4.5	18.5	11.5	39.5	17.6	5.5	6.6	
- Concrete	0.4	1.2	0.7	1.2	6.2	3.8	10.1	6.3	1.5	2.9	
- Asphalt	0.1	0.6	0.3	0.6	2.5	1.6	5.1	2.3	0.7	1.0	
- Gravel	0.3	1.4	0.7	1.5	5.4	3.4	11.9	4.0	1.6	1.3	
- Earth	0.1	1.5	0.5	1.2	4.4	2.7	12.4	5.0	1.7	1.5	
b Irrigation Facility	0.8	14.5	5.7	14.9	121.9	68.6	107.2	61.0	5.2	15.3	

Source: Socio-economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.S.19(1) Present Value of Major Damageable Assets in Potential Flood Area of 25 Year Return Period

Item	Probable Flood Area Total	Tangid Laoag	Suyo Laoag	Poblacion of Laoag		Camangaan Laoag	Poblacion of San Nicolas		Manuel Sarrat	Felipe Sarrat	Sto. Tomas Sarrat		San Marcos Sarrat
				Suyo Laoag	Poblacion of Laoag		Poblacion of San Nicolas	Sto. Tomas Sarrat					
				30.1	184.4		131.9	62.1			15.8	6.8	
1. Total Value	2,240.0	118.8	30.1	184.4	88.7	131.9	62.1	15.8	6.8	3.7			
2. Living Quarters	1,065.9	68.6	16.8	91.8	35.7	104.6	24.1	3.2	1.8	1.8			
- Housing Units	605.7	39.0	9.6	52.2	20.3	59.5	13.7	1.8	1.1	1.0			
- Household Effects	460.3	29.6	7.3	39.6	15.4	45.2	10.4	1.4	0.8	0.8			
3. Crop Production	228.0	9.0	2.5	0.9	7.9	2.0	8.0	2.3	0.8	0.4			
- Irrigated Fields	225.3	9.0	2.5	0.9	7.9	2.0	7.4	2.3	0.7	0.3			
- Reinfed Fields	2.7	-	-	-	-	-	0.5	-	0.1	0.1			
4. Industrial Establishment	76.3	6.3	1.6	11.8	4.7	8.3	5.0	4.1	1.1	0.7			
- Manufacturing Industry	6.4	-	-	0.6	0.2	2.5	0.2	-	-	-			
- Trading Industry	70.0	6.3	1.6	11.3	4.5	5.9	4.7	4.1	1.1	0.7			
5. Infrastructure	869.7	34.9	9.2	79.8	40.3	16.9	25.0	6.2	3.0	0.9			
- Social Infrastructure	219.7	5.6	2.1	76.6	19.2	9.1	-	-	-	-			
a Educational Facility	148.8	5.3	1.8	43.8	3.5	8.8	-	-	-	-			
Pre-school	36.8	3.5	-	12.3	-	3.5	-	-	-	-			
Elementary	84.0	1.8	1.8	17.5	3.5	1.8	-	-	-	-			
Secondary	22.8	-	-	8.8	-	3.5	-	-	-	-			
Tertiary	5.3	-	-	5.3	-	-	-	-	-	-			
b Health Facility	71.0	0.4	0.4	32.8	15.7	0.4	-	-	-	-			
Hospital	62.8	-	-	31.4	15.7	-	-	-	-	-			
Rural Health Unit	3.1	-	-	1.0	-	-	-	-	-	-			
Barangay Health Station	5.1	0.4	0.4	0.4	-	0.4	-	-	-	-			
- Physical Infrastructure	650.0	29.3	7.1	3.3	21.1	7.8	25.0	6.2	3.0	0.9			
a Road	145.0	9.0	1.5	1.2	3.4	3.3	8.4	1.0	1.4	0.2			
Concrete	47.6	3.9	0.6	0.5	1.5	1.4	3.0	0.4	0.6	0.1			
Asphalt	20.0	1.2	0.2	0.2	0.4	0.4	1.6	0.2	0.2	0.0			
Gravel	39.6	2.0	0.3	0.3	0.7	0.8	2.3	0.3	0.4	0.0			
Earth	37.8	2.0	0.3	0.2	0.7	0.7	1.4	0.1	0.2	0.1			
b Irrigation Facility	504.9	20.2	5.6	2.1	17.7	4.5	16.7	5.2	1.6	0.7			

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOFI, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.19(2) Present Value of Major Damageable Assets in Potential Flood Area of 25 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	San Cristobal		Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin		Solsona River Basin		Madangan River Basin		Papa River Basin		Lower Bongo	Upper Bongo
	Sarrat	Cristobal				River Basin	River Basin	River Basin	River Basin	River Basin	River Basin				
1. Total Value	9.8	55.0	56.4	130.1	426.2	261.0	371.6	203.9	24.4	59.2					
2. Living Quarters	1.3	18.3	40.9	73.2	197.4	122.8	150.6	80.1	8.1	24.7					
- Housing Units	0.8	10.4	23.3	41.6	112.2	69.8	85.6	45.5	4.6	14.1					
- Household Effects	0.6	7.9	17.7	31.6	85.2	53.0	65.0	34.6	3.5	10.7					
3. Crop Production	0.7	6.9	2.8	7.2	57.2	32.1	48.2	28.6	3.0	7.3					
- Irrigated Fields	0.4	6.9	2.5	7.2	56.8	31.6	48.2	28.2	3.0	7.3					
- Reinfed Fields	0.3	0.0	0.2	-	0.4	0.5	0.1	0.4	-	-					
4. Industrial Establishment	0.4	3.5	1.1	1.3	8.0	6.2	6.6	3.4	0.7	1.6					
- Manufacturing Industry	0.4	0.1	0.2	0.4	0.6	0.8	0.1	0.2	-	-					
- Trading Industry	-	3.4	0.9	0.9	7.4	5.4	6.5	3.2	0.7	1.6					
5. Infrastructure	7.4	26.2	11.5	48.5	163.7	99.8	166.2	91.8	12.6	25.7					
- Social Infrastructure	5.6	5.3	3.5	27.2	17.2	17.2	18.2	10.5	0.4	2.1					
a Educational Facility	5.3	5.3	3.5	10.5	15.8	15.8	17.5	10.5	-	1.8					
- Pre-school	1.8	1.8	1.8	3.5	1.8	3.5	3.5	-	-	-					
- Elementary	3.5	1.8	-	7.0	14.0	8.8	12.3	8.8	-	1.8					
- Secondary	-	1.8	1.8	-	-	3.5	1.8	-	-	-					
- Tertiary	-	-	-	-	-	-	-	-	-	-					
b Health Facility	0.4	-	-	16.7	1.5	1.4	0.7	-	0.4	0.4					
- Hospital	-	-	-	15.7	-	-	-	-	-	-					
- Rural Health Unit	-	-	-	1.0	-	1.0	-	-	-	-					
- Barangay Health Station	0.4	-	-	-	1.5	0.4	0.7	-	0.4	0.4					
- Physical Infrastructure	1.8	21.0	8.0	21.3	146.5	82.6	147.9	81.3	12.3	23.6					
a Road	1.0	5.4	2.3	5.2	19.2	11.7	40.0	18.0	5.5	7.3					
- Concrete	0.4	1.4	0.7	1.4	6.4	3.9	10.2	6.5	1.5	3.2					
- Asphalt	0.1	0.7	0.3	0.7	2.6	1.6	5.2	2.3	0.7	1.1					
- Gravel	0.3	1.6	0.7	1.7	5.6	3.5	12.1	4.1	1.6	1.4					
- Earth	0.1	1.7	0.5	1.4	4.6	2.7	12.5	5.1	1.7	1.6					
b Irrigation Facility	0.8	15.5	5.7	16.1	127.2	70.9	108.0	63.2	6.8	16.3					

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOI, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.20(1) Present Value of Major Damageable Assets in Potential Flood Area of 50 Year Return Period

Item	Probable Flood Area Total	Tangid Laog	Suyo Laog	Poblacion of Laog	Camangaan Laog	Poblacion of San Nicolas		Manuel Sarrat		Felipe Sarrat		Sto. Tomas Sarrat		San Marcos Sarrat	
						Nicolas	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat		
1. Total Value	2,624.9	258.3	40.8	191.9	107.5	269.6	62.1	16.1	6.8	3.7					
2. Living Quarters	1,270.0	147.8	23.8	91.8	42.0	188.7	24.1	3.2	1.8	1.8					
- Housing Units	721.6	84.0	13.6	52.2	23.9	107.2	13.7	1.8	1.1	1.0					
- Household Effects	548.4	63.8	10.3	39.6	18.1	81.5	10.4	1.4	0.8	0.8					
3. Crop Production	255.8	16.8	2.6	1.0	10.7	9.1	8.0	2.3	0.8	0.4					
- Irrigated Fields	252.3	16.8	2.6	1.0	10.5	8.6	7.4	2.3	0.7	0.3					
- Reinfed Fields	3.5	-	-	-	0.2	0.5	0.5	-	0.1	0.1					
4. Industrial Establishment	94.0	13.7	2.9	11.8	5.9	15.8	5.0	4.1	1.1	0.7					
- Manufacturing Industry	8.5	-	-	0.6	0.2	4.4	0.2	-	-	-					
- Trading Industry	85.5	13.7	2.9	11.3	5.6	11.5	4.7	4.1	1.1	0.7					
5. Infrastructure	1,005.1	80.0	11.4	87.2	49.0	55.9	25.0	6.6	3.0	0.9					
- Social Infrastructure	274.3	26.6	3.9	83.6	21.0	28.3	-	-	-	-					
a Educational Facility	171.5	10.5	3.5	50.8	5.3	12.3	-	-	-	-					
- Pre-school	42.0	5.3	-	14.0	-	3.5	-	-	-	-					
- Elementary	94.5	5.3	1.8	19.3	3.5	5.3	-	-	-	-					
- Secondary	28.0	-	1.8	10.5	1.8	3.5	-	-	-	-					
- Tertiary	7.0	-	-	7.0	-	-	-	-	-	-					
b Health Facility	102.8	16.1	0.4	32.8	15.7	16.1	-	-	-	-					
- Hospital	94.2	15.7	-	31.4	15.7	15.7	-	-	-	-					
- Rural Health Unit	3.1	-	-	1.0	-	-	-	-	-	-					
- Barangay Health Station	5.4	0.4	0.4	0.4	-	0.4	-	-	-	-					
- Physical Infrastructure	730.8	53.4	7.6	3.7	28.0	27.6	25.0	6.6	3.0	0.9					
a Road	165.3	15.8	1.7	1.3	4.5	8.3	8.4	1.4	1.4	0.2					
- Concrete	55.7	6.8	0.7	0.5	2.0	3.5	3.0	0.6	0.6	0.1					
- Asphalt	22.7	2.1	0.2	0.2	0.6	1.1	1.6	0.3	0.2	0.0					
- Gravel	44.5	3.4	0.4	0.3	0.9	2.0	2.3	0.4	0.4	0.0					
- Earth	42.5	3.5	0.4	0.3	1.0	1.7	1.4	0.2	0.2	0.1					
b Irrigation Facility	565.5	37.6	5.9	2.3	23.5	19.3	16.7	5.2	1.6	0.7					

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOI, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.20(2) Present Value of Major Damageable Assets in Potential Flood Area of 50 Year Return Period  
(Unit: Million Pesos at 1996 Market Prices)

Item	San Cristobal Sarat	Guisit River/ Mandaloque	Suvo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin	Papa River Basin	Lower Bongo	Upper Bongo
1. Total Value										
2. Living Quarters										
- Housing Units	1.3	18.3	40.9	90.7	197.4	122.8	153.2	82.2	8.1	30.0
- Household Effects	0.8	10.4	23.3	51.6	112.2	69.8	87.1	46.7	4.6	17.1
	0.6	7.9	17.7	39.2	85.2	53.0	66.2	35.5	3.5	13.0
3. Crop Production										
- Irrigated Fields	0.7	6.9	2.8	11.7	57.5	32.1	49.5	29.5	3.5	9.8
- Reinfed Fields	0.4	6.9	2.5	11.7	57.1	31.6	49.3	29.0	3.5	9.8
	0.3	0.0	0.2	-	0.4	0.5	0.2	0.4	-	-
4. Industrial Establishment										
- Manufacturing Industry	0.4	3.5	1.1	1.5	8.0	6.2	6.6	3.4	0.7	1.6
- Trading Industry	0.4	0.1	0.2	0.6	0.6	0.8	0.1	0.2	-	-
	-	3.4	0.9	0.9	7.4	5.4	6.5	3.2	0.7	1.6
5. Infrastructure										
- Social Infrastructure	7.4	26.2	11.5	62.9	166.6	99.9	169.7	93.9	14.2	33.6
a Educational Facility	5.6	5.3	3.5	29.4	19.0	17.2	18.2	10.5	0.4	2.1
Pre-school	5.3	5.3	3.5	12.3	17.5	15.8	17.5	10.5	-	1.8
Elementary	1.8	1.8	1.8	3.5	3.5	3.5	3.5	-	-	-
Secondary	3.5	1.8	-	8.8	14.0	8.8	12.3	8.8	-	1.8
Tertiary	-	1.8	1.8	-	-	3.5	1.8	1.8	-	-
b Health Facility	0.4	-	-	17.1	1.5	1.4	0.7	-	0.4	0.4
Hospital	-	-	-	15.7	-	-	-	-	-	-
Rural Health Unit	-	-	-	1.0	-	1.0	-	-	-	-
Barangay Health Station	0.4	-	-	0.4	1.5	0.4	0.7	-	0.4	0.4
- Physical Infrastructure	1.8	21.0	8.0	33.6	147.7	82.7	151.5	83.4	13.8	31.5
a Road	1.0	5.4	2.3	7.3	19.6	11.8	40.9	18.3	5.9	9.7
Concrete	0.4	1.4	0.7	2.0	6.5	4.0	10.5	6.6	1.6	4.2
Asphalt	0.1	0.7	0.3	0.9	2.7	1.6	5.3	2.4	0.8	1.5
Gravel	0.3	1.6	0.7	2.4	5.7	3.5	12.3	4.2	1.7	1.9
Earth	0.1	1.7	0.5	2.0	4.7	2.8	12.8	5.2	1.8	2.1
b Irrigation Facility	0.8	15.5	5.7	26.3	128.0	70.9	110.5	65.1	8.0	21.9

Source: Socio-Economic Profile, Ilocos Norte  
Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.S.21(1) Present Value of Major Damagable Assets in Potential Flood Area of 100 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	Probable Flood Area Total	Tangid Laoag	Suvo Laoag	Poblacion of Laoag	Camangaan Laoag	Poblacion of Nicolas	San Manuel		San Felipe		Sto. Tomas		San Marcos	
							Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Total Value	2,831.5	300.2	40.8	192.2	118.7	333.0	91.6	22.5	8.5	3.7				
2. Living Quarters	1,375.4	170.5	23.8	91.8	42.0	227.7	42.7	4.5	2.7	1.8				
- Housing Units	781.5	96.9	13.6	52.2	23.9	129.4	24.3	2.6	1.6	1.0				
- Household Effects	593.9	73.6	10.3	39.6	18.1	98.3	18.4	1.9	1.2	0.8				
3. Crop Production	274.0	20.2	2.6	1.0	13.2	11.6	9.8	2.6	1.1	0.4				
- Irrigated Fields	270.1	20.2	2.6	1.0	12.9	11.1	9.3	2.6	0.7	0.3				
- Reinfed Fields	3.9	-	-	-	0.2	0.5	0.5	-	0.4	0.1				
4. Industrial Establishment	105.7	16.0	2.9	11.8	6.3	20.2	6.7	6.1	1.4	0.7				
- Manufacturing Industry	10.3	-	-	0.6	0.2	6.0	0.4	-	-	-				
- Trading Industry	95.4	16.0	2.9	11.3	6.1	14.2	6.3	6.1	1.4	0.7				
5. Infrastructure	1,076.3	93.5	11.4	87.5	57.2	73.4	32.5	9.3	3.3	0.9				
- Social Infrastructure	292.5	28.7	3.9	33.6	22.7	36.7	1.8	2.1	-	-				
a Educational Facility	187.3	12.3	3.5	50.8	7.0	19.3	1.8	1.8	-	-				
- Pre-school	45.5	5.3	-	14.0	-	7.0	-	-	-	-				
- Elementary	106.8	7.0	1.8	19.3	5.3	8.8	1.8	1.8	-	-				
- Secondary	28.0	-	1.8	10.5	1.8	3.5	-	-	-	-				
- Tertiary	7.0	-	-	7.0	-	-	-	-	-	-				
b Health Facility	105.2	16.4	0.4	32.8	15.7	17.5	-	0.4	-	-				
- Hospital	94.2	15.7	-	31.4	15.7	15.7	-	-	-	-				
- Rural Health Unit	4.2	-	-	1.0	-	1.0	-	-	-	-				
- Barangay Health Station	6.9	0.7	0.4	0.4	-	0.7	-	0.4	-	-				
- Physical Infrastructure	783.8	64.8	7.6	4.0	34.5	36.7	30.7	7.2	3.3	0.9				
a Road	178.5	19.6	1.7	1.6	5.5	11.9	9.9	1.4	1.7	0.2				
- Concrete	60.8	8.4	0.7	0.6	2.5	5.0	3.5	0.6	0.7	0.1				
- Asphalt	24.6	2.6	0.2	0.3	0.7	1.6	1.9	0.3	0.3	0.0				
- Gravel	47.7	4.3	0.4	0.3	1.2	2.8	2.8	0.4	0.5	0.0				
- Earth	45.4	4.4	0.4	0.3	1.2	2.5	1.7	0.2	0.2	0.1				
b Irrigation Facility	605.3	45.2	5.9	2.3	29.0	24.9	20.8	5.9	1.6	0.7				

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOH, BAS, DTI, Assessors in Provincial and Municipal Offices

Table C.5.21(2) Present Value of Major Damagable Assets in Potential Flood Area of 100 Year Return Period  
(Unit: Million Pesos at 1996 Market Prices)

Item	San Cristobal Sarrat	Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin		Solsona River Basin		Madongan River Basin		Papa River Basin		Lower Bongo	Upper Bongo
1. Total Value	9.8	60.7	56.4	166.9	429.6	287.1	397.2	211.1	26.5	75.0				
2. Living Quarters	1.3	22.5	40.9	90.7	197.4	133.8	161.0	82.2	8.1	30.0				
- Housing Units	0.8	12.8	23.3	51.6	112.2	76.0	91.5	46.7	4.6	17.1				
- Household Effects	0.6	9.7	17.7	39.2	85.2	57.8	69.5	35.5	3.5	13.0				
3. Crop Production	0.7	7.3	2.8	11.7	57.5	36.2	51.9	30.0	3.5	9.8				
- Irrigated Fields	0.4	7.3	2.5	11.7	57.1	35.7	51.7	29.5	3.5	9.8				
- Reinfed Fields	0.3	0.0	0.2	-	0.4	0.5	0.2	0.4	-	-				
4. Industrial Establishment	0.4	3.7	1.1	1.5	8.0	6.7	6.6	3.4	0.7	1.6				
- Manufacturing Industry	0.4	0.1	0.2	0.6	0.6	0.8	0.1	0.2	-	-				
- Trading Industry	-	3.6	0.9	0.9	7.4	5.9	6.5	3.2	0.7	1.6				
5. Infrastructure	7.4	27.2	11.5	62.9	166.7	110.4	177.7	95.5	14.2	33.6				
- Social Infrastructure	5.6	5.3	3.5	29.4	19.0	17.2	20.0	10.9	0.4	2.1				
a Educational Facility	5.3	5.3	3.5	12.3	17.5	15.8	19.3	10.5	-	1.8				
- Pre-school	1.8	1.8	1.8	3.5	3.5	3.5	3.5	-	-	-				
- Elementary	3.5	1.8	-	8.8	14.0	8.8	14.0	8.8	-	1.8				
- Secondary	-	1.8	1.8	-	-	3.5	1.8	1.8	-	-				
- Tertiary	-	-	-	-	-	-	-	-	-	-				
b Health Facility	0.4	-	-	17.1	1.5	1.4	0.7	0.4	0.4	0.4				
- Hospital	-	-	-	15.7	-	-	-	-	-	-				
- Rural Health Unit	-	-	-	1.0	-	1.0	-	-	-	-				
- Barangay Health Station	0.4	-	-	0.4	1.5	0.4	0.7	0.4	0.4	0.4				
- Physical Infrastructure	1.8	21.9	8.0	33.6	147.8	93.2	157.8	84.7	13.8	31.5				
a Road	1.0	5.7	2.3	7.3	19.7	13.1	41.9	18.5	5.9	9.7				
- Concrete	0.4	1.5	0.7	2.0	6.6	4.4	10.7	6.7	1.6	4.2				
- Asphalt	0.1	0.8	0.3	0.9	2.7	1.8	5.4	2.4	0.8	1.5				
- Gravel	0.3	1.6	0.7	2.4	5.8	3.9	12.6	4.2	1.7	1.9				
- Earth	0.1	1.8	0.5	2.0	4.7	3.1	13.1	5.2	1.8	2.1				
b Irrigation Facility	0.8	16.3	5.7	26.3	128.0	80.1	115.9	66.2	8.0	21.9				

