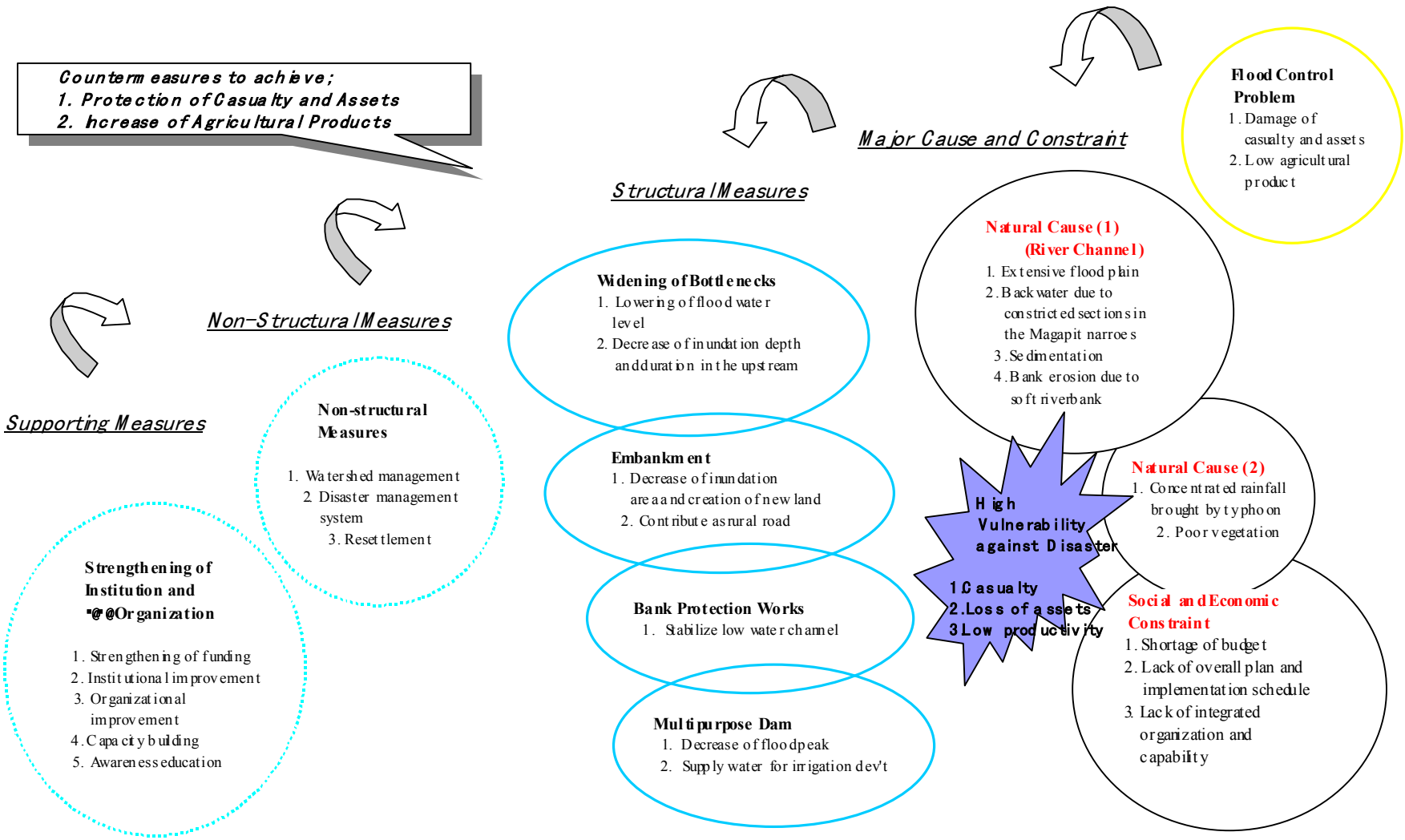
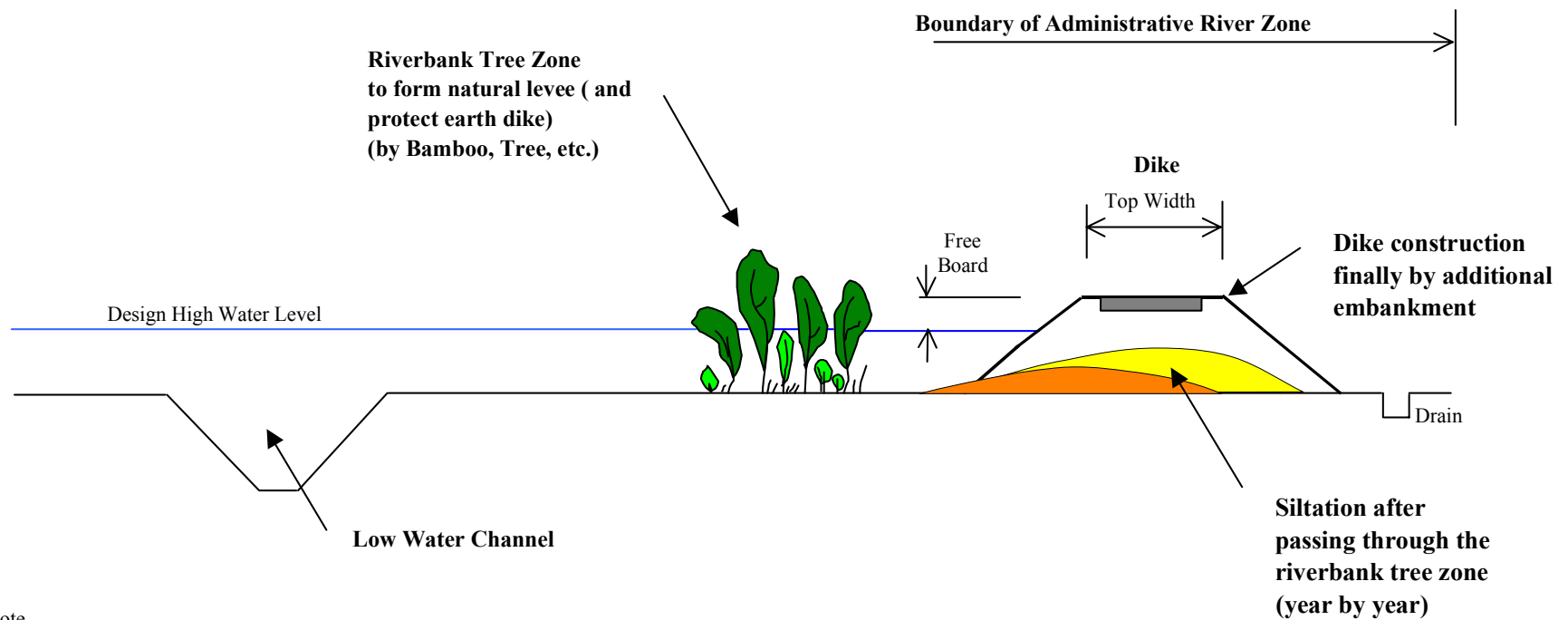


