ASIAN DEVELOPMENT BANK

PCR NEP: 26063

PROJECT COMPLETION REPORT

ON THE

FOURTH RURAL WATER SUPPLY AND SANITATION SECTOR PROJECT

(Loan 1464-NEP [SF])

IN

NEPAL

June 2004

CURRENCY EQUIVALENTS

Currency Unit – Nepalese rupee/s (NRe/NRs)

		At Appraisal (August 1996)	At Project Completion (June 2002)
NRe1.00	=	$0.0176	$0.0128
$1.00	=	NRs56.75	NRs78.00

ABBREVIATIONS

ADB	-	Asian Development Bank
BME	-	benefit monitoring and evaluation
CEAP	-	Community Education and Awareness Program
CHRDU	-	Central Human Resources Development Unit
COS	-	country operational strategy
CPMO	-	Central Project Management Office
DAO	-	District Administration Office
DDC	-	District Development Committee
DWSO	-	District Water Supply Office
DWSS	-	Department of Water Supply and Sewerage
EIRR	-	economic internal rate of return
FIRR	-	financial internal rate of return
MPPW	-	Ministry of Physical Planning and Works
NGO	-	nongovernment organization
O&M	-	operation and maintenance
PCR	-	project completion report
PPTA	-	project preparatory technical assistance
RPMO	-	Regional Project Management Office
SIRs	-	subproject identification reports
VDC	-	Village Development Committee
WUC	-	Water Users Committee

NOTES

(i) The fiscal year (FY) of the Government ends on 15 July. FY before a calendar year denotes the year in which the fiscal year ends. For example, FY2004 began on 16 July 2003 and will end on 15 July 2004.

(ii) In this report "$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	Nepal
2.	Loan Number	1464-NEP (SF)
3.	Project Title	Fourth Rural Water Supply and Sanitation Sector Project
4.	Borrower	The Kingdom of Nepal
5.	Executing Agency	Ministry of Physical Planning and Works
6.	Amount of Loan	SDR13.721 million
7.	Project Completion Report Number	PCR: NEP 814

B. Loan Data

1.	Appraisal	
	– Date Started	15 July 1996
	– Date Completed	29 July 1996
2.	Loan Negotiations	
	– Date Started	26 August 1996
	– Date Completed	28 August 1996
3.	Date of Board Approval	24 September 1996
4.	Date of Loan Agreement	29 November 1996
5.	Date of Loan Effectiveness	
	– In Loan Agreement	27 February 1997
	– Actual	9 January 1997
6.	Closing Date	
	– In Loan Agreement	30 June 2002
	– Actual	30 June 2002 [a]
7.	Terms of Loan	
	– Service Charge	1% per annum
	– Maturity (number of years)	40
	– Grace Period (number of years)	10
8.	Disbursements	

a. Dates

Initial Disbursement	Final Disbursement	Time Interval
30 April 1997	20 December 2002	68 Months
Effective Date	**Original Closing Date**	**Time Interval**
9 January 1997	30 June 2002	66 Months

[a] The Project was completed by 30 June 2002, and the loan account was closed on 20 December 2002.

b. Amount ($)

Category or Subloan	Original Allocation	Last Revised Allocation	Amount Canceled	Net Amount Available	Amount Disbursed	Undisbursed Balance
Civil Works Part 01A	5,352,000	6,195,546	(843,546)	6,195,546	6,406,023	(210,477)
Civil Works Part 01B	466,000	573,589	(107,589)	573,589	474,112	99,477
Equipment, Materials, and Vehicles	5,536,000	5,349,113	186,887	5,349,113	5,225,731	123,382
District Profile	295,000	275,316	19,684	2,75,316	2,71,483	3,833
Training	734,000	311,461	422,539	3,11,461	3,30,820	(19,359)
Consulting Services	995,000	672,975	322,025	672,975	657,779	15,196
Service Charge	343,000	343,000	0	343,000	343,000	0
Unallocated						
Total	**13,721,000**	**13,721,000**		**13,721,000**	**13,708,948**	**12,052**

9. Local Costs (Financed)
   - Amount ($ million) 7.11
   - Percent of Local Costs 97.28
   - Percent of Total Cost 27.66

C. Project Data

1. Project Cost ($ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	12.1	11.4
Local Currency Cost	14.5	14.3
Total	**26.6**	**25.7**

2. Financing Plan ($ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower-Financed	3.50	3.90
ADB-Financed	19.50	18.05
Beneficiaries	3.10	3.30
Total	**26.10**	**25.25**
IDC Costs		
Borrower-Financed	–	–
ADB-Financed	0.50	0.45
Total	**0.50**	**0.45**

– = not available

Source: Asian Development Bank

3. Cost Breakdown by Project Component ($ million)

Component	Appraisal Estimate	Actual
Community Education and Awareness (A)	1.670	0.664
Water Supply and Sanitation (B)		
Water Supply and Sanitation		
Civil Works	11.330	13.076
Materials and Equipment	7.730	6.853
Subtotal (A + B)	**19.060**	**19.929**
Implementation Assistance and Institutional Strengthening (C)		
Incremental Administration	2.130	2.130
Equipment and Vehicles	0.340	0.339
Office Building and/or Training Center	1.080	0.930
Consulting Services	1.450	0.895
District Profiles	0.430	0.366
Subtotal (C)	**5.430**	**4.660**
Service Charge	0.500	0.450
Total Project Cost	**26.660**	**25.703**

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants		
Project Management Consultants	January 1997	April 1997 [a]
Social Facilitation Consultants	January 1997	April 1997
Subproject Engineering Design Consultants	January 1997	April 1997
District Profiles	–	November 1998
Completion of Engineering Designs	December 2001	August 2000
Civil Works Contract		
Date of Award	March 1997	March 1997
Completion of Work	December 2001	June 2002
Equipment and Supplies		
Dates		
First Procurement	January 1997	March 1997
Last Procurement	June 2001	September 2000
Completion of Equipment Installation	December 2001	June 2002
Start of Operations (first batch of subprojects)		
Completion of Test and Commissioning	–	July 1998
Beginning of Start-up	–	July 1998
Other Milestones		
Minor Change in Scope	–	October 1998
Loan Reallocation	–	July 2001
Final Cancellation of Loan Savings	–	December 2003

— = not available

[a] Consultant under the previous project (Loan No. 1165-NEP: Third Water Supply and Sanitation Sector Project) provided the services until July 1997.

5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 10 January 1999 to 31August 1999	Highly Satisfactory	Satisfactory
From 20 September 1999 to 31March 2000	Satisfactory	Satisfactory
From 1 April 2000 to 31 October 2000	Satisfactory	Satisfactory
From 21 November 2000 to 31 August 2001	Satisfactory	Satisfactory
From 1 September 2001 to 31 December 2001	Satisfactory	Satisfactory

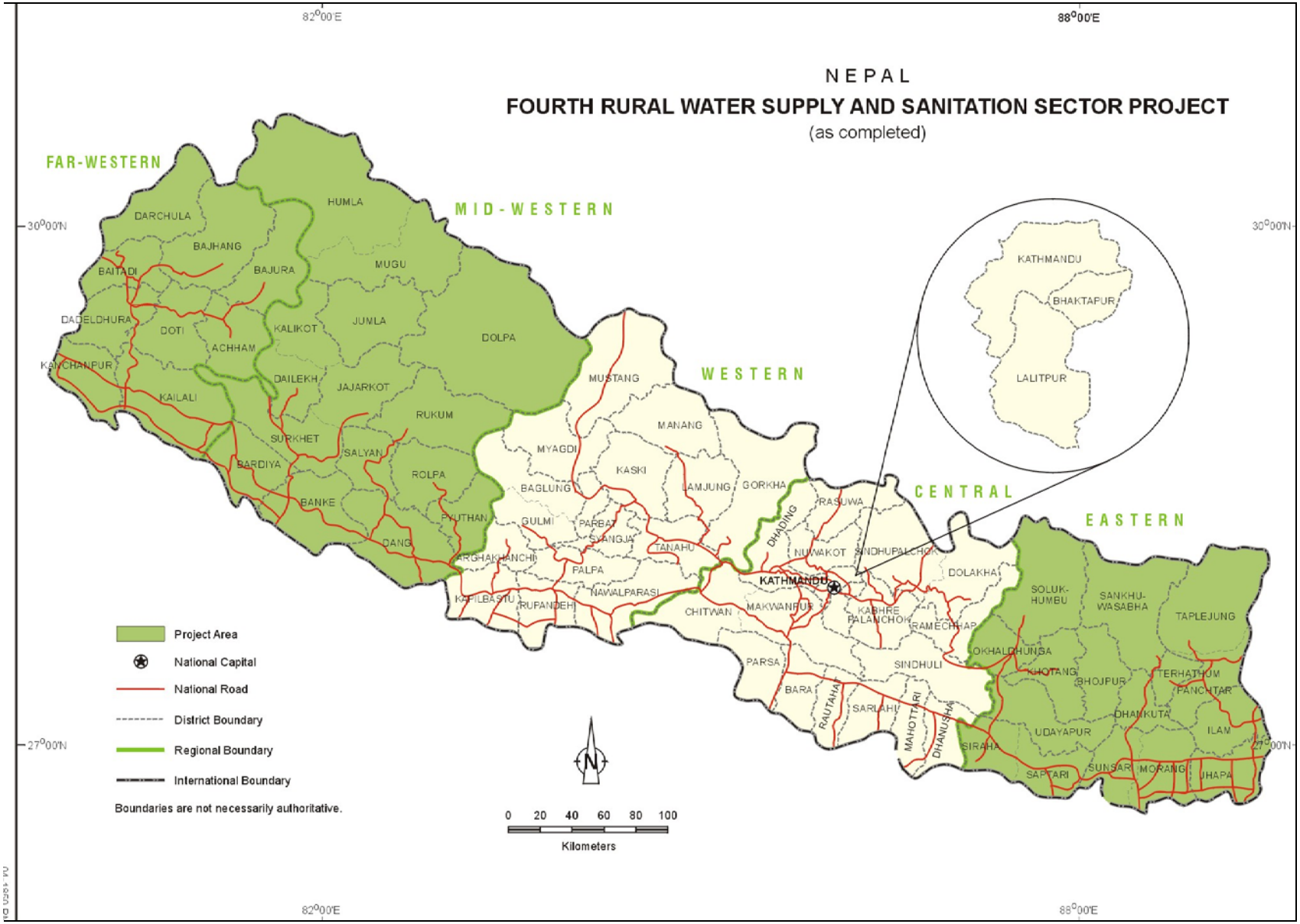
D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of People	No. of Person-Days	Specialization of Members [a]
Inception Mission	6 February 1997	1	12	a
Review Mission	2 December 1997	1	7	b
Review Mission	2 February 1998	2	12	a, d
Review Mission	16 June 1998	3	54	d, c, g
Midterm Review Mission	12 January 1999	3	25	c, d, e
Loan Review Mission	20 September 1999	2	18	c, d
Review Mission	5 May 2000	3	24	d, e, f
Review Mission	22 November 2000	1	14	d
Loan Review Mission	29 August 2001	1	14	d
Loan Review Mission	23 December 2001	5	5	d
Project Completion Review Mission [b]	20 May 2003	4	150	d, g, i, j

No. = number.

[a] a - senior project specialist, b - urban development specialist, c - programs officer and/or economist, d - senior programs officer (national officer), e - loan administration consultant, f - gender and development specialist (consultant), g - rural water supply engineer (staff consultant), i - project economist (staff consultant), and j - rural water supply specialist.

[b] The project completion report was prepared by Raju Tuladhar, Senior Economics Officer, Nepal Resident Mission.


NEPAL
FOURTH RURAL WATER SUPPLY AND SANITATION SECTOR PROJECT
(as completed)
FAR-WESTERN
MID-WESTERN
WESTERN
CENTRAL
EASTERN
82°00'E
88°00'E
30°00'N
27°00'N
HUMLA
DARCHULA
BAJHANG
BAITADI
BAJURA
MUGU
DADELDHURA
DOTI
ACHHAM
KALIKOT
JUMLA
DOLPA
KANCHANPUR
KAILALI
DAILEKH
JAJARKOT
MUSTANG
RUKUM
SURKHET
SALYAN
MANANG
MYAGDI
BARDIYA
ROLPA
KASKI
BANKE
BAGLUNG
LAMJUNG
GORKHA
PYUTHAN
GULMI
PARBAT
SYANGJA
DHADING
RASUWA
DANG
TANAHU
NUWAKOT
SINDHUPALCHOK
ARGHAKHANCHI
PALPA
KATHMANDU
DOLAKHA
KAPILBASTU
RUPANDEHI
NAWALPARASI
CHITWAN
MAKWANPUR
KABHRE PALANCHOK
RAMECHHAP
SOLUK-HUMBU
SANKHU-WASABHA
TAPLEJUNG
PARSA
SINDHULI
OKHALDHUNGA
KHOTANG
BHOJPUR
TERHATHUM
PANCHTAR
BARA
RAUTAHAT
SARLAHI
MAHOTTARI
DHANUSHA
DHANKUTA
UDAYAPUR
ILAM
SIRAHA
SAPTARI
SUNSARI
MORANG
JHAPA
KATHMANDU
BHAKTAPUR
LALITPUR
Project Area
National Capital
National Road
District Boundary
Regional Boundary
International Boundary
Boundaries are not necessarily authoritative.
N
0 20 40 60 80 100
Kilometers

I. PROJECT DESCRIPTION

1. Inadequate access to safe water supply and sanitation facilities is a key factor contributing to the poor quality of life of Nepal's rural population. Improving the rural population's access to potable water supplies and basic sanitation facilities is a key government priority, as part of its human development and poverty reduction efforts. The Asian Development Bank (ADB) has supported this effort since 1983 with technical assistance for project preparation and institutional development and three loans amounting to $44 million. The Government requested ADB's continued support for increasing the service coverage of unserved and underserved rural populations. The request was consistent with the Government's development priorities outlined in its Eighth Plan (FY1993–FY1997). In response to the Government's request, ADB helped the Government prepare the Fourth Rural Water Supply and Sanitation Sector Project in 1996.

2. The Project's objectives were to (i) provide safe water supply in about 1,500 rural communities in 40 districts of Nepal's Eastern and Mid-Western and Far-Western Development regions; (ii) promote hygiene education and low-cost sanitation facilities in these regions; (iii) achieve greater sustainability by extending the community-based approach to all rural water supply and sanitation projects; (iv) strengthen water users committee (WUC) operation and maintenance (O&M) capabilities for completed subprojects; (v) improve sector cost recovery; and (vi) strengthen sector institutions, including the Department of Water Supply and Sewerage (DWSS) and WUCs.

3. The Project comprised three parts. Part A was the Community Education and Awareness Program (CEAP), which was designed to sensitize communities to improved water supply and hygiene practices benefits, thereby ensuring community participation in planning, designing, implementing, and operating and maintaining project facilities. Part B was the water supply and sanitation development component, which was designed to construct about 1,500 simple, gravity-fed piped water supply systems in about 300 subprojects; rehabilitate up to 10 existing water supply systems; and construct about 900 low-cost institutional latrines in schools and health posts.[1] Part C was the implementation assistance and institutional strengthening component, which was designed to train DWSS staff; provide consulting services; construct District Water Supply Office (DWSO) buildings;[2] and strengthen DWSS's Central Human Resources Development Unit (CHRDU), to enhance the capacities of DWSS and WUCs. Part C also included equipment and vehicle provision, to facilitate project implementation and preparation for 22 district water supply and sanitation development plans and profiles (known as district profiles) designed to improve the planning process and provide data on community health and completed subprojects' O&M.

