

Mahakali II Run-of-River Project

Khutia Run-of-River Project

Karnali Multipurpose Project

Babai Irrigation Project

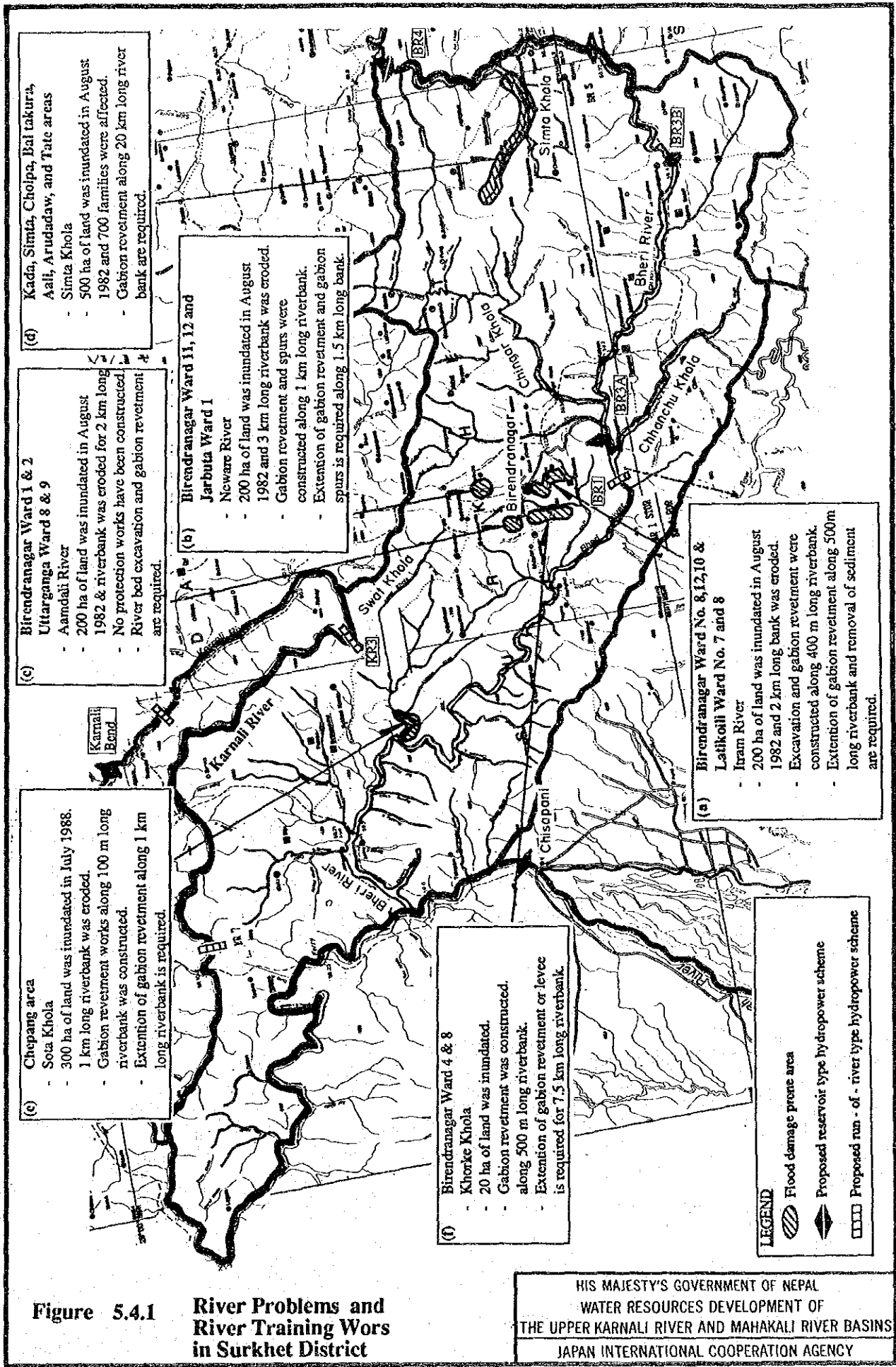
(Bheri-Babai Diversion Project)

Sikta Irrigation Project

(West Rapti Multipurpose Project)

Figure 5.2.1 Potential Irrigation Project Location Map

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY



(d) Kada, Simta, Cholpa, Bal takura, Aali, Arudadaw, and Tate areas
 - Simta Khola
 - 500 ha of land was inundated in August 1982 and 700 families were affected.
 - Gabion revetment along 20 km long river bank are required.

(c) Birendranagar Ward 1 & 2
 Uttarganga Ward 8 & 9
 - Aamdai River
 - 200 ha of land was inundated in August 1982 & riverbank was eroded for 2 km long
 - No protection works have been constructed.
 - River bed excavation and gabion revetment are required.

(b) Birendranagar Ward 11, 12 and Jarbuta Ward I
 - Neware River
 - 200 ha of land was inundated in August 1982 and 3 km long riverbank was eroded.
 - Gabion revetment and spurs were constructed along 1 km long riverbank.
 - Extension of gabion revetment and gabion spurs is required along 1.5 km long bank.

(a) Birendranagar Ward No. 8, 12, 10 & Latikoli Ward No. 7 and 8
 - Iram River
 - 200 ha of land was inundated in August 1982 and 2 km long bank was eroded.
 - Excavation and gabion revetment were constructed along 400 m long riverbank.
 - Extension of gabion revetment along 500m long riverbank and removal of sediment are required.

(e) Chupang area
 - Sota Khola
 - 300 ha of land was inundated in July 1988.
 - 1 km long riverbank was eroded.
 - Gabion revetment works along 100 m long riverbank was constructed.
 - Extension of gabion revetment along 1 km long riverbank is required.

(f) Birendranagar Ward 4 & 8
 - Khorke Khola
 - 20 ha of land was inundated.
 - Gabion revetment was constructed along 500 m long riverbank.
 - Extension of gabion revetment or levee is required for 7.5 km long riverbank.




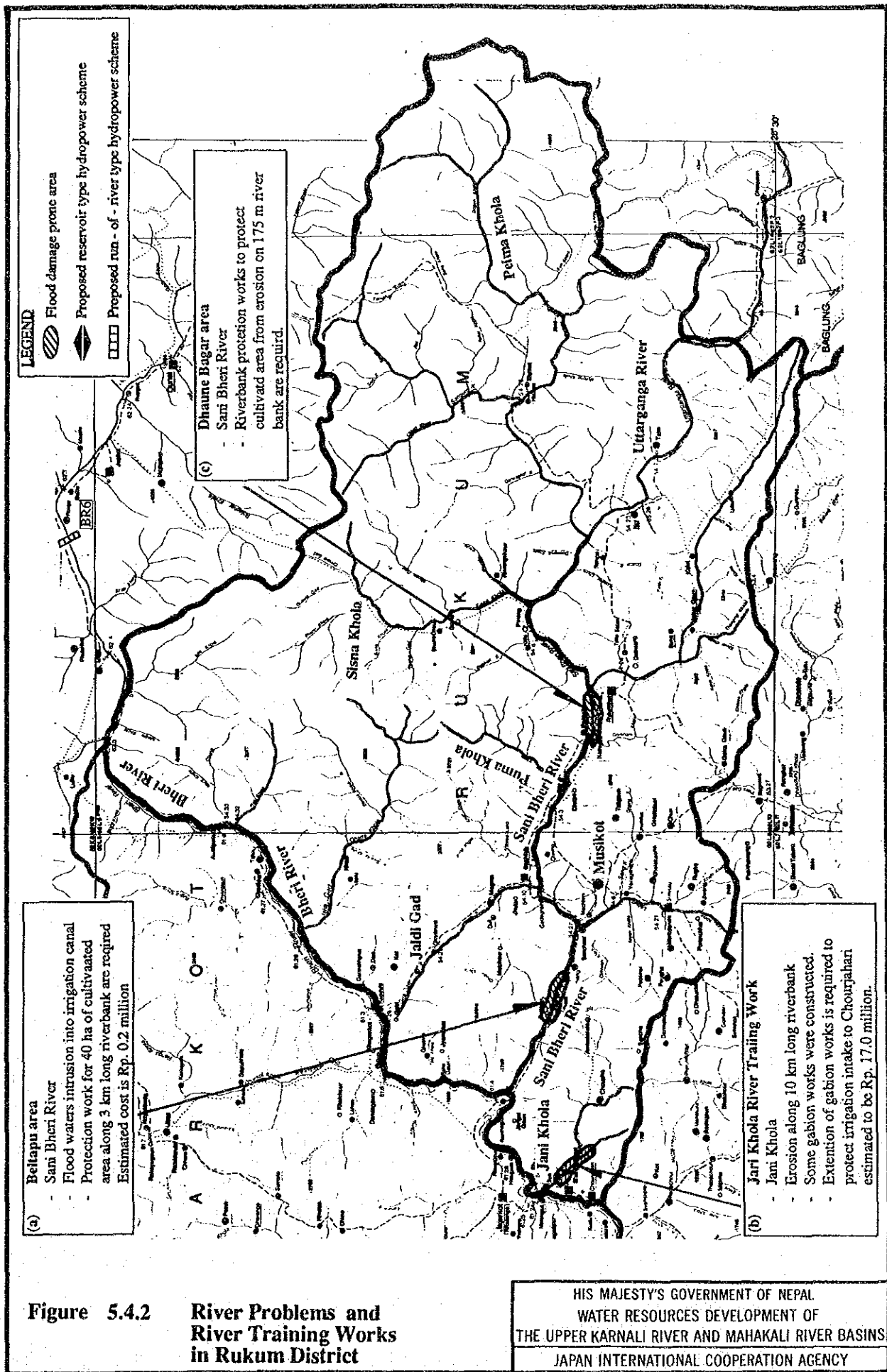
LEGEND

 Flood damage prone area

 Proposed reservoir type hydropower scheme

 Proposed run-of-river type hydropower scheme

Figure 5.4.1 River Problems and River Training Works in Surkhet District

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY



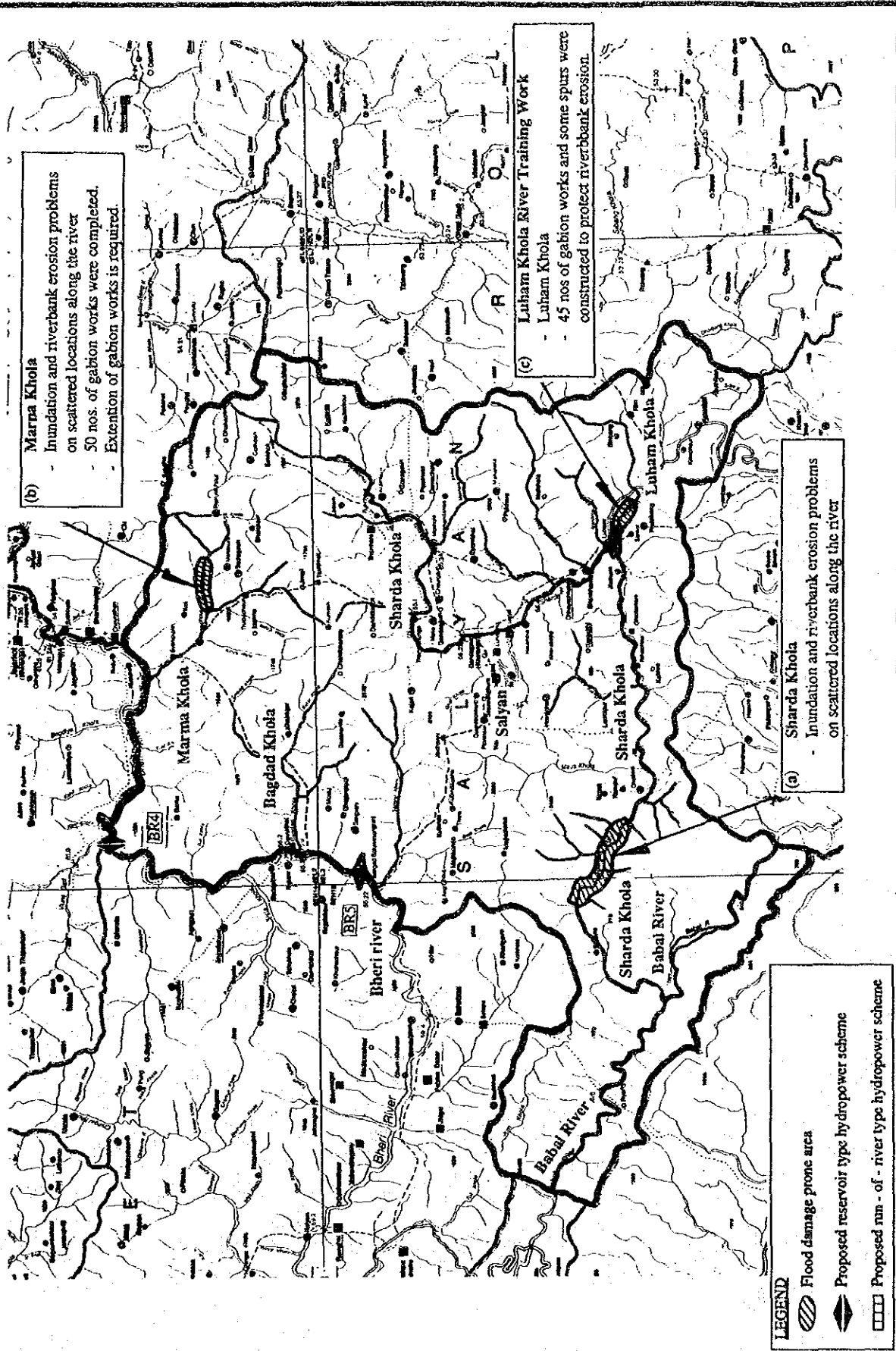
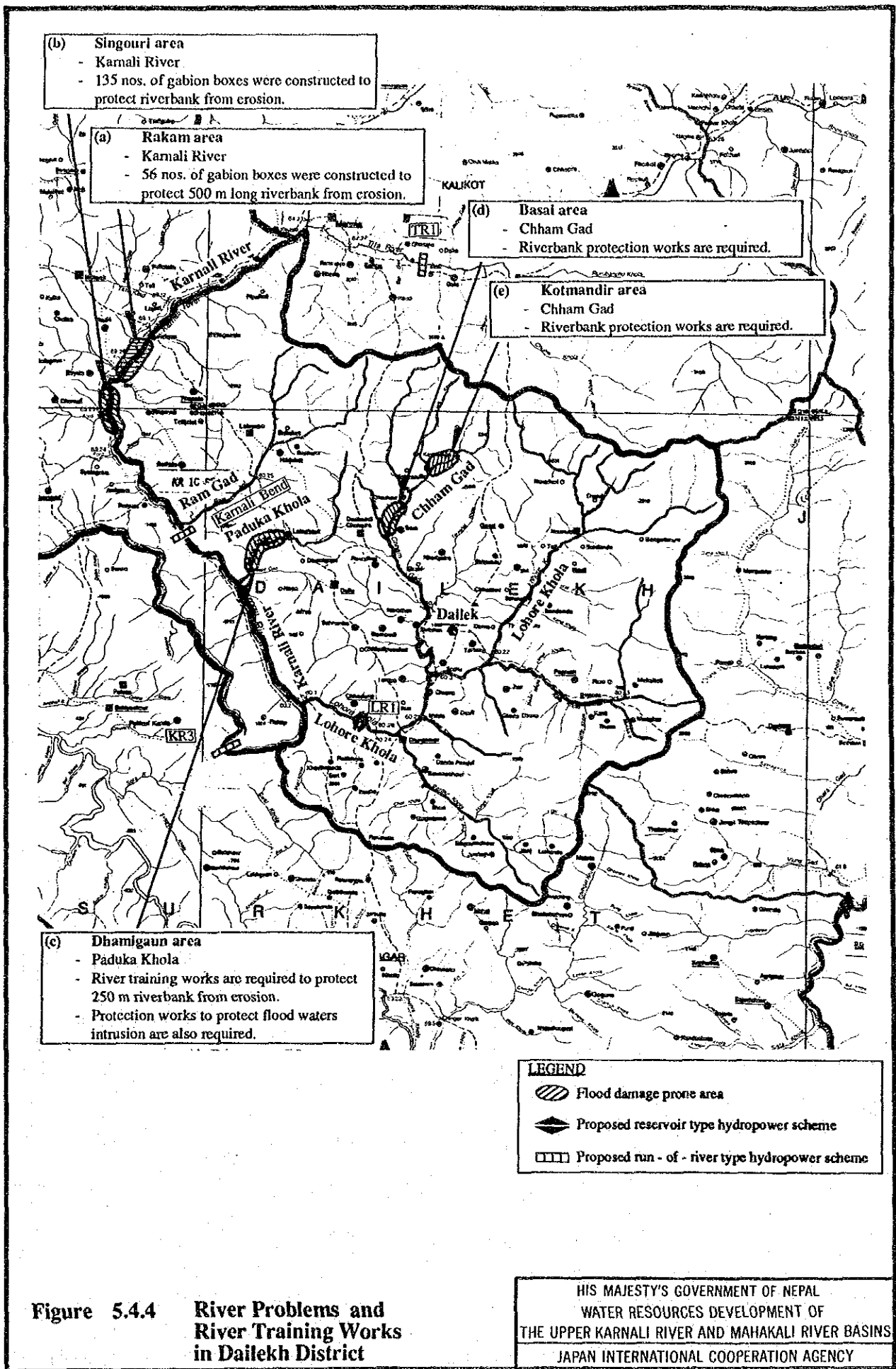