Figure 7.1.1

Concept of Flood Damage Mitigation



**Flood Dike (Embankment) and Riverbank Tree Zone**

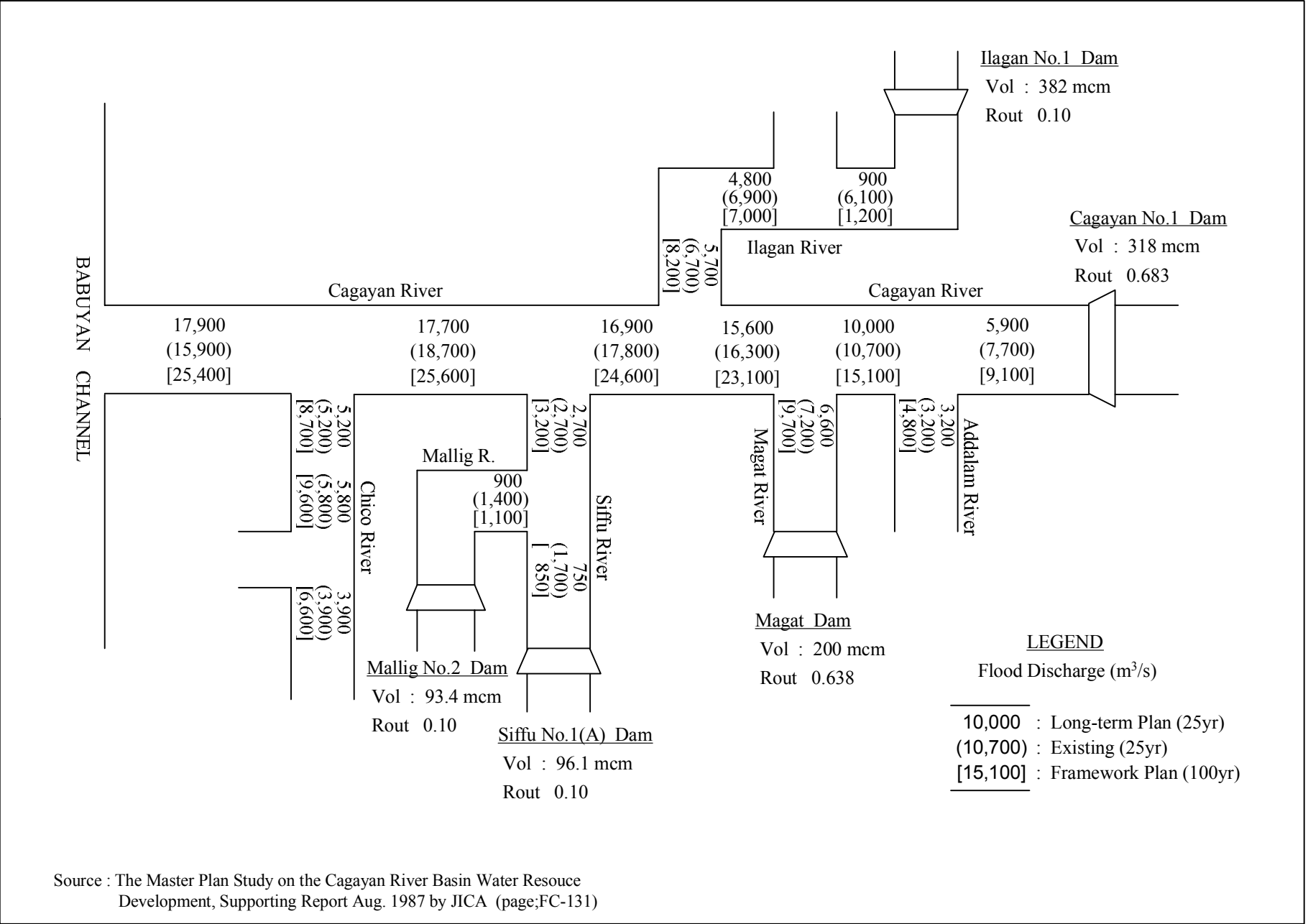


Note

Purpose of Riverbank Tree Zone;

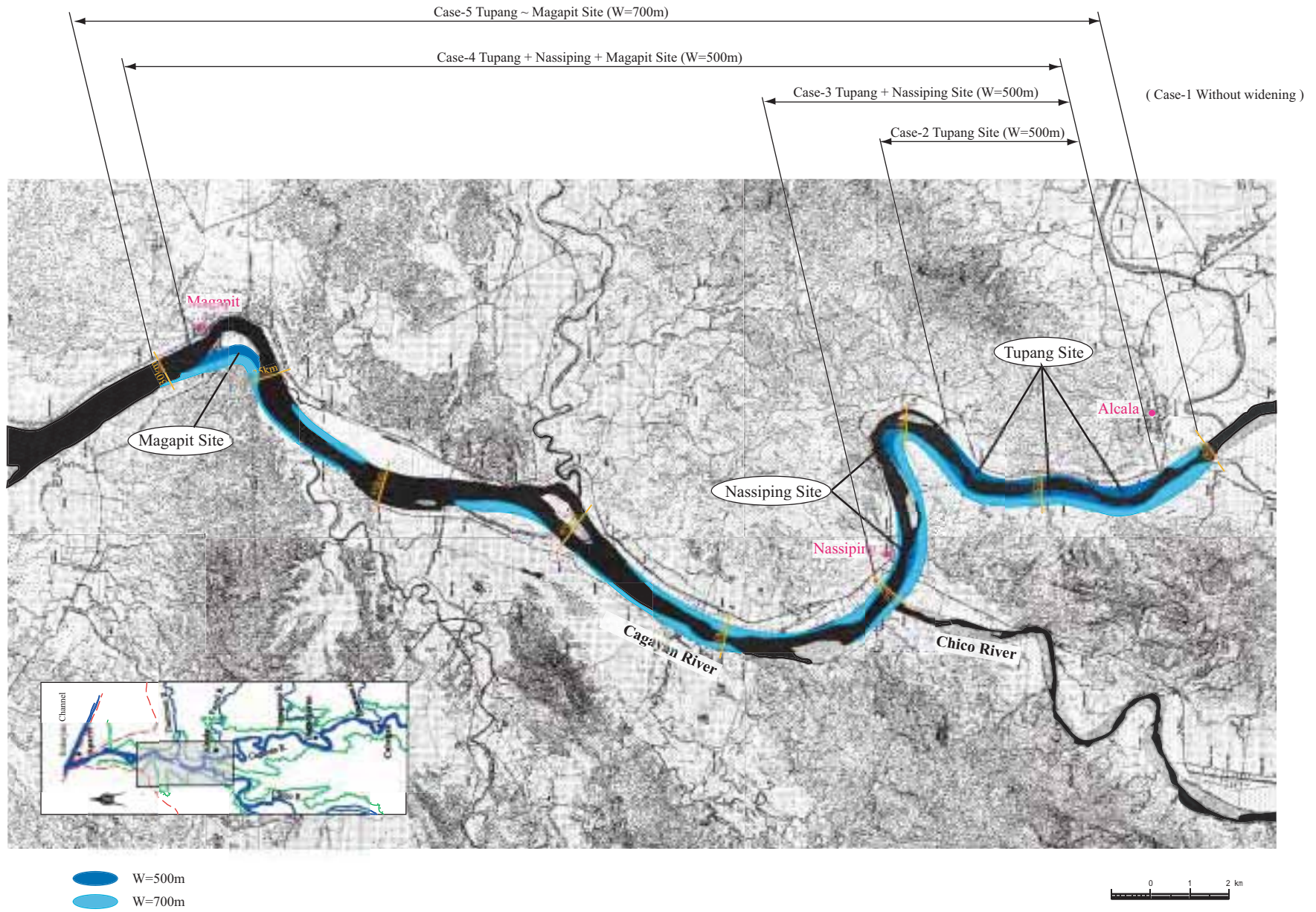
1. To reduce velocity
2. To form natural levee by siltation
3. To protect dike from scouring due to flood flows

