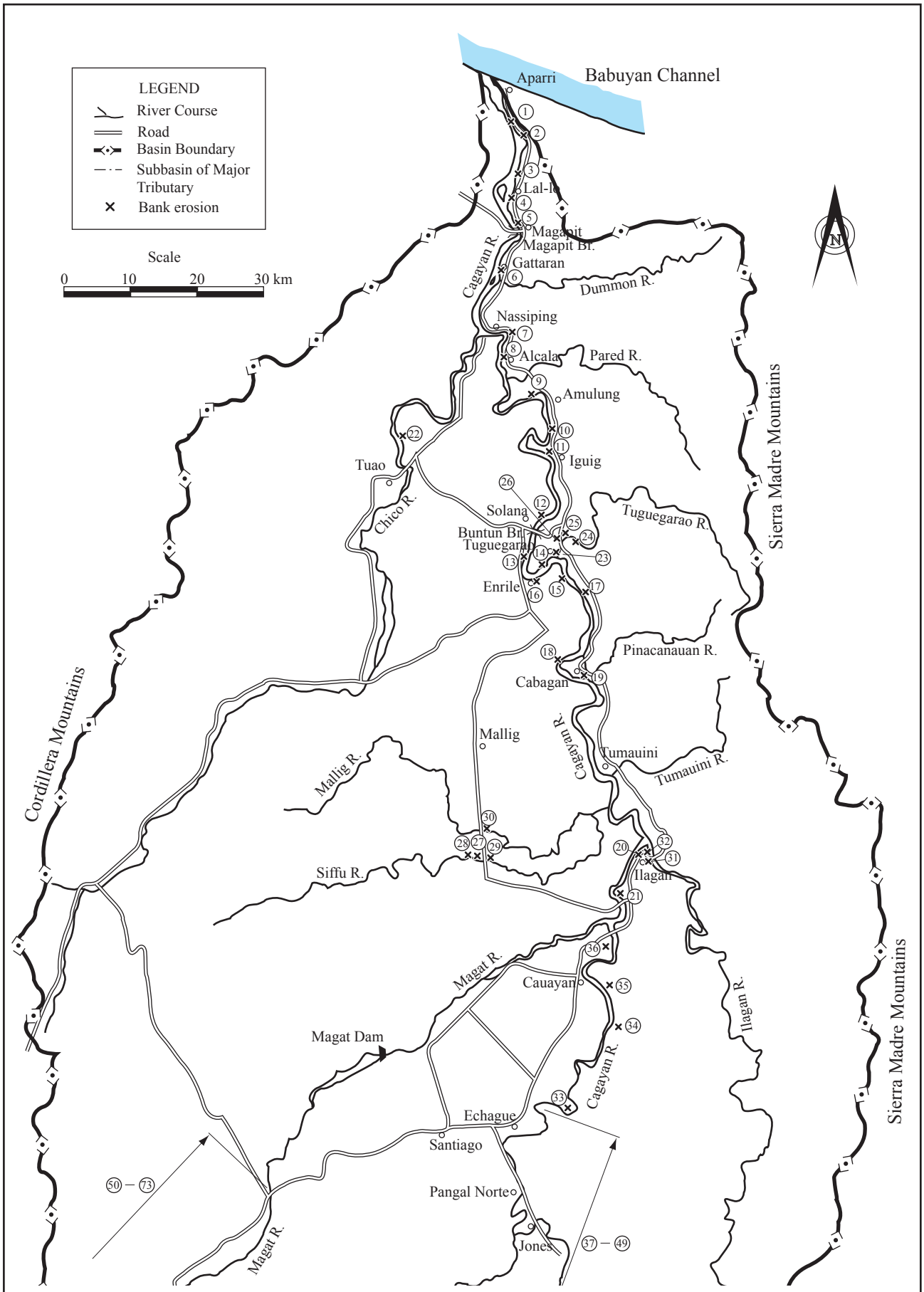

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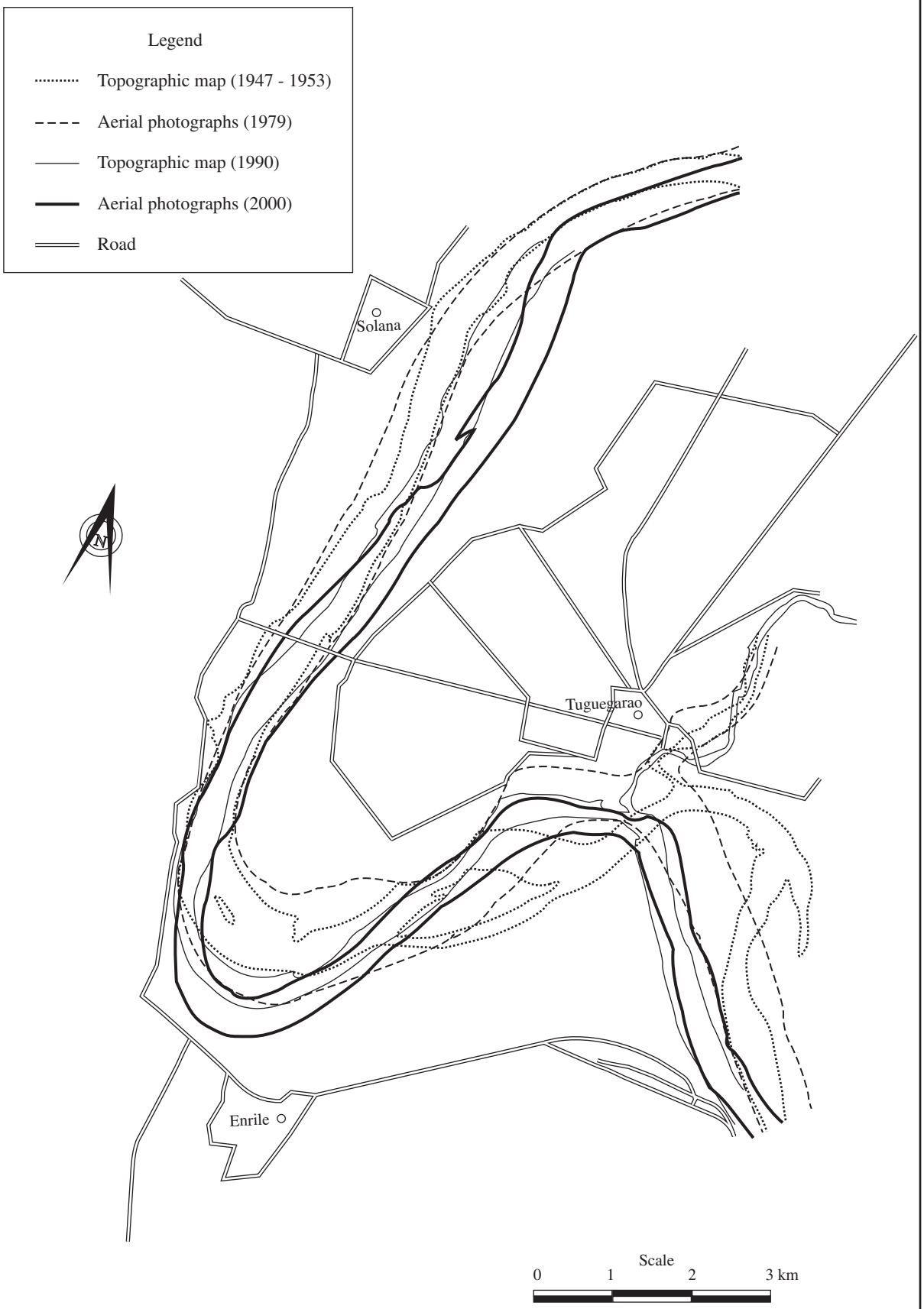
Figure 1.2.1

Critical Bank Erosion Sites



The Feasibility Study of the Flood Control Project for the Lower Cagayan River in the Republic of the Philippines	**Figure 1.2.2 Riverbank Erosion around Enrile and Tuguegarao**
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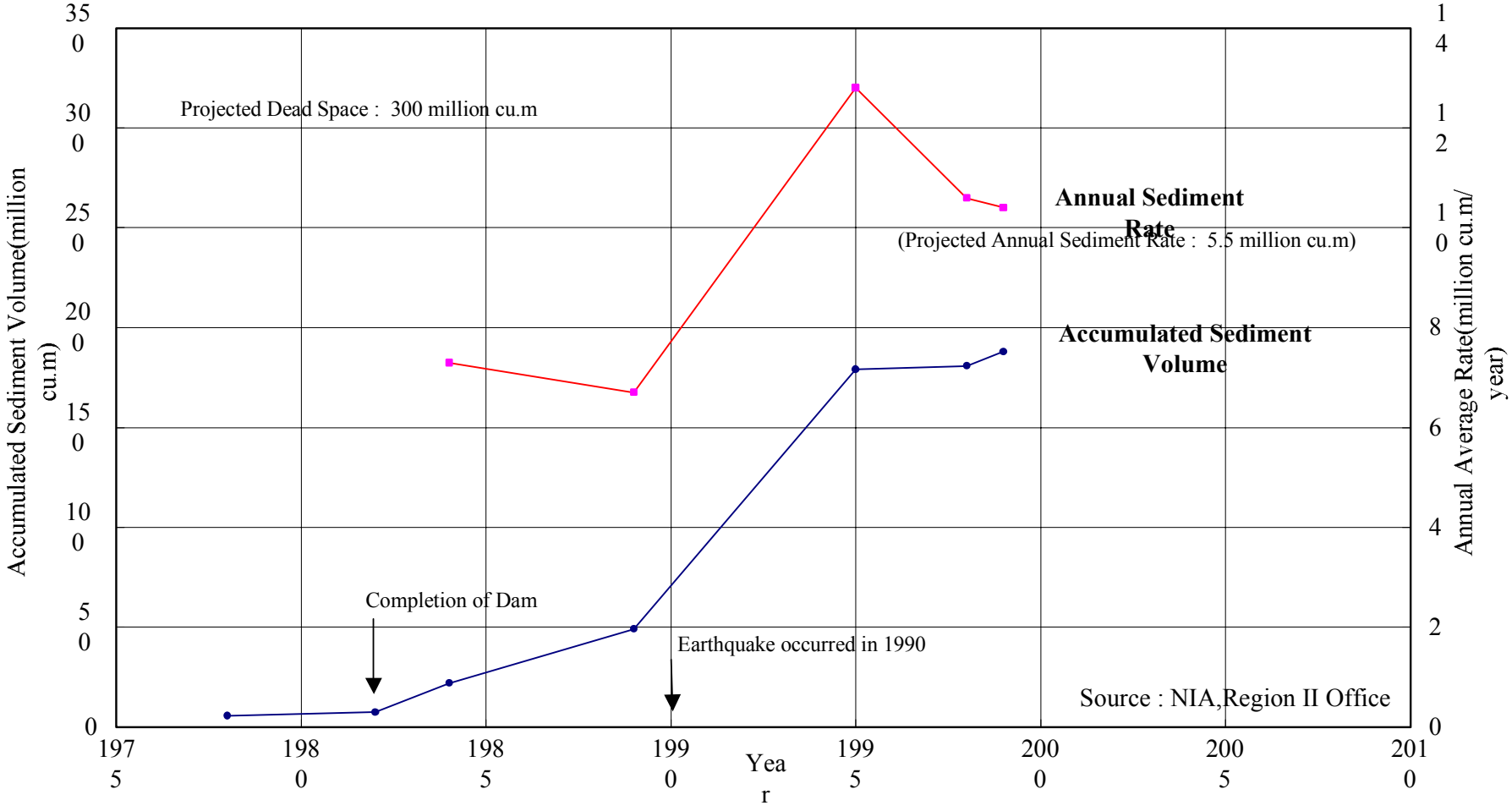

