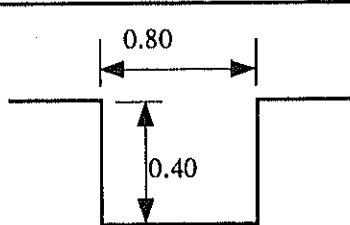
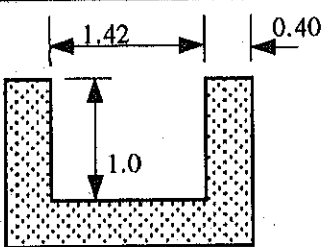


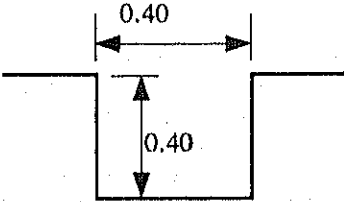
Survey Items	No. AK-10	Sub-No. K-13	Priority by DOI: Low	
Name of Scheme	Gogal Indrayani Kulo			
Location	Kathmandu District			
Water Resources	Ghatte Khola / Manamate Khola			
Catchment Area	0.6 (km ²) at the weir site			
Command Area	Present (Rainy Season)	130 ha.	Present (Dry Season)	ha.
			[Originally Informed]	162 ha.
Water Quality	Good, and suitable for irrigation			
Cultivated Crops	Rainy Season	Paddy		
	Dry Season	Wheat, Potatoes, Vegetables		
Nos. of Farmers Families	1,500			
Nos of Administrative Division	Village Development Committee (V.D.C.):	1	Ward:	2
			Municipality:	0
Existence of Benchmark	None			
Land Cost Near the Scheme	Lhak Rs./ropani (0.05ha.)			
Operation & Maintenance	DIO is responsible for O/M. However, farmers are now doing O/M.			
1) Organization	W.U.A	1 Nos.	22 Members	Established in 1991
2) Manpower Assignment				
3) Budget Allocation	Nil			
4) Main Activities	None Times/Year ()			
Surrounding Conditions	Agricultural area prevails under the scheme, however, partial urbanization is observed at the lower end of the scheme.			
Problems with the Scheme	The intake facility including canal is in very poor condition and much water leakage from the canal is observed. Access to the scheme is difficult.			
Farmer's Intention	No aggressive intention by farmers is observed.			
<i>Interviewee</i>				
Involvement by Irrigation Sector Programs (ISP) by ADB	This scheme is under request for ISP			
Other Related Projects	None			
1) Project Name				
2) Status				

Intake Facility	Descriptions
1) Year constructed	Very old and not known Year rehabilitated: 1991
2) By Whom?	Originally by farmers and maintained by DOI
3) Type	Longitudinal diversion work with stones
4) Material	Stone
5) Nos. of Gate	None
6) Gate Dimension	W= (m) / D= (m)
7) Discharge	Q= l/s. (Designed) Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	None
9) Availability of Construction Drawings	None
10) Present Condition	This temporary intake facility including the canal is in poor condition, and needs rehabilitation.
Main Canal	Descriptions
1) Location	
2) Type	Almost rectangular
3) Material	Earth
4) Capacity	230 l/sec.
5) Length and Slope	1.6 km in total, S=1/400
Sketch of Representative Canal Section (Dimensions are in metres)	
6) Present Condition	This canal is in very poor condition. Siltation in the canal is also observed.
General Geological Feature	Soil, containing gravels, prevails along the canal.
Evaluation of the Scheme by JICA Study Team	This scheme is being irrigated by the additional water drawn from the intake facility in K-11 (AK-14). The shape of the irrigated area is slender, which is not suitable for irrigation. Thus, this scheme may not be taken up.

Survey Items	No. AK-12	Sub-No. K-6	Priority by DOI: 6/6
Name of Scheme	Gokarna		
Location	Kathmandu District		
Water Resources	Bagmati River (Reliable) /		
Catchment Area	56.0 (km ²) at the weir site		
Command Area	Present (Rainy Season)	75 ha.	Present (Dry Season) 60 ha.
			[Originally Informed] 375 ha.
Water Quality	Not good, but can be used for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	300		
Nos of Administrative Division	Village Development Committee (V.D.C.):	1	Ward: 3 Municipality: 1
Existence of Benchmark	None		
Land Cost Near the Scheme	Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and with the help of farmer's organization.		
	1) Organization	Farmer's organization	1 Nos. 4 Members Established in 1990
	2) Manpower Assignment	4 men are attached to the scheme	
	3) Budget Allocation	80,000Rs. in 1990/1991, 100,000Rs. in 1992/1993.	
	4) Main Activities	1-2 Times/Year (Desilting and weeding)	
Surrounding Conditions	There are 16 carpet factories in the area under this scheme, causing water pollution in the area. Urbanization is rapidly in progress in the area.		
Problems with the Scheme	The above-mentioned situation makes it difficult to continue agriculture here.		
Farmer's Intention	It seems that farmers under the scheme have little interest in agriculture.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
	1) Project Name		
	2) Status		

Intake Facility	Descriptions	
1) Year constructed	1961/1962	Year rehabilitated: 1992 (for canal)
2) By Whom?	DOI	
3) Type	Fixed weir, L=14.0m	
4) Material	Plain concrete	
5) Nos. of Gate	4 Steel-made gates.	
6) Gate Dimension	W= 1.2 (m)	D=2.0 (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	3 cross-drainages on the right bank canal.	
9) Availability of Construction Drawings	None, all lost	
10) Present Condition	The weir was hit by floods in 1989, causing deep score at the downstream portion of the weir. Rehabilitation of downstream apron is required.	
Main Canal	Descriptions	
1) Location	Both on the right and left banks	
2) Type	Rectangular / Trapezoidal	
3) Material	Brick masonry / Earth	
4) Capacity	425 l/sec.	
5) Length and Slope	3.0km for right bank, S=1/550	2.2 km for left bank
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>60 m only for brick-lined portion</p>	
6) Present Condition	Only the upper portion of the canal was rehabilitated by DIO in 1992.	
General Geological Feature	Silty loam soil prevails along the canal.	
Evaluation of the Scheme by JICA Study Team	It has become difficult to continue agriculture in the area under this scheme due to rapid urbanization and growing industries. This scheme may not be taken up.	

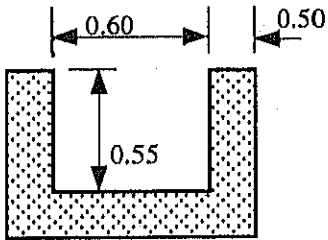
Survey Items	No. AK-13	Sub-No. K-5	Priority by DOI: Low	
Name of Scheme	Ichadol			
Location	Kathmandu District			
Water Resources	Tribeni Khola / Manamati Khola			
Catchment Area	9.8 (km ²) at the intake site			
Command Area	Present (Rainy Season)	35 ha.	Present (Dry Season)	30 ha.
			[Originally Informed]	70 ha.
Water Quality	Not bad, can be used for irrigation			
Cultivated Crops	Rainy Season	Paddy		
	Dry Season	Wheat, Potatoes, Vegetables		
Nos. of Farmers Families	350			
Nos of Administrative Division	Village Development Committee (V.D.C.):	1	Ward:	1
	Municipality:			
Existence of Benchmark	None			
Land Cost Near the Scheme	1.0 Lhak Rs./ropani (0.05ha.)			
Operation & Maintenance	O/M is being conducted by Farmers' organization			
1) Organization	Farmers' organization	1 Nos.	11 Members	Established in
2) Manpower Assignment	1 Man is attached to the scheme from WUA.			
3) Budget Allocation	None			
4) Main Activities	3 Times/Year (Desilting and weeding)			
Surrounding Conditions	The area under this scheme is generally rural area, however, urbanization is in progress at the lower end of the scheme. Farmers here use chemical fertilizer.			
Problems with the Scheme	There is no permanent intake structure under this scheme.			
Farmer's Intention	Farmers have strong intention to cultivate vegetables. Also they have a willingness to pay water charge after rehabilitation of the scheme.			
<i>Interviewee</i>	Mr. Jayaram Puri / member of W.U.A.			
Involvement by Irrigation Sector Programs (ISP) by ADB	Under consideration for ISP.			
Other Related Projects	None			
1) Project Name				
2) Status				

Intake Facility	Descriptions	
1) Year constructed	Not known	Year rehabilitated: 1988
2) By Whom?	Constructed by farmers and rehabilitated by Plan International (NGO from USA)	
3) Type	Water is directly drawn to the canal.	
4) Material	Stone, gabion	
5) Nos. of Gate	None	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s. (Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	There is no permanent structure at the intake site. Construction of a permanent intake structure will be needed.	
Main Canal	Descriptions	
1) Location	Left bank only	
2) Type	Almost rectangular	
3) Material	Brick masonry / Earth	
4) Capacity	142 l/sec.	
5) Length and Slope	2.0 km in total, S=1/500	
Sketch of Representative Canal Section (Dimensions are in metres)		
6) Present Condition	The canal is in very poor condition. Much water leakage from the canal is observed.	
General Geological Feature	Silty loam soil prevails along the canal.	
Evaluation of the Scheme by JICA Study Team	Considering the size and nature of the scheme as well as farmers intention under the scheme, it may be taken up by ISP or other programs.	