[1] At the request of the Government and to include eight additional subprojects with groundwater pumping and overhead tank facilities that would serve communities with adequate access to safe water supply in eastern Terai, ADB approved in 1998 a minor change in the Project's scope.

[2] DWSOs are DWSS field offices and were reorganized as divisional and subdivisional offices in 2002.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

4. ADB's 1993 country operational strategy (COS) for Nepal emphasized the importance of water supply and sanitation for improving human development and the condition of women. The COS identified rural water supply and sanitation as a key sector for ADB's assistance related to pursuing poverty reduction through human development, especially for women and children who disproportionately bear the burdens associated with difficult access to water. ADB's strategy for the water and sanitation sector seeks to (i) expand service coverage in unserved and underserved rural areas; (ii) promote sustainable development, particularly through adopting community-based approaches; and (iii) support institutional reforms for reorienting DWSS's role from an implementer to a facilitator. To ensure sustainability and development impact, ADB (involved in the sector since 1983) places considerable emphasis on active beneficiary community participation in planning, implementing, and operating and maintaining water supply and sanitation systems.

5. Rural water supply and sanitation sector development also features prominently in the Government's development plans and priorities. The objectives of the Government's Drinking Water Supply and Sanitation Sector Plan for 1991–2000 were to achieve water supply coverage of 50% of the national population by 1995 and 75% by 2000, and sanitation coverage of 12% and 25%, respectively. Subsequently, the Eighth Plan targeted water supply coverage of 72% and sanitation coverage of 13% by 1997.[3] The strategy set out in the Eighth Plan, the Sector Plan, and the 1991 Directives for the Construction and Management of Water Supply Projects also calls for refocusing DWSS's role and increasing beneficiary community and nongovernment organization (NGO) participation in the Government's efforts to increase the rural population's access to safe water and sanitation. The National Water Supply Sector Policy, which was formulated at the time of the Project's preparation and adopted by the Government in 1998, incorporated the salient features of the Sector Plan and the Directives, particularly with respect to increasing the service coverage and participatory and community-based approaches to planning, implementing, and operating and maintaining water supply and sanitation systems.

6. Project activities focused on the rural areas of Nepal's Eastern, Mid-Western, and Far-Western Development regions, some of the country's most deprived areas. This was in line with ADB's operational plan of continued focus on areas in which ADB was previously involved, principally to consolidate gains made and help the Government increase service coverage. This also allowed DWSS to concentrate its efforts in organizational and management terms on the existing regional and district offices, where considerable capacity and experience was built under previous projects. Moreover, a separate program was being supported by the World Bank in the Central and Western Development regions.

7. The Project's design was broadly in line with the Government's development plans and priorities and ADB's own COS and sector strategy, with regard to expanding service coverage and promoting the community-based approach through refocusing DWSS's role and beneficiary community capacity building. While a standard subproject selection process, including a set of criteria adopted under the Project, helped identify unserved and underserved communities, the CEAP component aimed at promoting hygiene practices at the community level and building the

[3] While the target for sanitation coverage was achieved, the target for water supply was not. At the end of the Eighth Plan, water supply coverage and sanitation coverage were estimated at 61% and 20%, respectively. The Government's current coverage estimates are about 72% and 25%, respectively.

capacity of WUCs and other community members for water supply and sanitation systems O&M. A key lesson learned from previous ADB-assisted projects in the sector was that approaches to rural water supply should be community-based, with active community participation from the beginning and central government agencies playing more of a facilitator's role. While the Project's design was generally based on this approach, the design provided only a limited role for communities in actually planning and implementing subprojects. DWSS played a more dominant role in key subproject activities, such as subproject design and services, civil works, and supplies procurement. A stronger participatory and decision-making role for the communities would have enhanced their implementation process and subproject facility ownership.

8. Conceptually, the Project was an integrated rural water supply and sanitation development project. However, the Project's sanitation development component was limited to institutional latrine construction in local schools and community education on hygiene and sanitation, assuming that these would encourage private households to build their own latrines. This demonstration effect was achieved only to some extent, largely due to the lack of provision for more tangible support to complement the software support.

9. Although the Project was intended to benefit mostly the women in local communities, the design did not provide adequate measures to promote more active participation of women in subproject design and implementation. For example, the requirement was to appoint at least two women members to WUCs (generally comprising 8–10 members), but no specific measures were provisioned to ensure that women members filled key decision-making positions. As a result, all WUCs were constituted with only two women members at the most, and no WUCs had women in key decision-making positions. These issues could have been overcome by requiring a greater number of women members and adequate social mobilization to promote women in key positions in WUCs, which would have helped mainstream gender concerns more effectively.

10. The project preparatory technical assistance (PPTA)[4] was implemented satisfactorily, and the PPTA report was comprehensive and well articulated. Project formulation was based on PPTA report findings and key stakeholder consultations, including those with government representatives, development partners active in the sector, and prospective beneficiary communities.

B. Project Outputs

11. The Project's CEAP (Part A), formulated and carried out in all project communities, included separate training sessions to promote community participation in subproject implementation and O&M. DWSS field staff members, supported by domestic consultants engaged under the Project, designed and conducted these training sessions at subproject sites. Over 2,000 pre- and postconstruction training sessions were conducted for the WUCs of the 322 subprojects implemented under the Project. Other key members of local communities, including school teachers, health workers, women and youth volunteers, and local government officials, were targets of these training sessions, to ensure wider community-level information dissemination on hygiene, water use, and O&M. These training sessions focused on water use and hygiene; subproject preparation, implementation, O&M, and cost recovery; and basic bookkeeping. Separate training programs on technical aspects and water supply system repair and maintenance were also conducted in groups for village maintenance workers employed by

[4] ADB. 1995. *Fourth Rural Water Supply and Sanitation Sector Project*. Manila.

WUCs. Salient features of the subprojects implemented under the Project and overall project outputs, including CEAP outputs, are provided in appendixes 1 and 2.

12. CEAP appraisal targets were generally achieved in terms of WUC and other local community member coverage. However, postconstruction training for some subprojects completed toward the end of the project period was not effectively conducted, due to the escalation of the insurgency in rural areas and a lack of budget allocation (ADB financing is only 65% of such training costs). CEAP effectiveness is mixed. The Project Completion Report (PCR) Mission observed limited improvements (three gravity-fed systems and six pumping schemes) in hygiene and sanitation conditions in about 9 of the 30 subprojects visited (Appendix 3).[5] The CEAP's weak impact in these subprojects seems to be a result of the general lack of emphasis on the Project's software aspects, a tendency to rush construction activities without adequate social preparations, and the inadequate number of sociologists and social facilitators in DWSS central and field offices. Ineffective implementation of CEAP activities in some subprojects was also attributed to DWSS's overall weak monitoring system, which could not enforce proper subproject activities sequencing.

13. The Project's water supply and sanitation development component (Part B) envisaged construction of 310 water supply subprojects, 10 of which comprised existing water supply system rehabilitation and 900 low-cost institutional latrines in schools and health posts in subproject areas. A total of 322 water supply subprojects (1,258 schemes) and 1,277 institutional latrines were constructed under the Project, which exceeded appraisal targets. Of the 322 water supply subprojects, 320 subprojects[6] were reported to be completed. These include seven larger subprojects with groundwater pumping schemes in eastern Terai.[7] Two subprojects (Wana, in Sankhuwasabha district, and Binayak, in Accham district) could not be completed during the project period, due to the difficult security situation. Of the 320 completed subprojects, 315[8] were handed over to the respective WUCs for O&M as of December 2003. About 670,000 people (base year population) were estimated to have benefited from these subprojects, against the appraisal target of 600,000. With a 15-year project life, these subprojects are designed to serve about 900,000 people. In addition to the institutional latrines, more than 33,000 private latrines, mostly simple pit-type latrines with temporary structures, were constructed by subproject households, and construction was completed without project financial support.

14. Of the 24 gravity-fed subprojects surveyed by the PCR Mission, one was temporarily nonfunctional, due to the drying up of the water source (Kharia), and two were operating below capacity, due to a flash-flood damaged intake structure and pipeline section (Jhalari) and faulty technical design (Bhaluwang). The remaining 21 were operating generally satisfactorily, although inadequate O&M was observed in two other subprojects (Barahchhetra and Babiyachaur).

15. Of the six groundwater pumping scheme subprojects visited, one (Golbazar) was not yet operational, due to its incomplete transmission and distribution system. Although operational,

[5] ADB's PCR Mission visited 30 of the 322 subprojects implemented under the Project (12 in the Eastern Region, including 6 with groundwater pumping schemes; 10 in the Mid-Western Region; and 8 in the Far- Western Region.

[6] A subproject is located within a village development committee's administrative jurisdiction and usually comprises a number of schemes. The appraisal assumed five schemes to a subproject.

[7] While ADB approved eight pumping schemes for inclusion in the project scope, only seven were implemented. The Kathouna subproject was dropped, due to drilling problems.

[8] The subprojects that were not yet fully handed over to the subprojects are Makalu (Sankhuwasabha district), Bhaluwang (Dang district), Ranagoan 4 (Doti district), Solta (Kailali district), and Guljar II (Darchula district).

the other six pumping schemes, including one not visited (Topgachi), also have water quality (significantly high iron content), yield, or distribution problems, resulting in reduced consumer demand. Only less than 50% of the 2,600 water connections envisaged at subproject appraisal were achieved in the seven groundwater pumping schemes (including one other pumping scheme not visited by the PCR Mission) as of December 2003. These problems are mainly due to poor subproject designs that neither contemplated water quality problems nor made provisions for rectifying these. Project safeguards in subproject designs, such as test drilling or digging deeper tube wells, could have resulted in better water quality. Construction supervision and management were also generally poor, resulting in tube well failure (in Haraincha and Topgachi subprojects), haphazard transmission and distribution pipe laying (in Topgachi and Golbazar subprojects), and implementation delays.

16. Under the Project's implementation assistance and institutional strengthening component (Part C), DWSS staff members and project consultants provided extensive training to DWSS field staff members. The training focused on community-based water supply systems survey and design; social facilitation, to promote community participation; participatory rural appraisal and rapid rural appraisal techniques; water quality testing and surveillance; and construction supervision and management. About 1,600 DWSS staff members of various levels (district engineers, social facilitation officers, overseers, water supply and sanitation technicians, and sanitation motivators) received training in relevant areas. About 10% of the trainees were women. The Project also sponsored international training and study tours for selected Ministry of Physical Planning and Works (MPPW) and DWSS officials involved in project management and policy formulation, to expose these officials to international best practices in water supply and sanitation development.

17. DWSS constructed 22 DWSO buildings (now DWSS division and subdivision offices), as envisaged during appraisal, and these buildings facilitate field operations. Physical expansion of DWSS's CHRDU (training center) at Nagarkot was also completed. The center came into operation in 2000. The Government's decision to allow the training center to retain 60% of its operating income contributed to proper physical facility maintenance. While the training center was used for most project training activities prior to project completion, such training activities were significantly reduced after completion. DWSS could not sustain such training as part of its regular operations, partly due to inadequate budget resources. Reduced training is also due to DWSS's diminishing project implementation role. While the training facility could be used by other agencies active in the sector, a lack of effective interagency coordination has not facilitated this.

18. As envisaged during appraisal, DWSS, with domestic consultant assistance, prepared 22 district water supply profiles. DWSS now has district profiles for 70 of the country's 75 districts. While district profiles provide DWSS and other service providers with valuable information for planning future water supply interventions in these districts, no clear mechanism seems to have been established within DWSS to update these plans periodically.[9] Without a clear mechanism, the profiles will soon become obsolete.

19. Domestic consulting services were provided to support DWSS staff members who carried out the following functions: social facilitation and community liaison, subproject engineering design, and overall project management. Service vehicles and equipment were also

[9] DWSS is expected to assume this responsibility more effectively, as part of its facilitating role, which is being strengthened under the following ongoing project: ADB. 2003. *Community-Based Water Supply and Sanitation Sector Project*. Manila.

provided. The vehicles and equipment facilitated training and subproject survey, design, and implementation activities.

C. Project Costs

20. The total project cost at appraisal was estimated at $26.6 million, of which $12.1 million (about 45%) was the foreign exchange cost, including $0.5 million for interest during construction. The local currency cost was estimated at $14.5 million (about 55%). ADB was to finance 100% of the foreign exchange cost and about 54% of the local currency cost ($7.9 million), and the Government and project beneficiaries were to finance the remainder ($6.6 million). ADB's total loan amount at appraisal was $20 million. The actual project cost amounted to $25.7 million, or 96% of the estimated cost, including $11.4 million in foreign exchange and $14.3 in local currency costs. Actual project cost at completion is compared with appraisal estimates in Appendix 4.

21. The Nepalese rupee's depreciation against the dollar more than offset the dollar's appreciation against special drawing rights. This allowed the Project to undertake more subprojects within the estimated cost (para.13) than envisaged at appraisal. ADB financed about 72% of the overall project cost, Government financed about 15%, and beneficiaries financed about 13%, compared with appraisal estimates of 75%, 13%, and 12%, respectively. The actual cost of civil works exceeded the appraisal estimate by about 15%. The increased civil work costs were financed through reallocation of loan savings (amounting to $1.2 million) in the equipment, materials, and vehicles; district profiles; training; and consulting service categories, and through additional contributions by the Government and the beneficiaries. Actual local and foreign currency costs did not exceed the ceilings in the Loan Agreement.

D. Disbursements

22. The $20.00 million loan amount at appraisal was reduced to $18.50 million at project completion, due to the dollar's appreciation. ADB disbursed $18.51 million of the available loan amount and cancelled the relatively small balance of $0.02 million when the loan account was closed on 20 December 2002. An imprest fund of $2.00 million was established for facilitating timely payments for the procurement of urgently needed pipes and fittings and civil works at the subproject level. The imprest account's use was satisfactory. The turnover ratio improved from 1.6% in 1998 to 2% in 1999, but it declined to less than 1.0% in 2000 and 2001, primarily due to the relatively large size of the imprest fund (normally $0.50 million under other ADB-assisted projects in Nepal) and the direct payment mode for most equipment and supplies procurements. Overall disbursement performance was as expected. About 85% of the available loan amount was disbursed during 1998–2000, the peak implementation period, with a $5 million annual average.

23. Most disbursements were for civil works related to water supply and sanitation subprojects (48%) and equipment, materials, and vehicles (38%). Contract award and disbursement performance was also in line with annual projections (Annex 5).

E. Project Schedule

24. The Project was implemented without any major deviation from the original schedule. The loan was approved on 24 September 1996, signed on 29 November 1996, and declared effective on 9 January 1997. The Project was completed on 30 June 2002, the original loan closing date. While physical completion was initially expected by December 2001, civil works

and postconstruction training under a few subprojects, particularly groundwater pumping schemes, were slightly delayed, due to poor implementation management, and completed in June 2002. The actual project implementation schedule is compared with that envisaged at appraisal in Appendix 6.

