

Table 2.4.2. Number of Household with Livestock and Number of Livestock in 1981/82

| District | Item | Cattle | Buffaloes | Goats | Sheep | Pigs | Poultry |
|------------|--------------------------|----------|-----------|--------|-------|-------|---------|
| Gulmi | Total Household | (33,866) | | | | | |
| | Household with Livestock | 20,536 | | | | | |
| | Proportional extent | 61% | 76% | 24% | 2% | 7% | 37% |
| | Number of livestock | 96,173 | 89,509 | 27,779 | 3,916 | 5,172 | 93,678 |
| | Heads per Household | 4.7 | 3.5 | 3.4 | 6.6 | 2.3 | 7.6 |
| Argkhanchi | Total Household | (21,747) | | | | | |
| | Household with Livestock | 14,667 | | | | | |
| | Proportional extent | 67% | 86% | 42% | 1% | 1% | 37% |
| | Number of livestock | 64,742 | 52,221 | 36,770 | 1,809 | 176 | 58,716 |
| | Heads per Household | 4.4 | 2.8 | 4.0 | 6.3 | 1.0 | 7.3 |
| Hill area | Total Household | (55,613) | | | | | |
| | Household with Livestock | 35,203 | | | | | |
| | Proportional extent | 63% | 80% | 31% | 2% | 4% | 37% |
| | Number of livestock | 160,915 | 141,730 | 64,549 | 5,725 | 5,348 | 152,394 |
| | Heads per Household | 4.6 | 3.2 | 3.7 | 6.5 | 2.2 | 7.5 |
| Kapilvastu | Total Household | (39,535) | | | | | |
| | Household with Livestock | 27,235 | | | | | |
| | Proportional extent | 69% | 23% | 23% | 1% | 1% | 12% |
| | Number of livestock | 128,550 | 31,018 | 31,265 | 3,320 | 3,966 | 50,614 |
| | Heads per Household | 4.7 | 3.4 | 3.4 | 8.5 | 8.8 | 11.0 |
| Rupandehi | Total Household | (53,444) | | | | | |
| | Household with Livestock | 40,373 | | | | | |
| | Proportional extent | 76% | 38% | 0% | 1% | 26% | |
| | Number of livestock | 160,505 | 58,711 | 64,726 | 1,592 | 850 | 145,074 |
| | Heads per Household | 4.0 | 3.4 | 3.1 | 6.9 | 2.1 | 10.5 |
| Terai | Total Household | (92,979) | | | | | |
| | Household with Livestock | 67,608 | | | | | |
| | Proportional extent | 73% | 28% | 32% | 1% | 1% | 20% |
| | Number of livestock | 289,055 | 89,729 | 95,991 | 4,912 | 4,816 | 195,688 |
| | Heads per Household | 4.3 | 3.4 | 3.2 | 7.9 | 5.6 | 10.6 |

Source: National Sample Census of Agriculture, 1981/82

Table 2.7.1 (1/3) Existing Irrigation Projects

Kapilvastu District

| Name of Project | Command Area (ha) | Present Condition |
|-----------------------------------|-------------------|-------------------|
| I. Completed | | |
| 1. Banganga Irrigation Project | 6,000 | Sediment, weeds |
| 2. Kapilvastu Tube Well Project | - | Investigation |
| 3. Surai Irrigation Project | 400 | Damaged, sediment |
| 4. Jamai Irrigation Project | 270 | Sediment |
| 5. Bhataha Bandh Scheme | 1,520 | |
| 6. Murthi Nale (Pakadi) Scheme | 720 | |
| 7. Patharkot (Gurumuwa Khola) | 480 | |
| II. Under Construction | | |
| 1. DOI Project | | |
| a. Sakuniya - Doni Bandh | 300 | |
| b. Jahadi Bandh | 200 | |
| c. Karma Bandh | 310 | |
| d. Kanchaniya Bandh | 500 | |
| e. Amiya Kachuwa | 450 | |
| f. Ratkurahawa | 900 | |
| g. Ghaghuwa Nalla | 200 | |
| h. Ghaghna Bandh | 150 | |
| i. Dhankuali Jaswaric | 300 | |
| j. Ghorahi Maorma | 150 | |
| k. Shankerpur Reservoir | 150 | |
| 2. DP Scheme (for irrigation) | | |
| a. Kauna Bandh | - | |
| b. Jahadi Bandh | - | |
| c. Agia Kuchawa | - | |
| d. Kanchania Dam | - | |
| e. Dohani Dam | - | |
| f. Sakuniya Tal | - | |
| g. Rajkudwa | 900 | |
| 3. DP Scheme (for river training) | | |
| a. Banganga Khola | 1 site | |
| b. Surai Khola | 1 site | |

Table 2.7.1 (2/3) Existing Irrigation Projects

Rupandehi District

| Name of Project | Command Area (ha) | Present Condition |
|---|-------------------|-------------------|
| I. Completed | | |
| 1. Bhairahawa-Lumbini Groundwater Project Stage I | 7,680 | |
| 2. Tube Well Water and Distribution Project | 1,000 | |
| 3. Siyari Irrigation Project | 1,000 | Not functioning |
| 4. Sorah-Chatris Mahia Kulo Irrigation Scheme | 12,000 | Damaged, sediment |
| 5. Panch Majha-Aath Majha Kulo Scheme | 11,200 | Damaged |
| 6. Mahau Irrigation Scheme | 2,880 | Sediment, Damaged |
| II. Under Construction | | |
| 1. DOI Project | | |
| a. Madhuvani Irrigation | 1,050 | |
| b. Karaiya Ga. Panchayat - Kantalupur | 135 | |
| c. Paruha Ga. Panchayat | 1,350 | |
| d. Gamari Ga. Panchayat (not fixed yet) | | |
| e. Tenuhawa Ga. Panchayat | 135 | |
| f. Gahaghar River Irrigation | 2,000 | |
| g. Brairahawa - Lumbini Groundwater Project Stage II | 1,920 | |
| h. Marchawar Lift Irrigation Project | 5,770 | |
| Pump station, main canal, branch canals and transmission line will be completed in 1989/90. | | |
| Other facilities such as secondary and tertiary canals service roads, etc. will be constructed under the fund to be provided in future. | | |
| 2. DP Scheme (for irrigation) | | |
| Not clarified | | |
| 3. DP Scheme (for river training) | | |
| a. Tinau/Dano Rivers | 1 site | |
| b. Sakaura Khola | 1 site | |

Table 2.7.1 (3/3) Existing Irrigation Projects

Gulmi District

| Name of Project | Command Area (ha) | Present Condition |
|--|-------------------|-------------------|
| I. Completed | | |
| 1. Argentichhap Chaur Irrigation Project | 50 | |
| 2. Aapchaur Coffee Kheti | 75 | |
| II. Under Construction | | |
| 1. DOI Project | | |
| a. Aap Chuar Coffee Kheti | 100 | |
| b. Chhaldi Khola | 67 | |
| c. Arbeni Thumka - Kanchhi Jethi Kulo | 60 | |
| d. Wamitaksar | 130 | |
| 2. DP Scheme (for irrigation) Not clarified | | |
| 3. DP Scheme (for river training) | | |
| a. Chhali IKhola | 7 sites | |
| b. Badi gad | 5 sites | |
| c. Pan gad | 3 sites | |
| d. Kahrjang Khola | 3 sites | |
| e. Arjai Khola | 1 site | |
| f. Araudi Khola | 1 site | |
| g. Ulli Khola | 1 site | |

Arghakhauchi District

| Name of Project | Command Area (ha) | Present Condition |
|-----------------------------------|-------------------|-------------------|
| I. Completed | | |
| 1. Pharsawa Naya Kulo System | 20 | |
| 2. Khahare Khet Kulo System | 100 | |
| 3. Sera Kulo System | 70 | |
| 4. Khamari Kulo System | 30 | |
| II. Under Construction | | |
| 1. DOI Project | | |
| a. Pawartar | 50 | |
| b. Sit Khola Farm Irrigation | 105 | |
| c. Chidika Farm Irrigation | 20 | |
| d. Bangi Khola Farm Irrigation | 50 | |
| e. Jukena Farm Irrigation Project | 80 | |

Table 2.8.1 Area and Population Benefited by Roads

| Road | Benefited Area (km ²) | Cultivated Land (km ²) | Population (1,000) |
|-------------------------|-----------------------------------|------------------------------------|--------------------|
| Tansen - Tamghas | 1,253 | 293 | 264 |
| MRM - Sandhikharka | 918 | 149 | 149 |
| Jitpur - Taulihawa | 447 | 400 | 110 |
| Wamitaksar - Ridibazar | 492 | 94 | 105 |
| Tamghas - Aglung | 341 | 92 | 75 |
| Kakarhawa - Bitharai | 444 | 309 | 49 |
| Taulihawa - Bahadurganj | 166 | 155 | 51 |

Table 2.8.2 Traffic Volume Survey (Vicinity of Butwal)

(Unit: Vehicles/day)

| Survey Date | Average Daily Traffic (4 days count average) | | | | |
|------------------|--|-------|--------|-------|------|
| | Lights | Buses | Trucks | Total | AADT |
| Nov. 1984 | 94 | 101 | 176 | 371 | 368 |
| Mar. 1985 | 95 | 108 | 205 | 408 | 364 |
| Jul. 1985 | 73 | 107 | 111 | 291 | 318 |
| Sep. 1985 | 48 | 126 | 165 | 339 | 403 |
| Nov. 1985 | 87 | 120 | 213 | 420 | 416 |
| Total | Annual increasing rate (%) | | | | |
| Nov. 1984 - 1985 | -7.4 | 18.8 | 21.0 | 13.2 | 13.0 |

Table 2.8.3 Traffic Volume of Feeder Roads

(Unit: Vehicles/day)

| Road | Bus | Truck | Tractor | AADT |
|--------------------|-----|-------|---------|-------|
| Tansen - Tamghas | 12 | 30-40 | 10-20 | 52-72 |
| MRM - Sandhikharka | 9 | 9 | 7 | 25 |

Table 2.8.4 Bus Transportation

| Route | Bus charge (Rs.) | Persons/bus | Bus/day |
|--------------------------|------------------|-------------|---------|
| Bhairahawa - Narayangadh | 30 | 50 | 4 |
| Bhairahawa - Butwal | 5 | 40 | 30 |
| Bhairahawa - Lumbini | 5.5 | 20 | 12 |
| Bhairahawa - Lamdi | 23 | 10 | 3 |
| Bhairahawa - Taulihawa | 16.5 | 30 | 1 |
| Butwal - Krishnanagar | 19 | 30 | 10 |
| Bhairahawa - Tamghas | 75 | 40 | 1 |

Table 2.8.5 Machinery for Maintenance in the Project Area

| Machinery | Weight (ton) | Place | Number | Condition (As of 1989) |
|--------------------|--------------|------------------|--------|------------------------|
| 1) Truck dozer | 20 | MRM-Sandhikharka | 1 | Under repair |
| 2) Wheel dozer | 11 | Lumbini | 1 | Working |
| 3) Wheel loader | 22 | Lumbini | 3 | Working |
| Wheel loader | 22 | Lumbini | 1 | Under repair |
| 4) Motor grader | 22 | Lumbini | 1 | Under repair |
| 5) Wheel excavator | 3 | Lumbini | 1 | Working |
| 6) Road roller | 67 | Lumbini | 8 | Working |
| Road roller | 67 | Lumbini | 1 | Under repair |
| 7) Tire Roller | 12 | Lumbini | 1 | Working |
| 8) Crane Car | 6 | Butwal | 1 | Working |
| 9) Tank Car | 22 | Lumbini | 1 | Working |
| 10) Backhoe loader | 6 | Lumbini | 1 | Working |

Table 2.8.6 Maintenance Cost

| Classification | Expenditure for | Cost (Rs.) | Remarks |
|----------------|----------------------------|-----------------------|--|
| Two lanes road | Repair of asphalt pavement | 65,000-70,000/km/year | Excluding drainage and shoulder repair |
| One lane road | Repair of road surface | 35,000-40,000/km/year | - |
| | Gravel road | 15,000-20,000/km/year | - |
| | Earth road | 10,000- 5,000/km/year | - |

Table 2.10.1 Enrollment of Students in the Study Area

| Year | Primary | | | Lower Secondary | | | Secondary | | |
|------------------------------|--------------------|-------------------|---------------------|--------------------|-------------------|---------------------|--------------------|-------------------|---------------------|
| | Number of Students | Number of Schools | Students per School | Number of Students | Number of Schools | Students per School | Number of Students | Number of Schools | Students per School |
| Guimi District | | | | | | | | | |
| 1976/77 | 16,951 | 198 | 86 | 4,656 | 55 | 85 | 991 | 9 | 110 |
| 1980/81 | 27,843 | 220 | 127 | 3,162 | 58 | 55 | 1,972 | 15 | 131 |
| 1986/87 | 38,112 | 237 | 161 | 5,178 | 61 | 85 | 4,632 | 26 | 178 |
| Arghakhanchi District | | | | | | | | | |
| 1976/77 | 12,500 | 124 | 101 | 2,636 | 34 | 78 | 568 | 5 | 114 |
| 1980/81 | 17,641 | 145 | 122 | 1,890 | 39 | 48 | 1,352 | 10 | 135 |
| 1986/87 | 26,793 | 177 | 151 | 3,344 | 45 | 74 | 3,258 | 24 | 136 |
| Kapilvastu District | | | | | | | | | |
| 1976/77 | 10,187 | 117 | 87 | 2,639 | 29 | 91 | 845 | 8 | 106 |
| 1980/81 | 19,773 | 138 | 143 | 2,227 | 33 | 67 | 1,448 | 11 | 132 |
| 1986/87 | 30,038 | 151 | 199 | 3,267 | 40 | 82 | 2,954 | 17 | 174 |
| Rupandehi District | | | | | | | | | |
| 1976/77 | 17,210 | 128 | 134 | 6,854 | 45 | 152 | 2,168 | 13 | 167 |
| 1980/81 | 32,386 | 150 | 216 | 4,554 | 47 | 97 | 3,376 | 19 | 178 |
| 1986/87 | 33,820 | 166 | 204 | 6,017 | 60 | 100 | 6,203 | 33 | 188 |
| Western Region | | | | | | | | | |
| 1976/77 | 214,048 | 2,375 | 90 | 61,556 | 713 | 86 | 18,807 | 152 | 124 |
| 1980/81 | 373,993 | 2,682 | 139 | 42,086 | 774 | 54 | 32,895 | 242 | 136 |
| 1986/87 | 494,463 | 2,953 | 167 | 70,333 | 896 | 78 | 63,290 | 375 | 169 |
| Whole Country | | | | | | | | | |
| 1976/77 | 769,049 | 9,067 | 85 | 226,639 | 2,400 | 94 | 82,158 | 552 | 149 |
| 1980/81 | 1,388,001 | 10,628 | 131 | 169,564 | 2,786 | 61 | 144,331 | 918 | 157 |
| 1986/87 | 1,857,658 | 12,186 | 152 | 271,244 | 3,729 | 73 | 268,805 | 1,411 | 191 |

Source: Statistical Profile, Development Atlas of Nepal, Center for Research Team, August 1988.

Table 2.10.2 Number of Teachers in the Study Area

| Year | Number of Teachers | | | | | | |
|-----------------------|--------------------|---------|-----------------|---------|-----------|---------|-----|
| | Primary | | Lower Secondary | | Secondary | | |
| | Total | Trained | Total | Trained | Total | Trained | |
| Gulmi District | 1976/77 | 513 | 83 | 200 | 57 | 56 | 26 |
| | 1980/81 | 591 | 137 | 251 | 82 | 67 | 45 |
| | 1986/87 | 1,057 | 286 | 183 | 66 | 126 | 64 |
| Arghakhanchi District | 1976/77 | 262 | 116 | 110 | 53 | 29 | 14 |
| | 1980/81 | 375 | 130 | 146 | 41 | 51 | 25 |
| | 1986/87 | 697 | 167 | 134 | 38 | 110 | 35 |
| Kapilvastu District | 1976/77 | 304 | 153 | 103 | 31 | 44 | 16 |
| | 1980/81 | 378 | 152 | 169 | 29 | 56 | 21 |
| | 1986/87 | 717 | 207 | 121 | 38 | 96 | 39 |
| Rupandehi District | 1976/77 | 436 | 314 | 229 | 81 | 91 | 48 |
| | 1980/81 | 506 | 311 | 244 | 87 | 113 | 53 |
| | 1986/87 | 940 | 359 | 192 | 101 | 211 | 134 |

Source: Statistical Profile, Development Atlas of Nepal, Center for Research Team, August 1988.

Table 2.10.3 Status of Higher Education in the Study Area

| Name of the Campus | Faculty | Level | Enrollment | |
|---|-------------------------------|---|----------------|------------------|
| | | | 1982/82 | 1986/87 |
| <u>Gulmi District</u> | | | | |
| 1. Resunga Campus (P), Tamghas | Humanities and Social Science | Certified | - | 218 |
| <u>Arghakhanchi District</u> | | | | |
| <u>Kapilvastu District</u> | | | | |
| 1. Kapilvastu Campus (P), Anandabag | Humanities Management | Certified Certified | 25 - | 44 30 |
| <u>Rupandehi District</u> | | | | |
| 1. Butawal Campus (TU), Butawal | Humanities Science Education | Certified, Diplomat Certified Certified | 25 - 265 | 44 105 260 |
| 2. Pakalihawa Campus (TU) | Agriculture | Certified | 359 | 387 |
| 3. Lumbini Commerce Campus (P), Butawal | Management | Certified | 112 | 392 |
| 4. Bhairahawa Campus (TU), Bhairahawa | Humanities Management | Certified, Diplomat Certified | 469 - | 314 257 |

Source: Statistical Profile, Development Atlas of Nepal, Center for Research Team, August 1988.

Note: TU; Tribhuvan University

Table 2.10.4 List of Health Facility in the Study Area (1986/87)

| Health Facility | District | | | |
|---|----------|-------------------|-----------------|-----------|
| | Gulmi | Argha- khanchi | Kapil- vastu | Rupandehi |
| Hospital | 1 | - | 2 | 3 |
| Bed | 15 | - | 30 | 81 |
| Health Center | 1 | 1 | - | - |
| Health Post | 14 | 10 | 9 | 11 |
| Ayurvedic Dispensary | 3 | 1 | 1 | 1 |
| Family Planning and Maternity Child Health Project | 9 | 5 | 7 | 6 |
| Panchayat Based Health Worker | 70 | 35 | 103 | 140 |
| Population per worker | 3,580 | 4,886 | 3,009 | 3,374 |
| Hospital Laboratory | 1 | - | 2 | 2 |
| Expanded Programme Immunization | 1 | - | 1 | 1 |
| Others (Malaria) | - | 1 | 9 | 9 |

Source: Statistical Profile, Development Atlas of Nepal,
Center for Research Team, August 1988

Table 4.3.1 Grouping and Priority Ranking of Irrigation Projects

| No. of Group | No. of Project | Command Area (ha) | Capital Cost (mil. NRs) | Net Present Value at 10% Dis. Rate (Cost*3 Benefit*4 (mil. NRs) | | B - C (mil. NRs) | B/C | IRR (%) | Household (Nos.) | Concrete-ness of the Project | Problem of Water Right | Priority Ranking |
|------------------------------|-----------------------|-------------------|-------------------------|---|------------|------------------|-------------|-------------|------------------|------------------------------|------------------------|------------------|
| Kapilvastu District | | | | | | | | | | | | |
| 1. | a. Rajkudwa I.P. | 2,400 | 281.4 | 211 | 287 | 76 | 1.36 | 13.4 | 1,121 | 5 | -1 | 1 |
| 2. | c. Bel Nadi I.P. | 400 | 37.6 | | | | | | | | | |
| | d. Khanchaniya I.P. | 160 | 15.0 | | | | | | | | | |
| | h. Charanga I.P. | 320 | 30.1 | Total of c, d, h | | | | | | | | |
| | Sub-total | 880 | 82.7 | 63 | 87 | 24 | 1.38 | 12.2 | 411 | 3 | -2 | 2 |
| 3. | c. Phulika I.P. | 1,500 | 141.0 | | | | | | | | | |
| | f. Patana I.P. | 540 | 50.8 | | | | | | | | | |
| | g. Jakira Bandh I.P. | 700 | 65.8 | Total of c, f, g. | | | | | | | | |
| | Sub-total | 2,740 | 257.6 | 120 | 272 | 82 | 1.43 | 13.5 | 1,280 | 3 | -5 | 3 |
| | District Total | 6,020 | 621.7 | 464 | 646 | 182 | | | 2,812 | | | |
| Gulmi District | | | | | | | | | | | | |
| 1. | h. Sprinkler I.P. | 100 | 48.4 | 62 | 62 | 0 | 1.00 | 9.9 | 131 | 1 | -2 | 3 |
| | a. Ghamir Khola I.P. | 250 | 35.2 | 26 | 34 | 8 | 1.31 | 12.5 | 329 | 2 | -2 | 2 |
| | Sub-total | 350 | 83.6 | | | | | | | | | |
| 2. | h. Sprinkler I.P. | 100 | 48.4 | 62 | 62 | 0 | 1.00 | 9.9 | 131 | 1 | -2 | 3 |
| | b. Khadga Kat I.P. | 110 | 15.5 | | | | | | | | | |
| | c. Paudi Areba | 110 | 15.5 | Total of b, c, d | | | | | | | | |
| | d. Chaladi Khola | 100 | 14.1 | 34 | 44 | 10 | 1.29 | 12.5 | 421 | 2 | -2 | 2 |
| | Sub-total | 420 | 93.5 | | | | | | | | | |
| 3. | h. Sprinkler I.P. | 100 | 48.4 | 62 | 62 | 0 | 1.00 | 9.9 | 131 | 1 | -2 | 3 |
| | c. Puri Ghat I.P. | 90 | 12.7 | | | | | | | | | |
| | f. Sirseni I.P. | 140 | 19.7 | Total of c, f, g | | | | | | | | |
| | g. Lahata I.P. | 40 | 5.6 | 28 | 37 | 9 | 1.32 | 12.5 | 355 | 2 | -2 | 2 |
| | Sub-total | 370 | 86.4 | | | | | | | | | |
| | District Total | 1,140 | 263.5 | 274 | 301 | 37 | | | 684 | | | |
| Arghakhanchi District | | | | | | | | | | | | |
| 1. | h. Sprinkler | 200 | 96.8 | 124 | 125 | 1 | 1.01 | 10.1 | 263 | 1 | -2 | 3 |
| | a. Rindi Wangla | 70 | 9.8 | | | | | | | | | |
| | b. Chauwatar | 70 | 9.8 | Total of a, b, c | | | | | | | | |
| | c. Mil Mile Khola | 220 | 30.9 | 38 | 50 | 12 | 1.32 | 12.5 | 315 | 2 | -2 | 2 |
| | Sub-total | 560 | 147.3 | | | | | | | | | |
| 2. | h. Sprinkler | 200 | 96.8 | 124 | 125 | 1 | 1.01 | 10.1 | 263 | 1 | -2 | 3 |
| | d. Pipaha I.P. | 100 | 14.1 | | | | | | | | | |
| | e. Rajyang I.P. | 110 | 15.5 | Total of d, e, g | | | | | | | | |
| | g. Khanchi I.P. | 160 | 22.5 | 39 | 51 | 12 | 1.31 | 12.5 | 402 | 2 | -2 | 2 |
| | Sub-total | 570 | 148.9 | | | | | | | | | |
| 3. | h. Sprinkler | 200 | 96.8 | 124 | 125 | 1 | 1.01 | 10.1 | 263 | 1 | -2 | 3 |
| | f. Durga Khola I.P. | 400 | 56.3 | 42 | 55 | 13 | 1.31 | 12.6 | 435 | 2 | -2 | 2 |
| | Sub-total | 600 | 153.1 | | | | | | | | | |
| | District Total | 1,730 | 449.3 | 491 | 531 | 40 | | | | | | |
| Total | | 8,890 | 1,334.5 | | | | | | | | | |

*1: 5 very clear, 4 clear, 3 good, 2 fair, 1 not clear

*2: -5 very difficult, -4 difficult, -3 not clear, -2 a few problem, -1 few problem

*3: Conversion factor is at 0.9 as mentioned in the Annex C "Agriculture and Agro-economy".