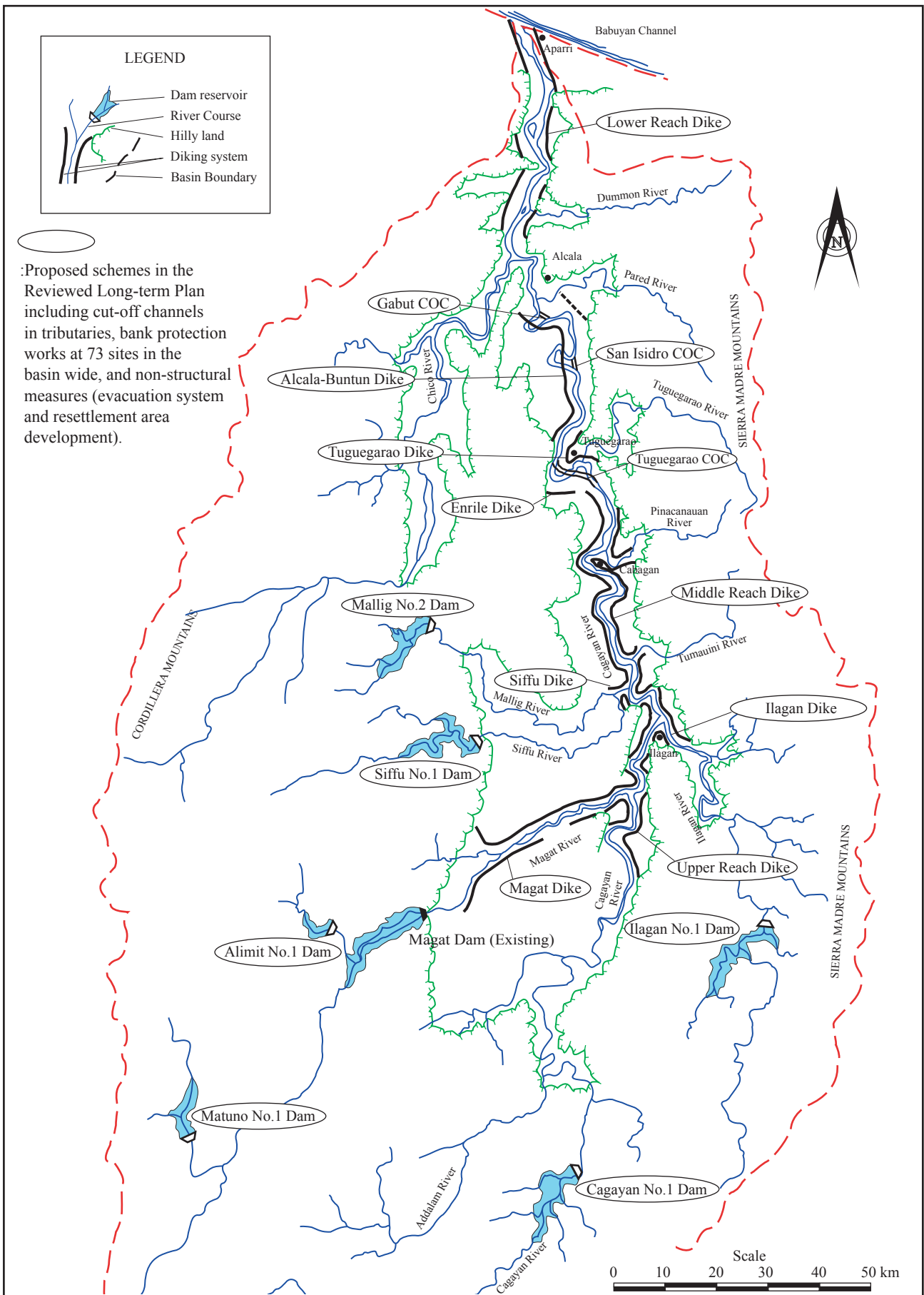
Dike Dimensions		
Design Discharge	Free Board	Top Width
(cu.m/s)	(m)	(m)
5,000 to 10,000	1.5	6
more than 10,000	2	7



Source : The Master Plan Study on the Cagayan River Basin Water Resource Development, Supporting Report Aug. 1987 by JICA (page;FC-131)