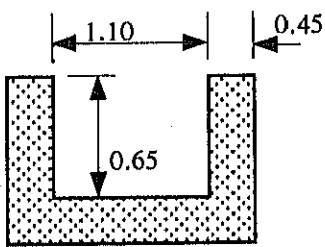
Survey Items	No. AK-14	Sub-No. K-11	Priority by DOI: 4/6
Name of Scheme	Indrayani		
Location	Kathmandu District		
Water Resources	Ghatte Khola / Manamatta Khola		
Catchment Area	5.2 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	62 ha.	Present (Dry Season) ha.
			[Originally Informed] 145 ha.
Water Quality	Good and suitable for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	332		
Nos of Administrative Division	Village Development Committee (V.D.C.):	1	Ward: 7 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	1 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and WUA.		
1) Organization	WUA (Registered)	1 Nos.	9 Members Established in 1992
2) Manpower Assignment	2 Watchmen from DIO are attached to the scheme.		
3) Budget Allocation	75,000 Rs. in 1990/1991, 75,000Rs. in 1992/1993 and 18,000 Rs. for 1994.		
4) Main Activities	1 Times/Year (Desilting and weeding)		
Surrounding Conditions	No urbanization in the area under this scheme has been observed and the area under the scheme seems to be suitable for agriculture. And river discharge observed at the intake site seems to be stable even in dry seasons.		
Problems with the Scheme	Presently, water is drawn from Manamatta Khola which is a tributary of Ghatte Khola Farmers under this scheme want that a integrated weir be constructed, utilizing water both from Ghatte and Manamatta Kholas.		
Farmer's Intention	Farmer's intention to continue agriculture is strong and they have a will to engage themselves in O/M of the irrigation facilities after rehabilitation.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions	
1) Year constructed	1968-1969	Year rehabilitated: 1968
2) By Whom?	DOI (Originally by farmers)	
3) Type	Fixed Weir, (Temporary) : L=9.0 (m)	
4) Material	Brick/stone masonry	
5) Nos. of Gate	1 Wooden gate	
6) Gate Dimension	W= 0.7 (m) /	D=0.7 (m)
7) Discharge	Q= 280 l/s. (Designed)	Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be mentioned except one sluiceway.	
9) Availability of Construction Drawings	None	
10) Present Condition	The gate and slice at the weir are functioning relatively well. However, the apron located downstream the weir is badly damaged and it needs rehabilitation. Water is also drawn to this weir site from Manamatta Khola when the water in Ghatte khola is not sufficient, especially in dry seasons.	
Main Canal	Descriptions	
1) Location	Left bank only	
2) Type	Rectangular / Trapezoidal	
3) Material	Wet Masonry /Earth	
4) Capacity	280 l/sec. (B.R.T Report)	
5) Length and Slope	7.0 km in total, S=1/500	
Sketch of Representative Canal Section (Dimensions are in metres)		
6) Present Condition	Leakage and over topping of the water from the canal in rainy seasons is main problem. Accordingly, the canals need rehabilitation.	
General Geological Feature	Sandy loam soil prevails along the canal. The intake structure is located on boulder bed embedded in sandy silt matrix. Boulders are large (ranging from 1 to 2 m in diameter) and they are mostly migmatites.	
<u>Evaluation of the Scheme by JICA Study Team</u>	This scheme consists of only one village and farmer's intention to continue agriculture is observed to be strong. Thus, this scheme may be considered as one of the potential schemes to be rehabilitated.	

Survey Items	No. AK-24	Sub-No. K-2	Priority by DOI: Low
Name of Scheme	Pharping Dhunge Dhara		
Location	Kathmandu District		
Water Resources	Karpa Khola / (no surface flow in dry season)		
Catchment Area	8.3 (km ²) at the intake site		
Command Area	Present (Rainy Season)	74 ha.	Present (Dry Season) 60 ha.
			[Originally Informed] 339 ha.
Water Quality	Could not observed due to drying up of water		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	3,000		
Nos of Administrative Division	Village Development Committee (V.D.C.): 4	Ward: 8	Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M activities by DIO are weak.		
1) Organization	Farmers' organization	1 Nos.	11 Members Established in
2) Manpower Assignment	None		
3) Budget Allocation	25,000 Rs. in 1990/1991		
4) Main Activities	4 Times/Year ()		
Surrounding Conditions	The area under this schemes is suitable for agriculture. However, the intake site seems to be very close to crematorial place for the villagers.		
Problems with the Scheme	One of the problems with this scheme is water shortage in dry seasons. Also access to the intake site is very difficult.		
Farmer's Intention	No particular intention is observed.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions
1) Year constructed	1941 Year rehabilitated: 1972
2) By Whom?	Not identified
3) Type	Temporary stone works
4) Material	Stones
5) Nos. of Gate	None
6) Gate Dimension	W= (m) / D= (m)
7) Discharge	Q= l/s. (Designed) Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.
9) Availability of Construction Drawings	None
10) Present Condition	Very simple stone-works are provided at the intake site and no structures except for canal are found.
Main Canal	Descriptions
1) Location	Left bank only
2) Type	Rectangular / Trapezoidal
3) Material	Stone masonry / Earth
4) Capacity	113 l/sec.
5) Length and Slope	3.0 km in total, S=1/450
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>180m only for stonemasonry portion</p>
6) Present Condition	Partial rehabilitation by stone masonry is done, however, the canal is not functioning well as a total system.
General Geological Feature	Soil, containing gravels, prevails at the upper portion of the canal systems.
Evaluation of the Scheme by JICA Study Team	Although the area under the scheme is suitable for agriculture, this scheme may not be taken up as one of the potential rehabilitation schemes because of its difficulty in access to the intake site, which makes the rehabilitation work difficult.

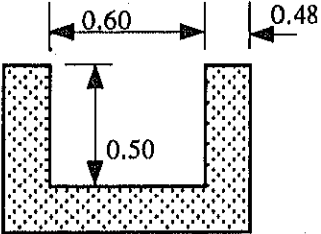
Survey Items	No. AK-25	Sub-No. K-14	Priority by DOI: 3/6
Name of Scheme	Shali Nadi		
Location	Kathmandu District		
Water Resources	Shali Nadi Khola /		
Catchment Area	12.0 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	176 ha.	Present (Dry Season) ha.
			[Originally Informed] 600 ha.
Water Quality	Suitable for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	862		
Nos of Administrative Division	Village Development Committee (V.D.C.): 4	Ward: 23	Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	2.0 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO.		
1) Organization	WUA (Registered)	1 Nos.	Members Established in
2) Manpower Assignment	None		
3) Budget Allocation	450,000Rs. in 1992/1993 and no budget allocation for 1994.		
4) Main Activities	2 Times/Year (Desilting and weeding)		
Surrounding Conditions	The area under this scheme is good for agriculture and no urbanization is observed.		
Problems with the Scheme	This scheme is old and needs rehabilitation both for the weir and canals.		
Farmer's Intention	Farmers have strong will to continue agriculture.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Drinking water supply improvement project		
1) Project Name			
2) Status			

Intake Facility	Descriptions
1) Year constructed	Very old, not known Year rehabilitated: 1985
2) By Whom?	Originally constructed by farmers and rehabilitated by DOI.
3) Type	Temporary fixed weir (B=16.0m)
4) Material	Plain concrete and gabion.
5) Nos. of Gate	1 Steel-made sluice gate on the right bank canal.
6) Gate Dimension	W= 0.60 (m) / D=0.70 (m)
7) Discharge	Q= 450 l/s. (Designed) Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	1 Pipe aqueduct.
9) Availability of Construction Drawings	None
10) Present Condition	The weir is old. Siltation in front of the weir is observed. Riprap works located just downstream of the weir are badly damaged and need rehabilitation.
Main Canal	Descriptions
1) Location	Right and left bank
2) Type	Rectangular (Right bank) Almost rectangular (Left bank)
3) Material	Stone masonry Earth
4) Capacity	450 l/sec.
5) Length and Slope	6.0 km in total, S=1/400
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>(150 m only)</p>
6) Present Condition	Water leakage from the both canals seems to be high. Siltation in both canals is also observed.
General Geological Feature	Sandy loam soil prevails along the canal.
Evaluation of the Scheme by JICA Study Team	Since the area under this scheme is good for agriculture, it should be reserved in the future. Thus, this scheme is considered as one of the potential schemes to be rehabilitated.

Date of Field Survey: 5, May., '94 /

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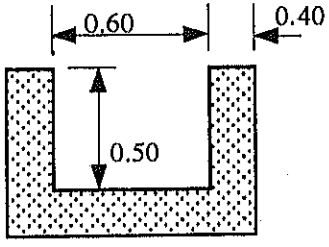
		Kathmandu District	
		AK-26	Sundarijal
		-1/2	
Survey Items	No. AK-26	Sub-No. K-18	Priority by DOI: 3/6
Name of Scheme	Sundarijal		
Location	Kathmandu District		
Water Resources	Bagmati River /		
Catchment Area	34.0 (km ²) at the intake site		
Command Area	Present (Rainy Season)	35 ha.	Present (Dry Season) 35 ha.
			[Originally Informed] 20 ha.
Water Quality	Suitable for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	600		
Nos of Administrative Division	Village Development Committee (V.D.C.):	1	Ward: 2 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	1 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by WUA and DIO.		
1) Organization	WUA	1 Nos.	11 Members Established in
2) Manpower Assignment	1 Man designated by WUA is attached to the scheme.		
3) Budget Allocation	Nil		
4) Main Activities	2-4 Times/Year (Desilting and weeding)		
Surrounding Conditions	The area under this scheme is suitable for agriculture. There is a power house with generating capacity of 640-940Kw which was constructed in 1928 by Indian Government. Water used for power generation is reused for drinking water supply.		
Problems with the Scheme	Further water shortage under the scheme is anticipated.		
Farmer's Intention	No aggressive intention is observed.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	There is some possibility that this scheme may be taken up by ISP.		
Other Related Projects	Drinking Water Supply Project (Capacity 26,500 garons)		
1) Project Name	The Kathmandu Drinking Water Supply Facility Improvement Project		
2) Status	Under implementation by JICA and will be completed in 1994.		

Intake Facility	Descriptions
1) Year constructed	Not Known Year rehabilitated:
2) By Whom?	Originally by farmers and maintained by DOI.
3) Type	Natural intake with wet masonry work.
4) Material	Masonry / Gabion
5) Nos. of Gate	1 Steel-made gate
6) Gate Dimension	W= 0.3 (m) / D=.0.5 (m)
7) Discharge	Q= l/s. (Designed) Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.
9) Availability of Construction Drawings	None
10) Present Condition	Irrigation water is being drawn from the temporary natural intake and it is in poor condition.
Main Canal	Descriptions
1) Location	Left bank only
2) Type	Rectangular / Trapezoidal
3) Material	Brick / Earth
4) Capacity	70 l/sec.
5) Length and Slope	3.0 km in total, S=1/300
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>120 m only</p>
6) Present Condition	Much amount of water leakage from the canal is observed.
General Geological Feature	Silty loam soil prevails along the canal.
Evaluation of the Scheme by JICA Study Team	The area under this scheme is small and another project like water supply facility improvement is in progress. Accordingly, this scheme may not be taken up.

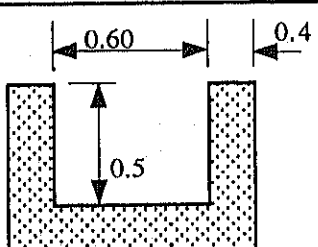
Date of Field Survey: 20, Apr., '93 /

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		Kathmandu District	
		AK-27	Tokha
		-1/2	
Survey Items	No. AK-27	Sub-No. K-10	Priority by DOI: 5/6
Name of Scheme	Tokha		
Location	Kathmandu District		
Water Resources	Sapan Tirtha Khola /		
Catchment Area	0.3 (km ²) at the weir site		
Command Area	Present (Rainy Season)	100 ha.	Present (Dry Season) 80 ha.
			[Originally Informed] 200 ha.
Water Quality	Good for irrigation		
Cultivated Crops	Rainy Season	Paddy, Vegetables	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	400		
Nos of Administrative Division	Village Development Committee (V.D.C.):	2	Ward: 5 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	2.0 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by farmers. (WUA)		
1) Organization	WUA	1 Nos.	11 Members Established in
2) Manpower Assignment	3 Men are temporarily attached to the scheme.		
3) Budget Allocation	25,000 Rs. in 1990/1991, 50,000Rs. in 1992/1993.		
4) Main Activities	1 Times/Year (Desilting and weeding)		
Surrounding Conditions	The area under this scheme is suitable for agriculture, and no urbanization is observed.		
Problems with the Scheme	The canal under this scheme is badly maintained and much water leakage is observed. And water shortage is also observed under this scheme. However, weir under this scheme is relatively in good condition.		
Farmer's Intention	Farmers under this scheme want to continue agriculture.		
<i>Interviewee</i>	<i>Mr. Bhim Bahadur Shrestha / vice chairman</i>		
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Minor Drinking Water Supply Project for Villages.		
1) Project Name	Not known		
2) Status	Implemented in 1964.		