*4: Benefit per ha for Terai area NRs. 16,800 per year.

Benefit per ha for Hill area NRs. 23,250 per year in surface irrigation.

Benefit per ha for Hill area NRs. 103,570 per year in sprinkler irrigation.

Table 5.2.1 Construction Cost of Irrigation

| Name of District/ Project | Command Area (ha) | Construction Cost (million NRs.) |
|--------------------------------|----------------------|-------------------------------------|
| (1) Central Level | | |
| 1) Kapilvastu | | |
| - Rajkudwa I.P. | 2,400 | 281.4 |
| - Other I.P. | 3,620 | 340.3 |
| <u>Sub-total</u> | | <u>621.7</u> |
| 2) Gulmi | | |
| - Surface I.P. | 840 | 118.3 |
| - Sprinkler I.P. | 300 | 145.2 |
| <u>Sub-total</u> | | <u>263.5</u> |
| 3) Arghakhanchi | | |
| - Surface I.P. | 1,130 | 158.9 |
| - Sprinkler I.P. | 600 | 290.4 |
| <u>Sub-total</u> | | <u>449.3</u> |
| <u>Total of Central Level</u> | <u>8,890</u> | <u>1,334.5</u> |
| (2) District Level | | |
| 1) Kapilvastu | 9,000 | 176.9 |
| 2) Gulmi | 600 | 11.8 |
| 3) Arghakhanchi | 280 | 5.5 |
| <u>Total of District Level</u> | <u>9,880</u> | <u>194.2</u> |
| (3) Grand Total of Irrigation | 18,770 | 1,528.7 |

Table 5.2.2 Construction Cost of Rural Road

| District | Name of Road | | Construction Cost (million NRs.) |
|----------------------------------|------------------------------|---------------|-------------------------------------|
| (1) Central Level | | | |
| Gulmi | Tamghas - Tansen | 75 km | 240.0 |
| Arghakhanchi | M.R.M. - Sandhikarka | 69 km | 290.0 |
| Gulmi | Wamitaksar - Ridibazar | 64 km | 210.0 |
| Arghakhanchi | Sandikarka - Tamghas | 45 km | 190.0 |
| Kapilvastu | Lumbini - Taulihawa | 16 km | 10.0 |
| Kapilvastu | Jitpur - Taulihawa | 24 km | 20.0 |
| Kapilvastu | Taulihawa - Bahadurganj | 22 km | 90.0 |
| Gulmi | Tamghas - Aglung | 42 km | 130.0 |
| Arghakhanchi | Sandikharka - Pyuthan | 30 km | 120.0 |
| Total of Central Level | | 387 km | 1,300.0 |
| (2) District Level | | | |
| Gulmi | Village road in the district | 20 km | 60.0 |
| Arghakhanchi | Village road in the district | 20 km | 80.0 |
| Total of District Level | | 40 km | 140.0 |
| Grand Total of Rural Road | | 427 km | 1,440.0 |

Table 5.2.3 Construction Cost of Rural Water Supply

| | Additional Population to be served | Construction Cost (million NRs.) |
|-----------------|---------------------------------------|-------------------------------------|
| (1) Kapilvastu | 315,500 | 284 |
| (2) Gulmi | 132,500 | 186 |
| (3) Arghakhanch | 103,000 | 125 |
| Total | 551,000 | 595 |

Table 5.2.4 Construction Cost of Agriculture

| Item | Construction Cost (million NRs.) |
|---|-------------------------------------|
| (1) Central Level | |
| Livestock | 20.4 |
| Supply System of Agricultural Input Corporation | 15.0 |
| Public Wholesale Market | 200.0 |
| Supply System of Nepal Food Corporation | 6.0 |
| Total of Central Level | 241.4 |
| (2) District Level | |
| Agricultural Extension | 134.3 |
| Livestock | 57.7 |
| Fish Culture | 5.2 |
| Apiculture | 0.6 |
| Input Supply | 30.0 |
| Marketing System of Agricultural Products | 46.4 |
| Processing of Agricultural Products | 8.4 |
| Total of District Level | 282.6 |
| Total | 524.0 |

Table 5.2.5 Annual Disbursement Schedule of Irrigation Development (million NRs.)

| Central Level | 1990 | | 1991 | | 1992 | | 1993 | | 1994 | | 1995 | | 1996 | | 1997 | | 1998 | |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. |
| Construction cost | | | | | | | | | | | | | | | | | | |
| 1) Kapilvastu | | 18 | 63 | 95 | 42 | 63 | | | | | | | 7 | 10 | 13 | 20 | 13 | 20 |
| 2) Gulmi | | | 3 | 4 | 9 | 13 | 9 | 13 | 9 | 13 | 5 | 7 | 4 | 5 | 10 | 14 | 10 | 14 |
| 3) Arghakhuchi | | | 4 | 6 | 15 | 23 | 15 | 23 | 15 | 23 | 10 | 15 | 4 | 6 | 15 | 23 | 15 | 23 |
| Sub-total | 0 | 18 | 70 | 105 | 66 | 99 | 24 | 36 | 24 | 36 | 15 | 22 | 14 | 22 | 38 | 57 | 38 | 57 |
| Price escalation | 0 | 0.2 | 18 | 4 | 27 | 7 | 14 | 4 | 18 | 5 | 14 | 4 | 17 | 5 | 56 | 16 | 68 | 18 |
| Total | 0 | 18 | 88 | 109 | 93 | 106 | 37 | 39 | 42 | 41 | 29 | 26 | 32 | 26 | 94 | 73 | 106 | 75 |

| | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | Total |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | |
| Construction cost | | | | | | | | | | | | | | | |
| 1) Kapilvastu | | | | | 21 | 31 | 28 | 41 | 28 | 41 | 28 | 41 | | | 622 |
| 2) Gulmi | 10 | 14 | 5 | 7 | 3 | 5 | 9 | 13 | 9 | 13 | 9 | 13 | 5 | 7 | 264 |
| 3) Arghakhuchi | 15 | 23 | 10 | 15 | 5 | 7 | 16 | 24 | 16 | 24 | 16 | 24 | 10 | 15 | 450 |
| Sub-total | 25 | 37 | 15 | 22 | 28 | 42 | 52 | 78 | 52 | 78 | 52 | 78 | 15 | 22 | 1335 |
| Price escalation | 52 | 14 | 36 | 9 | 81 | 19 | 175 | 40 | 203 | 44 | 233 | 48 | 74 | 15 | 1339 |
| Total | 77 | 51 | 51 | 31 | 109 | 62 | 228 | 118 | 255 | 122 | 285 | 127 | 89 | 36 | 2674 |

| District Level | 1990 | | 1991 | | 1992 | | 1993 | | 1994 | | 1995 | | 1996 | | 1997 | | 1998 | |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. |
| Construction cost | | | | | | | | | | | | | | | | | | |
| Terai | | | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 |
| Hill | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Sub-total | | | 5 | 8 | 5 | 8 | 5 | 8 | 5 | 8 | 5 | 8 | 5 | 8 | 5 | 8 | 5 | 8 |
| Price escalation | 0 | 0 | 1 | 0 | 2 | 1 | 3 | 1 | 4 | 1 | 5 | 2 | 6 | 2 | 8 | 2 | 9 | 3 |
| Total | 0 | 0 | 7 | 9 | 7 | 9 | 8 | 9 | 9 | 10 | 10 | 10 | 12 | 10 | 13 | 11 | 15 | 11 |

| | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | Total |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | |
| Construction cost | | | | | | | | | | | | | | | |
| Terai | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 177 |
| Hill | 1 | 1 | 1 | 1 | | | | | | | | | | | 17 |
| Sub-total | 5 | 8 | 5 | 8 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 5 | 7 | 194 |
| Price escalation | 11 | 3 | 13 | 3 | 14 | 3 | 16 | 4 | 18 | 4 | 21 | 4 | 24 | 5 | 194 |
| Total | 16 | 11 | 18 | 12 | 18 | 10 | 21 | 11 | 23 | 11 | 26 | 11 | 29 | 12 | 388 |

Summary

| | |
|-------------------|------|
| Construction Cost | |
| Central Level | 1335 |
| District Level | 194 |
| Sub-total | 1529 |
| Price Escalation | 1533 |
| Total | 3062 |

Table 5.2.6 Annual Disbursement Schedule of Rural Road Development

| (Unit: million NRs.) | | | | | | | | | | | | | | | | | | |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 1990 | | 1991 | | 1992 | | 1993 | | 1994 | | 1995 | | 1996 | | 1997 | | 1998 | |
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. |
| Construction cost | 13 | 15 | 29 | 35 | 48 | 58 | 73 | 89 | 73 | 89 | 50 | 60 | 11 | 13 | 38 | 47 | 38 | 47 |
| Price escalation | 1 | 0 | 7 | 1 | 19 | 4 | 42 | 10 | 56 | 13 | 49 | 11 | 13 | 3 | 56 | 13 | 67 | 15 |
| Total | 14 | 15 | 36 | 36 | 67 | 62 | 115 | 99 | 129 | 102 | 99 | 71 | 24 | 16 | 94 | 59 | 105 | 61 |

| | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | Total |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | |
| Construction cost | 38 | 47 | 48 | 59 | 47 | 57 | 34 | 42 | 34 | 42 | 33 | 41 | 43 | 52 | 1440 |
| Price escalation | 80 | 17 | 119 | 24 | 135 | 26 | 115 | 21 | 133 | 24 | 149 | 25 | 221 | 35 | 1504 |
| Total | 118 | 63 | 167 | 83 | 181 | 83 | 150 | 63 | 168 | 66 | 182 | 66 | 264 | 87 | 2944 |

Table 5.2.7 Annual Disbursement Schedule of Rural Water Supply Development

| (Unit: million NRs.) | | | | | | | | | | | | | | | | | | |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | 1990 | | 1991 | | 1992 | | 1993 | | 1994 | | 1995 | | 1996 | | 1997 | | 1998 | |
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. |
| Construction cost | 15 | 22 | 19 | 29 | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 |
| Price escalation | 2 | 0 | 5 | 1 | 6 | 2 | 8 | 2 | 11 | 3 | 14 | 4 | 18 | 5 | 22 | 6 | 26 | 7 |
| Total | 16 | 22 | 24 | 29 | 21 | 23 | 23 | 24 | 26 | 25 | 29 | 26 | 32 | 27 | 36 | 28 | 40 | 29 |

| | 1999 | | 2000 | | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | | Total |
|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | L.C. | F.C. | |
| Construction cost | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 | 15 | 22 | 595 |
| Price escalation | 31 | 8 | 36 | 9 | 42 | 10 | 49 | 11 | 57 | 12 | 65 | 14 | 75 | 15 | 576 |
| Total | 45 | 30 | 51 | 31 | 57 | 32 | 64 | 33 | 71 | 34 | 80 | 35 | 90 | 37 | 1171 |

Table 5.2.8 Annual Disbursement Schedule of Agriculture (1/2)

| Item | Quantity | Unit | Unit Cost | Amount | 1st year | 2nd year | 3rd year | 4th year | 5th year |
|---|----------|----------|-----------|---------|----------|----------|----------|----------|----------|
| Central Level Project | | | | | | | | | |
| (1) Livestock Development | | | | | | | | | |
| 1) construction Cost of Semen Bank | | | | | | | | | |
| Office | 1 | location | 2,700 | 2,700 | 540 | 540 | 540 | 540 | 540 |
| Stall | 1 | set | 900 | 900 | 180 | 180 | 180 | 180 | 180 |
| Facility | 1 | set | 16,000 | 16,000 | 3,200 | 3,200 | 3,200 | 3,200 | 3,200 |
| Vehicle (liquid N) | 1 | set | 800 | 800 | 160 | 160 | 160 | 160 | 160 |
| Subtotal | | | | 20,400 | 4,080 | 4,080 | 4,080 | 4,080 | 4,080 |
| District Level Project | | | | | | | | | |
| (1) Agricultural Extension Service | | | | | | | | | |
| 1) Agri. Development Office | 3 | location | 4,500 | 13,500 | 2,700 | 2,700 | 2,700 | 2,700 | 2,700 |
| 2) Ilaka Service Center | 22 | location | 1,800 | 39,600 | 7,920 | 7,920 | 7,920 | 7,920 | 7,920 |
| 3) Quarter | 33 | location | 500 | 16,500 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 |
| 4) Furniture | 25 | set | 80 | 2,000 | 400 | 400 | 400 | 400 | 400 |
| 5) Equipments | | L.S. | | 7,558 | 1,512 | 1,512 | 1,512 | 1,512 | 1,512 |
| 6) Demonstration farm for food crops *1 | 1,800 | location | 10 | 18,000 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |
| 7) Demonstration farm for cash crops *1 | 900 | location | 40 | 36,000 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 |
| 8) Nursery farm *1 | 17 | location | 70 | 1,190 | 238 | 238 | 238 | 238 | 238 |
| 9) Subtotal | | | | 134,348 | 26,870 | 26,870 | 26,870 | 26,870 | 26,870 |
| (2) Livestock Development | | | | | | | | | |
| 1) Livestock Development Office | 3 | location | 3,600 | 10,800 | 2,160 | 2,160 | 2,160 | 2,160 | 2,160 |
| 2) Ilaka Service Center | 27 | location | 990 | 26,730 | 5,346 | 5,346 | 5,346 | 5,346 | 5,346 |
| 3) Artificial Insemination Center | 6 | location | 540 | 3,240 | 648 | 648 | 648 | 648 | 648 |
| 4) Quarters | 31 | location | 400 | 12,400 | 2,480 | 2,480 | 2,480 | 2,480 | 2,480 |
| 5) Equipments | | L.S. | | 4,568 | 914 | 914 | 914 | 914 | 914 |
| 6) Subtotal | | | | 57,738 | 11,548 | 11,548 | 11,548 | 11,548 | 11,548 |
| (3) Inland Fishery | | | | | | | | | |
| 1) Fingering Production Pond *1 | 2 | location | 440 | 880 | 176 | 176 | 176 | 176 | 176 |
| 2) Production Pond *1 | 16 | location | 220 | 3,520 | 704 | 704 | 704 | 704 | 704 |
| 3) Equipments *1 | 2 | set | 400 | 800 | 160 | 160 | 160 | 160 | 160 |
| 4) Subtotal | | | | 5,200 | 1,040 | 1,040 | 1,040 | 1,040 | 1,040 |
| (4) Apiculture | | | | | | | | | |
| 1) Supply of Beehive *1 | 3,000 | pieces | 0.2 | 600 | 120 | 120 | 120 | 120 | 120 |
| (5) Sub-total | | | | 197,886 | 39,577 | 39,577 | 39,577 | 39,577 | 39,577 |
| Total Construction Cost | | | | | | | | | |
| Foreign correny portion (60%) | | | | 218,286 | 43,657 | 43,657 | 43,657 | 43,657 | 43,657 |
| Local correny portion (40%) | | | | 130,972 | 26,194 | 26,194 | 26,194 | 26,194 | 26,194 |
| Price escalation | | | | 87,314 | 17,463 | 17,463 | 17,463 | 17,463 | 17,463 |
| Total | | | | 269,633 | 46,669 | 49,965 | 53,576 | 57,537 | 61,886 |
| | | | | 487,919 | 90,326 | 93,622 | 97,233 | 101,194 | 105,543 |

Note *1: Facilities and equipments in farmers' level, therefore O/M cost of these facilities is not counted.

Table 5.2.8 Annual Disbursement Schedule of Agriculture (2/2)

(Unit: Rs 1,000,000)

| Item | 1st year | 2nd year | 3rd year | 4th year | 5th year | 6th year | 7th year | 8th year | 9th year | 10th year | 11th year | 12th year | 13th year | 14th year | 15th year | Total |
|---|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| CENTRAL LEVEL PROJECT | | | | | | | | | | | | | | | | |
| (1) Agricultural Input Supply | - | - | - | 5.0 | 5.0 | 5.0 | - | - | - | - | - | - | - | - | - | 15.0 |
| 1) Agricultural Input Corporation | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| (2) Marketing System of Products | - | - | - | - | - | - | - | - | - | - | 66.7 | 66.7 | 66.7 | - | - | 200.1 |
| 1) Public Wholesale Market | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 6.0 |
| 2) Nepal Food Corporation | - | - | - | - | 2.0 | 2.0 | 2.0 | 2.0 | - | - | - | - | - | - | - | - |
| (3) Total | 0.0 | 0.0 | 0.0 | 5.0 | 5.0 | 7.0 | 2.0 | 2.0 | 0.0 | 0.0 | 66.7 | 66.7 | 66.7 | 0.0 | 0.0 | 221.1 |
| DISTRICT LEVEL PROJECT | | | | | | | | | | | | | | | | |
| (1) Agricultural Input Supply | - | - | - | - | - | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 21.0 |
| 1) Storage for Cooperatives | - | - | - | - | - | - | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 9.0 |
| 2) Storage for District | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| (2) Marketing System of Products | - | - | - | - | - | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 4.4 | 44.4 |
| 1) Haat Bazar | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2) Producers' Groups and Associations | - | - | - | - | - | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 1.6 |
| 3) Small Marketing Group | - | - | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| (3) Processing of Agricultural Products | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1) Provision of Grain Mills | - | - | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 |
| 2) Processing Facilities of Cash Crops | - | - | - | - | - | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 8.0 |
| (4) Total | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 8.5 | 84.8 |
| Total | 0.0 | 0.0 | 0.0 | 5.0 | 5.0 | 15.5 | 10.5 | 10.5 | 8.5 | 8.5 | 75.2 | 75.2 | 75.2 | 8.5 | 8.5 | 305.9 |
| Local currency portion (60%) | 0.0 | 0.0 | 0.0 | 3.0 | 3.0 | 9.3 | 6.3 | 6.3 | 5.1 | 5.1 | 45.1 | 45.1 | 45.1 | 5.1 | 5.1 | 183.5 |
| Foreign currency portion (40%) | 0.0 | 0.0 | 0.0 | 2.0 | 2.0 | 6.2 | 4.2 | 4.2 | 3.4 | 3.4 | 30.1 | 30.1 | 30.1 | 3.4 | 3.4 | 122.4 |
| Price escalation | 0.0 | 0.0 | 0.0 | 6.6 | 7.1 | 23.6 | 17.3 | 18.7 | 16.3 | 17.7 | 170.5 | 185.3 | 201.8 | 24.8 | 27.1 | 716.7 |
| Grand Total | 0.0 | 0.0 | 0.0 | 11.6 | 12.1 | 39.1 | 27.7 | 29.1 | 24.8 | 26.2 | 245.6 | 260.5 | 276.9 | 33.3 | 35.6 | 1,022.6 |

Table 5.3.1 Cost Estimate of Priority Projects (Irrigation)

| | | (Thousand NRs.) |
|---|------|-----------------|
| Item | | Amount |
| <u>Rajkudwa, and Gorshinghiya and Rajipur Ponds Irrigation Project</u> | | |
| 1. Intake Facilities | | |
| Diversion Weir | | 18,897 |
| Intake | | 1,921 |
| Settling Basin | | 5,020 |
| Guide Bank | | 2,372 |
| Sub-total | | 28,210 |
| 2. Main Canal & Related Structures | | |
| Preparatory Works | L.S. | 6,272 |
| Main Canal | | 78,338 |
| Pond | L.S. | 20,190 |
| Related Structures | L.S. | 41,430 |
| Miscellaneous Works | | 2,198 |
| Sub-total | | 148,428 |
| 3. Secondary & Tertiary Canals | L.S. | 18,960 |
| 4. Total Direct Cost | | 195,598 |
| 5. Physical Contingency | L.S. | 19,560 |
| 6. Base Cost | | 215,158 |
| 7. Overhead & Profit | L.S. | 32,274 |
| 8. Contract Tax | L.S. | 1,614 |
| 9. Design & S/V*1 | L.S. | 32,376 |
| 10. Total Cost | | 281,422 |

*1: Cost for mapping and feasibility study is not included.

Table 5.3.2 Cost Estimate of Priority Projects (Rural Road)

| (Thousand NRs.) | |
|--------------------------------|---------|
| Items | Amount |
| <u>Tansen - Tamghas Road</u> | |
| 1. Earth Works | 22,125 |
| 2. Drainage Works | 60,912 |
| 3. Slope Protection Works | 46,825 |
| 4. Pavement Works | 22,781 |
| 5. Bridge Works | 5,800 |
| 6. Miscellaneous | 15,844 |
| 7. Total Direct Cost | 174,287 |
| 8. Contingencies | 17,428 |
| 9. Total | 191,715 |
| 10. Overhead + Profit | 28,757 |
| 11. Contract Tax | 9,585 |
| 12. Total | 230,057 |
| 13. Survey, Design and S/V | 6,901 |
| Grand Total | 236,958 |
| <u>MRM - Sandhikharka Road</u> | |
| 1. Earth Works | 29,520 |
| 2. Drainage Works | 75,632 |
| 3. Slope Protection Works | 37,085 |
| 4. Pavement Works | 19,597 |
| 5. Bridge Works | 30,800 |
| 6. Miscellaneous | 19,267 |
| 7. Total Direct Cost | 211,947 |
| 8. Contingencies | 21,194 |
| 9. Total | 233,135 |
| 10. Overhead + Profit | 34,970 |
| 11. Contract Tax | 11,656 |
| 12. Total | 279,761 |
| 13. Survey, Design and S/V | 8,392 |
| Grand Total | 288,153 |

Table 5.3.3 Cost Estimate of Priority Project
(Rural Water Supply)

| (Thousand NRs.) | |
|--|--------|
| Item | Amount |
| 1. Supply of deep well material | 850 |
| 2. Well construction | 2,895 |
| 3. Water source and tank | 5,527 |
| 4. Supply of pipes and fittings (for Banganga) | 13,591 |
| 5. Pipe laying work | 6,831 |
| 6. Power facilities | 1,191 |
| 7. Supply of pipes and fittings (for hill area) | 5,081 |
| 8. Total of 1. - 7. | 35,966 |
| 9. Design and S/V | 3,596 |
| 10. Overhead cost | 3,596 |
| 11. Contingencies | 4,315 |
| 12. Total cost | 47,474 |

Table 5.3.4

Construction Cost of Priority Projects
(Agriculture Production Promotion)

| Project / Item | Quantity | Construction Cost (million NRs.) |
|--|--------------|-------------------------------------|
| (1) Agricultural Extention Reinforcement | | |
| District Agriculture Development Office | 3 | 13.5 |
| Ilaka Service Centre | 22 | 39.6 |
| Quarters | 33 | 16.5 |
| Equipment | L.S. | 9.6 |
| Farm | 2,700 places | 54.0 |
| Nursery Farm | 17 places | 1.2 |
| <u>Sub-Total</u> | - | <u>134.4</u> |
| (2) Livestock Development | | |
| Semen Bank / Facilities | 1 | 20.4 |
| District Livestock Development Office | 3 | 10.8 |
| Ilaka Service Centre | 27 | 26.7 |
| Artificial Insemination Centre | 6 | 3.2 |
| Quarters | 31 | 12.4 |
| Equipment | L.S. | 4.6 |
| <u>Sub-Total</u> | - | <u>78.1</u> |
| <u>Ground Total</u> | | <u>212.5</u> |