Figure 7.4.3  
Location Map of Bottlenecks  
in the Magapit Narrows



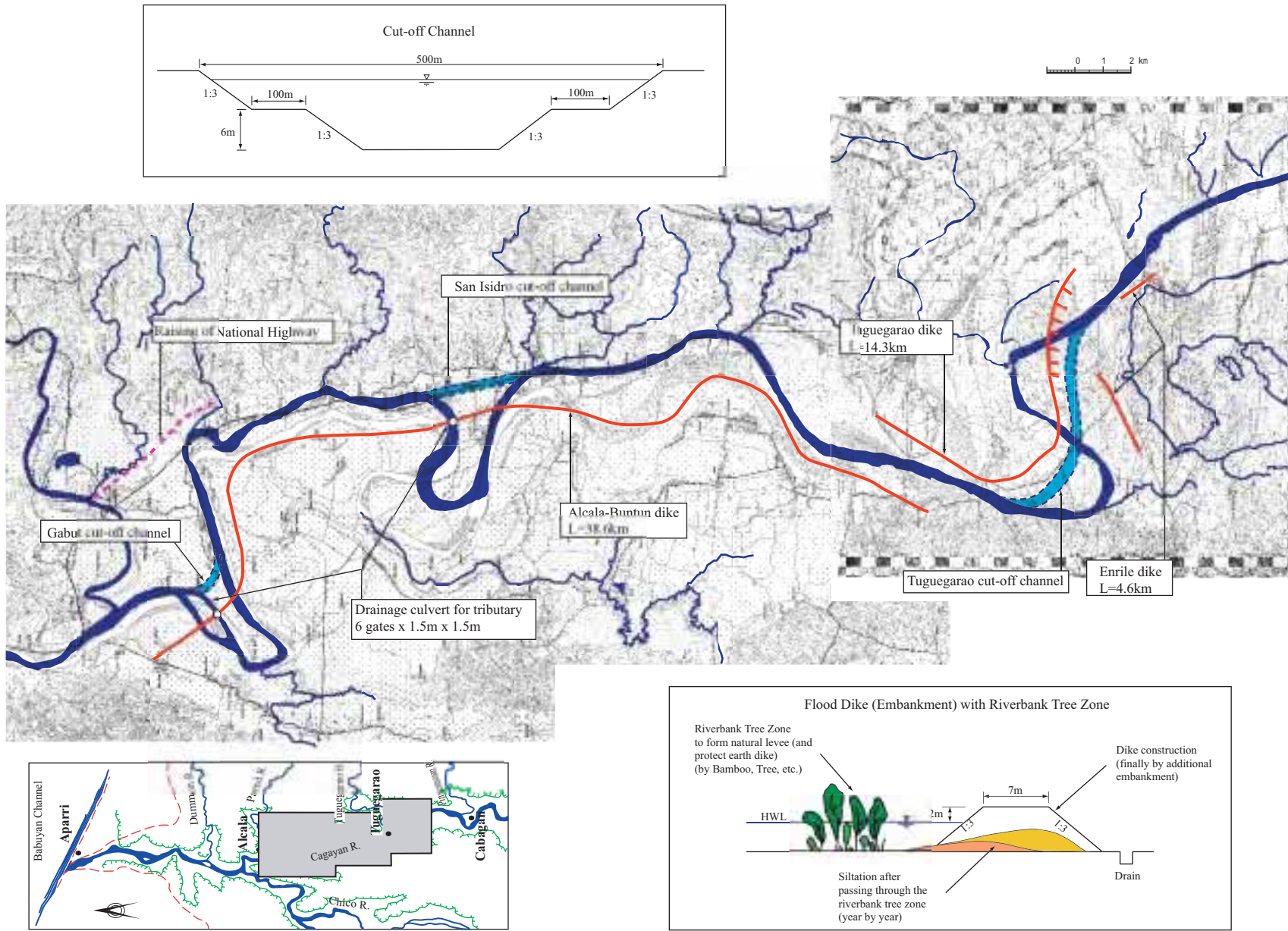


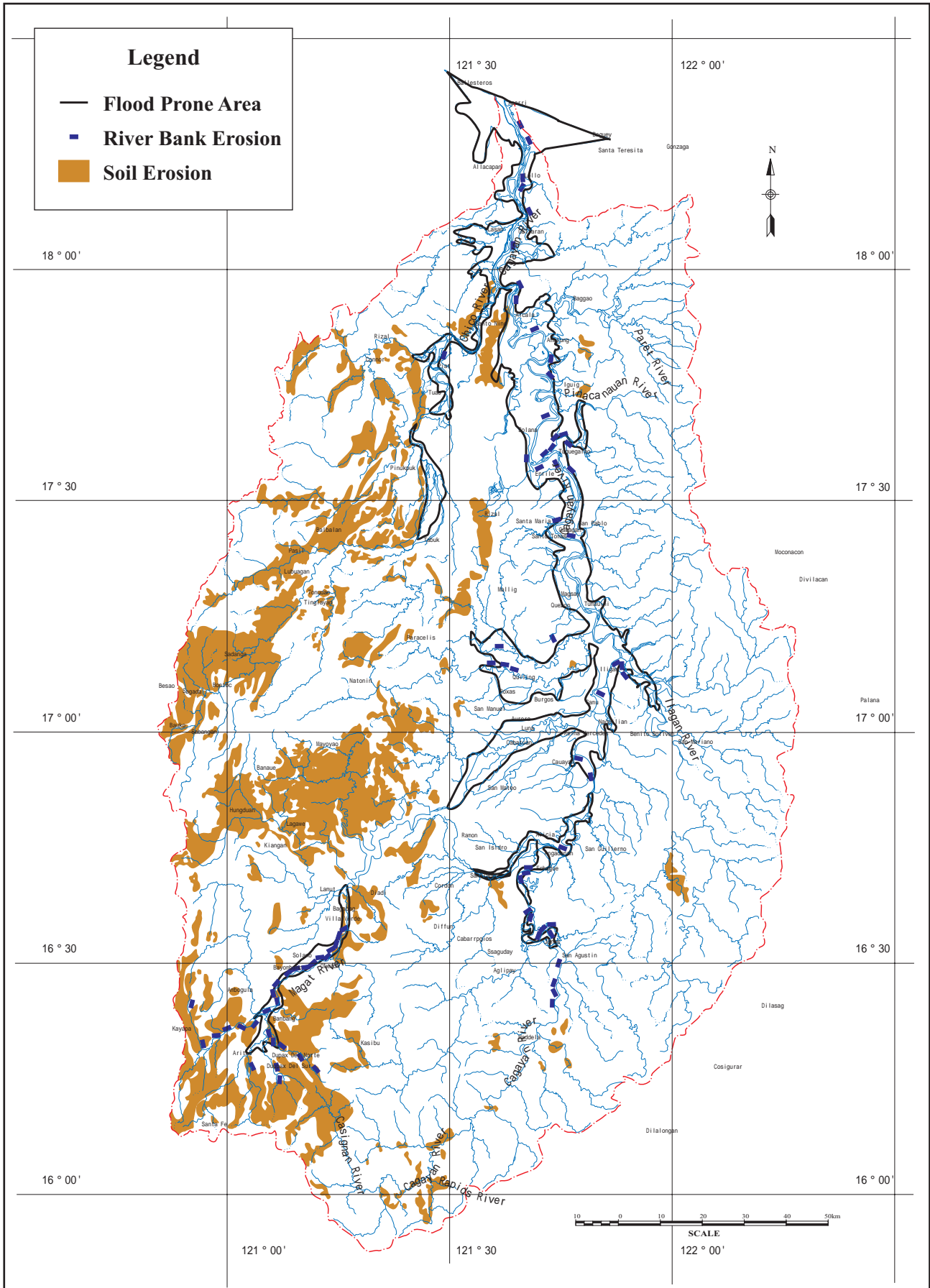
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**Figure 7.4.4**  
**Long Term Plan of Flood Control in the Cagayan River Basin**







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**Figure 7.5.1**  
**Hazard Map of Cagayan River Basin**

Chico River Basin

Forest Compartment	Land (km <sup>2</sup> )		Present Forest (km <sup>2</sup> )		Agri-cultural Land over 18% in Slope	Proposed Reforestation Area
	Total Area	Area over 18%	Total Area	Area over 18%		
501	884	504	437	274	27	203
502	917	881	881	854	0	28
503	509	270	231	163	27	80
504	580	551	540	528	0	23
506	372	372	342	338	0	33
507	676	608	522	507	2	99
508	368	357	353	353	0	4
510	379	345	232	231	0	114
<b>Total</b>						<b>584</b>