Figure 5.4.3 River Problems and River Training Works in Salyan District

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHA KALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY



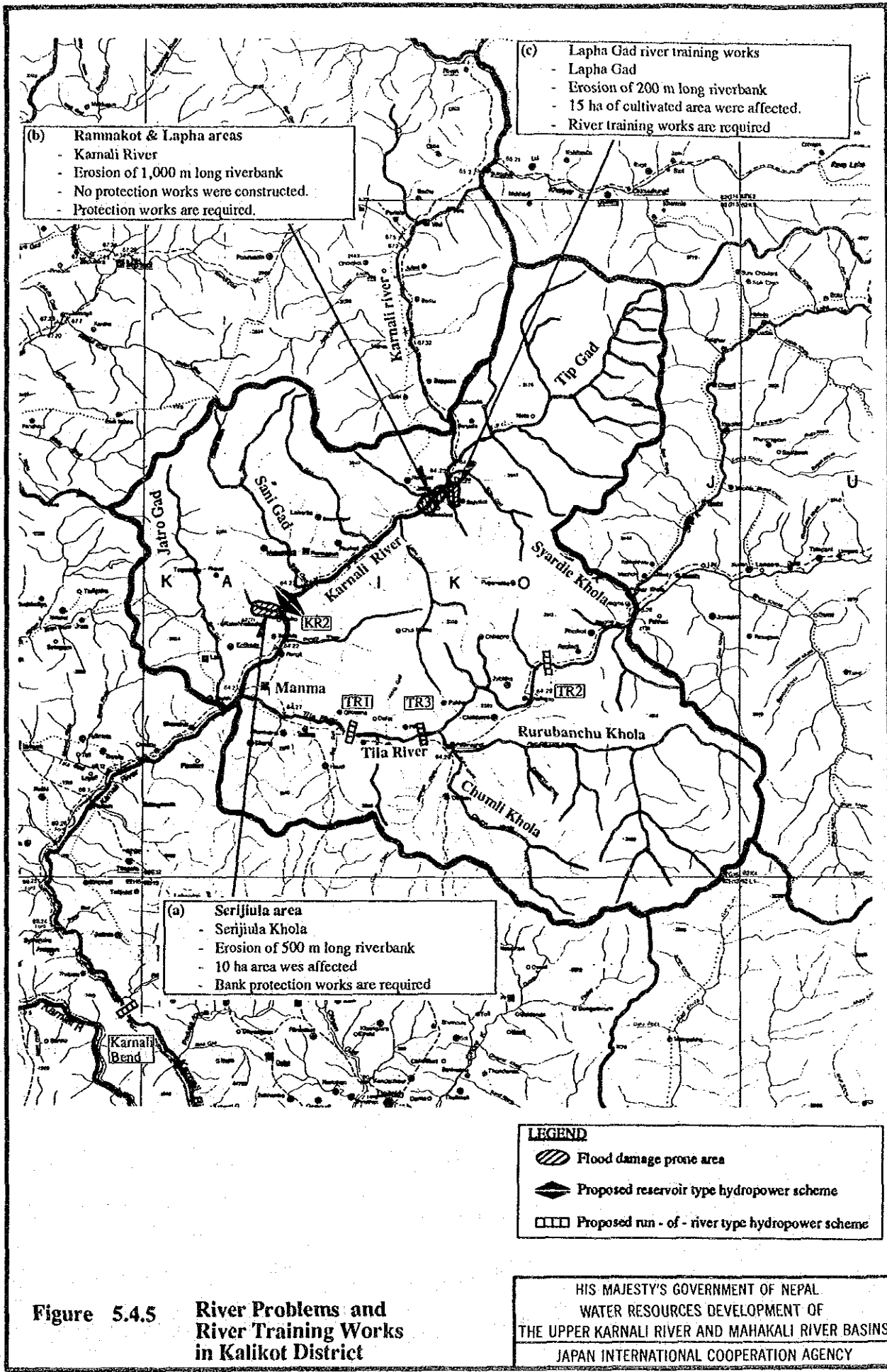


Figure 5.4.5 River Problems and River Training Works in Kalikot District

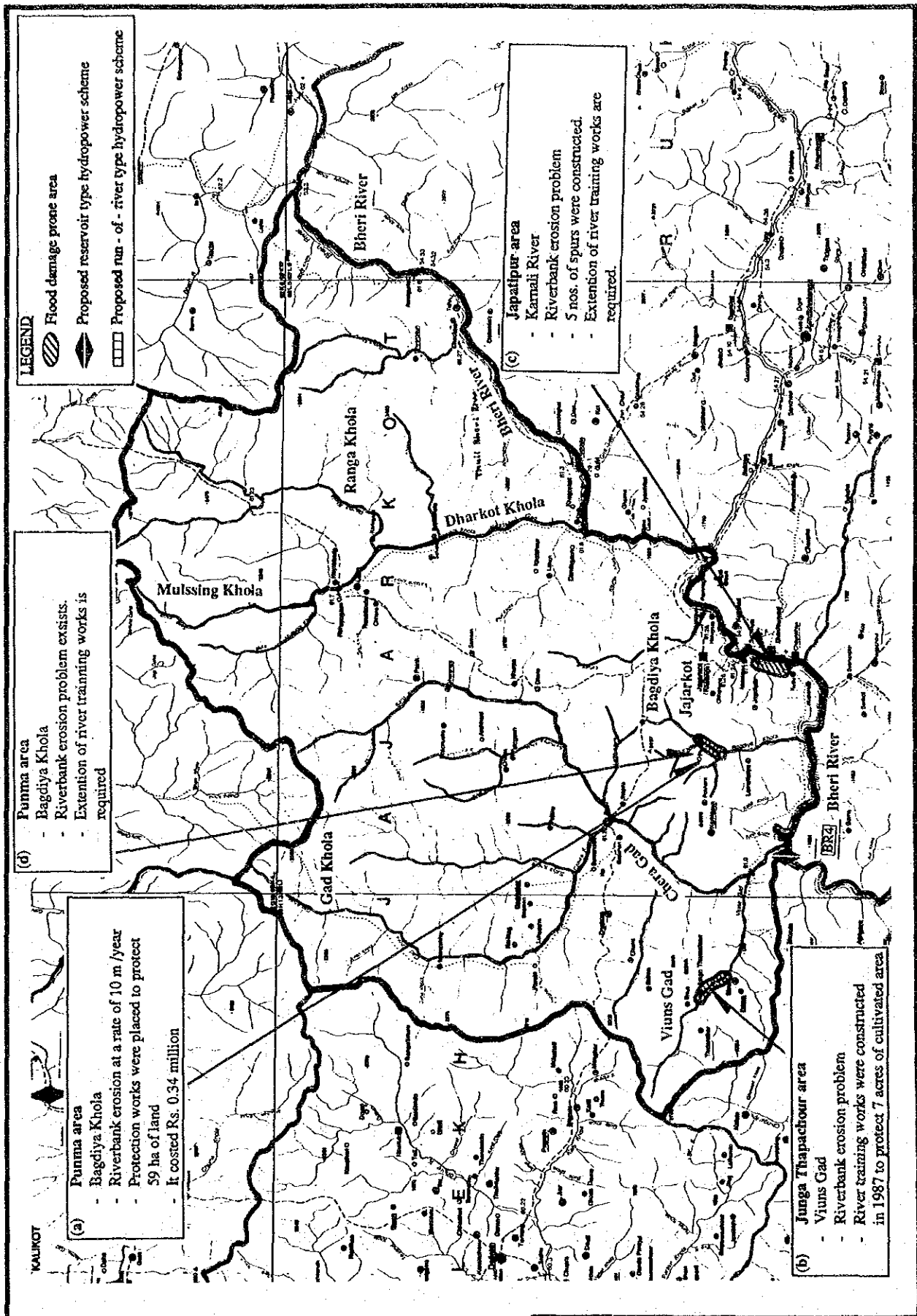


Figure 5.4.6 River Problems and River Training Works in Jajarkot District