Table 6.1.1 : Project Evaluation Scores by Sector

| PROJECT | COST | UNTCOST | BURDEN | PRODUCT | LIVING | ENVIRON | FLOW | MIGRATE | PARTICI | EASY | SUBTOTAL |
|--------------|---------|---------|--------|---------|--------|---------|------|---------|---------|------|----------|
| 1 Iri-1 K | 281,400 | 5 | 4 | 5 | 1 | 2 | 5 | 3 | 5 | 5 | 35 |
| 2 Iri-2 K | 82,700 | 5 | 4 | 5 | 1 | 2 | 3 | 3 | 3 | 3 | 29 |
| 3 Iri-3 K | 257,000 | 5 | 4 | 5 | 1 | 2 | 5 | 3 | 5 | 3 | 33 |
| 4 Iri-6 G | 121,000 | 2 | 2 | 5 | 1 | 3 | 5 | 4 | 5 | 1 | 28 |
| 5 Iri-7 G | 35,200 | 3 | 3 | 5 | 1 | 2 | 5 | 3 | 3 | 2 | 25 |
| 6 Iri-8 G | 121,000 | 2 | 2 | 5 | 1 | 3 | 5 | 4 | 5 | 1 | 28 |
| 7 Iri-9 G | 45,100 | 3 | 3 | 5 | 1 | 2 | 3 | 3 | 3 | 2 | 25 |
| 8 Iri-10G | 121,000 | 2 | 2 | 5 | 1 | 3 | 5 | 4 | 5 | 1 | 28 |
| 9 Iri-11G | 38,000 | 3 | 3 | 5 | 1 | 2 | 3 | 3 | 3 | 2 | 25 |
| 10 Iri-12A | 121,000 | 2 | 2 | 5 | 1 | 3 | 5 | 4 | 5 | 1 | 28 |
| 11 Iri-13A | 50,500 | 3 | 3 | 5 | 1 | 2 | 3 | 3 | 3 | 2 | 25 |
| 12 Iri-14A | 121,000 | 2 | 2 | 5 | 1 | 3 | 5 | 4 | 5 | 1 | 28 |
| 13 Iri-15A | 52,100 | 3 | 3 | 5 | 1 | 2 | 3 | 3 | 3 | 2 | 25 |
| 14 Iri-16A | 121,000 | 2 | 2 | 5 | 1 | 3 | 5 | 4 | 5 | 1 | 28 |
| 15 Iri-17A | 56,300 | 3 | 3 | 5 | 1 | 2 | 3 | 3 | 3 | 2 | 25 |
| 16 Road-18G | 246,000 | 4 | 4 | 4 | 4 | 1 | 5 | 2 | 3 | 4 | 32 |
| 17 Road-19AK | 294,500 | 4 | 4 | 5 | 4 | 1 | 5 | 2 | 3 | 4 | 32 |
| 18 Road-20G | 213,000 | 4 | 3 | 4 | 4 | 1 | 5 | 2 | 3 | 4 | 30 |
| 19 Road-21AG | 192,000 | 4 | 3 | 4 | 4 | 1 | 5 | 2 | 3 | 4 | 30 |
| 20 Road-22KR | 13,375 | 3 | 3 | 3 | 3 | 1 | 4 | 2 | 3 | 4 | 26 |
| 21 Road-23K | 22,475 | 3 | 3 | 3 | 3 | 1 | 4 | 2 | 3 | 4 | 26 |
| 22 Road-24K | 90,250 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 3 | 4 | 25 |
| 23 Road-25G | 131,000 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 3 | 4 | 25 |
| 24 Road-26A | 120,500 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 3 | 4 | 25 |
| 25 Road-27G | 63,600 | 3 | 1 | 4 | 5 | 1 | 3 | 4 | 4 | 3 | 28 |
| 26 Road-28A | 83,600 | 3 | 1 | 3 | 5 | 1 | 3 | 4 | 4 | 3 | 27 |
| 27 Wate-29K | 142,000 | 5 | 4 | 1 | 5 | 2 | 1 | 3 | 5 | 5 | 31 |
| 28 Wate-30K | 142,000 | 4 | 3 | 1 | 4 | 2 | 1 | 3 | 5 | 4 | 27 |
| 29 Wate-31G | 93,000 | 5 | 3 | 1 | 5 | 2 | 1 | 3 | 5 | 3 | 28 |
| 30 Wate-32G | 93,000 | 4 | 2 | 1 | 5 | 2 | 1 | 3 | 5 | 2 | 25 |
| 31 Wate-33A | 63,000 | 5 | 3 | 1 | 5 | 2 | 1 | 3 | 5 | 3 | 28 |
| 32 Wate-34A | 62,000 | 4 | 2 | 1 | 5 | 2 | 1 | 3 | 5 | 2 | 25 |
| 33 Agri-35H | 311,100 | 4 | 2 | 5 | 2 | 4 | 4 | 4 | 5 | 3 | 33 |
| 34 Agri-35T | 121,900 | 5 | 2 | 4 | 2 | 3 | 4 | 4 | 4 | 4 | 32 |
| 35 Agri-36 | 319,900 | 3 | 2 | 4 | 2 | 4 | 3 | 4 | 4 | 3 | 39 |
| 36 Agri-37 | 29,800 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 4 | 3 | 26 |
| 37 Agri-38 | 17,100 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 3 | 3 | 24 |
| 38 Agri-39 | 44,500 | 5 | 2 | 4 | 1 | 2 | 4 | 3 | 4 | 4 | 29 |
| 39 Agri-40 | 258,800 | 3 | 2 | 3 | 2 | 2 | 4 | 4 | 4 | 2 | 26 |
| 40 Livi-41 | 540,000 | 4 | 3 | 2 | 5 | 3 | 2 | 5 | 5 | 2 | 34 |
| 27,79487 | | | | | | | | | | | |

Table 6.2.1 Sector Adjustment Weight

| | UNITCOST | BURDEN | PRODUCT | LIVING | ENVIRON | FLOW | MIGRATE | PARTICI | EASY | SUBTOTAL |
|-------|----------|--------|---------|--------|---------|------|---------|---------|------|----------|
| Irr. | 3 | 5 | 4 | 1 | 3 | 2 | 3 | 3 | 3 | 27 |
| Road | 3 | 5 | 3 | 3 | 1 | 5 | 2 | 3 | 3 | 28 |
| Water | 5 | 3 | 1 | 5 | 3 | 2 | 3 | 5 | 5 | 32 |
| Agri. | 4 | 2 | 5 | 2 | 3 | 3 | 5 | 4 | 2 | 30 |
| FULL | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 45 |

Table 6.2.2 Evaluation Criteria Weight

| Weight | UNITCOST | BURDEN | PRODUCT | LIVING | ENVIRON | FLOW | MIGRATE | PARTICI | EASY |
|--------|----------|--------|---------|--------|---------|------|---------|---------|------|
| | 3 | 2 | 3 | 3 | 2 | 1 | 1 | 3 | 2 |
| | 3 | 2 | 3 | 3 | 2 | 1 | 1 | 3 | 2 |
| | 3 | 2 | 3 | 3 | 2 | 1 | 1 | 3 | 2 |
| | 3 | 2 | 3 | 3 | 2 | 1 | 1 | 3 | 2 |
| | 3 | 2 | 3 | 3 | 2 | 1 | 1 | 3 | 2 |

Table 6.2.3 Combined Weight

| | UNITCOST | BURDEN | PRODUCT | LIVING | ENVIRON | FLOW | MIGRATE | CONTIOUS | EASY | SUBTOTAL |
|-------|----------|--------|---------|--------|---------|------|---------|----------|------|----------|
| Irr. | 9 | 10 | 12 | 3 | 6 | 2 | 3 | 9 | 6 | 60 |
| Road | 9 | 10 | 9 | 9 | 2 | 5 | 2 | 9 | 6 | 61 |
| Water | 15 | 6 | 3 | 15 | 6 | 2 | 3 | 15 | 10 | 75 |
| Agri. | 12 | 4 | 15 | 6 | 6 | 3 | 5 | 12 | 4 | 67 |
| FULL | 15 | 10 | 15 | 15 | 10 | 5 | 5 | 15 | 10 | 100 |

Table 6.2.4 Additional Criteria Scores

| | URGENCY | WEAKS | EXPAND | T IMPACT |
|-----------|---------|-------|--------|----------|
| Irr.(L) | 4 | 3 | 4 | 4 |
| Irr.(S) | 3 | 4 | 2 | 3 |
| Road(L) | 4 | 3 | 5 | 5 |
| Road(S) | 3 | 4 | 3 | 3 |
| Water | 4 | 5 | 2 | 4 |
| Agri.(Ma) | 4 | 4 | 4 | 5 |
| Agri.(Mi) | 3 | 3 | 3 | 3 |
| FULL | 5 | 5 | 5 | 5 |

Table 6.2.5 Integrated Weight

| | W TOTAL | % W TOTAL |
|------------|---------|-----------|
| Irr.(L) | 900 | 0.45 |
| Irr.(S) | 720 | 0.36 |
| Road(L) | 1037 | 0.5185 |
| Road(S) | 793 | 0.3965 |
| Water | 1125 | 0.5625 |
| Agri.(Ma) | 1206 | 0.603 |
| Agri.(Mi) | 804 | 0.402 |
| FULL | 2000 | 1 |
| Total/Ave. | 6518 | 0.465571 |

Table 6.2.6 Weighted Evaluation Scores

| PROJECT | SUBTOTAL | W TOTAL |
|--------------|----------|---------|
| 1 Irri-1 K | 35 | 15.75 |
| 2 Irri-2 K | 29 | 10.44 |
| 3 Irri-3 K | 33 | 14.85 |
| 4 Irri-6 G | 28 | 10.08 |
| 5 Irri-7 G | 25 | 9.00 |
| 6 Irri-8 G | 28 | 10.08 |
| 7 Irri-9 G | 25 | 9.00 |
| 8 Irri-10G | 28 | 10.08 |
| 9 Irri-11G | 25 | 9.00 |
| 10 Irri-12A | 28 | 10.08 |
| 11 Irri-13A | 25 | 9.00 |
| 12 Irri-14A | 28 | 10.08 |
| 13 Irri-15A | 25 | 9.00 |
| 14 Irri-16A | 28 | 10.08 |
| 15 Irri-17A | 25 | 9.00 |
| 16 Road-18G | 32 | 16.59 |
| 17 Road-19AK | 32 | 16.59 |
| 18 Road-20G | 30 | 15.56 |
| 19 Road-21AG | 30 | 15.56 |
| 20 Road-22KR | 26 | 10.31 |
| 21 Road-23K | 26 | 10.31 |
| 22 Road-24K | 25 | 9.91 |
| 23 Road-25G | 25 | 12.96 |
| 24 Road-26A | 25 | 12.96 |
| 25 Road-27G | 28 | 11.10 |
| 26 Road-28A | 27 | 10.71 |
| 27 Wate-29K | 31 | 17.44 |
| 28 Wate-30K | 27 | 15.19 |
| 29 Wate-31G | 28 | 15.75 |
| 30 Wate-32G | 25 | 14.06 |
| 31 Wate-33A | 28 | 15.75 |
| 32 Wate-34A | 25 | 14.06 |
| 33 Agri-35H | 33 | 18.79 |
| 34 Agri-35T | 32 | 18.22 |
| 35 Agri-36 | 29 | 16.52 |
| 36 Agri-37 | 26 | 10.45 |
| 37 Agri-38 | 24 | 9.65 |
| 38 Agri-39 | 29 | 16.52 |
| 39 Agri-40 | 26 | 14.81 |
| 40 Livi-41 | 34 | 15.83 |

Table 6.2.7 Sorted Projects by Weighted Scores

| PROJECT | SUBTOTAL | W TOTAL |
|--------------|----------|---------|
| 1 Agri-35H | 33 | 18.79 |
| 2 Agri-35T | 32 | 18.22 |
| 3 Wate-29K | 31 | 17.44 |
| 4 Road-18G | 32 | 16.59 |
| 4 Road-19AK | 32 | 16.59 |
| 6 Agri-36 | 29 | 16.52 |
| 6 Agri-39 | 29 | 16.52 |
| 8 Livi-41 | 34 | 15.83 |
| 9 Irri-1 K | 35 | 15.75 |
| 9 Wate-31G | 28 | 15.75 |
| 9 Wate-33A | 28 | 15.75 |
| 12 Road-20G | 30 | 15.56 |
| 13 Road-21AG | 30 | 15.56 |
| 14 Wate-30K | 27 | 15.19 |
| 15 Irri-3 K | 33 | 14.85 |
| 16 Agri-40 | 26 | 14.81 |
| 17 Wate-32G | 25 | 14.06 |
| 18 Wate-34A | 25 | 14.06 |
| 19 Road-25G | 25 | 12.96 |
| 20 Road-26A | 25 | 12.96 |
| 21 Road-27G | 28 | 11.10 |
| 22 Road-28A | 27 | 10.71 |
| 23 Agri-37 | 26 | 10.45 |
| 24 Irri-2 K | 29 | 10.44 |
| 25 Road-22KR | 26 | 10.31 |
| 26 Road-23K | 26 | 10.31 |
| 27 Irri-6 G | 28 | 10.08 |
| 28 Irri-8 G | 28 | 10.08 |
| 29 Irri-10G | 28 | 10.08 |
| 30 Irri-12A | 28 | 10.08 |
| 31 Irri-14A | 28 | 10.08 |
| 32 Irri-16A | 28 | 10.08 |
| 33 Road-24K | 25 | 9.91 |
| 34 Agri-38 | 24 | 9.65 |
| 35 Irri-7 G | 25 | 9.00 |
| 36 Irri-9 G | 25 | 9.00 |
| 37 Irri-11G | 25 | 9.00 |
| 38 Irri-13A | 25 | 9.00 |
| 39 Irri-15A | 25 | 9.00 |
| 40 Irri-17A | 25 | 9.00 |

Table 6.2.8 Priority Project List with Costs

| PROJECT | (Unit : '000 Rs) | |
|--|------------------|-----------|
| | COST | ACC COST |
| 1 Agri-35H:AGRICULTURAL PRODUCTION (H) | 311,100 | 311,100 |
| 2 Agri-35T:AGRICULTURAL PRODUCTION (T) | 121,900 | 433,000 |
| 3 Water-29K:KAPILVASTU WATER SUPPLY (A) | 142,000 | 575,000 |
| 4 Road-18G:TANSEN-TANGHAS ROAD | 246,000 | 821,000 |
| 5 Road-19AK:MRM-SHANDHIKHARKA ROAD | 294,500 | 1,115,500 |
| 6 Agri-39:AGRICULTURAL INPUTS SUPPLY | 44,500 | 1,160,000 |
| 7 Agri-36:LIVESTOCK DEVELOPMENT | 319,900 | 1,479,900 |
| 8 Livi-41:LIVING ENVIRONMENT IMPROVEMENT | 540,000 | 2,019,900 |
| 9 Agri-40:AGRICULTURAL PRODUCTS MARKETING | 473,400 | 2,493,300 |
| 10 Water-33A:ARGHAKHANCHI WATER SUPPLY (A) | 63,000 | 2,556,300 |
| 11 Water-31G:GULMI WATER SUPPLY (A) | 93,000 | 2,649,300 |
| 12 Irri-1 K:RAJKUDWA IRRIGATION PROJECT | 281,400 | 2,930,700 |
| 13 Road-21AG:SANDHIKHARKA-TANGHAS ROAD | 192,000 | 3,122,700 |
| 14 Road-20G:WAMITAKSAR-RIDIBAZAR ROAD | 213,000 | 3,335,700 |
| 15 Water-30K:KAPILVASTU WATER SUPPLY (B) | 142,000 | 3,477,700 |
| 16 Irri-3 K:PHULIKA IRRIGATION PROJECT | 257,000 | 3,734,700 |
| 17 Water-34A:ARGHAKHANCHI WATER SUPPLY (B) | 62,000 | 3,796,700 |
| 18 Water-32G:GULMI WATER SUPPLY (B) | 93,000 | 3,889,700 |
| 19 Road-26A:SANDHIKHARKA-PUTAN ROAD | 120,500 | 4,010,200 |
| 20 Road-25G:TANGHAS-AGLUNG ROAD | 131,000 | 4,141,200 |
| 21 Road-27G:GULMI VILLAGE ROADS | 63,600 | 4,204,800 |
| 22 Road-28A:ARGHAKHANCHI VILLAGE ROADS | 83,600 | 4,288,400 |
| 23 Agri-37:FISHERIES DEVELOPMENT | 29,800 | 4,318,200 |
| 24 Irri-2K:BEL NADI IRRIGATION (& 2 OTHERS) | 82,700 | 4,400,900 |
| 25 Road-22KR:LUMBINI-TAULIHAWA ROAD | 13,375 | 4,414,275 |
| 26 Road-23K:JITPUR-TAULIHAWA ROAD | 22,475 | 4,427,650 |
| 27 Irri-8 G:GULMI WPRINKLER IRRIGATION (B) | 121,000 | 4,450,125 |
| 28 Irri-14A:ARGHAKHANCHI SPRINKLER IRRIGATION (B) | 121,000 | 4,571,125 |
| 29 Irri-6 G:GULMI SPRINKLER IRRIGATION (A) | 121,000 | 4,692,125 |
| 30 Irri-16A:ARGHAKHANCHI SPRINKLER IRRIGATION (C) | 121,000 | 4,813,125 |
| 31 Irri-12A:ARGHAKHANCHI SPRINKLER IRRIGATION (A) | 121,000 | 4,934,125 |
| 32 Irri-10G:GULMI SPRINKLER IRRIGATION (C) | 121,000 | 5,055,125 |
| 33 Road-24K:TAULIHAWA-BAHADURGANJI ROAD | 90,250 | 5,176,125 |
| 34 Agri-38:APICULTURE DEVELOPMENT | 17,100 | 5,266,375 |
| 35 Irri-7 G:GHAMIR KHOLA IRRIGATION | 35,200 | 5,283,475 |
| 36 Irri-11G:PURTI GHAT IRRIGATION (& 2 OTHERS) | 38,000 | 5,318,675 |
| 37 Irri-9 G:KHADGA KOT IRRIGATION (& 2 OTHERS) | 45,100 | 5,356,675 |
| 38 Irri-13A:MIL MILE KHOLA IRRIGATION (& 2 OTHERS) | 50,500 | 5,401,775 |
| 39 Irri-15A:KHANCHI IRRIGATION (& 2 OTHERS) | 52,100 | 5,452,275 |
| 40 Irri-17A:DURGA KHOLA IRRIGATION | 56,300 | 5,508,575 |

Table 7.1.1 Integrated Projects Implementation Schedule

| Administrative level/Projects | Year | | | | | | | |
|--|------|------|------|------|------|------|------|------|
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
| Central level agencies | | | | | | | | |
| Irrigation project | | | | | | | | |
| Rjikudwa | | | | | | | | |
| Bel Nadi, Khanchaniya, Charanga | | | | | | | | |
| Siyari | | | | | | | | |
| Telar | | | | | | | | |
| Sprinkler and other in the hill area | | | | | | | | |
| Road project | | | | | | | | |
| Tansen - Tanghas road | | | | | | | | |
| MRM - Sandikharkha road | | | | | | | | |
| Wamitaksar - Ridibazar road | | | | | | | | |
| Banganga rural water supply project | | | | | | | | |
| District, Ilaka, Ward level | | | | | | | | |
| Irrigation project | | | | | | | | |
| Road project in the hill area | | | | | | | | |
| Agricultural production promotion project | | | | | | | | |
| Construction of facilities | | | | | | | | |
| Training, input supply and extension | | | | | | | | |
| Confidence building projects | | | | | | | | |
| Project level | | | | | | | | |
| Reinforcement of organization | | | | | | | | |

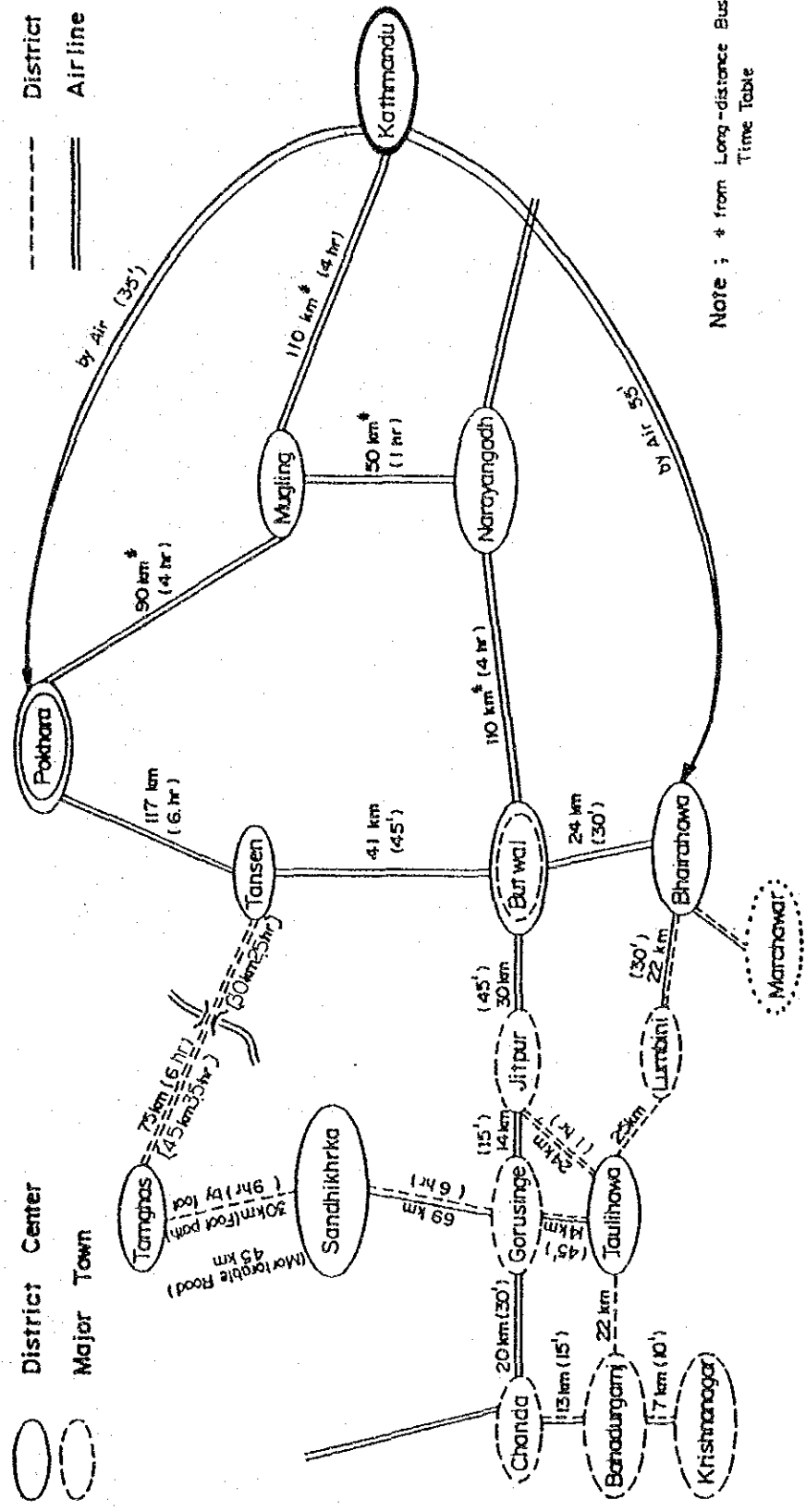
Table 7.2.1 Organization for Project Implementation

| <u>Administration level</u> | <u>Station</u> | <u>Institutions</u> | <u>Functions</u> | <u>No. of Experts & Advisers</u> |
|-----------------------------|--|--|--|--|
| Central level | Kathmandu | NPC MPLD Line Ministries | Coordinate Ministries & Donors | 1-Adviser |
| Regional level | Pokhara | Regional Development Directorate | Monitoring /Evaluation Coordination among Districts/Sectoral Directorates | 1-Coordinator |
| District level | Gulmi | District Panchayats | Prepare District development Plan Project implementation | 3-Task forces: each task force composing of 3-Engineers 6-Assistant engineers |
| | Arghakhanchi Kapilvastu (Marchawar area) | LDOs | | |
| Ilaka level | Each Ilaka | Ilaka center | | |
| Village level | Each Village | Village Panchayat | | |