Figure 1.2.3

Accumulated Sediment Volume in Magat Dam Resevoir

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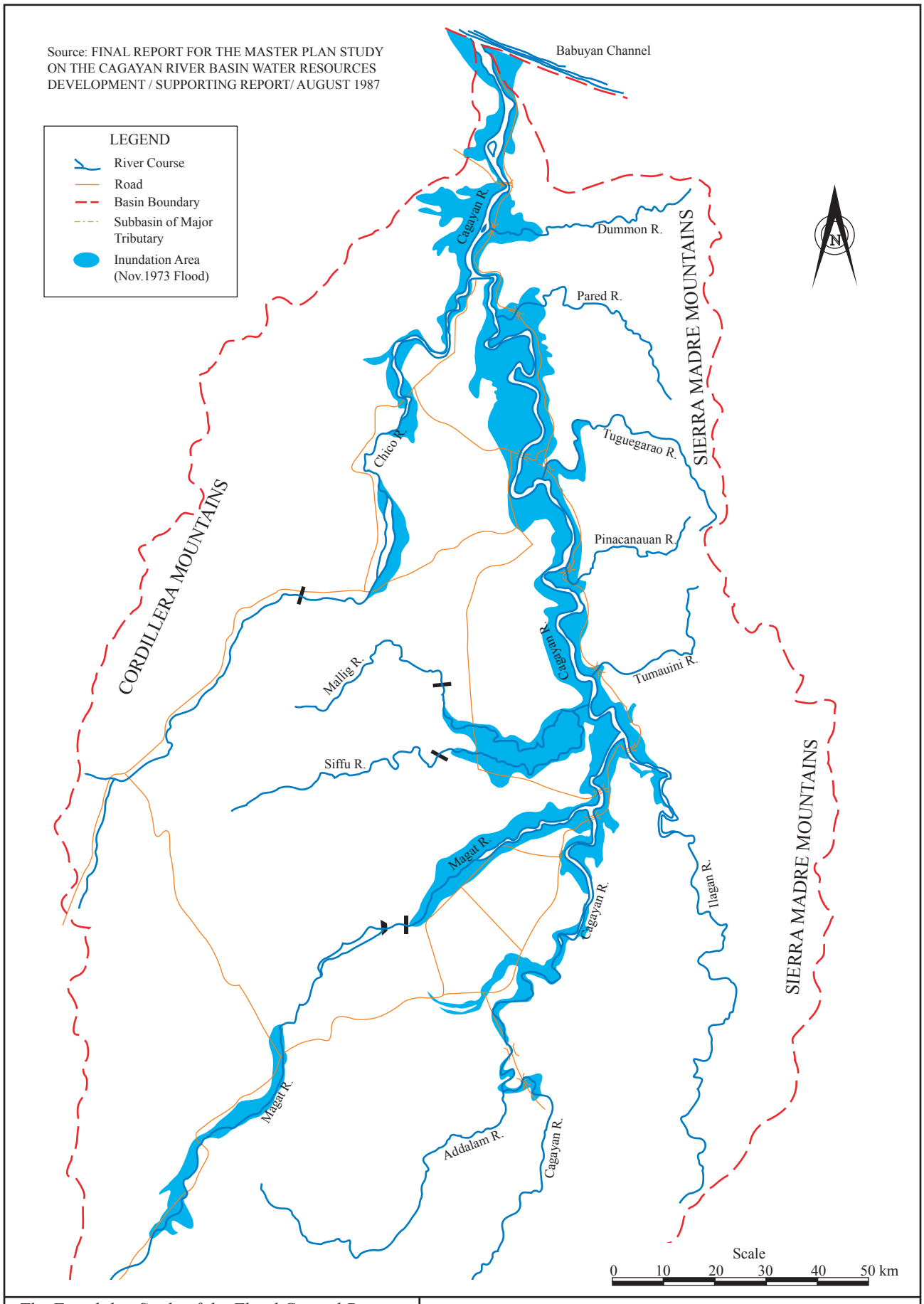

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Figure 1.2.4

Inundation Area Map (Nov.1973 Flood)

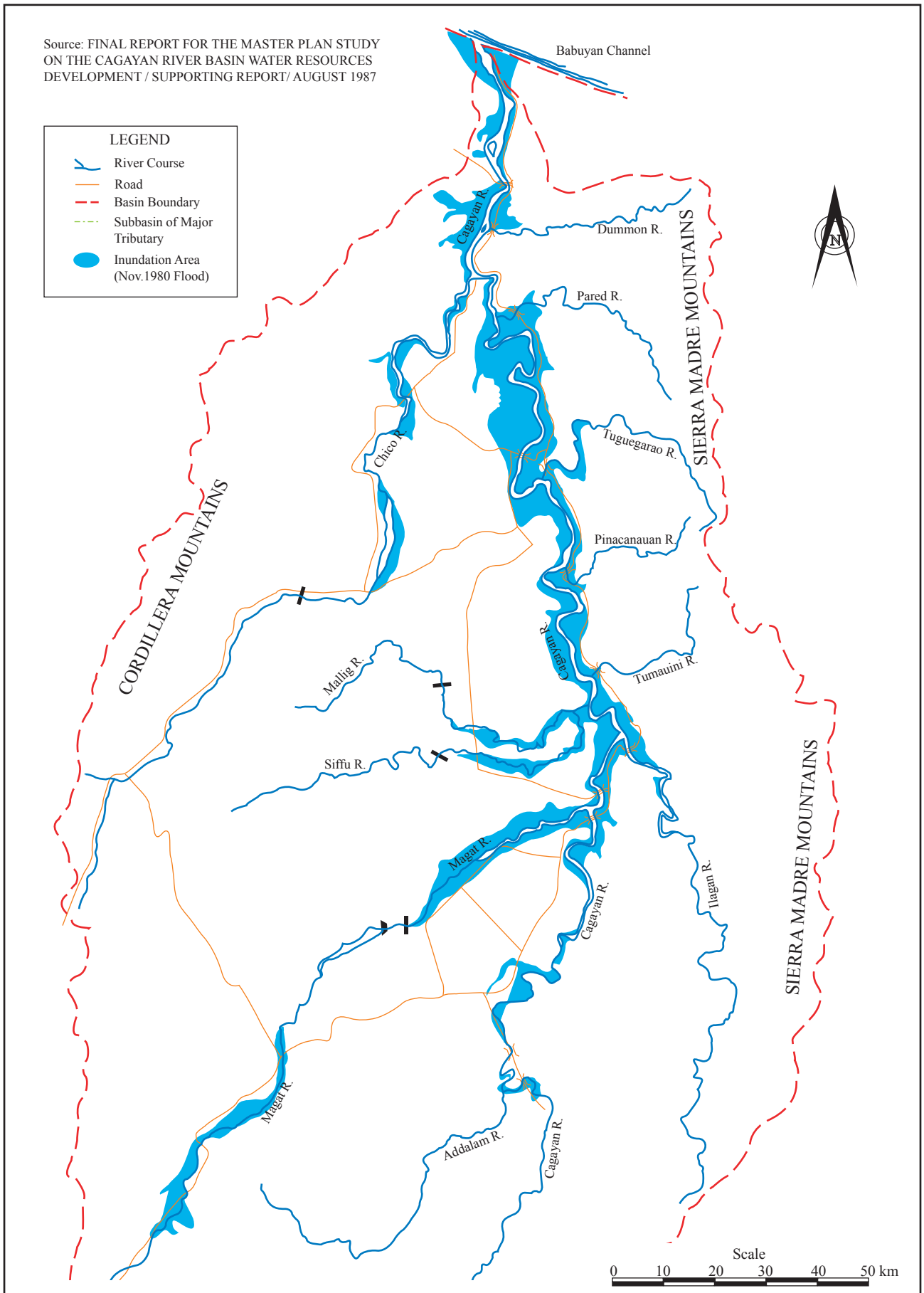

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Figure 1.2.5

Inundation Area Map (Nov.1980 Flood)