Source: Socio-Economic Profile, Ilocos Norte

Data presented by DECS, DOI, BAS, DTI, Assessors in Provincial and Municipal Offices



Table C.S.22 Probable Damage by Flood Inundation of 2 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	Probable Flood Area Total	Tangid Laog	Suvo Laog	Poblacion of Laog	Camangaan Laog	Poblacion of San Nicolas	San Manuel		San Felipe		San Tomas		San Marcos	
							Sarrat	Basin	Sarrat	Basin	Sarrat	Basin	Sarrat	Basin
1. Direct Damage Total	274.1	4.6	0.0	4.8	3.0	0.8	2.4	0.5	0.0	0.0	0.0	0.0	0.0	
a. Agricultural Production	68.3	1.1	0.0	0.0	1.8	0.3	0.4	0.4	0.0	0.0	0.0	0.0	0.0	
- Irrigated Field	67.2	1.1	0.0	0.0	1.8	0.3	0.2	0.4	0.0	0.0	0.0	0.0	0.0	
- Rainfed Field	1.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
b. Housing Units	106.7	1.7	0.0	0.3	0.2	0.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	
c. Industry	13.4	0.3	0.0	0.9	0.2	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	
- Shopping Stores	12.6	0.3	0.0	0.8	0.2	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	
- Factories	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
d. Infrastructure	85.7	1.5	0.0	3.5	0.8	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	
- Social Infrastructure	40.0	0.7	0.0	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
- Educational Facilities	32.9	0.7	0.0	2.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
- Medical Facilities	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
- Infrastructure Damage	45.7	0.8	0.0	0.8	0.5	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	
2. Indirect Damage	27.4	0.5	0.0	0.5	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
3. Total	301.5	5.0	0.0	5.3	3.3	0.9	2.7	0.5	0.0	0.0	0.0	0.0	0.0	

Item	San Cristobal Sarrat	Guisit River/ Mandaloque	Suvo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin		Papa River Basin		Lower Bongo		Upper Bongo	
							Sarrat	Basin	Sarrat	Basin	Sarrat	Basin	Sarrat	Basin
1. Direct Damage Total	0.4	7.9	4.7	2.6	82.4	58.5	58.6	27.8	5.8	9.2	1.7	1.7	1.7	
a. Agricultural Production	0.0	2.7	1.1	0.3	21.9	13.0	15.8	6.9	1.0	1.7	1.7	1.7	1.7	
- Irrigated Field	0.0	2.7	1.0	0.3	21.7	12.7	15.8	6.6	1.0	1.7	1.7	1.7	1.7	
- Rainfed Field	0.0	0.0	0.1	0.0	0.2	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	
b. Housing Units	0.0	2.9	2.4	1.8	34.1	23.3	22.3	9.4	2.1	4.7	4.7	4.7	4.7	
c. Industry	0.0	0.1	0.5	0.1	3.4	2.4	2.6	1.4	0.0	0.7	0.7	0.7	0.7	
- Shopping Stores	0.0	0.1	0.5	0.1	3.2	2.1	2.5	1.4	0.0	0.7	0.7	0.7	0.7	
- Factories	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	
d. Infrastructure	0.4	2.2	0.8	0.4	23.0	19.8	18.0	10.1	0.0	0.0	0.0	0.0	0.0	
- Social Infrastructure	0.3	0.9	0.0	0.0	9.2	10.0	8.2	5.5	2.6	2.1	2.1	2.1	2.1	
- Educational Facilities	0.3	0.9	0.0	0.0	6.7	9.1	6.7	5.5	1.6	0.5	0.5	0.5	0.5	
- Medical Facilities	0.0	0.0	0.0	0.0	2.5	0.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	
- Infrastructure Damage	0.1	1.3	0.8	0.4	13.7	9.7	9.8	4.6	1.0	1.5	1.5	1.5	1.5	
2. Indirect Damage	0.0	0.8	0.5	0.3	8.2	5.8	5.9	2.8	0.6	0.9	0.9	0.9	0.9	
3. Total	0.4	8.7	5.2	2.9	90.6	64.3	64.5	30.6	6.4	10.1	10.1	10.1	10.1	

Table C.S.23 Probable Damage by Flood Inundation of 5 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	Probable Flood Area Total	Tangid Laoag	Suyo Laoag	Poblacion of Laoag	Camangaan Laoag	Poblacion of San Nicolas		San Manuel		San Felipe		Sto. Tomas		San Marcos	
						Laoag	Suyo Laoag	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Direct Damage Total	417.0	11.1	2.3	28.0	7.0	6.9	3.7	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.2
a. Agricultural Production	91.1	3.0	0.3	0.2	2.6	0.8	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Irrigated Field	89.6	3.0	0.3	0.2	2.6	0.8	0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Rainfed Field	1.5	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	167.7	3.6	0.4	6.8	1.7	4.1	1.8	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
c. Industry	21.5	0.9	0.4	2.8	0.6	0.8	0.7	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
- Shopping Stores	20.2	0.9	0.4	2.6	0.5	0.7	0.7	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1
- Factories	1.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	136.7	3.6	1.2	18.1	2.1	1.1	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Social Infrastructure	67.2	1.8	0.8	13.4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Educational Facilities	50.2	1.8	0.5	9.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Medical Facilities	17.0	0.0	0.3	3.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Infrastructure Damage	69.5	1.8	0.4	4.7	1.2	1.1	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. Indirect Damage	41.7	1.1	0.2	2.8	0.7	0.7	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
3. Total	458.8	12.2	2.5	30.8	7.7	7.5	4.1	1.2	0.2	0.0	0.0	0.2	0.0	0.0	0.2

Item	San Cristobal Sarrat	Guisit River/Mandalaoque	Suyo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin		Papa River Basin		Lower Bongo		Upper Bongo
							Sarrat	Basin	River Basin	Basin	Bongo	Bongo	
1. Direct Damage Total	3.2	9.3	6.9	12.3	119.4	72.5	81.5	30.6	7.5	7.5	7.5	13.4	2.5
a. Agricultural Production	0.3	3.1	1.2	1.3	29.4	16.5	19.7	7.5	1.3	1.3	1.3	2.5	2.5
- Irrigated Field	0.3	3.1	1.1	1.3	29.1	16.1	19.7	7.2	1.3	1.3	1.3	2.5	2.5
- Rainfed Field	0.1	0.0	0.1	0.0	0.3	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0
b. Housing Units	0.1	3.3	3.4	3.8	52.8	29.8	34.8	10.9	3.1	3.1	3.1	7.2	7.2
c. Industry	0.1	0.5	0.5	0.3	4.6	2.8	3.3	1.6	0.2	0.2	0.2	1.0	1.0
- Shopping Stores	0.0	0.5	0.5	0.2	4.3	2.5	3.3	1.5	0.2	0.2	0.2	1.0	1.0
- Factories	0.1	0.0	0.0	0.1	0.3	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	2.6	2.5	1.8	6.9	32.6	23.4	23.7	10.6	2.9	2.9	2.9	2.8	2.8
- Social Infrastructure	2.1	0.9	0.6	4.9	12.7	11.3	10.2	5.5	1.6	1.6	1.6	0.5	0.5
- Educational Facilities	1.4	0.9	0.6	1.4	8.8	10.4	8.6	5.5	0.0	0.0	0.0	0.0	0.0
- Medical Facilities	0.7	0.0	0.0	3.4	3.9	0.9	1.5	0.0	0.0	0.0	0.0	0.5	0.5
- Infrastructure Damage	0.5	1.6	1.1	2.0	19.9	12.1	13.6	5.1	1.3	1.3	1.3	2.2	2.2
2. Indirect Damage	0.3	0.9	0.7	1.2	11.9	7.2	8.2	3.1	0.8	0.8	0.8	1.3	1.3
3. Total	3.5	10.2	7.6	13.5	131.4	79.7	89.7	33.7	8.3	8.3	8.3	14.8	14.8

Table C.S.24 Probable Damage by Flood Inundation of 10 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	Probable Flood Area Total	Tangid Laoag	Suyo Laoag	Poblacion of Laoag	Camangaan Laoag	Poblacion of San Nicolas		San Manuel		Felipe Sarrat		Sto. Tomas Sarrat		San Marcos Sarrat	
						Laoag	Nicolas	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat		
1. Direct Damage Total	508.4	16.7	5.7	47.5	12.0	17.4	4.2	2.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0
a. Agricultural Production	102.1	4.3	0.7	0.4	3.2	1.1	0.6	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0
- Irrigated Field	100.3	4.3	0.7	0.4	3.2	1.1	0.3	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0
- Rainfed Field	1.8	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	208.1	5.8	2.3	15.2	4.7	11.7	2.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0
c. Industry	25.9	1.5	0.6	3.6	0.7	1.1	0.8	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0
- Shopping Stores	24.2	1.5	0.6	3.4	0.7	1.0	0.8	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0
- Factories	1.7	0.0	0.0	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	172.3	5.1	2.2	28.4	3.3	3.5	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
- Social Infrastructure	87.5	2.4	1.2	20.4	1.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Educational Facilities	63.0	2.4	0.7	13.9	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medical Facilities	24.5	0.0	0.5	6.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Infrastructure Damage	84.7	2.8	1.0	7.9	2.0	2.9	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
2. Indirect Damage	50.8	1.7	0.6	4.8	1.2	1.7	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
3. Total	559.2	18.4	6.3	52.3	13.1	19.2	4.6	2.2	0.8	0.2	0.0	0.0	0.0	0.0	0.2

Item	San Cristobal Sarrat	Gusit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin		Papa River Basin		Lower Bongo		Upper Bongo	
							Sarrat	Basin	River Basin	Basin	Basin	Basin	Basin	Basin
1. Direct Damage Total	5.1	12.8	9.5	19.4	130.8	77.6	90.2	31.6	10.1	14.9	10.1	14.9	14.9	14.9
a. Agricultural Production	0.5	3.5	1.4	2.1	31.6	17.9	21.4	7.9	1.5	2.8	1.5	2.8	2.8	2.8
- Irrigated Field	0.3	3.5	1.2	2.1	31.3	17.5	21.3	7.5	1.5	2.8	1.5	2.8	2.8	2.8
- Rainfed Field	0.2	0.0	0.2	0.0	0.3	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	0.3	4.1	5.4	4.8	58.9	30.9	38.2	11.3	4.8	7.4	4.8	7.4	7.4	7.4
c. Industry	0.2	1.0	0.5	0.4	4.9	3.1	3.6	1.7	0.4	1.0	0.4	1.0	1.0	1.0
- Shopping Stores	0.0	1.0	0.5	0.3	4.5	2.6	3.5	1.6	0.4	1.0	0.4	1.0	1.0	1.0
- Factories	0.2	0.0	0.0	0.1	0.4	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	4.1	4.3	2.2	12.1	35.4	25.8	27.1	10.7	3.3	3.6	3.3	3.6	3.6	3.6
- Social Infrastructure	3.2	2.1	0.6	8.9	13.6	12.8	12.1	5.5	1.6	1.1	1.6	1.1	1.1	1.1
Educational Facilities	2.4	2.1	0.6	2.7	9.7	11.3	10.1	5.5	0.0	0.6	0.0	0.6	0.6	0.6
Medical Facilities	0.8	0.0	0.0	6.2	3.9	1.6	2.0	0.0	0.0	0.5	0.0	0.5	0.5	0.5
- Infrastructure Damage	0.8	2.1	1.6	3.2	21.8	12.9	15.0	5.3	1.7	2.5	1.7	2.5	2.5	2.5
2. Indirect Damage	0.5	1.3	0.9	1.9	13.1	7.8	9.0	3.2	1.0	1.5	1.0	1.5	1.5	1.5
3. Total	5.6	14.1	10.4	21.3	143.9	85.4	99.2	34.8	11.2	16.4	11.2	16.4	16.4	16.4

Table C.5.25 Probable Damage by Flood Inundation of 25 Year Return Period

Item	Probable Flood Area Total	Tangid Laog	Suyo Laog	Poblacion of Laog	Camangann Laog	Poblacion of San		San		Sto.		Marcos	
						Nicolas Sarat	Manuel Sarat	Felipe Sarat	Tomas Sarat	Sarat	Sarat	Sarat	Sarat
1. Direct Damage Total	632.8	26.8	7.1	72.5	19.1	24.6	8.9	3.1	0.9	0.5			
a. Agricultural Production	117.3	5.5	1.2	0.7	4.7	1.3	1.9	1.2	0.2	0.1			
- Irrigated Field	115.1	5.5	1.2	0.7	4.7	1.3	1.4	1.2	0.2	0.1			
- Rainfed Field	2.2	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0			
b. Housing Units	267.4	11.6	2.7	21.0	8.5	14.9	4.2	0.3	0.3	0.0			
c. Industry	33.1	2.2	0.6	4.7	1.0	2.0	1.4	1.1	0.3	0.2			
- Shopping Stores	30.8	2.2	0.6	4.4	1.0	1.6	1.3	1.1	0.3	0.2			
- Factories	2.3	0.0	0.0	0.3	0.1	0.4	0.0	0.0	0.0	0.0			
d. Infrastructure	215.1	7.5	2.6	46.1	4.9	6.3	1.5	0.5	0.1	0.1			
- Social Infrastructure	109.6	3.0	1.4	34.1	1.7	2.2	0.0	0.0	0.0	0.0			
Educational Facilities	74.2	2.5	0.7	19.1	0.7	2.0	0.0	0.0	0.0	0.0			
Medical Facilities	35.4	0.5	0.7	14.9	1.0	0.3	0.0	0.0	0.0	0.0			
- Infrastructure Damage	105.5	4.5	1.2	12.1	3.2	4.1	1.5	0.5	0.1	0.1			
2. Indirect Damage	63.3	2.7	0.7	7.3	1.9	2.5	0.9	0.3	0.1	0.0			
3. Total	696.1	29.5	7.8	79.8	21.0	27.0	9.8	3.4	1.0	0.5			

Item	San Cristobal Sarat	Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin	Papa River Basin	Lower Bongo	Upper Bongo
a. Agricultural Production	0.7	4.5	1.7	3.0	33.9	19.3	23.2	9.1	2.1	3.0
- Irrigated Field	0.3	4.4	1.5	3.0	33.5	18.9	23.2	8.7	2.1	3.0
- Rainfed Field	0.3	0.0	0.2	0.0	0.4	0.4	0.0	0.3	0.0	0.0
b. Housing Units	0.6	6.0	7.8	8.2	64.1	39.3	45.8	16.9	5.9	9.4
c. Industry	0.2	2.0	0.5	0.4	5.2	3.8	3.7	2.0	0.6	1.2
- Shopping Stores	0.0	2.0	0.5	0.3	4.8	3.4	3.6	2.0	0.6	1.2
- Factories	0.2	0.1	0.1	0.1	0.4	0.5	0.0	0.1	0.0	0.0
d. Infrastructure	4.6	6.2	2.7	13.8	39.6	27.9	30.1	12.2	3.7	4.6
- Social Infrastructure	3.6	3.1	0.6	9.5	15.8	12.8	12.9	5.5	1.6	1.6
Educational Facilities	2.8	3.1	0.6	3.4	10.9	11.3	11.0	5.5	0.0	0.6
Medical Facilities	0.8	0.0	0.0	6.2	4.9	1.6	2.0	0.0	1.6	1.0
- Infrastructure Damage	1.0	3.1	2.1	4.2	23.8	15.0	17.1	6.7	2.0	3.0
2. Indirect Damage	0.6	1.9	1.3	2.5	14.3	9.0	10.3	4.0	1.2	1.8
3. Total	6.7	20.5	14.0	28.0	157.2	99.3	113.0	44.2	13.5	20.1

Table C.S.26 Probable Damage by Flood Inundation of 50 Year Return Period

(Unit: Million Pesos at 1996 Market Prices)

Item	Probable Flood Area Total	Tangid Laog		Suvo Laog		Poblacion of Laog		Camangaan Laog		Poblacion of San Nicolas		San Manuel Sarrat		San Felipe Sarrat		San Tomas Sarrat		San Marcos Sarrat	
1. Direct Damage Total	755.8	43.0	12.8	94.6	21.4	39.9	10.0	3.8	1.3	1.0									
a. Agricultural Production	132.3	7.5	1.6	0.7	6.2	2.3	2.0	1.4	0.4	0.3									
- Irrigated Field	129.9	7.5	1.6	0.7	6.2	2.2	1.6	1.4	0.4	0.2									
- Rainfed Field	2.4	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.1									
b. Housing Units	322.8	17.2	6.5	31.5	8.5	20.9	4.8	0.5	0.3	0.3									
c. Industry	39.0	3.5	0.9	5.4	1.2	3.5	1.5	1.3	0.4	0.3									
- Shopping Stores	36.0	3.5	0.9	5.1	1.1	2.7	1.4	1.3	0.4	0.3									
- Factories	3.0	0.0	0.0	0.3	0.1	0.8	0.0	0.0	0.0	0.0									
d. Infrastructure	261.8	14.8	4.0	57.2	5.6	13.2	1.7	0.6	0.2	0.2									
- Social Infrastructure	155.8	7.6	1.9	41.4	2.0	6.5	0.0	0.0	0.0	0.0									
- Educational Facilities	87.0	3.6	1.2	24.0	1.0	3.0	0.0	0.0	0.0	0.0									
- Medical Facilities	48.8	4.0	0.7	17.4	1.0	3.6	0.0	0.0	0.0	0.0									
- Infrastructure Damage	126.0	7.2	2.1	15.8	3.6	6.6	1.7	0.6	0.2	0.2									
- Infrastructure Damage	75.6	4.3	1.3	9.5	2.1	4.0	1.0	0.4	0.1	0.1									
3. Total	831.3	47.3	14.0	104.1	23.6	43.9	11.0	4.2	1.4	1.1									