F. Implementation Arrangements

25. As envisaged at appraisal, the project management and organizational structure existing from previous ADB-assisted projects was adopted for the Project. MPPW, in its capacity as the line ministry responsible for the sector, was the Executing Agency and provided overall policy and technical supervision for the Project. DWSS was the Implementing Agency and responsible for the Project's overall implementation. A high-level Project Steering Committee[10] was established to provide policy guidance and oversee implementation, but its effectiveness was limited, as it did not meet regularly and was not proactive in addressing project implementation issues. The Central Project Management Office (CPMO), within DWSS, was headed by a project manager and coordinated and managed all aspects of project implementation, including planning and monitoring, developing procedures, procuring goods and services, and liaising with ADB and related local agencies. The Regional Project Management Offices (RPMOs)—one each in the three project regions, headed by DWSS staff members—supported CPMO by assisting in implementing and managing subprojects undertaken by the 40 DWSOs and WUCs at the subproject level in the respective regions. DWSOs undertook implementation activities in collaboration with WUCs, including subproject identification, feasibility studies, subproject appraisal, community training, and construction supervision. CPMO was also supported by two consultants specializing in project management and social facilitation. A separate team of consultants, comprising project management, subproject engineering design, and social facilitation specialists, supported each RPMO and DWSO in conducting socioeconomic surveys, subproject design, DWSO staff member and community training, and subproject monitoring. The project management and social facilitation advisers supporting CPMO were the team leaders, and they supervised the work of the respective RPMO consultants.

26. Regular DWSS staff members were assigned to CPMO and RPMOs and DWSOs, to support project implementation. Although no major staffing problems existed, frequent transfer of district engineers and overseers and delays in appointing engineers and social sociologists in RPMOs impeded construction, monitoring, and community training activities. Each RPMO was strengthened with a pool of 40 water supply and sanitation technicians (temporary). Technicians were assigned to DWSOs on a needs basis, to assist DWSOs in construction and CEAP activities monitoring and supervision.

27. The subproject implementation and selection procedure developed at appraisal was generally followed, including a scoring system developed for prioritizing subprojects with a set of criteria based on communities' water access hardships, subproject costs, and community contributions. Subproject selection procedures started with project information dissemination to communities through District Development Committees (DDCs) and Village Development Committees (VDCs), followed by a formal request by the communities to DDCs, through VDCs. Preliminary surveys of proposed subproject sites and subproject identification reports were then prepared, and subprojects were prioritized based on established criteria. Proposals were consolidated by RPMOs and CPMO and submitted to the National Planning Commission for

[10] The Project Steering Committee was chaired by MPPW's secretary and comprised representatives from DWSS, Ministry of Finance, Ministry of Local Development, and National Planning Commission.

inclusion in the national program. Subprojects thus approved were then taken up for implementation following more detailed technoeconomic appraisals.

G. Conditions and Covenants

28. Of the 38 loan covenants, 31 were complied with, although compliance with five of these was delayed (Appendix 7). Seven of the 38 covenants were only partly complied with. Partial compliance relates to inadequate RPMO and DWSO staffing; failed internalization by DWSS of a pilot water quality monitoring program; ineffective Project Steering Committee; unsatisfactory benefit monitoring and evaluation (BME) studies; ineffective DWSS leadership of the Rural Water Supply and Sanitation Group, thereby preventing better sector coordination; failed registration of all WUCs with District Administration Offices (DAOs); and failed attempts to maintain the agreed women staffing ratio in DWSOs.[11] Partial compliance is primarily due to the lack of capacity within DWSS and a lack of commitment to reorienting DWSS from an implementation role to one focusing on promoting better monitoring and evaluation and sector coordination and efficiency. WUCs in about 20% of the 322 subprojects are reportedly not yet registered as required by the Water Resources Act of 1993. One key reason for not registering these WUCs was the escalation of the insurgency, which led to deterioration of the security situation and made traveling to distant district headquarters, where DAOs are located, difficult for WUC members. The lack of full compliance with covenants relating to staffing in DWSS and subproject monitoring had some adverse impacts on project implementation.

H. Consultant Recruitment and Procurement

29. ADB guidelines were followed for consultant recruitment and goods procurement. The Loan Agreement provided for 756 person-months of domestic consulting services for project management, project training and community development, and subproject design and construction supervision. Of these, a total of 648 person-months were used. Three separate domestic firms provided the relevant services. Under a separate provision under the Project, six other domestic consultant firms were engaged, for a total of 109 person-months, to assist DWSS in preparing 22 district profiles. The consulting services use status is provided in Appendix 8.

30. As provided in the Loan Agreement, pipes, fittings, equipment, and other supplies procurement was done through international competitive bidding, international shopping, local competitive bidding, and direct purchase procedures. Supplies and equipment procured are listed in Appendix 9. While CPMO undertook most procurement actions, RPMOs undertook procurement of small packages of urgently needed pipe fittings, to save time. An independent international inspection agency verified the quality of pipes procured under international competitive bidding and international shopping contracts. A substantial surplus of pipes and fittings existed at project completion. The surplus was estimated at about $1.25 million (20% of the total procurement of these supplies) and apparently due to DWSS overestimation. DWSS assured ADB that the surplus supplies would be used for the rehabilitation of subprojects under previous ADB-assisted projects, on a priority basis.

31. Civil works contracts for the subprojects were relatively small and geographically scattered and therefore unattractive to international or larger domestic contractors. As

[11] At least two women workers in DWSOs with one engineer and four women workers in DWSOs with three or more engineers.

envisaged during appraisal, small civil works were undertaken on a force account basis or through small contractors and WUCs.

I. Performance of Consultants, Contractors, and Suppliers

32. Consultant performance was generally satisfactory. Consultants provided valuable support to DWSS (at the central and the field levels) and WUCs (in planning, designing, and implementing subprojects). The Project's timely completion, without any major cost overruns, partly reflects the consultants' substantive support. However, their support for strengthening DWSS's subproject monitoring and BME systems and for the design and construction supervision of the seven groundwater pumping schemes was not very effective, resulting in DWSS's poor performance in these areas. Consultant support could have been more substantive and proactive.

33. An international competitive bidding supplier for high-density polyethylene pipes defaulted and was unable to meet the pipe material quality specified in the contract. Immediately needed pipes were procured through local competitive bidding, to avoid supply interruption and subproject activity disruption. Contractor and supplier performance was otherwise satisfactory. While tube well drilling and pipe laying works were improper under the seven subprojects involving groundwater pumping, this was primarily due to poor subproject design and technical supervision.

J. Performance of the Borrower and the Executing Agency

34. The Borrower provided strong support for effective project implementation, including adequate allocation of the annual budget, timely release of funds, sufficient financing of additional civil works costs, and adequate provision of other facilities and services. Overall, the Borrower's performance was satisfactory. While the Executing Agency's performance was also generally satisfactory, the agency could have played a more proactive role in monitoring overall project implementation; conducting Project Steering Committee meetings more regularly, to address key issues; avoiding frequent DWSS staff member transfers; and helping comply with major loan covenants.

35. Overall Implementing Agency performance was satisfactory. The agency showed strong commitment to project implementation, as a result of which the Project was completed without any time or cost overruns. The agency's ability to liaise with ADB was satisfactory, providing timely progress reports, audited project accounts, and other information requested by ADB. The Implementing Agency's project completion report was also provided within the stipulated time. The agency was generally responsive to ADB review missions' suggestions on strengthening project implementation. However, subproject activities monitoring was weak, particularly with respect to establishing baseline data for BME and adequate front-end social preparations and community training. Project implementation and monitoring efforts mainly fell off toward the Project's end, when the seven groundwater pumping schemes suffered from poor supervision. This was primarily due to transferring field-level staff members, exhausting loan funds, and monitoring and supervising poorly. While DWSS increasingly moves toward a community-based approach, its capacity requires further reorientation and strengthening, to play a more proactive but facilitating role in community development; its sanitation development should be more effective; and its project facilities need ensured sustainability.

K. Performance of the Asian Development Bank

36. ADB provided continued support and assistance for ensuring timely and effective project implementation. ADB regularly supervised implementation, promptly responded to requests for procurement contract approval and training programs, and consistently ensured timely funds disbursement. In addition to regular implementation progress monitoring and follow-up, ADB fielded 10 review missions, including one joint midterm review with DWSS. The review missions undertook extensive field visits; interacted with project staff, consultants, and beneficiaries on key implementation issues; and provided suggestions for improving project implementation and objectives achievement. Time bound action plans were developed and closely monitored to help DWSS address key implementation shortcomings and comply with loan covenants. ADB also established an in-house system for closely monitoring subproject costs, to avoid cost overruns. In addition, ADB regularly provided substantive suggestions for improving DWSS progress reports, BME studies, and subproject monitoring activities. Overall, ADB's performance was satisfactory.

III. EVALUATION OF PERFORMANCE

A. Relevance

37. Overall, the Project was relevant. The project objective remains highly relevant to the Government's development plans and priorities and ADB's development assistance strategy for Nepal, which aim to reduce poverty through human development and improving the rural population's quality of life. The Government's Ninth Plan (FY1998–FY2002) and Tenth Plan (FY2003–FY2007) and ADB's country strategy continue to accord high priority to improving basic social services delivery, including rural water supply and sanitation, as a key strategy for poverty reduction.

38. The Project's community-based approach was also relevant to the Government's and ADB's strategy of promoting active community participation and ownership, to ensure project benefits sustainability. However, the community-based approach under the Project was largely limited to community-level capacity building and awareness raising. Communities were not given a more active decision-making role in key subproject planning and implementation activities, which would have enhanced the community-based approach and community ownership and sustainability of subproject facilities. Nonetheless, ADB encouraged DWSS throughout the course of the Project's review and supervision to promote these aspects through more intensive community development and training activities.

B. Efficacy in Achievement of Purpose

39. Overall, the Project is assessed as efficacious. All the Project's physical outputs were achieved or exceeded. In particular, a greater number of subprojects than envisaged at appraisal were completed, and these benefited more than 670,000 people, against an appraisal target of 600,000, through increased water supply and improved sanitation facilities, the immediate project objectives. Water consumption in the PCR sample subprojects improved from an average of 15–20 liters per capita per day to 40–50 liters per capita per day. DWSS and PCR Mission BME studies were limited in scope and analysis, due to the lack of baseline information. Nonetheless, these studies showed generally positive socioeconomic benefits to the communities, in terms of substantial time savings and improvement in women household members' quality of life, reduction in waterborne diseases, and general improvement in health and sanitation conditions. A few subprojects, especially the pumping schemes, are less

efficacious, due to inadequate design, poor implementation supervision, and ineffective O&M (para. 15).

C. Efficiency in Achievement of Outputs and Purpose

40. The economic analysis of the 30 subprojects visited by the PCR Mission followed the same approach and assumptions as at appraisal, which considered time saved by households due to easy access to water supply after the Project as the only economic benefit. Although communities consistently relate easy water availability and time savings to other economic benefits, such as medical expenses reduction, cash and real incomes from kitchen gardening, employment generation, and improved livestock management, properly quantifying these benefits was not possible, due to the lack of baseline information and wide variation of such benefits across subprojects and households within a given community. The economic internal rate of return (EIRR) for the PCR sample subprojects ranged from 3% to 47%, compared to the appraisal estimate of 14% to 43% for six prospective schemes. The EIRR for the Malakheti II subproject in Kailali district, in the Far-Western Region, was 3%, substantially below the appraisal estimates, primarily due to a relatively high subproject cost. The composite EIRR for the 22 gravity-fed schemes is estimated at 27.8% and 14.8% for four of the six pumping schemes (Appendix 10).[12]

41. The Project was designed to recover only subproject operating costs through water charges and interest earnings from the O&M fund established at the WUC level.[13] As shown in Appendix 3, 22 subprojects were generating adequate revenue for meeting O&M costs (some were at breakeven and others had some revenue surplus). Eight subprojects (two gravity-fed and six pumping schemes) were unable to generate adequate revenue for O&M. Given the inadequate revenue stream to cover the capital cost, the financial internal rate of return could not be computed.

42. Project implementation was efficient, as all project activities were completed without any implementation delays or cost overruns. Project implementation and management, however, deteriorated toward the end, adversely affecting the quality of benefits to the communities under some subprojects, particularly the seven pumping schemes. Overall, the Project was efficient.

D. Preliminary Assessment of Sustainability

43. The sustainability of 30 PCR sample subprojects was assessed using the three most relevant criteria suggested in the Operations Evaluation Department's *Guidelines for the Preparation of Project Performance Audit Reports*. These criteria are (i) water supply and sanitation service quality and community demand; (ii) communities' ability to meet O&M costs; and (iii) WUC effectiveness in scheme O&M, including continued hygiene and sanitation practice promotion (Appendix 3). Sustainability is less likely for nine of the 30 subprojects, mainly due to inadequate O&M cost recovery, poor water quality, and significant management and technical problems.[14] The sustainability of the remaining subprojects is likely. Overall project sustainability is rated likely.

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[12] Two gravity-fed and two pumping schemes were not fully operational at the time of the PCR Mission's site visit.

[13] Under the Project, beneficiary households were required to pay NRs1,000 per tapstand, as contribution to O&M funds that were deposited in fixed bank accounts by WUCs. O&M costs were to be financed by the interest earnings and regular water charges.

[14] These nine subprojects include three gravity-fed and the six pumping schemes. The three gravity schemes include Kharia (not operational, due to a dried up water source); Jhalari (partly operational, due to damaged structures that are not yet fully repaired); and Bhaluwang (faulty subproject design).

44. The problems associated with the pumping schemes, in particular, are beyond the communities' capacity. DWSS needs to provide necessary support to address water quality and other technical problems. More generally, DWSS needs to regularly monitor the operational status of all subprojects, especially with respect to any technical, O&M cost recovery, and institutional (i.e., WUC) problems, and provide necessary guidance and support to the communities for resolving these and ensuring subproject facilities and benefits sustainability. As provisioned in DWSS's O&M policy, necessary support also needs to be provided to other communities for the rehabilitation of water supply schemes' damaged structures. Regular follow-up and support are also needed to further promote hygiene and sanitation practices in the weaker communities.

E. Environmental, Institutional, and Other Impacts

45. The Project's environmental classification at appraisal was Category B, and this remained appropriate during implementation and at completion. Construction works involved were small in scale, and environmental effects were minor and temporary. Some isolated cases existed where wastewater was allowed to accumulate for use by livestock, providing a breeding ground for mosquitoes. Water quality problems, which could have been avoided through adequate subproject designs, also existed under the groundwater pumping schemes (para.15). These aside, the Project has had a generally positive impact on the environment, by improving living conditions in subproject areas, through improved and safe water supply and hygiene education promotion. Communities reported that local populations benefited from lower morbidity. Reports indicated that waterborne diseases (diarrhea, typhoid, and cholera); eye infections; and skin diseases were significantly reduced.