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY



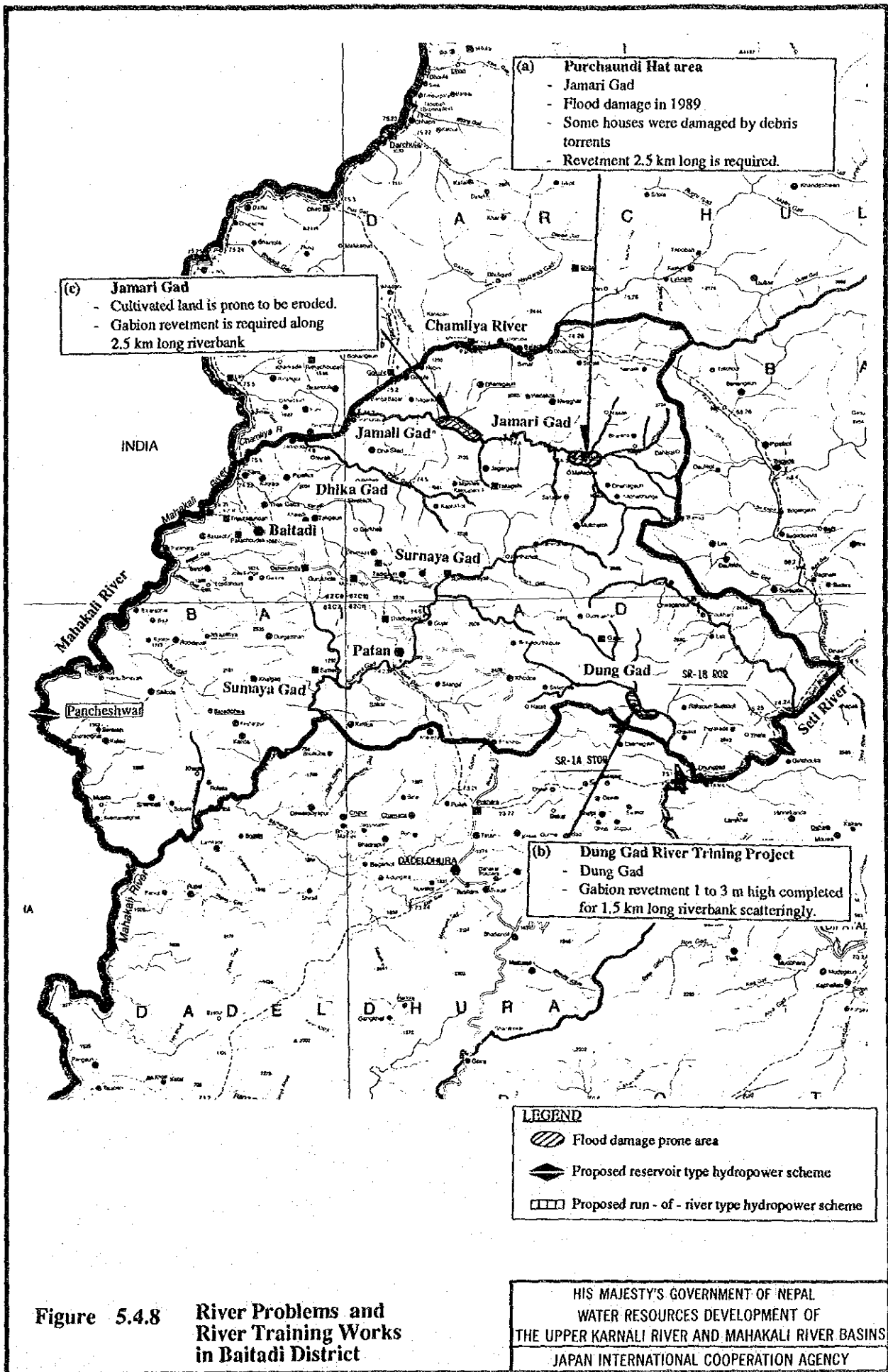


Figure 5.4.8 River Problems and River Training Works in Baitadi District

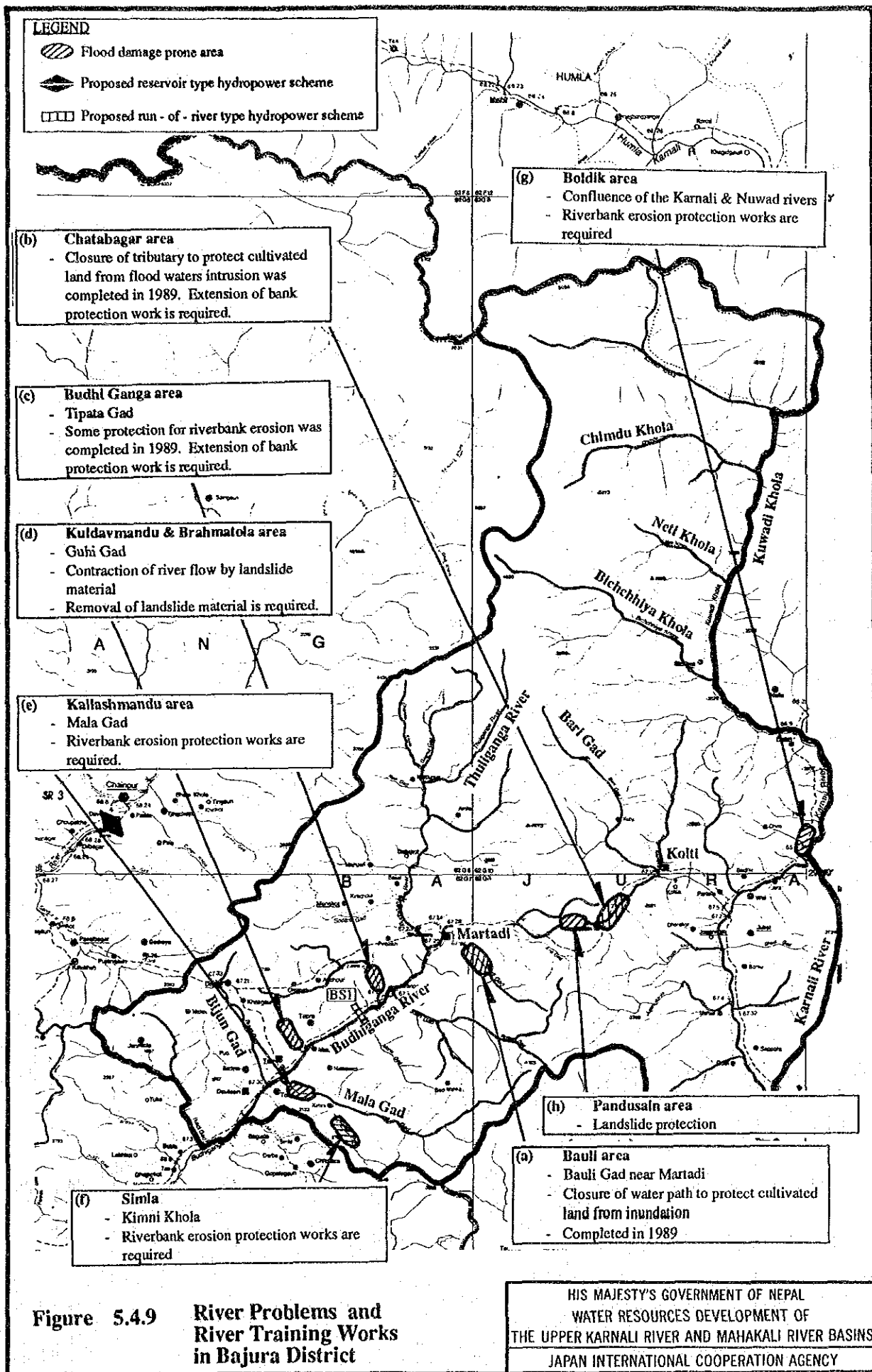
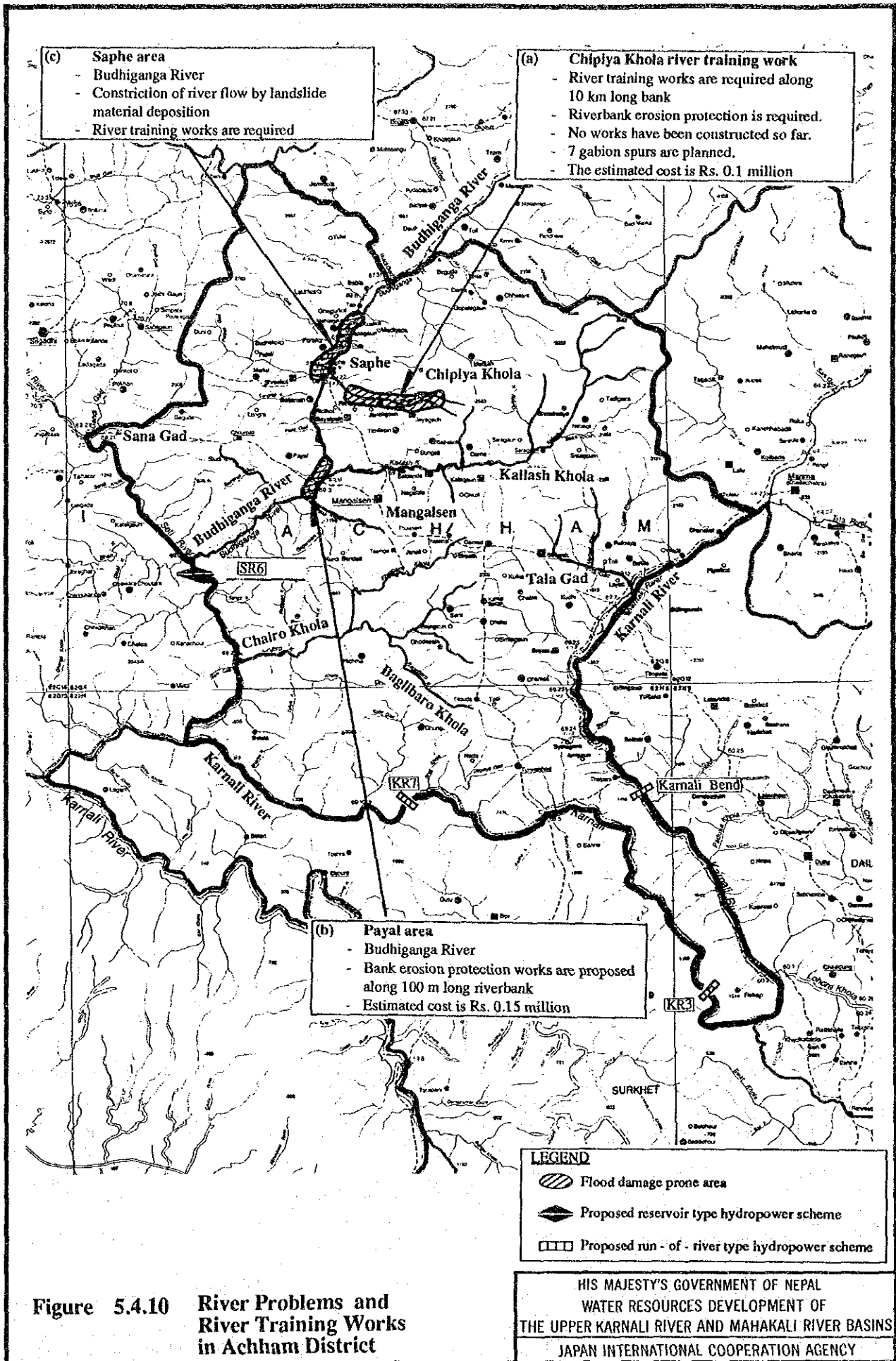


Figure 5.4.9 River Problems and River Training Works in Bajura District



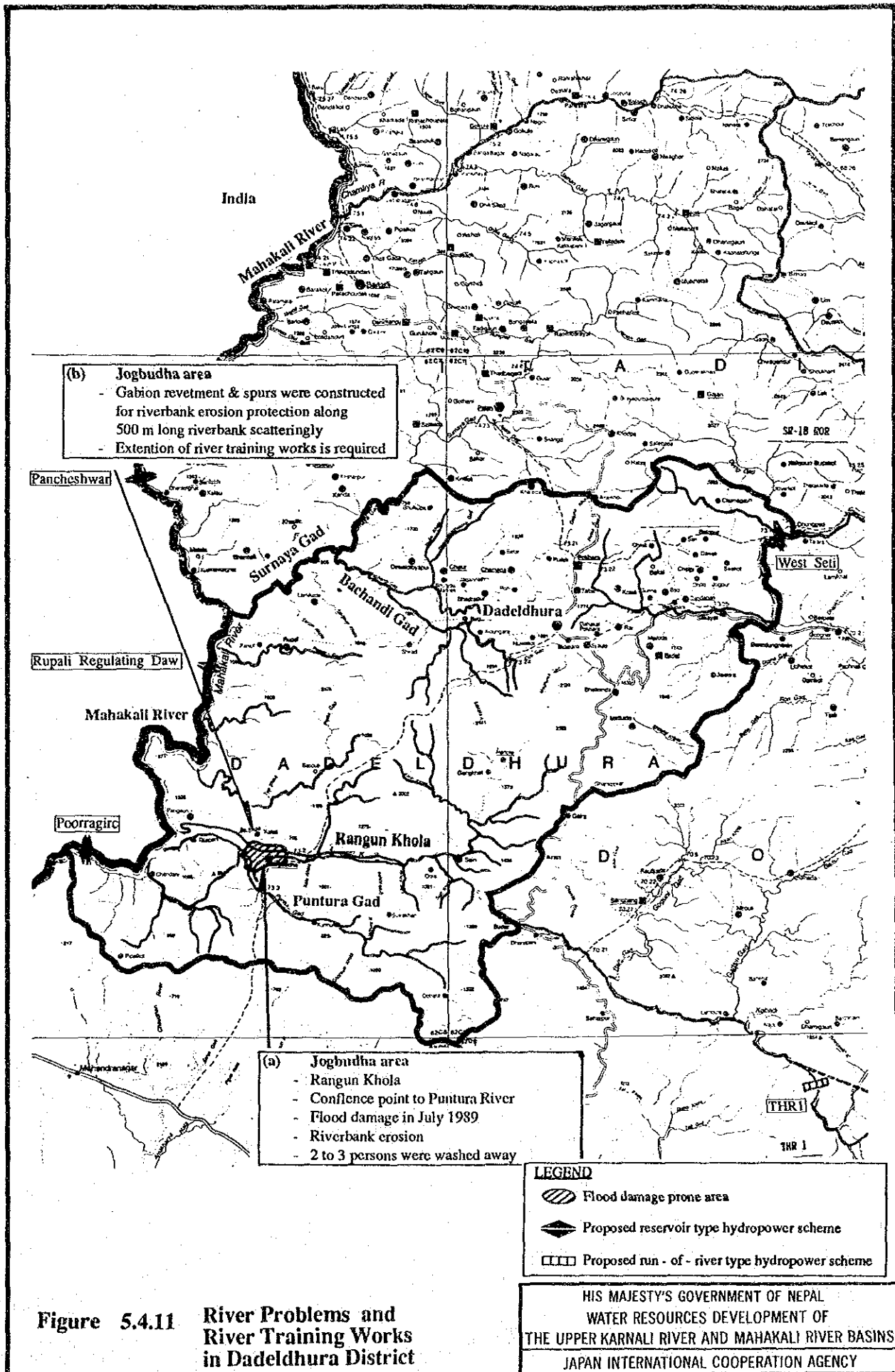
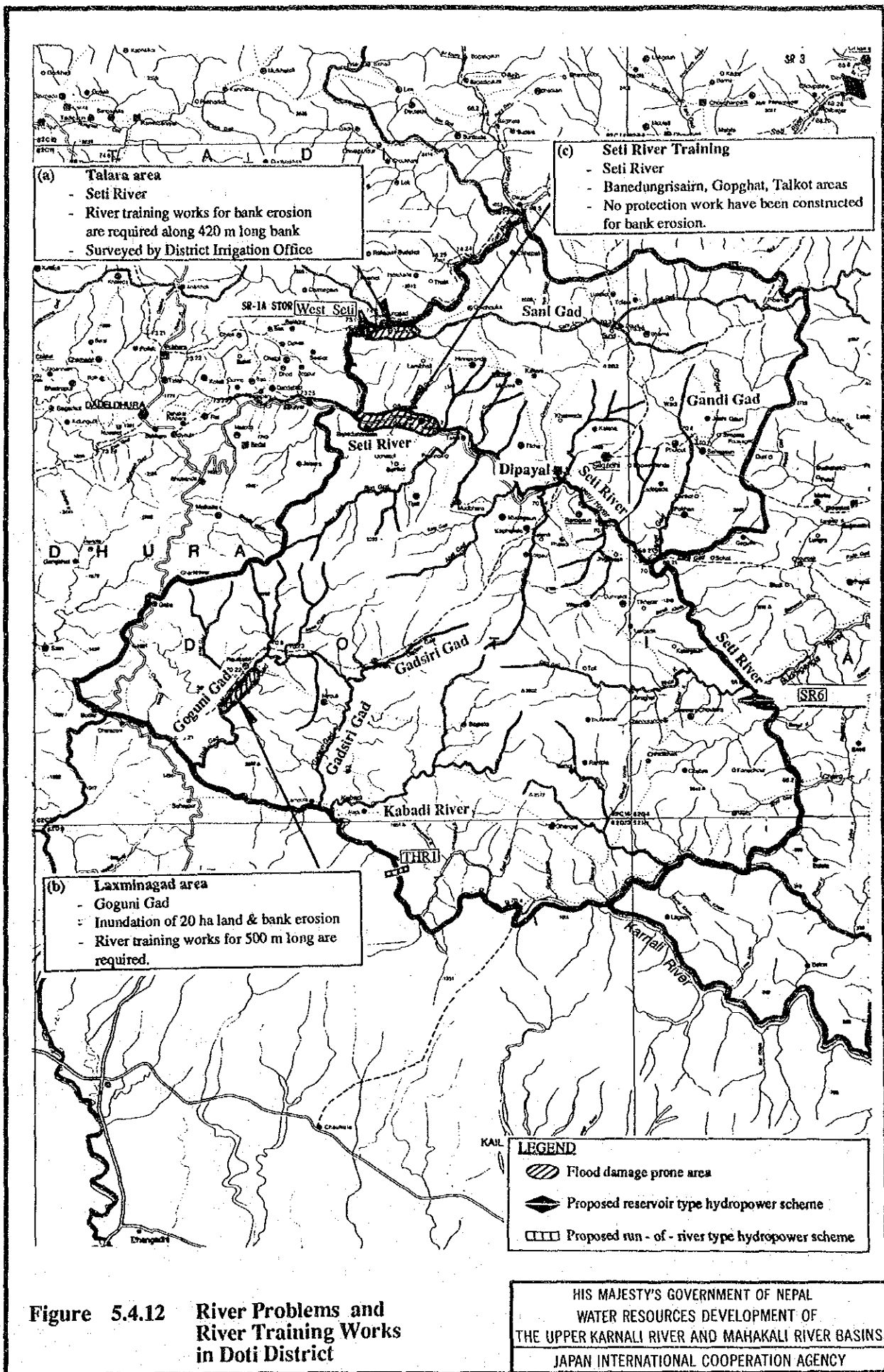