Item	San Cristobal Sarrat	Guisit River/ Mandaloque	Suvo Dingras		Poblacion of Dingras		Cura River Basin		Solsona River Basin		Madongan River Basin		Papa River Basin		Lower Bongo		Upper Bongo	
1. Direct Damage Total	7.0	20.6	18.8	36.6	153.8	98.5	112.4	44.2	13.5	22.5								
a. Agricultural Production	0.7	4.8	1.9	4.5	35.1	20.7	25.2	10.0	2.5	4.6								
- Irrigated Field	0.3	4.8	1.7	4.5	34.7	20.3	25.1	9.6	2.5	4.6								
- Rainfed Field	0.3	0.0	0.2	0.0	0.4	0.4	0.0	0.3	0.0	0.0								
b. Housing Units	0.7	6.6	12.1	11.8	70.9	43.3	50.9	18.5	6.4	11.3								
c. Industry	0.2	2.4	0.6	0.5	5.3	4.2	3.8	2.2	0.7	1.3								
- Shopping Stores	0.0	2.4	0.5	0.3	4.9	3.5	3.8	2.1	0.7	1.3								
- Factories	0.2	0.1	0.1	0.2	0.4	0.6	0.0	0.1	0.0	0.0								
d. Infrastructure	5.4	6.7	4.2	19.8	42.5	30.4	32.6	13.6	3.9	5.3								
- Social Infrastructure	4.3	3.2	1.1	13.7	16.9	14.0	13.8	6.2	1.6	1.6								
- Educational Facilities	3.3	3.2	1.1	4.9	11.5	11.9	11.4	6.2	0.0	0.6								
- Medical Facilities	1.0	0.0	0.0	8.8	5.3	2.0	2.4	0.0	1.6	1.0								
- Infrastructure Damage	1.2	3.4	3.1	6.1	25.6	16.4	18.7	7.4	2.2	3.8								
- Infrastructure Damage	0.7	2.1	1.9	3.7	15.4	9.9	11.2	4.4	1.3	2.3								
3. Total	7.7	22.6	20.7	40.2	169.2	108.4	123.7	48.7	14.8	24.8								

Table C.5.27 Probable Damage by Flood Inundation of 100 Year Return Period

Item	Probable Flood Area Total	Tangid Laog	Suvo Laog	Poblacion of Laog	Camangaan Laog	Poblacion of San Nicolas	San Manuel		San Felipe		San Tomas		San Marcos	
							Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat	Sarrat
1. Direct Damage Total	830.7	51.3	14.5	100.3	23.2	49.1	14.4	5.5	1.7	1.0				
a. Agricultural Production	146.6	9.8	2.0	0.7	7.1	3.0	4.1	1.6	0.6	0.3				
- Irrigated Field	144.0	9.8	2.0	0.7	7.0	2.9	3.6	1.6	0.5	0.2				
- Rainfed Field	2.6	0.0	0.0	0.0	0.1	0.1	0.5	0.0	0.1	0.1				
b. Housing Units	357.2	19.9	7.1	33.4	8.7	25.3	5.5	0.7	0.4	0.3				
c. Industry	43.7	4.6	0.9	5.6	1.3	4.5	2.1	1.8	0.4	0.3				
- Shopping Stores	40.2	4.6	0.9	5.2	1.2	3.4	2.0	1.8	0.4	0.3				
- Factories	3.4	0.0	0.0	0.3	0.1	1.2	0.1	0.0	0.0	0.0				
d. Infrastructure	283.2	17.0	4.5	60.5	6.1	16.3	2.7	1.5	0.3	0.2				
- Social Infrastructure	144.7	8.4	2.1	43.8	2.2	8.1	0.3	0.6	0.0	0.0				
Educational Facilities	92.3	4.2	1.2	24.4	1.2	4.2	0.3	0.3	0.0	0.0				
Medical Facilities	52.4	4.2	0.8	19.4	1.0	3.9	0.0	0.3	0.0	0.0				
- Infrastructure Damage	138.5	8.5	2.4	16.7	3.9	8.2	2.4	0.9	0.3	0.2				
2. Indirect Damage	83.1	5.1	1.4	10.0	2.3	4.9	1.4	0.5	0.2	0.1				
3. Total	913.8	56.4	15.9	110.3	25.5	54.0	15.8	6.0	1.9	1.1				

Item	San Cristobal Sarrat	Gusit River/ Mandaloque	Suvo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin	Papa River Basin	Lower Bongo	Upper Bongo
a. Agricultural Production	0.7	4.9	1.9	5.9	37.4	22.5	26.3	10.5	2.7	4.8
- Irrigated Field	0.3	4.9	1.7	5.9	37.0	22.0	26.3	10.1	2.7	4.8
- Rainfed Field	0.3	0.0	0.2	0.0	0.4	0.5	0.0	0.3	0.0	0.0
b. Housing Units	0.7	6.8	12.1	13.7	74.8	51.3	59.5	18.7	6.6	11.7
c. Industry	0.2	2.5	0.6	0.6	5.4	4.8	3.9	2.2	0.7	1.3
- Shopping Stores	0.0	2.4	0.5	0.4	5.0	4.2	3.8	2.1	0.7	1.3
- Factories	0.2	0.1	0.1	0.2	0.4	0.6	0.0	0.1	0.0	0.0
d. Infrastructure	5.4	6.7	4.2	20.7	44.8	33.1	35.6	14.3	4.0	5.5
- Social Infrastructure	4.3	3.2	1.1	13.9	17.7	14.4	14.7	6.7	1.6	1.6
Educational Facilities	3.3	3.2	1.1	5.1	12.4	12.4	12.3	6.2	0.0	0.6
Medical Facilities	1.0	0.0	0.0	8.8	5.3	2.0	2.4	0.5	1.6	1.0
- Infrastructure Damage	1.2	3.5	3.1	6.8	27.1	18.6	20.9	7.6	2.3	3.9
2. Indirect Damage	0.7	2.1	1.9	4.1	16.2	11.2	12.5	4.6	1.4	2.3
3. Total	7.7	23.0	20.7	44.9	178.6	122.8	137.8	50.2	15.3	25.7

Table C.5.28 Annual Benefit under Present Condition in Financial Terms

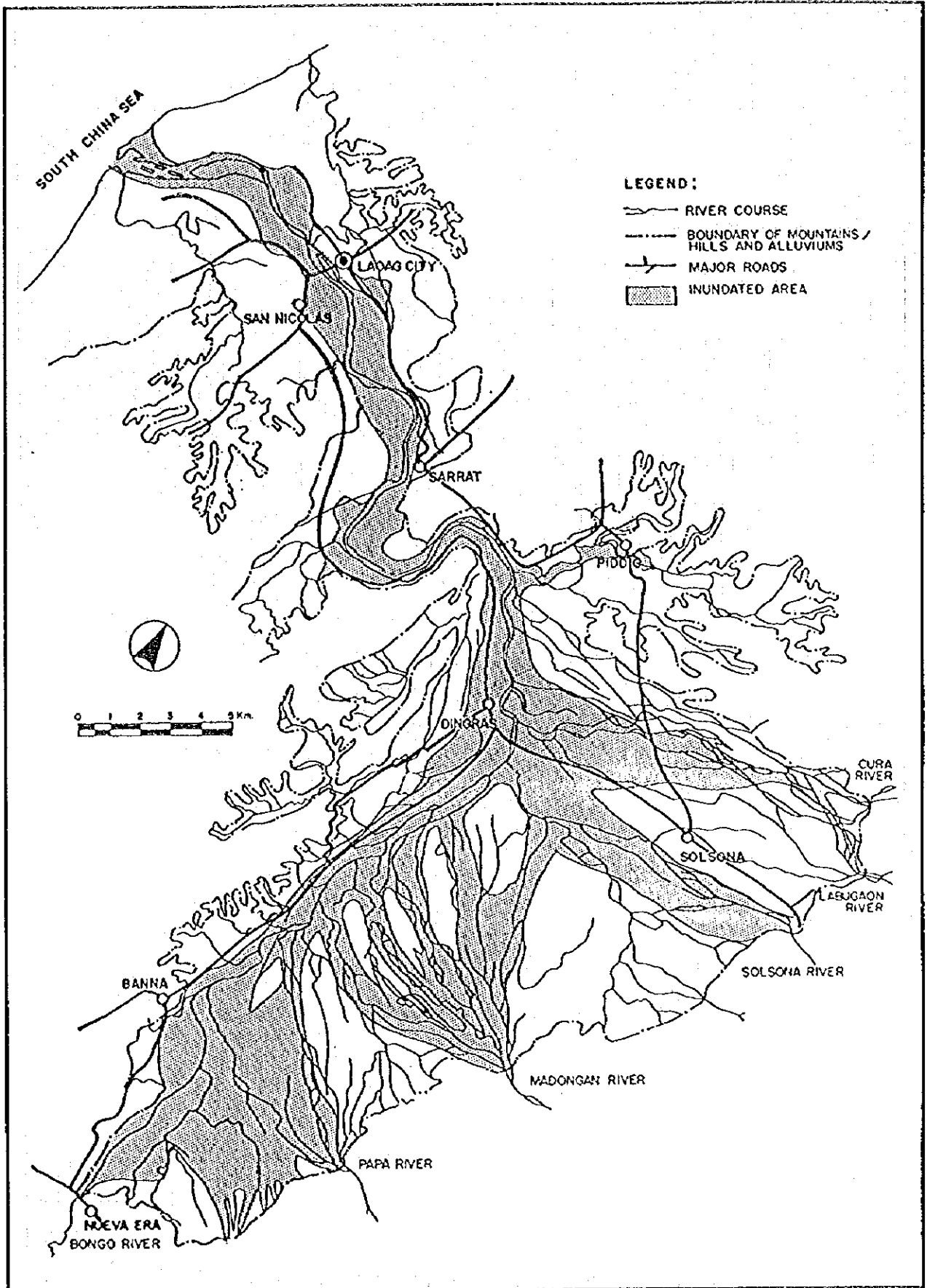
Return Period	Probable Flood Area Total	Tungid Laog	Suyo Laog	Poblacion of Laog	Camangaan Laog	Poblacion of San Nicolas	San Manuel Sarrat		San Felipe Sarrat		Sto. Tomas Sarrat		San Marcos Sarrat	
							San Manuel Sarrat	San Felipe Sarrat	Sto. Tomas Sarrat	San Marcos Sarrat				
2 - year	75.4	1.3	0.0	1.3	0.8	0.2	0.7	0.1	0.1	0.0	0.0	0.0		
5 - year	189.4	3.8	0.4	6.7	2.5	1.5	1.7	0.4	0.4	0.0	0.0	0.0		
10 - year	240.3	5.4	0.8	10.9	3.5	2.8	2.1	0.6	0.6	0.1	0.1	0.1		
25 - year	278.0	6.8	1.2	14.8	4.5	4.2	2.5	0.7	0.7	0.1	0.1	0.1		
50 - year	293.2	7.6	1.4	16.7	5.0	4.9	2.7	0.8	0.8	0.2	0.2	0.1		
100 - year	302.0	8.1	1.6	17.7	5.2	5.4	2.9	0.9	0.9	0.2	0.2	0.1		

Return Period	San Cristobal Sarrat	Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin	Papa River Basin	Lower Bongo	Upper Bongo
5 - year	0.7	5.0	3.2	3.2	56.0	37.7	39.3	17.3	3.8	6.2
10 - year	1.1	6.2	4.1	4.9	69.7	45.9	48.7	20.7	4.8	7.8
25 - year	1.5	7.3	4.9	6.4	78.8	51.5	55.1	23.1	5.5	8.9
50 - year	1.7	7.7	5.2	7.1	82.0	53.6	57.4	24.0	5.8	9.3
100 - year	1.7	7.9	5.4	7.5	83.8	54.7	58.7	24.5	5.9	9.6

***FIGURES***



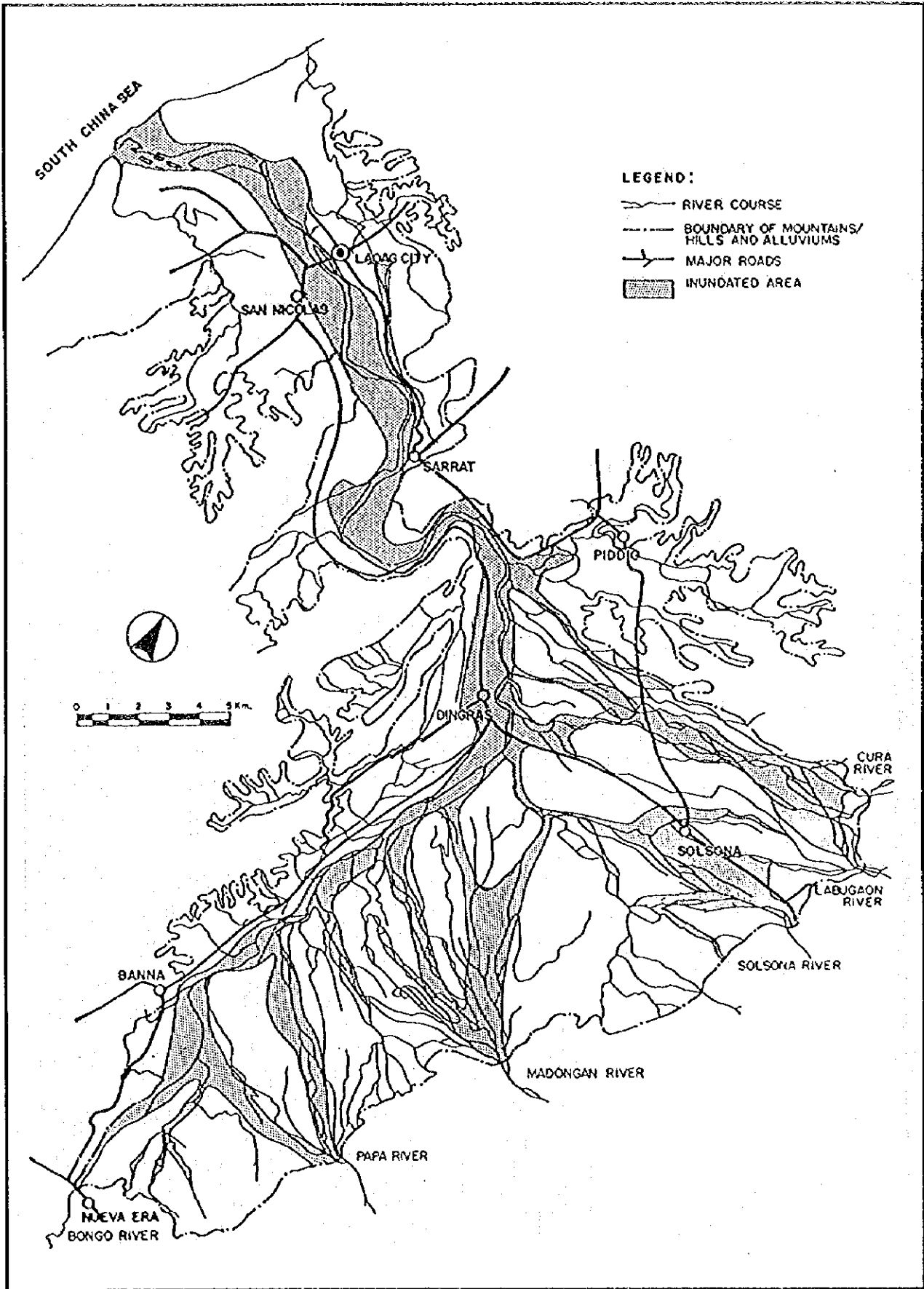


THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

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JAPAN INTERNATIONAL COOPERATION AGENCY

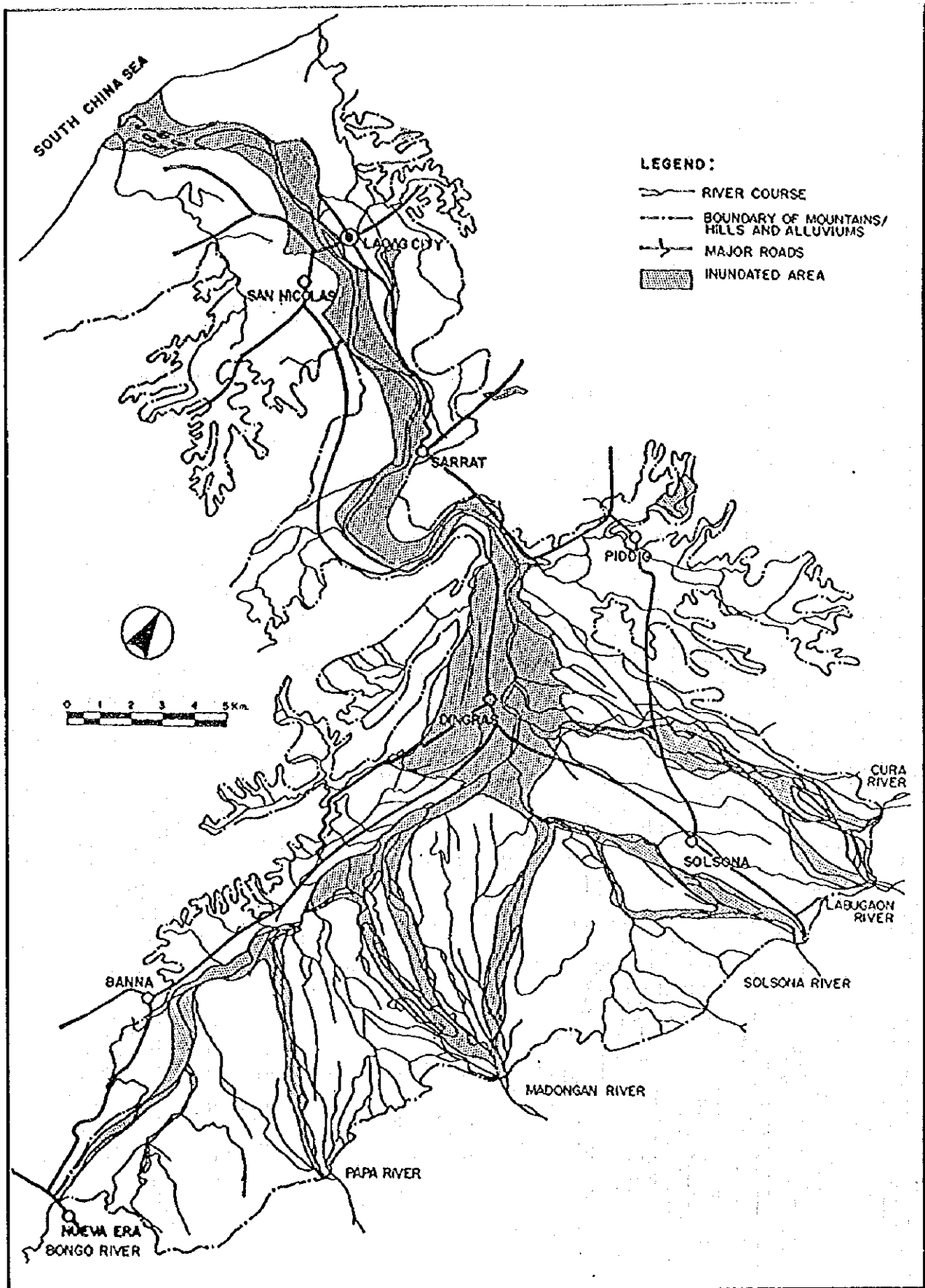
Fig. C.2.1  
Inundation Area of 1967 Typhoon Gening



THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

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Fig. C.2.2  
Inundation Area of 1986 Typhoon Meding