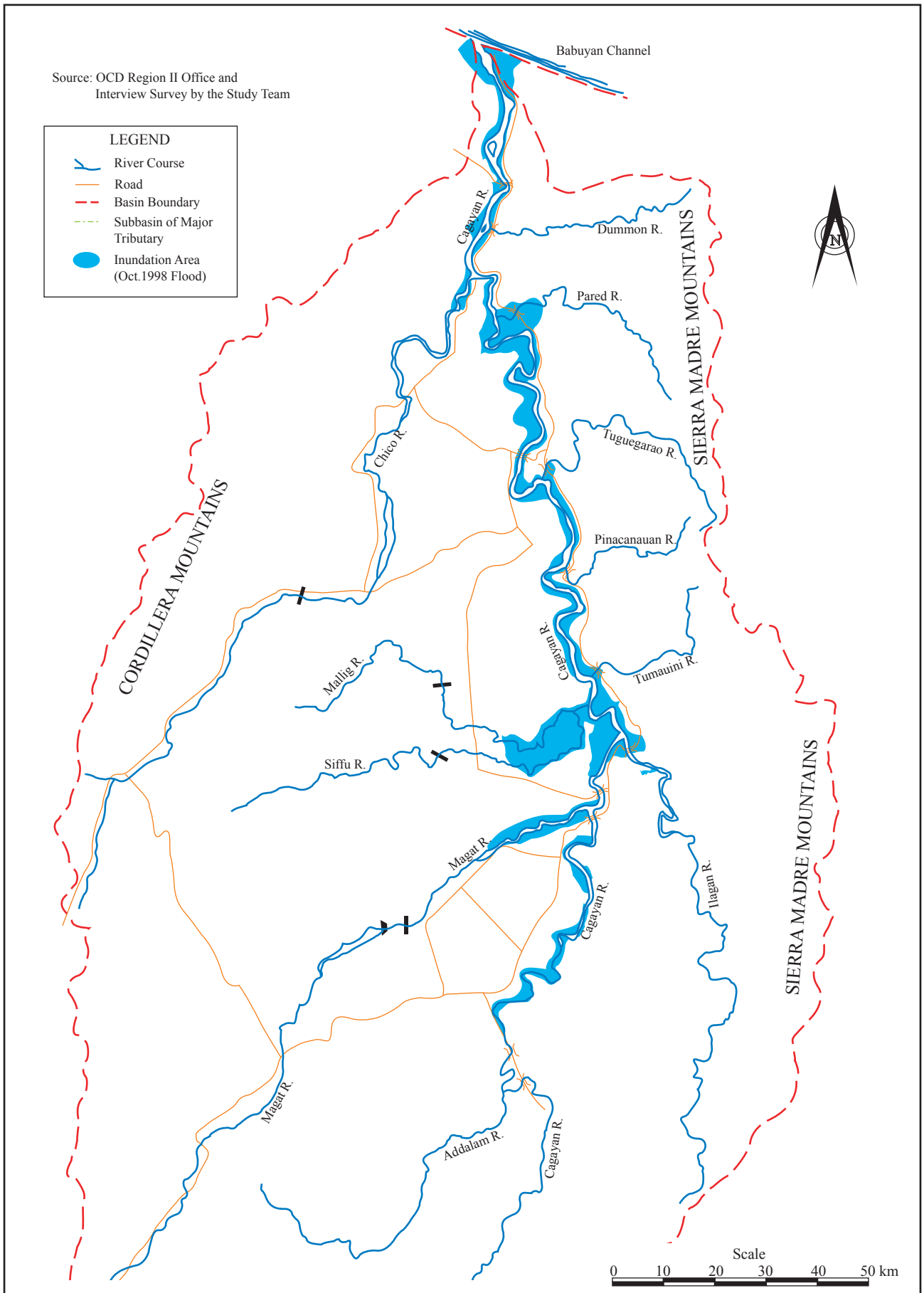

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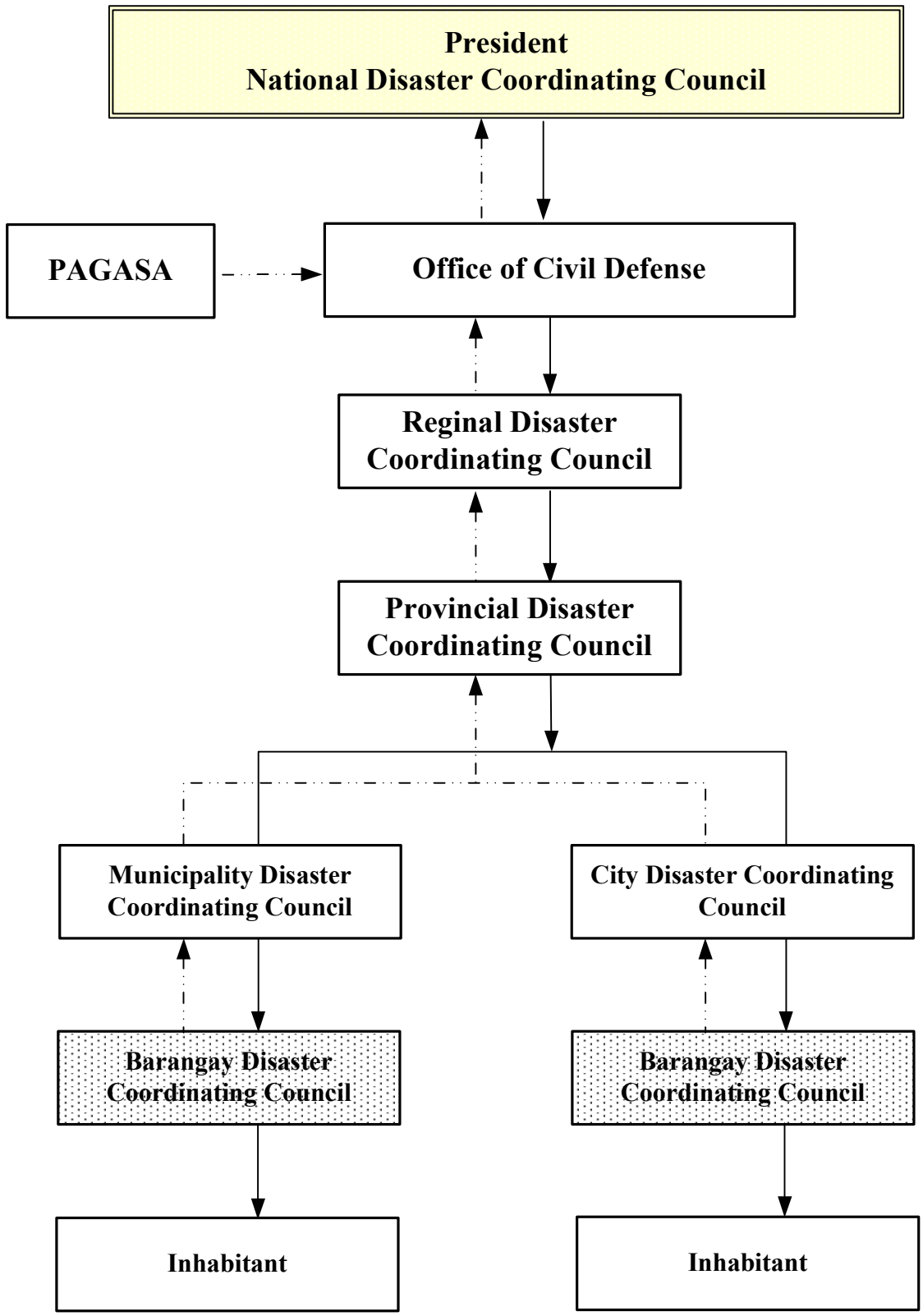
Figure 1.2.6

Inundation Area Map (Oct.1998 Flood)



Legend

: Information for Decision

: Decision and Action

Data source : Region 2, RDCC

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Figure 1.4.1
Communication Flow Chart Of National Disaster Management