FIGURES

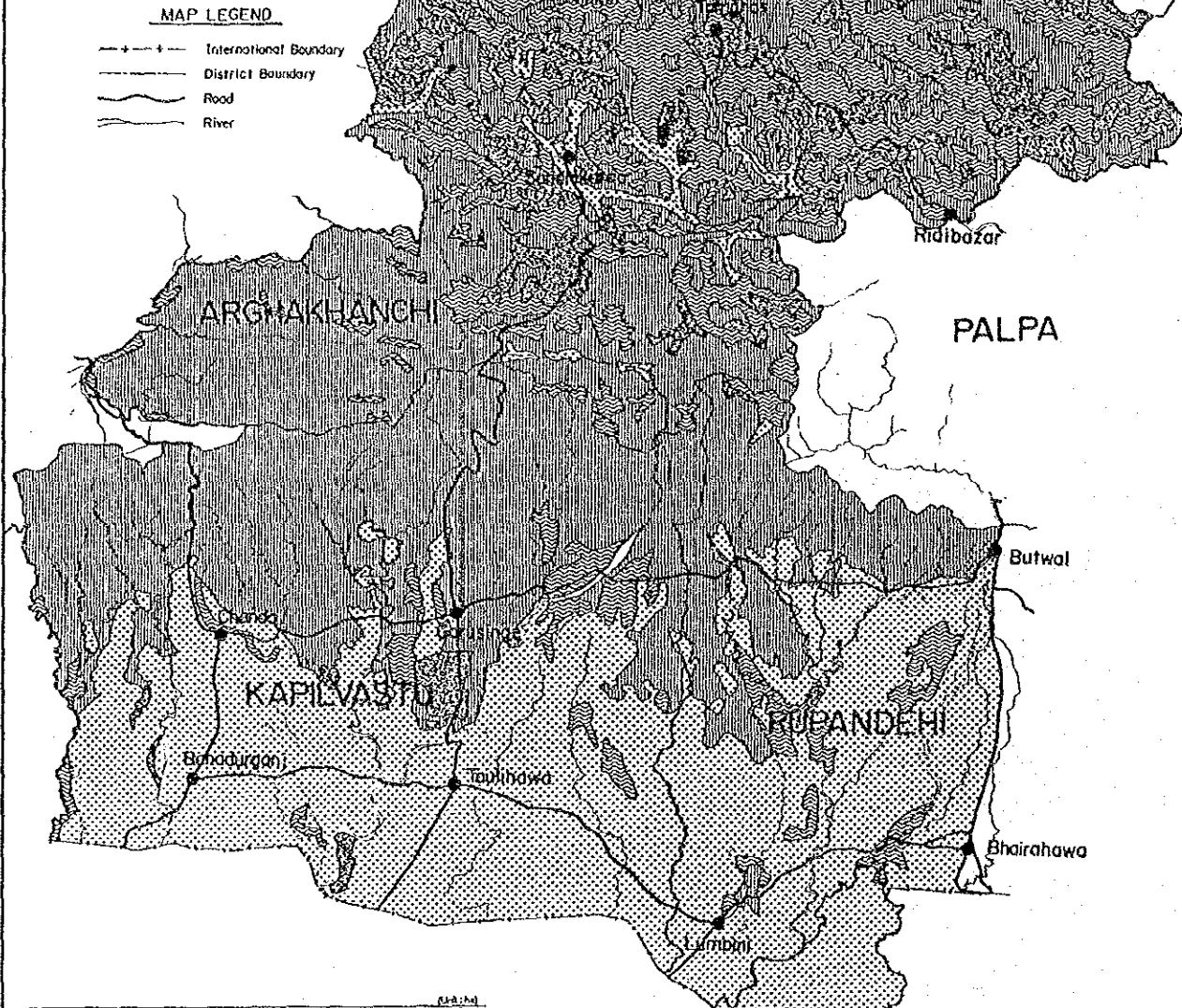
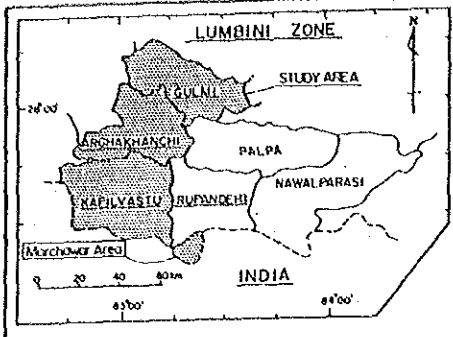
- High way
- Feeder Road (Blacktop)
- Feeder Road (Gravel)
- District Road
- Air line

- Capital
- Regional Center
- Zonal Center
- District Center
- Major Town



Note ; * from Long-distance Bus Time Table

Fig. 2.1.1 Schematic Road Networks for the Study Area and Main Urban Center



MAP LEGEND

- +--- International Boundary
- District Boundary
- Road
- River

| District | Cultivated Land | | | | | Other Land ² | TOTAL |
|--------------------|---------------------------|----------------------------|---------------------|--------------|--------------|-------------------------|---------|
| | Paddy Fields ¹ | Upland Fields ¹ | Others ¹ | Grazing Land | Foresty Land | | |
| Total Area | | | | | | | |
| Gulmi | 4,000 | 21,600 | 28,400 | 12,100 | 40,700 | 1,100 | 107,900 |
| Arghakhanchi | 4,100 | 15,900 | 19,900 | 9,700 | 72,200 | 500 | 123,300 |
| Sub-total | 8,100 | 37,500 | 48,300 | 21,800 | 112,900 | 1,600 | 231,200 |
| | (1%) | (16%) | (21%) | (9%) | (50%) | (1%) | (100%) |
| Total Area | | | | | | | |
| Kapilvastu | 74,000 | 9,800 | 9,200 | 600 | 77,600 | 3,100 | 175,700 |
| Rupandehi | 78,100 | 11,100 | 10,800 | 1,000 | 79,300 | 3,100 | 141,400 |
| (Nawalparasi Area) | 11,500 | 1,300 | 1,500 | - | - | - | 14,300 |
| Sub-total | 163,600 | 22,200 | 21,500 | 1,600 | 157,500 | 6,200 | 343,100 |
| 2 Districts | (48%) | (7%) | (6%) | (1%) | (47%) | (2%) | (100%) |
| Study Area | 86,400 | 11,100 | 10,800 | 800 | 77,800 | 3,100 | 190,100 |
| | (43%) | (6%) | (6%) | (0%) | (41%) | (2%) | (100%) |
| TOTAL | | | | | | | |
| 4 Districts | 159,100 | 59,700 | 69,800 | 23,700 | 231,900 | 7,900 | 548,300 |
| | (29%) | (11%) | (12%) | (4%) | (42%) | (1%) | (100%) |
| Study Area | 94,500 | 48,600 | 59,100 | 22,700 | 191,700 | 4,700 | 421,300 |
| | (22%) | (12%) | (14%) | (5%) | (46%) | (1%) | (100%) |

LEGEND

- Paddy field
- Upland field
- Grazing land
- Foresty land

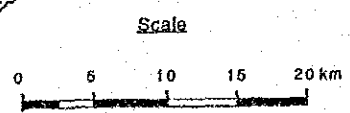


Fig. 2.2.1
Land Use in the Project Area

¹: Others include small segment of non-cultivated land.
²: Other land includes bare land, ponds, urban area, land slides, etc.

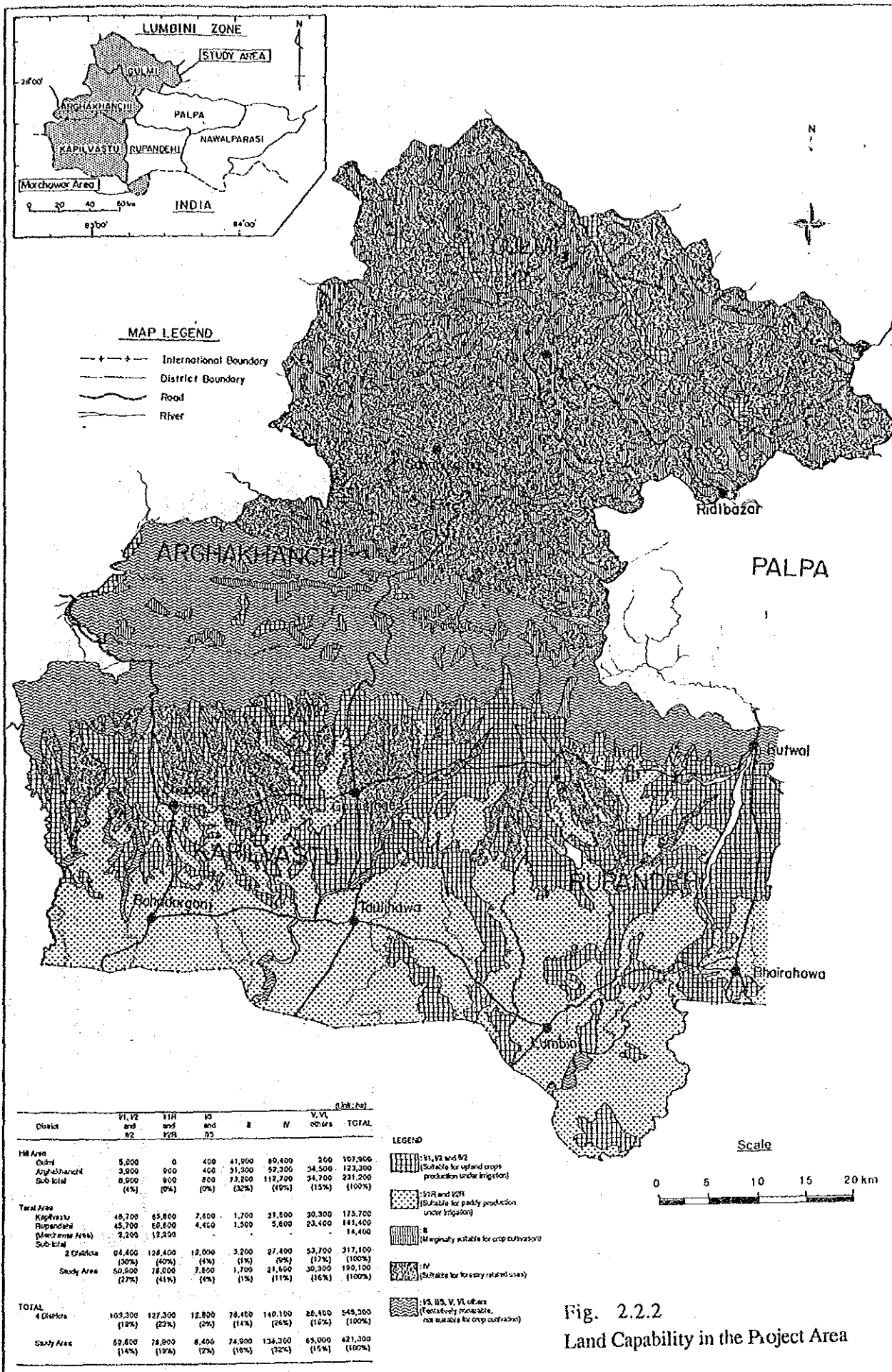


Fig. 2.2.2
Land Capability in the Project Area

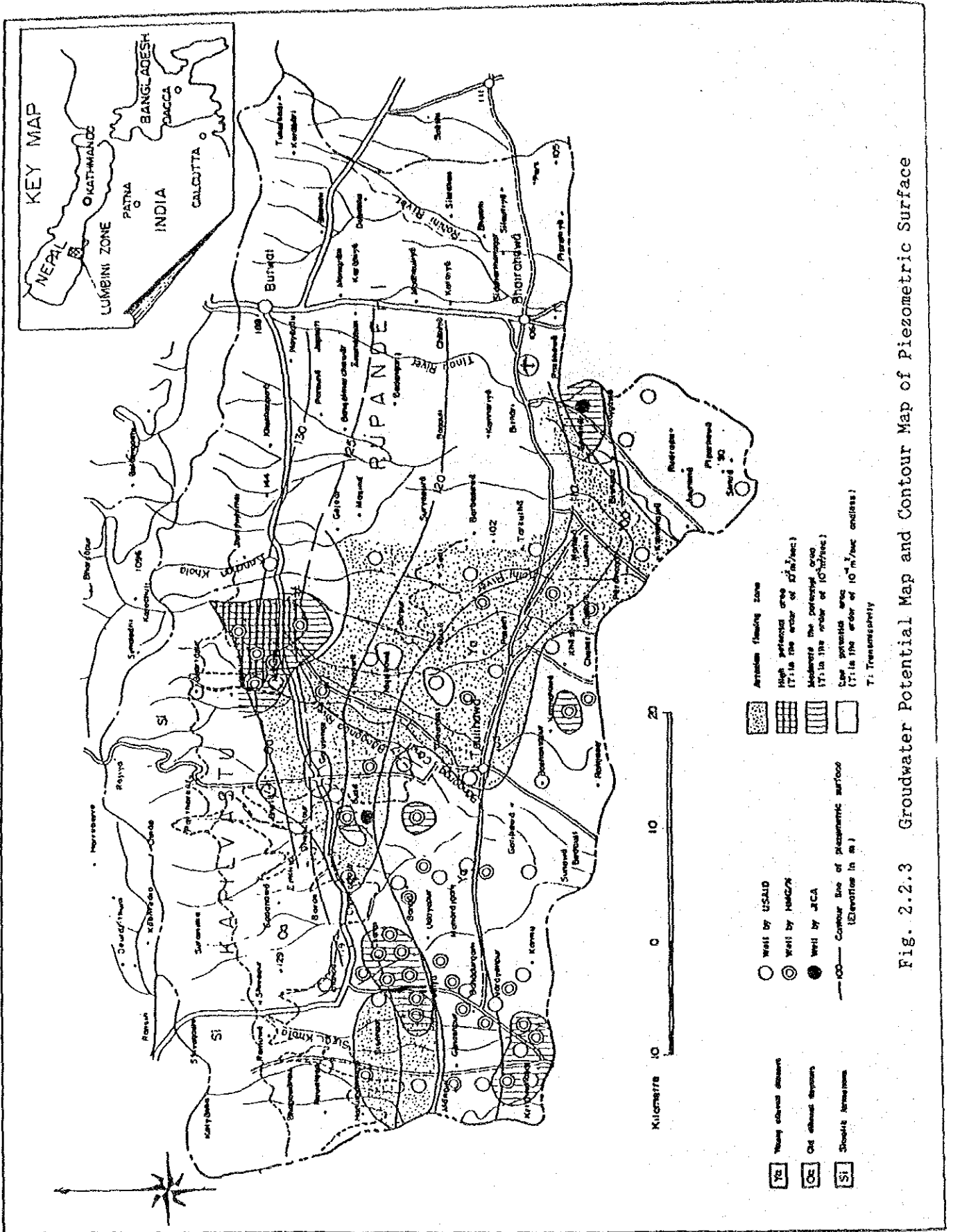
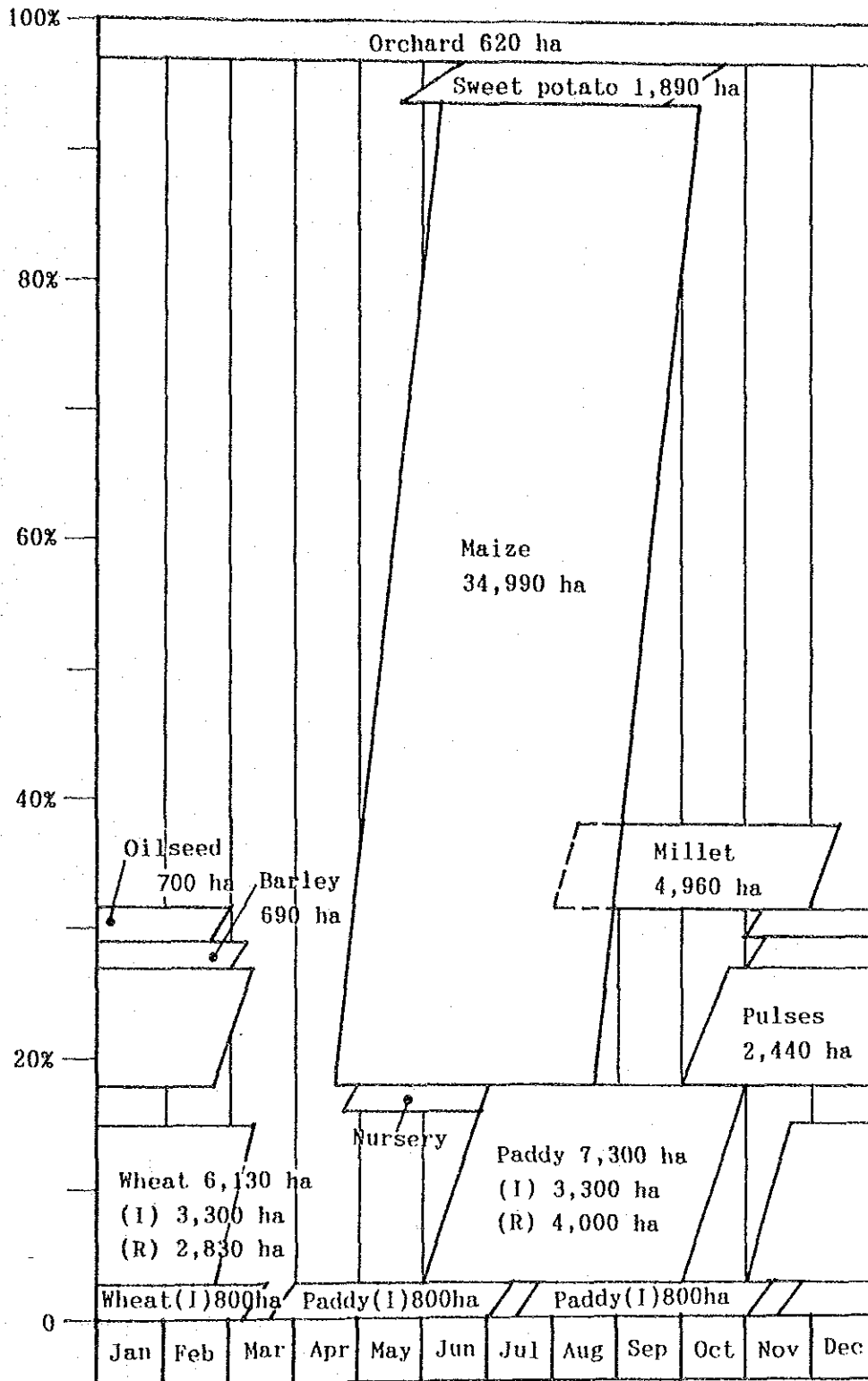
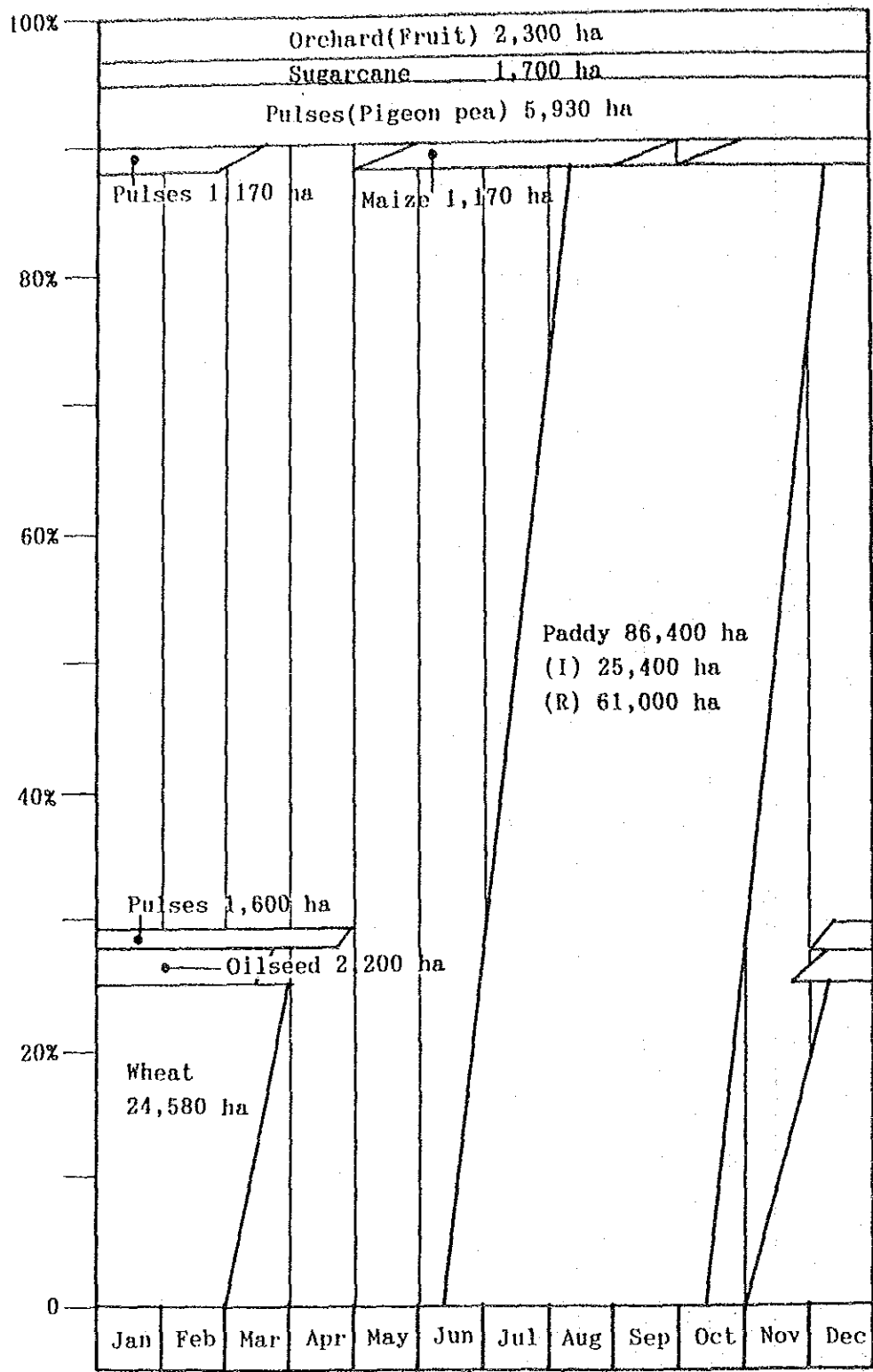


Fig. 2.2.3 Groundwater Potential Map and Contour Map of Piezometric Surface



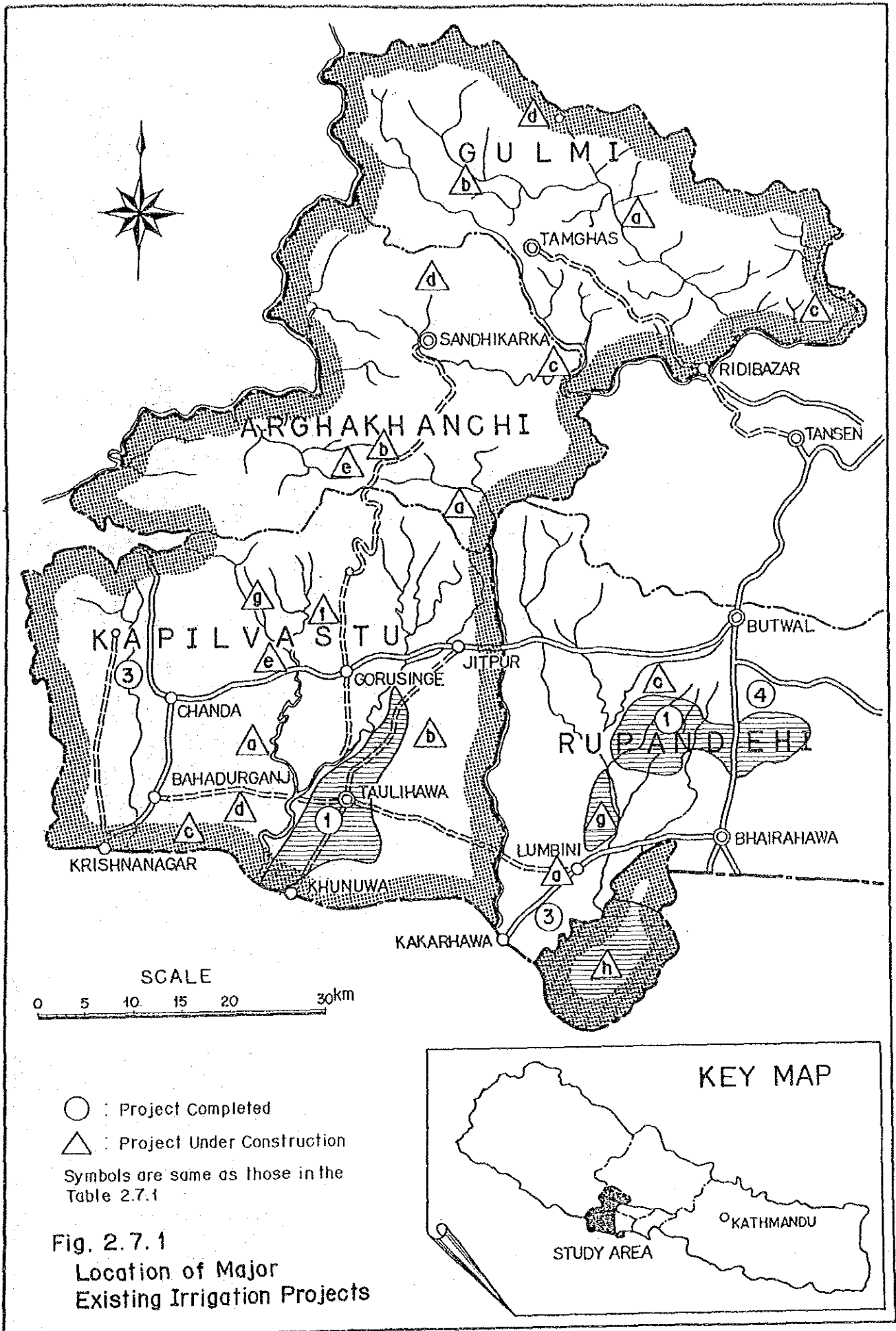
(I): irrigated, (R): Rainfed

Fig. 2.4.1 (1/2) Present Cropping Pattern in the Hill Area



(I): Irrigated, (R): Rainfed

Fig. 2.4.1 (2/2) Present Cropping Pattern in the Terai Area



SCALE 1 : 500,000

LEGEND

- | | | |
|---------------|------------------|---------|
| Boundaries | International | --- --- |
| | District | --- --- |
| Head Quarters | Zone | ● |
| | District | ○ |
| | Place names | ○ |
| Road | National Highway | ==== |
| | Feeder Road | - - - - |
| | District Road | --- --- |