46. The Project provided the rural population with easy access to water supply and sanitation, basic social services fundamental for poverty reduction. Improved health conditions, improved quality of life, and increased household incomes (para. 40) constitute important contributions to poverty reduction in project areas, although these benefits are difficult to measure, partly due to the lack of baseline information. The poverty situation of women and female children who often help fetch water has particularly improved, in terms of time and energy savings. While time saved by women was productively used for income-generating as well as social and community development activities, time saved by female children allowed them to attend school more regularly. Energy savings from easier access to water supply resulted in improved nutrition and better health for children and mothers. Overall, the Project improved the rural population's quality of life and contributed to poverty reduction.

47. The institutional development component's impact was not as significant as anticipated during appraisal. Notwithstanding the successful completion and satisfactory maintenance of CHRDU's physical facilities, the training facility remains underused, and the facility contributed little to strengthening sector institutions, particularly DWSS (para. 17). The new DWSO buildings provided proper physical facilities for DWSOs, but their contribution to overall DWSS and respective DWSO institutional development and effectiveness was limited. WUC capacity-building effectiveness varies among subprojects. Five of the 30 WUCs of the PCR sample subprojects were found inactive and ineffective in managing subproject facilities. However, most WUCs seemed reasonably engaged in O&M of subproject facilities. Overall, the Project's environmental, institutional, and other impacts were moderate.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

48. Overall, the Project is rated successful. The rating is based on assessments of relevance, efficacy, and efficiency and assessments of likely sustainability and environmental, institutional, and other impacts, applying the weights suggested in the Operations Evaluation Department's guidelines.[15] In summary, the Project's objectives and approach were very much in line with the Government's and ADB's development strategies for Nepal. The Project was able to deliver the anticipated benefits to the communities, and the benefits are likely to be sustained over the economic lives of the subprojects. However, these impacts vary widely among subprojects, some not providing the intended benefits effectively, due to poor subproject design and implementation. In these cases, subproject sustainability is unlikely, unless DWSS provides strong support to rectify the technical and managerial problems facing these communities.

B. Lessons Learned

1. Project Design

49. An effective community-based approach should include community organization capacity building and empowerment. This can be done by entrusting organizations with more responsibility and giving them decision-making roles in subproject planning and implementation, including roles related to financial and procurement matters. This, accompanied by clear and transparent working procedures, will help promote community ownership of the implementation process and project facilities from the beginning. The concept of handing over subprojects to communities toward the end therefore becomes irrelevant and unnecessary.

50. Given the active involvement of many development partners—government agencies, external aid agencies, and NGOs—in the water supply and sanitation sector, interventions in the sector need to be well coordinated and complementary to each other, to ensure efficient resource use and effective service delivery. In line with this, the Project could have collaborated more closely with other agencies active in the sector, building on effective design and implementation experiences, particularly with respect to sanitation development.

51. Some effective ways to make subprojects cost-effective include promoting effective community participation; making subproject designs, including cost estimates, public and transparent; and developing clear mechanisms for substantive but equitable community contribution. These actions will create incentives for communities to explore ways to reduce subproject costs.

52. Sufficient time needs to be dedicated for social mobilization activities, and construction activities should not be rushed. Adequate social mobilization is essential for full understanding of project objectives and procedures at the community level, stronger community ownership and participation, and effective implementation and sustainability. Social mobilization should not be limited to WUC members and should be aimed at the community at large, through effective mechanisms, such as training of local school teachers, community leaders, and political leaders.

[15] This PCR is part of a sample of PCRs independently reviewed by the Operations Evaluation Department. The review validated the methodology used and rating given.

53. Sanitation development should be an integral part of rural water supply projects, to maximize development and poverty reduction impacts. Demonstration latrines, hygiene education, and awareness campaigns are not adequate and should be complemented by more tangible support (e.g., revolving funds), to encourage households to build more durable sanitation facilities.

54. The Project's important social and economic impacts could not be properly assessed, due to unavailable baseline data and poor BME. Rural water supply and sanitation project design should therefore include a prominent component for strengthening executing and implementing agencies' monitoring systems, with necessary support for establishing proper institutional mechanisms and capacity building.

2. Project Implementation

55. Arranging buffer stock for pipes and fittings should be more efficient and supported by a strong accounting and inventory control system. This should be closely linked with overall subproject monitoring systems, to ensure proper accounting of subproject costs, efficient use and distribution of supplies to subprojects, and effective inventory management.

56. Weak subproject implementation monitoring resulted in inadequate social mobilization, weak implementation of the Project's sanitation component, and unsatisfactory outputs under some subprojects. An effective monitoring system to closely monitor all stages of implementation will ensure better sequencing of subproject activities (e.g., completing adequate social mobilization activities before proceeding with the construction phase and troubleshooting of key implementation issues in a timely manner).

57. Frequent turnover of field-based staff members disrupted subproject implementation, especially social mobilization activities that require close working relationships with communities and continued confidence-building measures. The community development process becomes even more disrupted when new staff members are not properly trained or lack relevant experience.

3. Institutional Strengthening and Capacity Building

58. Community capacity building should be closely linked to the more tangible subproject activities and project benefits that follow, to ensure continued community engagement and active participation.

59. DWSS's community development efforts can be further enhanced by close partnerships with local NGOs and community-based organizations that are better positioned to effectively interact with communities on a continuous basis. Significant scope exists for replicating the partnerships with NGOs initiated under the Project.

60. One of the key objectives of social mobilization should be to ensure strong and broadly represented WUCs through a democratic process. Often, WUCs are dominated by the local elite, who tend to ignore the interests of weaker and disadvantaged groups in given communities, resulting in skewed project benefits distribution. In this respect, project designs should include clear procedures for effective mainstreaming of the interests and roles of disadvantaged groups, including women and the poor, to ensure more equitable sharing of project benefits and effective poverty reduction impacts.

C. Recommendations

1. Project-Related

61. DWSS should immediately complete the partially completed subprojects (Wana, in Sankhuwasabha district, and Binayak, in Accham district) and hand over O&M of these to the respective WUCs by December 2004. Also by December 2004, DWSS should take necessary measures, including rectifying any technical problems and conducting necessary rehabilitation, and hand over O&M of the five subprojects still under DWSS management (para. 13). As provisioned in its O&M policy, DWSS also needs to provide continuous support to other communities for repairing structures damaged due to natural causes.

62. In addition, DWSS should provide necessary support to the communities of the seven pumping schemes, to rectify technical and water quality problems jeopardizing their sustainability and increase the number of water connections for full capacity use. In particular, necessary measures need to be taken to help the communities bring the Golbazar and Mirchaiya subprojects into full operation by December 2004. ADB should closely monitor the measures in para. 61 and para. 62 during the administration of the ongoing Community-Based Water Supply and Sanitation Sector Project.

63. More generally, DWSS should regularly monitor the performance of all schemes handed over and continue to provide to the communities the necessary guidance and support for ensuring effective O&M and subproject facility sustainability.

64. A pilot water quality surveillance program was implemented under the Project with encouraging results. DWSS should replicate this program widely in all other subprojects.

65. MPPW and DWSS should make concerted efforts to better use CHRDU training facilities developed under the Project.

66. DWSS should develop an effective system to periodically update district water supply profiles and share these with other agencies active in the sector.

2. General

67. The district profiles show that a large number of previously constructed water supply systems are not functioning. A significant part of DWSS's annual investment plans should focus on rehabilitating these systems in collaboration with the respective communities.

68. Gender mainstreaming needs to be more articulate, with prominent and decision-making roles for women members of beneficiary communities. Project monitoring systems should be designed so that sufficiently disaggregated data are compiled and the impact on women is analyzed. DWSS should also continue to engage women on its staff, at the central and field levels, to facilitate community development activities and mainstream gender concerns in its operation.

69. BME studies should be an integral part of DWSS's regular operation, and DWSS should seek to develop its capacity to establish proper baseline socioeconomic data and conduct quality BME studies. Rural water supply and sanitation project designs should pay particular attention to the weak monitoring and institutional capacities of DWSS and MPPW and provide for necessary support to strengthen these.

70. DWSS should be more proactive in entering into effective partnerships with other agencies in the sector, including external aid agencies, community-based organizations, and NGOs, particularly in community development, social mobilization, and sanitation and hygiene education, as part of integrated water supply and sanitation interventions.

SALIENT FEATURES OF SUBPROJECTS

District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Eastern Region																
Taplejung	Tellok	2	1996/97	1997/98	817	977	2	1.40	2	12	29	15,300	2	85	2,158	2,641
Taplejung	Thukimba	3	1996/97	1997/98	1,135	1,358	3	4.10	1	8	41	11,800	2	97	1,961	1,728
Taplejung	Thumbedin	5	1997/98	2000/01	1,492	1,824	6	2.95	4	20	44	20,185	0	–	3,253	2,180
Taplejung	Dhungesangu	4	1997/98	1999/00	1,148	1,411	4	2.95	2	12	45	18,395	4	30	2,460	2,143
Taplejung	Kali Khola	5	1997/98	1999/00	1,316	1,600	6	3.80	2	8	50	20,381	3	148	3,207	2,437
Taplejung	Phakumba	2	1997/98	1998/99	860	1,080	4	2.61	0	0	25	10,199	2	85	1,569	1,824
Taplejung	Sandhu	6	1998/99	2000/01	2,894	2,914	8	1.60	8	8	90	33,643	0	–	5,221	1,804
Panchthar	Yasok	4	1996/97	2000/01	2,790	3,646	5	2.70	9	74	58	40,197	7	15	8,811	3,158
Panchthar	Ranigaun	6	1996/97	1999/00	1,825	2,385	6	1.43	6	37	31	18,574	17	145	3,899	2,136
Panchthar	Chokmagu	4	1996/97	1999/00	1,960	2,487	5	4.54	5	35	24	13,425	6	67	2,684	1,369
Panchthar	Yangnam	6	1996/97	1999/00	1,676	2,191	5	1.78	5	44	44	20,971	1	93	3,001	1,791
Panchthar	Nagi	6	1996/97	1999/00	1,237	1,634	8	1.20	6	27	27	8,595	9	176	2,671	2,159
Panchthar	Chyang Thapu	3	1996/97	2000/01	1,151	1,286	3	1.85	4	48	45	11,372	1	3	2,919	2,536
Panchthar	Angana	4	1997/98	1999/00	1,983	2,595	6	2.70	4	47	38	33,355	3	150	4,572	2,306
Panchthar	Ranitar	7	1997/98	2001/02	4,177	5,466	7	7.63	6	88	105	34,075	7	1,000	7,741	1,853
Panchthar	Ektin	5	1997/98	2000/01	3,284	4,417	7	1.03	11	130	128	47,367	1	115	9,052	2,756
Panchthar	Sarangdanda	9	1998/99	2000/01	2,492	3,259	9	5.45	8	32	90	30,707	2	–	5,436	2,181
Ilam	Soyang-I	1	1996/97	1997/98	1,418	2,060	1	4.00	4	21	41	18,600	7	60	3,167	2,233
Ilam	Sulbung	7	1996/97	1998/99	1,555	2,308	8	3.75	98	38	73	21,027	2	191	3,542	2,278
Ilam	Pashupatinagar	1	1997/98	2000/01	3,788	5,484	2	4.40	1	100	0	18,159	0	215	11,467	3,027
Ilam	Mangalbare	5	1997/98	1998/99	1,328	1,949	9	3.70	5	6	44	16,493	3	54	2,821	2,124
Ilam	Puwamajhuwa	7	1997/98	1998/99	1,245	1,810	11	2.90	9	26	59	17,082	2	85	3,324	2,670
Ilam	Soyang II	5	1998/99	2000/01	1,086	1,476	7	2.57	5	17	49	15,037	0	35	2,652	2,442
Ilam	Sakhphara	3	1998/99	2000/01	1,055	1,541	4	1.11	4	32	35	12,716	1	35	2,739	2,596
Ilam	Gorkhe	7	1998/99	2000/01	3,024	4,309	7	3.35	10	87	117	42,505	2	55	7,040	2,328
Ilam	Nayabazaar	1	1998/99	2000/01	1,101	1,597	2	2.00	1	50	7	5,525	5	60	2,492	2,263
Ilam	Santipur	2	1998/99	2000/01	1,086	1,576	3	1.30	4	36	36	21,991	1	27	3,924	3,613
Jhapa	Topgachi*	3	1996/97	2001/02	11,945	18,761	6	19.50	3	200	52	58,907	5	30	15,154	1,269

Continued on next page.

SALIENT FEATURES OF SUBPROJECTS

District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Jhapa	Shantinagar	9	1996/97	2000/01	8,584	12,529	13	13.00	3	214	113	58,092	8	355	12,447	1,450
Jhapa	Chilimgadhi	2	1997/98	1998/99	1,739	2,556	2	4.25	1	18	17	14,500	1	48	2,661	1,530
Jhapa	Beltar	2	1998/99	2000/01	6,883	9,544	3	7.65	2	190	65	55,355	4	912	13,524	1,965
Jhapa	Sukedangi	3	1998/99	2001/02	959	1,524	4	0.57	2	16	15	9,704	0	20	2,533	2,641
Morang	Urlabari*	1	1996/97	2001/02	11,635	20,954	2	33.00	1	450	15	17,078	0	–	20,878	1,794
Morang	Salakpur*	1	1996/97	2001/02	5,765	9,696	2	15.00	1	225	1	17,097	0	–	13,344	2,315
Morang	Pati	4	1997/98	1998/99	741	1,068	5	0.95	3	10	14	7,166	1	49	1,506	2,032
Morang	Haraicha*	1	1997/98	2001/02	4,213	6,563	2	12.00	1	50	1	15,034	0	–	10,271	2,438
Morang	Tandi	2	1998/99	1999/00	1,257	1,741	3	2.50	2	46	31	7,519	2	85	1,628	1,295
Morang	Guptikholitar	2	1998/99	2000/01	954	1,336	3	1.30	3	28	30	15,130	1		2,806	2,941
Sunsari	Jhumka*	1	1996/97	2000/01	7,392	10,976	2	12.00	1	100	15	22,504	0	–	12,828	1,735
Sunsari	Barachhetra-(Toribari)	1	1997/98	1999/00	5,797	8,606	2	10.00	2	200	9	24,082	6	373	10,088	1,740
Dhankuta	Danda Gaun	1	1996/97	1998/99	1,491	1,862	1	2.50	3	39	41	15,300	5	24	2,845	1,908
Dhankuta	Chintang	11	1996/97	1998/99	3,162	3,936	15	9.20	10	86	68	34,946	8	3	5,653	1,788
Dhankuta	Hile Bazar	3	1996/97	1998/99	1,491	1,906	5	3.85	3	2	5	8,110	3	14	3,777	2,533
Dhankuta	Khuwaphok	1	1997/98	1998/99	869	1,087	1	0.80	2	28	20	9,560	0	7	1,452	1,671
Dhankuta	Muga	3	1997/98	1998/99	830	1,026	3	1.48	4	31	61	16,262	2	16	2,751	3,314
Dhankuta	Marekkatahare-II	12	1997/98	1999/00	4,499	5,622	23	12.43	17	124	185	50,081	26	45	7,833	1,741
Dhankuta	Murtidhunga	5	1998/99	2000/01	3,297	4,119	10	3.12	11	95	117	45,335	0	–	6,873	2,085
Dhankuta	Askhisalla	5	1998/99	1999/00	5,427	6,779	29	6.17	19	130	137	50,190	20	22	9,627	1,774
Dhankuta	Dandabazaar	3	1998/99	1999/00	997	1,245	5	0.77	5	28	24	8,941	2	6	2,546	2,554
Dhankuta	Teliyatabkhuwa	1	1998/99	2001/02	2,941	3,675	3	4.45	1	200	80	36,400	0	–	3,489	1,186
Terhathum	Solma	3	1996/97	1998/99	1,400	1,733	3	2.00	3	4	38	15,514	5	178	2,472	1,766
Terhathum	Angdin	4	1996/97	1999/00	1,201	1,488	19	3.46	2	11	116	32,985	4	75	4,279	3,563
Terhathum	Tamfula	1	1996/97	2000/01	2,202	2,730	3	3.50	4	52	72	38,000	4	40	8,980	4,078
Terhathum	Morahang	4	1996/97	2000/01	1,902	2,365	9	2.97	13	56	85	30,980	3	25	5,753	3,025
Terhathum	Jirikhimti-II	1	1997/98	1998/99	523	635	3	1.00	2	2	25	13,037	0	70	1,453	2,778
Terhathum	Pauthak	3	1997/98	1998/99	355	440	3	0.70	3	22	23	6,895	4	47	1,196	3,369