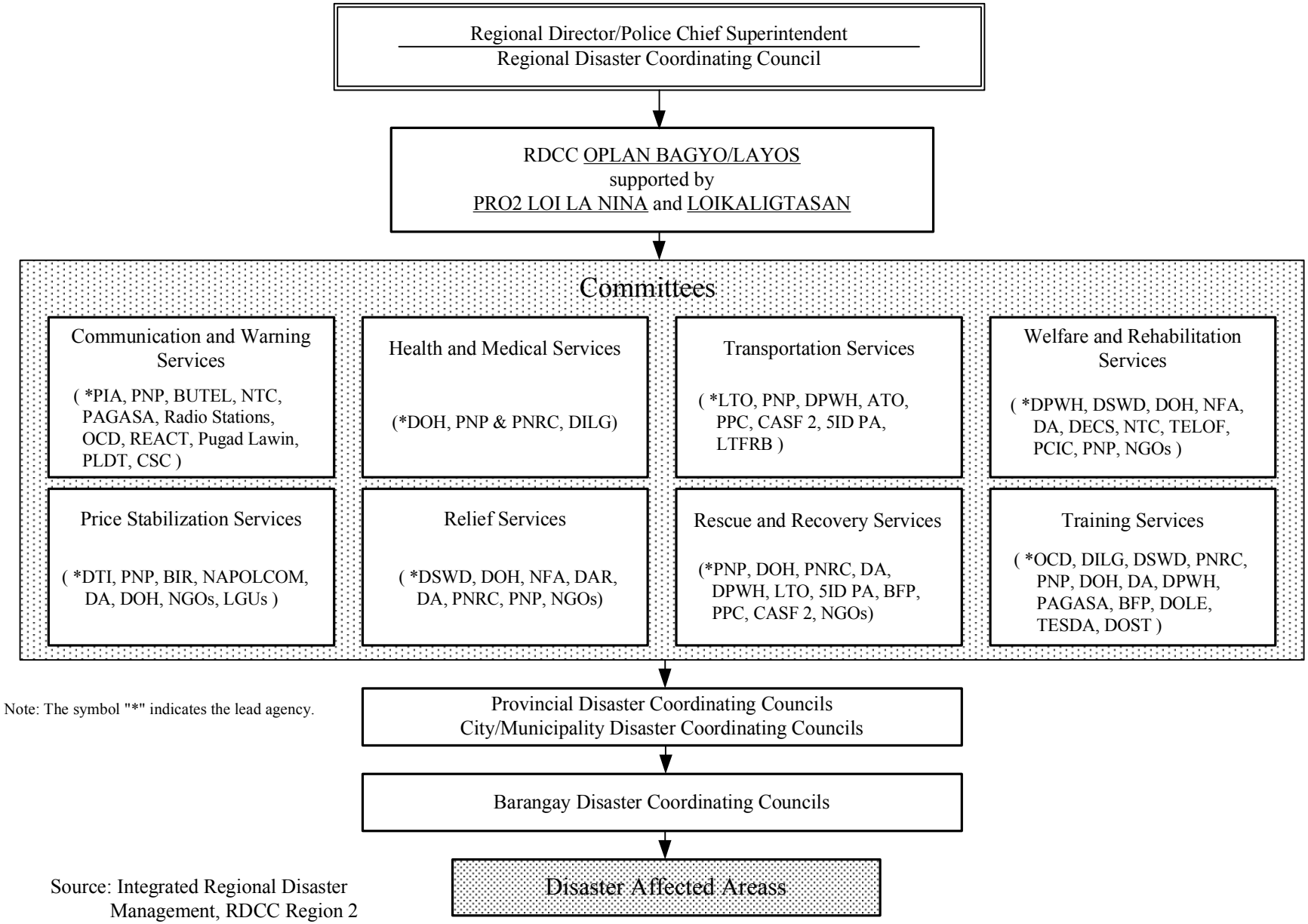

Figure 1.4.2
Activity Flow Chart of Integrated Regional Disaster Management

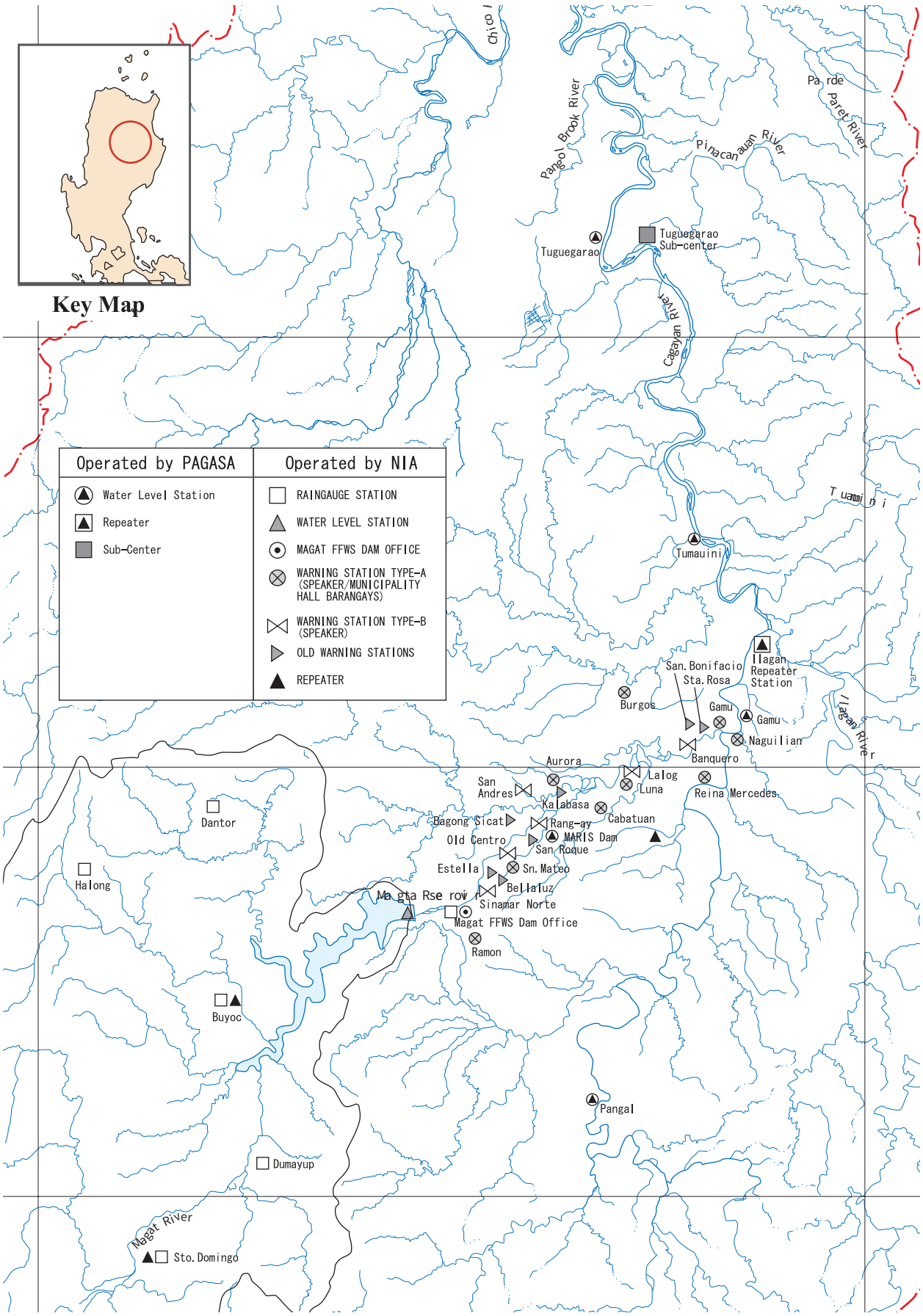

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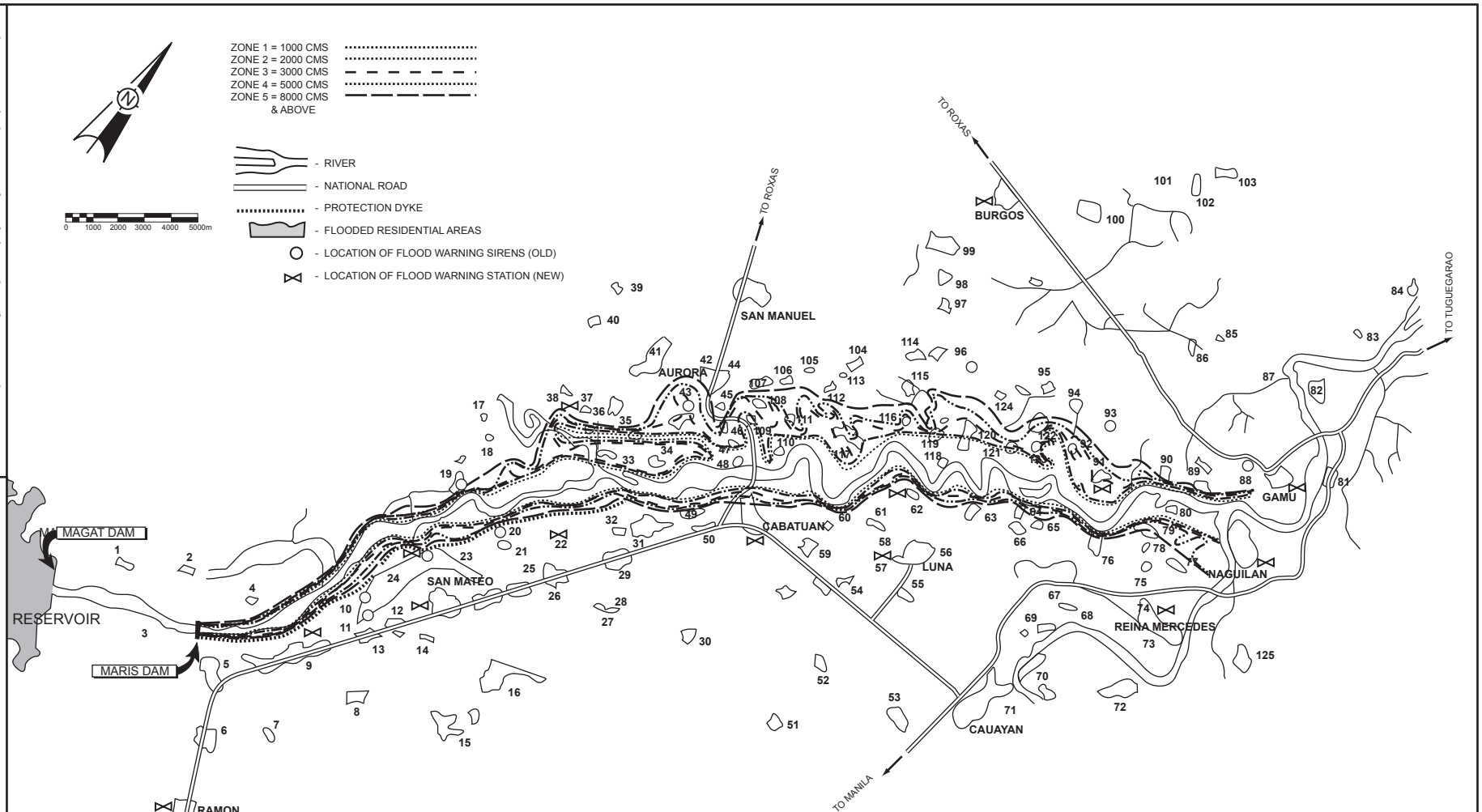
Figure 1.4.3
Existing Flood Forecasting and Warning Systems



1 STO. DOMINGO
2 NAMILLANGAN
3 NIA-MRIIS-DRD
4 KINAWAYAYAN
5 OSCARIZ
6 BURGOS
7 VILLA BELTRAN
8 VILLA FUERTE
9 SINAMAR NORTE
10 ESTRELLA
11 BELLA LUZ
12 DAGUPAN
13 VILLA MAGAT
14 SAN MANUEL
15 VICTORIA
16 SALINUNGAN
17 KAKAWAYANAN
18 SAN JOSE
19 BAGONG SIKAT
20 SAN ROQUE
21 MAPUROK
22 SANIGNACIO
23 OLD CENTRO II
24 OLD CENTRO I
25 MARASAT GRANDE
26 MARASAT PEQUENO
27 TANDUL
28 MAC. DAM
29 DIAMANTINA
30 LAPAZ
31 CULING CENTRO
32 CULING WEST
33 RANISIEN
34 VILLA FUGO
35 VILLA VIERNES
36 BANNAOAG
37 KAIPILAN
38 SAN ANDRES
39 MARANGUE
40 MALALINTA
41 BAGONG TANZA
42 SAN PEDRO
43 STA. ROSA
44 SN. JOSE
45 SN. JUAN
46 SILI
47 CAMARUNG
48 SARANAY
49 CULING EAST
50 MACALAOT
51 NAGRAMBUAN
52 MARABULIG 2
53 CAUAYAN AIRPORT
54 MAMBABANGA
55 DADAP
56 MACANAO
57 SAN MIGUEL
58 PUROK
59 LUZON
60 CONCEPCION
61 PULAY
62 LALOG
63 SANTOR
64 DANGAN BABA
65 SINIPPIL
66 DANGAN VIEJO
67 NAPACCU GRANDE
68 MAPACCU PEQUENO
69 TAGARAN
70 MABANTAD
71 TURAYONG
72 NAGCAMPEGAN
73 LIBENAB PEQUENO
74 LIBENAB GRANDE
75 VILLADOR
76 TUROD
77 MANSIBANG
78 PALAT TAO
79 MALALATANG GRANDE
80 TONGUE
81 GUIBANG
82 UPI
83 PILAR
84 CABANNUANGAN
85 BALLUDI
86 BARCOLAN
87 BUENAVISTA
88 STA. ROSA
89 LINSON
90 FURAO
91 BANQUERO
92 SANTIAGO
93 SAN BONIFACIO
94 SAN ROQUE
95 HACIENDA VIOLA
96 DALIG VIEJO
97 MALASIN
98 BUGNAY
99 CALIGUIAN
100 MABINI
101 PINTOR
102 UNION
103 BIGAO
104 NAMPICUAN
105 BAGNOS
106 LAPUZ
107 STA. RITA
108 MALASIN
109 BOLINAO
110 SOBASTA
111 VICTORIA
112 ESPERANZA WEST
113 ESPERANZA EAST
114 DALIG
115 KALINGA
116 MACOCAY
117 BANNAGAO
118 MAGAT
119 SAN ISIDRO
120 STO. DOMINGO
121 BINARSANG
122 CATABBAN
123 SALUCONG
124 SAN LUIS
125 MINALLO

Figure 1.4.4
Magat Flood Warning System and Flood Zones Downstream of Magat Dam

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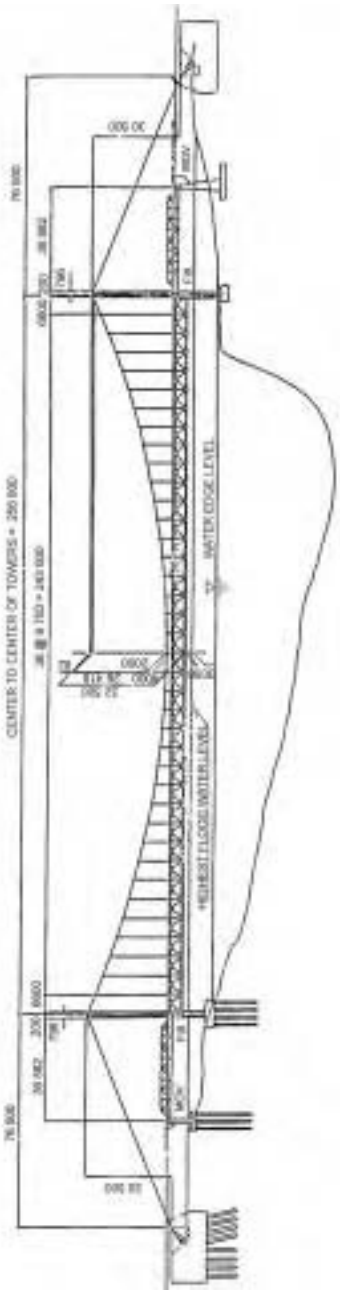
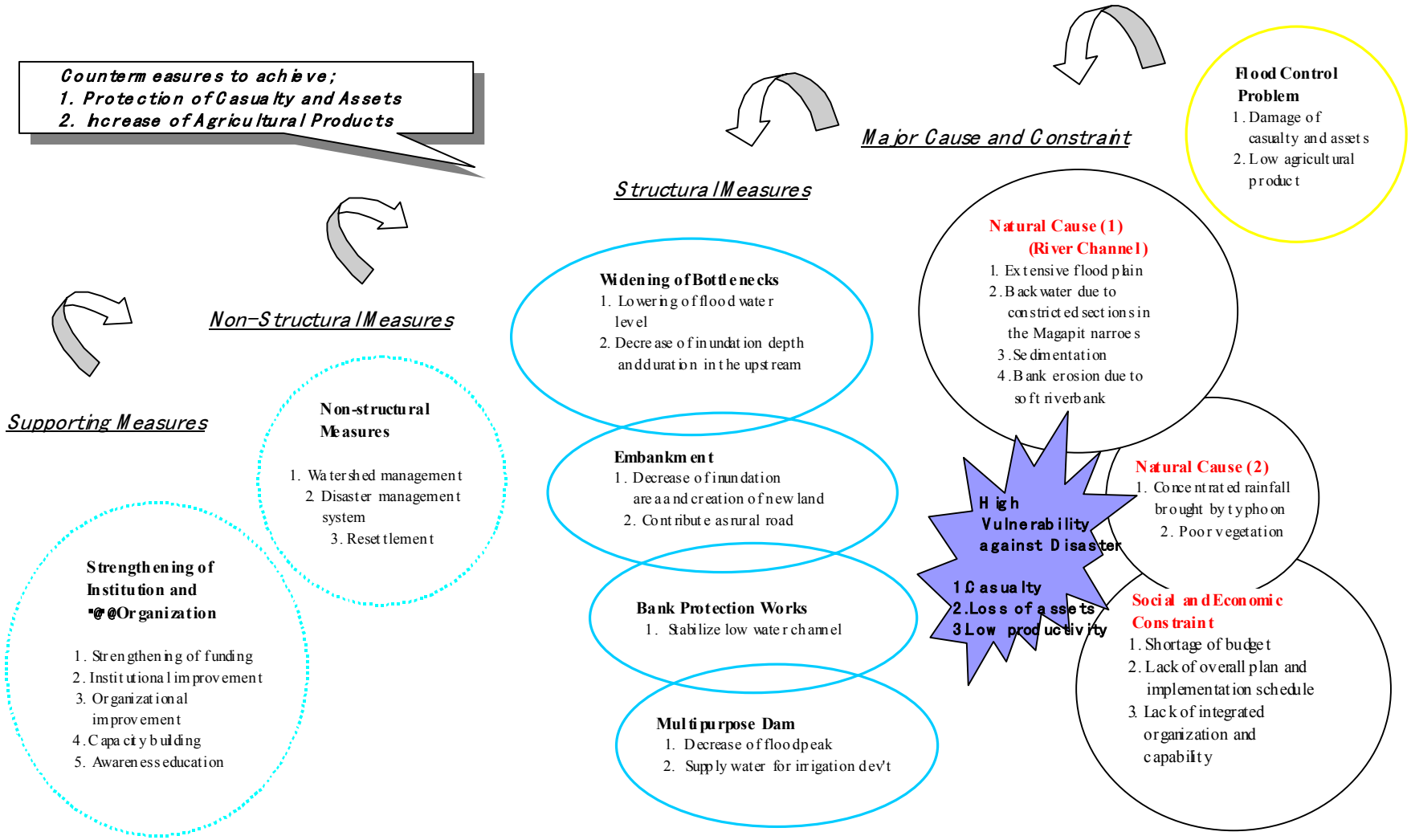