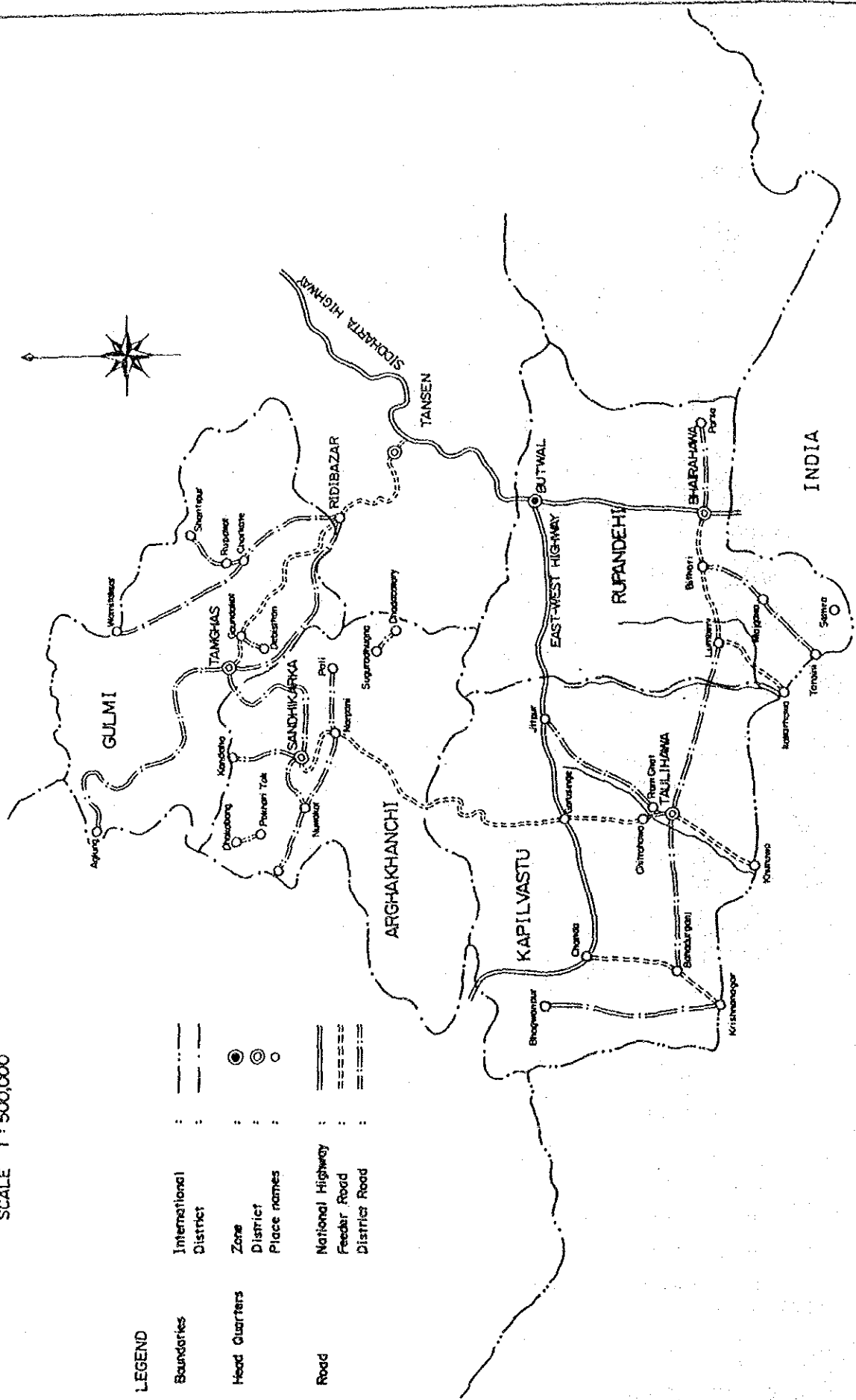
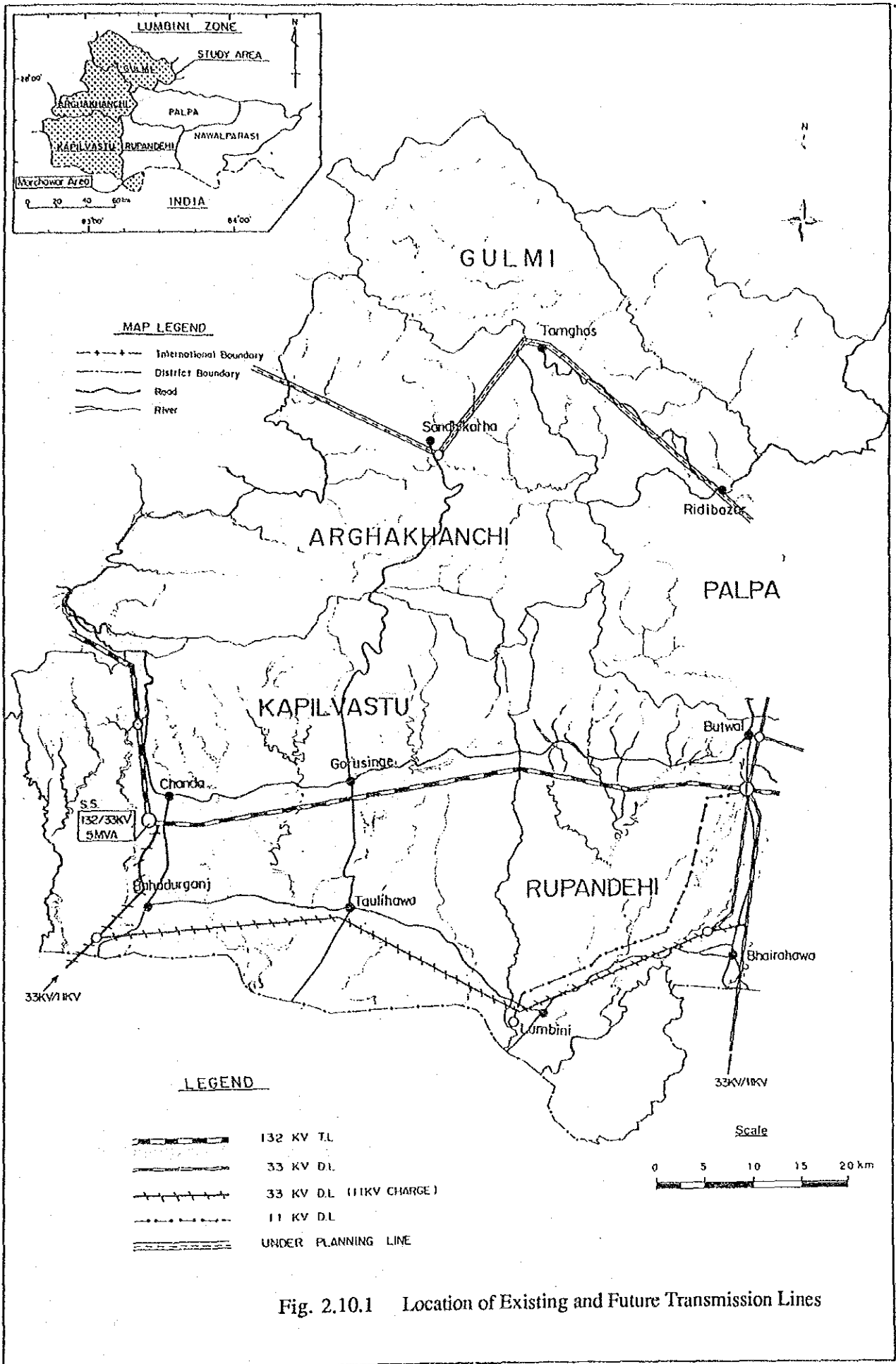


Fig. 2.8.1 Location Map of Roads in the Project Area



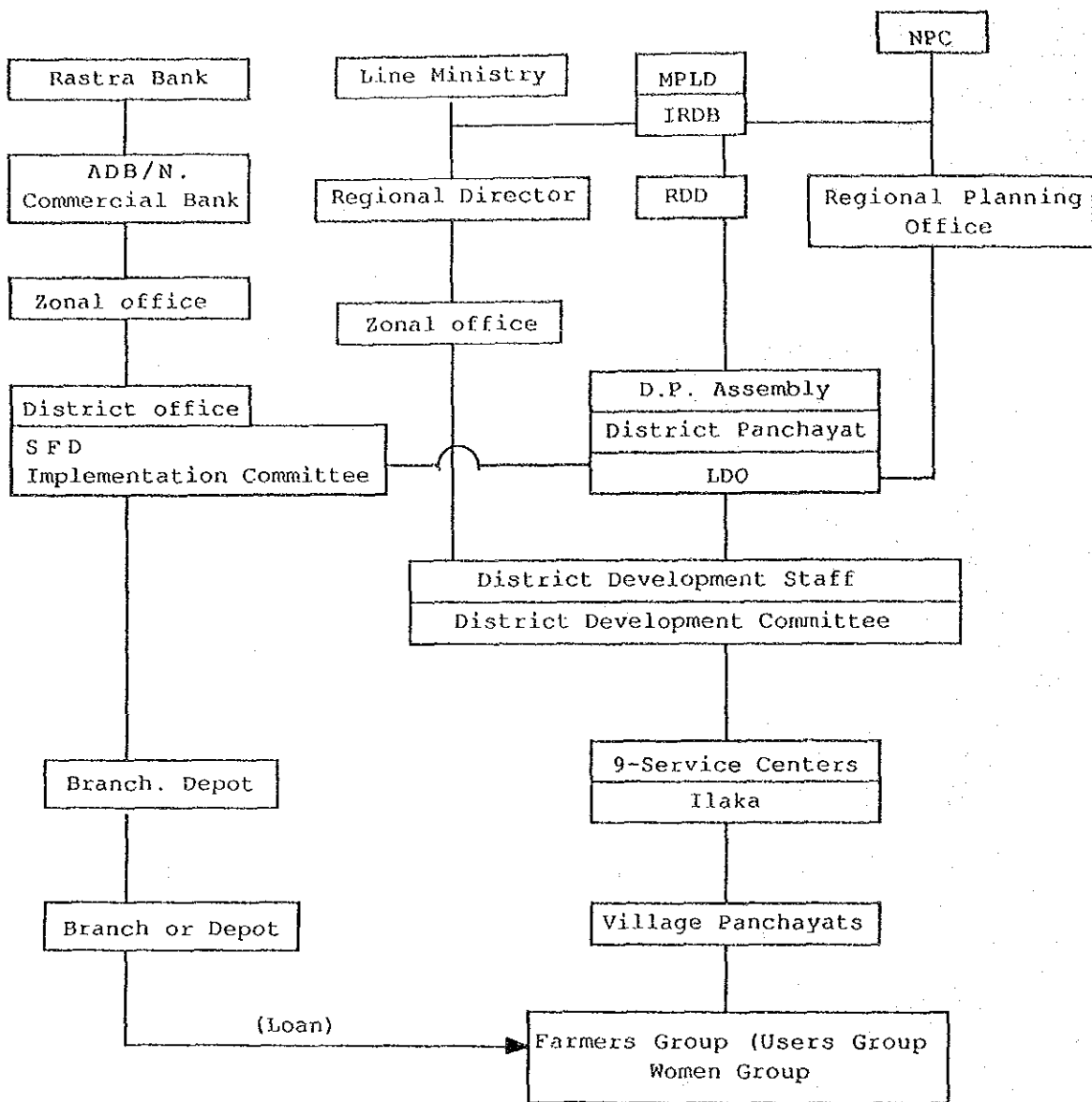
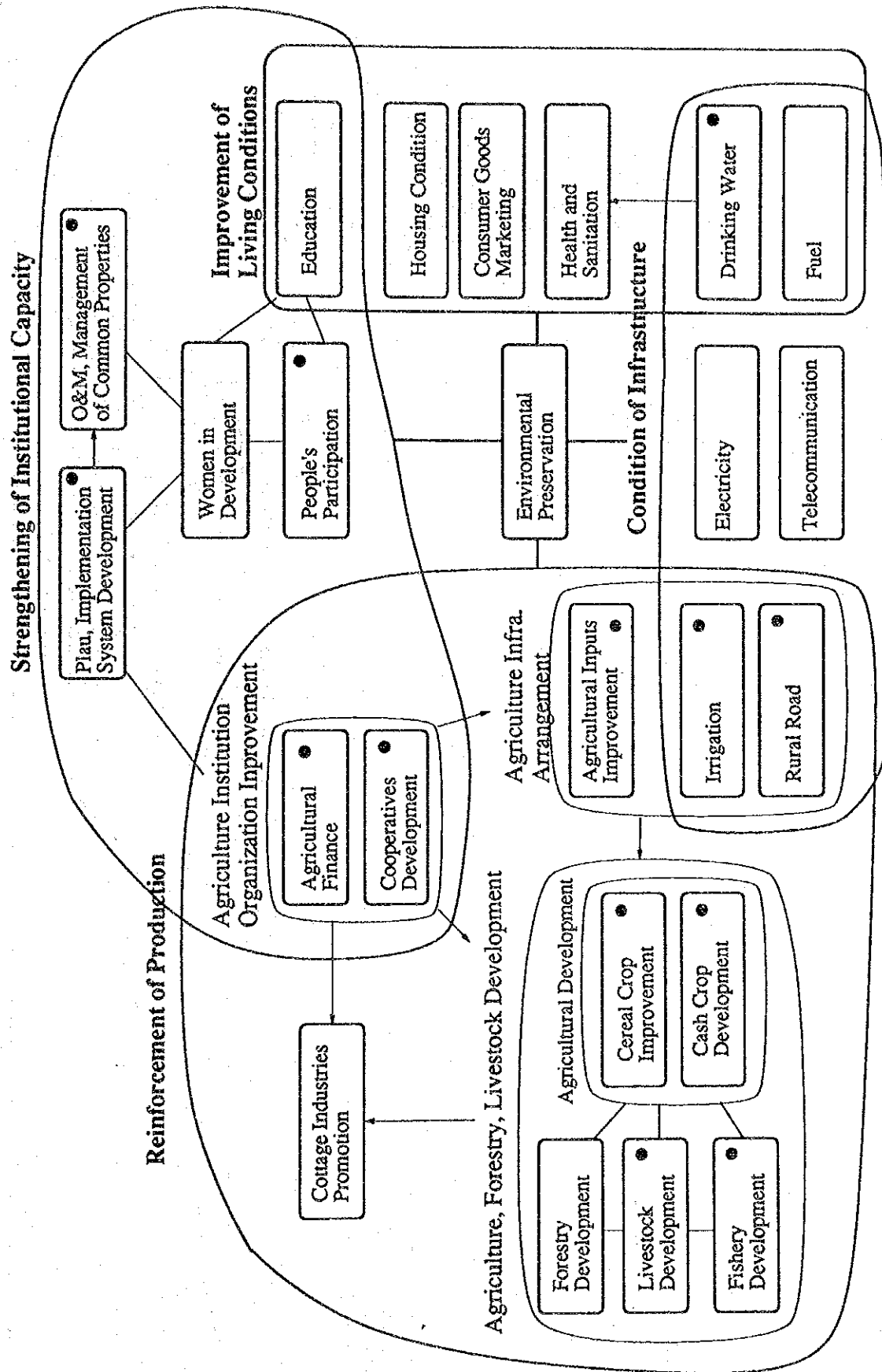