Lower Cağayan River Basin

Forest Compartment	Land (km <sup>2</sup> )		Present Forest (km <sup>2</sup> )		Agri-cultural Land over 18% in Slope	Proposed Reforestation Area
	Total Area	Area over 18%	Total Area	Area over 18%		
401	752	263	400	241	19	4
402	527	158	295	121	0	37
403	851	545	567	408	41	95
404	165	154	155	154	0	0
405	997	847	770	749	0	100
406	1,004	261	213	50	2	208
407	461	148	97	5	5	138
408	705	71	115	21	0	49
<b>Total</b>						<b>632</b>

Siffu-Mallig River Basin

Forest Compartment	Land (km <sup>2</sup> )		Present Forest (km <sup>2</sup> )		Agri-cultural Land over 18% in Slope	Proposed Reforestation Area
	Total Area	Area over 18%	Total Area	Area over 18%		
409	1,027	236	191	21	6	210
505	574	402	424	327	0	75
509	450	405	371	346	5	53
<b>Total</b>						<b>338</b>

Ilagan River Basin

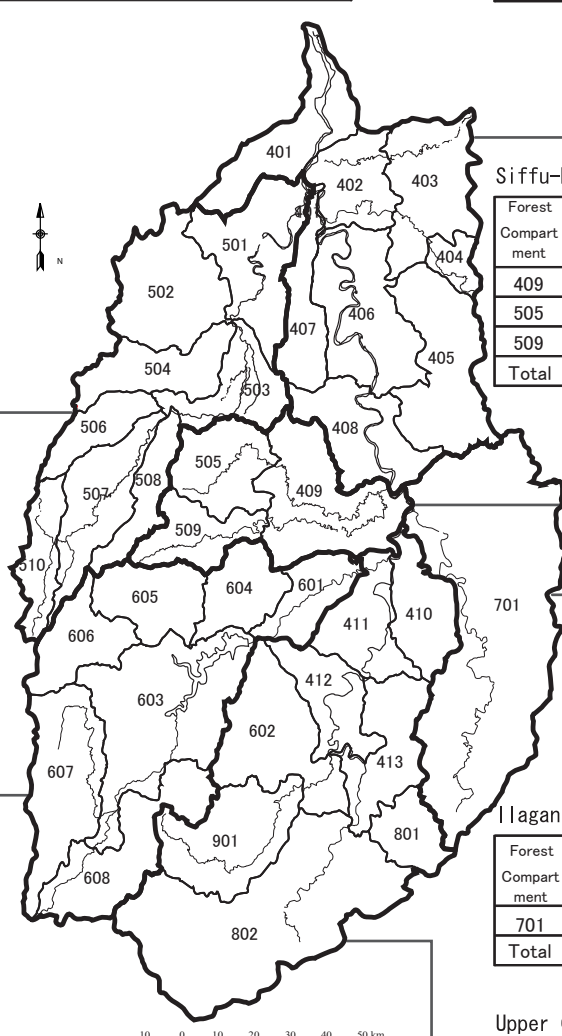
Forest Compartment	Land (km <sup>2</sup> )		Present Forest (km <sup>2</sup> )		Agri-cultural Land over 18% in Slope	Proposed Reforestation Area
	Total Area	Area over 18%	Total Area	Area over 18%		
701	3,249	2,501	2,596	2,371	112	18
<b>Total</b>						<b>18</b>

Upper Cağayan River Basin

Forest Compartment	Land (km <sup>2</sup> )		Present Forest (km <sup>2</sup> )		Agri-cultural Land over 18% in Slope	Proposed Reforestation Area
	Total Area	Area over 18%	Total Area	Area over 18%		
410	526	184	197	32	4	148
411	550	0	154	0	0	0
412	511	0	137	0	0	0
413	638	191	444	166	0	26
602	963	250	484	164	51	36
801	327	324	325	324	0	0
802	2,310	2,033	2,174	1,901	1	130
901	860	731	796	678	0	52
<b>Total</b>						<b>392</b>

Magat River Basin

Forest Compartment	Land (km <sup>2</sup> )		Present Forest (km <sup>2</sup> )		Agri-cultural Land over 18% in Slope	Proposed Reforestation Area
	Total Area	Area over 18%	Total Area	Area over 18%		
601	418	4	85	0	0	4
603	1,487	997	600	444	23	528
604	455	268	122	77	0	191
605	537	494	370	356	0	138
606	499	439	454	429	0	10
607	899	845	691	683	15	147
608	857	668	575	454	7	207
<b>Total</b>						<b>1,226</b>