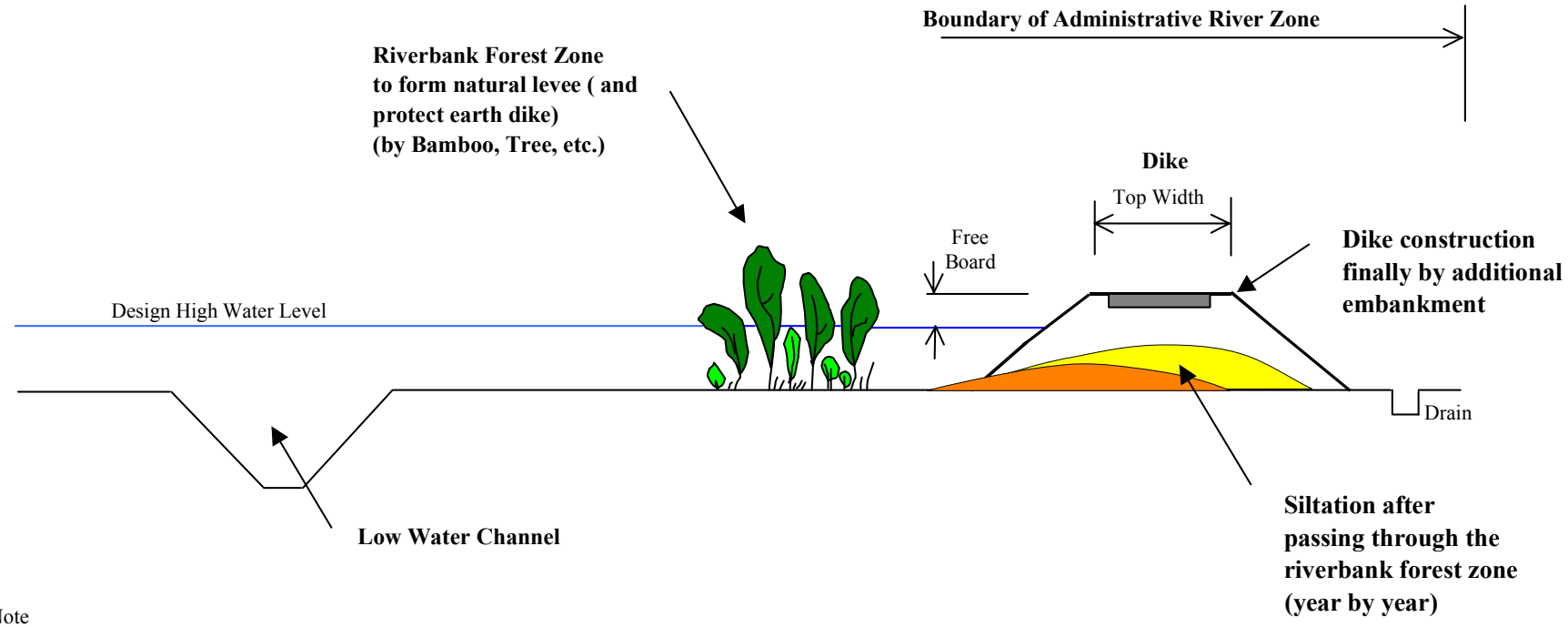
The Feasibility Study of the Flood Control Project for the Lower Cagayan River in the Republic of the Philippines	**Figure 1.5.1**
JAPAN INTERNATIONAL COOPERATION AGENCY	**Outline of Magapit Bridge**

Figure 2.1.1

Concept of Flood Damage Mitigation



Flood Dike (Embankment) and Riverbank Forest Zone



Note

Purpose of Riverbank Forest 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 (cu.m/s)	Free Board (m)	Top Width (m)
5,000 to 10,000	1.5	6
more than 10,000	2	7

Figure 2.1.2
Concept of Riverbank Forest Zone and Dike Construction

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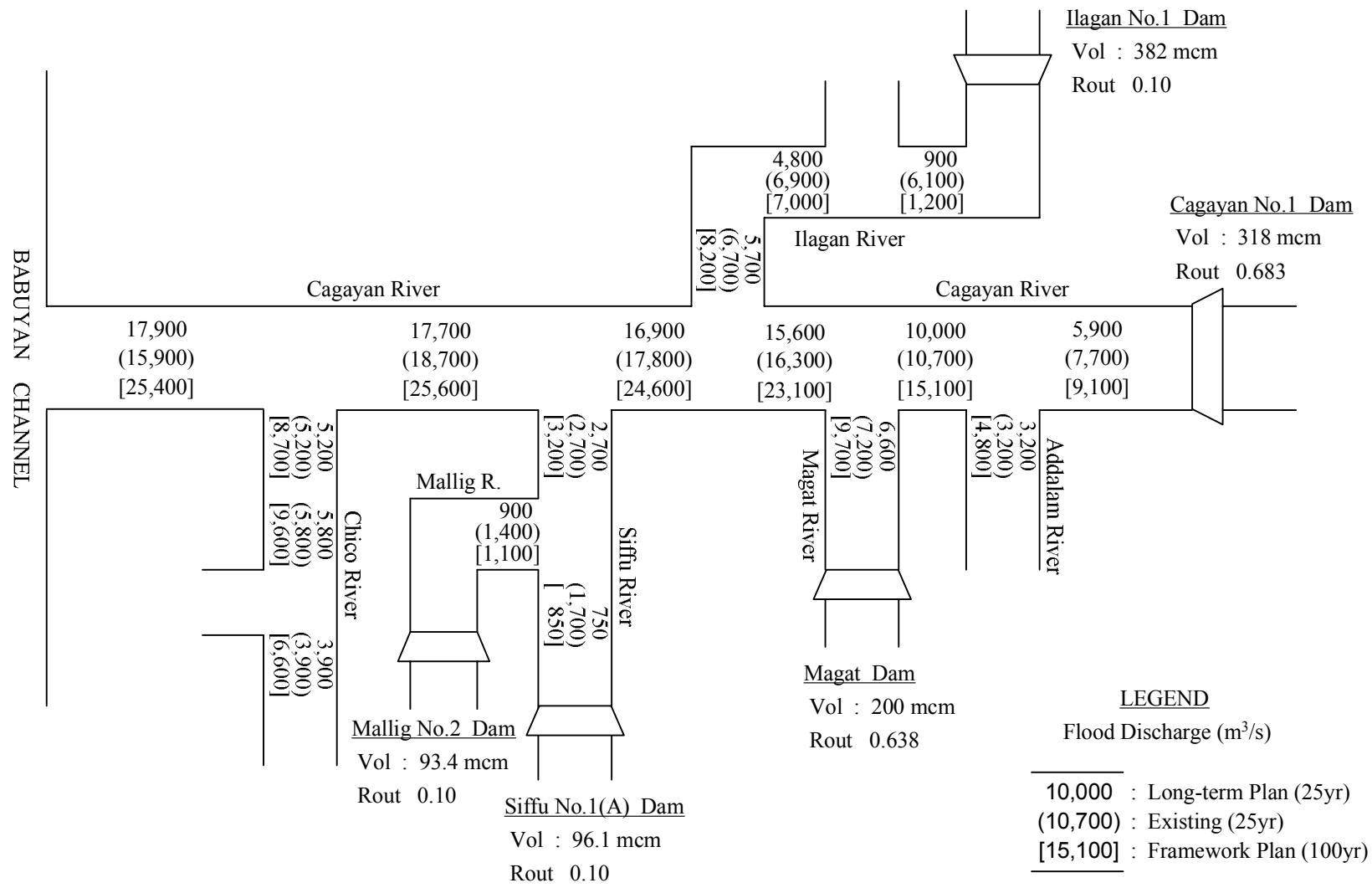

Source : The Master Plan Study on the Cagayan River Basin Water Resouce Development, Supporting Report Aug. 1987 by JICA (page;FC-131)