Fig. 2.11.1 Organizational Structure of the Present Local Development



● taken up by Lumbini IRDP
 Fig. 4.1.1 Conceptual Picture of the Master Plan

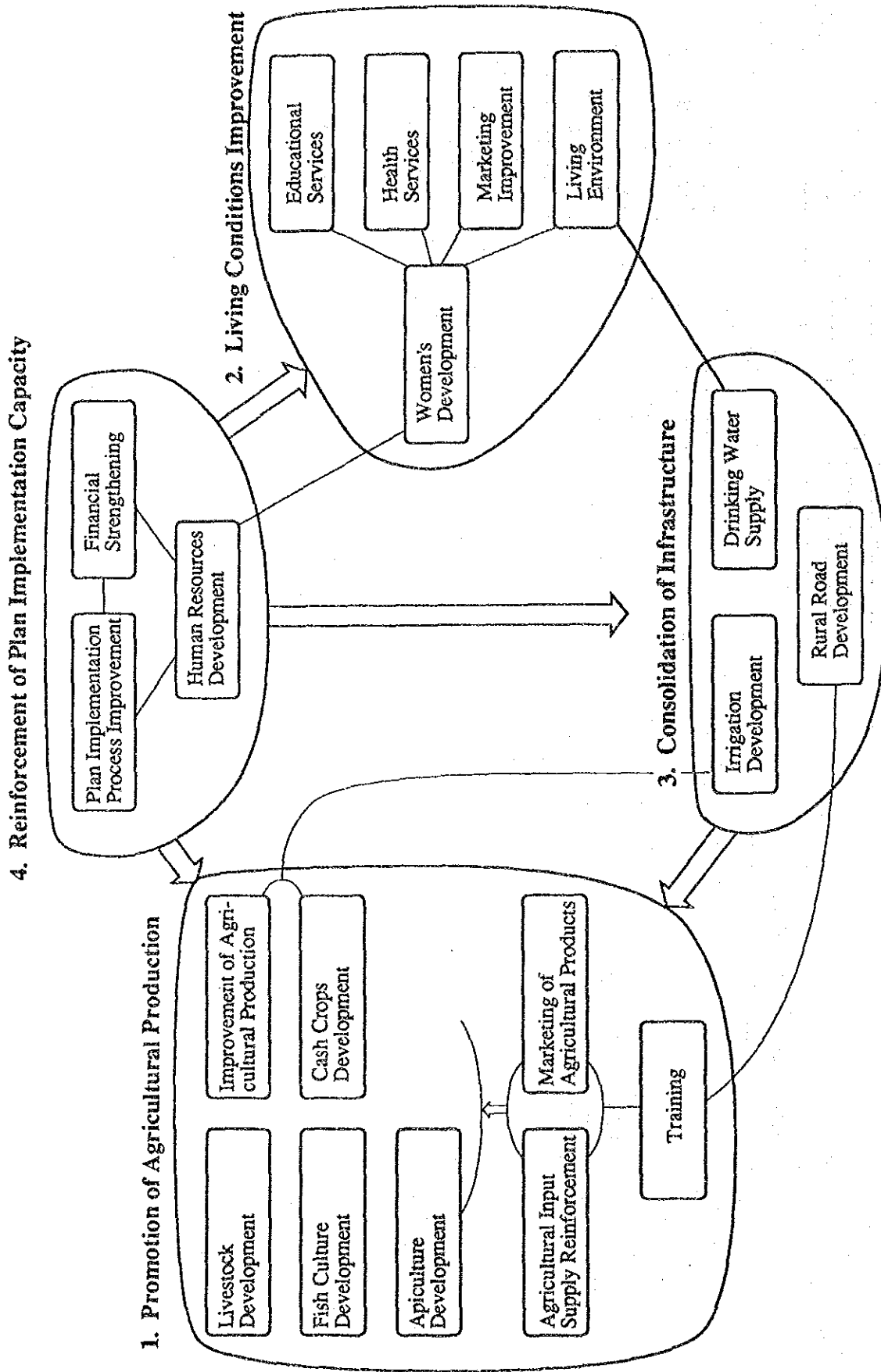


Fig. 4.1.2 Basic Structure of the Master Plan

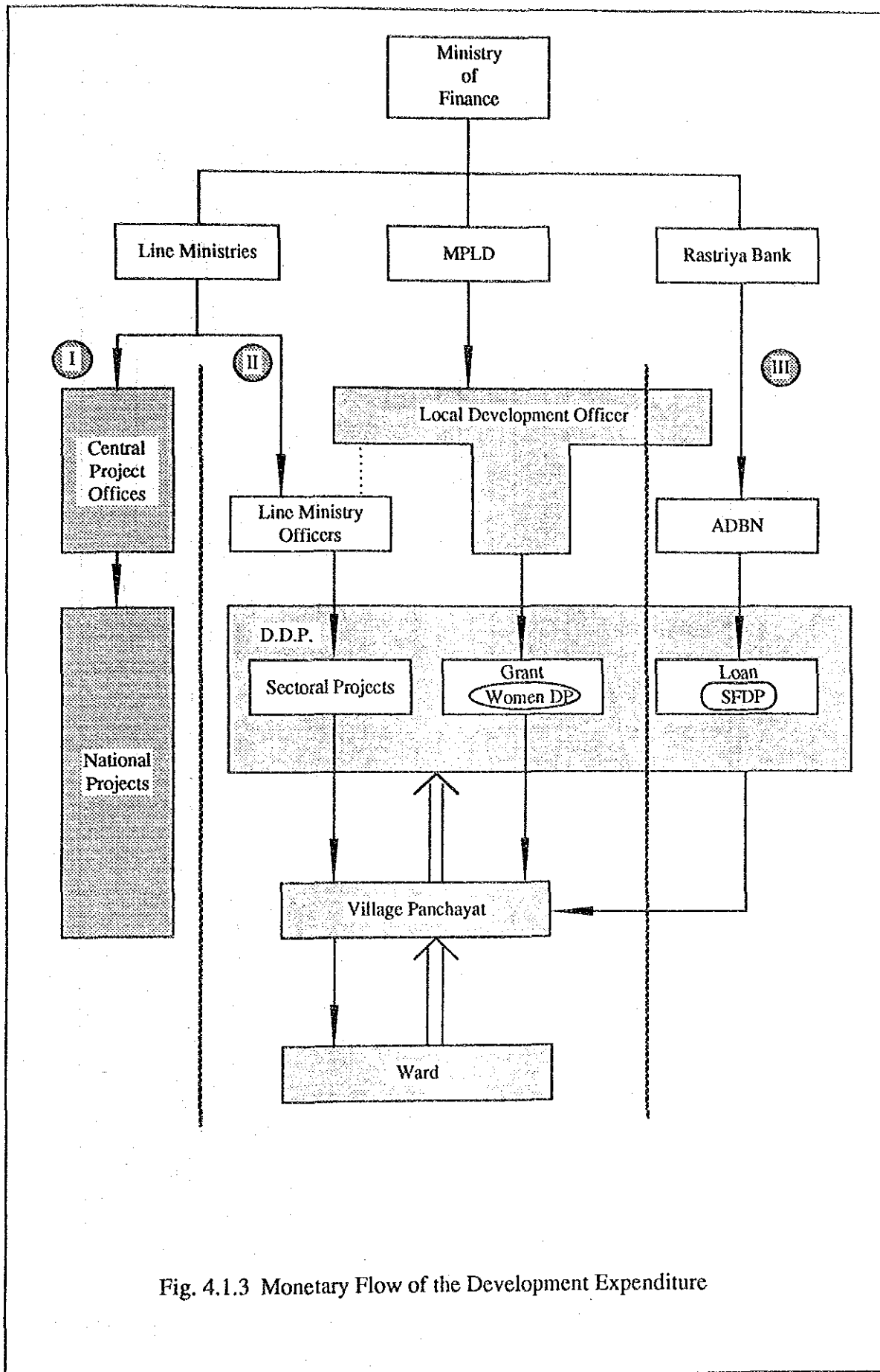
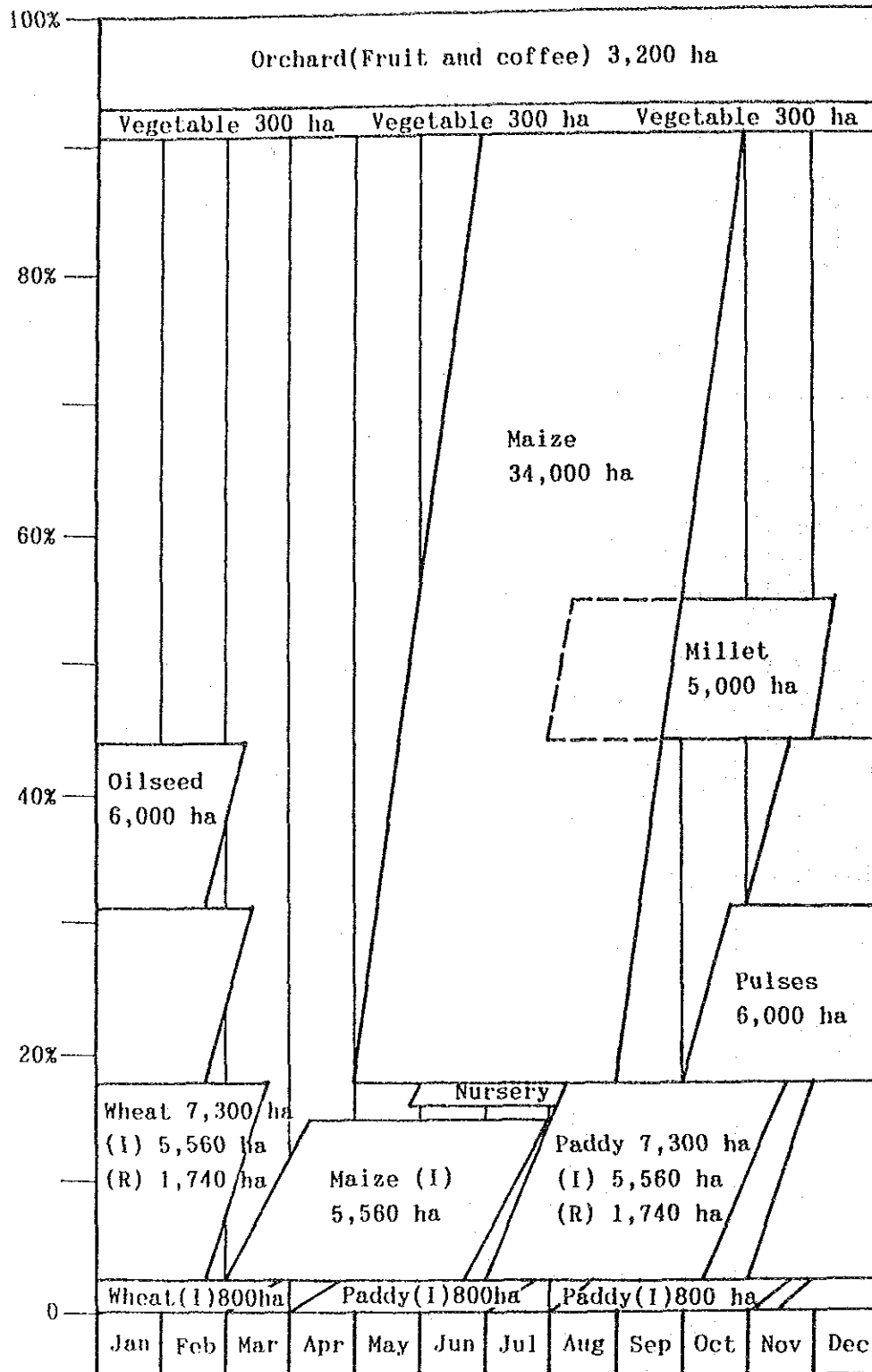
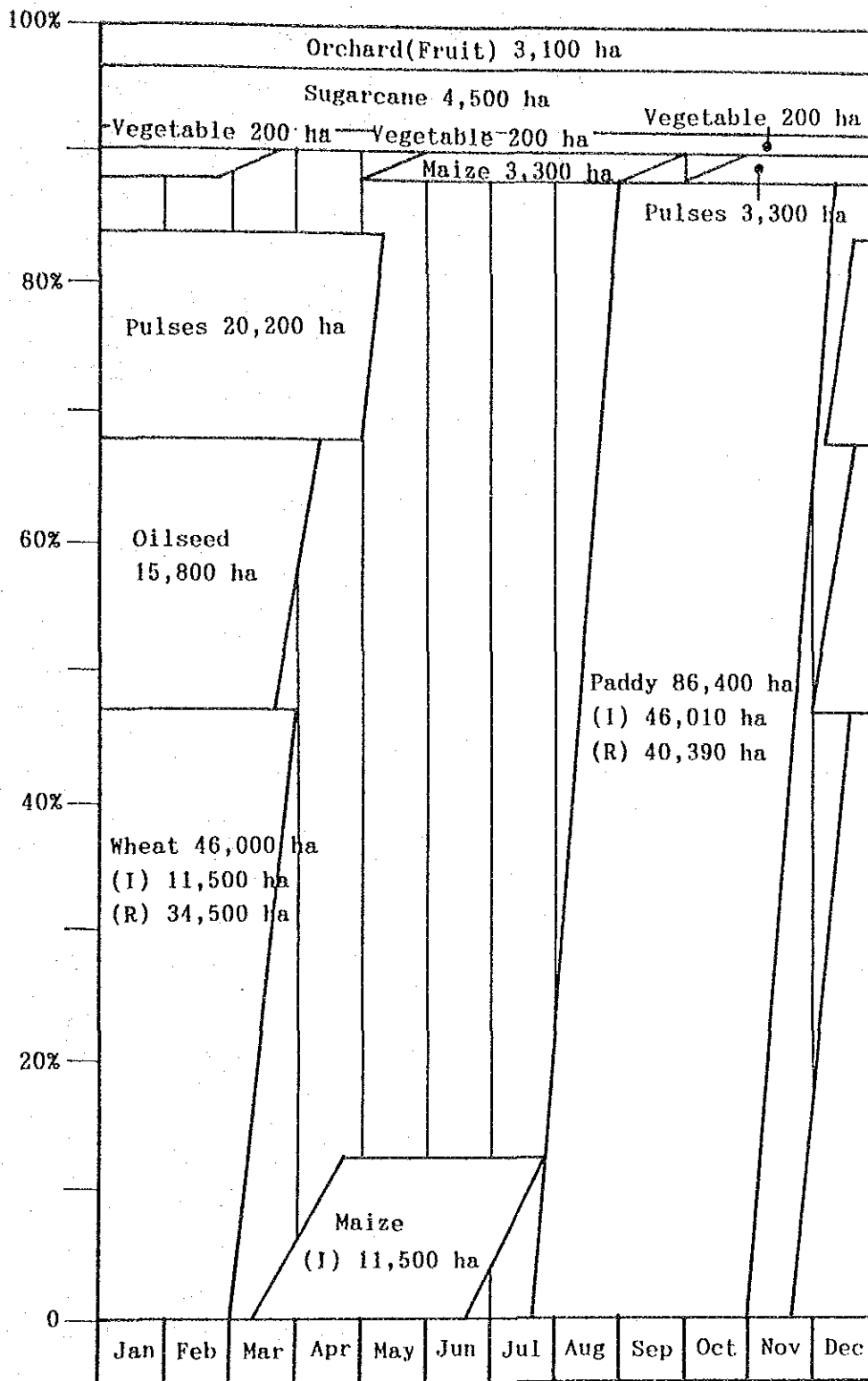


Fig. 4.1.3 Monetary Flow of the Development Expenditure



(I): Irrigated, (R): Rainfed

Fig. 4.2.1 (1/2) Future Cropping Pattern in the Hill Area



(I): Irrigated, (R): Rainfed

Fig. 4.2.1 (2/2) Future Cropping Pattern in the Terai Area

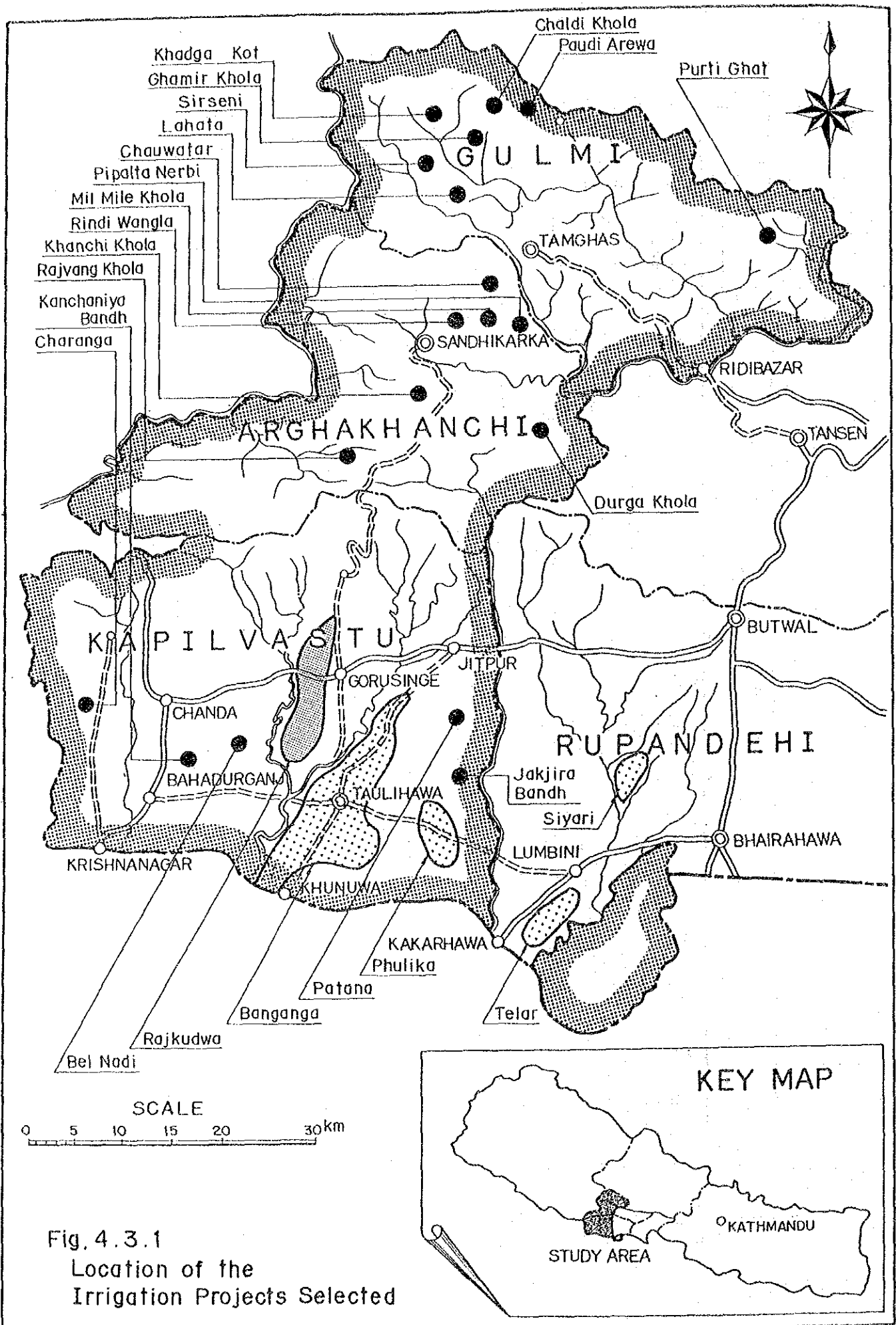
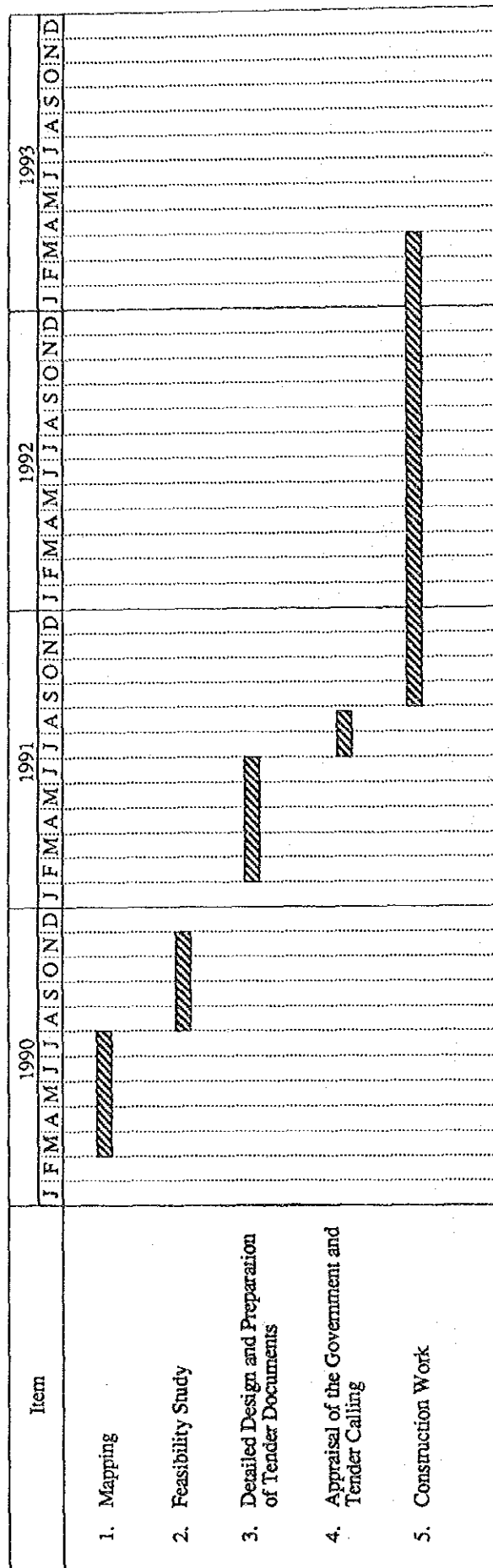


Fig. 4.3.1
Location of the
Irrigation Projects Selected

Fig. 7.1.1 IMPLEMENTATION SCHEDULE OF IRRIGATION PROJECTS

| Name of Project | Command area (ha) | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | |
|---------------------------------|-------------------|------|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| I. CENTRAL LEVEL | | | | | | | | | | | | | | | | | | | |
| (1) Kapilvastu District | | | | | | | | | | | | | | | | | | | |
| 1) a. Rajkudwa | 2,400 | | 1) Mapping & F/S | | | | | | 2) | | | | | | | | | | |
| 2) b. Bel Nadi | 400 | | | | | | | | | | | | | | | | | | |
| c. Khanchaniya | 160 | | | | | | | | | | | | | | | | | | |
| g. Charanga | 320 | | | | | | | | | | | | | | | | | | |
| 3) d. Phulika | 1,500 | | | | | | | | | | | | | 3) | | | | | |
| e. Patana | 540 | | | | | | | | | | | | | | | | | | |
| f. Jakira Bandh | 700 | | | | | | | | | | | | | | | | | | |
| (2) Gulmi District | | | | | | | | | | | | | | | | | | | |
| 1) h. Sprinkler | 100 | | 1) | | | | | | | | | | | | | | | | |
| a. Ghamir Khola | 250 | | | | | | | | 2) | | | | | | | | | | |
| 2) h. Sprinkler | 100 | | | | | | | | | | | | | | | | | | |
| b. Khadga Kot | 110 | | | | | | | | | | | | | | | | | | |
| c. Paudi Areba | 110 | | | | | | | | | | | | | | | | | | |
| d. Chaldi Khola | 100 | | | | | | | | | | | | | | | | | | |
| 3) h. Sprinkler | 100 | | | | | | | | | | | | | 3) | | | | | |
| e. Purti Ghat | 90 | | | | | | | | | | | | | | | | | | |
| f. Sirseni | 140 | | | | | | | | | | | | | | | | | | |
| g. Lahata | 40 | | | | | | | | | | | | | | | | | | |
| (3) Arghkhanchi District | | | | | | | | | | | | | | | | | | | |
| 1) h. Sprinkler | 200 | | 1) | | | | | | | | | | | | | | | | |
| a. Rindi Wangla | 70 | | | | | | | | | | | | | | | | | | |
| b. Chauwatar | 70 | | | | | | | | | | | | | | | | | | |
| c. Mil Mile Khola | 220 | | | | | | | | 2) | | | | | | | | | | |
| 2) h. Splinkler | 200 | | | | | | | | | | | | | | | | | | |
| d. Pipalta | 100 | | | | | | | | | | | | | | | | | | |
| e. Rajwang | 110 | | | | | | | | | | | | | | | | | | |
| g. Khanchi | 160 | | | | | | | | | | | | | 3) | | | | | |
| 3) h. Sprinkler | 200 | | | | | | | | | | | | | | | | | | |
| f. Durga Khola | 400 | | | | | | | | | | | | | | | | | | |
| II. DISTRICT LEVEL | | | | | | | | | | | | | | | | | | | |
| (1) Kapilvstu District | 9,000 | | | | | | | | | | | | | | | | | | |
| 90 projects | | | | | | | | | | | | | | | | | | | |
| (2) Gulmi District | 600 | | | | | | | | | | | | | | | | | | |
| 32 projects | | | | | | | | | | | | | | | | | | | |
| (3) Arghkhanchi District | 280 | | | | | | | | | | | | | | | | | | |
| 15 projects | | | | | | | | | | | | | | | | | | | |

Fig. 7.1.2 Implementation Schedule of Priority Projects (Irrigation)



zzzzzz : Rajkudwa Project

Fig. 7.1.3 Implementation Schedule of the Rural Roads

| District | Name of Road | Construction Period (15 years) | | | | | | | | | | | | | | | |
|--------------|---|--------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | 1990 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 00 | 01 | 02 | 03 | 04 | 05 |
| Gulmi | Tamghas ~ Tansen L = 75Km | | | | | | | | | | | | | | | | |
| Arghak-anchi | M-R-M ~ Sandhikarka L = 69Km | | | | | | | | | | | | | | | | |
| Gulmi | Wamitaksar ~ Ridibazar L = 64Km | | | | | | | | | | | | | | | | |
| Arghak-anchi | Sandhikarka ~ Tamghas L = 45Km | | | | | | | | | | | | | | | | |
| Kapilvastu | Lumbini ~ Taulihawa L = 16Km | | | | | | | | | | | | | | | | |
| Kapilvastu | Jitpur ~ Taulihawa L = 24Km | | | | | | | | | | | | | | | | |
| Kapilvastu | Taulihawa ~ Bahadurganj L = 22Km | | | | | | | | | | | | | | | | |
| Gulmi | Tamghas ~ Aglung L = 42Km | | | | | | | | | | | | | | | | |
| Arghak-anchi | Sandhikarka ~ Pyuthan L = 30Km | | | | | | | | | | | | | | | | |
| Gulmi | Village Roads in the District L = 20Km | | | | | | | | | | | | | | | | |
| Arghak-anchi | Village Roads in the District L = 20Km | | | | | | | | | | | | | | | | |
| Total | 427Km | | | | | | | | | | | | | | | | |