Intake Facility	Descriptions	
1) Year constructed	1967	Year rehabilitated:
2) By Whom?	DOI	
3) Type	Fixed weir, L=5.0(m), H=1.4(m)	
4) Material	Stone masonry	
5) Nos. of Gate	1 Steel-made gate on the left bank canal.	
6) Gate Dimension	W= 0.60 (m) /	D= 0.92 (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	This weir may need rehabilitation including replacement of downstream stone-made apron with new one.	
Main Canal	Descriptions	
1) Location	Left bank only	
2) Type	Rectangular	
3) Material	Stone masonry / Earth	
4) Capacity	198 l/sec.	
5) Length and Slope	2.41km in total, S=1/450	
Sketch of Representative Canal Section (Dimensions are in metres)	 <p style="text-align: center;">800 m only for stone masonry</p>	
6) Present Condition	Since most part of this canal consists of earth-lined canal, much water leakage is observed.	
General Geological Feature	Sandy loam soil prevails along the canal. The intake structure is located on the apical part of the talus, the structure rests on about 2 to 3m thick boulder bed. Boulders are large (d>2m) and mostly porphyritic and coarse migmatites.	
Evaluation of the Scheme by JICA Study Team	Although water shortage is observed under this scheme, this scheme may be considered as one of the potential rehabilitation schemes.	

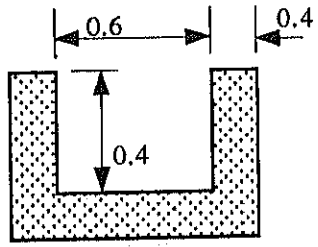
		Bhaktapur District	
		AB-01	Balakhu
		-1/2	
Survey Items	No. AB-01	Sub-No. B-05	Priority by DOI: Low
Name of Scheme	Balakhu		
Location	Bhaktapur District		
Water Resources	Kalhacha Khola /		
Catchment Area	1.9 (km ²) at the intake site		
Command Area	Present (Rainy Season)	60 ha.	Present (Dry Season) 50 ha.
			[Originally Informed] 60 ha.
Water Quality	Not good, but can be used for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	Not known		
Nos of Administrative Division	Village Development Committee (V.D.C.): 0	Ward: None	Municipality: 2
Existence of Benchmark	None		
Land Cost Near the Scheme	20 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	No remarkable activities by District Irrigation Office are observed.		
1) Organization	None	Nos. 0	Members Established in ----
2) Manpower Assignment	None		
3) Budget Allocation	Nil		
4) Main Activities	1-2 Times/Year (Desilting and weeding)		
Surrounding Conditions	Rapid urbanization makes it difficult to keep the farm land stable in near future.		
Problems with the Scheme	Farming under this scheme is becoming difficult due to rapid urbanization of the farm land.		
Farmer's Intention	No particular intention to be described.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Very small irrigation scheme exists at the upstream of the scheme		
1) Project Name	Not known		
2) Status	Not known		

Intake Facility	Descriptions	
1) Year constructed	Not known	Year rehabilitated: Not known
2) By Whom?	District Irrigation Office (DIO)	
3) Type	Fixed Weir, L=2.3(m)	
4) Material	Stone Masonry	
5) Nos. of Gate	None	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures other than weir and canal	
9) Availability of Construction Drawings	None	
10) Present Condition	Intake facility may still be used for more then 10 years with constant O/M.	
Main Canal	Descriptions	
1) Location	Left bank only	
2) Type	Rectangular	
3) Material	Brick / Earth	
4) Capacity	279 l/sec.	
5) Length and Slope	4.0 km in total	
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>400m (Brick portions only)</p>	
6) Present Condition	Repair works were done by DOI in 1991 only for damaged portions.	
General Geological Feature	Clay loam soil prevails along the canal.	
<u>Evaluation of the Scheme by JICA Study Team</u>	This scheme can't be taken up considering rapid urbanization of the area under the scheme.	

Date of Field Survey: 25, Apr., '93 /

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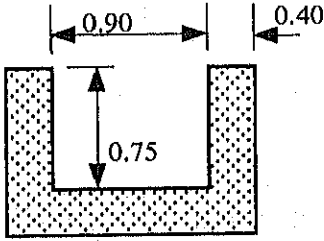
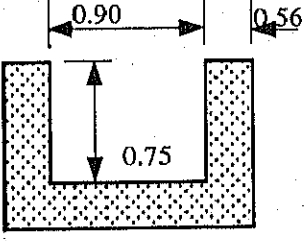
Survey Items	No. AB-02	Sub-No. B-07	Priority by DOI: Low
Name of Scheme	Bidol		
Location	Bhaktapur District		
Water Resources	Saraswisti Khola / Bidol Khola (Water is not sufficient.)		
Catchment Area	3.6 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	31 ha.	Present (Dry Season) ha.
			[Originally Informed] 65 ha.
Water Quality	Good and suitable for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	157		
Nos of Administrative Division	Village Development Committee (V.D.C.):	2	Ward: 2 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	0.45 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	No remarkable activities are observed.		
1) Organization	None	Nos.	---- Members Established in ----
2) Manpower Assignment	None		
3) Budget Allocation	8,000 Rs. for the year of 1994.		
4) Main Activities	1-2 Times/Year (Desilting only by farmers themselves.)		
Surrounding Conditions	Good for agriculture and urbanization is not yet observed here. However, it has been observed that brick-making plants have been increasing at the lower part of the command area, and they occupy 18.6 ha of agricultural lands at present.		
Problems with the Scheme	It has been observed that farmers are not interested in shouldering any responsibility for O/M of the system, unless the irrigation facilities are fully rehabilitated. Also, river discharge at the intake site in dry season seems to be scarce because of a small catchment area of the scheme.		
Farmer's Intention	No particular intention to be described. And farmers' intention to continue agriculture seems to be less.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions	
1) Year constructed	1963	Year rehabilitated: Not known
2) By Whom?	Department of Irrigation	
3) Type	Fixed weir, L=3.5(m)	
4) Material	Brick masonry	
5) Nos. of Gate	2 (At both sides of the intake)	
6) Gate Dimension	W= 0.45 (m)	D=0.66 (m)
7) Discharge	Q= 200 l/s. (Designed)	Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	1 Pipe-siphon (silted, and not functioning at present.)	
9) Availability of Construction Drawings	None	
10) Present Condition	Both gates can't be operated due to heavy rust around the spindles.	
Main Canal	Descriptions	
1) Location	At both banks	
2) Type	Rectangular	
3) Material	Brick / Earth	
4) Capacity	200 l/s (Designed for left bank)	
5) Length and Slope	3.2 km for left bank canal in total	
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>(Showing left bank canal only)</p>	
6) Present Condition	Lower portion of the canal can not be traced. Rehabilitation of the canals is urgently required.	
General Geological Feature	Sandy loam soil prevails along the canal.	
Evaluation of the Scheme by JICA Study Team	Little river discharge was observed during visit to the intake site in April and May, 1994. Since brick-making plants now occupy 18.6 ha of agricultural lands under the scheme as well as farmers' intention to continue agriculture seems to be less, accordingly, this scheme may not be considered as one of the potential schemes to be rehabilitated.	

Date of Field Survey: 9, May., '94 /

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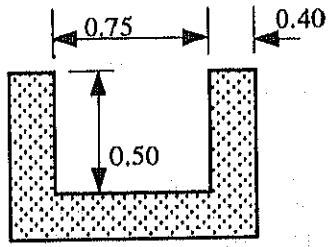
		Bhaktapur District	
		AB-03	Chakhu Khola
		-1/2	
Survey Items	No. AB-03	Sub-No. B-04	Priority by DOI: Low
Name of Scheme	Chakhu Khola		
Location	Bhaktapur District		
Water Resources	Chakhu Khola / poor resources in dry season		
Catchment Area	4.4 (km ²) at the weir site		
Command Area	Present (Rainy Season) 60 ha.	Present (Dry Season) 60 ha.	
		[Originally Informed] 100 ha.	
Water Quality	Good for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Potatoes, Wheat	
Nos. of Farmers Families	540		
Nos of Administrative Division	Village Development Committee (V.D.C.): 1	Ward: 3	Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	0.55 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	No remarkable activities are observed.		
	1) Organization	Nos.	Members Established in
	2) Manpower Assignment	None	
	3) Budget Allocation	50,000 Rs. in 1990/1991	
	4) Main Activities	1-2 Times/Year (Desilting only)	
Surrounding Conditions	Agricultural land is widely observed, especially paddy fields are prevailing.		
Problems with the Scheme	Agricultural productivity is low due to lack of water in dry season. Desilting around the weir is necessary.		
Farmer's Intention	No particular intention to be mentioned.		
	<i>Interviewee</i>		
Involvement by Irrigation Sector Programs (ISP) by ADB	Listed		
Other Related Projects	None		
	1) Project Name		
	2) Status		

Intake Facility	Descriptions	
1) Year constructed	1971	Year rehabilitated: Not Known
2) By Whom?	DOI	
3) Type	Fixed weir (L=5.0m)	
4) Material	Stone masonry	
5) Nos. of Gate	2 wooden gates for right and left sides and 2 sluiceways.	
6) Gate Dimension	W= 0.56 (m)	D=0.60 (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	2 Sluiceways at the weir, 1 Pipe-siphon and 1 Road Crossing.	
9) Availability of Construction Drawings	None	
10) Present Condition	Present condition of the weir and canals are generally all right. However, replacement of the gates and removal of deposits are necessary.	
Main Canal	Descriptions	
1) Location	At both banks	
2) Type	Rectangular	Trapezoidal
3) Material	Brick / Earth	Earth
4) Capacity	500 l/sec.	
5) Length and Slope	3.5 km	
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>(Right bank canal)</p>	 <p>(Left bank canal)</p>
6) Present Condition	Relatively good.	
General Geological Feature	Clay loam soil prevails along the canal.	
Evaluation of the Scheme by JICA Study Team	The weir and canals are generally in good condition. Accordingly, this scheme <u>should be extracted from the rehabilitation schemes.</u>	