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Figure 2.1.3

Design Discharge for Long-term Plan

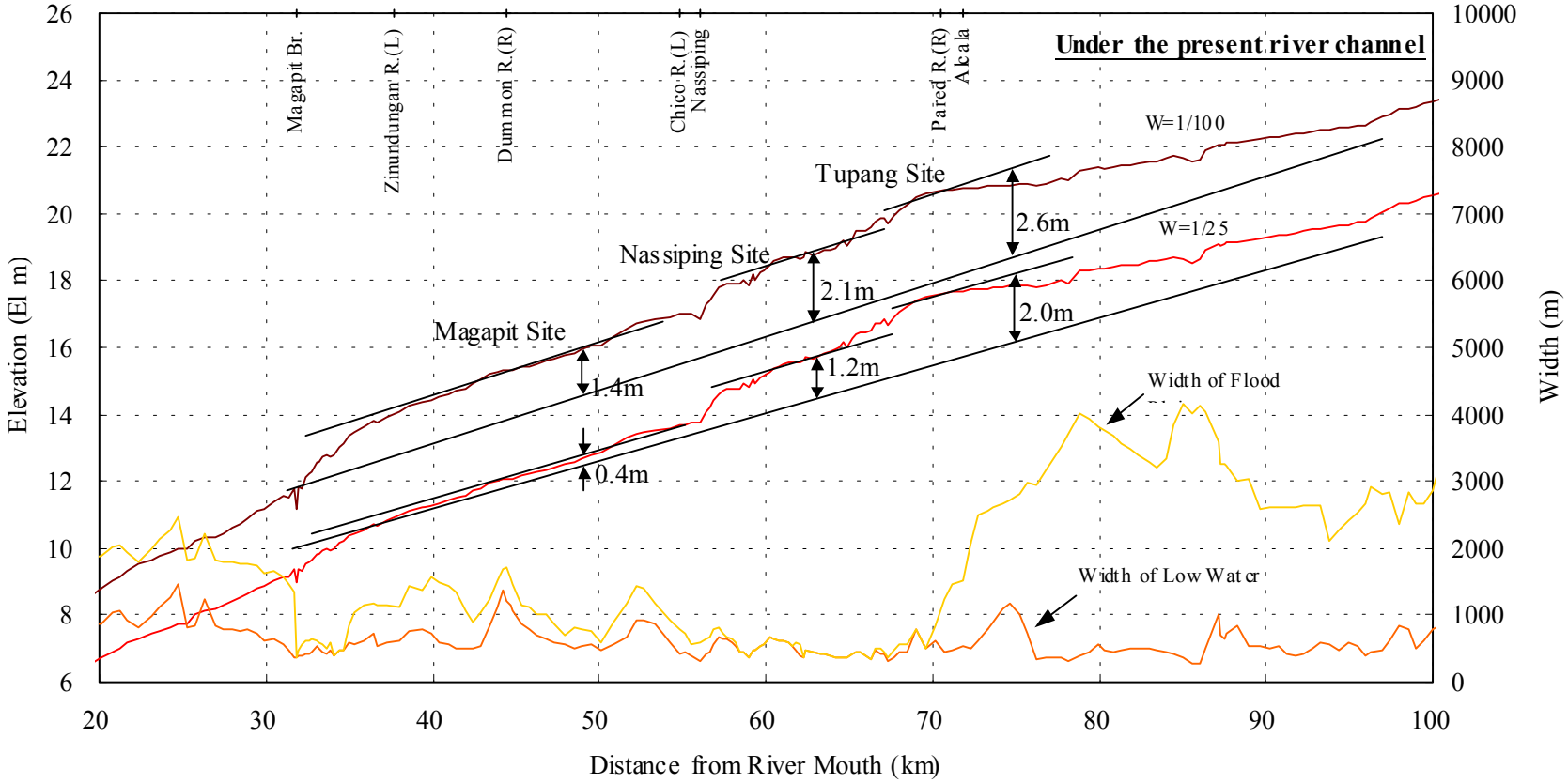

Figure 2.2.1
Backwater due to the bottlenecks in the Magapit Narrows

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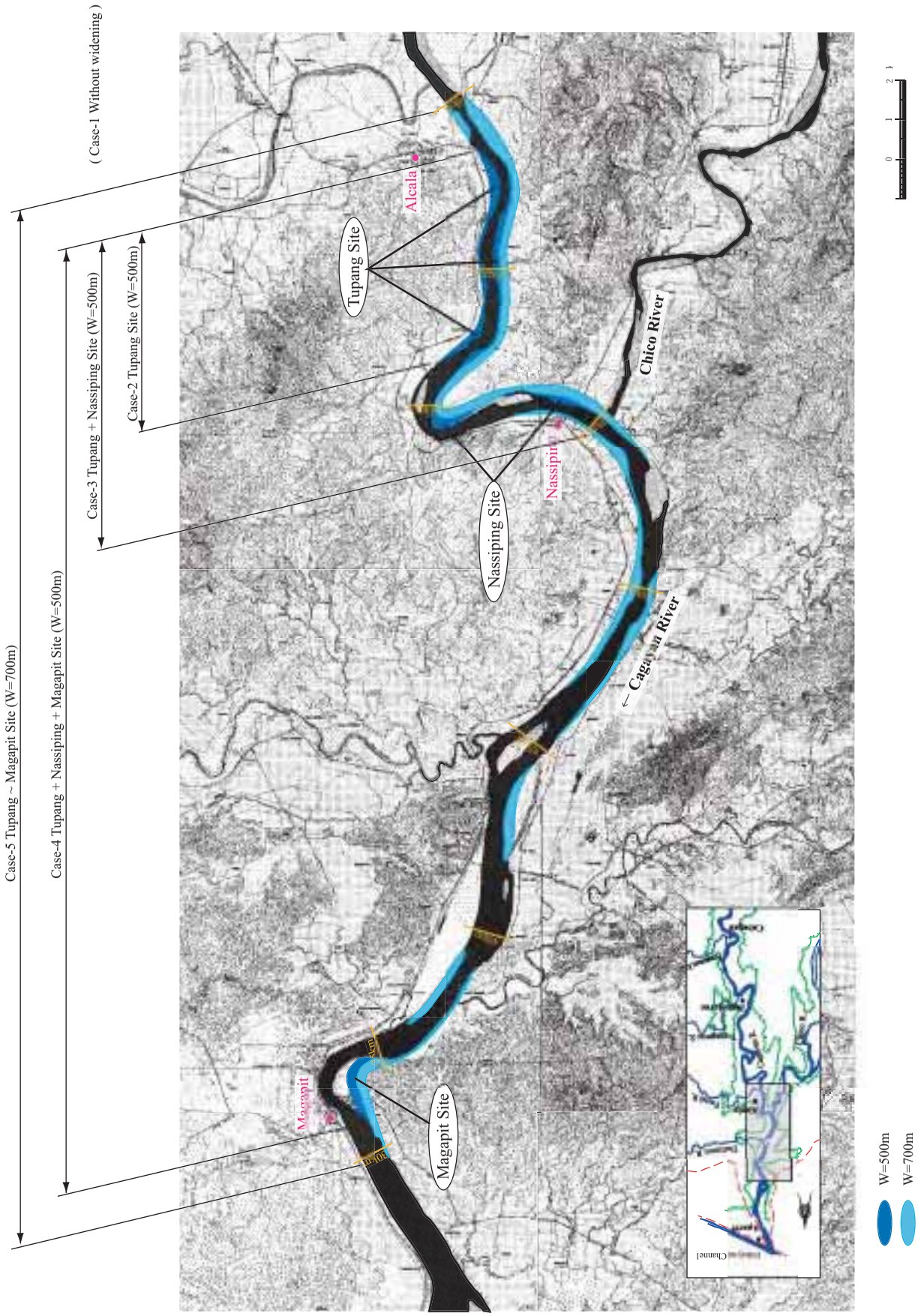