Legend : Major Work Minor Work

Fig. 7.1.4 Implementation Schedule of Tansen - Tamghas Road

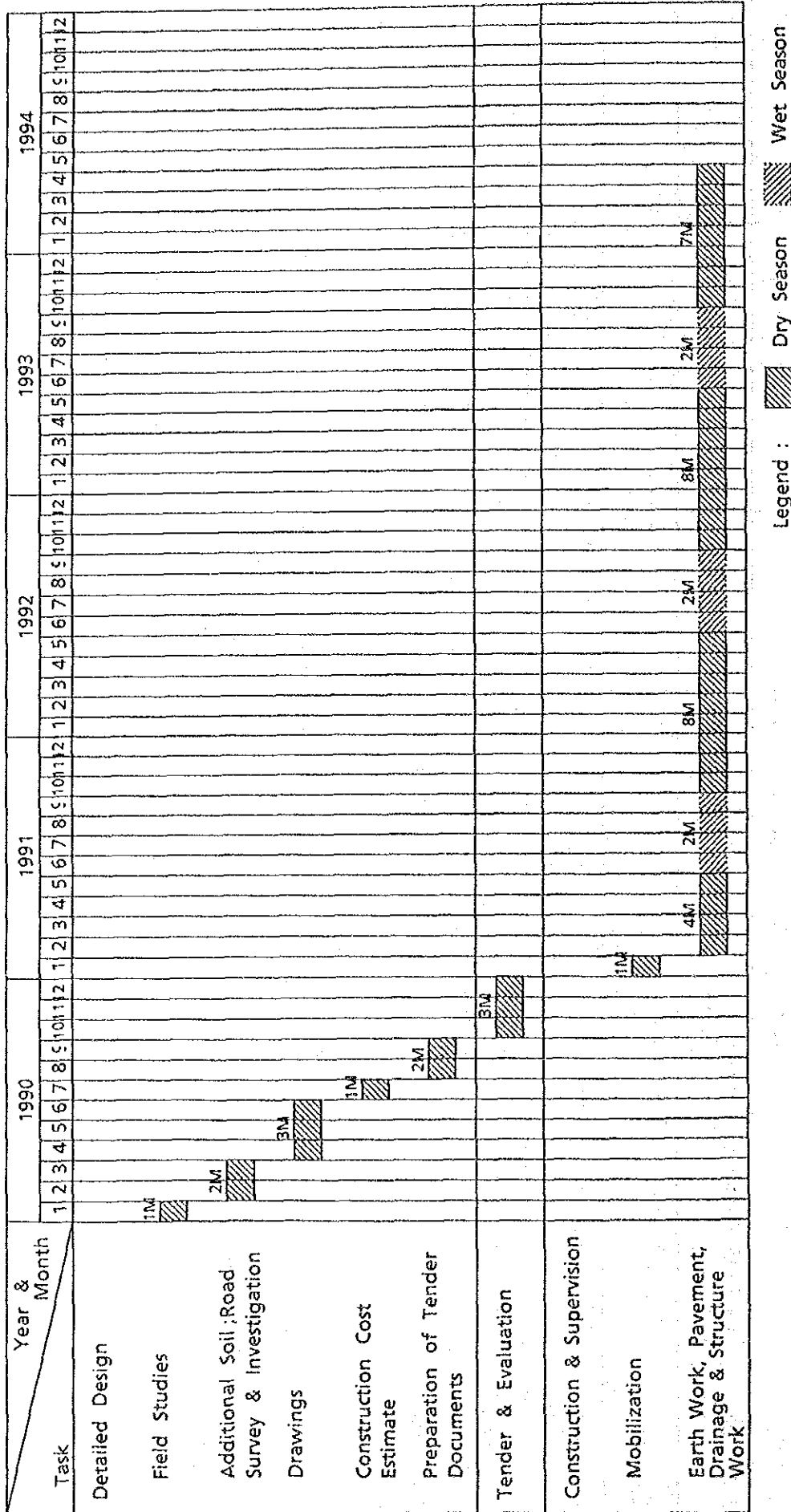


Fig. 7.1.5 Implementation Schedule of MRM - Sandhikarka Road

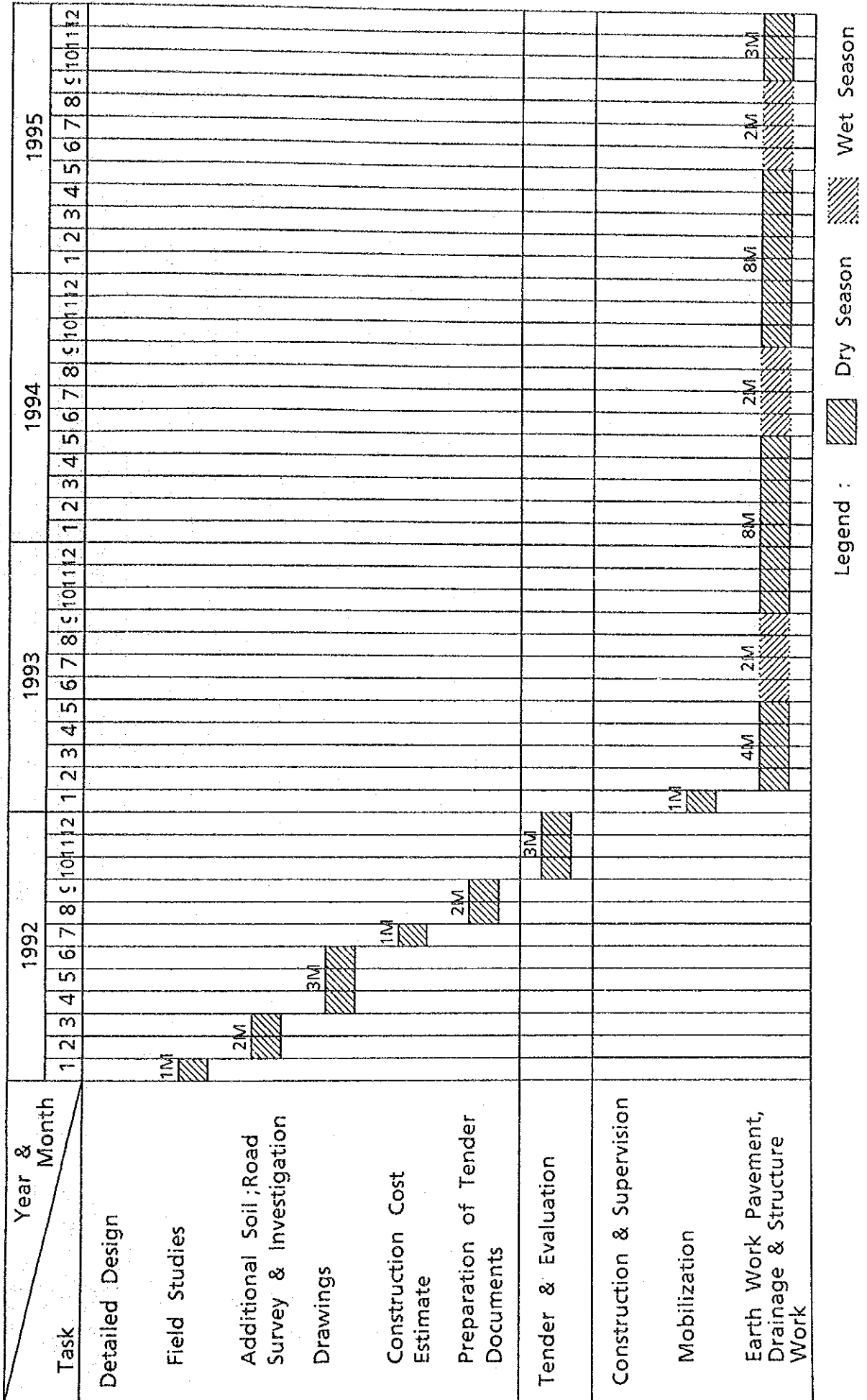


Fig. 7.1.6 Implementation Schedule of Priority Project
(Banganga Water Supply)

| Item | 1990 | | 1991 | | | | | | | | 1992 | | | | | | | | | | | |
|---|------|----|------|----|---|---|---|---|---|---|------|---|---|----|----|----|---|---|---|---|---|---|
| | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | |
| Field reconnaissance and topographical survey | █ | | | | | | | | | | | | | | | | | | | | | |
| Detail design and preparation of tender documents | | █ | █ | █ | | | | | | | | | | | | | | | | | | |
| Appraisal of the government and tender call | | | | | █ | █ | | | | | | | | | | | | | | | | |
| Tender evaluation and contract of construction work | | | | | | | █ | | | | | | | | | | | | | | | |
| Manufacturing and shipping of materials | | | | | | | | █ | █ | █ | █ | | | | | | | | | | | |
| Construction work | | | | | | | | | | | | | █ | █ | █ | █ | █ | █ | | | | |
| Test run | | | | | | | | | | | | | | | | | | | | | | █ |

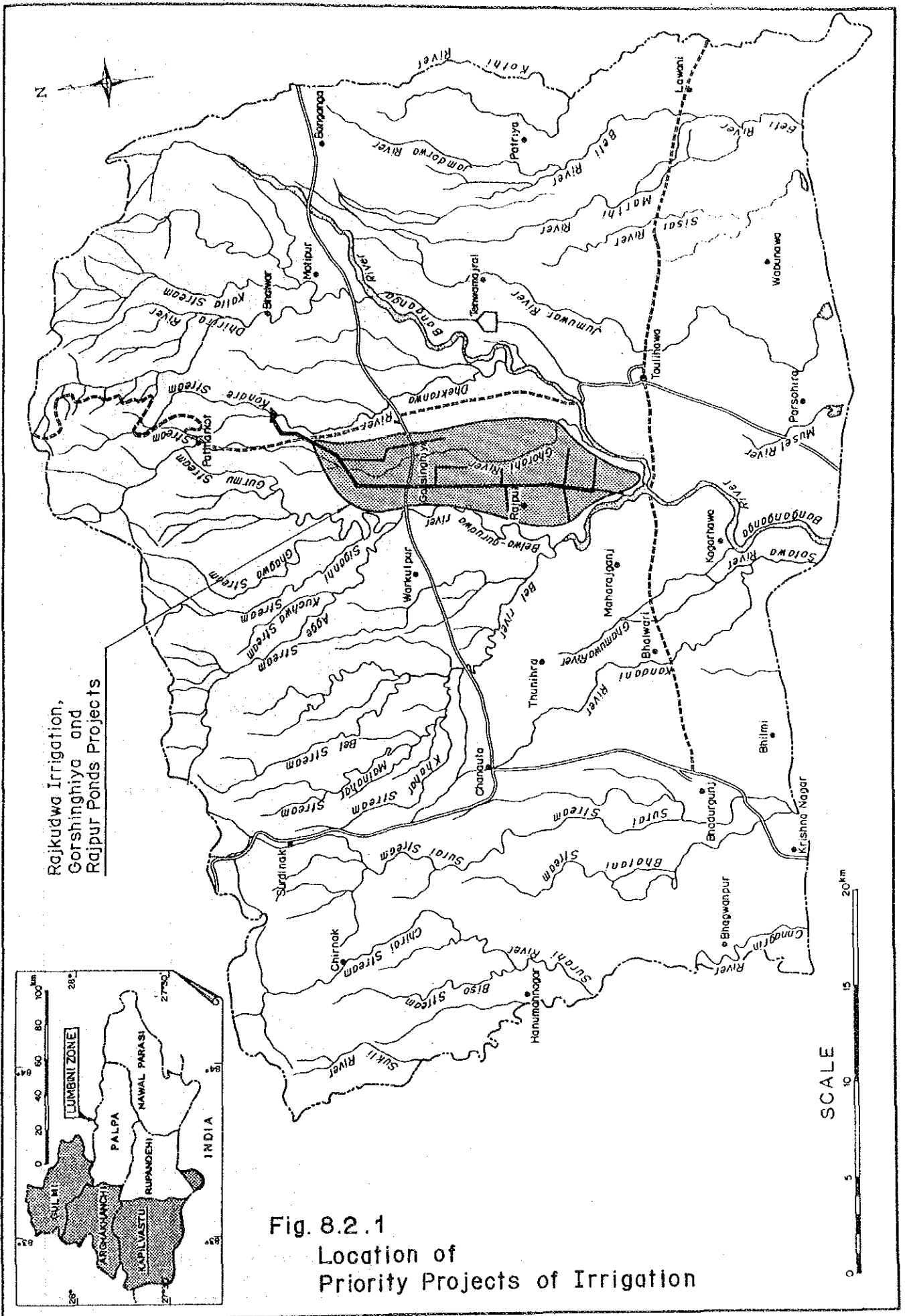


Fig. 8.2.1
Location of
Priority Projects of Irrigation

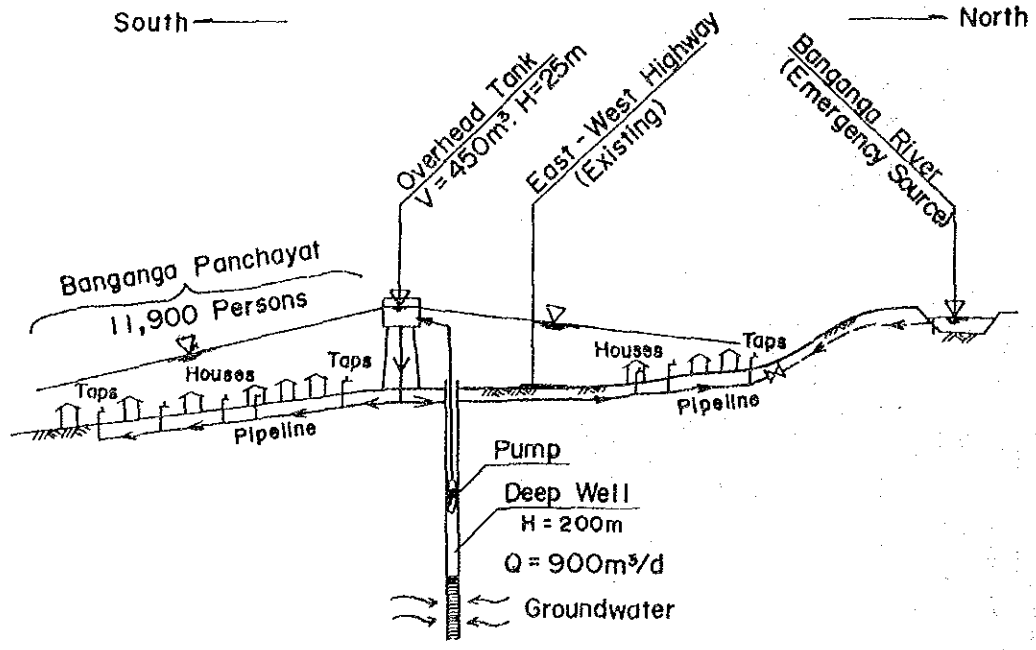
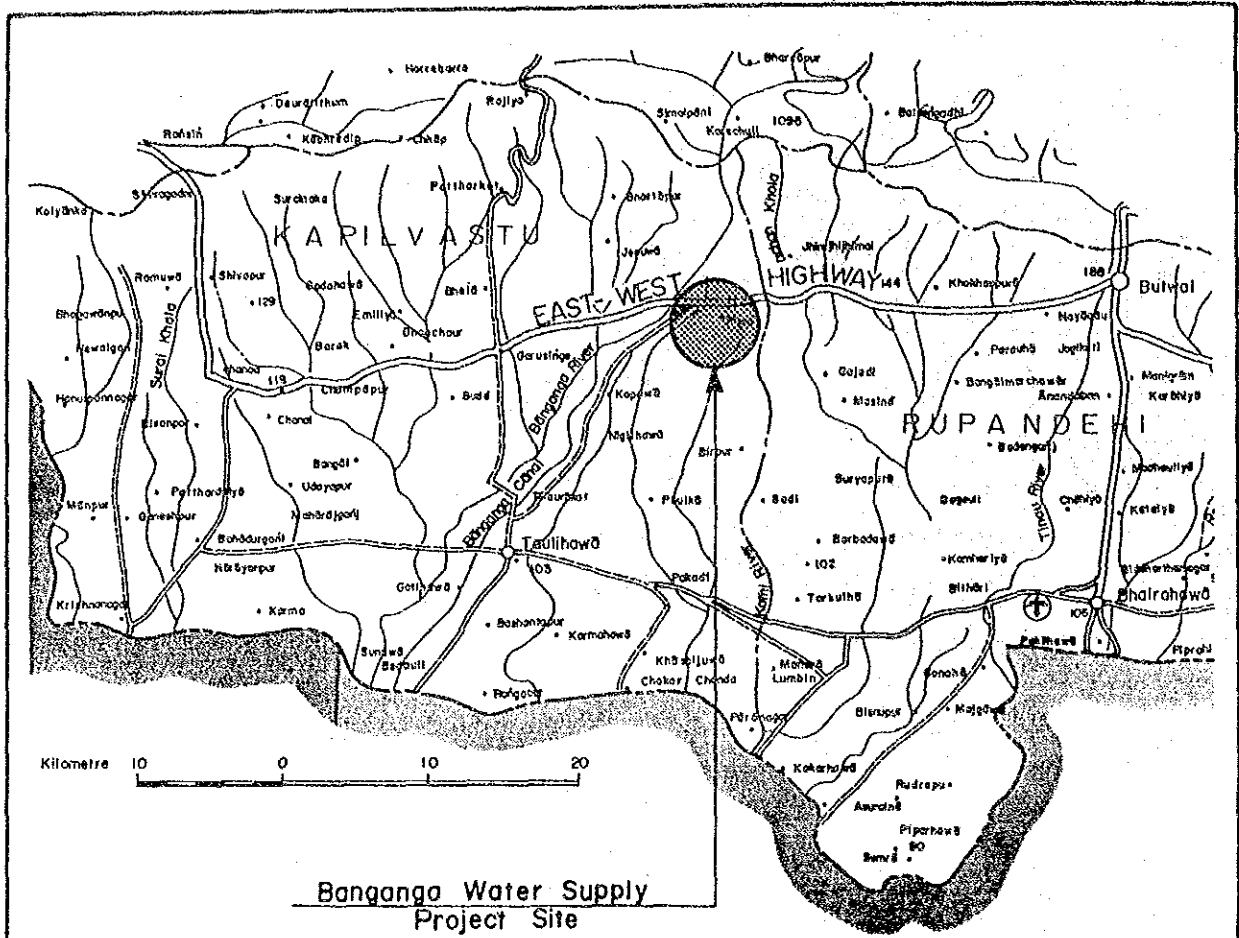


Fig. 8.4.1 Banganga Water Supply System Schematic

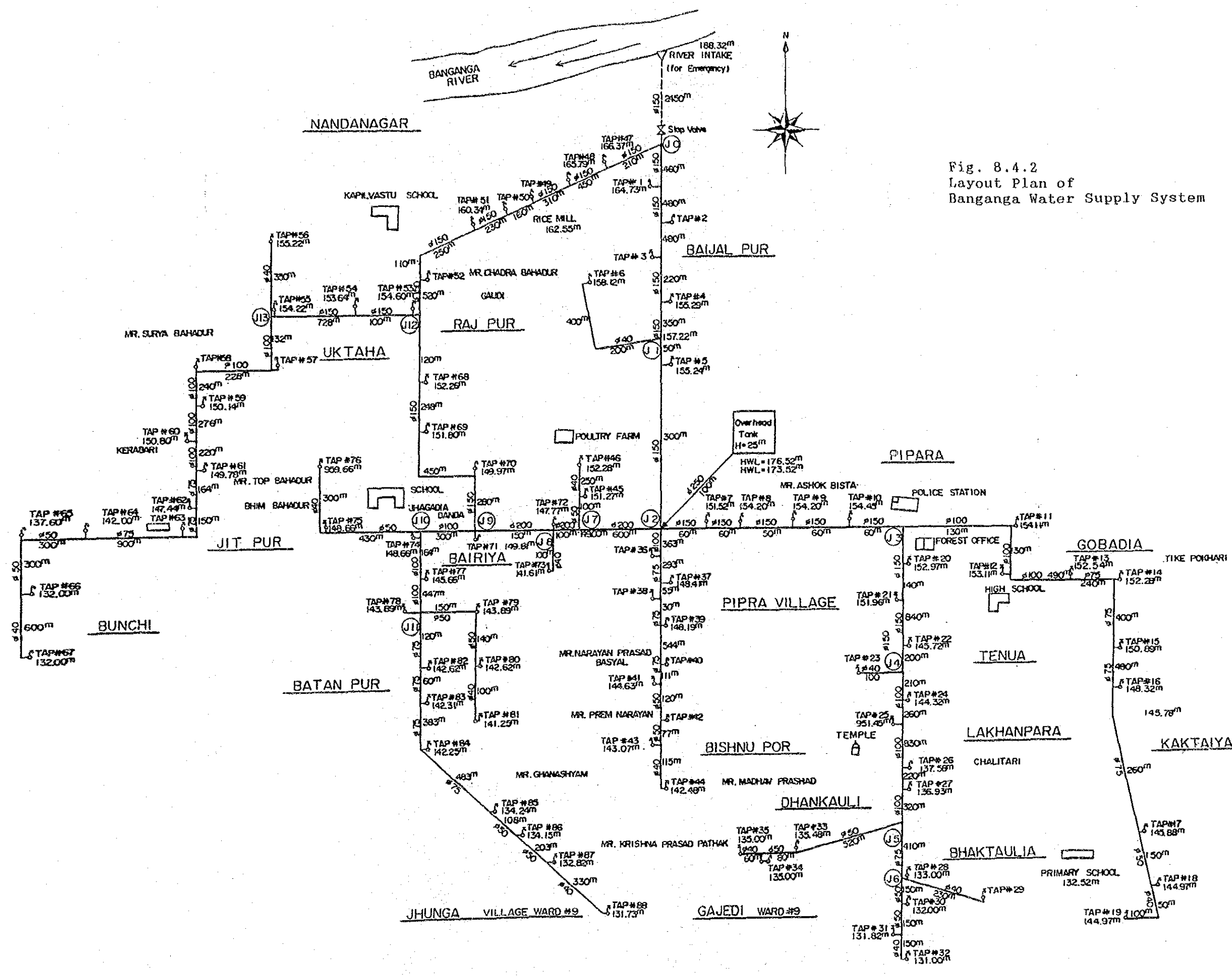


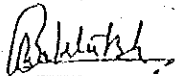
Fig. 8.4.2
Layout Plan of
Banganga Water Supply System

ATTACHMENT

SCOPE OF WORK
FOR
THE MASTER PLAN STUDY
ON
THE INTEGRATED RURAL DEVELOPMENT PROJECT
IN
THE LUMBINI ZONE

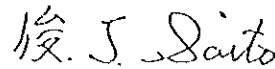
AGREED UPON BETWEEN
HIS MAJESTY'S GOVERNMENT OF NEPAL
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Kathmandu June 13, 1988



Mr. B.B. Koirala

Act. Secretary
Ministry of Panchayat and
Local Development HMG/N



Mr. Toshiki SAITO
Leader,
Preliminary Survey Team
JICA

I. INTRODUCTION

In response to the request of His Majesty's Government of Nepal (hereinafter referred to as "HMG/N"), the Government of Japan has decided to implement the Master Plan Study for the Integrated Rural Development Project in the Lumbini Zone (hereinafter referred to as "the Study"), in accordance with the relevant laws and regulations in force in Japan.

Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study, in close cooperation with the authorities of HMG/N.

The present document sets forth the Scope of Work with regard to the Study

II. OBJECTIVE

The objective of the Study is to formulate the Master plan for the Integrated Rural Development Project in the Lumbini Zone.

III. OUTLINE OF THE STUDY

1. Study Area

Study Area covers four (4) districts of Lumbini Zone, that is Gulmi, Arghakhanchi, Kapilvastu and Rupendehi with special focus on less development Marchawar region.

2. Scope of Work

In order to achieve the above objective, the Study which consists of two phases, will cover the following items.



Phase I

Data collection, review of the existing data and field survey for the project formulation are carried out in the study area.

1)-1 To collect and review of the existing data and information and carry out survey and investigation

A. Natural condition

- a). Topography
- b). Meteorology and Hydrology
- c). - Geology and Soil
- d). Hydrogeology

B. Social Condition


- a). Population
- b). Land ownership
- c). Land disposal

C. Agriculture

- a). Farm management
- b). Land use
- c). Land holding
- d). Crop production
- e). Agricultural inputs
- f). Storage Facilities

D. Agricultural infrastructure

- a). Irrigation and drainage system
- b). Farm land conservation
- c). Farm road



E. Agro-economy

- a). Marketing system
- b). Farmers' income and productivity
- c). Agricultural credit
- d). Farmers' organization
- e). Extension service
- f). Cottage-industry

F. Social infrastructure

- a). Rural electrification
- b). communication
- c). Drinking water
- d). Social welfare

1)-2 To identify the development potentials and formulate the basic development concept.

b) Phase II

Master plan will be formulated based on the Phase I study

2)-1 To formulate the master plan for integrated rural development Project.

- A. Formulation of the basic plan for the development
- B. Preliminary design of the major structures
- C. Approximate estimation of the development cost

2)-2 A. Identification of the development priority projects in the study area taking into consideration such components as follows;

- a). Development of irrigation system
- b). Development of rural roads and farm roads
- c). Promotion of agricultural production
- d). Development of drinking water

B. Execution of Pre-Feasibility Study on the development priority projects in the study area.

WORK SCHEDULE

The study will be executed in accordance with the attached tentative work schedule.

(1)

REPORTS

JICA shall prepare and submit following reports in English to the HMG/N.

(1) Inception report

Twenty (20) copies at the commencement of the field work.

(2) Progress report

Twenty (20) copies at the middle of the Phase I study.

(3) Interim report

Twenty (20) copies at the end of the Phase I study.

(4) Progress report (II)

Twenty (20) copies at the end of the field work in the Phase II Study.

(5) Draft final report

Twenty (20) copies

HMG/N is requested to provide its comments on the Draft Final Report within one (1) month after its receiving.


(6) Final report

Fifty (50) copies within two (2) months after receiving the comments on the Drafts Report.



2. UNDERTAKING OF IMG/N

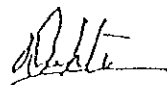
1. To facilitate smooth conduct of the Study, IMG/N shall take necessary measures;
 - (1) to secure the safety of the Japanese study team,
 - (2) to permit the members of the Japanese study team to enter, leave and sojourn in the Kingdom of Nepal for the duration of their assignment therein, and exempt them from alien registration requirements and consular fees,
 - (3) to exempt the members of the Japanese study team from taxes, duties, fees and other charges on equipment, machinery and other materials brought into the Kingdom of Nepal for the conduct of the Study,
 - (4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study,
 - (5) to provide necessary facilities to the Japanese Study team for the remittance as well as utilization of the funds introduced into Nepal from Japan in connection of the implementation of the Study
 - (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study as and when necessity arises,
 - (7) to secure permission for the study team to take all data and documents related to the Study including photographs and maps out of the kingdom of Nepal to Japan by the Japanese study team,
 - (8) to provide medical services as needed. Its expense will be chargeable on the members of the Japanese study team.



2. HMG/N shall bear claims, if any arises, against the members of the Japanese study team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the members of the Japanese study team.

3. Ministry fo Panchayat and Local Development (hereinafter referred to as "MPLD") shall act as the counterpart agency to the Japanese study team and also as the coordinating body to other relevant organizaitons for the smooth implementation of the Study.

4. MPLD shall, at its own expense, provide the Japanese study team with the followings:
 - 1) Available data and information related to the Study
 - 2) Counterpart personnel,
 - 3) Suitable office with necessary equipment and furniture in Kathmandu and Project sites,
 - 4) Ccredentials or identification cards,
 - 5) Permission for use of radio communication (Walkie Talkie),



UNDERTAKING OF JICA

For the conduct of the Study, JICA shall take the following measures:

1. To dispatch, at its own expenses, the study team
2. To pursue technology transfer to the HMG/N's counterpart personnel in the course of the Study.
3. To provide the equipment and machinery for the conduct of the Study, which will remain the property of JICA unless otherwise agreed upon.