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District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Terhathum	Iwa	2	1998/99	2000/01	810	1,007	3	1.20	5	35	41	15,100	0	16	2,647	3,268
Terhathum	Sungnam-III	2	1998/99	1999/00	630	782	5	0.67	5	24	41	7,740	0	4	1,718	2,727
Sankhuwa Sabha	Makalu	12	1996/97	2001/02	2,084	2,542	12	3.65	3	8	33	13,615	0	19	5,256	2,522
Sankhuwa Sabha	Dhupu	10	1996/97	2000/01	2,966	3,617	10	4.65	8	41	75	30,600	0	19	7,597	2,561
Sankhuwa Sabha	Sabha Pokhari	4	1996/97	1999/00	752	918	7	1.85	2	5	26	11,405	3	15	2,023	2,690
Sankhuwa Sabha	Yogi Danda	2	1996/97	1997/98	515	629	2	0.67	2	11	15	5,488	1	7	1,324	2,571
Sankhuwa Sabha	Pathibhara	3	1996/97	1997/98	266	323	4	0.22	1	4	7	1,986	0	15	805	3,026
Sankhuwasabha	Tamkhu	5	1997/98	1999/00	1,056	1,288	4	2.35	3	10	24	8,472	0	13	2,703	2,560
Sankhuwasabha	Madirambeni	6	1997/98	1999/00	1,528	1,866	6	2.28	5	40	66	18,714	0	12	3,561	2,330
Sankhuwasabha	Wana	3	1998/99	2001/02	1,124	1,158	2	0.62	3	32	31	6,798	0	–	2,577	2,293
Sankhuwasabha	Jaljala	2	1998/99	1999/00	524	636	2	1.30	0	0	9	4,470	0	–	1,048	2,000
Sankhuwasabha	Barahbise	2	1998/99	1999/00	785	921	0	1.20	0	0	10	4,958	0	–	762	971
Bhojpur	Bokhim	11	1996/97	2000/01	2,150	2,622	9	3.27	7	32	50	19,980	2	96	4,538	2,111
Bhojpur	Taksar	1	1996/97	1999/00	2,152	2,638	1	1.50	5	51	33	19,563	3	192	3,654	1,698
Bhojpur	Mattel	1	1997/98	1997/98	514	632	1	0.60	1	6	11	6,900	1	24	1,582	3,078
Bhojpur	Sidheswar	8	1997/98	1999/00	1,276	1,556	8	2.73	8	49	55	14,062	2	48	3,230	2,531
Bhojpur	Khatamba	6	1997/98	2000/01	1,822	2,238	8	4.50	8	8	50	22,930	0	35	6,095	3,345
Bhojpur	Kudakaulakhadima	4	1998/99	2000/01	1,988	2,446	5	3.55	15	63	97	30,706	0	–	6,501	3,270
Bhojpur	Annapurna	2	1998/99	2000/01	1,640	2,009	8	2.74	11	80	83	21,081	0	–	5,358	3,267
Bhojpur	Deurali	1	1998/99	2000/01	4,401	5,370	2	3.73	9	135	91	36,860	0	–	8,851	2,011
Solukhumbu	Tingla	10	1996/97	1999/00	2,016	2,390	10	4.74	3	6	43	18,072	5	196	5,900	2,927
Solukhumbu	Jubhing	4	1996/97	1999/00	2,286	2,707	4	2.80	4	22	60	10,657	2	157	3,637	1,591
Solukhumbu	Deusa	8	1997/98	1999/00	2,286	2,800	11	8.66	8	34	48	27,900	0	119	8,129	3,556
Solukhumbu	Lokhim	6	1998/99	1999/00	1,508	1,850	6	3.06	4	25	45	13,811	0	137	4,023	2,668
Okhaldhunga	Nibuwa	2	1996/97	1999/00	1,786	2,224	4	2.11	2	4	28	15,106	2	36	3,659	2,049
Okhaldhunga	Balakhu	6	1996/97	2000/01	1,986	2,421	13	3.96	8	18	43	22,400	0	–	5,705	2,873
Okhaldhunga	Jantarkhani	4	1997/98	1999/00	679	817	4	0.70	4	21	15	11,298	1	37	1,992	2,934
Okhaldhunga	Madhavpur	8	1997/98	1999/00	1,898	2,317	16	3.10	13	47	72	21,431	5	130	4,218	2,222

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District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Okhaldhunga	Rampur	1	1997/98	1999/00	1,249	1,524	1	1.70	1	20	22	15,800	1	164	3,918	3,137
Okhaldhunga	Kalika	6	1997/98	1999/00	1,683	2,054	12	2.30	11	22	56	27,538	0	45	3,721	2,211
Khotang	Dorpa Chiuridanda	20	1996/97	1999/00	3,940	4,799	20	7.50	31	46	98	26,985	10	150	5,821	1,477
Khotang	Mangaltar	1	1996/97	1997/98	556	680	3	0.27	3	7	6	5,821	2	50	821	1,477
Khotang	Buipa	3	1996/97	1998/99	1,098	1,336	3	1.85	2	20	22	8,255	4	80	1,643	1,496
Khotang	Sapteswor Chittapokhari	9	1996/97	2000/01	1,574	1,930	10	2.55	6	14	37	19,475	11	125	3,080	1,957
Khotang	Phaktang	9	1996/97	1999/00	2,701	3,545	9	10.71	6	12	94	38,758	2	60	7,624	2,823
Khotang	Arkhaule	2	1997/98	2000/01	1,606	2,277	2	1.32	4	24	20	27,700	0	–	5,829	3,630
Khotang	Mouwabote	7	1996/97	1999/00	956	1,180	7	2.70	1	8	29	12,238	–	–	2,822	2,952
Khotang	Chhorambu Sapatel	2	1998/99	1999/00	945	1,153	2	0.95	4	26	19	9,690	–	–	2,139	2,263
Khotang	Yamkha	3	1998/99	2000/01	1,349	1,646	6	1.83	4	36	50	18,830	–	–	3,722	2,759
Khotang	Baharapokhari	4	1998/99	2000/01	1,224	1,493	6	1.60	5	31	43	19,650	–	–	3,417	2,792
Khotang	Jalpa	2	1998/99	1999/00	519	635	1	0.95	2	15	15	4,333	–	–	1,287	2,480
Khotang	Bijayakharka-II	2	1998/99	1999/00	745	908	2	0.80	3	15	11	2,735	–	–	744	999
Udayapur	Beltar	1	1996/97	1998/99	4,549	7,296	2	7.25	2	100	40	31,264	12	77	11,734	2,579
Udayapur	Sorung Chabise	3	1996/97	1998/99	1,449	2,323	6	1.46	3	42	30	23,313	3	24	4,485	3,095
Udayapur	Tribeni	2	1997/98	1999/00	4,586	7,354	2	4.20	2	40	22	36,093	6	31	15,128	3,299
Udayapur	Bhalayadanda	2	1997/98	1999/00	2,738	4,397	2	3.16	10	85	56	47,614	6	15	7,095	2,591
Udayapur	Basaha	1	1997/98	2000/01	4,586	7,401	1	6.00	4	144	111	44,000	2	–	9,807	2,138
Udayapur	Kataribazar	1	1997/98	1999/00	5,658	1,127	1	10.00	3	222	36	33,512	2	35	14,593	2,579
Udayapur	Sisuwa Jahada	1	1997/98	1999/00	2,634	4,227	1	3.00	1	100	45	4,497	2	30	3,012	1,144
Udayapur	Rampur	5	1998/99	2000/01	4,974	8,032	9	7.00	5	235	116	40,920	–	–	9,505	1,911
Udayapur	Risku-II	1	1998/99	2000/01	3,239	5,224	1	3.70	8	93	80	28,186	1	–	9,607	2,966
Saptari	Fatepur	1	1997/98	1998/99	2,127	3,160	4	2.00	1	75	27	8,790	6	22	2,429	1,142
Siraha	Mirchaiya*	1	1996/97	2001/02	6,448	9,600	2	12.00	1	225	9	14,007	–	–	18,537	2,875
Siraha	Golbazar*	1	1997/98	2001/02	4,906	7,305	2	12.50	1	225	12	12,650	–	3	15,138	3,086

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District	Subproject	General			Design Features									Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Mid-Western Region																
Dang	Lalmatiya/ Bhalubang	1	1996/97	2000/01	6,650	12,135	1	16.00	1	400	43	10,270	3	8	10,429	1,568
Dang	Saigha	4	1996/97	1998/99	2,039	3,052	6	0.86	5	54	31	34,408	4	96	4,788	2,348
Dang	Syuja	5	1997/98	1999/00	2,008	3,469	7	2.69	5	52	35	28,062	4	127	5,600	2,789
Dang	Takiyapur	1	1998/99	1998/99	1,563	2,355	2	1.00	2	40	22	10,888	2	92	2,068	1,323
Salyan	Badagaon	5	1998/99	2000/01	2,307	2,993	7	2.13	8	45	49	28,549	4	–	5,545	2,404
Salyan	Bhalchaur	5	1996/97	1998/99	2,410	3,073	13	1.38	7	43	37	24,683	4	252	3,199	1,327
Salyan	Chhaya Chhetra	3	1998/99	1999/00	1,949	2,528	4	1.25	6	44	33	17,580	3	155	3,456	1,773
Salyan	Damachaur	3	1998/99	1999/00	2,170	2,815	11	2.24	13	42	64	29,240	6	70	5,418	2,497
Salyan	Dhakadam	7	1996/97	2000/01	5,084	6,576	28	5.77	21	83	118	60,785	8	–	14,614	2,875
Salyan	Kabrechaur	6	1996/97	1998/99	3,079	3,922	11	2.23	9	63	54	25,770	3	67	4,155	1,349
Salyan	Karagithhi	3	1997/98	1999/00	1,234	1,602	3	1.06	3	32	15	10,550	7	47	1,431	1,160
Salyan	Kotmaula	4	1996/97	1999/00	1,785	2,318	10	2.20	9	29	43	21,038	5	52	2,889	1,618
Salyan	Pipalneta	2	1997/98	1998/99	536	695	3	1.60	4	8	12	5,145	3	151	907	1,692
Salyan	Rampur	2	1996/97	1997/98	1,857	2,365	3	2.22	3	36	39	18,605	8	57	3,156	1,700
Salyan	Tharmare	5	1996/97	1999/00	2,321	2,957	9	0.98	8	33	27	21,700	13	104	3,165	1,364
Pyuthan	Baddanda	2	1998/99	1999/00	924	1,127	2	1.10	2	15	11	7,630	1	29	1,086	1,175
Pyuthan	Bangemaroth	3	1997/98	1998/99	1,086	1,326	3	1.60	2	20	24	12,822	2	33	1,808	1,665
Pyuthan	Banskot	3	1998/99	1999/00	767	936	3	1.50	3	7	21	5,189	3	45	1,297	1,691
Pyuthan	Baraula	7	1996/97	1999/00	2,608	3,171	11	1.74	10	59	50	24,957	8	86	4,291	1,645
Pyuthan	Jumrikanda	3	1998/99	1999/00	1,322	1,613	4	1.70	5	24	31	10,683	3	19	2,219	1,679
Pyuthan	Khaira	4	1996/97	2000/01	1,546	1,795	5	1.35	4	47	10	22,421	0	26	2,612	1,690
Pyuthan	Kochibang	6	1996/97	1999/00	3,083	3,689	11	1.78	10	32	40	35,932	0	63	4,491	1,457
Pyuthan	Libang	6	1996/97	2000/01	2,898	3,558	13	2.80	10	66	67	41,609	4	29	7,736	2,669
Pyuthan	Pakala	5	1996/97	1998/99	1,299	1,579	5	4.83	7	23	29	13,186	2	121	2,280	1,755
Pyuthan	Rajbara	3	1996/97	1998/99	1,883	2,275	8	1.58	8	37	34	16,249	3	60	3,226	1,713
Pyuthan	Shyaulibang	5	1996/97	1999/00	2,261	2,759	15	4.79	10	31	58	19,178	3	56	3,737	1,653
Rolpa	Aresh	1	1996/97	1999/00	1,141	1,396	1	0.80	2	26	15	14,025	1	13	3,074	2,694

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SALIENT FEATURES OF SUBPROJECTS