Figure 5.4.11 River Problems and River Training Works in Dadeldhura District



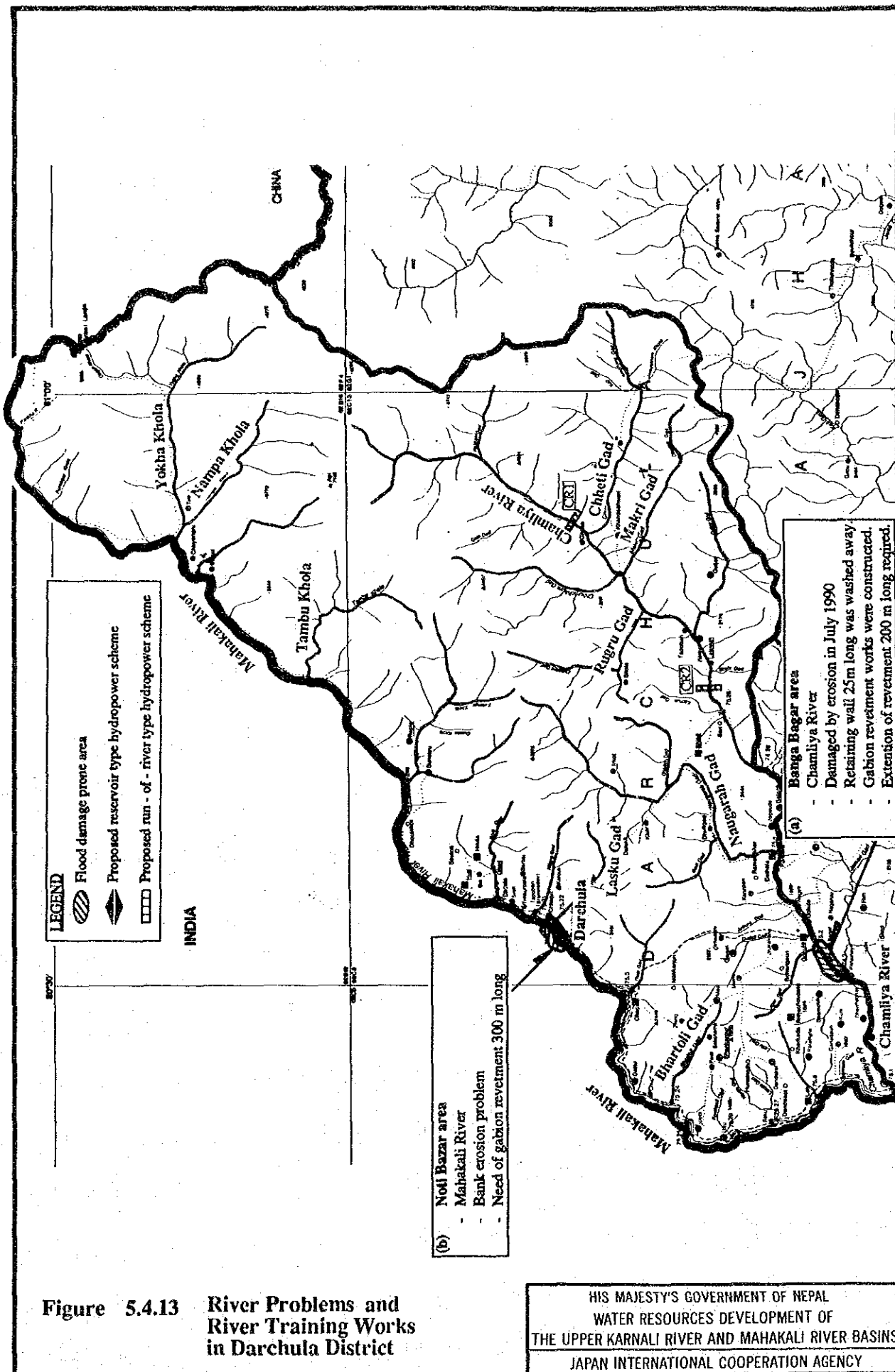


Figure 5.4.13 River Problems and River Training Works in Darchula District

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

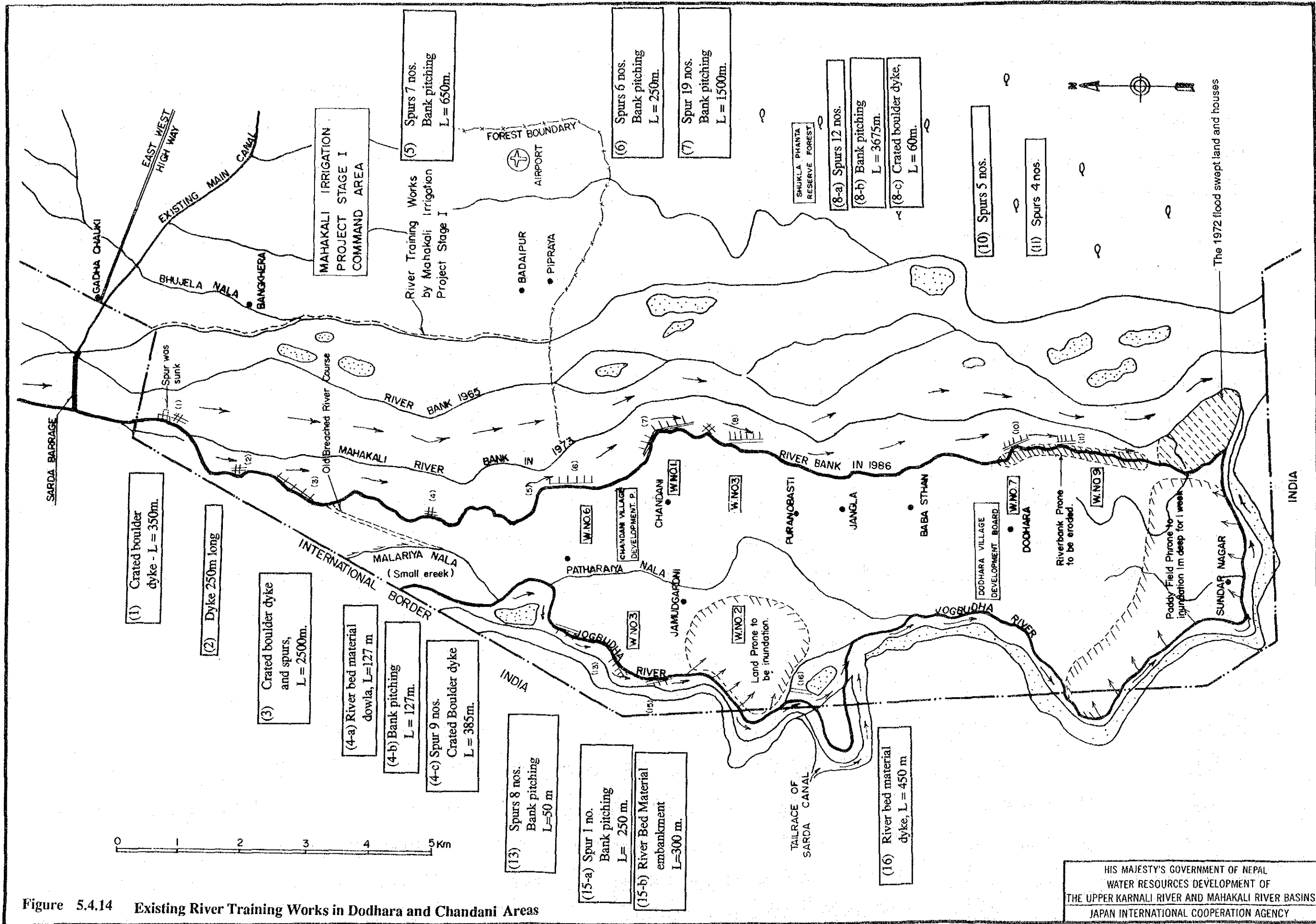
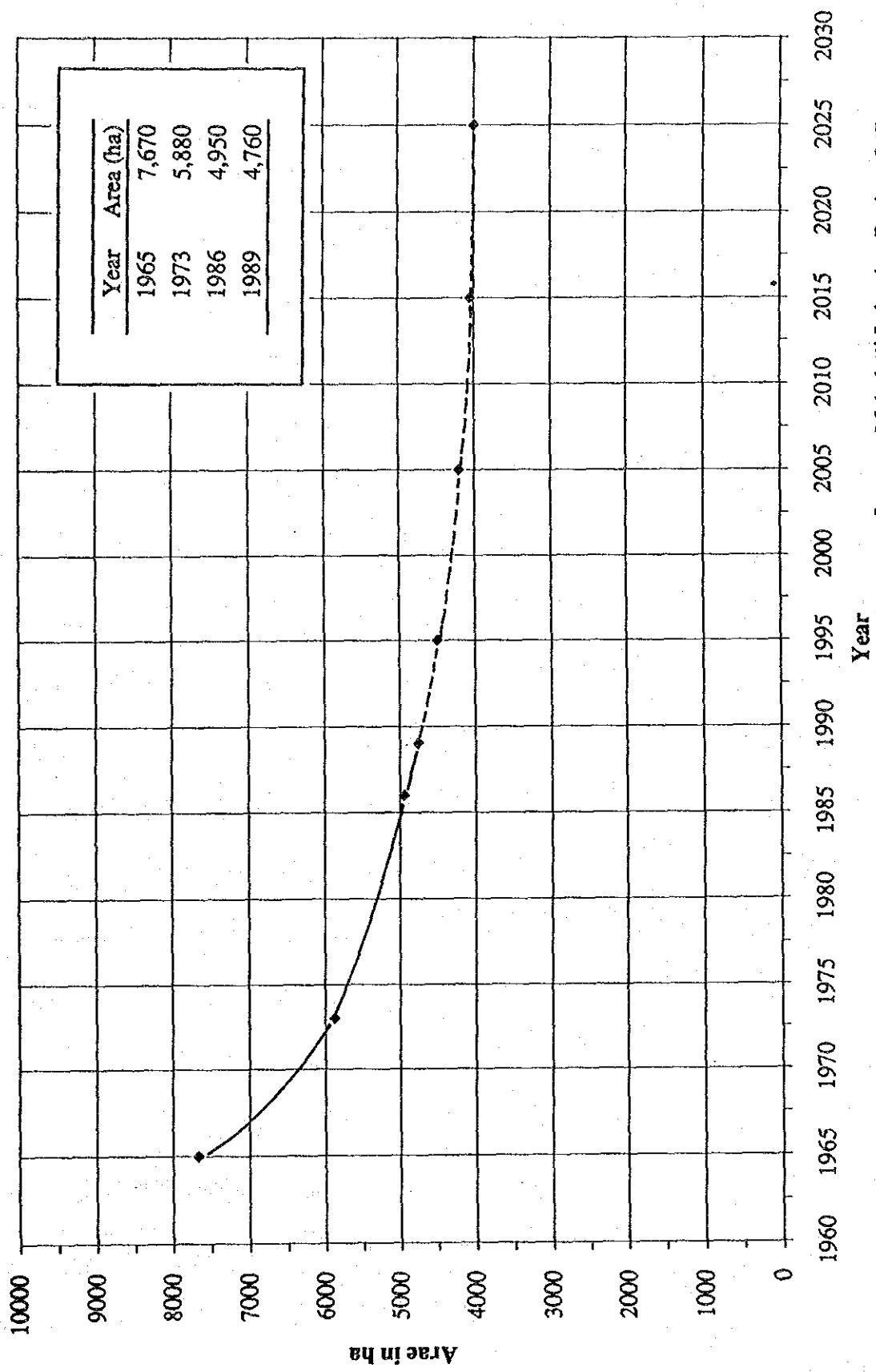


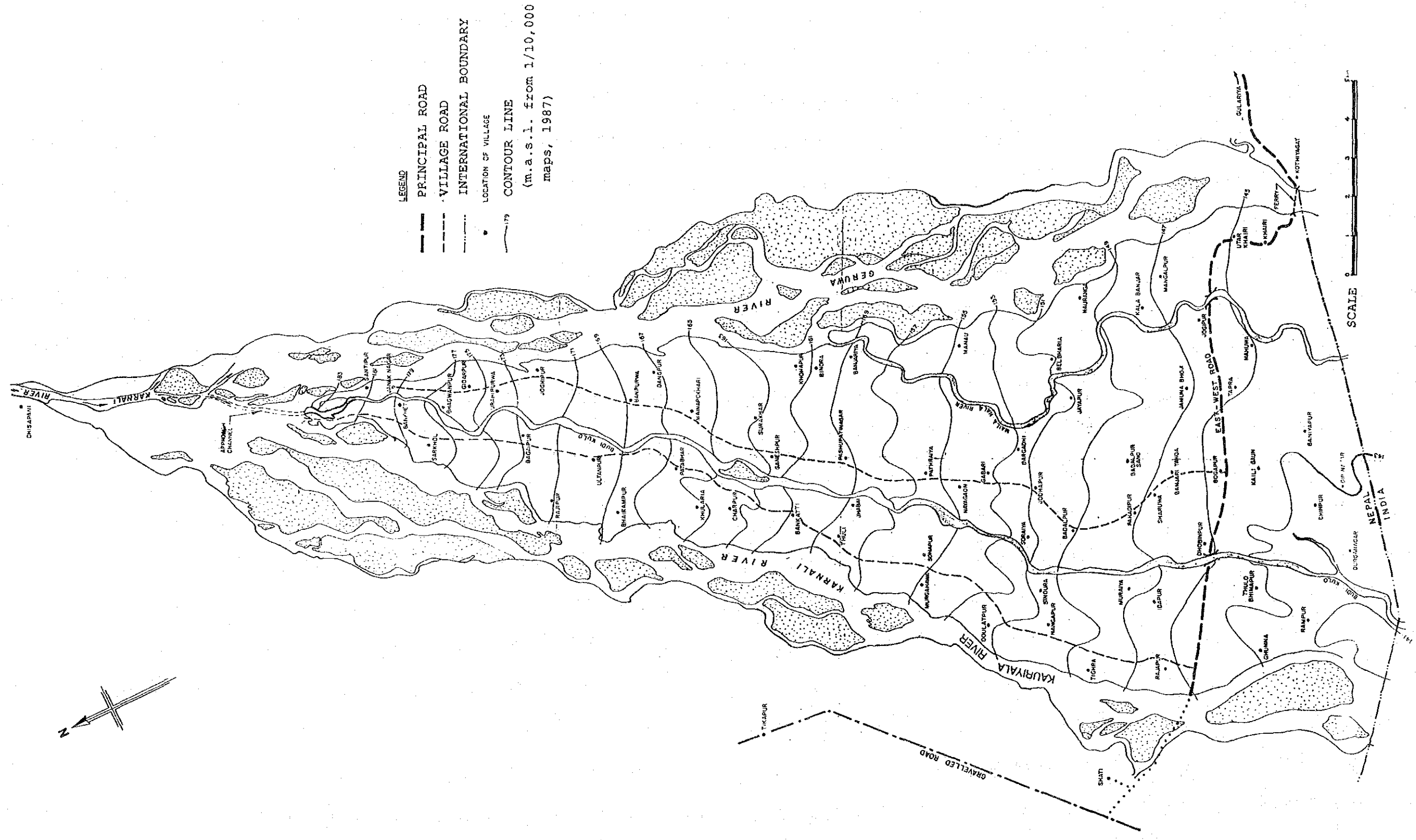
Figure 5.4.14 Existing River Training Works in Dodhara and Chandani Areas