Date of Field Survey: 25, Apr., '93 /

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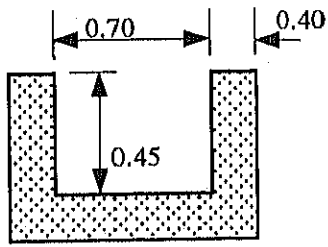
Survey Items	No. AB-04	Sub-No. B-10	Priority by DOI: 2/4
Name of Scheme	Dhunge Dhara		
Location	Bhaktapur District		
Water Resources	Hanumante Khola /		
Catchment Area	6.9 (km ²) at the weir site		
Command Area	Present (Rainy Season)	210 ha.	Present (Dry Season) 120 ha.
			[Originally Informed] 520 ha.
Water Quality	Good for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes	
Nos. of Farmers Families	Not known		
Nos of Administrative Division	Village Development Committee (V.D.C.): 3	Ward: 4	Municipality: 1
Existence of Benchmark	None		
Land Cost Near the Scheme	Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO.		
1) Organization	None	Nos.	Members Established in
2) Manpower Assignment	1 Man from DIO is attached to the scheme.		
3) Budget Allocation	150,000 Rp/year (till 1991) and 40,000 Rs. in 1990/1991.		
4) Main Activities	1 Times/Year (Disilting only)		
Surrounding Conditions	Good for agriculture. Urbanization is not yet observed here.		
Problems with the Scheme	Lack of attention to maintenance works is observed here.		
Farmer's Intention	No particular intention to be mentioned.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Drinking water project		
1) Project Name	D.W. Supply for Bhaktapur Town		
2) Status	Implemented by HMG in 1959 and has been maintained by GTZ.		

Intake Facility	Descriptions
1) Year constructed	Very old, not known Year rehabilitated: 1979 (by Germany)
2) By Whom?	Originally constructed by farmers and has been maintained by DOL.
3) Type	Temporary diversion weir, L=20(m)
4) Material	Stone and gabion
5) Nos. of Gate	1 Steel gate for right bank
6) Gate Dimension	W= 0.42 (m) / D= 0.4 (m)
7) Discharge	Q= 150 l/s. (Designed) Q= 8 l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be mentioned.
9) Availability of Construction Drawings	None
10) Present Condition	The temporary weir is in poor condition
Main Canal	Descriptions
1) Location	Right bank only
2) Type	Rectangular
3) Material	Brick masonry / Earth
4) Capacity	200 l/sec. (Designed)
5) Length and Slope	4.1 km in total
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>200 (m) for brick-lined protection</p>
6) Present Condition	There exist 15 branch canals, out of which 8 canals carry water at present.
General Geological Feature	Silty loam soil prevails along the canal. The intake weir is located on boulder bed embedded in sandy silt matrix. Boulders are large (d>2m) and chiefly consists of metasandstone and siltstone.
Evaluation of the Scheme by JICA Study Team	This temporary weir needs replacement. The irrigation canals also need rehabilitation. Considering the extent of command area, this scheme <u>may be taken up as one of the potential rehabilitation schemes.</u>

Date of Field Survey: 22, Apr., '93 /

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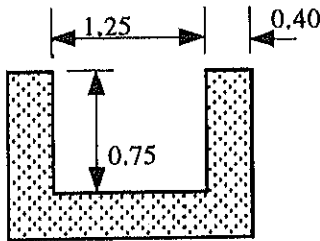
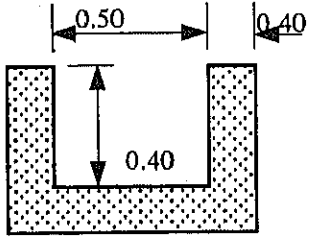
		Bhaktapur District	
		AB-07	Ghatte Kulo
		-1/2	
Survey Items	No. AB-07	Sub-No. -----	Priority by DOI: Low
Name of Scheme	Ghatte Kulo		
Location	Bhaktapur District		
Water Resources	Ghatte Kulo / Nanbu Khola		
Catchment Area	---- (km ²) at the intake site		
Command Area	Present (Rainy Season)	190 ha.	Present (Dry Season) 290 ha.
			[Originally Informed] 350 ha.
Water Quality	Suitable for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	800		
Nos of Administrative Division	Village Development Committee (V.D.C.):	Ward:	Municipality:
Existence of Benchmark	None		
Land Cost Near the Scheme	2.0 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DOI.		
1) Organization	None	Nos.	Members Established in
2) Manpower Assignment	1 Man is designated for O/M by DOI.		
3) Budget Allocation	Nil		
4) Main Activities	1 Times/Year (Desilting and weeding)		
Surrounding Conditions	Generally, the area under this scheme is suitable for agriculture, however, partial urbanization is observed at the lower end of the scheme.		
Problems with the Scheme	Much amount of water is being drawn to Bhaktapur town for drinking purpose at the upstream of the weir site. Thus, water shortage is main problem with this scheme.		
Farmer's Intention	No aggressive intention is observed.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Drinking Water Supply Project		
1) Project Name	Not known		
2) Status	At the upstream of the intake site, water is being drawn to Bhaktapur town for drinking purpose.		

Intake Facility	Descriptions
1) Year constructed	Not known Year rehabilitated:
2) By Whom?	Originally by farmers and maintained by DOI.
3) Type	Very simple intake with gabion.
4) Material	Gabions / Stones
5) Nos. of Gate	None
6) Gate Dimension	W= (m) / D= (m)
7) Discharge	Q= l/s. (Designed) Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.
9) Availability of Construction Drawings	None
10) Present Condition	This temporary intake facility needs replacement by a paramount weir.
Main Canal	Descriptions
1) Location	Left bank only
2) Type	Rectangular
3) Material	Brick / Earthen
4) Capacity	220 l/sec. (Designed)
5) Length and Slope	2.5km in total
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>150m only for brick-lined portion</p>
6) Present Condition	Only the upper portion of the canal is well maintained. And the succeeding canal which consists of earth is badly managed.
General Geological Feature	Sandy loam soil prevails along the canal.
Evaluation of the Scheme by JICA Study Team	Due to the water supply project located at the upstream of the intake site, water shortage will be the problem with this scheme in the future also. Thus, this scheme may not be taken up.

Date of Field Survey: 10, May., '93 /

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		Bhaktapur District	
		AB-08	Hanumante
		-1/2	
Survey Items	No. AB-08	Sub-No. B-08	Priority by DOI: Low
Name of Scheme	Hanumante		
Location	Bhaktapur District		
Water Resources	Hanumante Khola /		
Catchment Area	12.0 (km ²) at the weir site		
Command Area	Present (Rainy Season)	150 ha.	Present (Dry Season) 150 ha.
			[Originally Informed] 100 ha.
Water Quality	Not good but can be used for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	2,000		
Nos of Administrative Division	Village Development Committee (V.D.C.):	2	Ward: 9 Municipality: 1
Existence of Benchmark	None		
Land Cost Near the Scheme	0.55 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	Maintained by Farmers' organization.		
1) Organization	Farmers' organization	1 Nos.	11 Members Established in 1990
2) Manpower Assignment	2 men for O/M		
3) Budget Allocation	50,000 Rs. in 1990/1991		
4) Main Activities	2 Times/Year (Desilting only)		
Surrounding Conditions	This scheme is located near Bhaktapur town and brick-making factories occupy the agricultural land.		
Problems with the Scheme	Urbanization is progressing in the agricultural lands under this scheme. Thus it seems difficult to continue agriculture here in the future.		
Farmer's Intention	No particular intention is observed.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Small irrigation scheme exists at the upstream of this irrigation scheme		
1) Project Name	Not known		
2) Status	Implemented by DOI		

Intake Facility	Descriptions	
1) Year constructed	1983	Year rehabilitated:
2) By Whom?	DOI	
3) Type	Head Work	
4) Material	Wet Masonry	
5) Nos. of Gate	5 wooden gates for left and right banks. (2 gates for sluiceways)	
6) Gate Dimension	W= 1.9 (m) /	D= . (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	2 sluiceways at left and right side of the head work.	
9) Availability of Construction Drawings	None	
10) Present Condition	The head work is in good condition. However, removal of deposits around the head work is necessary.	
Main Canal	Descriptions	
1) Location	At both banks	
2) Type	Rectangular	Rectangular
3) Material	Brick / Earth	Brick / Earth
4) Capacity	300 l/sec.	
5) Length and Slope	<Right bank>	<Left Bank>
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>200m only for brick portion</p>	 <p>180m only for brick portion</p>
6) Present Condition	Much deposits are observed at immediate downstream of the gate on the left bank canal, which make it very difficult to carry the water downstream.	
General Geological Feature	Sandy loam soil prevails along the canal	
<u>Evaluation of the Scheme by JICA Study Team</u>	Anticipating that rapid urbanization will continue in the agricultural lands under this scheme, this scheme may not be taken up for the rehabilitation scheme.	

Date of Field Survey: 22, Apr., '93 /

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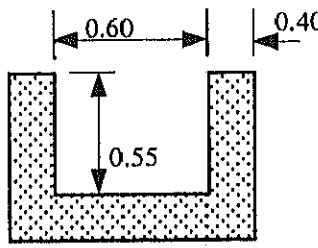
Survey Items	No. AB-10	Sub-No. B-02	Priority by DOI: 4/4
Name of Scheme	Katunje		
Location	Bhaktapur District		
Water Resources	Budhi Ganga /		
Catchment Area	2.4 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	58 ha.	Present (Dry Season) ha.
			[Originally Informed] 95 ha.
Water Quality	Not very good, but can be used for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	294		
Nos of Administrative Division	Village Development Committee (V.D.C.): 1	Ward: 4	Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	### Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and WUA. However, no remarkable activities are observed.		
1) Organization	WUA (Not registered) 1 Nos.	Members	Established in
2) Manpower Assignment	None		
3) Budget Allocation	50,000 Rs. in 1990/1991, and 6,00 Rs for the year of 1994.		
4) Main Activities	Times/Year (Almost none.)		
Surrounding Conditions	Good for irrigation and urbanization is not yet observed.		
Problems with the Scheme	The intake facility is very poor. It needs to be rehabilitated. Canals are also in very poor conditions and they need rehabilitation.		
Farmer's Intention	Farmers want to rehabilitate the canals so that they can get water in dry season for cultivation of more vegetables.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions
1) Year constructed	1932 Year rehabilitated: Not known
2) By Whom?	Originally by farmers
3) Type	Weir (Temporary weir)
4) Material	Stone masonry
5) Nos. of Gate	No gates are provided.
6) Gate Dimension	W= (m) / D= (m)
7) Discharge	Q= 160 l/s. (Designed) Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be mentioned.
9) Availability of Construction Drawings	None
10) Present Condition	This weir is very simple and needs replacement by a permanent structure. Canals also need rehabilitation.
Main Canal	Descriptions
1) Location	Right bank only.
2) Type	Rectangular
3) Material	Brick / Earth
4) Capacity	160 l/sec. (Designed)
5) Length and Slope	2.0 km / 1:500
Sketch of Representative Canal Section (Dimensions are in metres)	
6) Present Condition	Canals are in very poor conditions. Water leakage through the canals is being observed.
General Geological Feature	Silty clay loam soil prevails along canals.
Evaluation of the Scheme by JICA Study Team	Considering the conditions of the existing weir and canals, as well as intentions of the farmers, this scheme may be considered as one of the potential schemes to be rehabilitated.