District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Rolpa	Badachaur	6	1996/97	1999/00	3,289	4,427	7	3.03	5	46	56	20,276	3	101	4,210	1,280
Rolpa	Eribang	5	1996/97	1999/00	3,765	4,593	10	2.51	10	77	59	33,353	2	43	5,260	1,397
Rolpa	Gajul	5	1997/98	1999/00	1,565	1,915	5	2.01	4	32	38	11,970	0	70	2,396	1,531
Rolpa	Gam	6	1996/97	1999/00	2,228	2,999	7	3.72	6	55	50	15,869	0	111	3,666	1,645
Rolpa	Jinabang	5	1996/97	2000/01	5,872	7,165	14	3.08	13	115	105	67,123	3	22	7,018	1,195
Rolpa	Nuwagaon-I	2	1996/97	1997/98	865	1,055	2	0.25	9	9	11	9,170	0	10	1,219	1,409
Rolpa	Nuwagaon-II	2	1998/99	2000/01	1,001	1,162	2	0.85	3	29	17	25,349	0	–	2,483	2,481
Rolpa	Pakhapani	5	1996/97	1999/00	1,061	1,641	5	1.32	5	43	19	12,184	3	47	2,595	2,446
Rolpa	Pang	3	1997/98	1998/99	1,304	1,621	3	1.94	3	30	29	13,902	0	85	1,799	1,380
Rolpa	Rank	4	1996/97	2000/01	4,250	5,179	6	2.06	12	82	80	47,956	0	19	5,242	1,233
Rolpa	Sulichaur	5	1996/97	1999/00	1,025	1,697	5	3.27	5	56	27	11,182	3	75	2,812	2,743
Rolpa	Thabang	5	1996/97	1999/00	2,719	3,795	6	1.55	6	34	34	10,727	5	29	2,797	1,029
Rolpa	Uwa	3	1996/97	1998/99	1,532	1,864	2	1.68	5	15	27	13,797	4	35	2,438	1,591
Rukum	Aathbishkot	6	1997/98	2000/01	3,753	5,143	15	2.96	15	76	73	45,262	2	50	7,772	2,071
Rukum	Chaukhabang	1	1996/97	1997/98	883	1,210	1	0.65	1	20	18	7,322	1	61	1,426	1,615
Rukum	Garayala	1	1996/97	1997/98	456	625	1	0.50	1	10	12	4,200	1	25	1,125	2,467
Rukum	Jhula	4	1998/99	2000/01	1,958	2,684	5	2.10	4	58	51	19,562	0	5	3,625	1,851
Rukum	Jhulathanti	5	1996/97	1997/98	1,052	1,445	5	1.40	4	16	23	13,230	1	10	2,346	2,230
Rukum	Kotjahari	3	1998/99	2000/01	1,341	1,838	8	1.60	8	41	35	14,210	1	22	2,561	1,910
Rukum	Nuwakot	3	1998/99	2000/01	1,732	2,374	11	2.50	11	49	41	14,124	2	24	3,495	2,018
Rukum	Peugha	2	1997/98	1998/99	1,047	1,436	2	1.18	2	24	22	8,591	2	41	1,707	1,630
Rukum	Pokhara Dading	1	1996/97	1998/99	2,026	2,777	3	1.90	3	44	28	13,003	1	21	3,243	1,601
Rukum	Purtimkanda	4	1996/97	1998/99	1,444	1,985	6	1.18	6	37	34	17,634	1	81	2,751	1,905
Rukum	Ransi	1	1996/97	1997/98	826	1,133	1	0.90	2	18	15	3,579	1	16	1,241	1,502
Rukum	Serigaon	2	1997/98	1999/00	1,536	2,106	4	1.90	3	40	33	8,645	15	388	2,037	1,326
Banke	Bhavaniyapur	1	1996/97	1997/98	551	1,009	1	0.85	1	20	16	7,631	1	15	1,319	2,394
Banke	Khokari	1	1998/99	1999/00	487	892	1	0.80	1	20	17	5,502	2	24	1,217	2,499
Bardiya	Chepang	1	1997/98	1998/99	905	1,588	1	1.00	2	40	16	5,779	0	22	1,672	1,848
Bardiya	Dhadhawar	1	1997/98	1999/00	1,443	2,525	1	1.40	2	40	20	10,281	1	15	3,106	2,152

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District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Surkhet	Babiyachaur	1	1998/99	2000/01	3,512	6,197	1	4.70	2	106	50	15,600	0	10	4,387	1,249
Surkhet	Bidhyapur II	3	1996/97	1998/99	3,196	5,639	5	5.75	4	74	63	29,492	4	95	6,531	2,043
Surkhet	Chhapre	4	1996/97	1998/99	1,145	1,753	4	0.77	6	38	18	18,613	4	25	2,714	2,370
Surkhet	Chhinchu-I	1	1996/97	1999/00	2,718	5,650	1	6.00	1	150	0	6,907	2	150	6,150	2,263
Surkhet	Chhinchu-II	2	1998/99	2000/01	1,408	2,484	4	1.65	4	41	30	67,230	2	15	3,331	2,366
Surkhet	Dahachaur	1	1997/98	1999/00	368	572	1	0.90	1	10	8	12,909	1	12	1,788	4,859
Surkhet	Gumi 7 & 8	2	1996/97	1997/98	375	575	2	1.25	2	17	12	5,504	3	31	972	2,592
Surkhet	Gumi-II	1	1998/99	1999/00	2,034	3,588	1	2.32	2	40	49	16,195	3	50	2,746	1,350
Surkhet	Gutu	3	1997/98	1998/99	1,036	1,828	6	1.82	2	9	16	9,728	3	122	1,539	1,486
Surkhet	Hariharpur	2	1996/97	1998/99	1,419	2,492	2	2.14	2	10	16	13,822	2	48	3,827	2,697
Surkhet	Jarbuta-II	3	1998/99	1999/00	866	1,528	3	1.25	4	28	29	13,842	2	43	2,638	3,046
Surkhet	Kallyan	2	1996/97	1999/00	3,626	6,395	2	3.57	7	81	54	49,940	6	123	9,505	2,621
Surkhet	Kunathari	1	1998/99	2000/01	1,785	3,150	1	1.50	4	62	36	24,304	0	–	6,577	3,685
Surkhet	Lekhgaon	2	1997/98	1998/99	347	531	2	0.32	2	8	9	2,780	1	66	901	2,597
Surkhet	Maintada-II	3	1998/99	2000/01	1,794	3,691	6	2.40	4	64	24	18,470	0	30	3,458	1,928
Surkhet	Malarani-I	6	1996/97	1998/99	1,513	2,316	6	1.50	4	35	22	12,391	3	153	2,534	1,675
Surkhet	Malarani-II	4	1998/99	2001/02	2,140	3,776	4	2.50	6	65	35	28,797	0	25	104	49
Surkhet	Matela	4	1996/97	1999/00	3,185	4,876	4	3.12	5	60	57	28,881	3	75	6,396	2,008
Surkhet	Mehelkuna-II	2	1998/99	1999/00	1,208	2,131	2	1.39	3	36	23	7,480	1	36	1,477	1,223
Surkhet	Sahare	2	1996/97	1997/98	1,319	2,207	2	1.80	3	33	21	10,083	2	59	2,040	1,547
Dailekh	Badlamji Rehab.	1	1998/99	2000/01	10,038	12,550	3	6.40	1	16	73	13,905	1	–	3,455	344
Dailekh	Baraha	5	1996/97	1999/00	2,692	3,390	16	1.36	17	49	49	31,145	9	47	5,653	2,100
Dailekh	Bindabasini	4	1996/97	1999/00	2,641	3,337	12	1.80	8	47	46	23,276	7	72	4,451	1,685
Dailekh	Goganpani	3	1998/99	2000/01	1,154	1,468	4	0.90	6	27	32	16,733	2	43	2,909	2,521
Dailekh	Jambukandh	6	1997/98	1999/00	1,435	1,824	7	1.86	6	36	45	14,190	3	34	2,460	1,714
Dailekh	Kalbhairab	3	1996/97	1999/00	3,910	4,912	4	0.72	4	20	18	8,422	6	191	4,865	1,244
Dailekh	Katti	5	1997/98	1999/00	2,306	2,936	10	2.25	5	59	43	23,754	5	56	4,059	1,760
Dailekh	Kusapani	3	1996/97	1999/00	1,582	2,021	5	1.19	5	25	27	10,859	3	3	2,493	1,576
Dailekh	Malika	6	1996/97	1998/99	937	1,192	7	1.20	5	21	23	13,245	4	112	1,692	1,806

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District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Dailekh	Naule Katwal	4	1997/98	1999/00	924	1,176	4	1.73	5	22	18	8,659	0	39	1,589	1,720
Dailekh	Rakam Karnali	6	1998/99	2000/01	2,183	2,777	6	2.25	6	57	39	23,709	0	–	5,212	2,388
Dailekh	Raniban	2	1996/97	1999/00	2,326	2,936	3	1.62	6	55	41	22,661	7	38	3,292	1,415
Jajarkot	Archhani	5	1996/97	1999/00	2,036	2,689	11	1.65	9	44	53	15,743	2	46	4,370	2,146
Jajarkot	Dandagaon	5	1998/99	2000/01	2,282	3,013	7	2.37	5	59	41	17,630	0	25	4,010	1,757
Jajarkot	Dhime-I	5	1996/97	1998/99	1,673	2,207	5	3.15	3	23	30	9,610	4	47	2,716	1,623
Jajarkot	Dhime-II	3	1998/99	2000/01	1,588	2,097	3	1.80	2	16	20	7,772	0	22	2,174	1,369
Jajarkot	Jagtipur	1	1996/97	1999/00	922	2,761	1	1.75	3	75	8	9,334	1	20	3,290	3,568
Jajarkot	Jhapra	5	1996/97	1998/99	2,030	2,705	5	2.57	4	38	32	10,293	5	116	2,488	1,226
Jajarkot	Pajaru-I	4	1996/97	1998/99	924	1,223	5	1.53	4	33	24	10,044	2	11	3,352	3,628
Jajarkot	Pajaru-II	4	1998/99	2000/01	2,047	2,681	12	2.61	6	30	49	27,402	3	28	5,487	2,681
Jajarkot	Sakala-II	4	1996/97	1999/00	1,857	2,450	6	0.85	6	39	40	13,535	2	41	4,009	2,159
Jajarkot	Talegaon	1	1997/98	1999/00	1,752	2,380	3	2.10	3	37	45	11,940	1	45	2,998	1,711
Kalikot	Gairagaon/ Puchhegaon	3	1997/98	2000/01	1,099	1,291	4	0.85	3	34	20	9,034	0	28	2,273	2,068
Kalikot	Jarkot	1	1997/98	1998/99	297	349	1	0.20	1	8	4	1,977	1	6	534	1,798
Kalikot	Kotbada Malkot	6	1997/98	2000/01	2,631	3,269	7	3.10	5	47	41	15,325	1	–	4,155	1,579
Kalikot	Oda	2	1998/99	2000/01	672	1,327	5	1.07	2	18	11	4,558	0	–	1,689	2,513
Kalikot	Odanku	4	1996/97	1998/99	1,863	2,309	4	1.84	2	25	28	13,774	4	84	3,913	2,100
Kalikot	Thinke Katampur	3	1998/99	2000/01	3,141	3,894	9	4.80	0	0	41	20,888	1	18	5,470	1,741
Kalikot	Tikhati	1	1997/98	1999/00	811	1,005	1	1.30	0	0	13	8,464	2	–	1,540	1,899
Kalikot	Vijayapur Baddala	2	1998/99	1999/00	736	913	4	0.65	2	10	12	4,467	2	–	1,780	2,418
Jumla	Birat	3	1996/97	2000/01	1,544	1,899	4	2.10	2	21	18	5,714	3	9	2,945	1,907
Jumla	Dhapa	2	1996/97	1999/00	1,983	2,439	4	0.91	4	33	21	8,196	1	9	3,372	1,700
Jumla	Khalanga Rehab.	1	1996/97	2000/01	4,882	6,004	1	5.00	3	220	19	18,157	1	60	15,417	3,158
Jumla	Pandavgupha	5	1997/98	2000/01	1,798	2,211	9	1.45	5	36	24	12,350	0	12	4,650	2,586
Jumla	Talium	1	1997/98	1999/00	428	526	1	0.30	1	8	4	4,915	1	19	1,135	2,652
Dolpa	Kamkot	1	1997/98	2000/01	339	445	1	0.90	0	0	6	3,900	1	11	1,236	3,646
Mugu	Gamgadhi	1	1998/99	2000/01	1,602	2,050	1	1.80	4	62	9	17,050	0	25	7,139	4,456

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District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Mugu	Hyanglu	3	1997/98	1999/00	2,260	2,751	5	1.31	4	28	13	7,346	–	54	2,733	1,209
Mugu	Kalai	2	1996/97	1999/00	1,008	1,495	2	1.20	0	0	11	8,064	2	18	2,029	2,013
Mugu	Kalapalta	1	1997/98	1998/99	658	802	2	0.70	1	18	9	2,327	1	1	1,193	1,813
Mugu	Pipladi	2	1997/98	1998/99	430	522	2	0.60	1	6	6	3,530	2	2	1,133	2,635
Mugu	Seri	4	1996/97	1999/00	859	1,050	5	0.52	3	9	9	7,708	0	38	2,073	2,413
Humla	Chauganfaya	2	1997/98	1998/99	355	498	2	1.05	0	0	7	3,440	0	–	663	1,868
Humla	Chhyangi	2	1997/98	1999/00	897	1,252	2	0.70	2	26	10	4,585	3	3	1,857	2,070
Humla	Gopka	3	1997/98	2000/01	622	677	3	0.40	1	10	16	4,325	0	–	1,977	3,178
Humla	Simikot	2	1997/98	2000/01	2,467	3,588	2	6.60	1	50	216	3,917	0	–	2,973	1,205
Humla	Yari	2	1997/98	1998/99	505	710	2	1.45	0	0	8	5,750	0	–	1,180	2,337
Far-Western Region																
Bajura	Barbise	4	1996/97	1999/00	2,994	3,637	9	2.52	9	65	58	20,795	1	200	4,024	1,344
Bajura	Gudukhati	4	1996/97	1999/00	2,159	2,632	8	1.50	8	59	28	11,317	2	95	2,695	1,248
Bajura	Basalla	6	1997/98	1999/00	1,185	1,474	7	1.30	5	32	23	10,925	2	66	2,738	2,311
Bajura	Saindeo	2	1997/98	1999/00	1,175	1,430	2	1.50	3	36	16	11,880	0	22	2,594	2,208
Bajura	Jhali	2	1998/99	1999/00	818	1,019	2	1.20	2	13	13	4,160	1	40	892	1,090
Bajura	Nuri	5	1998/99	2000/01	1,554	1,935	9	2.14	3	28	40	15,908	2	340	3,545	2,281
Bajura	Kuldevmandu II	3	1998/99	2000/01	1,088	1,353	5	0.86	3	15	17	5,319	2	33	1,222	1,123
Bajura	Gotri	5	1998/99	2000/01	1,827	2,395	6	2.05	4	37	33	19,128	0	80	4,184	2,290
Bajhang	Koiralakot	5	1996/97	1997/98	2,620	3,264	5	3.80	3	22	42	18,162	0	18	3,539	1,351
Bajhang	Subeda	4	1996/97	1998/99	1,835	2,285	4	1.80	4	38	34	12,772	0	49	3,155	1,719
Bajhang	Mallumela	5	1996/97	1997/98	1,181	1,471	5	1.41	4	25	19	7,619	0	11	2,009	1,701
Bajhang	Pataddeval	6	1996/97	1998/99	2,774	3,557	7	3.60	2	26	29	7,694	0	39	2,285	824
Bajhang	Sainapasela	1	1996/97	1997/98	1,554	1,935	1	1.00	2	28	24	9,733	1	34	2,165	1,393
Bajhang	Dilkoteli Basti	7	1997/98	2000/01	3,646	4,605	7	3.70	6	42	58	25,168	2	49	4,236	1,162
Bajhang	Khiratadi II	7	1997/98	1999/00	2,920	3,664	7	1.97	7	66	44	15,349	2	12	4,524	1,549
Bajhang	Parakatne	6	1997/98	1999/00	2,414	3,050	6	2.05	6	54	45	19,734	3	52	4,194	1,737
Bajhang	Sunikot	5	1998/99	2000/01	2,522	3,181	6	2.30	8	57	61	26,998	0	7	5,048	2,002
Bajhang	Sunkuda	7	1998/99	2001/02	3,477	4,476	7	3.00	8	93	62	30,630	0	18	6,033	1,735