Source : Mahakali Irrigation Project Office

Figure 5.4.15 Decrease in Area of Dodhara and Chandani Areas

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY



SOURCE : RAJAPUR IRRIGATION REHABILITATION PROJECT

Figure 5.4.16 Topographic Map of Rajapur Area

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

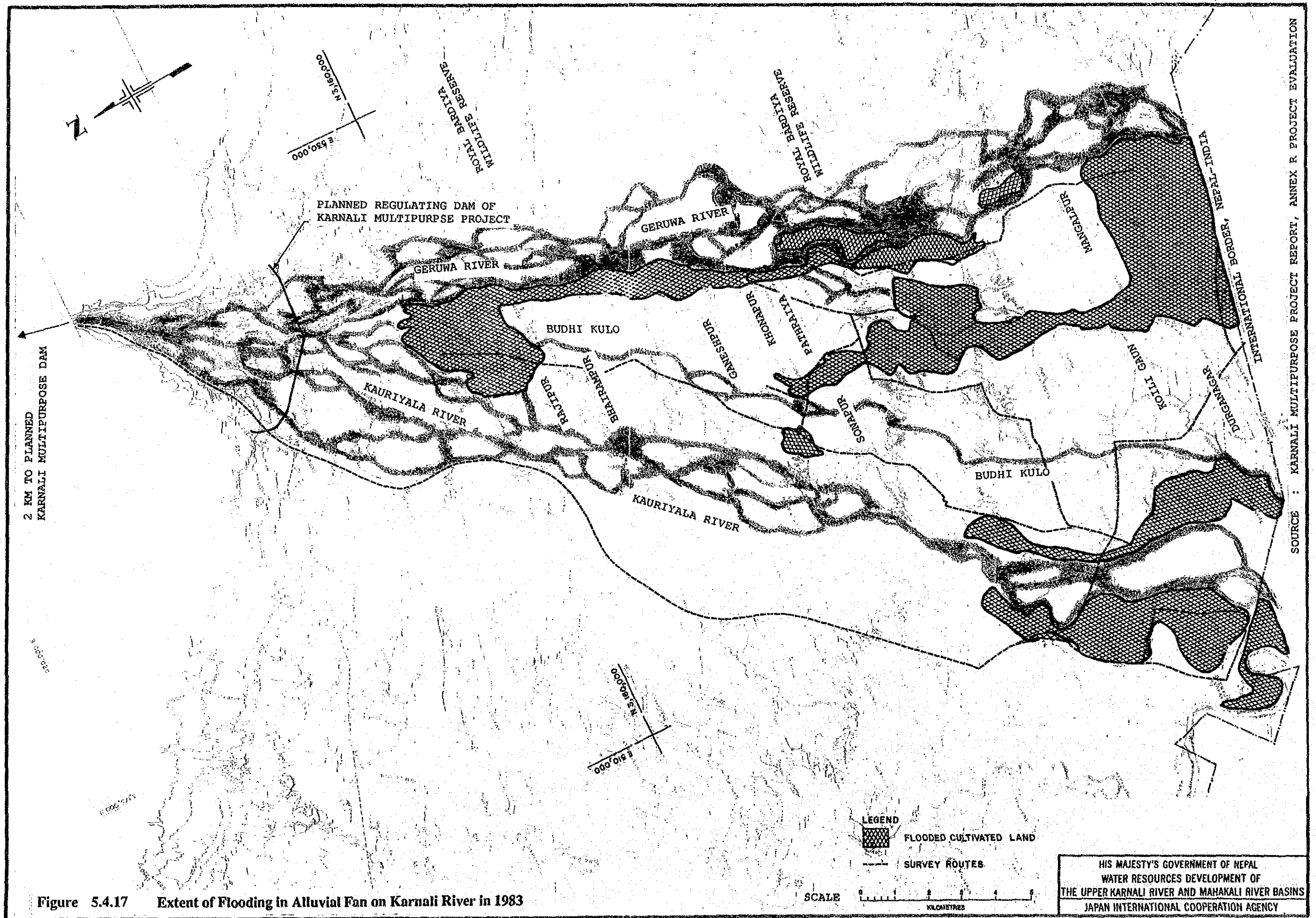


Figure 5.4.17 Extent of Flooding in Alluvial Fan on Karnali River in 1983

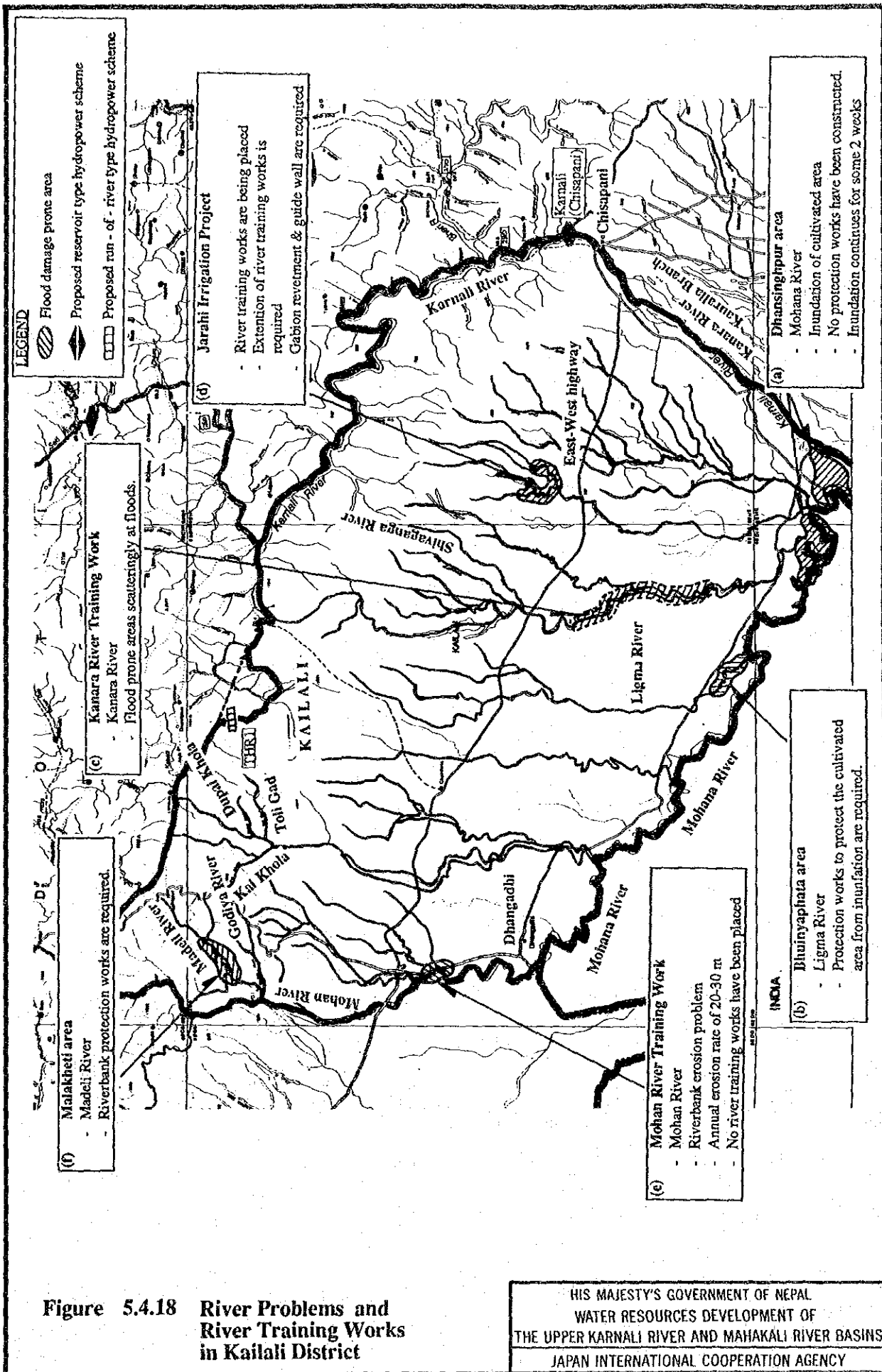
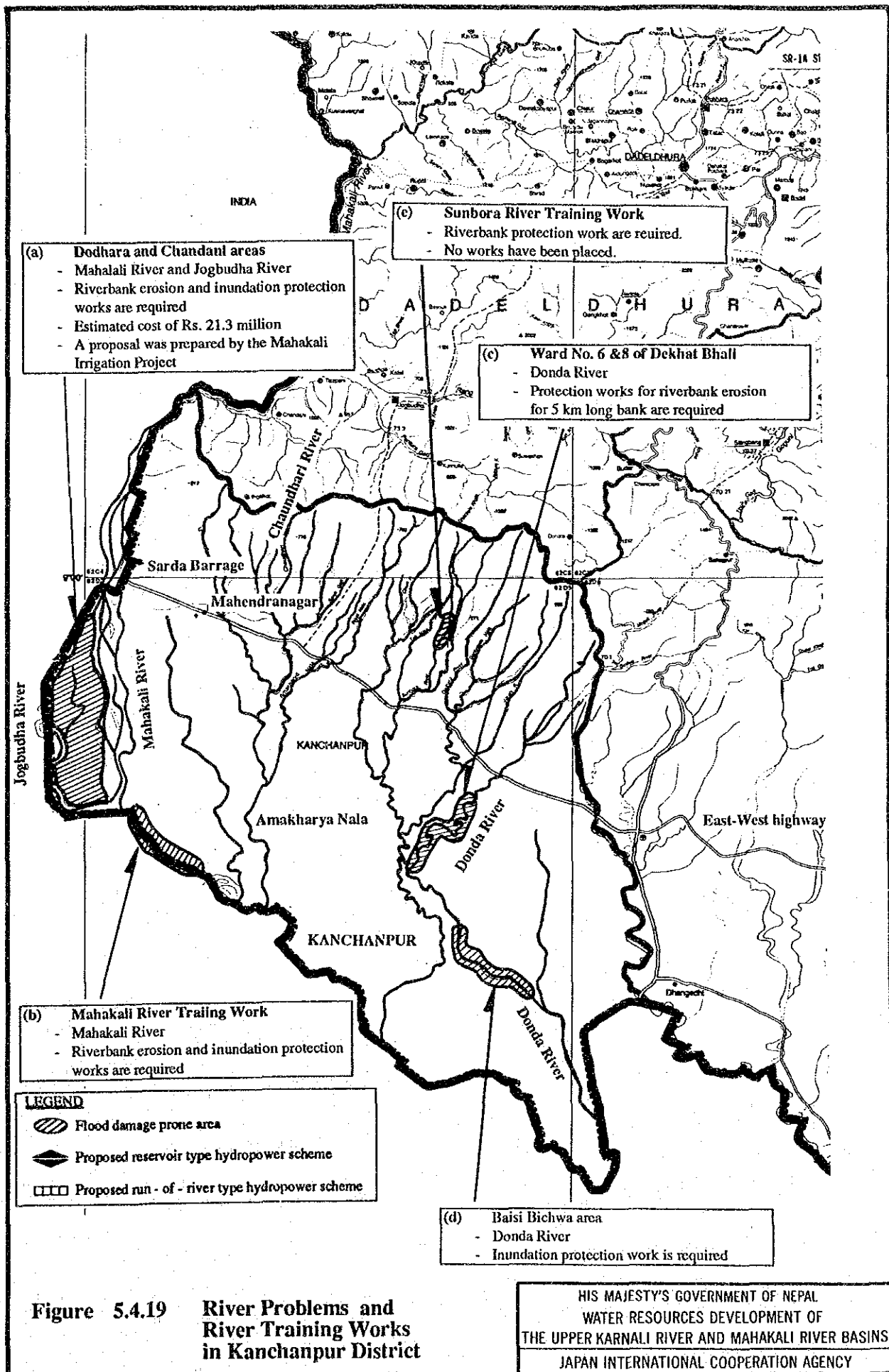


Figure 5.4.18 River Problems and River Training Works in Kailali District



List of Flood Damage Prone Areas

1. Surkhet
 - (a) Birendranagar Ward No. 8,10, 12
 - (b) Birendranagar ward 11,12
 - (c) Birendranagar ward 1 & 2
 - (d) Kada, Simta, Cholpa, Bal takura
 - (e) Chesang
 - (f) Birendranagar ward 4 & 8
2. Rukum
 - (a) Beltapu
 - (b) Jari Khola River Training Works
 - (c) Dhaune Bagar
3. Salyan
 - (a) Sharda Khola
 - (b) Mama Khola
 - (c) Lahan Khola
4. Dailekh
 - (a) Rakam
 - (b) Singouri
 - (c) Dhanigaun
 - (d) Basal
 - (e) Komandir
5. Kailikot
 - (a) Serjiula
 - (b) Ramnakot & Lapia
 - (c) Lapha Gad
6. Jajarkot
 - (a) Punna
 - (b) Junga Thasochour
 - (c) Japatipur
7. Bajhang
 - (a) Chaughalli
 - (b) Chopakhe and Deval areas
 - (c) Dogad
 - (d) Rainabagar
8. Baitadi
 - (a) Purchaundi Hat
 - (b) Dung Gad
 - (c) Jamari Gad
9. Bajura
 - (a) Bauti
 - (b) Chaitabagar
 - (c) Budhi Ganga
 - (d) Kuldavamandu & Brahmatala
 - (e) Kailashmandu
 - (f) Simia
 - (g) Boldik
 - (h) Pandusain
10. Achham
 - (a) Chipiya Khola River
 - (b) Payal
 - (c) Saphe
11. Dadeldhura
 - (a) Jogbudha
12. Dola
 - (a) Tarala
 - (b) Laxminagad
 - (c) Banedungrissaim
13. Darchula
 - (a) Banga Bagar
 - (b) Noti Bazar
14. Kailali
 - (a) Dhanasingpur
 - (b) Bhuiyaphata
 - (c) Kanara River
 - (d) Mohan River
15. Kanchanpur
 - (a) Dodhara & Chandani
 - (b) Dekhat Dhali ward No.6&8
 - (c) Ilaisi Bichwa

Note: Areas attached with "*" are areas selected in the preliminary river training plan of this Study in the hill area.