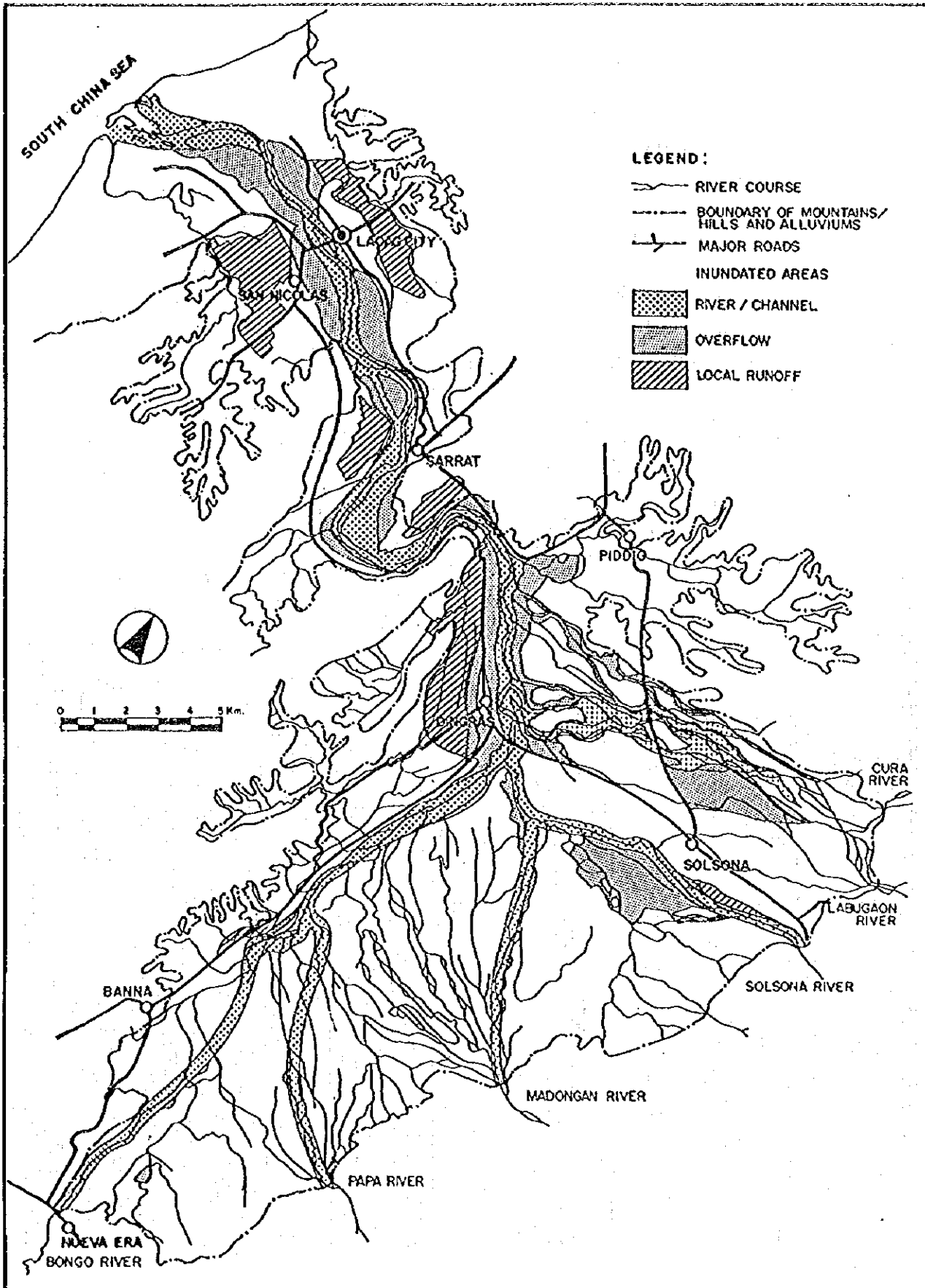


THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

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JAPAN INTERNATIONAL COOPERATION AGENCY

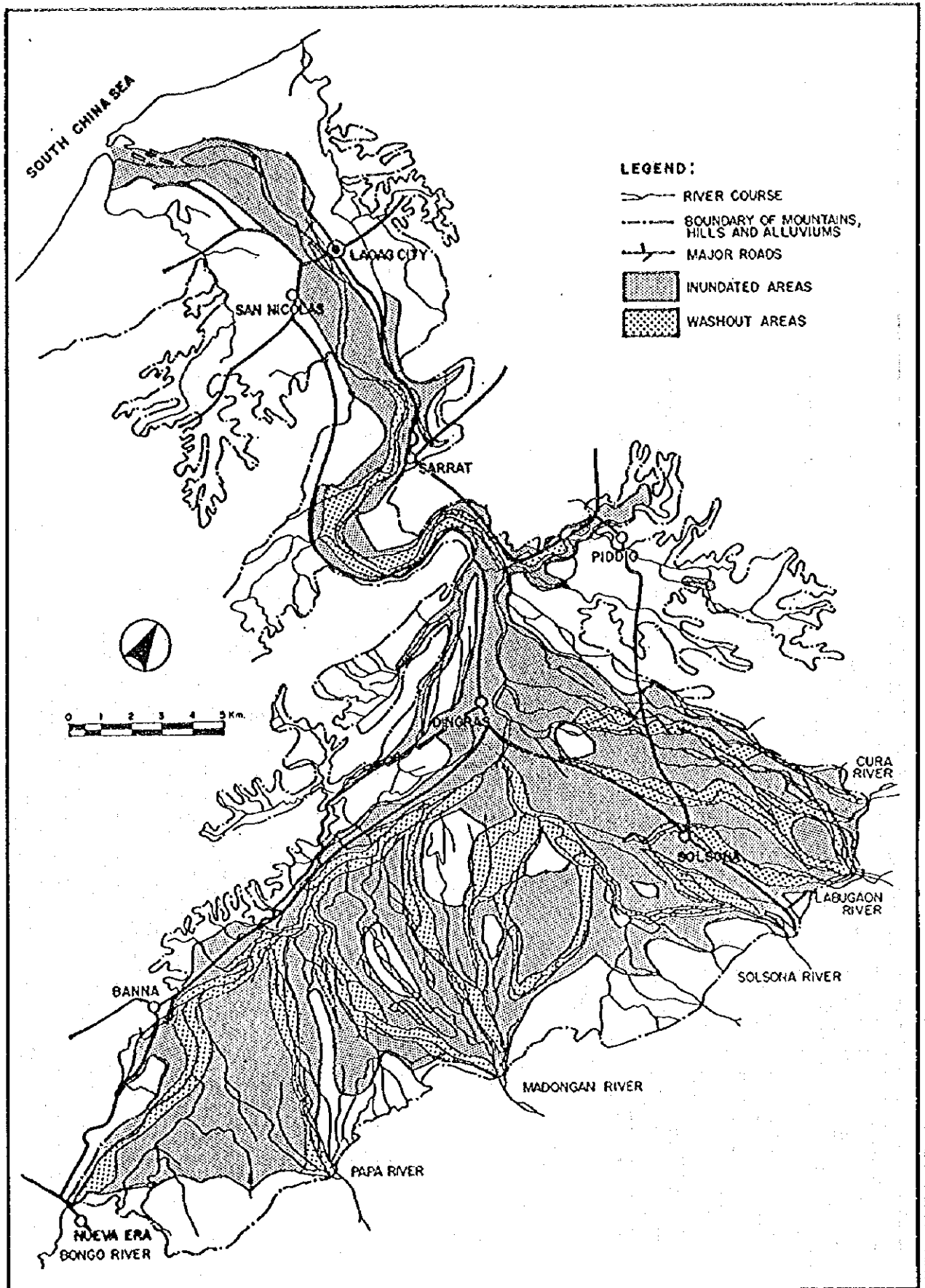
Fig. C.2.3  
Inundation Area of 1992 Typhoon Maring



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IN THE LAOAG RIVER BASIN

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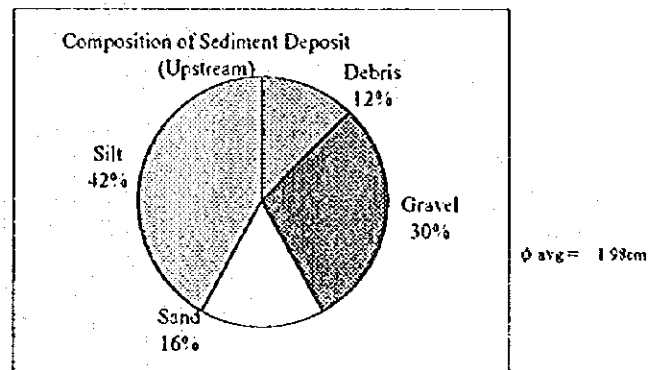
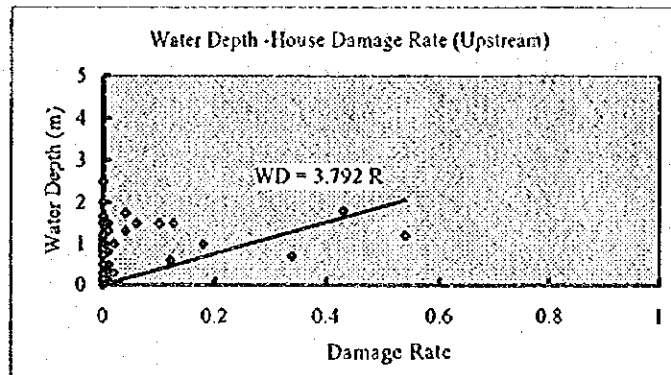
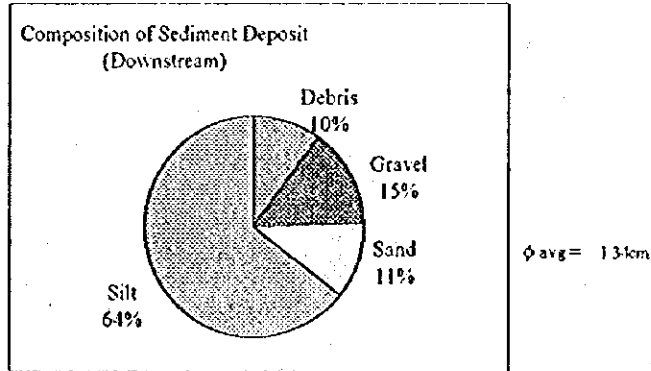
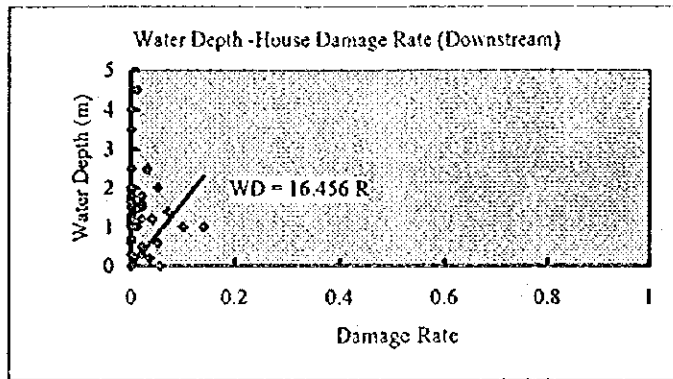
Fig. C.2.4  
Inundation Area of 1996 Typhoon Gloring

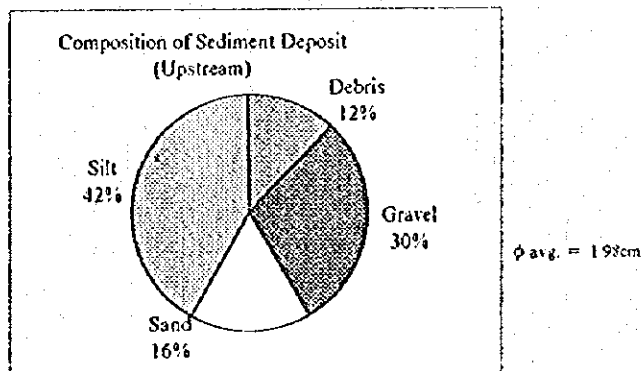
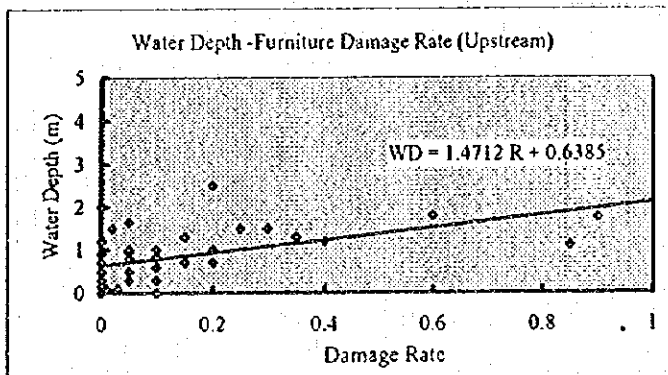
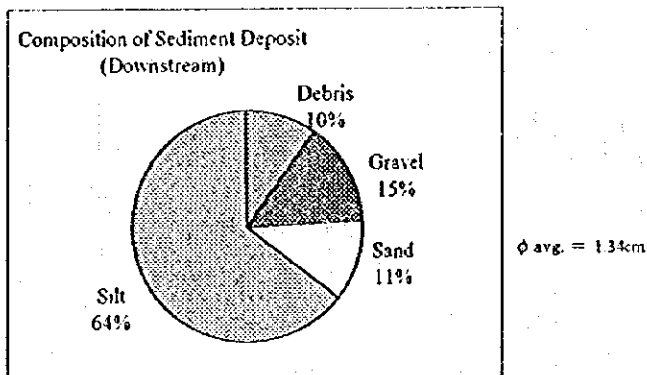
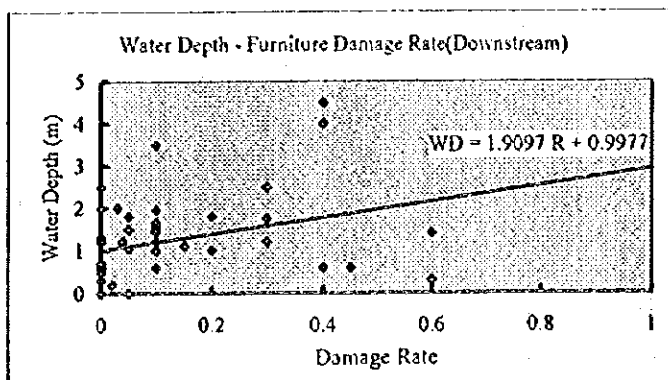


THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. C.3.1  
Potential Flood Area

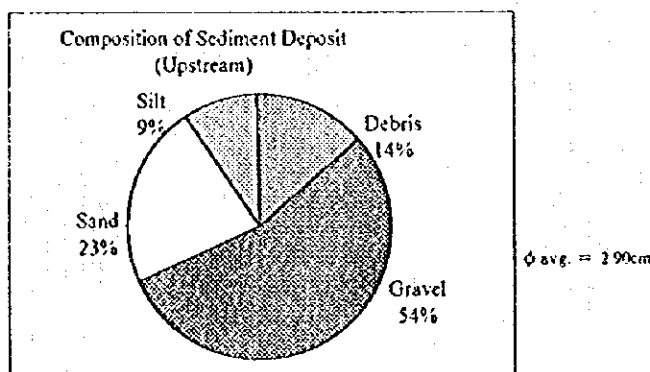
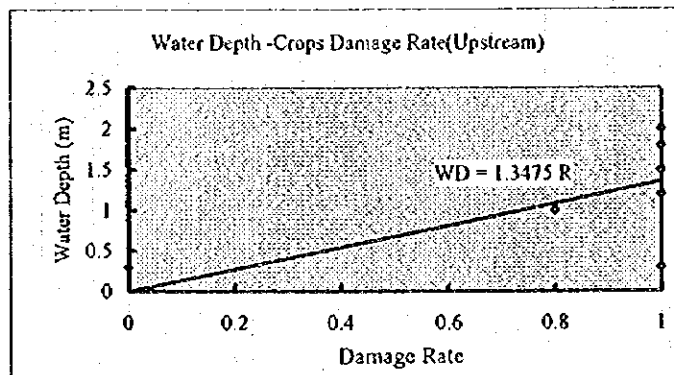
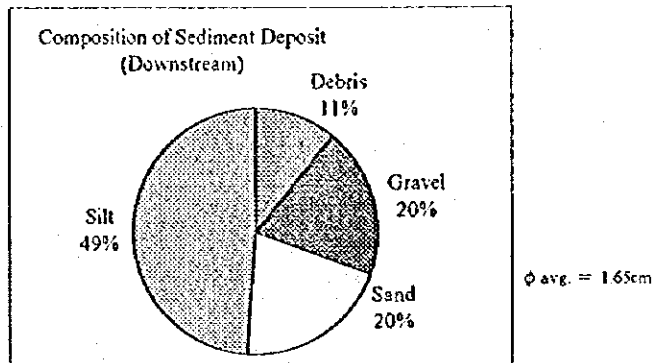
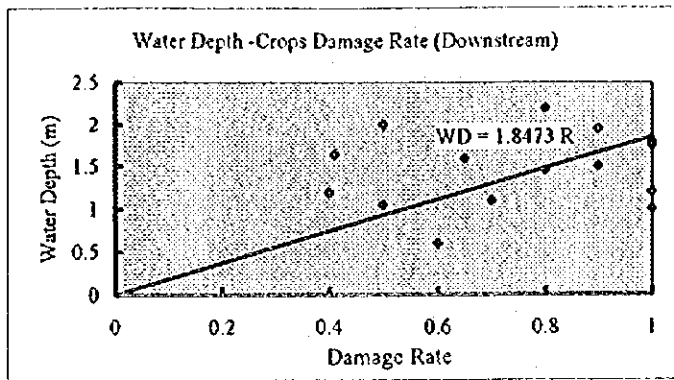




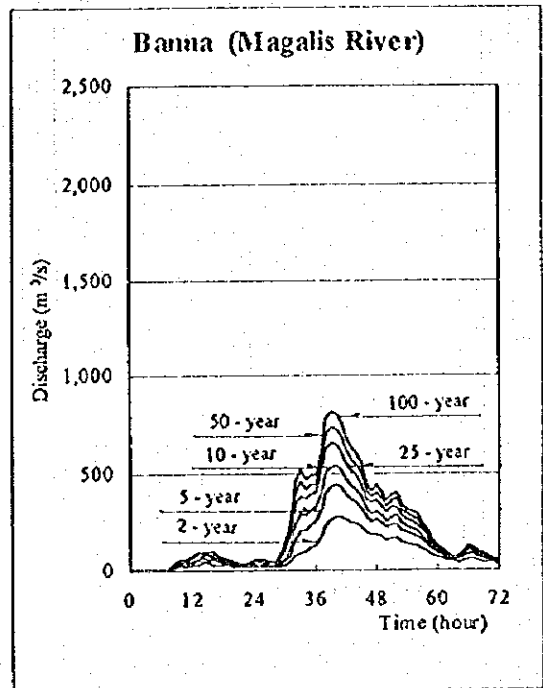
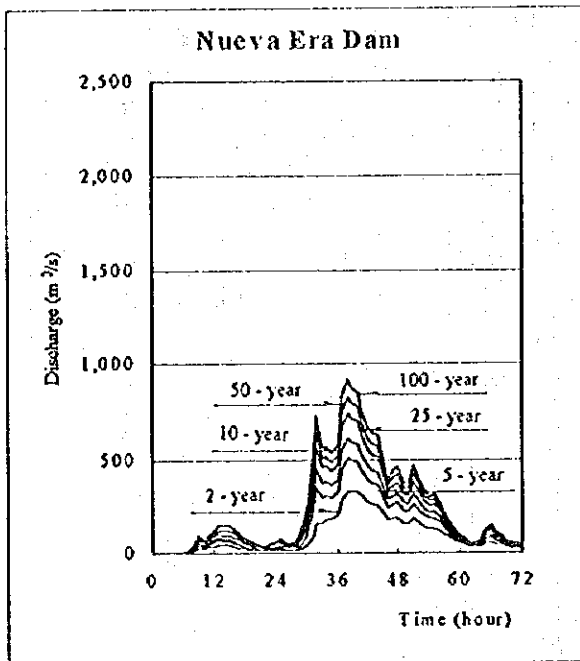
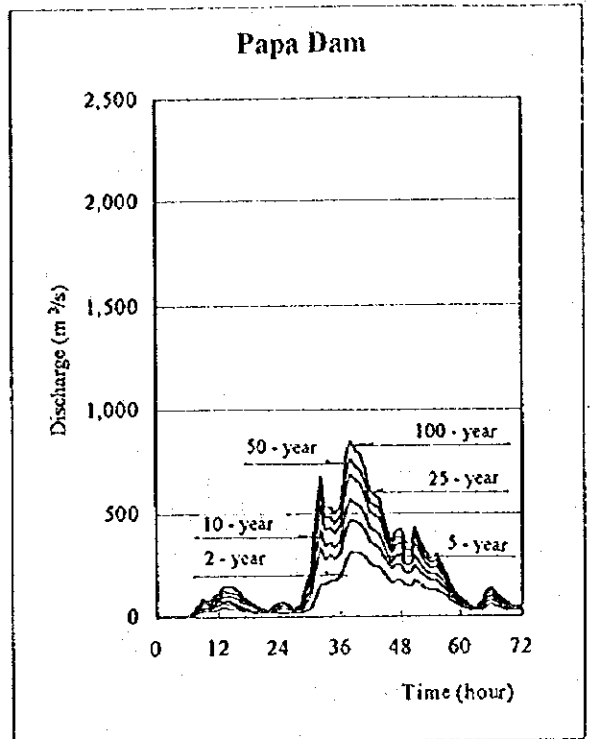
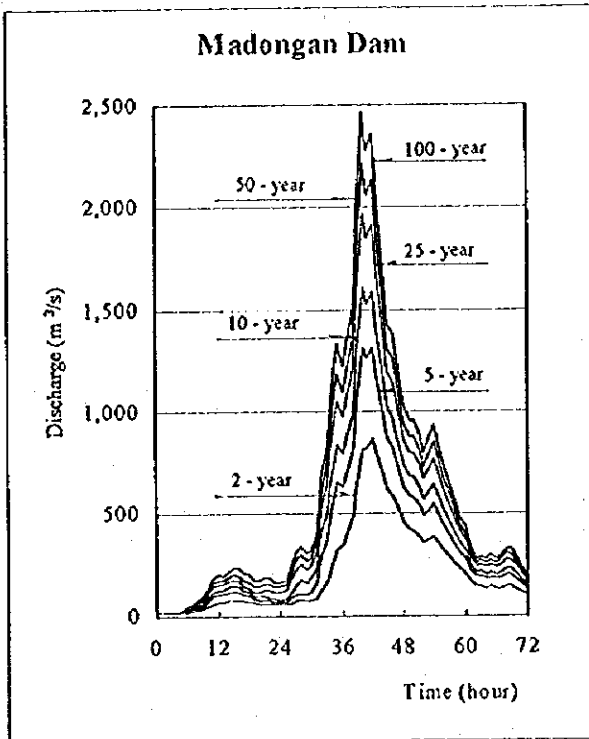
THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