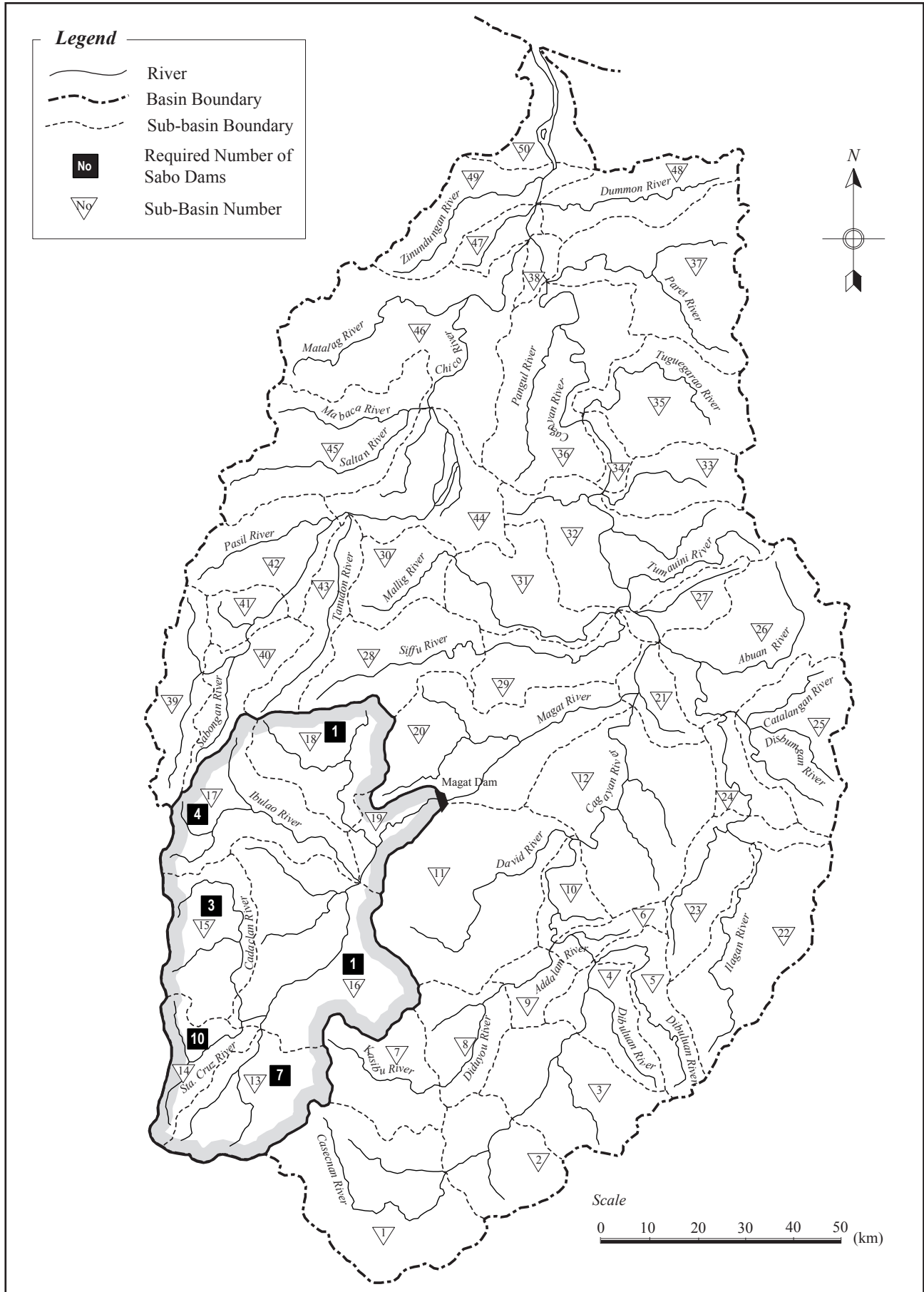


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**Figure 8.2.1**  
**Long Term Plan of Reforestation** □  
**in the Cagayan River Basin**