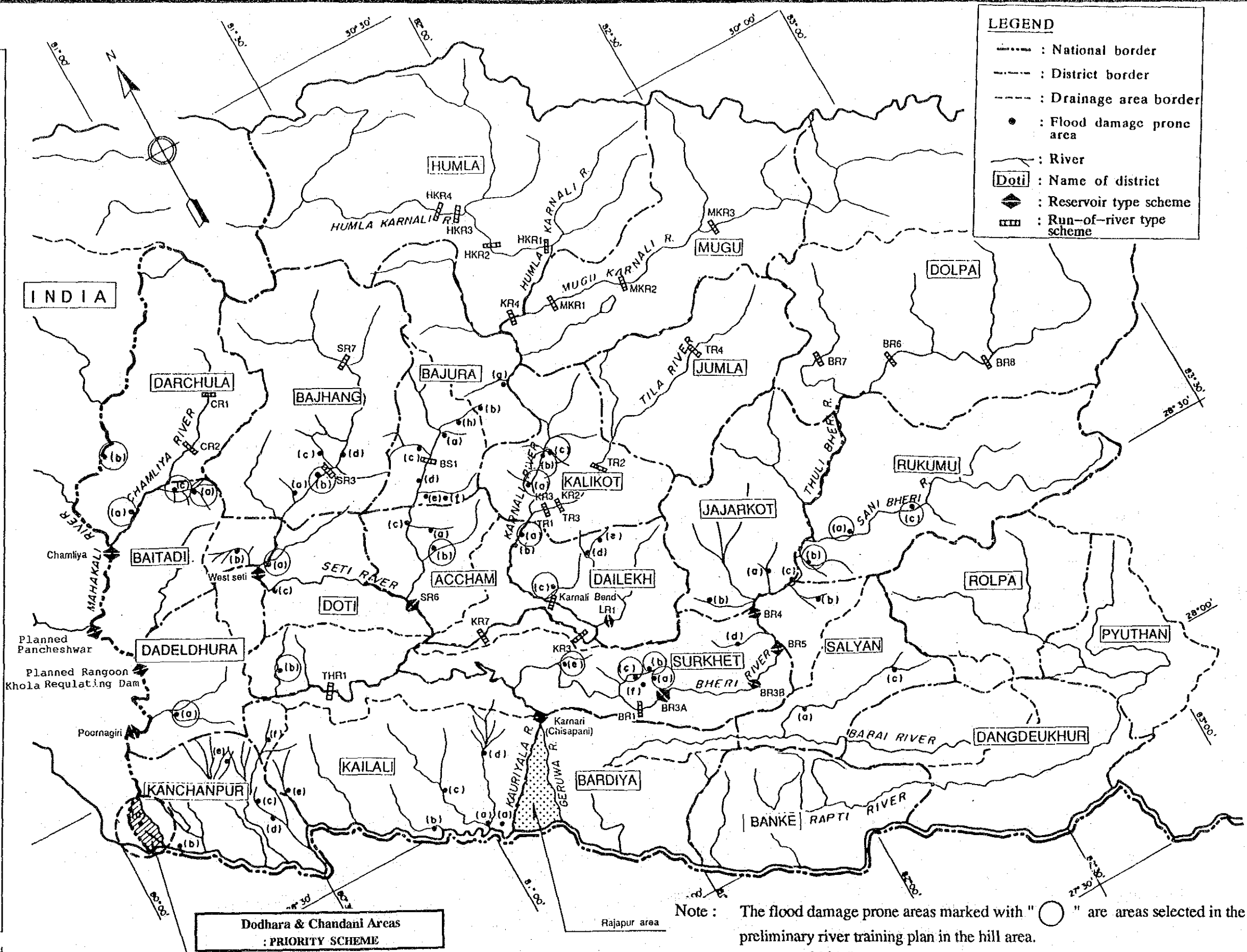


Figure 5.4.20 Location Map of Flood Damage Prone Areas in the Study Area

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

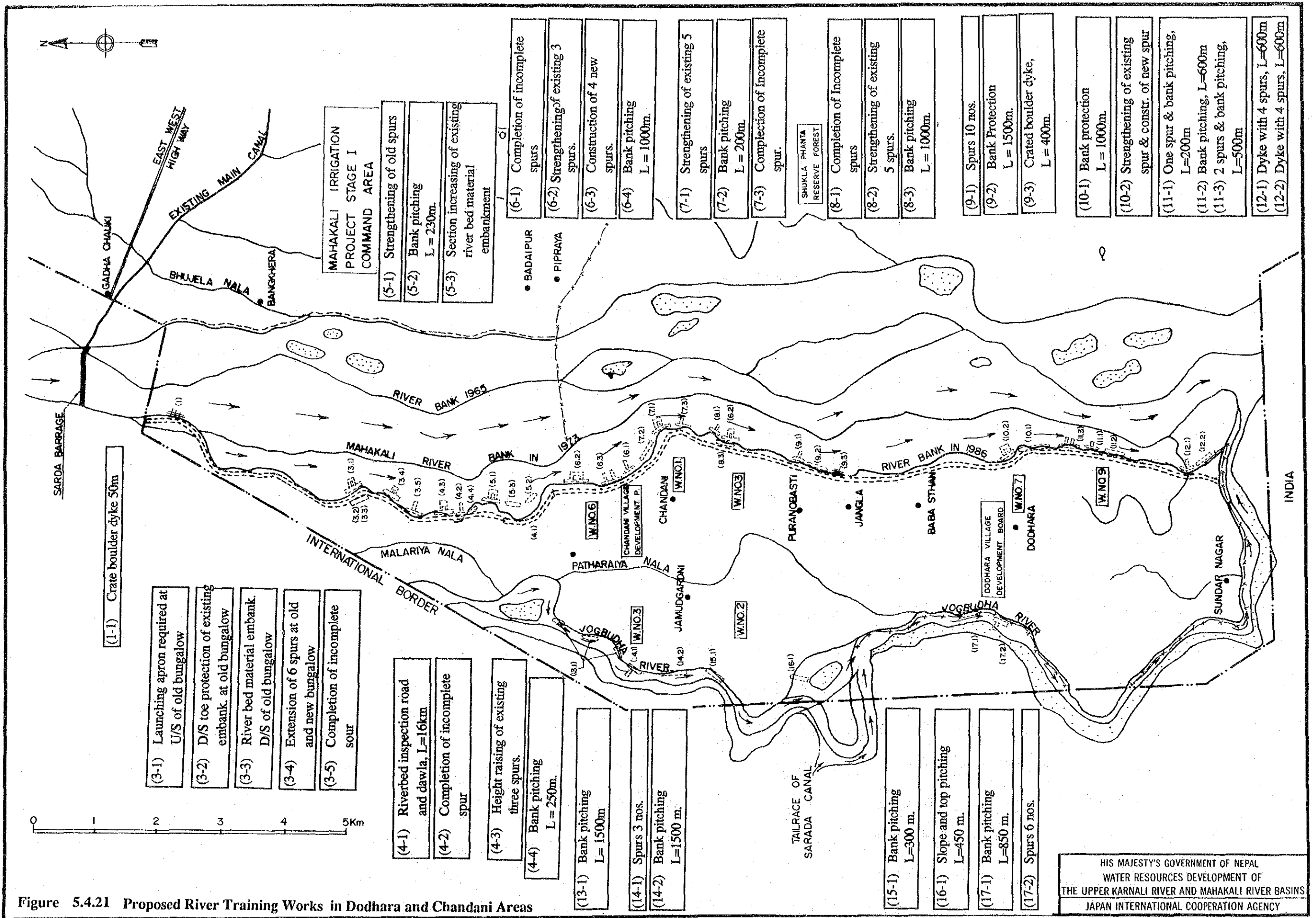


Figure 5.4.21 Proposed River Training Works in Dodhara and Chandani Areas

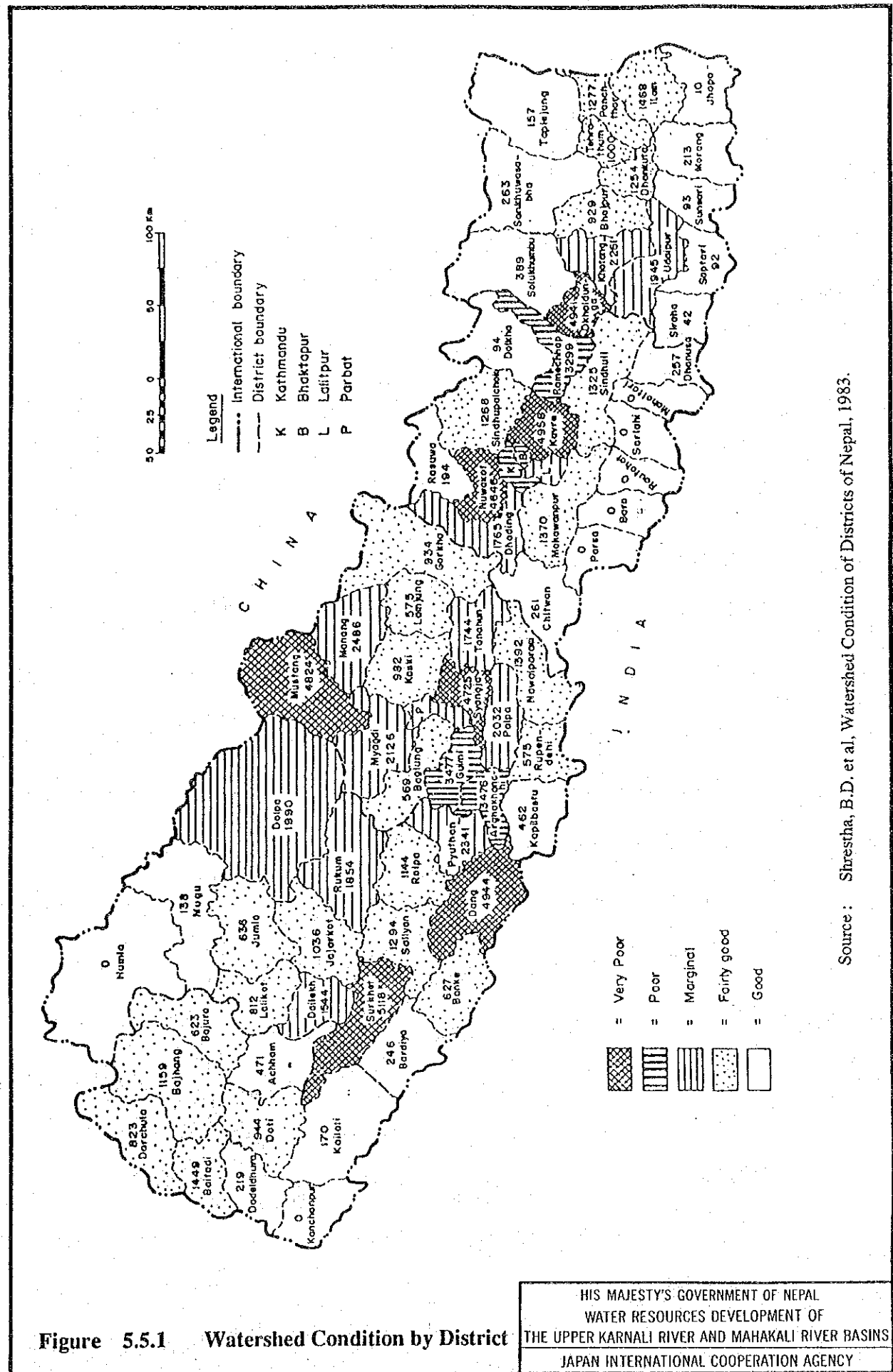


Figure 5.5.1 Watershed Condition by District

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

Source: Shrestha, B.D. et al, Watershed Condition of Districts of Nepal, 1983.

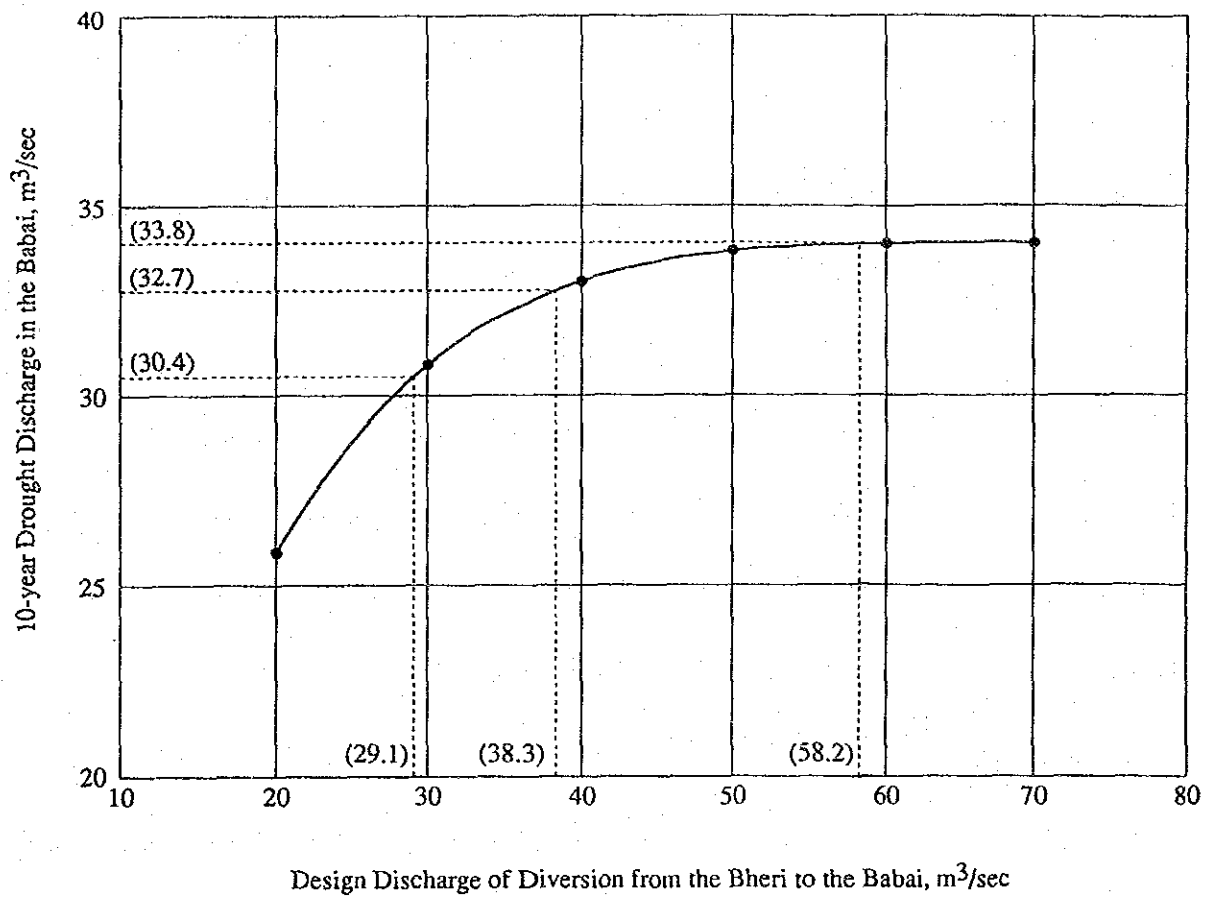


Figure 5.6.1

10-year Drought Discharge of the Babai with the Diversion from the Bheri

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

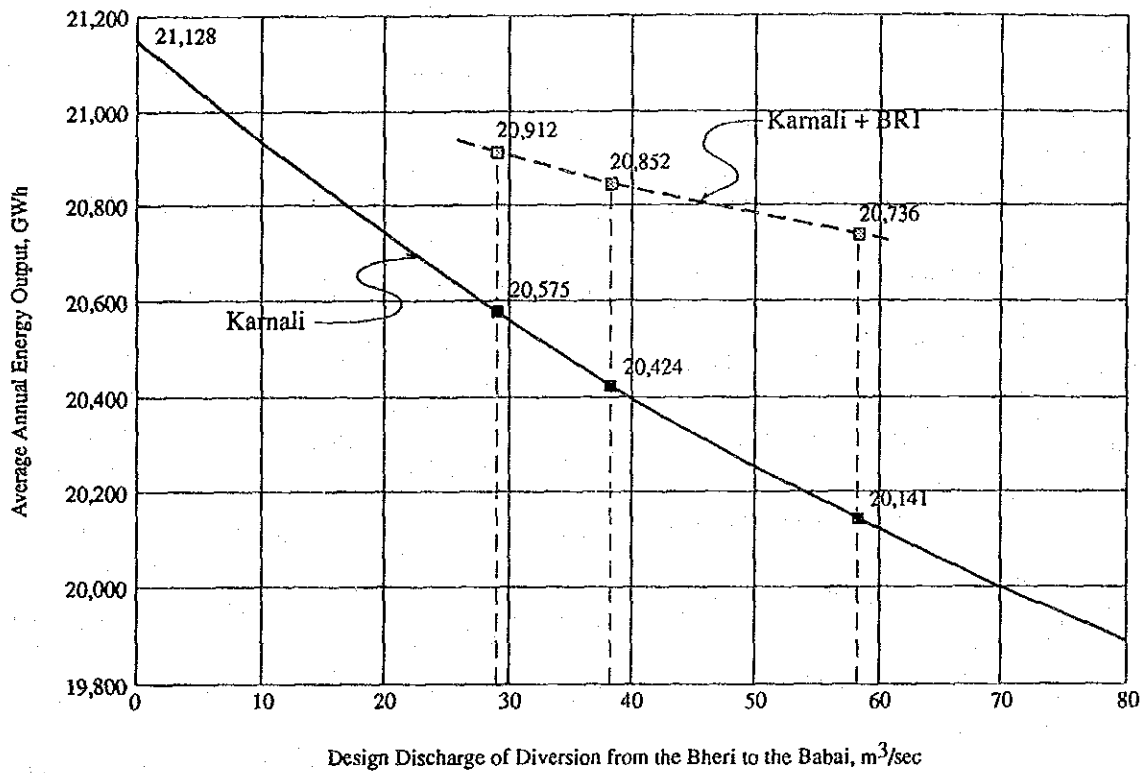


Figure 5.6.2 Energy Reduction of the Karnali Project with the Introduction of the Bheri-Babai Diversion Scheme