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Fig. C.3.3  
Relation between Furniture Damage Rate  
and Water Depth



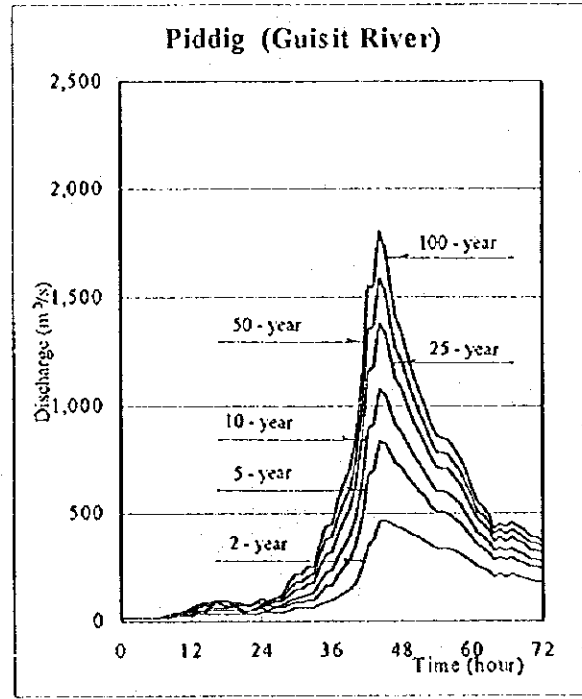
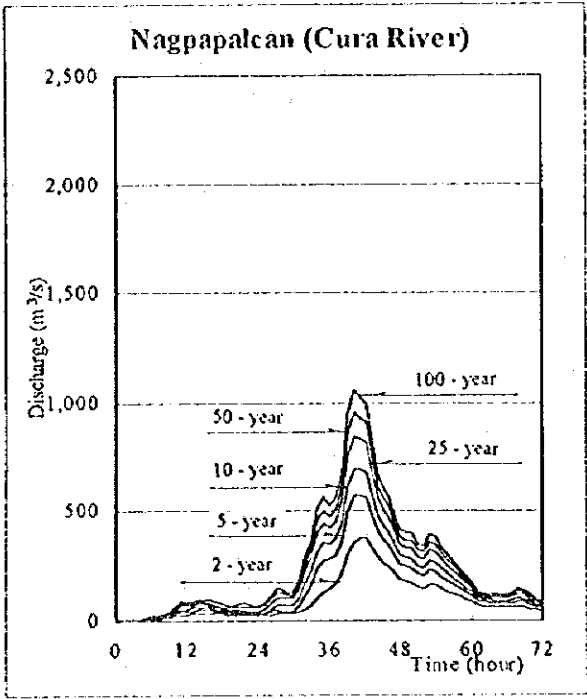
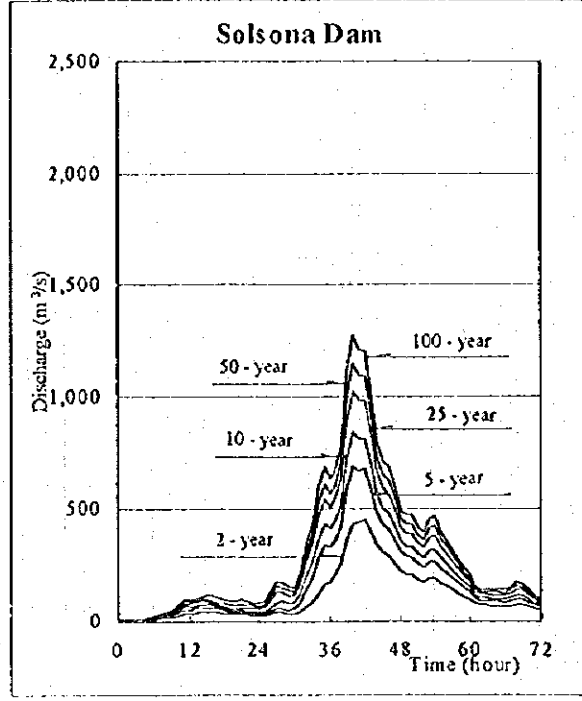
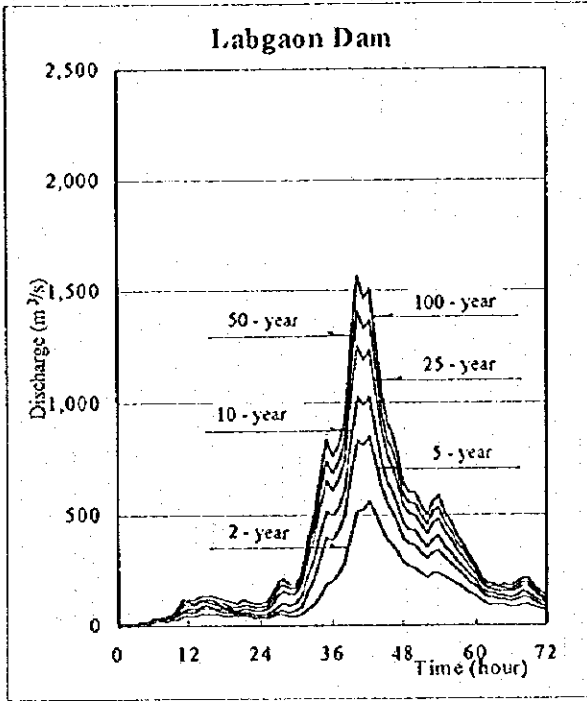




THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

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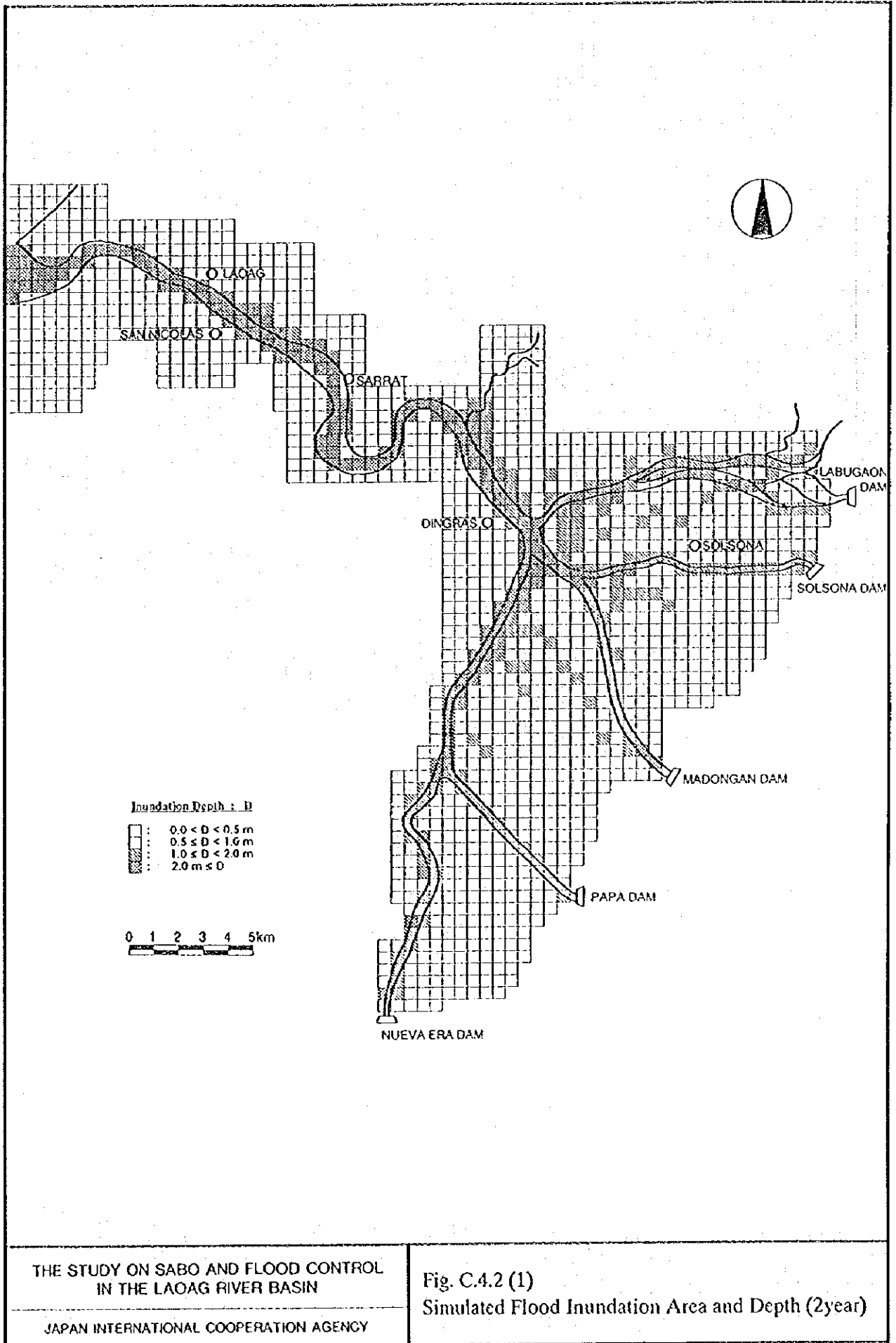
Fig. C.4.1 (1)  
Probable Flood Hydrograph

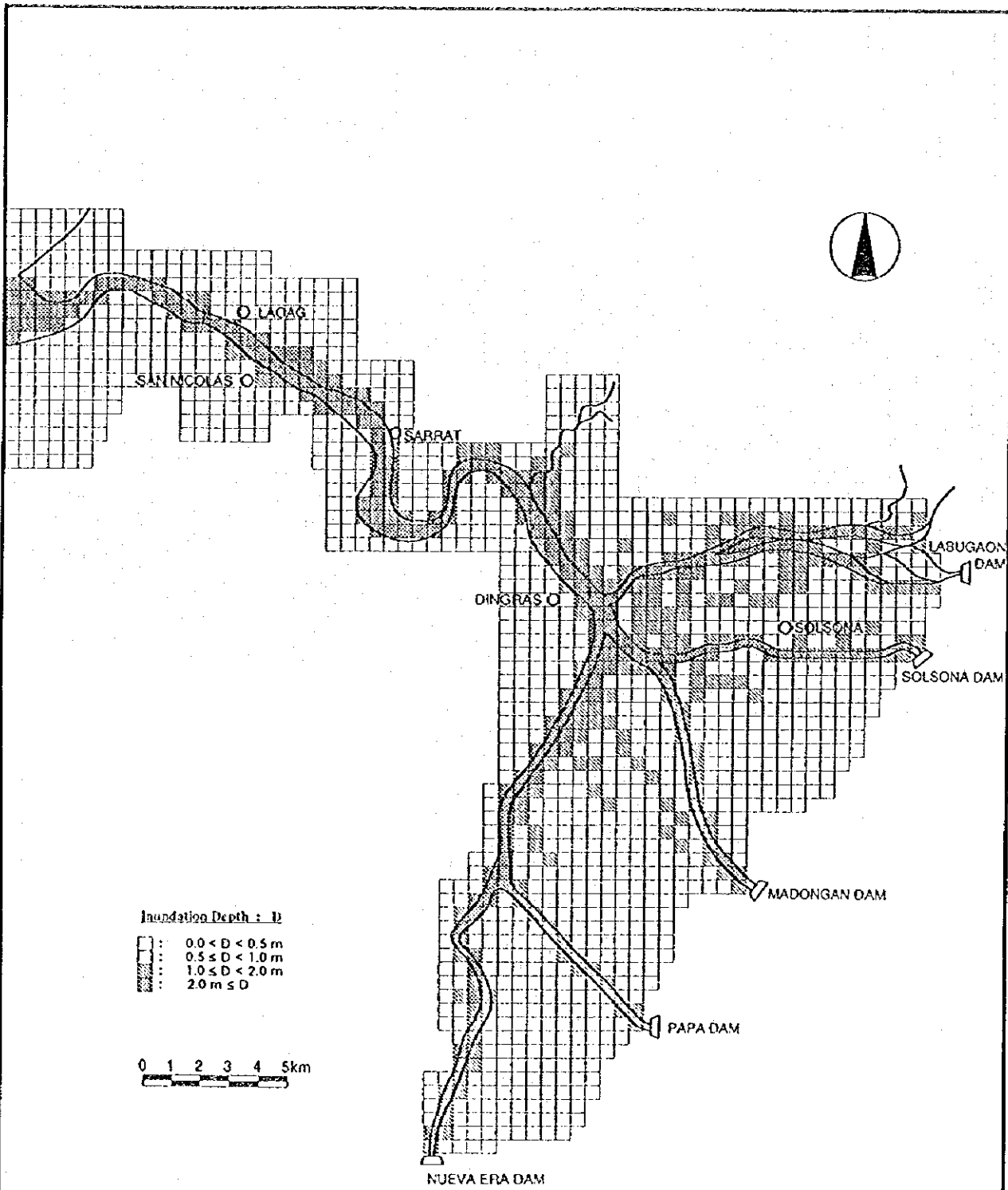


THE STUDY ON SABO AND FLOOD CONTROL  
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Fig. C.4.1 (2)  
Probable Flood Hydrograph



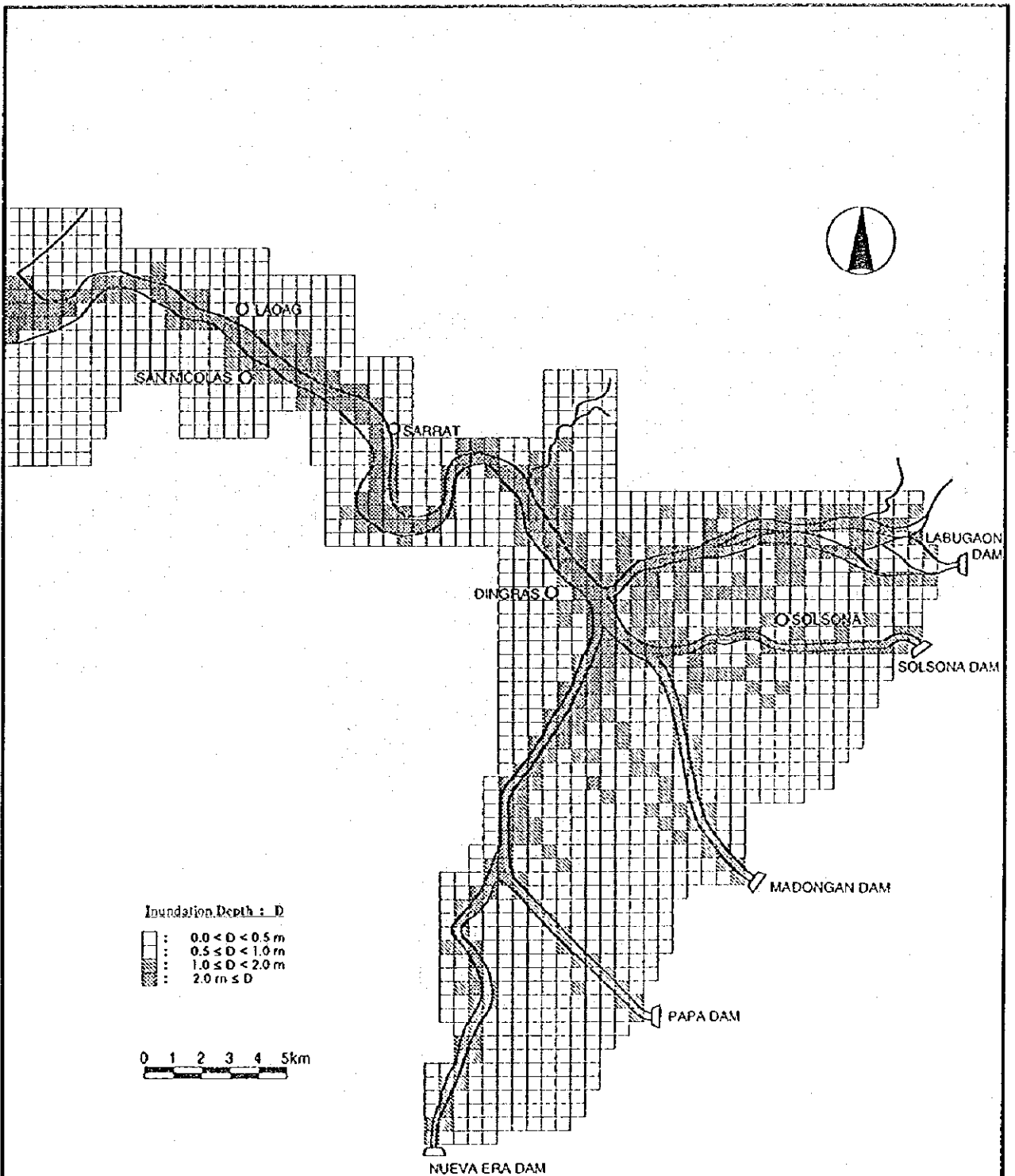


THE STUDY ON SABO AND FLOOD CONTROL  
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Fig. C.4.2 (2)