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Figure 2.2.2

Location Map of Bottlenecks in the Magapit Narrows

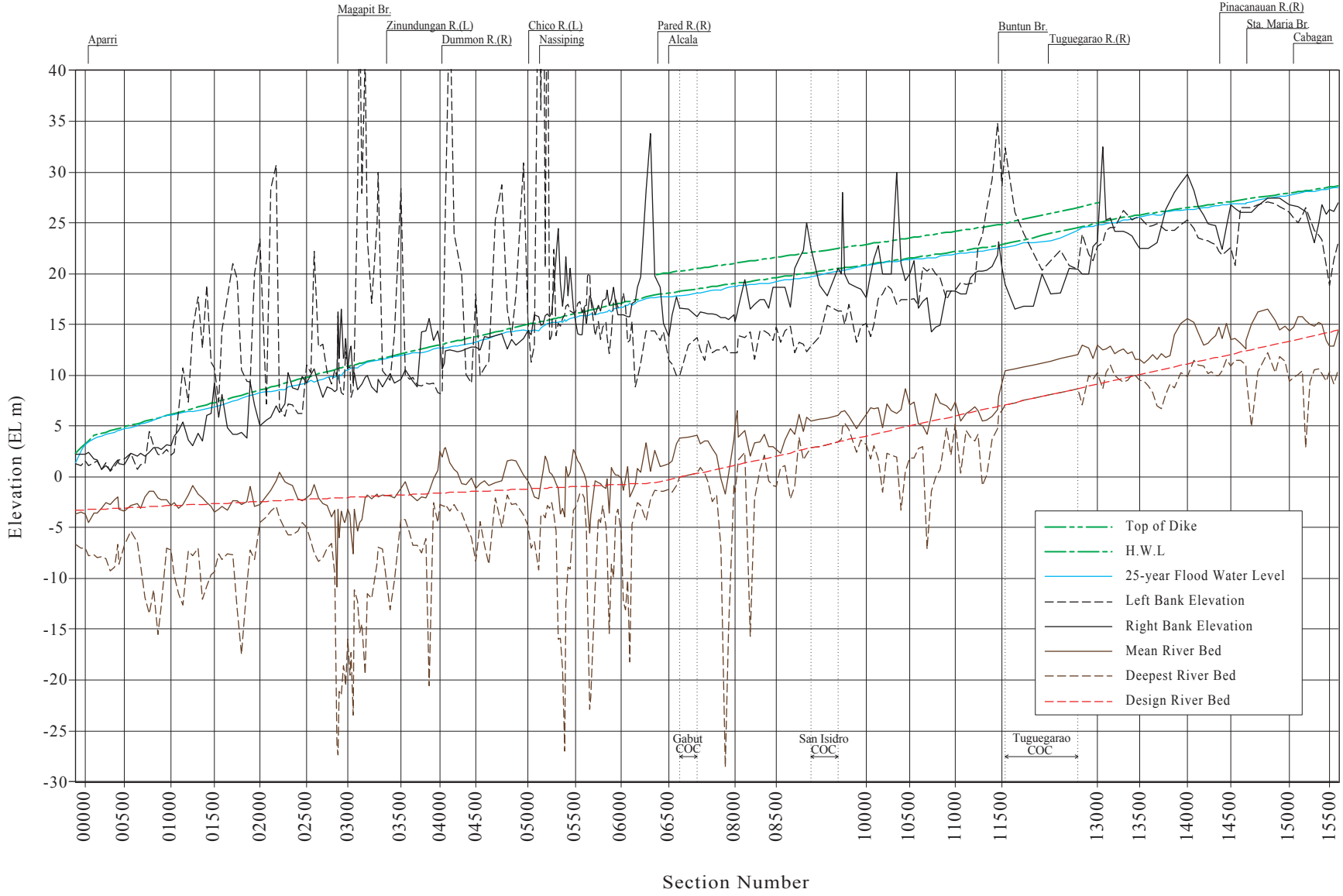

Figure 2.2.3
Proposed Longitudinal Profile of the Lower Cagayan River

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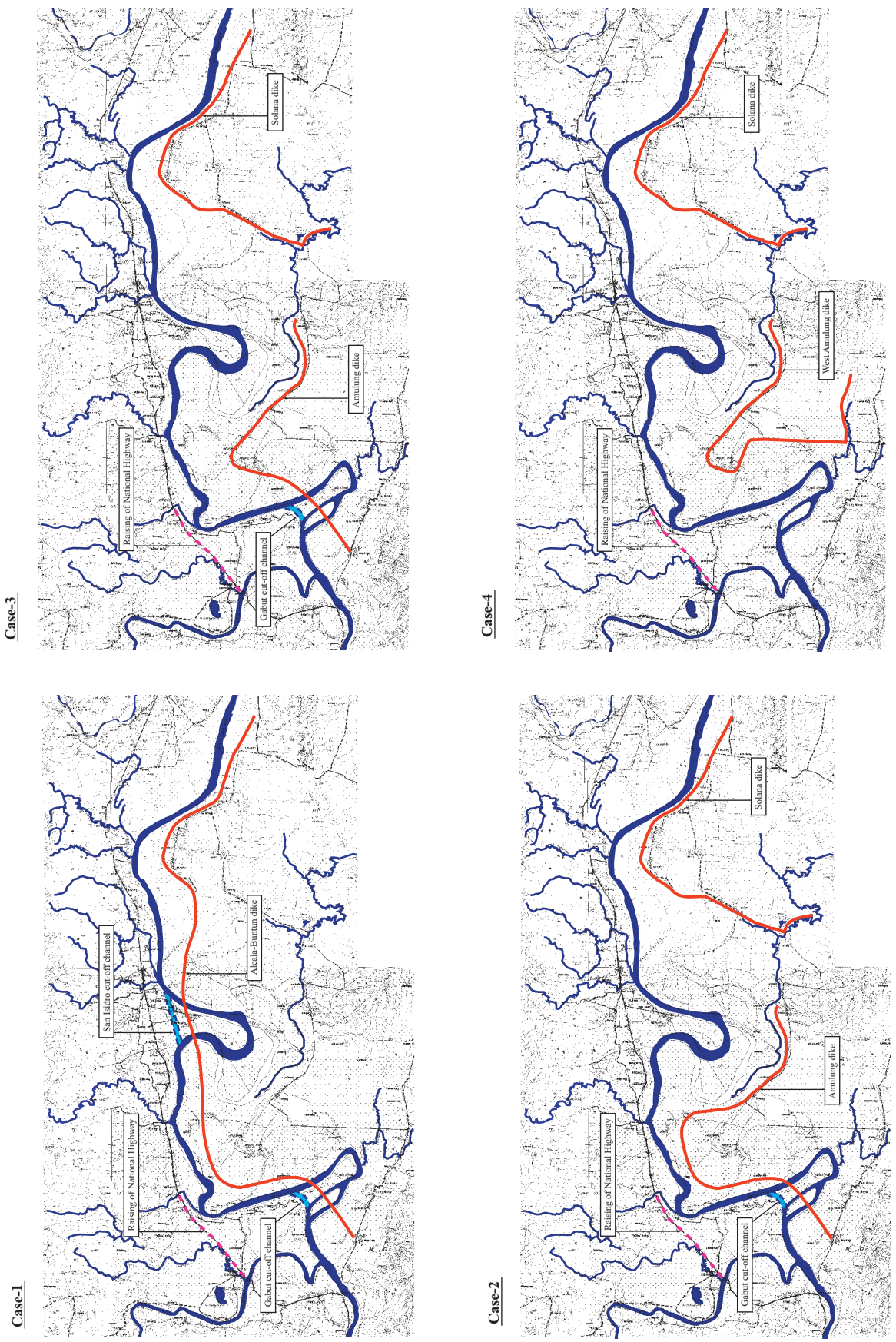

The Feasibility Study of the Flood Control Project for the Lower Cagayan River in the Republic of the Philippines

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Figure 2.2.4
Location Map of Alternative Plan Alcala to Buntun Bridge

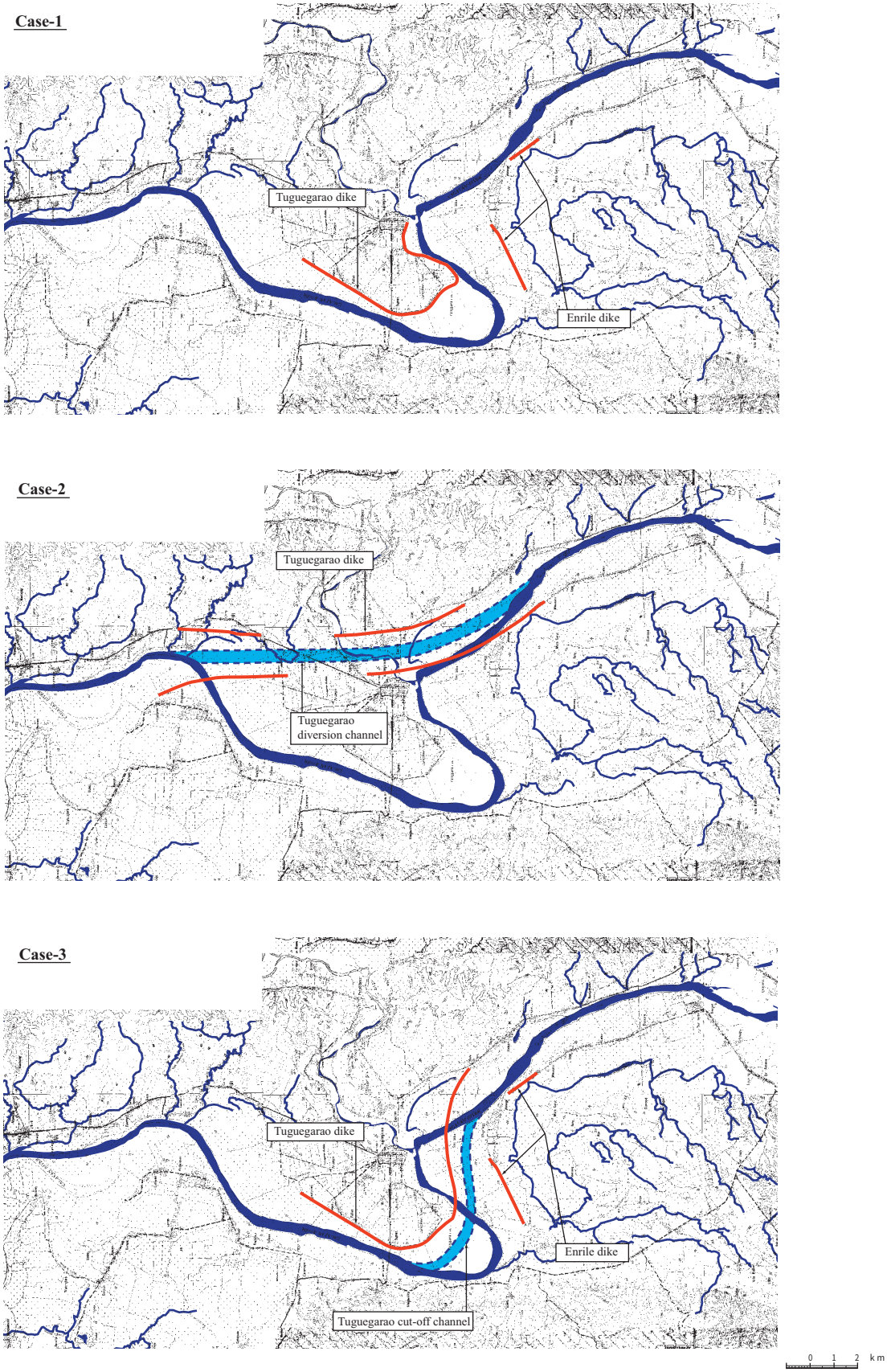

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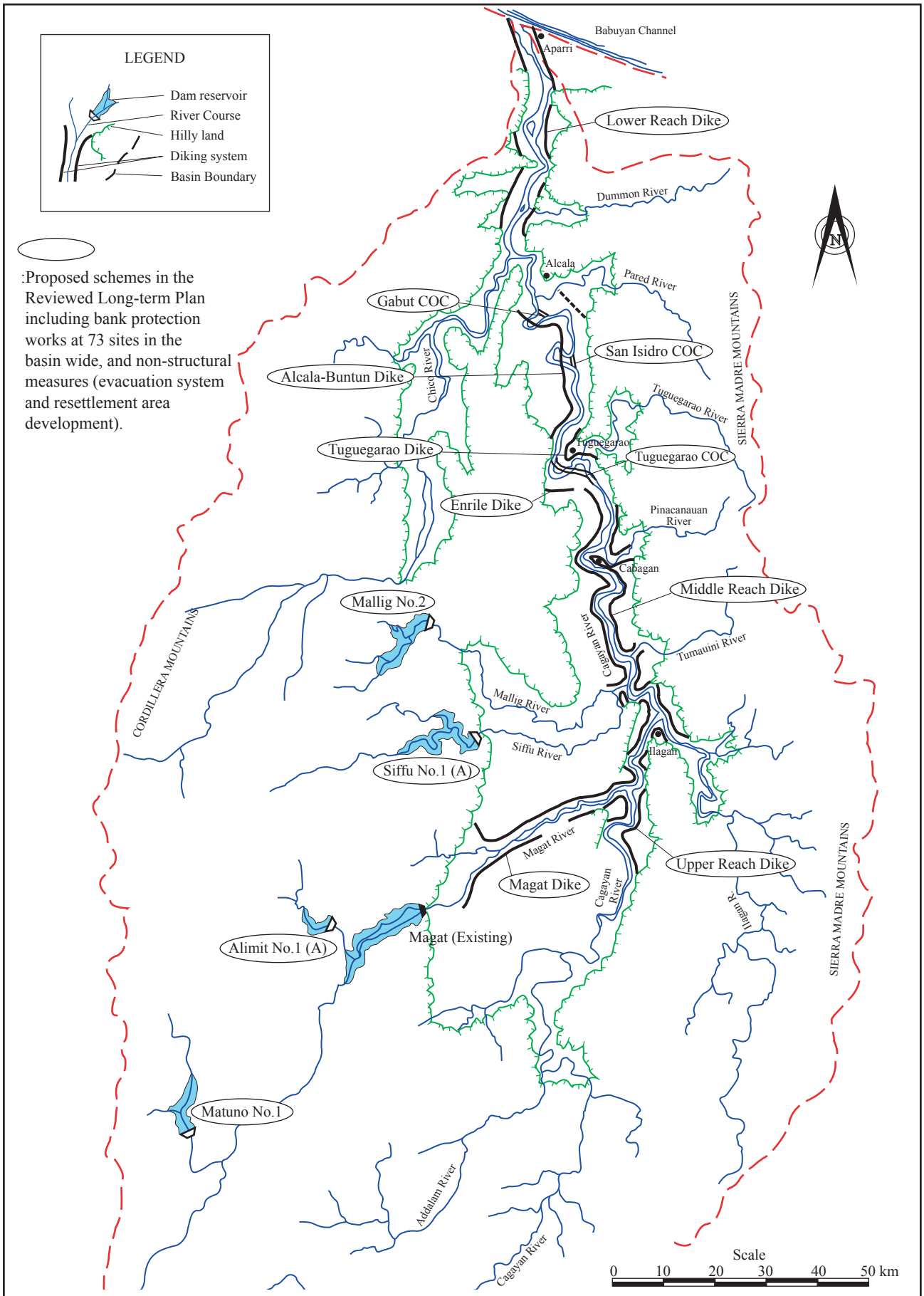
Figure 2.2.5
Location Map of Alternative Plan Buntun Br. to Upstream of Tuguegarao



The Feasibility Study of the Flood Control Project for the Lower Cagayan River in the Republic of the Philippines

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Figure 2.3.1
Outline of Reviewed Flood Control Long-term Plan