Date of Field Survey: 6, May., '94 /

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Survey Items	No. AB-12	Sub-No. B-09	Priority by DOI: 3/4
Name of Scheme	Kutudhal		
Location	Bhaktapur District		
Water Resources	Hanumante Khola / (Water shortage in dry season)		
Catchment Area	7.3 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	46 ha.	Present (Dry Season) ha.
			[Originally Informed] 40 ha.
Water Quality	Good for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	200		
Nos of Administrative Division	Village Development Committee (V.D.C.): 1	Ward: 2	Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	0.6 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and WUA.		
1) Organization	WUA (Registered)	1 Nos.	13 Members Established in
2) Manpower Assignment	One man is attached to the scheme.		
3) Budget Allocation	40,000Rs. in 1990/1991 and 5,00 Rs. for the year of 1994.		
4) Main Activities	1 Times/Year (Desilting only)		
Surrounding Conditions	No urbanization is observed in the are, except in the limited area located at the lower end of the scheme. In general, the area under the scheme is good for agriculture.		
Problems with the Scheme	Unstable water supply due to the poor intake facility. Also, since water is being drawn for drinking water use at about 600 m upstream of the intake site, available water for irrigation at the intake site is being reduced. Also, brick-making plants occupy 14.8 ha of agricultural lands at the lower end of the the scheme.		
Farmer's Intention	Farmers are interested in relatively large scale agricultural cultivation if irrigation water is assured under the project. And farmers also want to cultivate fruits.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions
1) Year constructed	Very old and not known Year rehabilitated: 1991
2) By Whom?	DOI
3) Type	Temporary fixed weir, L=12.0(m)
4) Material	Wet Masonry and Gabion
5) Nos. of Gate	1 wooden gate on the right bank canal.
6) Gate Dimension	W= 0.37 (m) / D=0.40 (m)
7) Discharge	Q= 300 l/s. (Designed) Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	1 pipe aqueduct, 2 drop structures and 1 superpassage.
9) Availability of Construction Drawings	None
10) Present Condition	Gate is broken and needs replacement. Existing protection work of the left bank canal by gabion needs extension or needs to be replaced with reinforced concrete wall.
Main Canal	Descriptions
1) Location	Right bank only
2) Type	Rectangular
3) Material	Brick / Earth
4) Capacity	300 l/sec. (Designed)
5) Length and Slope	2.0 km in total
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>200m only for wet masonry portion</p>
6) Present Condition	Upper portion of the canal is relatively well maintained by DIO. However, water leakage is observed at the lower part of the canal.
General Geological Feature	Sandy loam soil prevails along the canal.
<u>Evaluation of the Scheme by JICA Study Team</u>	May be considered as one of the potential schemes to be rehabilitated.

Date of Field Survey: 9, May., '94 /

24-2/2

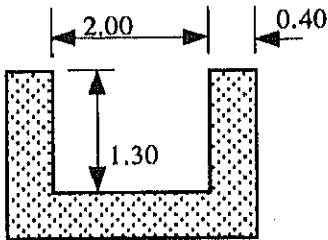
Survey Items	No. AB-13	Sub-No. -----	Priority by DOI: Low
Name of Scheme	Lapsetar		
Location	Bhaktapur District		
Water Resources	Budhi Ganga /		
Catchment Area	1.6 (km ²) at the intake site		
Command Area	Present (Rainy Season) 60 ha.	Present (Dry Season) ha.	
		[Originally Informed] 60 ha.	
Water Quality	Not bad, can be used for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat	
Nos. of Farmers Families	300		
Nos of Administrative Division	Village Development Committee (V.D.C.): 1	Ward: 4	Municipality:
Existence of Benchmark	None		
Land Cost Near the Scheme	0.5 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO		
1) Organization	None	Nos.	Members Established in
2) Manpower Assignment	None		
3) Budget Allocation			
4) Main Activities	Times/Year ()		
Surrounding Conditions	The area under this scheme is suitable for agriculture, and 75% of the farmers have their own land.		
Problems with the Scheme	None		
Farmer's Intention	No particular intention is observed.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions	
1) Year constructed	1983	Year rehabilitated:
2) By Whom?	DOI	
3) Type	Fixed Weir, L=8.0(m)	
4) Material	Concrete / Brick	
5) Nos. of Gate	1 wooden gate (broken) on the right bank canal.	
6) Gate Dimension	W= 0.6 (m)	D=0.6 (m)
7) Discharge	Q= 1/s. (Designed)	Q= 1/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	Provision of downstream apron is necessary and gate should be replaced.	
Main Canal	Descriptions	
1) Location	Right bank only	
2) Type	Almost rectangular	
3) Material	Earth	
4) Capacity	110 l/sec.	
5) Length and Slope	1.0 km in total	
Sketch of Representative Canal Section (Dimensions are in metres)		
6) Present Condition	This canal is badly maintained and needs urgent rehabilitation.	
General Geological Feature	Silty loam prevails along the canal.	
Evaluation of the Scheme by JICA Study Team	This scheme will function well with rehabilitation of canal. Accordingly, it may be taken up by ISP or other programs.	

Date of Field Survey: 25, Apr., '93 /

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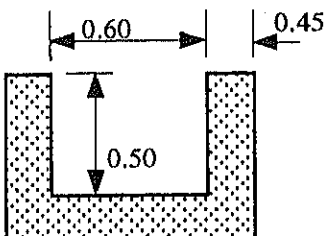
Survey Items	No. AB-14	Sub-No. B-01	Priority by DOI: 1/4
Name of Scheme	Mahadev Khola		
Location	Bhaktapur District		
Water Resources	Mahadev Khola /		
Catchment Area	4.1 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	220 ha.	Present (Dry Season) ha.
			[Originally Informed] 375 ha.
Water Quality	Irrigation water includes suspended loads, however is still good for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	1,450		
Nos of Administrative Division	Village Development Committee (V.D.C.): 2	Ward: 12	Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	1 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO.		
1) Organization	WUA (Not registered)	1 Nos.	Members Established in
2) Manpower Assignment	2 men are attached to the scheme.		
3) Budget Allocation	150,000 Rs in 1990/1991 and 95,000 Rs. for the year of 1994.		
4) Main Activities	1 Times/Year (Desilting only)		
Surrounding Conditions	Generally speaking, the area under this scheme is good for agriculture, however, partial urbanization is being observed at the end of the benefited area. Also, brick-making plants occupy 9.6 ha of agricultural lands in the scheme at present.		
Problems with the Scheme	Heavy deposits are observed around the head work and in the canal. Removal of the deposits are urgently required. Irrigable area is decreasing due to above-mentioned troubles. Also, another problem with this scheme is that it has a small catchment area compared to the irrigation command area.		
Farmer's Intention	Farmers want enough water especially in dry seasons through rehabilitation of the canals.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions
1) Year constructed	1954
2) By Whom?	Indian Government
3) Type	Head Work
4) Material	Concrete masonry weir (L=6.0m)
5) Nos. of Gate	1 (Steel-made sluice gate)
6) Gate Dimension	W= 1.7 (m) / D= 0.65 (m)
7) Discharge	Q= 1,330 l/s. (Designed) / Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	1 super passage, 16 drop structures, and 30 foot bridges.
9) Availability of Construction Drawings	None
10) Present Condition	Heavy deposits at upstream of the headwork are observed, accordingly operation of gate is now very difficult. Also, gates on the 2 sluiceways are deformed and they are not in workable condition.
Main Canal	Descriptions
1) Location	Left bank only
2) Type	Rectangular / Trapezoidal
3) Material	Brick / Earth
4) Capacity	1,330 (500) l/sec. (Designed)
5) Length and Slope	6.5 km in total S=1/200
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>(Showing masonry portion only)</p>
6) Present Condition	Heavy deposits in the masonry canal and water leakage through the earth canal are remarkable.
General Geological Feature	Sandy loam soil prevails along the canals. The intake structure is located on gravelly boulder bed embedded in sandy silt matrix. Canal alignment is located on the talus and colluvial slope. The colluvial slope located at nearly 250m downstream of the canal shows rapid creeping and debris slide.
Evaluation of the Scheme by JICA Study Team	Rehabilitation of the intake canal including replacement of gates and provision of upstream/downstream riprap are necessary. In addition, rehabilitation of the canals is also required. This scheme may be considered as one of the potential schemes to be rehabilitated.

Survey Items	No. AB-17	Sub-No. B-11	Priority by DOI: Low
Name of Scheme	Nil Barahi		
Location	Bhaktapur District		
Water Resources	Monohara River / Mahadev Khola		
Catchment Area	54.0 (km ²) at the intake site		
Command Area	Present (Rainy Season)	60 ha.	Present (Dry Season) 40 ha.
			[Originally Informed] 60 ha.
Water Quality	Water is good for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes	
Nos. of Farmers Families	Not known		
Nos of Administrative Division	Village Development Committee (V.D.C.): 1	Ward: 2	Municipality:
Existence of Benchmark	None		
Land Cost Near the Scheme	0.55 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	Not at all maintained at present.		
1) Organization	None	Nos.	Members Established in
2) Manpower Assignment	None		
3) Budget Allocation	None		
4) Main Activities	Times/Year ()		
Surrounding Conditions	The area is good for agriculture. Also, no urbanization is in progress here.		
Problems with the Scheme	To protect the farmlands, construction of bank along the both sides of the river is necessary.		
Farmer's Intention	No particular intention to be mentioned.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions	
1) Year constructed	Not known	Year rehabilitated: Not known
2) By Whom?	Not known	
3) Type	Stone-made intake	
4) Material	Stone	
5) Nos. of Gate	None	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	Only stones are put across the river to divert water to the right bank.	
Main Canal	Descriptions	
1) Location	Right bank only	
2) Type	Almost Trapezoidal	
3) Material	Earth	
4) Capacity		
5) Length and Slope	1.6km in total	
Sketch of Representative Canal Section (Dimensions are in metres)		
6) Present Condition	The canal is very poorly maintained.	
General Geological Feature	Silty soil prevails along the canal.	
<u>Evaluation of the Scheme by JICA Study Team</u>	Construction of river bank, intake facility and canal is required, which costs much. Accordingly, this scheme may not be taken up.	