JICA and MPLD will consult with each other in respect to any other matter that is not agreed upon in this document and may arise from or in connection with the Study.

White

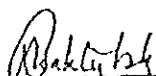
TENTATIVE WORK SCHEDULE

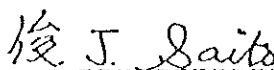
| Month in Order | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---------------------------|--------------|---|---|----------------|---|--------------|---|------------|---|----|-----------------|----|--------------|----|-----------|
| Field Work in Nepal | | | | | | | | | | | | | | | |
| Home office Work in Japan | | | | | | | | | | | | | | | |
| Reports | ▲ Inc./R. | | | ▲ P./R. (I) | | ▲ Int./R. | | | | | ▲ P./R. (II) | | ▲ D.F./R. | | ▲ F.R. |
| Remarks | ← Phase I | | | | | | | Phase II → | | | | | | | |

Inc./R. : Inception report
 P./R. : Progress report
 Int./R. : Interim report
 D.F./R. : Draft Final report
 F.R. : Final report

Minutes of Meeting
on
the Master Plan Study
on
the Integrated Rural Development Project
in
the Lumbini Zone

Kathmandu June, 13, 1988





Mr. B. B. Koirala

Mr. Toshiki SAITO

Acting Secretary

Leader

Ministry of Panchayat and

Preliminary Survey Team

Local Development (MPLD)

JICA

HMG/N

In response to the request of His Majesty's Government of Nepal (hereinafter referred to as "HMG/N") for a Master Plan Study on Integrated Rural Development in Lumbini Zone (hereinafter referred to as the M/P study), the Government of Japan decided to dispatch through Japan International Cooperation Agency (hereinafter referred to as "JICA") responsible for the implementation of technical cooperation programmes of the Government of Japan, the preliminary study team headed by Mr. Toshiki SAITO to Nepal from June 6 to June 14, 1988 so as to discuss and exchange views on the M/P study with concerned authorities of HMG/N.

The following minutes were prepared to confirm the main issues discussed and matters agreed upon by both sides in connection with the conducting M/P study.

1. Characteristics of representative areas

- (1) The Team asked Nepalese side about the characteristics of representative areas.
- (2) The Nepalese side explained that the representative areas were selected as sample areas for the study owing to the large number of Panchayats and also due to the time constraint.
- (3) Both sides agreed that there are no relationship between the representative areas and the location of high priority project(s) to be selected.
- (4) The high priority project(s) will be identified in the study-area during the study period.

The basic concept for the priority project(s) will be indicated and discussed at the end of Phase I study.

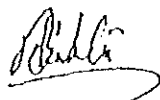
2. Methodology for the Study

For the formulation of master plan, the field survey will be conducted to cover about 10% of the total Village Panchayats in the study area which will be carefully selected in accordance with a certain criteria as a sample.

3. Characteristics of high priority project(s)

Both sides agreed that the high priority project(s) should have the following characteristics;

- (1) the project(s) should be self-contained i.e. not dependent upon additional project(s).



(2) the project(s) should have symbolic value and also have a considerable impact i.e. multiplier effect on rural development.

(3) the project will benefit the people in general as much as possible.

4. The target year for the implementation of the Master Plan

Both sides agreed that the target year for the implementation of the proposed fifteen (15) year Master Plan would be in consonance with the periodic National Plan of HMG/N.

5. Basic need oriented projects

Both sides agreed that basic need oriented projects should be emphasized in the Master Plan.

6. The study items

The Nepalese side stated that the following items should also be taken into account in the study;

1) Women's development

2) Development of hill and Terai link road

It was agreed that above mentioned items will be included in the Scope of Work under its study item 1)-1, D. Agricultural infrastructure, E. Agro-economy and F. Social infrastructure.

7. Counterpart personnel

The team requested that required number of counterpart personnel belonging to different sectors be made available to the study team as and when necessary.

8. Coordination meeting

Coordination meeting shall be convened by MPLD for smooth conducting the study with other ministries concerned.

9. Arrangement of vehicles

The MPLD explained on the problem of providing vehicles for the use of the study team and requested its arrangement with JICA. The Team recognized the problem and promised to convey the same to the Government of Japan.

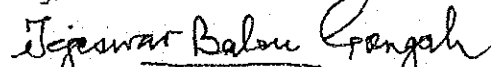


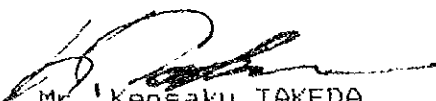
MINUTES OF MEETING
ON
THE INCEPTION REPORT FOR THE MASTER PLAN STUDY
ON
THE INTEGRATED RURAL DEVELOPMENT PROJECT IN
THE LUMBINI ZONE, NEPAL.


In accordance with the Scope of Work signed on June 13, 1988 for the Master Plan Study on the Integrated Rural Development Project in the Lumbini Zone, the Japan International Cooperation Agency (JICA) has dispatched a study team headed by Mr. Kensaku TAKEDA to Nepal to conduct the above mentioned study. At the initial stage of the meeting the study team presented the Inception Report and explained the outline and schedule of the study in the presence of the representatives of His Majesty's Government of Nepal. As a result of subsequent discussions, the following main items have been agreed upon by Nepalese party and the study team.

1. Nepalese party received officially 20 copies of the Inception Report from the study team.
2. Nepalese party agreed that the Inception Report was prepared in accordance with terms and conditions stipulated in the scope of work and that, based on this understanding, the study would be carried out according to the outline and schedule mentioned in the Inception Report.
3. If any matter arises in the course of the study that requires clarification and consultation by both parties, it shall be settled by mutual discussion referring the Scope of Work mentioned above.
4. No Specific concentration will be made during study period on rural electrification though there has been a brief mention about it on page 7,9,14, and 18 of the Inception Report.

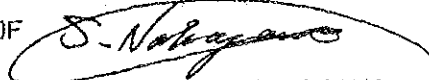
Signed in Kathmandu on Oct. 4, 1988.


Mr. Tejeswar Babu Gongah
Under Secretary/Counter Part
for Lumbini IRDP, MPLD


Mr. Kensaku TAKEDA
Leader of the JICA
Study Team for the
Lumbini IRDP.


Dr. Bwarika Nath Dhungel
Joint Secretary
Ministry of Panchayat
& Local Development

IN THE PRESENCE OF


Dr. SHOICHIRO NAKAGAWA
Leader of the JICA
Advisory Team for the
LUMBINI IRDP

LIST OF PARTICIPANTS

| NO. | NAME | POSITION |
|-----|------------------------------|--|
| 1. | DR. Dwarika Nath Dhungel | Joint Secretary MPLD |
| 2. | Mr. Govinda Prasad Ranjitkar | Joint Secretary Ministry of Public Works & Transport. |
| 3. | Mr. Posan Nath Nepal | Acting Superintending Eng. Ministry of Housing and Physical Construction (Drinking Water Dept.) |
| 4. | Ms. Vijaya Pradhan | Under Secretary Ministry of Agriculture |
| 5. | Mr. Shyam Man Singh | Chief Divisional Eng. Department of Irrigation |
| 6. | Mr. Bidhan Ratna Yami | Ministry of Housing and Physical Construction |
| 7. | Mr. Tejeswar Babu Gongah | Under Secretary MPLD |

Japanese Team

| | | |
|----|------------------------|---|
| 1. | Mr. Kensaku TAKEDA | Team Leader, JICA Study Team |
| 2. | Mr. Akio MAEDA | Member |
| 3. | Mr. Yoshio KOYAMA | " |
| 4. | Mr. Hisashi ISHIKAWA | " |
| 5. | Dr. Shoichiro NAKAGAWA | Team Leader, JICA Advisory Team. |
| 6. | Mr. Masahiko KAMEDA | Member, JICA Advisory Team |
| 7. | Mr. Takashi MUROMOTO | Second Secretary, Embassy of JAPAN. |
| 8. | Mr. Mitsukuni SUGIMOTO | Assistant Resident Representative, JICA. |

MINUTES OF MEETING
ON
THE DRAFT INTERIM REPORT FOR THE MASTER PLAN STUDY
ON
THE INTEGRATED RURAL DEVELOPMENT PROJECT IN
THE LUMBINI ZONE, NEPAL

Chairperson: Dr. Dwarika Nath Dhungel, Joint Secretary MPLD
Date : February 23, 1989
Place : Meeting Room Hotel Himalaya, Kathmandu.
Participant: See Attachment

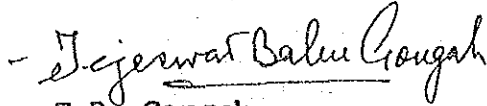
The JICA study team submitted 10 copies of the draft Interim Report on February 21, 1989 at Kathmandu.

The meeting on the report was held between the officials of HMG/Nepal concerned and JICA study team.

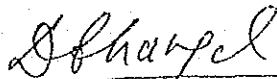
After explanation on the report by the study team, a series of discussions were held.

As a result of discussion, the following main items have been agreed upon by HMG/Nepal and the JICA study team.

1. Nepalese side agreed, in general, with the results of the study presented in the report including the basic concept for Project development and Priority Project.
2. Nepalese side also agreed with the programme for future study works presented in the report.
3. Nepalese side also gave a clear picture of how the service centers in the 9 Ilakas of the district should be strengthened and measures to be taken in this regard.



T.B. Gongah
Under Secretary
MPLD, HMG/Nepal



Dr. D.N. DHUNGEL
Joint Secretary
MPLD, HMG/Nepal
(Witness)



Kensaku TAKEDA
Leader of the JICA
Study Team for the Lumbini IRDP



Masasada ITO
Representative
JICA Advisory
Committee for Lumbini IRDP
(Witness)

LIST OF PARTICIPANTS

SUBJECT : Discussion on Draft Interim report (Lumbini IRDP)
DATE AND TIME : February 23, 1989
PLACE : Himalaya Hotel, Kathmandu

| <u>NO.</u> | <u>NAME</u> | <u>POSITION</u> |
|------------|----------------------------|---|
| 1. | Mr. D.B. Thapa | Secretary MPLD |
| 2. | Dr. D.N. Dhungel | Joint Secretary MPLD |
| 3. | Mr. Govinda P. Ranjitkar | Joint Secretary (Ministry of Works & Transport) |
| 4. | Mr. Vishwa Bandha MULEPATI | Under Secretary (National Planning Commission) |
| 5. | Ms. Bejoy K. Pradhan | Economist MOA |
| 6. | Mr. Mohan Dhoj Karki | Dept. of Irrigation DG |
| 7. | Mr. Ratnakar Dutta | Dept. of Water Supply & Sewerage Director General Dy. D.G. |
| 8. | Mr. Ananta Rijal | S.O. Women Dev. Sec MPLD |
| 9. | Mr. Komal Pd. Timilsena | Project Cheif (Feasibility Study Project DOI) |
| 10. | Mr. Subhakar Baidya | Section Officer, Coordination Section, MPLD |
| 11. | Mr. Tulashi Neopane | Under Secretary (Mini. of Finance) |
| 12. | Mr. Masasada ITO | Members of Advisory Committee |
| 13. | Mr. Masatoshi NAGATOMO | Members of Advisory Committee |
| 14. | Mr. Mitsukuni SUGIMOTO | Asst. Res. Representative (JICA NEPAL OFFICE) |
| 15. | Mr. Kensuku TAKEDA | Leader of Study Team |
| 16. | Mr. Akio MAEDA | Member of Study Team |
| 17. | Mr. Hisashi ISHIKAWA | Member of Study Team |
| 18. | Mr. Makoto Yasuda | Member of Study Team |

MINUTES OF MEETING
ON
THE PROGRESS REPORT (No.1) FOR THE MASTER PLAN STUDY
ON
THE INTEGRATED RURAL DEVELOPMENT PROJECT IN
THE LUMBINI ZONE, NEPAL

Chairperson: Dr. Dwarika Nath Dhungel, Joint Secretary, MRLD

Date : January 02, 1989

Place : Meeting Room, Hotel Narayani, Kathmandu

Participant: (See ATTACHMENT I)

The JICA study team submitted 20 copies of the Progress Report (No.1) on December 30, 1988, at Kathmandu in accordance with the Scope of Work on the study agreed upon between His Majesty's Government of Nepal and JICA on June 13, 1988.

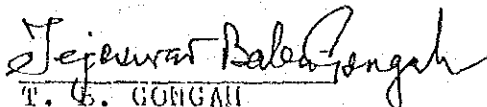
The meeting on the report was held between the officials of HMG/Nepal concerned, JICA study team and representative from JICA.

After explanation on the report by the study team, a series of discussion was held.

As a result of discussion, the following main items have been agreed upon by HMG/Nepal and the study team.

1. Nepalese party received officially 20 copies of the Progress Report (No.1) from the study team.
2. Nepalese party agreed, in general, with the results of the study presented in the report including the programme for the future study works with some comments (See ATTACHMENT II).
3. HMG/Nepal will, if any, present comments on the Report (No.1) to the study team through Mr. T. B. Gongah, Under Secretary of MRLD.

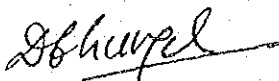
Signed in Kathmandu on January 02, 1989.



T. B. GONGAH
Under Secretary
MRLD, HMG/Nepal



Kensaku TAKEDA
Leader of the JICA
Study Team for the
Lumbini IRDP



Dr. D. K. DHUNGEL
Joint Secretary
MRLD, HMG/Nepal
(Witness)

ATTACHMENT I

LIST OF PARTICIPANTS

Subject : Progress report (No.1), Lumbini Irb Project
 Date & Time: January 02, 1989, 9:30 a.m.
 Place : Hotel Narayani

| <u>Name</u> | <u>Position</u> | |
|--------------------------|--|-------|
| <u>MOG/Nepal</u> | | |
| Dwarika N. Dhungel | Joint Secretary, | FIELD |
| Tejeswar B. Gongah | Under Secretary, | FIELD |
| Chandni Joshi | Under Secretary, | FIELD |
| D. B. Pradhananga | Senior Div. Engineer, | DOR |
| Shree K. Joshi | Asst. Economist, | DOA |
| Bijoy Pradhan | Economist, | MOA |
| Ratnakar Dutta | Dy. Director General, | DWSS |
| Indra B. Mali | Asst. Secretary, | BHFF |
| Subhakar Baidya | Section Officer, | FIELD |
| Komal P. Timilsena | Project Chief, Feasibility Study Project | DOI |
| Kirti Chand Thakur | Chief Planning Coordinator, | MOWR |
| Govinda P. Ranjitkar | Joint Secretary, | MOWT |
| <u>JICA Study Team</u> | | |
| K. Takeda | Team Leader | |
| A. Maeda | Rural Development Planner | |
| Y. Hase | Irrigation Engineer | |
| H. Ishikawa | Agronomist/Agro-Economist | |
| K. Hoshii | Rural Infrastructure Engineer | |
| M. Yasuda | Hydrogeologist | |
| H. Norioka | Marketing/Processing Engineer | |
| <u>JICA/Nepal Office</u> | | |
| H. Sugimoto | Assistant Resident Representative | |

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JG.
 B.T.

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ATTACHMENT II

COMMENTS

1. Mention the role of women in the development of IRD Project.
2. Mention the role of women in the area of rural development works because 50% of total population are women.
3. Role of rural electrification should be dealt in connection with irrigation and as a base for cottage industry.
4. Naumure Irrigation Project lying between Arghakhanchi and Pyuthan districts should be erased as nothing has been done on it.
5. No blue print approach is planable for road projects.
6. Peoples' participation should be involved in IRDPs to meet their aspirations and expectations.
7. FINIDA assisted Drinking Water Projects are under preparation Lumbini IRDP should take up other projects to avoid overlapping.
8. On the basis of experiences learned so far, HMG/N is trying to take different policy measures to improve the management of IRDP.
9. At the district level the elected institution (District Panchayat & Assembly) would coordinate Project activities as per the decentralization act of 1982.
10. The LDO as the secretary to the district Panchayat and other district level line agencies will be responsible for project activities at district where as the regional offices would provide support to the districts in managing project activities. However, the MPLD in its capacity as the lead agency for IRDP would look after the project from the center and coordinate project activities through existing IRD board.
11. Points for Clarification:
 - a. Only important components such as irrigation, rural road, agricultural products and drinking water supply are included in it to utilize available resources to maximum extent with rational manner. Also the programs for specific target group such as women and small farmers should also be emphasized in the project.
 - b. Further encroachment of forest should not be an angle for designing projects.
 - c. General statements should be avoided in the interim report which should be written more concretely and specifically.

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MINUTES OF MEETING
ON
THE DRAFT INTERIM REPORT FOR THE MASTER PLAN STUDY
ON
THE INTEGRATED RURAL DEVELOPMENT PROJECT IN
THE LUMBINI ZONE, NEPAL

Chairpersons: Dr. Dwarika Nath Dhungel, Joint Secretary MPLD
Date : February 23, 1989
Place : Meeting Room Hotel Himalaya, Kathmandu.
Participant: See Attachment

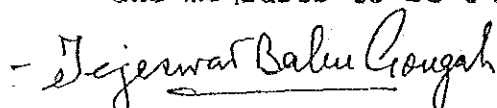
The JICA study team submitted 10 copies of the draft Interim Report on February 21, 1989 at Kathmandu.

The meeting on the report was held between the officials of HMG/Nepal concerned and JICA study team.

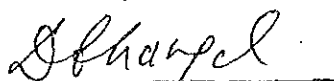
After explanation on the report by the study team, a series of discussions were held.

As a result of discussion, the following main items have been agreed upon by HMG/Nepal and the JICA study team.

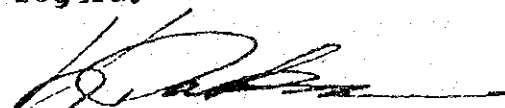
1. Nepalese side agreed, in general, with the results of the study presented in the report including the basic concept for Project development and Priority Project.
2. Nepalese side also agreed with the programme for future study works presented in the report.
3. Nepalese side also gave a clear picture of how the service centers in the 9 Ilakas of the district should be strengthened and measures to be taken in this regard.



T.B. Gongah
Under Secretary
MPLD, HMG/Nepal



Dr. D.N. DHUNGEL
Joint Secretary
MPLD, HMG/Nepal
(Witness)



Kensaku TAKEDA
Leader of the JICA
Study Team for the Lumbini IRDP



Masasada ITO
Representative
JICA Advisory
Committee for Lumbini IRDP
(Witness)

LIST OF PARTICIPANTS

SUBJECT : Discussion on Draft Interim report (Lumbini IRDP)
DATE AND TIME : February 23, 1989
PLACE : Himalaya Hotel, Kathmandu

| <u>NO.</u> | <u>NAME</u> | <u>POSITION</u> |
|------------|----------------------------|---|
| 1. | Mr. D.B. Thapa | Secretary MPLD |
| 2. | Dr. D.N. Dhungel | Joint Secretary MPLD |
| 3. | Mr. Govinda P. Ranjitkar | Joint Secretary (Ministry of Works & Transport) |
| 4. | Mr. Vishwa Bandha MULEPATI | Under Secretary (National Planning Commission) |
| 5. | Ms. Bejoy K. Pradhan | Economist MOA |
| 6. | Mr. Mohan Dhoj Karki | Dept. of Irrigation DG |
| 7. | Mr. Ratnakar Dutta | Dept. of Water Supply & Sewerage Director General Dy. D.G. |
| 8. | Mr. Ananta Rijal | S.O. Women Dev. Sec MPLD |
| 9. | Mr. Komal Pd. Timilsena | Project Cheif (Feasibility Study Project DOI) |
| 10. | Mr. Subhakar Baidya | Section Officer, Coordination Section, MPLD |
| 11. | Mr. Tulashi Neopane | Under Secretary (Mini. of Finance) |
| 12. | Mr. Masasada ITO | Members of Advisory Committee |
| 13. | Mr. Masatoshi NAGATOMO | Members of Advisory Committee |
| 14. | Mr. Mitsukuni SUGIMOTO | Asst. Res. Representative (JICA NEPAL OFFICE) |
| 15. | Mr. Kensuku TAKEDA | Leader of Study Team |
| 16. | Mr. Akio MAEDA | Member of Study Team |
| 17. | Mr. Hisashi ISHIKAWA | Member of Study Team |
| 18. | Mr. Makoto Yasuda | Member of Study Team |

MINUTES OF MEETING
ON
THE PROGRESS REPORT (II) FOR
THE MASTER PLAN STUDY ON THE INTEGRATED RURAL
DEVELOPMENT PROJECT IN THE LUMBINI ZONE, NEPAL

Place : Meeting room, Blue Star Hotel, Kathmandu
Day : September 27, 1989.
Participant : See attached paper

The JICA study team submitted 20 copies of the progress report - I/II for consideration by HMG/N. The study team contacted the agencies in Kathmandu with the scope of work. It was agreed upon between HMG/N and JICA on June 12, 1988.

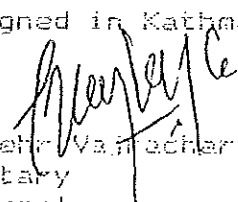
The meeting on the report was held on above mentioned date between the officials of HMG/N concerned and JICA study team.


After explanation of the report by the study team, a detailed discussion was held.

As a result of discussion, the following main items have been confirmed by HMG/N and JICA study team.

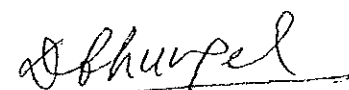
1. In general, Nepalese side agreed with the results of the field work presented in the report including the basic concept for project development and identification of the priority projects.
2. It was suggested by the participant from the MOA that the agriculture development activities including livestock programme should not only be confined to Marchwar region but should cover the whole of Rupandehi district. If this was not possible as per the scope of work, it was requested that for agriculture development activities, the said region should be deleted.
3. Nepalese side also agreed with the program for the succeeding study works showing the report to be conducted in Japan on the basis of responses and suggestions received during the meeting.

Signed in Kathmandu on September 28, 1989.


Mr. Chakramohar Vanacharya
Under Secretary
MPLD, HMG/Nepal


Mr. Kensaku TAKEDA
Leader of the JICA
Study Team for

The Lumbini IRDP


Dr. Brajniks Nath Dhungel
Joint Secretary
MPLD, HMG/Nepal
(Witness)

LIST OF PARTICIPANTS

| <u>Name</u> | <u>Position</u> |
|--------------------------------|--|
| 1. Dr. Dwarika Nath Dhungel | Joint Secretary, MPLD |
| 2. Mr. Govinda Prasad Ranjiker | Joint Secretary, MUMT |
| 3. Ms. Bijaya K. Pradhan | Economist |
| 4. Mr. V.P. Sharma | Dy. Director General, DOA |
| 5. Mr. Bhaba Nand Thakur | Dy. Director General, DLE |
| 6. Mr. Prabesh M. S. Pradhan | Chief Planning Div. DLE |
| 7. Mr. S.C. Adhikary | Engineer, WSSU |
| 8. Mr. Lakshman Vajravelar | Under Secretary, P&I |
| 9. Mr. Surya Kanta Paudel | Section Officer, P&I |
| 10. Mr. Kamal Pd. Timilsina | D.A., Do. |
| 11. Mr. Ananta Rijal | Act. Chief, WDS/MPLI |
| 12. Mr. B. K. Sharma | Asst. Agro-marketing Economist, LFAMS |
| 13. Mr. K. Takeda | Team Leader, JICA Study Team |
| 14. Mr. A. Maeda | Development Planner, ,, ,, |
| 15. Mr. Y. Koyama | Project Evaluation, ,, ,, |
| 16. Mr. H. Ishikawa | Agronomist/Agro-economist ,, |
| 17. Mr. H. Yamazaki | Water Supply, ,, |
| 18. Mr. M. Kodama | Irrigation, ,, |
| 19. Mr. N. Morioka | Marketing/Processing ,, |




Date: Sept. 27, 1989.
Lumbini IRDP.

JICA

INTERNATIONAL COOPERATION AGENCY OF JAPAN

MAIN BUILDING

1-1-1, HONJO, BUNYO-KU, TOKYO

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