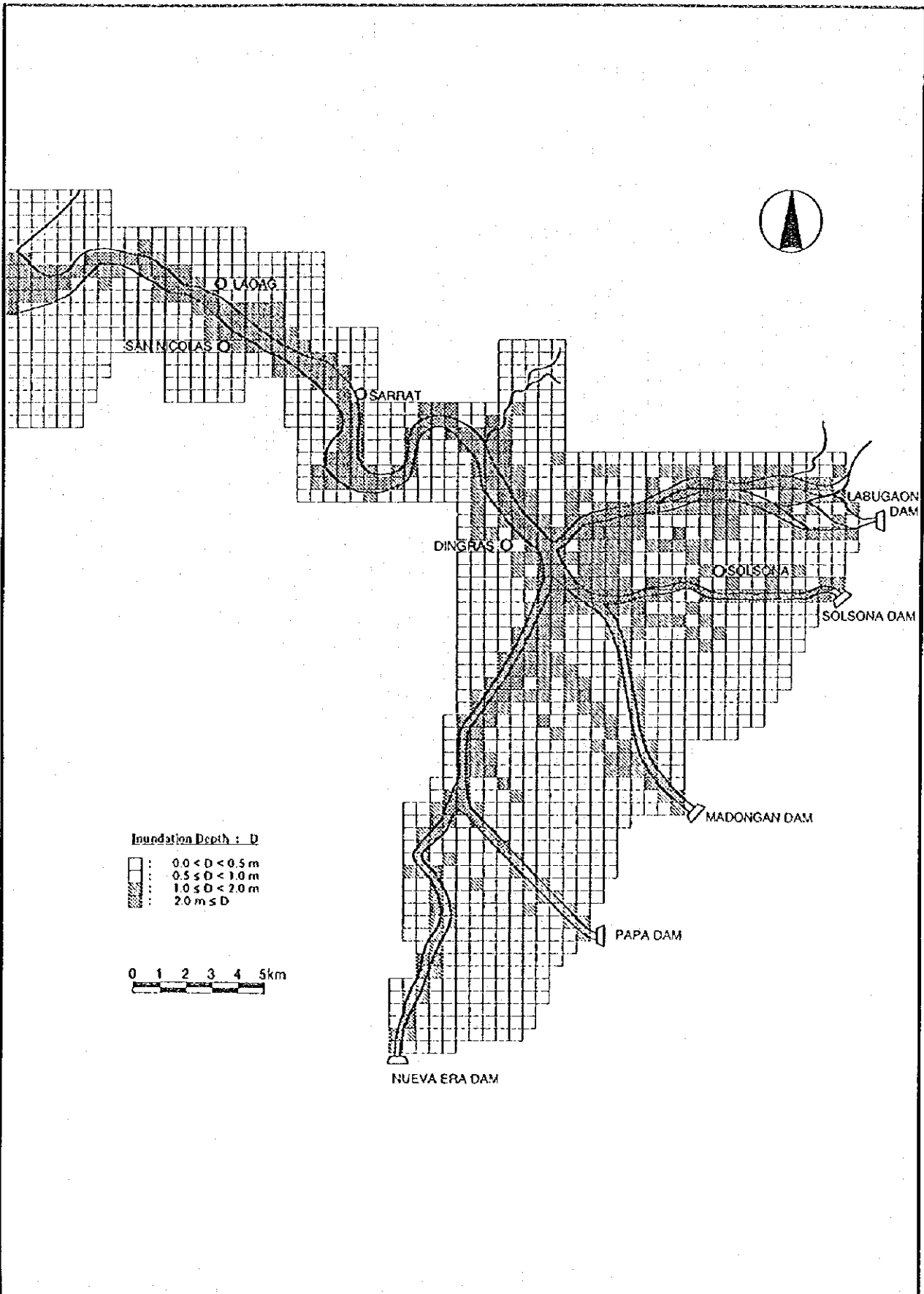
Simulated Flood Inundation Area and Depth (5year)



THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

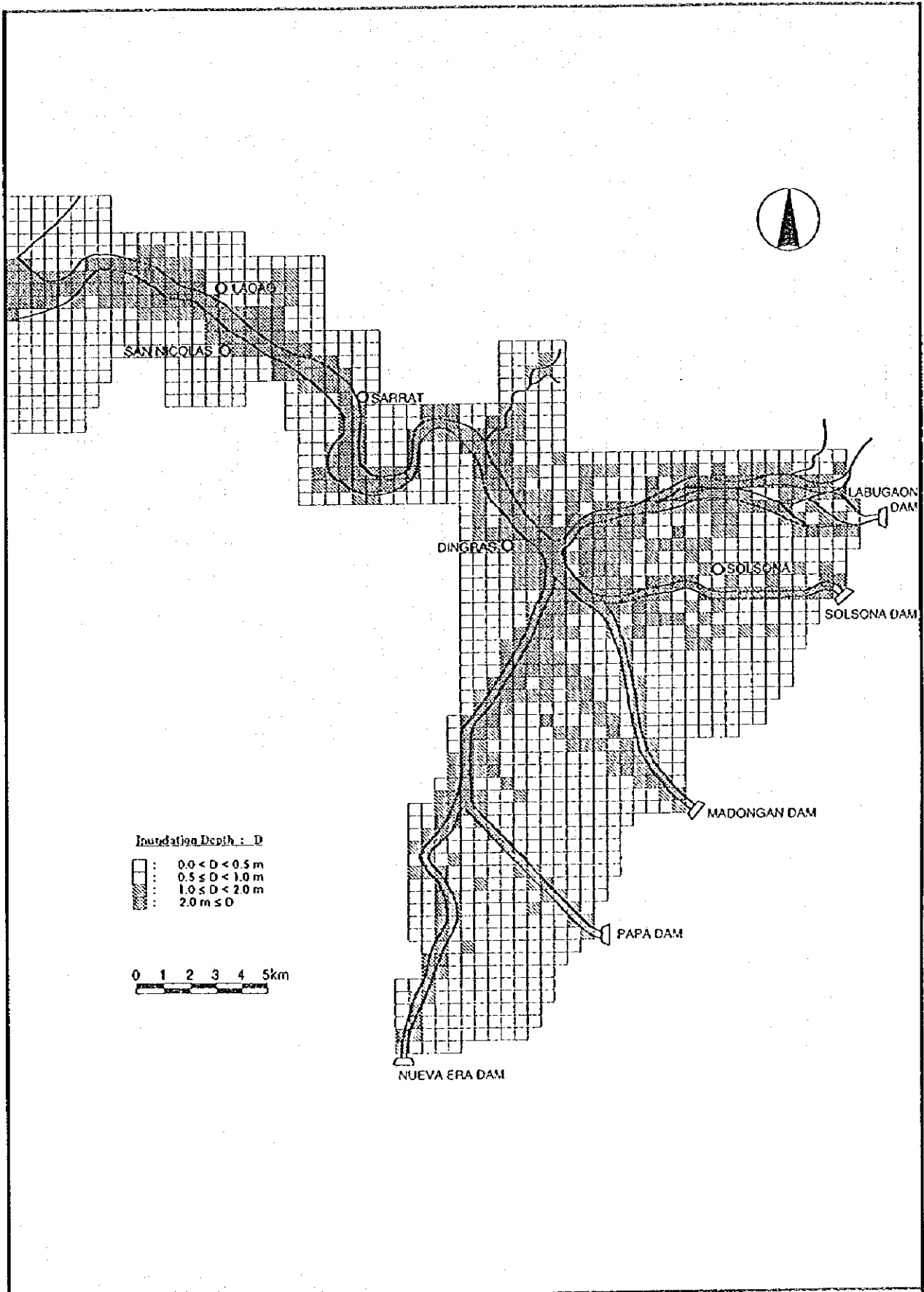
Fig. C.4.2 (3)  
Simulated Flood Inundation Area and Depth (10year)



THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

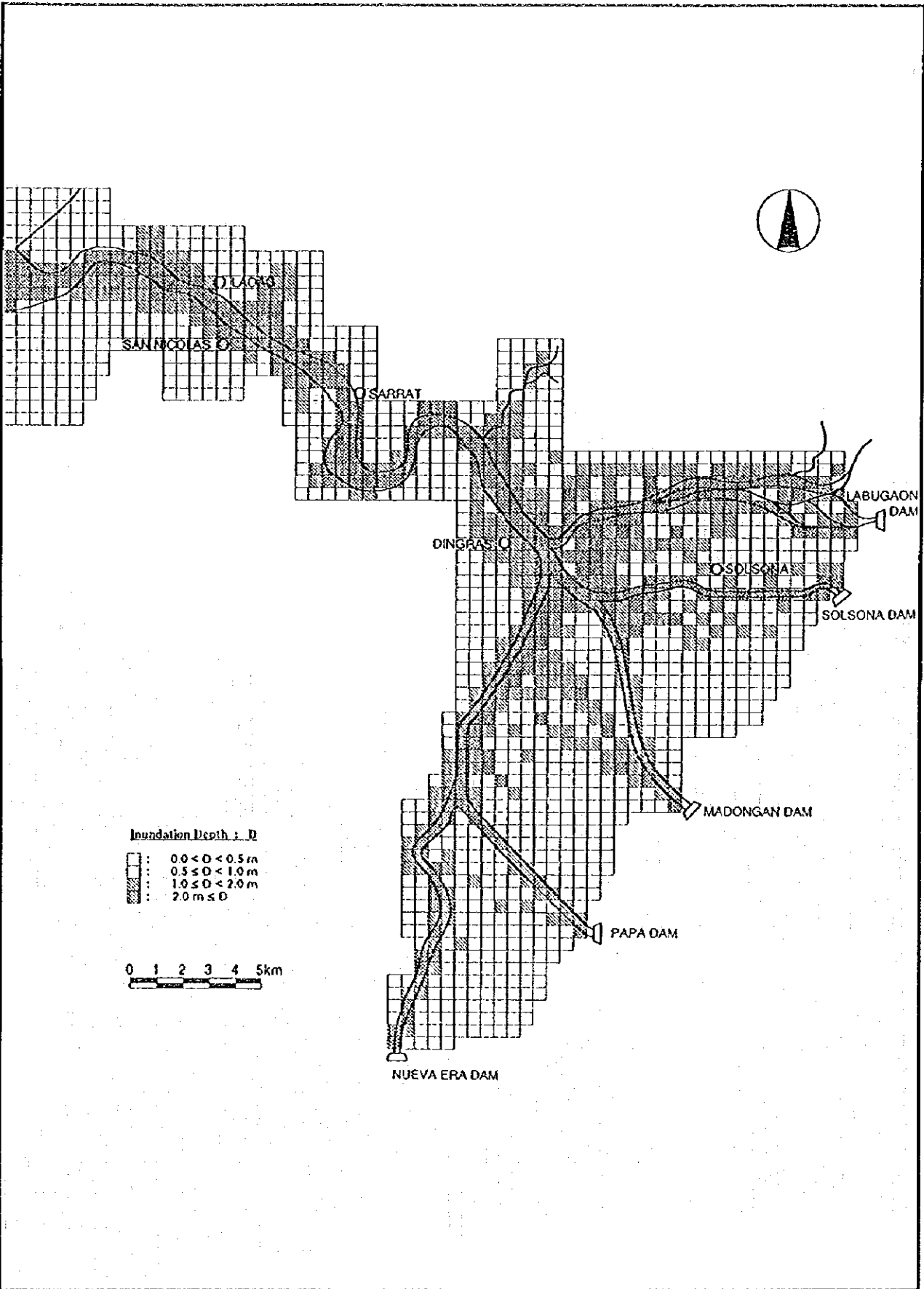
Fig. C.4.2 (4)  
Simulated Flood Inundation Area and Depth (25year)



THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. C.4.2 (5)  
Simulated Flood Inundation Area and Depth (50year)

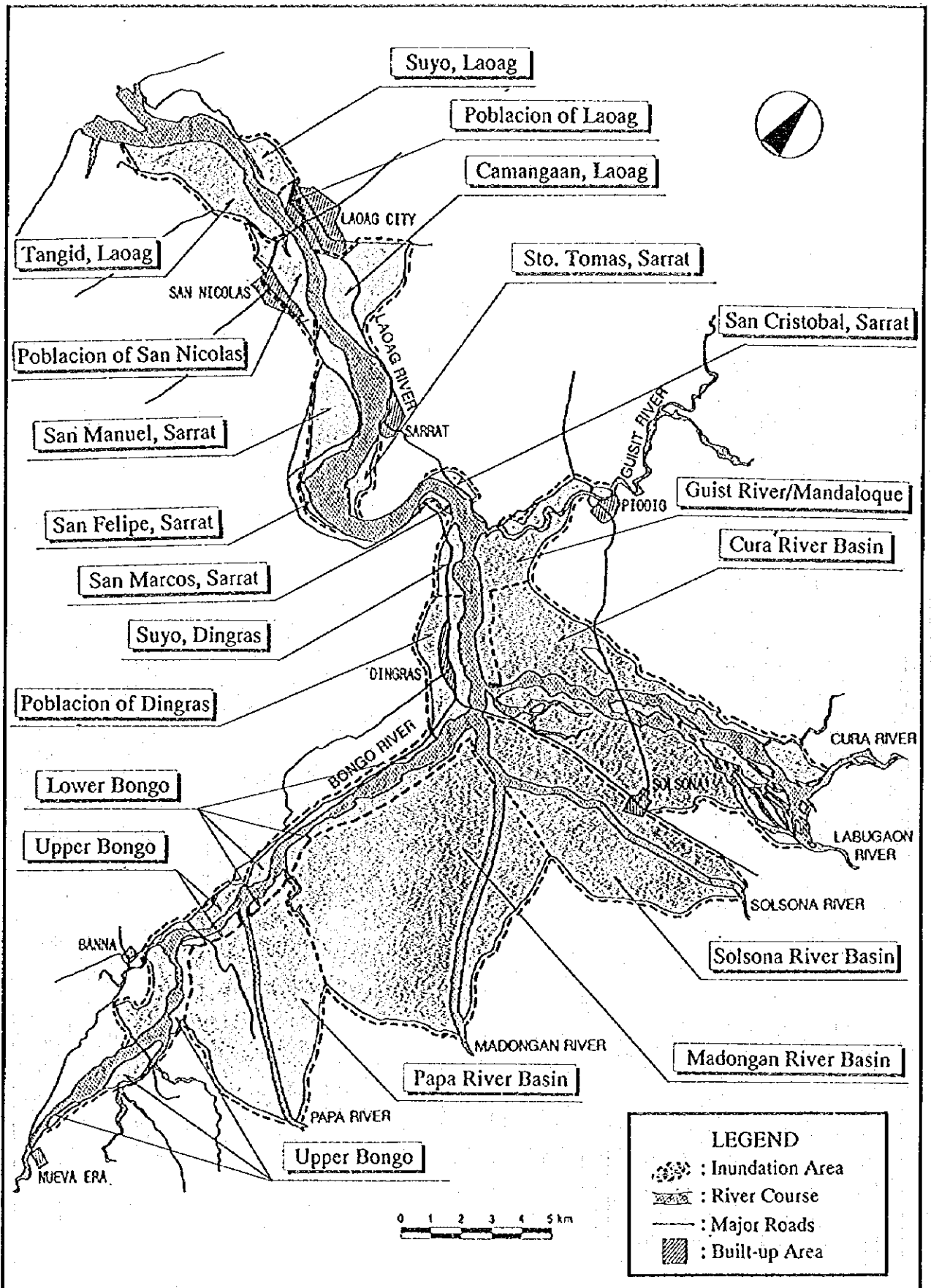


THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

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Fig. C.4.2 (6)  
Simulated Flood Inundation Area and Depth (100year)