Survey Items	No. AB-18	Sub-No. B-03	Priority by DOI: Low
Name of Scheme	Sipadol Katunje		
Location	Bhaktapur District		
Water Resources	Sipadol Khola /		
Catchment Area	1.4 (km ²) at the intake site		
Command Area	Present (Rainy Season)	100 ha.	Present (Dry Season) 40 ha.
			[Originally Informed] 100 ha.
Water Quality	Good for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	Not known		
Nos of Administrative Division	Village Development Committee (V.D.C.): 1	Ward: 9	Municipality:
Existence of Benchmark	None		
Land Cost Near the Scheme	1.0 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO.		
1) Organization	None	Nos.	Members Established in
2) Manpower Assignment	None		
3) Budget Allocation	Nil		
4) Main Activities	Times/Year ()		
Surrounding Conditions	The area under the scheme is good for irrigation.		
Problems with the Scheme	Katunje area has been suffering from water shortage for these 10 years due to drinking water supply project located upstream the scheme.		
Farmer's Intention	Consideration for irrigation water supply to Katunje area is urgently requested by farmers.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Drinking water project		
1) Project Name	Katunje Drinking Water Project		
2) Status	This project was implemented by Housing Ministry in 1980.		

Intake Facility	Descriptions
1) Year constructed	1983 Year rehabilitated: 1992
2) By Whom?	DIO
3) Type	Temporary diversion work with gabion.
4) Material	Gabion / stones
5) Nos. of Gate	None
6) Gate Dimension	W= (m) / D= (m)
7) Discharge	Q= l/s. (Designed) Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No temporary diversion works is in poor condition and needs replacement by a permanent weir.
9) Availability of Construction Drawings	None
10) Present Condition	This temporary diversion work is in poor condition and needs replacement by a permanent weir.
Main Canal	Descriptions
1) Location	Left bank only
2) Type	Rectangular
3) Material	Brick / Earthen
4) Capacity	
5) Length and Slope	2.0 m in total
Sketch of Representative Canal Section (Dimensions are in metres)	 <p style="text-align: center;">150m only for brick masonry portion</p>
6) Present Condition	The canal is not maintained well. Thus, siltation and water leakage are observed.
General Geological Feature	Soil, containing gravels, prevails along the canal.
Evaluation of the Scheme by JICA Study Team	This scheme is located near Ghatte Kulo scheme and suffering from water shortage problems for many years. However, it seems that priority in this scheme is given to drinking water supply. Accordingly, it is difficult to take up this scheme at present.

Survey Items	No. AB-20	Sub-No. B-06	Priority by DOI: Low
Name of Scheme	Sweety (shishaugari)		
Location	Bhaktapur District		
Water Resources	Shishougari Khola /		
Catchment Area	2.7 (km ²) at the intake site		
Command Area	Present (Rainy Season)	23 ha.	Present (Dry Season) 23 ha.
			[Originally Informed] 23 ha.
Water Quality	Good for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	100		
Nos of Administrative Division	Village Development Committee (V.D.C.):	1	Ward: 3 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	0.4 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and Farmers' organization.		
1) Organization	Farmers' organization	1 Nos.	13 Members Established in
2) Manpower Assignment	None		
3) Budget Allocation	20,000Rs. in 1992 by DIO		
4) Main Activities	2 Times/Year (Desilting only)		
Surrounding Conditions	Good for agriculture and no urbanization is observed under this scheme.		
Problems with the Scheme	Water shortage in dry season is reported.		
Farmer's Intention	Farmers don't want to pay water charge in future unless the situation is improved.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	No particular intention by farmers is observed.		
Other Related Projects	None		
1) Project Name			
2) Status			

Intake Facility	Descriptions	
1) Year constructed	1972	Year rehabilitated:
2) By Whom?	DOI	
3) Type	Fixed weir, L=5.0m	
4) Material	Stone masonry	
5) Nos. of Gate	None	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	No particular problems are observed.	
Main Canal	Descriptions	
1) Location	Right bank only.	
2) Type	Rectangular	
3) Material	Earth	
4) Capacity		
5) Length and Slope	1.5 km in total	
Sketch of Representative Canal Section (Dimensions are in metres)		
6) Present Condition	The weir and canal need rehabilitation.	
General Geological Feature	Loamy sand soil prevails along the canal.	
<u>Evaluation of the Scheme by JICA Study Team</u>	The study team expects that this scheme may be taken up by ISP or other aids.	

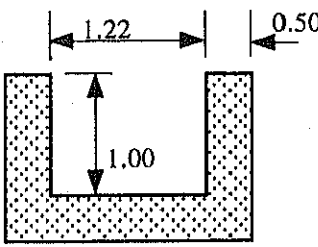
		Lalitpur District	
		AL-02	Bhorle
		-1/2	
Survey Items	No. AL-02	Sub-No. L-06	Priority by DOI: Low
Name of Scheme	Bhorle		
Location	Lalitpur District		
Water Resources	Nakhu Khola /		
Catchment Area	44.0 (km ²) at the weir site		
Command Area	Present (Rainy Season)	150 ha.	Present (Dry Season) 150 ha.
			[Originally Informed] 50 ha.
Water Quality	Good for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	1,500		
Nos of Administrative Division	Village Development Committee (V.D.C.):	2	Ward: 12 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	0.75 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by WUA		
1) Organization	WUA by ISP	1 Nos.	6 Members Established in 1992
2) Manpower Assignment	2 Men are attached to the scheme		
3) Budget Allocation	None		
4) Main Activities	2 Times/Year (Desilting and weeding)		
Surrounding Conditions	The area under this scheme consists of farm lands sandwiched by gently sloped terraces and no urbanization is observed at present.		
Problems with the Scheme	At present, this scheme has no problems, however, farmers want to have a permanent weir to obtain stable water supply through a year.		
Farmer's Intention	Farmers want to have a permanent weir to obtain stable water supply. They have intention to pay water charge for that purpose.		
<i>Interviewee</i>	<i>Mr. Haruncha Nagakoti / Manpower for WUA</i>		
Involvement by Irrigation Sector Programs (ISP) by ADB	This scheme was implemented by ISP in 1992.		
Other Related Projects	Drinking water supply project		
1) Project Name			
2) Status	Under considertaion by JICA.		

Intake Facility	Descriptions
1) Year constructed	Very old and not known. Year rehabilitated: 1992
2) By Whom?	Constructed by farmers and rehabilitated by ISP.
3) Type	Tentative weir
4) Material	Gabion
5) Nos. of Gate	None
6) Gate Dimension	W= -- (m) / D= --- (m)
7) Discharge	Q= I/s. (Designed) Q= 140 I/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.
9) Availability of Construction Drawings	None
10) Present Condition	The condition of gabion work at the intake site is all right, and seems to be durable against ordinary floods. Water shortage in dry season is observed.
Main Canal	Descriptions
1) Location	Left bank only
2) Type	Rectangular
3) Material	Wet masonry / Earth
4) Capacity	200 l/sec. (Observed)
5) Length and Slope	200m (only for wet masonry portion)
Sketch of Representative Canal Section (Dimensions are in metres)	
6) Present Condition	Some deposits in the canal are observed. Spot rehabilitation works for the canal are done by ISP.
General Geological Feature	Silty loam soil prevails along the canal.
<u>Evaluation of the Scheme by JICA Study Team</u>	Since this scheme was rehabilitated by ISP, it can't be taken up as on of the rehabilitation schemes under this project. This scheme is considered to be a model project by ISP to be observed..

		Lalitpur District	
		AL-03	Champi
		-1/2	
Survey Items	No. AL-03	Sub-No. L-09	Priority by DOI: Low
Name of Scheme	Champi		
Location	Lalitpur District		
Water Resources	Nakhu Khola /		
Catchment Area	43.0 (km ²) at the weir site		
Command Area	Present (Rainy Season)	100 ha.	Present (Dry Season) 100 ha.
			[Originally Informed] 100 ha.
Water Quality	Includes suspended loads, however, can be used for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Vegetables	
Nos. of Farmers Families	Not known		
Nos of Administrative Division	Village Development Committee (V.D.C.):	3	Ward: 26 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	0.5 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by WUA		
1) Organization	WUA/ISP	1 Nos.	11 Members Established in 1992
2) Manpower Assignment	2 Men are attached to the scheme		
3) Budget Allocation	None, at present.		
4) Main Activities	2 Times/Year (Desilting and weeding)		
Surrounding Conditions	The area under this scheme lies on the terraces located at the left bank of Nakhu Khola and is good for agriculture. No urbanization is observed in the area.		
Problems with the Scheme	Under ISP, only rehabilitation work for the canal was made, accordingly, rehabilitation of the tentative weir is necessary to make irrigation water supply stable.		
Farmer's Intention	No particular intention to be described.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	Implemented by ISP in 1992.		
Other Related Projects	Dam construction project		
1) Project Name	Not fixed		
2) Status	Under planning by JICA.		

Intake Facility	Descriptions	
1) Year constructed	1961	Year rehabilitated:
2) By Whom?	Indian Government	
3) Type	Fixed weir	
4) Material	Wet masonry	
5) Nos. of Gate	Not known	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	This weir was washed away by the floods in 1980, and at present only foundation of the weir is observed.	
Main Canal	Descriptions	
1) Location	Left bank only	
2) Type	Rectangular	
3) Material	Wet masonry / Earth	
4) Capacity	10 l/sec. (Observed)	
5) Length and Slope	70m (Only for wet masonry portion)	
Sketch of Representative Canal Section (Dimensions are in metres)		
6) Present Condition	Permeability is high, especially in earth-lined portions of the canal.	
General Geological Feature	The soil along the canal contains much gravels.	
Evaluation of the Scheme by JICA Study Team	Since this scheme was rehabilitated by ISP, and deeply involved in ISP, it can't be considered as one of the rehabilitation schemes.	