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District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Bajhang	Pipalkot	5	1998/99	1999/00	2,292	2,908	5	2.00	6	51	39	15,946	2	47	3,795	1,656
Achham	Kalekanda	7	1996/97	1997/98	1,771	2,113	7	1.29	8	48	31	13,974	2	–	2,597	1,467
Achham	Layati	7	1996/97	1997/98	1,070	1,282	7	0.64	6	26	16	7,655	1	–	1,752	1,637
Achham	Toshi	5	1996/97	1999/00	1,968	2,353	6	1.31	5	29	39	15,447	2	69	2,844	1,445
Achham	Muli	9	1997/98	1999/00	2,144	2,612	9	2.05	8	41	39	19,247	1	118	3,944	1,840
Achham	Birpath	12	1997/98	2000/01	1,863	2,313	14	2.01	13	66	43	25,902	3	25	4,265	2,289
Achham	Lungra	2	1997/98	1999/00	299	372	2	0.22	2	8	8	5,158	1	20	858	2,870
Achham	Balata	5	1997/98	1999/00	861	1,069	5	1.08	4	19	16	17,217	2	64	2,612	3,034
Achham	Chafamandu	7	1997/98	1999/00	1,376	1,722	7	3.70	1	3	35	10,751	0	84	2,132	1,549
Achham	Binayak	7	1998/99	2001/02	5,695	6,965	9	5.00	10	119	93	46,275	0	170	1,264	222
Achham	Kalagaon	4	1998/99	2000/01	2,971	3,634	6	3.00	5	78	51	18,532	1	100	4,364	1,469
Achham	Nada	9	1998/99	2000/01	2,840	3,493	10	2.60	9	65	64	45,009	2	88	7,907	2,784
Doti	Lanakedareswor	6	1996/97	1998/99	2,298	2,804	8	3.68	7	51	60	28,677	5	180	4,409	1,919
Doti	Omdumra/ Barpata	5	1996/97	1998/99	1,753	2,139	7	2.00	7	66	53	23,405	1	66	4,367	2,491
Doti	Baglekh II	2	1997/98	1998/99	1,192	1,448	2	1.30	2	38	29	10,808	0	26	2,131	1,788
Doti	Satferi II	5	1997/98	1999/00	1,401	1,709	7	1.87	7	54	57	24,044	3	77	5,271	3,762
Doti	Nirauli II	9	1997/98	1999/00	2,512	3,065	9	2.50	12	81	64	28,125	5	–	6,245	2,486
Doti	Rangaon	1	1998/99	2001/02	2,225	2,850	2	1.00	4	56	53	12,996	0	–	3,471	1,560
Doti	Setigaon	2	1998/99	1999/00	867	1,015	2	1.80	2	22	14	9,950	1	–	2,203	2,541
Doti	Saraswatinagar II	11	1998/99	2000/01	2,410	2,971	13	4.83	12	43	61	35,210	0	–	7,105	2,948
Kailali	Sugurkhal II	7	1996/97	1998/99	3,152	4,221	8	3.26	11	111	67	33,738	3	380	6,818	2,163
Kailali	Okhaldunga/ Khimdi	1	1996/97	1997/98	955	1,260	1	0.60	1	20	15	8,474	1		1,936	2,028
Kailali	Kauwapur	1	1998/99	1999/00	1,249	1,807	1	1.50	2	40	20	15,200	1	40	3,322	2,660
Kailali	Baskota	2	1996/97	1997/98	1,523	2,098	2	1.00	2	20	28	10,709	1	149	2,515	1,651
Kailali	Masuriya	2	1997/98	1999/00	1,733	2,508	2	1.65	3	52	39	18,675	2	150	3,015	1,740
Kailali	Chuha	1	1997/98	1998/99	1,607	2,326	1	1.80	2	20	27	12,769	1	50	3,865	2,405
Kailali	Malakheti II	1	1998/99	1999/00	660	955	1	0.75	1	14	15	9,500	1	70	2,263	3,429
Kailali	Pandon	5	1998/99	1999/00	1,433	2,025	5	1.80	5	40	33	16,971	2	150	3,082	2,151

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District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Kailali	Khairala II	8	1998/99	2000/01	2,308	3,256	8	2.00	8	64	57	34,739	0	88	7,727	3,348
Kailali	Solta	5	1998/99	2000/01	4,530	6,087	7	7.00	13	124	74	35,971	0	131	11,834	2,612
Kanchanpur	Hatithala	1	1997/98	2000/01	3,704	7,288	3	5.00	1	150	114	35,826	4	81	11,021	2,975
Kanchanpur	Jahalari/Fuleli	1	1997/98	1998/99	1,914	3,750	2	3.00	1	100	57	20,862	1	60	5,925	3,096
Kanchanpur	Shantipur	1	1998/99	2001/02	2,713	5,332	1	1.00	1	100	59	21,200	0	–	5,801	2,138
Kanchanpur	Polkhari	1	1998/99	1999/00	1,487	2,922	3	2.00	1	50	31	13,600	3	25	2,780	1,870
Kanchanpur	Paharia	1	1998/99	2000/01	1,815	3,565	1	2.15	2	70	39	18,818	0	–	5,133	2,828
Dadeldhura	Jogbudha II	5	1996/97	1999/00	4,165	5,818	5	3.08	9	196	80	23,910	3	183	4,700	1,128
Dadeldhura	Balada/Balkanda	6	1996/97	2000/01	1,894	2,650	6	2.10	6	70	49	23,137	0	–	4,731	2,498
Dadeldhura	Mastamandu	4	1996/97	1998/99	1,634	2,243	4	1.55	5	54	39	12,011	1	74	2,298	1,406
Dadeldhura	Chawoodbasti, Golali	3	1996/97	1998/99	1,008	1,431	3	1.10	3	28	24	10,538	1	157	1,944	1,929
Dadeldhura	Badapathi / Makala	5	1996/97	1998/99	1,848	2,674	5	2.65	6	53	62	22,179	1	176	3,606	1,951
Dadeldhura	Koteli	4	1996/97	1998/99	1,352	1,888	4	1.40	4	42	10	13,335	2	202	2,470	1,827
Dadeldhura	Biplam/Satigaon	5	1996/97	1999/00	1,434	2,035	5	1.95	3	40	35	18,435	0	44	3,509	2,447
Dadeldhura	Pokhara	1	1996/97	1999/00	2,867	4,122	1	2.00	7	70	62	21,164	1	180	4,058	1,415
Dadeldhura	Manilek II	4	1996/97	1999/00	613	876	4	0.50	4	14	15	5,577	0	33	1,576	2,571
Dadeldhura	Jogbudha III	5	1997/98	1999/00	2,276	3,064	5	2.43	6	79	59	22,131	3	240	4,560	2,004
Dadeldhura	Ganeshpur	3	1997/98	1999/00	976	1,307	3	0.59	3	20	21	8,928	0	80	1,598	1,637
Dadeldhura	Jhallek Ladauli	6	1997/98	2000/01	2,594	3,749	8	2.98	8	65	79	37,068	1	–	6,760	2,606
Baitadi	Sakar	10	1996/97	1998/99	2,922	3,731	17	2.35	13	83	60	32,889	3	70	6,039	2,067
Baitadi	Sidpur/sidsor	11	1996/97	1998/99	1,912	2,442	12	3.44	9	46	50	41,147	3	71	5,442	2,846
Baitadi	Kailpal	7	1996/97	1999/00	1,730	2,138	7	1.61	6	42	41	18,173	4	97	2,762	1,597
Baitadi	Sigas	4	1997/98	1999/00	1,637	2,045	4	1.40	4	28	35	17,289	2	46	2,936	1,794
Baitadi	Hatairai	3	1997/98	1998/99	419	518	3	0.45	3	12	15	4,384	1	11	780	1,862
Baitadi	Rauleswor	6	1997/98	1999/00	1,344	1,656	8	1.31	8	31	28	12,492	2	45	1,647	1,225
Baitadi	Mahadevsthan	1	1997/98	1999/00	303	374	1	0.45	1	8	8	5,430	1	20	875	2,888
Baitadi	Titargaon	2	1997/98	1999/00	1,000	1,249	2	1.10	3	32	19	9,281	1	36	1,477	1,477
Baitadi	Dasrathchand	3	1997/98	1999/00	1,210	1,512	3	1.15	4	30	24	13,048	1	69	2,494	2,061
Baitadi	Gurukhola	4	1998/99	1999/00	1,069	1,336	4	1.01	6	30	26	9,511	2	58	2,182	2,041

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SALIENT FEATURES OF SUBPROJECTS

District	Subproject	General			Design Features										Subproject	
		No. of Schemes	Start Year	Completion Year	Benefited Population		Intakes		Reservoirs		Tap-stands	Pipe Length	Sanitation		Total Cost	Per Capita Cost
					Base year	Design year	No.	Yield litre per sec	No.	Cu. meters	Nos.	Meters	Inst. latrines	Pvt. latrines	NRs '000	(NRs)
Baitadi	Maharudra	4	1998/99	2000/01	1,939	2,251	5	2.06	12	51	42	22,305	2	30	4,867	2,510
Baitadi	Kotpetra	7	1998\99	2000/01	2,410	3,016	7	3.00	10	56	54	23,630	1	45	5,018	2,082
Darchula	Khar	14	1996/97	1998/99	2,216	2,832	22	4.65	10	16	89	32,695	3	173	5,722	2,582
Darchula	Dhuligada	11	1996/97	1999/00	1,888	2,384	11	4.42	5	16	65	35,300	3	243	4,422	2,342
Darchula	Lhas	2	1996/97	1999/00	1,653	2,049	2	1.25	5	43	60	20,527	1	–	5,692	3,443
Darchula	Rithchaupata II	5	1997/98	2000/01	2,716	3,366	5	3.25	10	75	73	43,333	2	–	9,045	3,330
Darchula	Guljar II	5	1997/98	2000/01	6,200	7,682	5	4.00	9	93	82	27,262	4	60	10,930	1,763
Darchula	Lali II	5	1997/98	1998/99	1,052	1,321	6	1.15	5	31	38	14,207	2	45	3,140	2,985
Darchula	Dhari	6	1997/98	1999/00	2,395	3,042	8	4.45	6	34	62	17,026	0	98	4,755	1,985
Darchula	Sarmauli II	4	1997/98	1998/99	1,297	1,662	5	1.00	5	22	26	15,551	2	–	2,711	2,090
Darchula	Gwani II	5	1997/98	1999/00	1,486	1,844	5	1.95	6	40	42	18,082	1	59	4,122	2,774
Darchula	Kholsiboharigaon	6	1997/98	1999/00	1,916	2,446	3	1.90	6	44	52	26,709	2	93	4,754	2,481
Darchula	Sitaula II	5	1997/98	2000/01	1,613	2,140	10	2.75	11	90	83	40,720	0	18	5,358	3,322
Darchula	Latinath II	9	1997/98	2000/01	4,437	5,644	9	5.90	11	108	128	45,522	0	24	8,066	1,818

– = not available; Cu. = cubic; no. = number; NRs = Nepalese rupees; Inst = Institutional; Pvt = Private

Source(s): Department of Water Supply and Sewerage, and Asian Development Bank

PROJECT OUTPUTS:
COMPARISON BETWEEN APPRAISAL TARGETS AND ACHIEVEMENTS

Item	Unit	Appraised	Actual
1 No. of Subprojects	nos.	310 [a]	322
2 Benefitted Population	nos.	600,000	670,000
3 Institutional Latrines	nos.	900	1,277
4 Private Simple Pit Latrines	nos.	–	33,654
5. Community Training			
-Water User Committees	persons	10,500	13,094
-Village Maintenance Workers	persons	1,500	1,332
-Teachers and/or Community Health Volunteers	persons	600	830
6. Implementation Assistance and Institutional Strengthening			
- Consulting Services	person-months	756	648
- Preparation of District Profiles	nos.	22	22
- Construction of DWSO Buildings	nos.	22	22
- Community and Staff Training	persons	1,100	1,635

— = not available, DWSO = Department of Water Supply Office; no(s). = number
[a] Including rehabilitation of 10 subprojects.
Source(s): Department of Water Supply and Sewerage, and Asian Development Bank

SUMMARY FINDINGS ON SUBPROJECTS VISITED BY THE PCR MISSION

Subprojects	District	General Features			Service Delivery			Key Sustainability Indicators			Remarks
		Population Served (Base-Year)	Estimated Cost (NRs '000)	Actual Cost (NRs '000)	Adequacy of Water Supply	Operational Stauts	Improvement in Hygiene and Sanitation	Effectiveness of WUC	Water Quality	O & M Cost Recovery	
Eastern Region											
Pashupatinagar	Ilam	3,788	13,618	11,467	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Shantinagar	Jhapa	8,584	13,467	12,447	Yes	Operational	Improved	Effective	Good	Inadequate	Water shortage due to unplanned distribution of private conections. Water charge too low.
Chilmgadi	Jhapa	1,739	3,749	2,661	Yes	Operational	No Perceptible Improvement	Effective	Good	Adequate	Intake structure vulnerable to flash floods, causing interruption in supply.
Beltar	Jhapa	6,883	14,674	13,524	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Urlabari	Morang	11,635	20,984	20,878	Yes	Partly Operational	No Perceptible Improvement	Effective	Poor	Inadequate	High iron content in water, resulting in low demand and capacity utilization.
Salakpur	Morang	5,765	13,740	13,344	Yes	Partly Operational	No Perceptible Improvement	Effective	Good	Inadequate	Low water tariffs and inadequate efforts to distribute water connections.
Haraicha	Morang	4,213	10,109	9,367	No	Partly Operational	No Perceptible Improvement	Effective	Poor	Inadequate	Inadequate water yield, and high iron content, resulting in low demand and capacity utilization.
Jhumka	Sunsari	7,392	13,662	12,828	Yes	Partly Operational	No Perceptible Improvement	Effective	Good	Inadequate	High iron content in water, resulting in low demand and capacity utilization.
Barahchhetra	Sunsari	5,797	11,583	10,088	No	Operational	Improved	Effective	Good	Adequate	Inadequate O&M resulting in irregular supply.
Hile Bazar	Dhankuta	1,491	4,069	3,777	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Mirchaiya	Siraha	6,448	18,537	18,537	No	Partly Operational	No Perceptible Improvement	Not Effective	Poor	Inadequate	Defective pipe laying, resulting in problems in distribution.
Golbazar	Siraha	4,906	15,138	15,138	No	Not Operational	No Perceptible Improvement	Not Effective	Poor	Inadequate	Incomplete transmission and distribution system.

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SUMMARY FINDINGS ON SUBPROJECTS VISITED BY THE PCR MISSION

Subprojects	District	General Features			Service Delivery			Key Sustainability Indicators			Remarks
		Population Served (Base-Year)	Estimated Cost (NRs '000)	Actual Cost (NRs '000)	Adequacy of Water Supply	Operational Stauts	Improvement in Hygiene and Sanitation	Effectiveness of WUC	Water Quality	O & M Cost Recovery	
Mid-Western Region											
Bhaluwang	Dang	6,650	11,706	10,430	Yes	Operational	Improved	Not Effective	Good	Inadequate	Affected by the insurgency. Poor distribution management. Not yet handed over due to faulty technical design.
Takiyapur	Dang	1,563	3,927	2,068	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Baddanda	Pyuthan	924	1,632	1,086	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Khaira	Pyuthan	1,546	14,793	7,018	No	Temporarily Not Operational	Improved	Effective	Good	Adequate	Water source dried up temporarily.
Khokari	Banke	487	1,463	1,217	No	Operational	Improved	Not Effective	Good	Adequate	Negative impact on deforestration, due to the insurgency, on water source.
Babiyachaur	Surkhet	3,512	5,763	4,387	Yes	Operational	Improved	Not Effective	Good	Adequate	WUC activity disrupted by the insurgency.
Chinchu I	Surkhet	2,718	6,850	6,150	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Gumi II	Surkhet	2,034	4,111	2,746	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Jarbuta II	Surkhet	866	3,568	2,630	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.