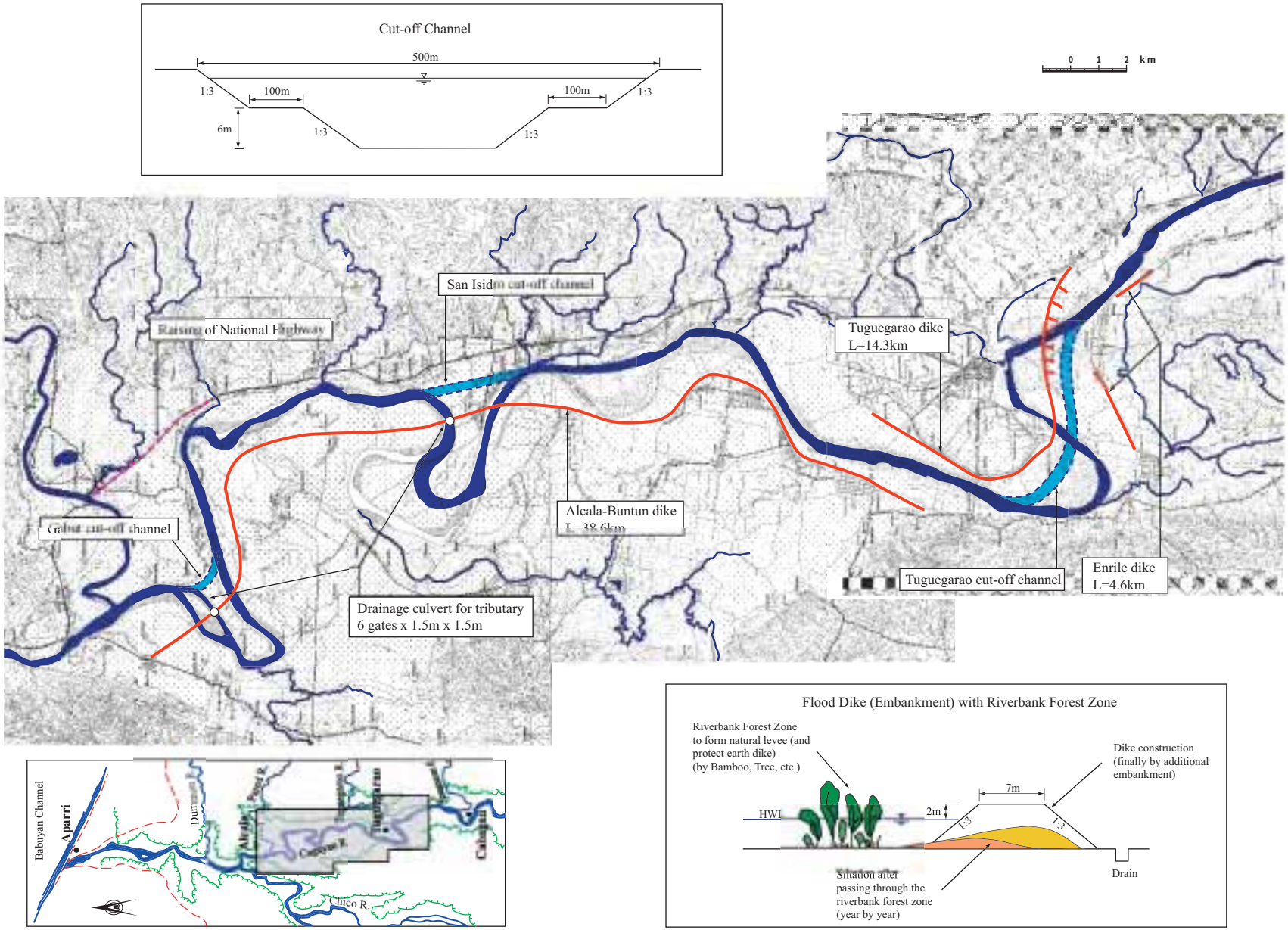

Figure 2.3.2
Location Map of Reviewed Flood Control
Long-term Plan (from Alcala to Tuguegarao)

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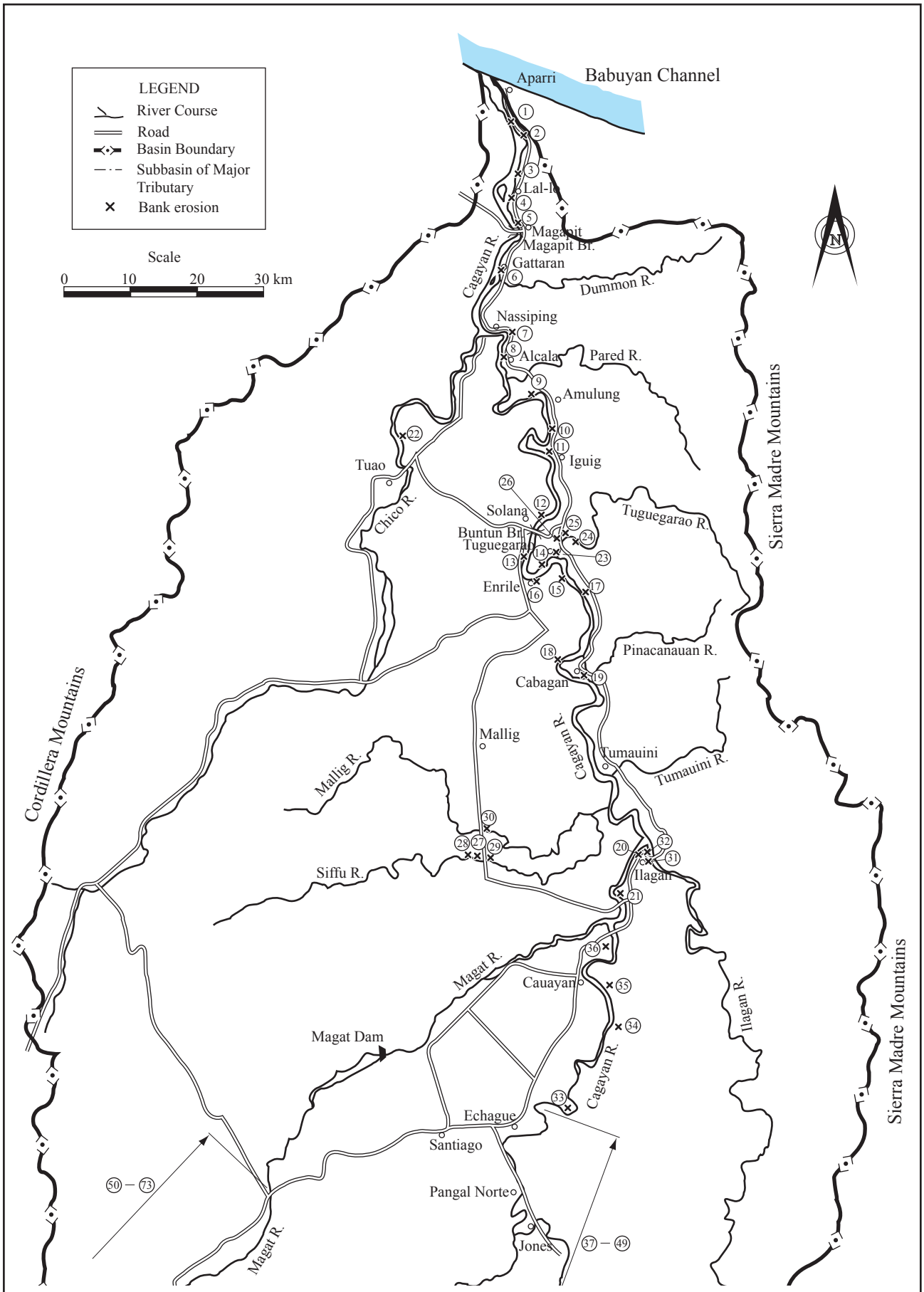

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Figure 2.3.3
Location of Bank Protection Works in the Reviewed Flood Control Long-term Plan

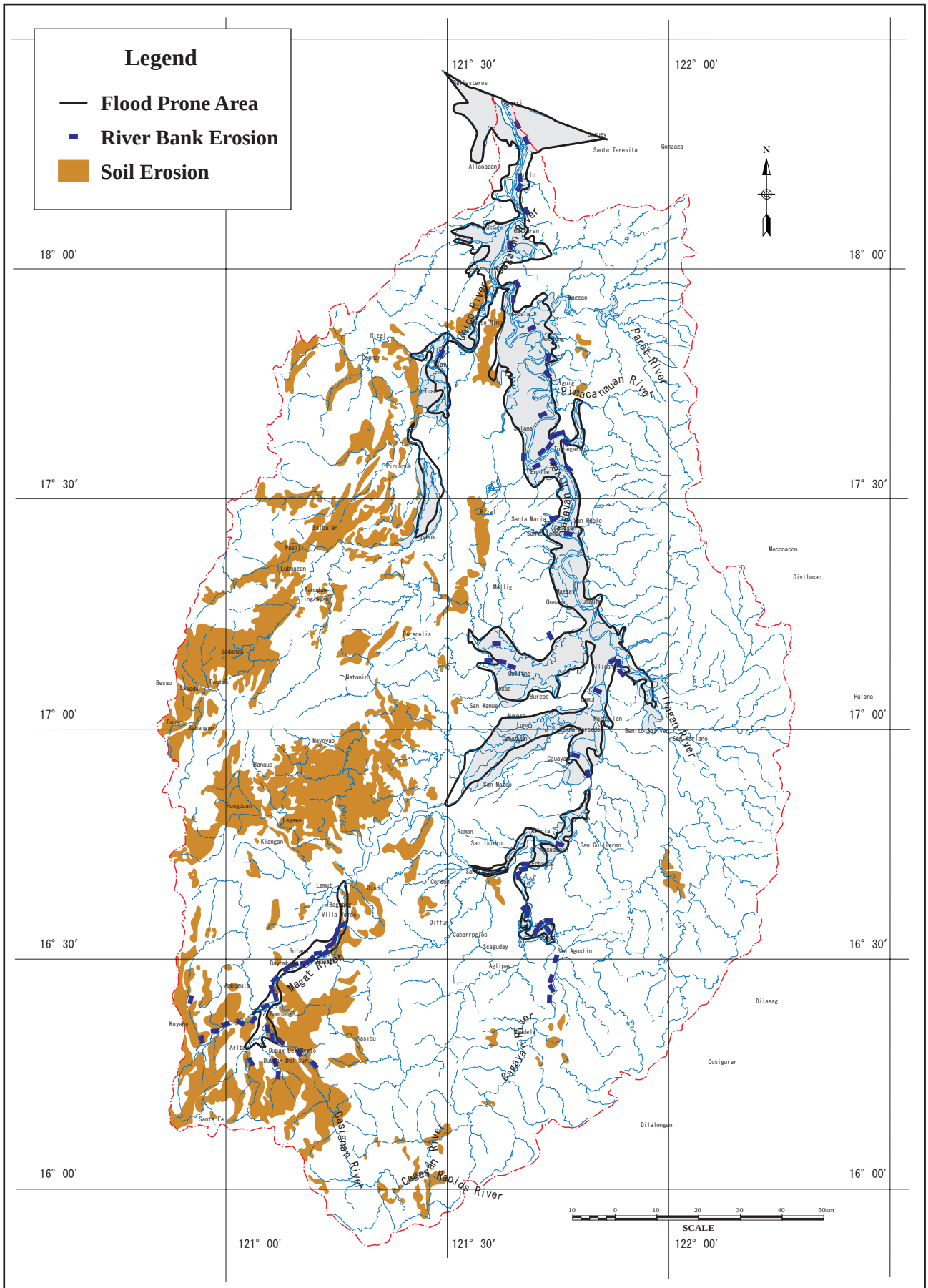

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Figure 2.4.1

Hazard Map of Cagayan River Basin