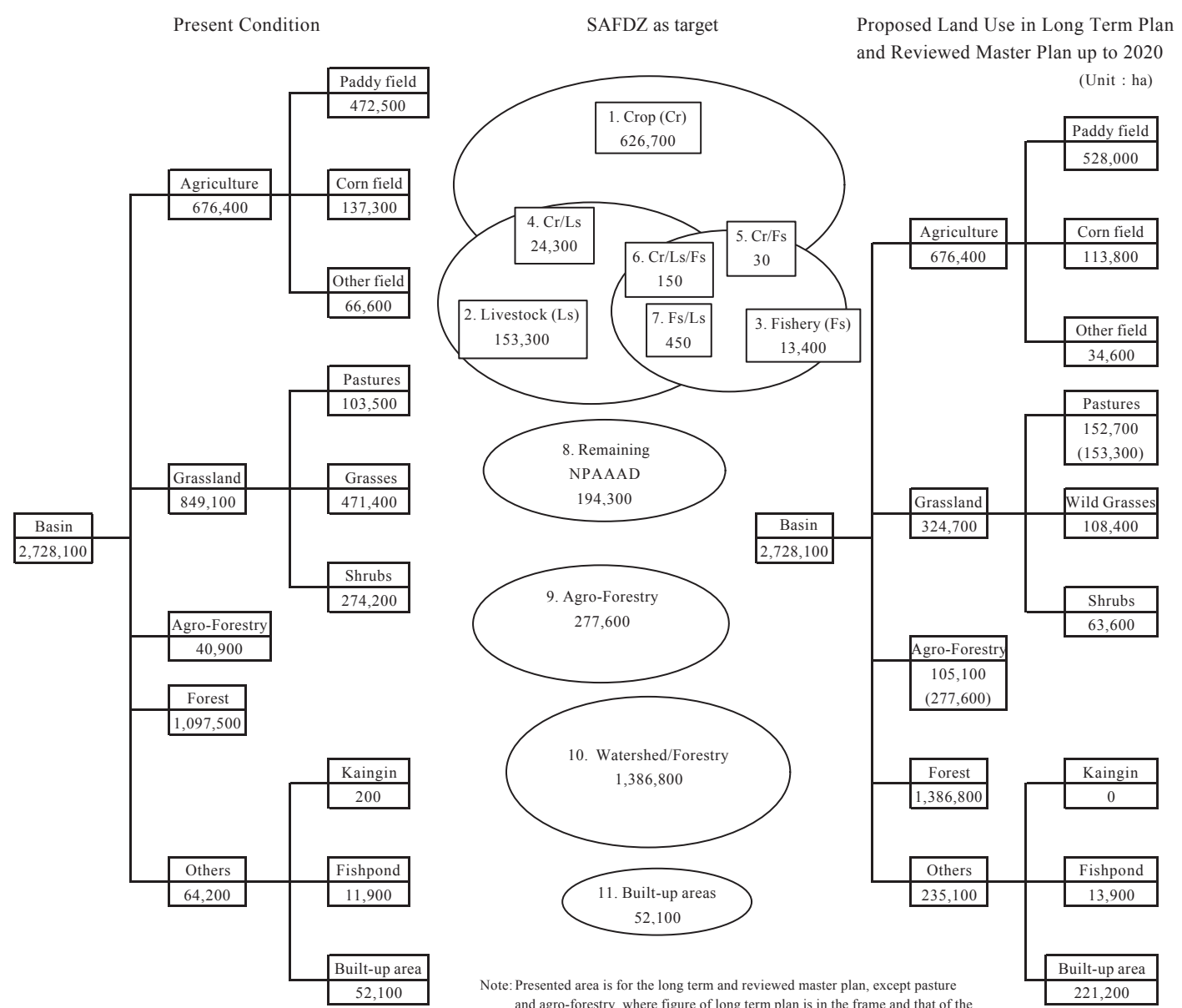


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**Figure 8.3.1**

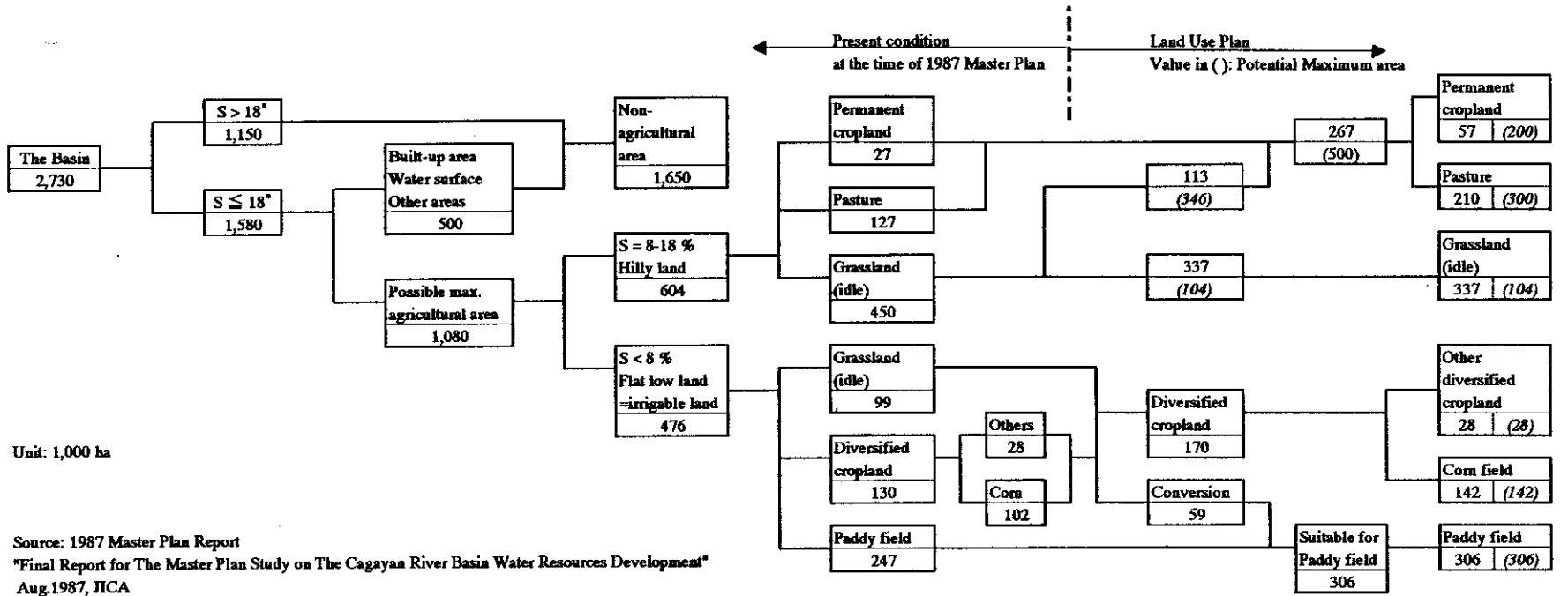
**Required Number of Sabo Dams**

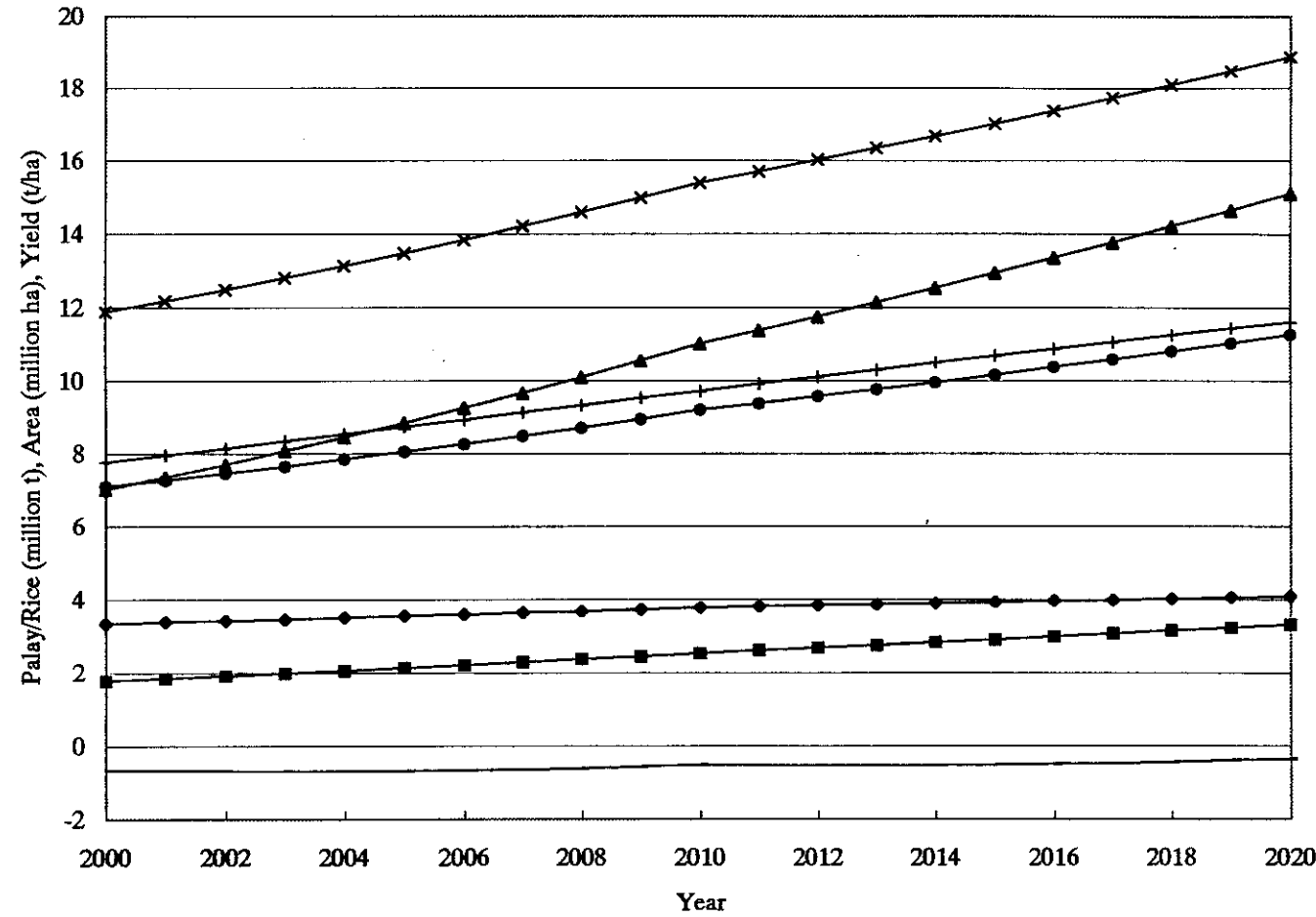


Note: Presented area is for the long term and reviewed master plan, except pasture and agro-forestry, where figure of long term plan is in the frame and that of the reviewed master plan is in the parenthesis.