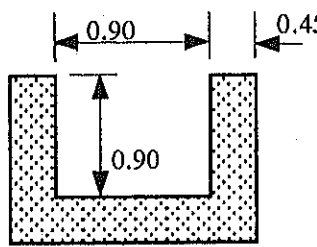
		Lalitpur District		AL-05 Godawari		-1/2
Survey Items	No. AL-05	Sub-No. L-03	Priority by DOI: 6/6			
Name of Scheme	Godawari					
Location	Lalitpur District					
Water Resources	Godawari Khola / Nabha Khola					
Catchment Area	7.8 (km ²) at the weir site					
Command Area	Present (Rainy Season) 175 ha.		Present (Dry Season) 150 ha.			
			[Originally Informed] 104 ha.			
Water Quality	Suitable for irrigation					
Cultivated Crops	Rainy Season	Paddy				
	Dry Season	Wheat, Potatoes, Vegetables				
Nos. of Farmers Families	2,500					
Nos of Administrative Division	Village Development Committee (V.D.C.): 3	Ward: 6	Municipality: 0			
Existence of Benchmark	None					
Land Cost Near the Scheme	2.5 Lhak Rs./ropani (0.05ha.)					
Operation & Maintenance	O/M is being conducted by DIO and Farmers' organization.					
1) Organization	Farmers' organization	1 Nos.	Members	Established in		
2) Manpower Assignment	Some farmers are designated for O/M.					
3) Budget Allocation	70,000Rs. in 1990/1991, 50,000Rs. in 1992/1993					
4) Main Activities	2 Times/Year (Desilting and weeding)					
Surrounding Conditions	The area under this scheme is suitable for irrigation, however, partial urbanization is progressing at the lower part of the scheme.					
Problems with the Scheme	The left bank canal was badly damaged by landslides in 1978 and needs urgent rehabilitation. Also access to the intake site is difficult. Landslides on the right bank canal are also observed.					
Farmer's Intention	Farmers want to cultivate more vegetable in dry seasons, Farmer also want that the left bank canal be rehabilitated.					
<i>Interviewee</i>						
Involvement by Irrigation Sector Programs (ISP) by ADB	None					
Other Related Projects	Hydraulic Laboratory Centre					
1) Project Name	Water Induced Disaster Prevention Program					
2) Status	Completed in 1992 by JICA.					

Intake Facility	Descriptions	
1) Year constructed	1965	Year rehabilitated:
2) By Whom?	Originally by Indian Government	
3) Type	Fixed weir, L=5.0(m)	
4) Material	Stone masonry	
5) Nos. of Gate	2 wooden gates on the both banks.	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	2 Sluiceways on the both banks.	
9) Availability of Construction Drawings	None, all lost.	
10) Present Condition	The weir is relatively in good condition. Water shortage in dry seasons is observed.	
Main Canal	Descriptions	
1) Location	At both banks	
2) Type	Rectangular	
3) Material	Boulder masonry / Earth	
4) Capacity	566 l/sec.	
5) Length and Slope	8.0 km in total	
Sketch of Representative Canal Section (Dimensions are in metres)		
	Right bank / 150m only	Left bank / 120 only
6) Present Condition	The left bank canal is badly damaged due to landslides and need urgent rehabilitation. The right bank canal also needs rehabilitation, especially for the earth-lined portions.	
General Geological Feature	Loamy sand soil prevails along the both canals.	
Evaluation of the Scheme by JICA Study Team	It seems that this scheme costs much to rehabilitate existing canal systems under the scheme. Thus, this scheme may not be taken up although this scheme is ranked as priority N0.6 by DOI.	

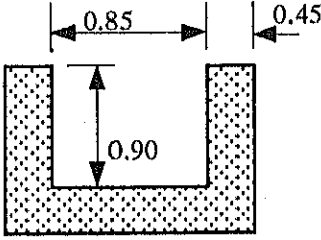
Survey Items	No. AL-08	Sub-No. L-07	Priority by DOI: 5/6
Name of Scheme	Khokana		
Location	Lalitpur District		
Water Resources	Nakhu Khola /		
Catchment Area	49.0 (km ²) at the intake site		
Command Area	Present (Rainy Season)	150 ha.	Present (Dry Season) 150 ha.
			[Originally Informed] 300 ha.
Water Quality	Not so good, but can be used for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat and some Vegetables	
Nos. of Farmers Families	1,000		
Nos of Administrative Division	Village Development Committee (V.D.C.): 4	Ward: 12	Municipality:
Existence of Benchmark	None		
Land Cost Near the Scheme	2.5 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by Farmers' organization.		
1) Organization	Farmers' organization	1 Nos.	25-40 Members Established in 1978?
2) Manpower Assignment	2 Men are attached to the scheme.		
3) Budget Allocation	150,000Rs. in 1992/93, Farmers pay water charge in kind, like in rice and wheat.		
4) Main Activities	2 Times/Year (Desilting and weeding)		
Surrounding Conditions	The area under this scheme lies on the left bank of Nakhu Khola and is good for agriculture. No urbanization is observed here.		
Problems with the Scheme	Irrigation water shortage in dry season. Also, poor condition of the existing temporary weir is one of the main constraints against stable water supply to the scheme.		
Farmer's Intention	Farmers want that the temporary intake facility be rehabilitated and they also want to cultivate more vegetables. They have intention to pay water charge for that purpose.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	Minor irrigation schemes at the upstream of the scheme		
1) Project Name	Not known		
2) Status			

Intake Facility	Descriptions	
1) Year constructed	Very old, not known	Year rehabilitated: 1976
2) By Whom?	Originally, by Indian Government	
3) Type	Longitudinal temporary diversion work, L=80(m)	
4) Material	Gabion / Stones	
5) Nos. of Gate	None	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	Originally constructed weir was washed away by the floods in 1980, at present, simple gabion work , which needs rehabilitation, is provided at the intake site.	
Main Canal	Descriptions	
1) Location	Left bank only	
2) Type	Almost rectangular	
3) Material	Earth	
4) Capacity	300 l/sec.	
5) Length and Slope	4.5 km in total	
Sketch of Representative Canal Section (Dimensions are in metres)		
6) Present Condition	The canal is relatively well maintained by WUA. However, siltation in the canal is observed.	
General Geological Feature	Silty loam soil prevails along the canal.	
<u>Evaluation of the Scheme by JICA Study Team</u>	<p>With replacement of existing temporary weir by a permanent weir, it is expected to increase water supply for dry season crops.</p> <p>In addition, since farmers' intentions to continue agriculture is strong, this scheme may be taken up as one of the potential rehabilitation schemes.</p>	

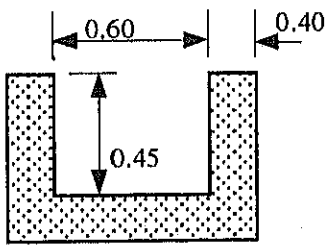
Survey Items	No. AL-10	Sub-No. L-04	Priority by DOI: 4/6
Name of Scheme	Kotkhu		
Location	Lalitpur District		
Water Resources	Karmanasia Khola /		
Catchment Area	16.0 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	230 ha.	Present (Dry Season) ha.
			[Originally Informed] 100 ha.
Water Quality	Suitable for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	1,959		
Nos of Administrative Division	Village Development Committee (V.D.C.):	4	Ward: 23 Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	2.0 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and WUA. However, no remarkable activities are observed.		
1) Organization	WUA (Not registered)	1 Nos.	Members Established in
2) Manpower Assignment	2 Men are attached to the scheme		
3) Budget Allocation	70,000Rs. in 1990/1991, 125,000RS. in 1992/1993 and 45,000 Rs. for 1994.		
4) Main Activities	2 Times/Year (Desilting and weeding only)		
Surrounding Conditions	The area under this scheme is suitable for agriculture, however, partial urbanization is observed in the area. And brick-making plants have been increasing at the lower part of the scheme and at present they occupy 74.7 ha of agricultural lands under the scheme.		
Problems with the Scheme	Drinking water supply project (Kotkhu Water Supply Project) by Thai is under study. The feasibility study report on the project was submitted to Nepal Water Supply Corporation in November, 1993. If this project is implemented, existing intake facility of Kotkhu scheme will be submerged.		
Farmer's Intention	No particular intention is observed.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	As mentioned above.		
1) Project Name	Kotkhu Water Supply Project		
2) Status	As mentioned above.		

Intake Facility	Descriptions	
1) Year constructed	1965	Year rehabilitated:
2) By Whom?	Indian Government	
3) Type	Fixed weir with a foot bridge, L=9.0(m), H=1.5(m)	
4) Material	Boulder masonry	
5) Nos. of Gate	1 wooden gate on the right bank canal.	
6) Gate Dimension	W= 1.2 (m) /	D= 0.9 (m)
7) Discharge	Q= 425 l/s. (Designed)	Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	None	
9) Availability of Construction Drawings	None	
10) Present Condition	This weir is relatively in good condition compared to others. However, river training at the upstream of the intake facility and ripraps both at upstream/downstream of the intake facility will be needed.	
Main Canal	Descriptions	
1) Location	Right bank only	
2) Type	Rectangular	
3) Material	Brick masonry / Earth	
4) Capacity	425 l/sec. (Designed)	
5) Length and Slope	7.0 km in total	
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>200m only for brick masonry portion</p>	
6) Present Condition	Culvert-type canal is provided at the head of the canal for about 60m. Water leakage from the canal is observed.	
General Geological Feature	Sandy loam soil prevails along the canal.	
<u>Evaluation of the Scheme by JICA Study Team</u>	Although JICA Study Team considers that this scheme is one of the potential schemes to be rehabilitated, adjustment between this project and drinking water project should be made by the concerned authorities beforehand. However, this scheme has a problem of increasing brick-making plants at the lower area of the scheme.	

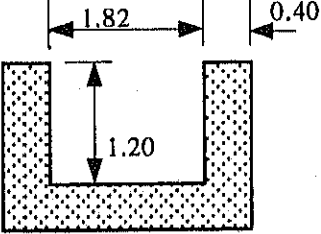
Survey Items	No. AL-13	Sub-No. L-05	Priority by DOI: 3/6
Name of Scheme	Lubhu		
Location	Lalitpur District		
Water Resources	Lubhu Khola / (Spring water)		
Catchment Area	5.2 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	138 ha.	Present (Dry Season) ha.
			[Originally Informed] 600 ha.
Water Quality	Very good for irrigation		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	2,399		
Nos of Administrative Division	Village Development Committee (V.D.C.): 3	Ward: 13	Municipality: 0
Existence of Benchmark	None		
Land Cost Near the Scheme	2.0 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by WUA.		
1) Organization	WUA (Registered)	1 Nos.	13 Members Established in 1989
2) Manpower Assignment	2 Men are attached to the scheme		
3) Budget Allocation	100,000Rs. in 1990/1991, 100,000Rs. in 1992/1993 and no budget for 1994.		
4) Main Activities	2 Times/Year (minor repairs of canal and desilting.)		
Surrounding Conditions	Suitable for agriculture. However, partial urbanization is progressing at the lower end of the command area. Also, brick-making plants are seen at the lower end of the command area.		
Problems with the Scheme	Floods occurred last year completely washed away the intake facility and there is no permanent structure at the intake site. And farmers are trying to construct a temporary intake about 400 m upstream of the previous intake site by themselves.		
Farmer's Intention	Farmer's intention to continue agriculture seems to be strong. Once they collected some kind of water charge of 4 Rs. per ropani for several years. However, detail information on it is not available.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	None		
1) Project Name			
2) Status	A little amount of water is being drawn to the village at the upstream of the intake site for supplying drinking water.		