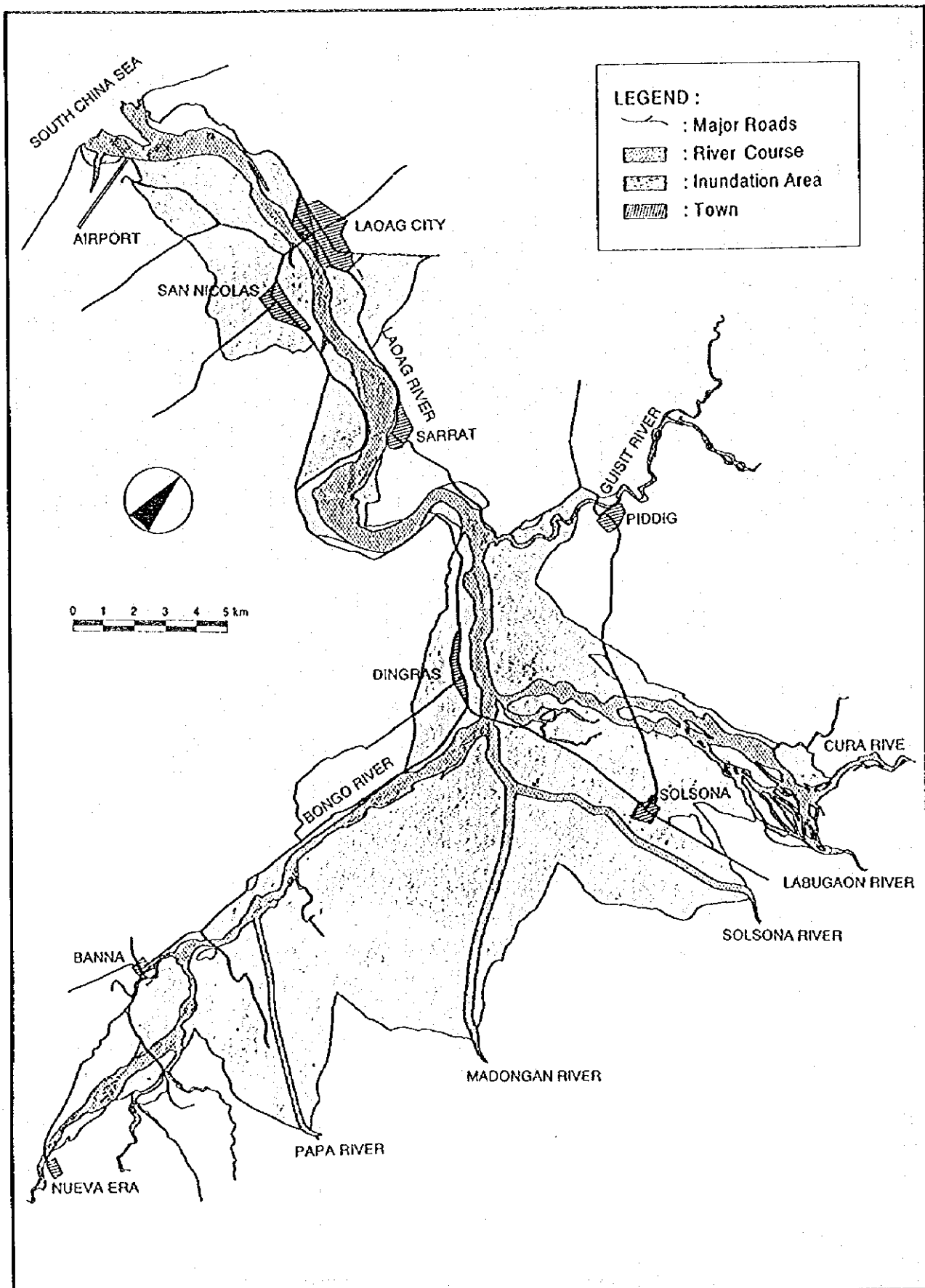


THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

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Fig. C.4.3

Inundation Area of 25 Year Flood

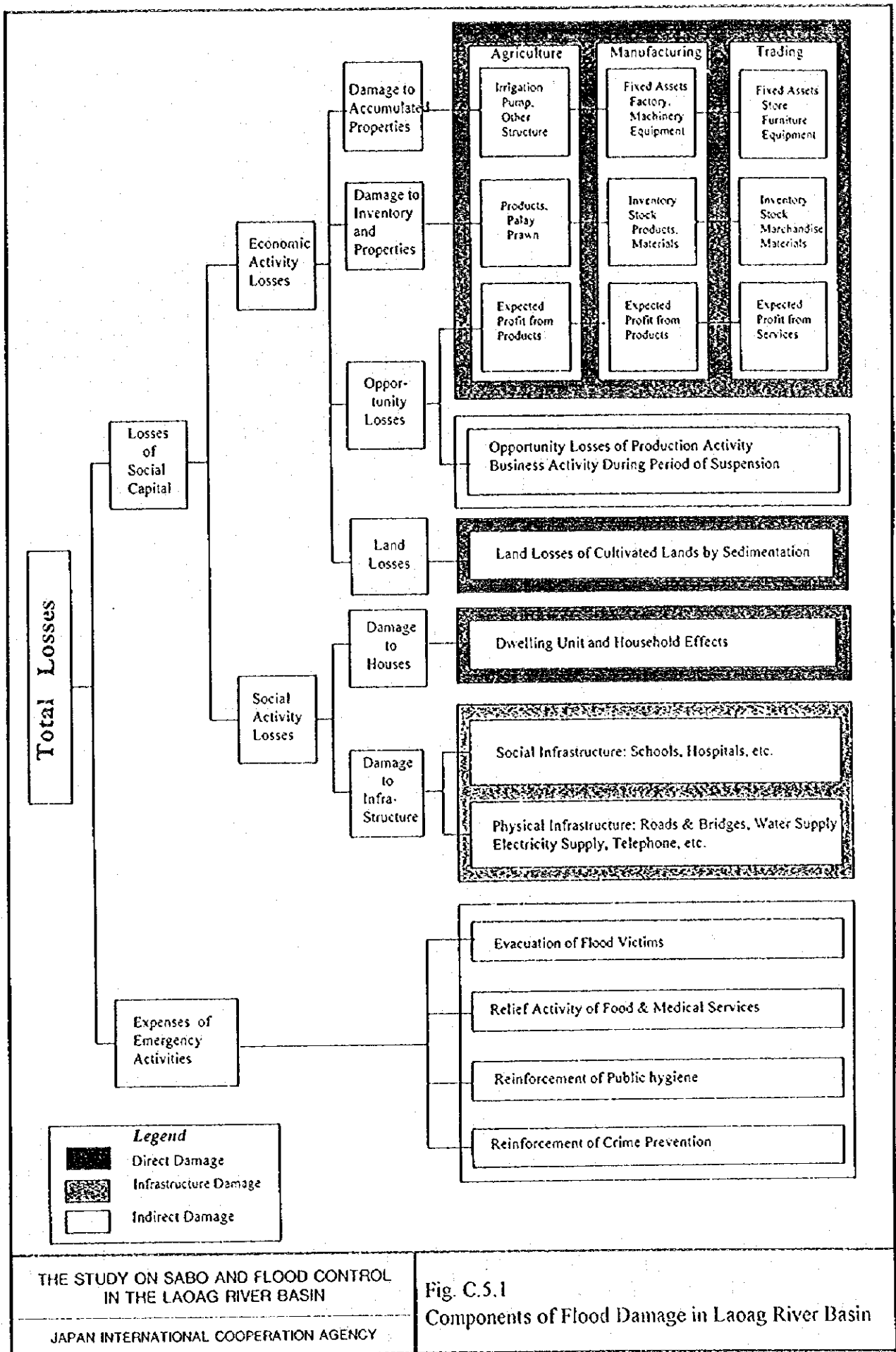


THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

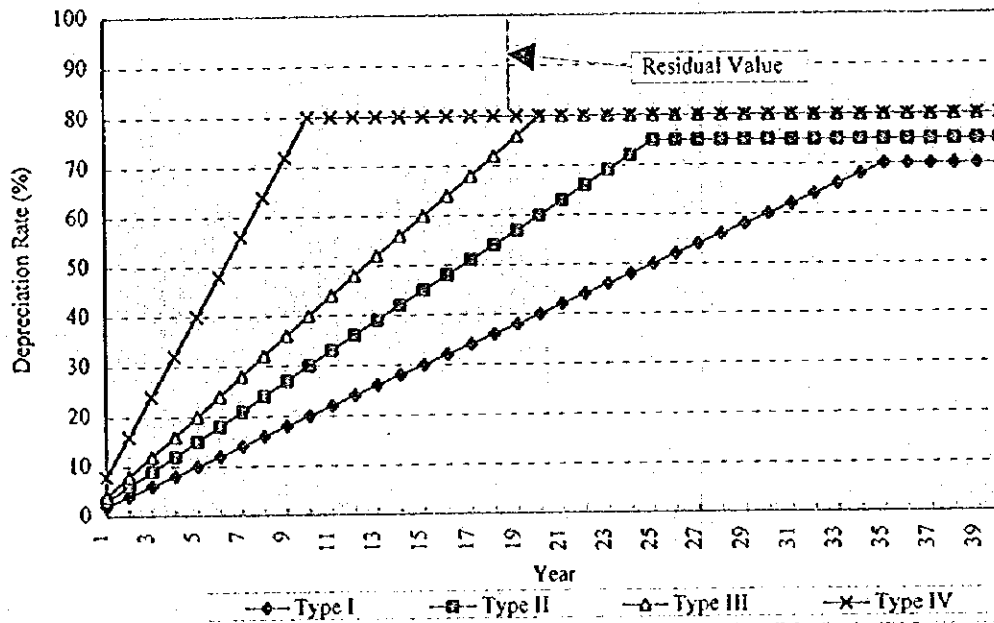
JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. C.4.4

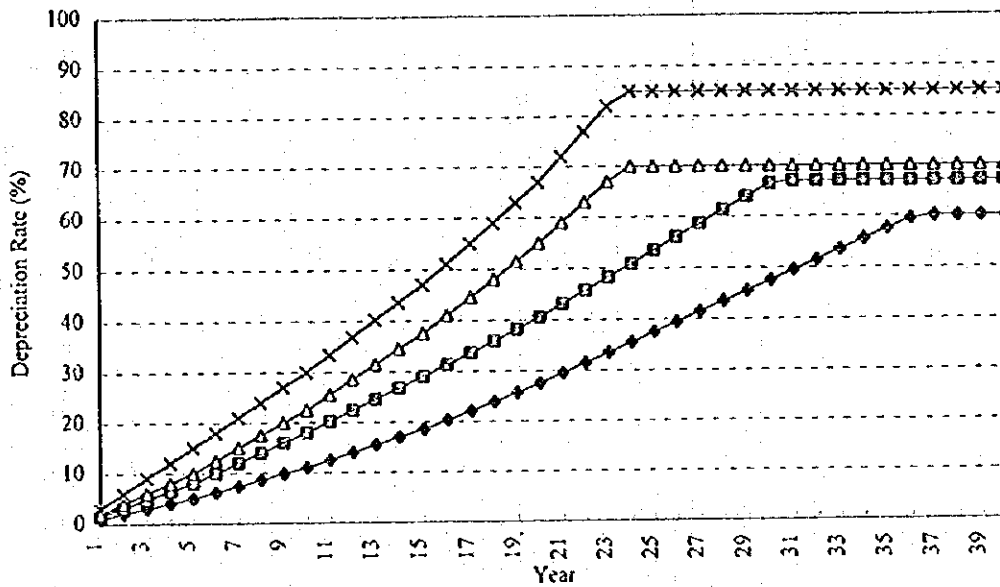
Inundation Area of 100 Year Flood



Schedule of Depreciation in Laoag City



Schedule of Depreciation in Municipalities



THE STUDY ON SABO AND FLOOD CONTROL  
IN THE LAOAG RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. C.5.2  
Depreciation by Type of Building and  
by Local Government Unit

*ATTACHMENT - A*

*QUESTIONNAIRE FOR INTERVIEW SURVEY*

**SABO AND FLOOD CONTROL IN THE LAOAG RIVER BASIN (1996)**  
**QUESTIONNAIRE TO CLARIFY THE FLOODING CONDITIONS**  
**AND FLOOD PREPAREDNESS**

for barangay captain

Interviewer \_\_\_\_\_

Date of Interview \_\_\_\_\_, 1996

Time started : \_\_\_\_\_ AM/PM

**A. IDENTIFICATION**

1. Location Latitude(X) Longitude(Y) X: \_\_\_\_\_  
Y: \_\_\_\_\_

2. City/Municipality (Check appropriate box)

- |                 |                          |                |                          |
|-----------------|--------------------------|----------------|--------------------------|
| 2.1 Bacarra     | <input type="checkbox"/> | 2.8 Batac      | <input type="checkbox"/> |
| 2.2 Vintar      | <input type="checkbox"/> | 2.9 Pinili     | <input type="checkbox"/> |
| 2.3 Laoag City  | <input type="checkbox"/> | 2.10 Nueva Era | <input type="checkbox"/> |
| 2.4 San Nicolas | <input type="checkbox"/> | 2.11 Espiritu  | <input type="checkbox"/> |
| 2.5 Sarrat      | <input type="checkbox"/> | 2.12 Marcos    | <input type="checkbox"/> |
| 2.6 Piddig      | <input type="checkbox"/> | 2.13 Dingras   | <input type="checkbox"/> |
| 2.7 Carasi      | <input type="checkbox"/> | 2.14 Solsona   | <input type="checkbox"/> |

4. Barangay \_\_\_\_\_ Barangay Number \_\_\_\_\_
5. Address (no. and name of street) \_\_\_\_\_
6. Name of Respondent \_\_\_\_\_

**B. CHARACTERISTICS OF THE HOUSEHOLD**

1. Number of occupants and household in the barangay

2.1 Occupants \_\_\_\_\_ persons

2.2 Households \_\_\_\_\_

3. Type of dwelling unit (fill out on the line)

number or % (or predominant type of house)

3.1 Single-detached \_\_\_\_\_

3.1.1 Makeshift \_\_\_\_\_

3.1.2 Concrete \_\_\_\_\_

3.1.3 Wood \_\_\_\_\_

3.1.4 Concrete and wood \_\_\_\_\_

3.1.5 Barong-barong \_\_\_\_\_

3.1.6 Others, specify \_\_\_\_\_ ( )

3.2 Duplex \_\_\_\_\_

3.2.1 Makeshift \_\_\_\_\_

3.2.2 Concrete \_\_\_\_\_

3.2.3 Wood \_\_\_\_\_

3.2.4 Concrete and wood \_\_\_\_\_

3.2.5 Barong-barong \_\_\_\_\_

3.2.6 Others, specify \_\_\_\_\_ ( )

3.3 Apartment \_\_\_\_\_

3.3.1 Concrete \_\_\_\_\_

3.3.2 Wood \_\_\_\_\_

3.3.3 Concrete and wood \_\_\_\_\_

3.3.4 Others, specify \_\_\_\_\_ ( )

3.4 Mansion \_\_\_\_\_

3.4.1 Concrete \_\_\_\_\_

3.4.2 Wood \_\_\_\_\_

3.4.3 Concrete and wood \_\_\_\_\_

3.4.4 Others, specify \_\_\_\_\_ ( )

4. Height of ground floor from street level in meters (fill out on the following line)

Number or % (or predominant type of height)

4.1 Less than 1.0 meter (Elev. < -1.0 m) \_\_\_\_\_

4.2 Below the street level (-1.0 m < Elev. < 0 m) \_\_\_\_\_

4.3 At the street level (same elevation) \_\_\_\_\_

4.4 Above the street level (0 m < Elev. < 1.0 m) \_\_\_\_\_

4.5 1 meter or more (1.0 m < Elev.) \_\_\_\_\_

5. Ownership of dwelling unit (fill out on the following line)

Number or %

- 5.1 Owned \_\_\_\_\_
- 5.2 Rented \_\_\_\_\_
- 5.3 Others, specify \_\_\_\_\_ (            )

6. Occupation of the people who live in the barangay

Number or %

- 6.1 Farmer \_\_\_\_\_
  - 6.1.1 With livestock \_\_\_\_\_
  - 6.1.2 Without livestock \_\_\_\_\_
- 6.2 Public official \_\_\_\_\_
- 6.3 Dressmaking and weaving \_\_\_\_\_
- 6.4 Restaurant, pub and bar \_\_\_\_\_
- 6.5 Sari-sari store and canteen \_\_\_\_\_
- 6.6 Worker of factory \_\_\_\_\_
- 6.7 Doctor \_\_\_\_\_
- 6.8 Nurse \_\_\_\_\_
- 6.9 Others, specify \_\_\_\_\_ (            )

7. Assessment values of lot (land) and house

(If he knows, you fill out the following lines)

- 7.1 Lot (1.0 square meter) P \_\_\_\_\_
- 7.2 House (per common house)
  - 7.2.1 made of concrete P \_\_\_\_\_
  - 7.2.2 made of wood P \_\_\_\_\_
  - 7.2.3 made of wood and concrete P \_\_\_\_\_
  - 7.2.4 Barong-barong P \_\_\_\_\_
  - 7.2.5 Others, specify (            ) P \_\_\_\_\_
  - 7.2.6 Extent of 1 household (average) \_\_\_\_\_ ha / m2



Attachment - A

7.3 Furniture (Check or fill out number appropriate box)

	Number (e.g. 1, 2, or 1 to 2)	Price(per 1)
7.3.1 Chest of drawers	<input type="text"/>	<input type="text"/>
7.3.2 Television	<input type="text"/>	<input type="text"/>
7.3.3 Carpets	<input type="text"/>	<input type="text"/>
7.3.4 Dresser	<input type="text"/>	<input type="text"/>
7.3.5 Living set	<input type="text"/>	<input type="text"/>
7.3.6 Stereo	<input type="text"/>	<input type="text"/>
7.3.7 Cabinet	<input type="text"/>	<input type="text"/>
7.3.8 Table and chair	<input type="text"/>	<input type="text"/>
7.3.9 Refrigerator	<input type="text"/>	<input type="text"/>
7.3.10 Others, specify( )	<input type="text"/>	<input type="text"/>

**C. ORGANIZATION OF AGRICULTURE AND FISHERY**

(If no one is farmer/fisherman in the barangay, terminate "C. Organization of agriculture", go to "D. Organization of social condition")

1. Area of farm lands \_\_\_\_\_ (ha or m2)
2. Area of farm lands per one household \_\_\_\_\_ (ha or m2)
3. Kinds of crops

	Kinds	Month(season) of sowing	Month(season) of harvest	Area
3.1 Irrigated paddy field				
3.2 Rainfed paddy field				
3.3 Sugarcane				
3.4 Corn				
3.5 Rootcrops				
3.6 Legume				
3.7 Others				

Attachment - A

4. Price of crops and livestock

	Kinds	Unit	Unit price	Yield per ha
4.1	Rice			
4.2	Sugarcane			
4.3	Corn			
4.4	Rootcrop			
4.5	Legume			
4.6	Chicken			
4.7	Cow			
4.8	Others			

5. Fishery/Aqua-culture

5.1 Kinds of fish and catches/cultivation in ponds/fishpen (fill out box)

Kinds	Season of catch/cultivation (whole or dry season)	Unit	Unit price	Yield

**D. ORGANIZATION OF SOCIAL CONDITION AND FACTORY****1. Public offices (fill out the number or words on the following line)**

	Number	Price of construction
1.1 Elementary school	_____	P _____
1.2 High school	_____	P _____
1.3 College/University	_____	P _____
1.4 Post office	_____	P _____
1.5 Park	_____	P _____
1.6 Public hall	_____	P _____
1.7 Hospital	_____	P _____
1.8 Others/specify	_____	P _____ (     )
	_____	P _____ (     )
	_____	P _____ (     )

**2. Infrastructure (fill out the number or words on the following line.)**

	Number	Price of construction
2.1 National road	_____	P _____
2.2 Provincial road	_____	P _____
2.3 Municipality road	_____	P _____
2.4 Barangay road	_____	P _____
2.5 Intake/Weir	_____	P _____
2.6 Sluice	_____	P _____
2.7 Drainage     length _____ m	_____	P _____
2.8 Bridge name: _____	_____	P _____
name: _____	_____	P _____
name: _____	_____	P _____
name: _____	_____	P _____
name: _____	_____	P _____

**3. Factory**

- 3.1 Name of a factory \_\_\_\_\_
- 3.2 Capital of the factory \_\_\_\_\_
- 3.3 Kind of the production \_\_\_\_\_
- 3.4 Annual yield \_\_\_\_\_
- 3.5 Name of president \_\_\_\_\_

**E. FLOODING**

1. Nature of flooding in your barangay during two decades (1976-1995)

(Check appropriate box)

1.1 Due to local runoff

1.2 Due to overbank flow from a nearby river or creek

1.2.1 Location of overbanking portion year: \_\_\_\_\_ place: \_\_\_\_\_  
Longitude: \_\_\_\_\_ Latitude: \_\_\_\_\_

1.3 Due to both

1.4 No flooding

2. Name of the nearest river or creek which caused flooding \_\_\_\_\_

3. Number of times of flooding that were experienced. (If he remembers, you write name of month and typhoon.)  
\_\_\_\_\_

4. Year of the large flood

(1) year \_\_\_\_\_ month \_\_\_\_\_ typhoon \_\_\_\_\_

(2) year \_\_\_\_\_ month \_\_\_\_\_ typhoon \_\_\_\_\_

(3) year \_\_\_\_\_ month \_\_\_\_\_ typhoon \_\_\_\_\_

5. Maximum depth of flood water during large flooding (measured from street level)

(1) location \_\_\_\_\_ X: \_\_\_\_\_ Y: \_\_\_\_\_ depth \_\_\_\_\_ m

(2) location \_\_\_\_\_ X: \_\_\_\_\_ Y: \_\_\_\_\_ depth \_\_\_\_\_ m

(3) location \_\_\_\_\_ X: \_\_\_\_\_ Y: \_\_\_\_\_ depth \_\_\_\_\_ m

6. How high is the water level of 'response of 5' from the ground floor of house?  
(Check appropriate box)

	(1)	(2)	(3)
6.1 1-50 cms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.2 51-100 cms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.3 No flooding over your property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Duration of flooding in the barangay (Check appropriate box)

	(1)	(2)	(3)
7.1 Less than 1 hr.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.2 1 hr. - 5 hrs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.3 5 hrs. - 24 hrs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.4 1 day - 3 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.5 3days - 7 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.6 More than 7 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Predominant type of flooding (Check appropriate box)

Flowing  Ponding

Velocity of flood stream \_\_\_\_\_

9. Extent of flooding during each large flood events (sketch on the topo-map)  
(1), (2) and (3)

10. Condition of floodwaters (Check appropriate box)

10.1 Rocks/debris deposit

10.2 Sediments(gravel) deposit

10.3 Sediments(sands) deposit

10.4 Sediments(silts) deposit

10.5 Reasonably clear

10.6 Others, specify  \_\_\_\_\_

11. Direct flood damage during the largest flood

11.1 The largest flood

11.1.1 Year : \_\_\_\_\_

11.1.2 Month : \_\_\_\_\_

11.1.3 Typhoon : \_\_\_\_\_

11.2 Agriculture/Fishery/Livestock

Kinds	Extent of damage	Damage amount or rate of damage(%)

11.3 Household/Furniture

Kinds	Number of damage			Damage amount
	Totally destroyed	Partially destroyed	Inundated	
Made of concrete				
Made of wood				
Made of conc./wood				
Barong-barong				
Makeshift				
Others				

unit : per 1 household

Name of furniture	Damage amount or rate of damage(%)

11.4 Social/Public structure and factory

unit : per 1

Name of structure	Damage amount or rate of damage(%)



12. Indirect damage (in the same flood as "question No.11")

12.1 Suspended period of transportation due to flooding

12.1.1 National road \_\_\_\_\_ days

12.1.2 Provincial road \_\_\_\_\_ days

12.1.3 Municipality road \_\_\_\_\_ days

12.1.4 Barangay road \_\_\_\_\_ days

12.2 Suspended period of farming due to flooding

12.2.1 Irrigated fields \_\_\_\_\_ days

12.2.2 Non-irrigated fields \_\_\_\_\_ days

12.3 Suspended period of productive activities due to flooding

Name of factory

\_\_\_\_\_ days

\_\_\_\_\_ days

12.4 Suspended period of selling commodities at the store/shop due to flooding

Name

\_\_\_\_\_ days

\_\_\_\_\_ days

\_\_\_\_\_ days

\_\_\_\_\_ days

\_\_\_\_\_ days

12.5 Suspended period of electric supply due to flooding

\_\_\_\_\_ days

12.6 Affected families and persons due to flooding

Number

12.6.1 Affected families \_\_\_\_\_

12.6.2 Affected persons \_\_\_\_\_

12.6.3 Casualty \_\_\_\_\_

12.6.4 Injured \_\_\_\_\_

12.7 Other nuisances during flooding and after flooding

\_\_\_\_\_

**F. FLOOD FIGHTING/PREPAREDNES**

1. Flood preparedness

-Action taken by residents and related organizations in past flood events.