Source: Present condition and SAFDZ=SAFDZ data 1999 BSWM

Figure 9.2.1  
Land Use Plan in 1987 Master Plan



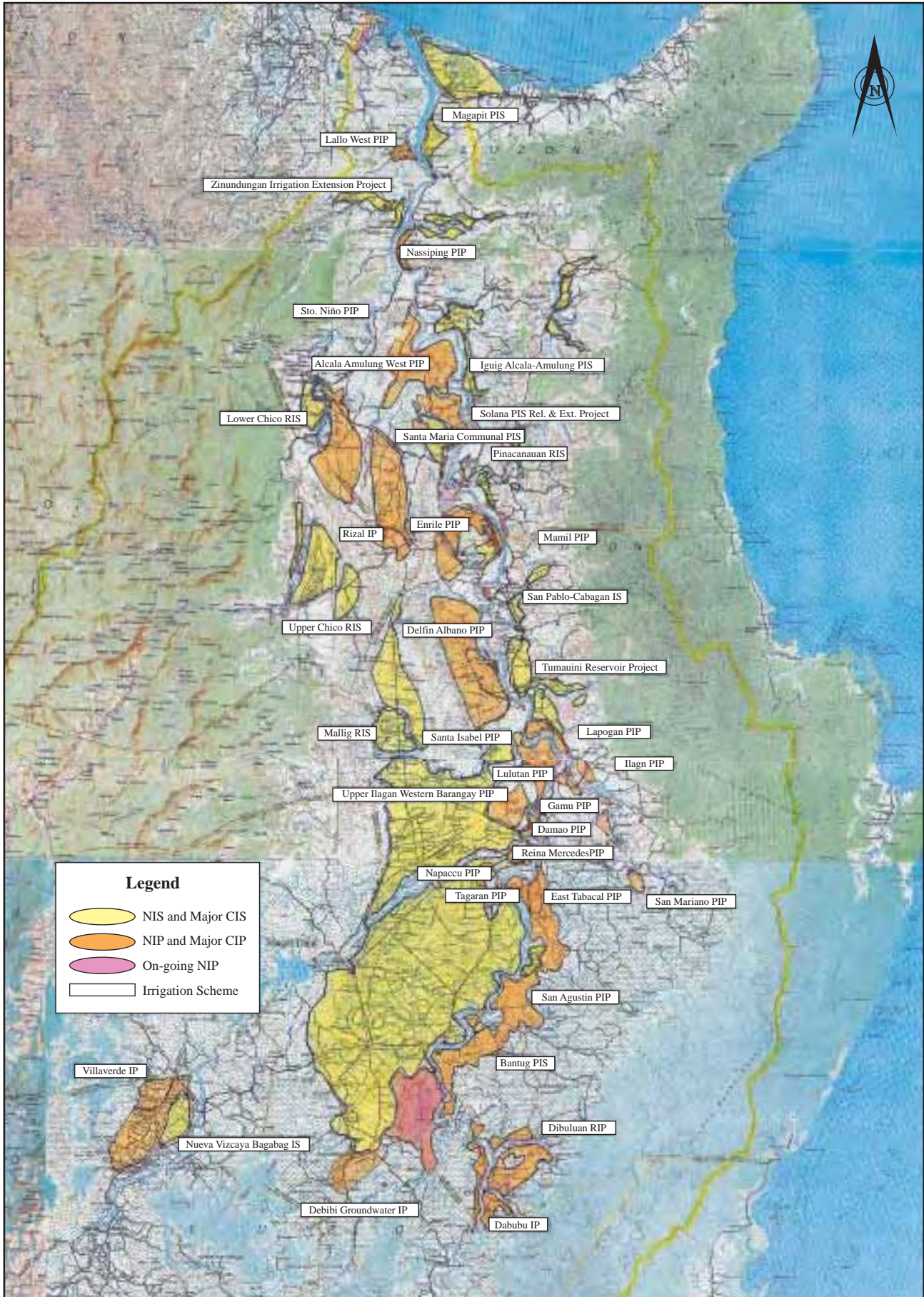


For the whole country  
(The Philippines)

- Irrigated area
- ▲ Irrigated palay production
- × Total palay production
- Rice for consumption
- + Rice Demand
- Surplus/Deficit
- Yield

Suggested from:  
"Corporate Plan, 1993-2002",  
NIA, 1993 and  
"The Study on Strengthening of  
NIA's Management System,  
Draft Final Report, Aug. 2001"

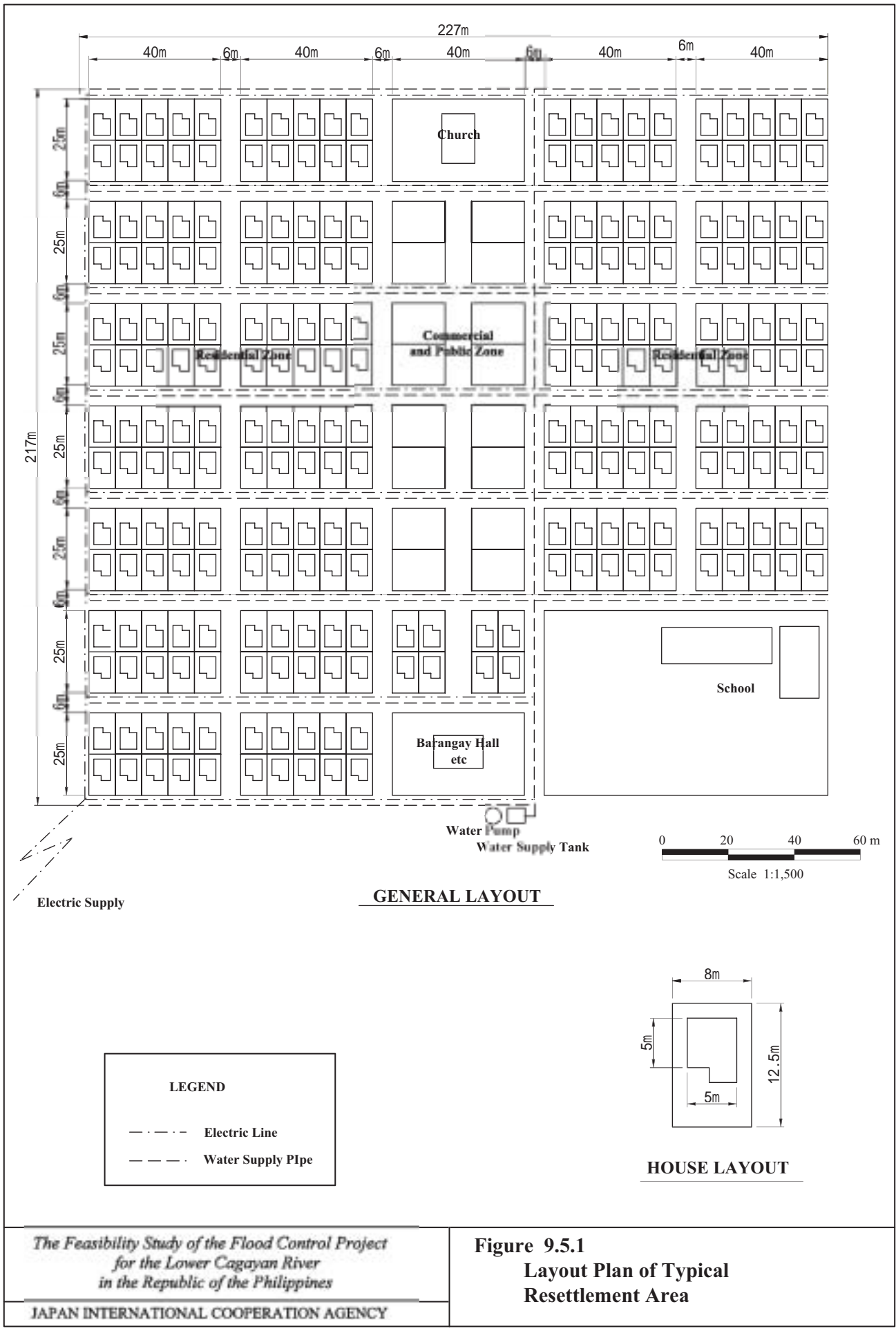




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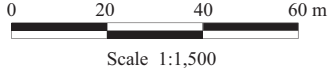
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**Figure 9.3.2**  
**Irrigation Development Scheme  
in Long Term Plan**



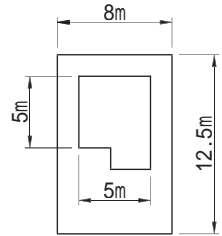
Electric Supply

**GENERAL LAYOUT**



**LEGEND**

- Electric Line
- Water Supply Pipe



**HOUSE LAYOUT**

**Figure 9.5.1**  
**Layout Plan of Typical**  
**Resettlement Area**