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

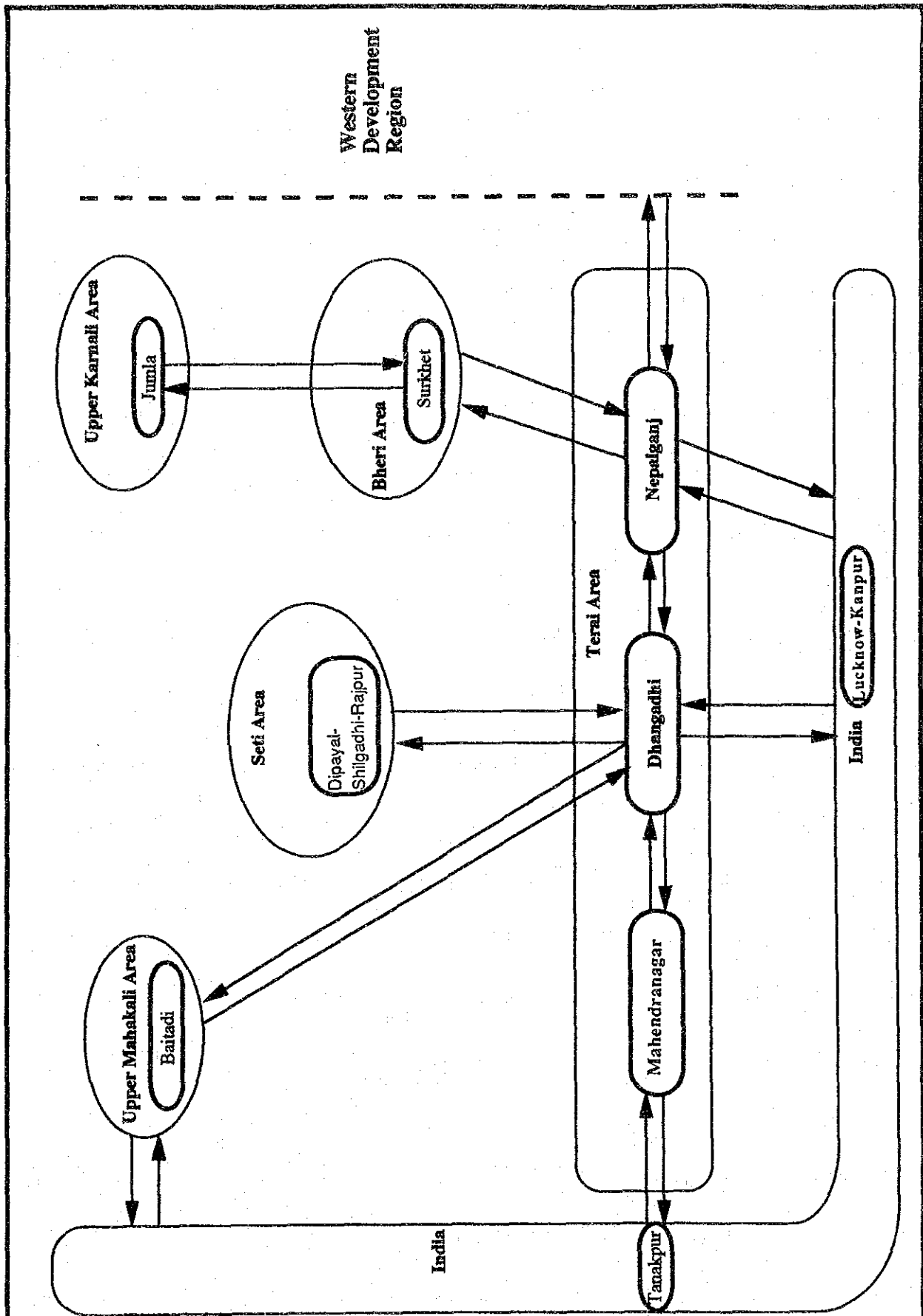


Figure 6.4.1
Strategic Development Areas in the Study Area

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

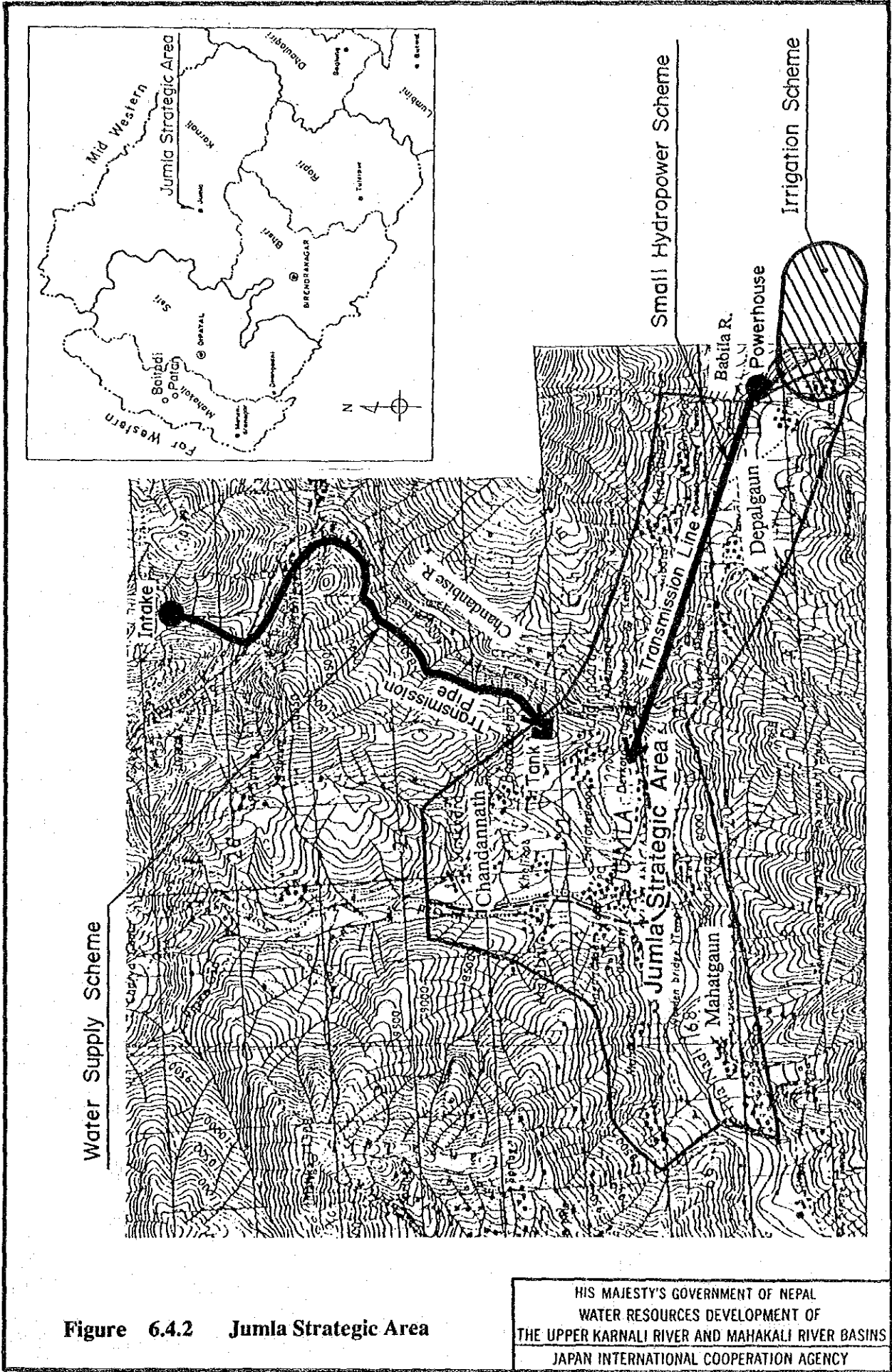


Figure 6.4.2 Jumla Strategic Area

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

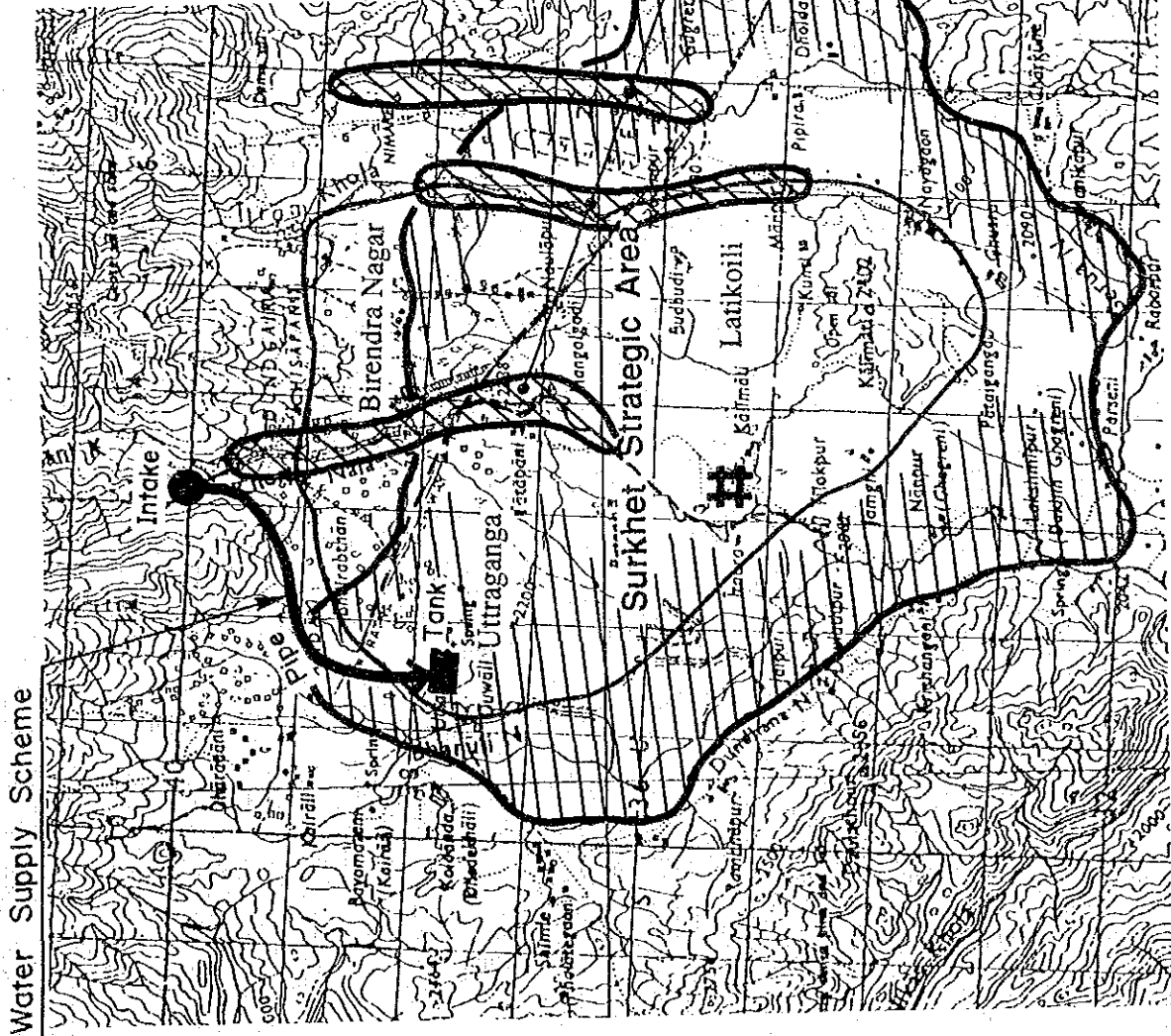
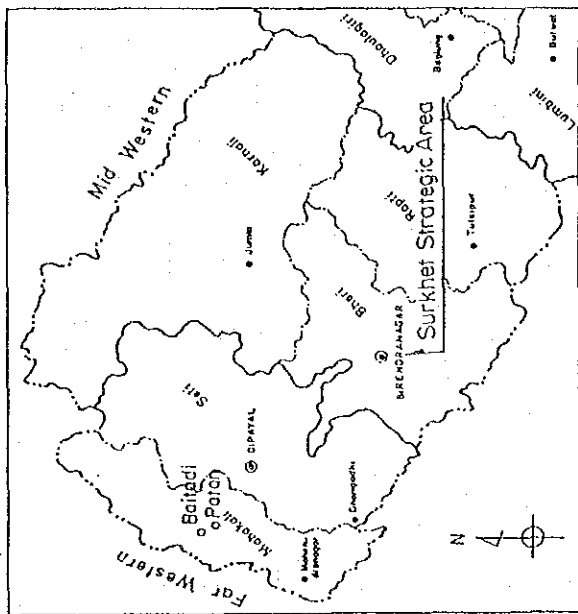
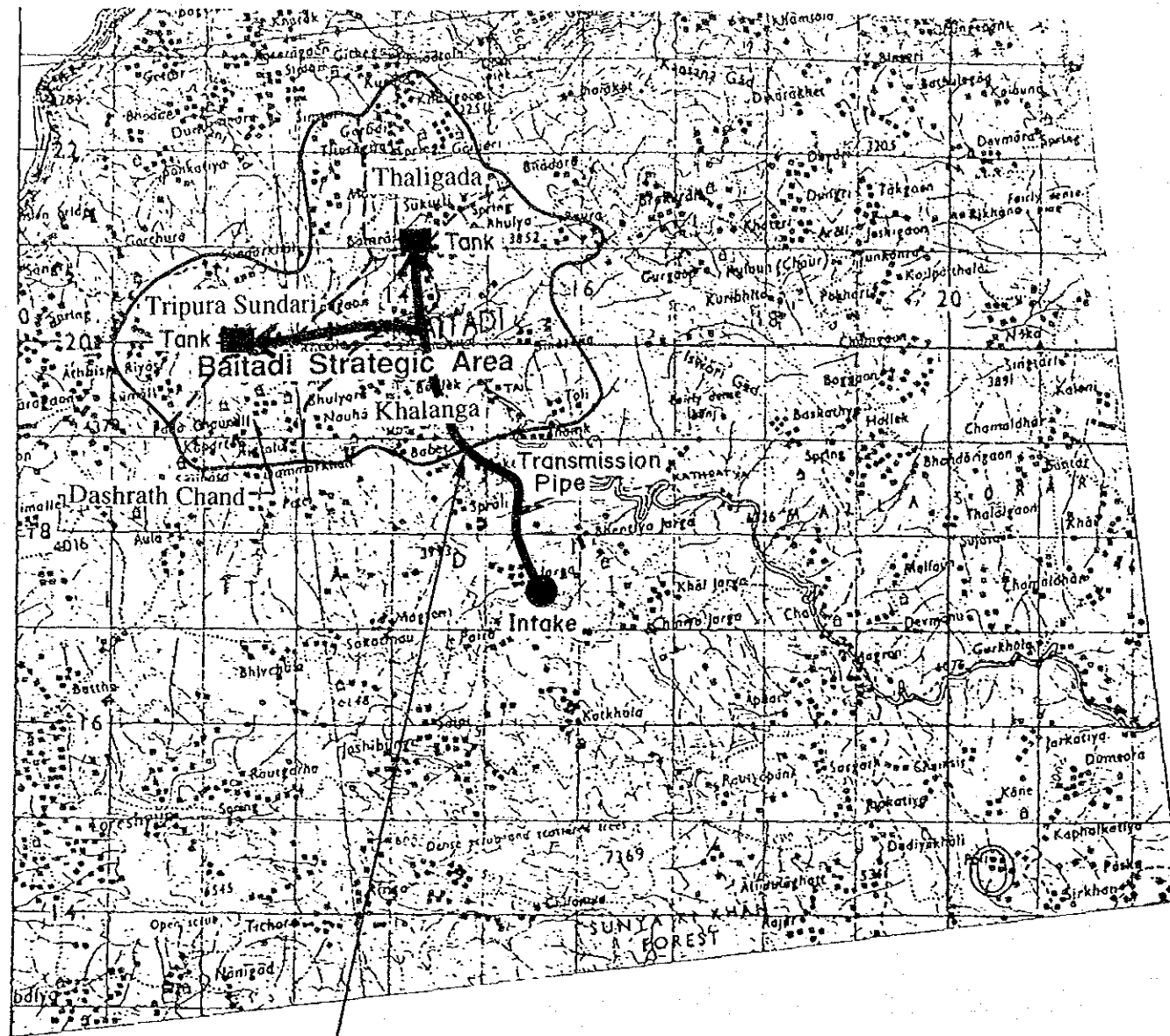
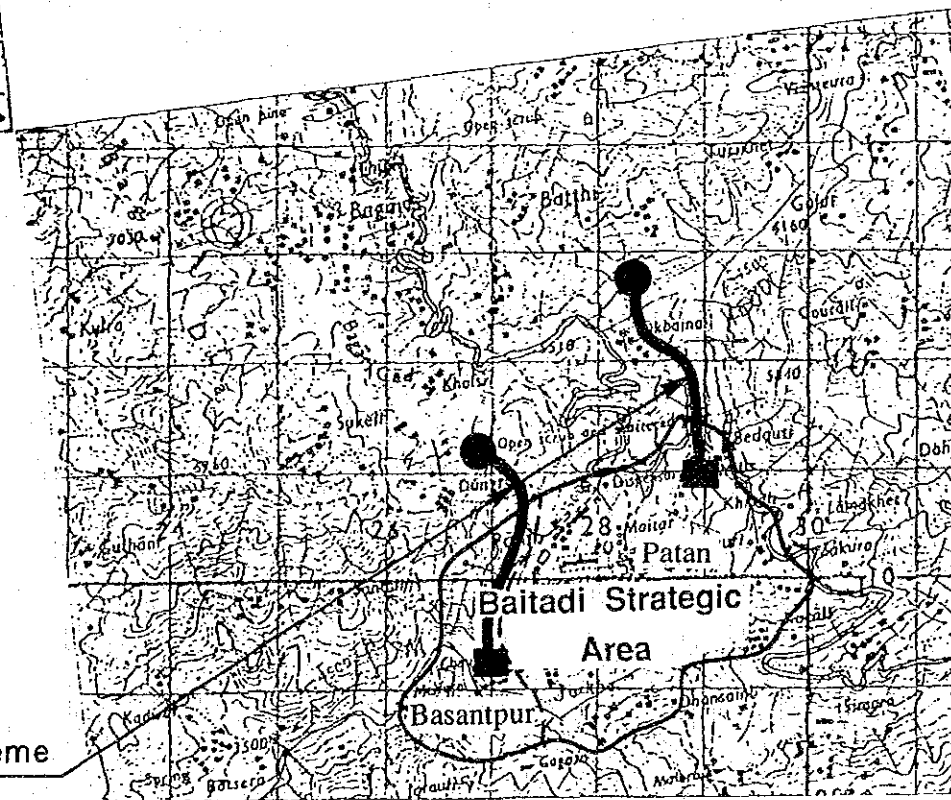
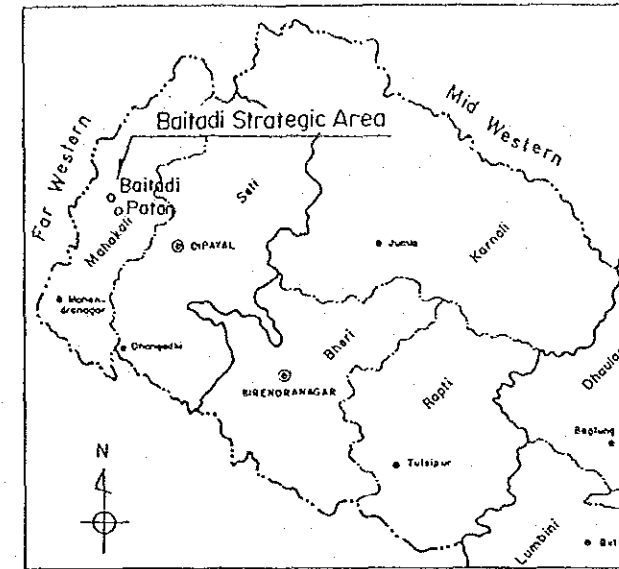