Intake Facility	Descriptions
1) Year constructed	1965-66 Year rehabilitated: 1991
2) By Whom?	DOI
3) Type	No intake facility
4) Material	
5) Nos. of Gate	None
6) Gate Dimension	W= (m) / D= (m)
7) Discharge	Q= 283 l/s. (Designed) Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	None
9) Availability of Construction Drawings	None
10) Present Condition	There is no permanent structure at the intake site. And heavy scoring caused by last year's floods is observed at the previous intake site. Maximum scoring depth reaches 4 to 5 m at the previous intake site.
Main Canal	Descriptions
1) Location	Right bank only
2) Type	Rectangular
3) Material	Brick masonry / Earth
4) Capacity	283 l/sec.
5) Length and Slope	4.0 km in total
Sketch of Representative Canal Section (Dimensions are in metres)	 <p style="text-align: center;">150 m only</p>
6) Present Condition	Upper portion of the canal, say, 150 m was rehabilitated by DIO in 1991. And additional repair works for badly damaged canal due to landslides caused by heavy rains were done by DIO.
General Geological Feature	Sandy loam soil prevails along the canal.
<u>Evaluation of the Scheme by JICA Study Team</u>	This scheme is considered as one of the potential schemes to be rehabilitated.

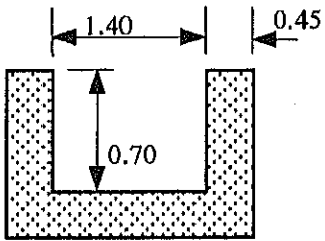
		Lalitpur District		
		AL-18	Saibu / Makal Kulo, Sara Kulo -1/2	
Survey Items	No. AL-18	Sub-No. L-08	Priority by DOI: Low	
Name of Scheme	Saibu / Makal Kulo, Sara Kulo			
Location	Lalitpur District			
Water Resources	Nakhu Khola /			
Catchment Area	52.0 (km ²) at the intake site			
Command Area	Present (Rainy Season)	90 ha.	Present (Dry Season)	125 ha.
			[Originally Informed]	50 ha.
Water Quality	Not so good, but can be used for irrigation.			
Cultivated Crops	Rainy Season	Paddy		
	Dry Season	Wheat, Potatoes, Vegetables		
Nos. of Farmers Families	500			
Nos of Administrative Division	Village Development Committee (V.D.C.):	1	Ward:	4
			Municipality:	0
Existence of Benchmark	None			
Land Cost Near the Scheme	3 Lhak Rs./ropani (0.05ha.)			
Operation & Maintenance	O/M at Makal Kolo is being conducted by WUA.			
1) Organization	WUA	1 Nos.	11 Members	Established in 1992
2) Manpower Assignment				
3) Budget Allocation	Presently, none			
4) Main Activities	2 Times/Year (Disilting and weeding)			
Surrounding Conditions	This scheme is now divided into two schemes i.e., Makal Kolo (90ha.) and Sera Kulo (105ha.). Partial urbanization is observed here.			
Problems with the Scheme	Some portions of the canal, about 300m downstream of the intake, are broken due to landslides.			
Farmer's Intention	No particular intention to be described.			
<i>Interviewee</i>				
Involvement by Irrigation Sector Programs (ISP) by ADB	Makal Kulo was implemented by ISP. Sera Kulo is now under necessary procedures for ISP.			
Other Related Projects	None			
1) Project Name				
2) Status				

Intake Facility	Descriptions	
1) Year constructed	Very old, and not known.	Year rehabilitated: 1982
2) By Whom?	Originally by DOI	
3) Type	Temporary longitudinal diversion work.	
4) Material	Stone	
5) Nos. of Gate	None	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= l/s. (Designed)	Q= l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	This temporary longitudinal diversion work was constructed in 1982 after washing away the originally constructed weir by the floods in 1980. It is in poor condition.	
Main Canal	Descriptions	
1) Location	Left bank only	
2) Type	Rectangular	
3) Material	Brick masonry / Earth	
4) Capacity	Not known	
5) Length and Slope		
Sketch of Representative Canal Section (Dimensions are in metres)	 <p style="text-align: center;">200m only for brick masonry portion</p>	
6) Present Condition	Earth-lined canal portion needs urgent rehabilitation.	
General Geological Feature	Sandy loam soil prevails along the canal.	
<u>Evaluation of the Scheme by JICA Study Team</u>	Since this scheme is already deeply involved in ISP, it can't be taken up as one of the rehabilitation schemes.	

Survey Items	No. AL-19	Sub-No. L-01	Priority by DOI: 1/6
Name of Scheme	Thika Bhairaw (I)		
Location	Lalitpur District		
Water Resources	Mainly Lele Khola / Reinforced by Naldu Khola		
Catchment Area	39.0 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	525 ha.	Present (Dry Season) ha.
			[Originally Informed] 400 ha.
Water Quality	Not very good, but can be used for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	5,000		
Nos of Administrative Division	Village Development Committee (V.D.C.): 6	Ward: 36	Municipality: 1
Existence of Benchmark	None		
Land Cost Near the Scheme	### Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and WUA.		
1) Organization	WUA (Not registered)	1 Nos.	4 Members Established in 1987
2) Manpower Assignment	2 Men from DIO (temporary assignment)		
3) Budget Allocation	10,000 Rs. in 1990/1991, 125,000Rs. in 1992/1993 and 62,000 Rs. for 1994.		
4) Main Activities	2 Times/Year (Desilting and weeding only.)		
Surrounding Conditions	Urbanization is progressing slowly at the lower end of this scheme.		
Problems with the Scheme	Previously, there was manpower assignment of about 30 people for O/M under this scheme, however, many of them have retired from the assignment, and now only 2 men are working with the scheme.		
Farmer's Intention	Farmer's intention to continue agriculture under this scheme seems to be strong.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects	It is said that there is a plan to construct a dam near this scheme, however, it is not confirmed at present.		
1) Project Name	Not fixed		
2) Status			

Intake Facility	Descriptions	
1) Year constructed	1961	Year rehabilitated:
2) By Whom?	Indian Government	
3) Type	Fixed weir /Lele Khola, L=10.6(m) : Fixed weir /Naldu Khola (washed away)	
4) Material	Wet Masonry	
5) Nos. of Gate	One wooden gate on the sluiceway at right bank.	
6) Gate Dimension	W= 1.75 (m) /	D=0.95 (m)
7) Discharge	Q= l/s. (Designed)	Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	Bridges (48) and drops (22) according to original plan.	
9) Availability of Construction Drawings	None	
10) Present Condition	Naldu Khola weir was badly damaged by the floods in 1980 and needs rehabilitation including its canal systems.	
Main Canal	Descriptions	
1) Location	Right bank only.	
2) Type	Rectangular	
3) Material	Brick masonry / Earth	
4) Capacity	28.3 l/sec. (Observed)	
5) Length and Slope	10.5km, S=1/350	
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>400m, only for brick masonry portion</p>	
6) Present Condition	Water leakage is observed at many places of the canal systems. Also, much amount of siltation in the canal, especially at the head of the canal, is observed.	
General Geological Feature	Silty loam soil prevails along the canal.	
Evaluation of the Scheme by JICA Study Team	Replacement of the washed -away weir with new one and rehabilitation of canal systems are needed. Since this scheme is considered as one of the important schemes, it may be considered as one of the potential schemes to be rehabilitated.	

Survey Items	No. AL-20	Sub-No. L-02	Priority by DOI: 2/6
Name of Scheme	Thika Bhairaw (II)		
Location	Lalitpur District		
Water Resources	Naldu Khola /		
Catchment Area	47.0 (km ²) at the intake site.		
Command Area	Present (Rainy Season)	82 ha.	Present (Dry Season) ha.
			[Originally Informed] 300 ha.
Water Quality	Good for irrigation.		
Cultivated Crops	Rainy Season	Paddy	
	Dry Season	Wheat, Potatoes, Vegetables	
Nos. of Farmers Families	###		
Nos of Administrative Division	Village Development Committee (V.D.C.):	3	Ward: ### Municipality: 1
Existence of Benchmark	None		
Land Cost Near the Scheme	3.0 Lhak Rs./ropani (0.05ha.)		
Operation & Maintenance	O/M is being conducted by DIO and WUA		
1) Organization	WUA (Not registered)	1 Nos.	4 Members Established In 1987
2) Manpower Assignment	3 Men from GOI are attached to the scheme.		
3) Budget Allocation	60,000 Rs. in 1990/1991, 60,000Rs. in 1992/1993 and 36,000 Rs. for 1994.		
4) Main Activities	2 Times/Year (Minor repair works for canals.)		
Surrounding Conditions	The area under this scheme is good for irrigation, however, partial urbanization is observed at the lower end of the area.		
Problems with the Scheme	Much amount of water leakage from the canal is observed. Access to the weir site is not good.		
Farmer's Intention	According to interview to the farmers under this scheme, they have a will to pay water charge after rehabilitation of the scheme.		
<i>Interviewee</i>			
Involvement by Irrigation Sector Programs (ISP) by ADB	None		
Other Related Projects			
1) Project Name			
2) Status			

Intake Facility	Descriptions	
1) Year constructed	1961	Year rehabilitated: 1982
2) By Whom?	Originally by Indian Government.	
3) Type	Fixed weir, L=25 m (At present, only the base slab of the intake is remaining)	
4) Material	Gabion and wet masonry	
5) Nos. of Gate	None (Washed away due to floods)	
6) Gate Dimension	W= (m) /	D= (m)
7) Discharge	Q= 700 l/s. (Designed)	Q= ### l/s.(Estimated)
8) Kinds and Nos. of Other Structures	No particular structures to be described.	
9) Availability of Construction Drawings	None	
10) Present Condition	Originally constructed weir was washed away by the floods in 1980. Presently, there is no permanent intake structure and water is directly drawn to the irrigation canal.	
Main Canal	Descriptions	
1) Location	Right bank only	
2) Type	Rectangular / Trapezoidal	
3) Material	Stone, Brick masonry /Earth	
4) Capacity	700 l/sec., S=1/350	
5) Length and Slope	7.4km in total	
Sketch of Representative Canal Section (Dimensions are in metres)	 <p>180m, brick masonry portion only</p>	
6) Present Condition	This canal consists of stone masonry, brick masonry and earth materials. And much amount of water leakage from the canal is observed, causing water shortage in dry seasons.	
General Geological Feature	Silty loam soil prevails along the canal.	
Evaluation of the Scheme by JICA Study Team	This scheme is also considered as one of the important schemes considering its command area and willingness of farmers, it may be considered as one of the potential schemes to be rehabilitated.	