-Equipment and materials used for flood prevention measures by residents.

(e.g. construction dike and spur dike, transfer of furniture to higher place, flood proofing works for the residential houses)

Year : \_\_\_\_\_

Action taken

2. Flooding fighting during floods

(e.g. emergency work to prevent dike breach, evacuation)

Year : \_\_\_\_\_

Action taken

**G. OTHERS**

1. Experience of having the land washed out by flood water in the barangay.

(Check appropriate box)

1.1 Yes  No

1.2 Year : \_\_\_\_\_, Month : \_\_\_\_\_, Typhoon : \_\_\_\_\_

1.3 Area : \_\_\_\_\_ ha

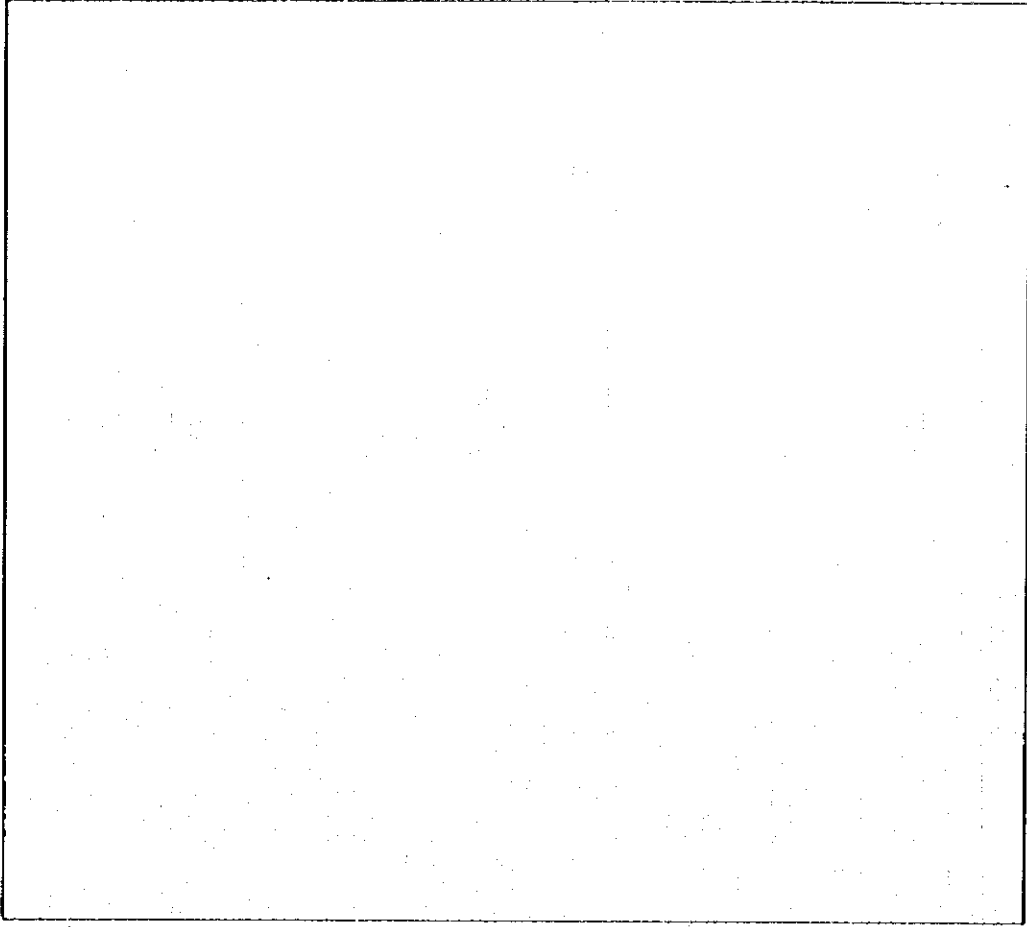
1.4 Land Use before the flood : \_\_\_\_\_

1.5 Present land use : \_\_\_\_\_

1.6 Period to be needed for restoration : \_\_\_\_\_ years, \_\_\_\_\_ months

1.7 Why did they move there? \_\_\_\_\_

2. Request of the Project for Sediment and Flood control



***ATTACHMENT - B***

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***REQUEST FOR A FLOOD MITIGATION  
PROJECT***

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Table M-1 Request for construction of embankment.

MUNICIPALITY	BARANGAY	REQUEST
Marcos	Escoda	Construction of embankment
Sarrat	San Francisco (Pob.)	Construction of embankment
Dingras	Lanas	Construction of embankment
Dingras	Barong	Construction of embankment
Solsona	Maananteng	Construction of embankment
Solsona	Barcelona	Construction of embankment
San Nicolas	1 San Francisco (Pob.)	Construction of embankment
San Nicolas	San Baltazar (Bo.2) (Pob.)	Construction of embankment
San Nicolas	San Bartolome (Bo.4) (Pob.)	Construction of embankment

Table M-2 Request for construction of spur dike.

MUNICIPALITY	BARANGAY	REQUEST
Marcos	Daquiog	Construction of spur dike
Piddig	Bimmanga	Construction of spur dike
Piddig	Mangitayag	Construction of spur dike
Piddig	Libnaoan	Construction of spur dike
Piddig	Estancia	Construction of spur dike
Laoag City	30-a Suyo	Construction of spur dike
Laoag City	1 San Lorenzo (Pob.)	Construction of spur dike
Dingras	Sagpatan	Construction of spur dike
Dingras	Lanas	Construction of spur dike
Dingras	Foz	Construction of spur dike
Dingras	Elizabeth	Construction of spur dike
Dingras	Francisco	Construction of spur dike
Dingras	Parado(Bangay)	Construction of spur dike
Solsona	Bubuos	Construction of spur dike
Marcos	Elizabeth (Culao)	Construction of spur dike

Table M-3 Request for dredging of the river.

MUNICIPALITY	BARANGAY	REQUEST
Marcos	Elizabeth (Culao)	Dredging of the river
Marcos	Escoda	Dredging of the river
Marcos	Pacifico (Agunit)	Dredging of the river
Marcos	Fortuna	Dredging of the river
Marcos	Valdez	Dredging of the river
Marcos	Daquiloag	Dredging of the river
Espiritu	Macayepyep	Dredging of the river
Espiritu	Caribquib	Dredging of the river
Espiritu	Cataglaguen	Dredging of the river
Espiritu	Sinamar	Dredging of the river
Espiritu	Hilarío (Pob.)	Dredging of the river
Espiritu	Caestebanan	Dredging of the river
Piddig	Gayamat	Dredging of the river
Piddig	Bimmanga	Dredging of the river
Piddig	Mangitayag	Dredging of the river
Piddig	Libnaoan	Dredging of the river
Laoag City	53 Rioeng	Dredging of the river
Laoag City	30-b Santa Maria	Dredging of the river
Laoag City	51-a Nangalisan East	Dredging of the river
Laoag City	34-b Gabu Norte East	Dredging of the river
Laoag City	1 San Lorenzo (Pob.)	Dredging of the river
Nueva Era	Santo Nino	Dredging of the river
Nueva Era	Cabittauran	Dredging of the river
Nueva Era	Cabittauran	Dredging of the river
Nueva Era	Caray	Dredging of the river
Nueva Era	Poblacion	Dredging of the river
Solsona	Laureta (Pob.)	Dredging of the river
Dingras	Mandaloque	Dredging of the river
Sarrat	San Andres	Dredging of the river
Sarrat	San Francisco (Pob.)	Dredging of the river
Sarrat	San Joaquin (Pob.)	Dredging of the river
Sarrat	San Manuel	Dredging of the river
Sarrat	San Antonio	Dredging of the river
Sarrat	San Isidro	Dredging of the river
Sarrat	San Felipe	Dredging of the river
Sarrat	San Cristobal	Dredging of the river
Sarrat	San Jose	Dredging of the river
Sarrat	Santo Tomas	Dredging of the river
Sarrat	San Marcos	Dredging of the river
Sarrat	San Leandro (Pob.)	Dredging of the river
Sarrat	San Vicente (Pob.)	Dredging of the river
Dingras	Sagpatan	Dredging of the river
Dingras	Lanas	Dredging of the river
Dingras	San Marcos	Dredging of the river
Dingras	Medina	Dredging of the river
Dingras	Foz	Dredging of the river
Dingras	Ver	Dredging of the river
Dingras	Elizabeth	Dredging of the river
Dingras	Barong	Dredging of the river
Dingras	Baresbes	Dredging of the river
Dingras	San Marcelino (Padong)	Dredging of the river
Solsona	Maananteng	Dredging of the river
Solsona	Darasdás	Dredging of the river

Table M-3 Request for dredging of the river.

MUNICIPALITY	BARANGAY	REQUEST
Solsona	Aquitap	Dredging of the river
Dingras	Sulquiano	Dredging of the river
Dingras	Lumbad	Dredging of the river
Dingras	Bagut	Dredging of the river
Dingras	Guerrero (Pob.)	Dredging of the river
Dingras	Dancel	Dredging of the river
Dingras	Albano (Pob.)	Dredging of the river
Dingras	Madamba (Pob.)	Dredging of the river
Dingras	Suyo (3)	Dredging of the river
Dingras	Root (Baldias)	Dredging of the river
Dingras	Puruganan (Pob.)	Dredging of the river
Dingras	Bungcag	Dredging of the river
Dingras	Peralta (Pob.)	Dredging of the river
Solsona	Lipay	Dredging of the river
Solsona	San Juan	Dredging of the river
Solsona	Barcelona	Dredging of the river
Solsona	Talugtog	Dredging of the river
Solsona	Nalasin	Dredging of the river
Solsona	Mariquet	Dredging of the river
Solsona	Santa Ana	Dredging of the river
Solsona	Puttao	Dredging of the river
Solsona	Manalpac	Dredging of the river
Solsona	Catangaran	Dredging of the river
Solsona	Nagpatpatan	Dredging of the river
Solsona	Bagbag	Dredging of the river
Solsona	Capurictan	Dredging of the river
Solsona	Bubuos	Dredging of the river
Solsona	Santiago	Dredging of the river
Solsona	Juan (Pob.) (1)	Dredging of the river
Solsona	Bagbago	Dredging of the river
Espiritu	Bugasi	Dredging of the river
Espiritu	Tablabagan	Dredging of the river
Espiritu	Valdez	Dredging of the river
Marcos	Tabucbuc (Ragas)	Dredging of the river
Marcos	Santiago	Dredging of the river
Marcos	Cacafean	Dredging of the river
San Nicolas	1 San Francisco (Pob.)	Dredging of the river
San Nicolas	San Ballazar (Bo.2) (Pob.)	Dredging of the river
San Nicolas	San Bartolome (Bo.4) (Pob.)	Dredging of the river
San Nicolas	San Idefonso (Bo.3) (Pob.)	Dredging of the river
San Nicolas	San Juan Bautista	Dredging of the river

Table M-4 Request for forestation of mountain area.

MUNICIPALITY	BARANGAY	REQUEST
Laoag City	1 San Lorenzo (Pob.)	Forestation of mountain area
Solsona	Lipay	Forestation of mountain area
Solsona	San Julian	Forestation of mountain area
Solsona	Talugtog	Forestation of mountain area
Solsona	Nalasin	Forestation of mountain area

Table M-5 Request for bank protection.

MUNICIPALITY	BARANGAY	REQUEST
Marcos	Ferdinand	Bank protection
Marcos	Fortuna	Bank protection
Espiritu	Cataglaguen	Bank protection
Espiritu	Sinamar	Bank protection
Espiritu	Hilario (Pob.)	Bank protection
Espiritu	Caestebanan	Bank protection
Piddig	Dupitac	Bank protection
Piddig	Callusa	Bank protection
Piddig	Gayamat	Bank protection
Nueva Era	Santo Nino	Bank protection
Nueva Era	Cabittauran	Bank protection
Nueva Era	Poblacion	Bank protection
Solsona	Laurela (Pob.)	Bank protection
Dingras	Mandaloque	Bank protection
Sarrat	San Roque	Bank protection
Sarrat	San Joaquin (Pob.)	Bank protection
Sarrat	San Manuel	Bank protection
Sarrat	San Antonio	Bank protection
Sarrat	San Nicolas	Bank protection
Sarrat	San Isidro	Bank protection
Sarrat	San Cristobal	Bank protection
Sarrat	Santo Tomas	Bank protection
Sarrat	San Marcos	Bank protection
Sarrat	San Leandro (Pob.)	Bank protection
Dingras	Medina	Bank protection
Dingras	Ver	Bank protection
Dingras	Elizabeth	Bank protection
Solsona	Aquitap	Bank protection
Dingras	Parado(Bangay)	Bank protection
Dingras	Sulquiano	Bank protection
Dingras	Guerrero (Pob.)	Bank protection
Dingras	Dancel	Bank protection
Dingras	Albano (Pob.)	Bank protection
Dingras	Madamba (Pob.)	Bank protection
Dingras	Suyo (3)	Bank protection
Dingras	Root (Baldias)	Bank protection
Dingras	Puruganan (Pob.)	Bank protection
Dingras	Bungcag	Bank protection
Dingras	Peralta (Pob.)	Bank protection
Solsona	Mariquet	Bank protection
Solsona	Santa Ana	Bank protection
Solsona	Puttao	Bank protection
Solsona	Manalpac	Bank protection
Solsona	Catangraran	Bank protection
Solsona	Nagpatpatan	Bank protection
Solsona	Bagbag	Bank protection
Solsona	Capurictan	Bank protection
Solsona	Bubuos	Bank protection
Solsona	Santiago	Bank protection
Solsona	Juan (Pob.) (1)	Bank protection
Solsona	Bagbago	Bank protection
Espiritu	Bugasi	Bank protection
Espiritu	Tabtabagan	Bank protection



Table M-5 Request for bank protection.

MUNICIPALITY	BARANGAY	REQUEST
Espritu	Valdez	Bank protection
Marcos	Tabucbuc (Ragas)	Bank protection
Marcos	Santiago	Bank protection
Marcos	Cacafean	Bank protection
San Nicolas	24 Santa Monica (Nagrebcan)	Bank protection
San Nicolas	San Juan Bautista	Bank protection

Table M-6 Request for cut-off channel or re-channelling of river.

MUNICIPALITY	BARANGAY	REQUEST
Marcos	Pacifico (Agunit)	Cut-off channel or re-channelling of river
Marcos	Fortuna	Cut-off channel or re-channelling of river
Marcos	Valdez	Cut-off channel or re-channelling of river
Solsona	Laureta (Pob.)	Cut-off channel or re-channelling of river
Sarrat	San Joaquin (Pob.)	Cut-off channel or re-channelling of river
Sarrat	San Nicolas	Cut-off channel or re-channelling of river
Sarrat	San Lorenzo	Cut-off channel or re-channelling of river
Sarrat	San Isidro	Cut-off channel or re-channelling of river
Sarrat	San Felipe	Cut-off channel or re-channelling of river
Sarrat	San Agustin (Pob.)	Cut-off channel or re-channelling of river
Dingras	Foz	Cut-off channel or re-channelling of river
Solsona	Agitap	Cut-off channel or re-channelling of river
Dingras	Madamba (Pob.)	Cut-off channel or re-channelling of river
Dingras	Peralta (Pob.)	Cut-off channel or re-channelling of river
Solsona	Talugtog	Cut-off channel or re-channelling of river
Solsona	Santiago	Cut-off channel or re-channelling of river
Solsona	Bagbago	Cut-off channel or re-channelling of river
Espritu	Bugasi	Cut-off channel or re-channelling of river
Sarrat	San Vicente (Pob.)	Cut-off channel or re-channelling of river
San Nicolas	1 San Francisco (Pob.)	Cut-off channel or re-channelling of river
San Nicolas	24 Santa Monica (Nagrebcan)	Cut-off channel or re-channelling of river
San Nicolas	San Baltazar (Bo.2) (Pob.)	Cut-off channel or re-channelling of river
San Nicolas	San Bartolome (Bo.4) (Pob.)	Cut-off channel or re-channelling of river

Table M-7 Request for general river control.

MUNICIPALITY	BARANGAY	REQUEST
Marcos	Pacifico (Agunil)	General river control
Marcos	Valdez	General river control
Espiritu	Macayepyep	General river control
Espiritu	Lorenzo (Pob.)	General river control
Espiritu	Caribquib	General river control
Espiritu	Catagtaguen	General river control
Espiritu	Sinamar	General river control
Espiritu	Hilario (Pob.)	General river control
Espiritu	Caestebanan	General river control
Piddig	Bimmanga	General river control
Piddig	Estancia	General river control
Laoag City	53 Rioeng	General river control
Laoag City	30-b Santa Maria	General river control
Laoag City	30-a Suyo	General river control
Laoag City	45 Tangid	General river control
Laoag City	43 Cavil (4)	General river control
Laoag City	51-a Nangalisan East	General river control
Laoag City	51-b Nangalisan West	General river control
Laoag City	54-b Camangaan	General river control
Nueva Era	Cabittauran	General river control
Nueva Era	Caray	General river control
Sarrat	San Roque	General river control
Sarrat	Santa Barbara (Pob.)	General river control
Sarrat	San Nicolas	General river control
Sarrat	San Lorenzo	General river control
Sarrat	San Felipe	General river control
Sarrat	San Cristobal	General river control
Sarrat	Santo Tomas	General river control
Sarrat	San Marcos	General river control
Sarrat	San Leandro (Pob.)	General river control
Dingras	San Esteban	General river control
Dingras	Ver	General river control
Dingras	Guerrero (Pob.)	General river control
Dingras	Albano (Pob.)	General river control
Dingras	Puruganan (Pob.)	General river control
Solsona	San Julian	General river control
Solsona	San Juan	General river control
Solsona	Talugtog	General river control
Solsona	Nalasin	General river control
Solsona	Bubuos	General river control
Espiritu	Tabtabagan	General river control
Espiritu	Valdez	General river control
San Nicolas	24 Santa Monica (Nagrebcan)	General river control
San Nicolas	San Idefonso (Bo.3) (Pob.)	General river control
San Nicolas	San Juan Bautista	General river control

Table M-8 Request for maintenance of present bank and river course.

MUNICIPALITY	BARANGAY	REQUEST
Laoag City	34-b Gabu Norte East	Maintenance of present bank and river
Dingras	Foz	Maintenance of present bank and river
Dingras	Ver	Maintenance of present bank and river
Dingras	San Marcelino (Pagong)	Maintenance of present bank and river
Solsona	Maananteng	Maintenance of present bank and river
Solsona	Nalasin	Maintenance of present bank and river

Table M-9 Request for construction of sabo dam.

MUNICIPALITY	BARANGAY	REQUEST
Solsona	Darasdas	Construction of sabo dam
Solsona	Lipay	Construction of sabo dam
Solsona	San Julian	Construction of sabo dam
Marcos	Cacafean	Construction of sabo dam

Table M-10 Request for repair of irrigation channel.

MUNICIPALITY	BARANGAY	REQUEST
Espiritu	Sinamar	Repair of irrigation channel
Espiritu	Hilario (Pob.)	Repair of irrigation channel
Espiritu	Tabtabagan	Repair of irrigation channel

Table M-11 Request for other measures of flood mitigation.

MUNICIPALITY	BARANGAY	REQUEST
Espiritu	Sinamar	Others
Piddig	Callusa	Others
Laoag City	30-a Suyo	Others
Laoag City	51-b Nangalisan West	Others
Sarrat	San Andres	Others
Sarrat	San Joaquin (Pob.)	Others
Sarrat	San Lorenzo	Others
Sarrat	San Agustin (Pob.)	Others