Figure 6.4.3 Surkhet Strategic Area

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHALALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY



Water Supply Scheme



Water Supply Scheme

Figure 6.4.5 Baitadi Strategic Area

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

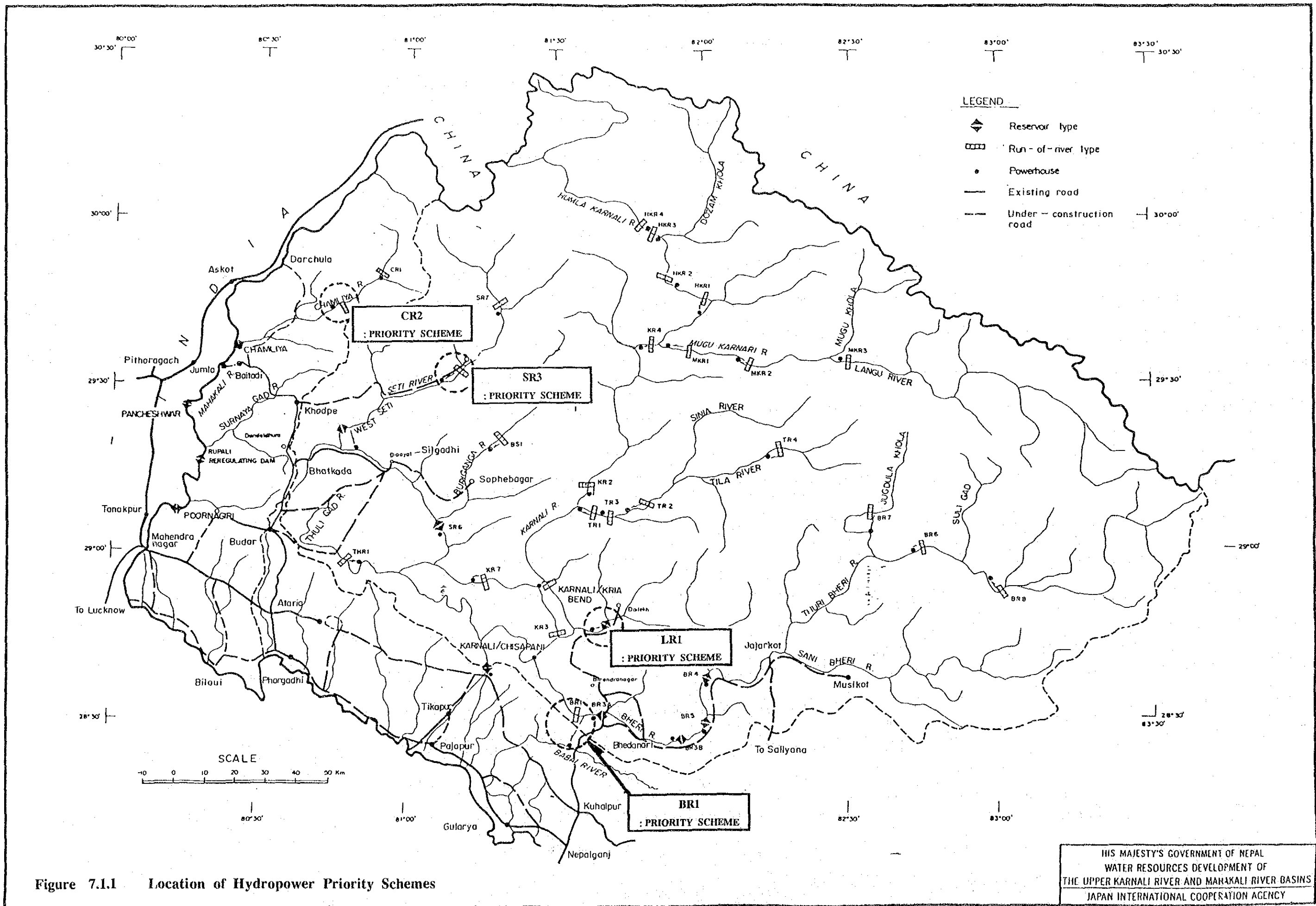


Figure 7.1.1 Location of Hydropower Priority Schemes

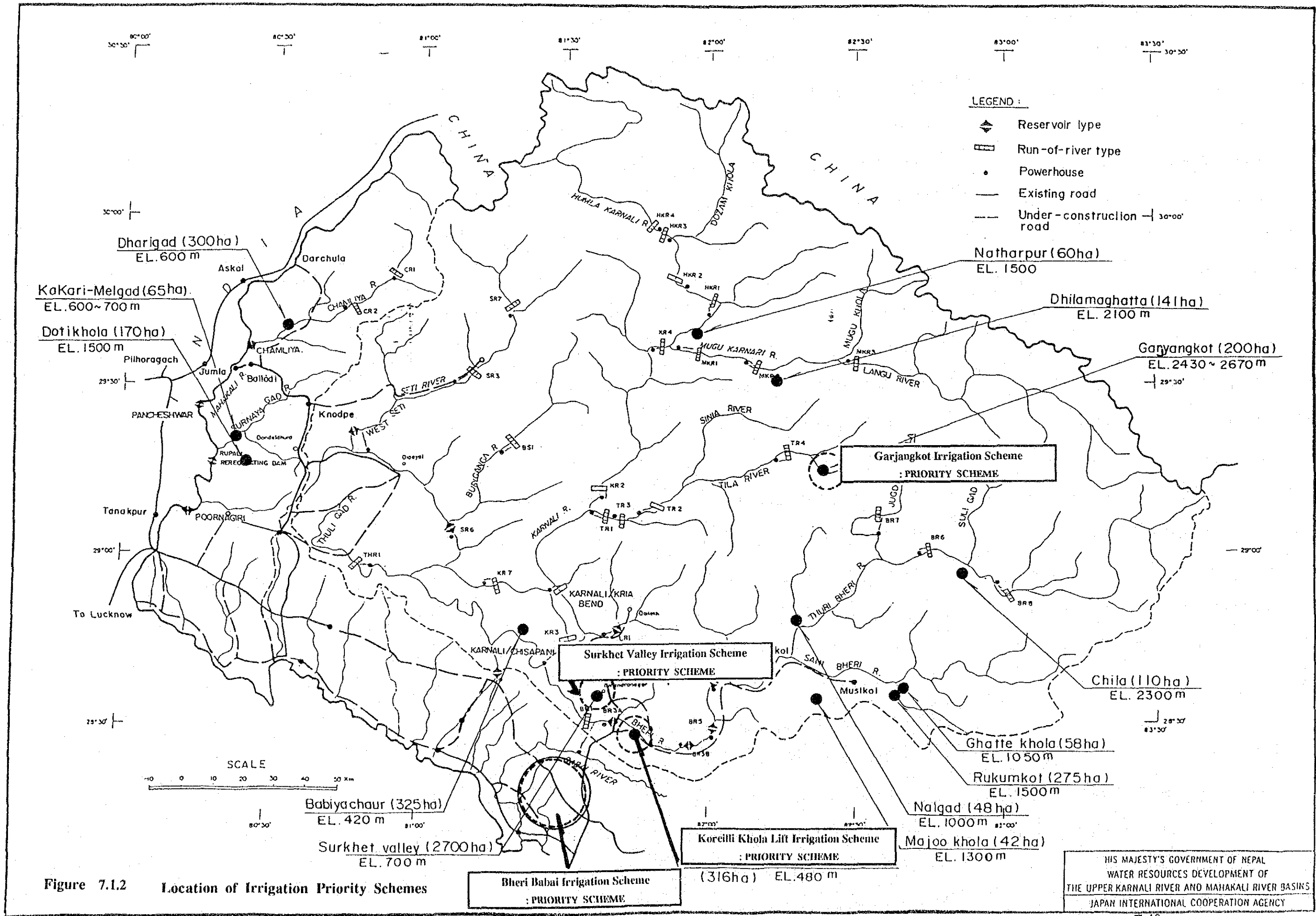


Figure 7.12 Location of Irrigation Priority Schemes

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

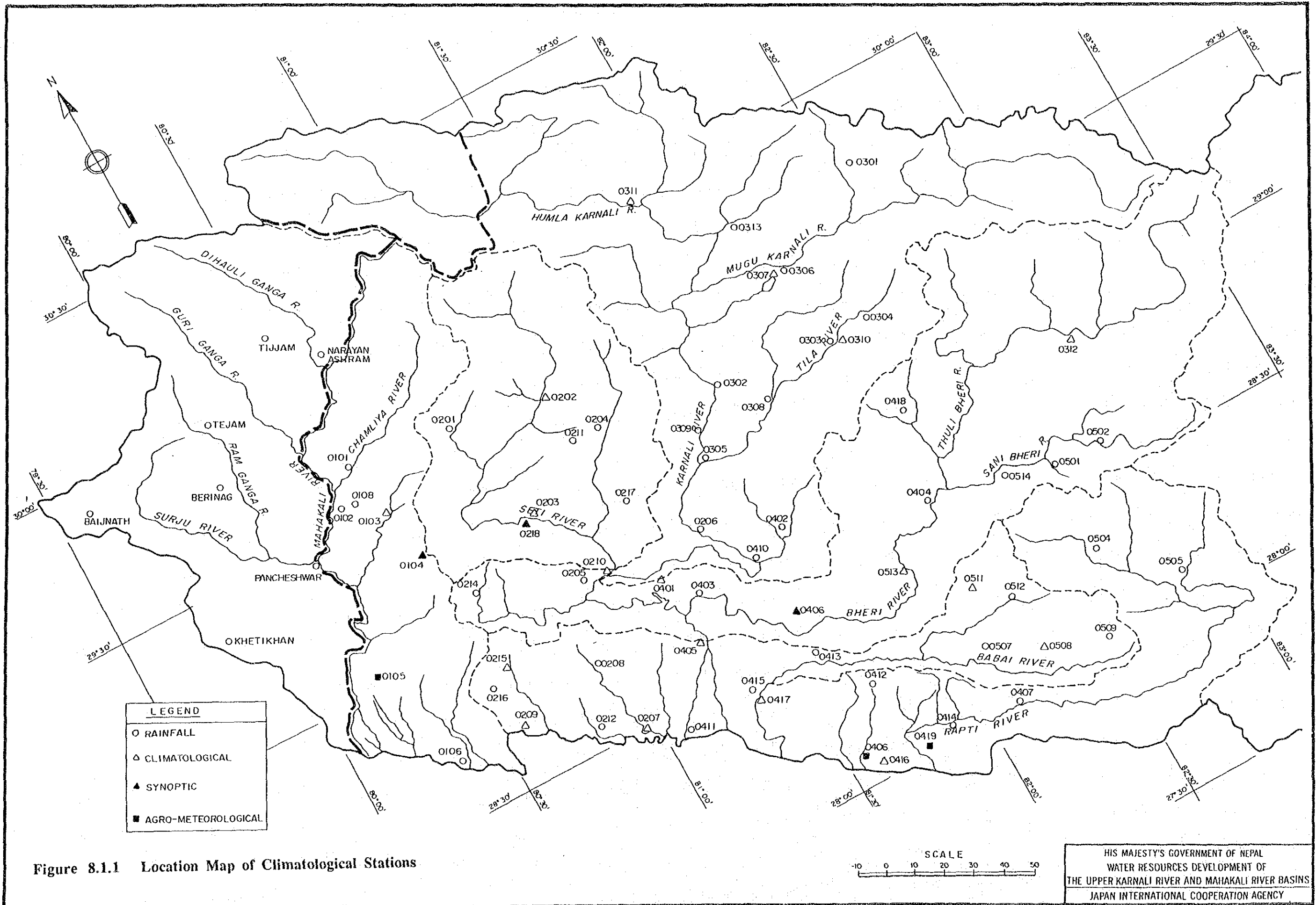


Figure 8.1.1 Location Map of Climatological Stations

HIS MAJESTY'S GOVERNMENT OF NEPAL
 WATER RESOURCES DEVELOPMENT OF
 THE UPPER KARNALI RIVER AND MAHAKALI RIVER BASINS
 JAPAN INTERNATIONAL COOPERATION AGENCY

1901