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SUMMARY FINDINGS ON SUBPROJECTS VISITED BY THE PCR MISSION

Subprojects	District	General Features			Service Delivery			Key Sustainability Indicators			Remarks
		Population Served (Base-Year)	Estimated Cost (NRs '000)	Actual Cost (NRs '000)	Adequacy of Water Supply	Operational Stauts	Improvement in Hygiene and Sanitation	Effectiveness of WUC	Water Quality	O & M Cost Recovery	
Far-Western Region											
Baskota	Kailali	1,523	3,491	2,515	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Malakheti II	Kailali	660	2,453	2,263	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Jhalari/Fuleli	Kanchanpur	1,914	7,445	5,925	No	Partly Operational	Improved	Effective	Good	Adequate	Intake structure and pipline damaged by flash floods.
Shantipur	Kanchanpur	2,713	7,018	5,081	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Jogbudha II	Dadeldhura	4,165	5,704	4,700	No	Operational	No Perceptible Improvement	Effective	Good	Adequate	Water shortage due to unplanned distribution of private connections.
Koteli	Dadeldhura	1,352	3,243	2,470	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.
Pokhara	Dadeldhura	2,867	6,449	4,058	Yes	Operational	Improved	Effective	Fair	Adequate	Water source prone to pollution.
Gurukhola	Baitadi	1,069	2,801	2,182	Yes	Operational	Improved	Effective	Good	Adequate	No major issues.

Source(s): Asian Development Bank

APPRAISAL AND ACTUAL PROJECT COST

($ million)

	Appraisal Estimate			Actual		
Component	**Foreign**	**Local**	**Total**	**Foreign**	**Local**	**Total**
Part A:						
Community Education and Awareness	0.130	1.540	1.670	0.118	0.546	0.664
Part B:						
Water Supply and Sanitation						
- Water Supply and Sanitation Civil Works	3.370	7.960	11.330	3.714	9.362	13.076
- Materials and Equipment	7.420	0.310	7.730	6.502	0.351	6.853
Subtotal	**10.790**	**8.270**	**19.060**	**10.216**	**9.713**	**19.929**
Part C:						
Implementation Assistance and Institutional Strengthening						
- Incremental Administration	0.000	2.130	2.130	0.000	2.130	2.130
- Equipment and Vehicles	0.310	0.030	0.340	0.336	0.003	0.339
- Office Building and Training Center	0.370	0.710	1.080	0.279	0.651	0.930
- Consulting Services	0.000	1.450	1.450	0.000	0.895	0.895
- District Profiles	0.000	0.430	0.430	0.000	0.366	0.366
Subtotal	**0.680**	**4.750**	**5.430**	**0.615**	**4.045**	**4.660**
Service Charge	0.500	0.000	0.500	0.450	0.000	0.450
Total Project Cost	**12.100**	**14.560**	**26.660**	**11.399**	**14.304**	**25.703**

Sources: Department of Water Supply and Sewerage, and Asian Development Bank

TABLE A5.1: ANNUAL LOAN DISBURSEMENTS

($)

Category	Description	1997	1998	1999	2000	2001	2002	Total
01A	Civil Works - Part B	883,077	2,155,859	2,260,384	2,897,908	0	436,307	8,633,535
01B	Civil Works - Part C	97,904	188,500	330,660	32,516	0		649,580
02	Equipment, Materials and Vehicles	761,718	3,090,553	1,888,139	1,251,820	33,717	57,582	7,083,529
03	District Profiles	65,996	58,894	191,069	47,332	0	3,007	366,298
04	Training (Part A & C)	61,669	88,622	125,305	94,358	0	74,027	443,981
05	Consulting Services	193,850	340,743	164,672	146,838	0	39,255	885,358
06	Service Charge	12,622	40,938	109,814	146,693	139,177	969	450,213
99A	Imprest Advance	431,463	0	0	0	(431,463)	0	0
	Total	2,508,299	5,964,109	5,070,043	4,617,465	(258,569)	611,147	18,512,494

Source: Loan Financial Information System, Asian Development Bank.

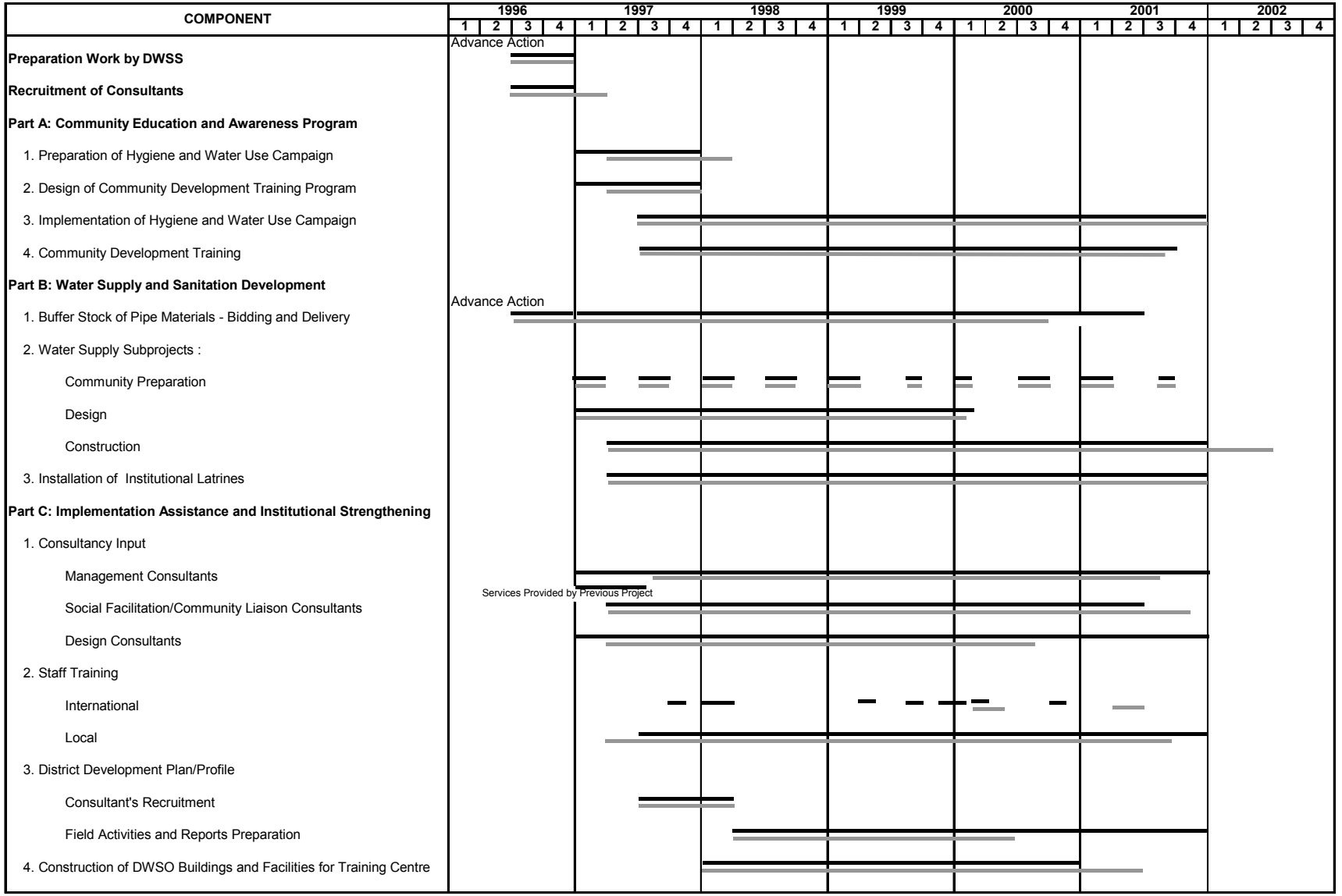
TABLE A5.2: ANNUAL CONTRACT AWARDS AND DISBURSEMENTS

($ million)

Year	Quarter	Contract Awards		Disbursements	
		Projected	Actual	Projected	Actual
1997	I	0.000	0.000	0.000	0.000
	II	0.800	1.326	1.000	2.004
	III	0.000	0.066	0.000	0.036
	IV	0.700	0.109	0.500	0.468
	Subtotal	**1.500**	**1.501**	**1.500**	**2.508**
1998	I	2.838	1.439	0.990	0.215
	II	3.280	0.818	1.121	1.383
	III	0.199	3.065	1.341	1.072
	IV	0.000	0.797	3.014	3.294
	Subtotal	**6.317**	**6.119**	**6.466**	**5.964**
1999	I	0.417	4.915	0.601	0.366
	II	1.321	0.061	1.170	1.450
	III	0.892	0.450	1.721	1.584
	IV	1.017	0.000	1.704	1.670
	Subtotal	**3.647**	**5.426**	**5.196**	**5.070**
2000	I	0.600	0.000	1.000	0.920
	II	0.600	1.104	1.300	0.197
	III	1.300	0.026	1.500	0.201
	IV	1.200	2.601	1.500	3.300
	Subtotal	**3.700**	**3.731**	**5.300**	**4.618**
2001	I	0.280	0.000	0.000	0.000
	II	0.250	0.127	0.342	0.107
	III	0.000	0.642	0.337	0.004
	IV	0.000	0.000	0.437	(0.369)
	Subtotal	**0.530**	**0.769**	**1.116**	**(0.258)**
2002	I	0.000	0.000	0.000	0.053
	II	0.000	0.000	0.000	0.001
	III	0.000	0.514	0.000	0.000
	IV	0.000	0.000	0.000	0.557
	Subtotal	**0.000**	**0.514**	**0.000**	**0.611**
	Total	**15.694**	**18.060**	**19.578**	**18.513**

Source: Loan Financial Information System, Asian Development Bank.

PROJECT IMPLEMENTATION SCHEDULE



Source: Department of Water Supply and Sewerage, and Asian Development Bank

STATUS OF COMPLIANCE WITH MAJOR LOAN COVENANTS

	Covenant	Reference in Loan Agreement	Status of Compliance
	Executing and Implementation Agencies		
1.	During the first six months after project implementation commences, the existing Central Project Management Office (CPMO) shall be strengthened and shall thereafter coordinate all activities required for project implementation and management.	Schedule 5, para. 2	Complied with. CPMO was strengthened, with necessary deputation of Department of Water Supply and Sewerage (DWSS) staff members, and it managed the Project satisfactorily.
2.	At the regional level, existing Regional Project Management Offices (RPMOs) shall oversee implementation and management through existing District Water Supply Offices (DWSOs). To strengthen the support provided by RPMOs, each RPMO shall have a management team and a program support and monitoring team (including social scientists and facilitators). The monitoring team shall be responsible for orientation and training DWSO staff members, training water users committee (WUC) members, school teachers, health workers, and women and children volunteers. The monitoring team shall also participate in District Development Committee (DDC) orientation sessions.	Schedule 5, para. 3	Partly complied with. RPMOs and DWSOs were established with the required staff members and consultants. However, some staff positions (three engineers and sociologists) were not filled, and RPMO and DWSO monitoring activities were weak.
3.	Allocate sufficient funds to allow increased contact between DWSO staff members and WUCs and regular social preparation and management monitoring.		Complied with.
4.	A high-level Project Steering Committee (PSC) shall be established in MHPP, to provide policy guidance and oversee implementation. This PSC shall be chaired by the MHPP secretary and shall have senior officials from Ministry of Finance (MOF), Ministry of Local Development (MLD), and National Planning Commission (NPC) as members. DWSS Director General shall be the committee's member secretary. The PSC will meet semiannually or more often, if necessary. The committee shall be responsible for reviewing all aspects of project implementation but shall be particularly concerned with overseeing action plan implementation.	Schedule 5, para. 4	Partly complied with. The PSC was established as proposed. However, the committee met only four times during the project period and was not proactive.
	Procedures for Subproject Selection and Implementation		
5.	The procedures for subproject selection, implementation, and operation and maintenance (O&M), under the Project's Part B, shall be as set forth in the Borrower's 1991 Directives for the Construction and Management of Water Supply Projects and as further set forth in this schedule.	Schedule 5, para. 5	Complied with. The agreed selection and implementation procedures were generally followed, and WUCs were trained in and introduced to O&M procedures. Of the 322 subprojects, 315 were handed over to WUCs.
6.	The procedures of the selection of subprojects shall include: (i) Village Development Committees (VDCs) and DDCs shall inform communities of subproject selection procedures; (ii) DWSOs shall provide assistance to communities to develop internal resource management plans, source selection criteria, subproject scopes, and	Schedule 5, para. 6	Complied with. Initiated by DWSO staff members and consultants. Complied with. Assisted by DWSO staff members and consultants.

Continued on next page

	Covenant	Reference in Loan Agreement	Status of Compliance
	service area delineations; (iii) community requests for participation in subprojects shall be submitted to DDCs and DWSOs on a prescribed form containing information identifying present water sources, hardship incurred in acquiring water, and community willingness to participate in subproject implementation and subsequent O&M and shall have been endorsed by VDCs; (iv) DWSOs shall send teams of community development and technical specialists to the communities to identify requests and shall undertake prefeasibility surveys and prepare subproject identification reports (SIRs); (v) DWSOs thereafter shall prepare lists of proposed subprojects in order of priority for implementation (district priority lists). The proposed subprojects shall be prioritized on the basis of the subproject selection criteria set forth in para. 8 of this schedule. DWSOs shall advise communities of their responsibilities during the design, construction, and operation phases of subprojects and assist communities in forming and registering WUCs with the District Water Resources Committee; (vi) DWSOs shall send district priority lists, together with SIRs, to RPMOs for review, preparation of a list of subprojects in order of priority (regional priority lists) for implementation, and submission of regional priority lists, together with SIRs, to CPMO; (vii) CPMO shall review the regional priority lists and develop project priority lists and forward them, through DWSS, to MHPP and NPC, so that subprojects are accommodated in the national program; and (viii) subprojects approved by NPC and MOF shall be taken up for processing through a users' needs survey and comprehensive technoeconomic appraisal, in accordance with standards and criteria agreed between the Borrower and Asian Development Bank (ADB) for the Third Project.		Complied with. Prescribed procedure was generally followed. Complied with. Identification procedures were followed, and SIRs were prepared and are available at DWSOs. Complied with. Prioritization process was generally followed. Complied with. Complied with. Complied with. Three hundred and twenty-three appraisal reports were submitted to ADB.
	Selection Criteria for Water Supply Subprojects		
7.	DWSOs shall select proposed water supply subprojects for assessment on the basis of SIRs and in accordance with criteria acceptable to ADB, which shall include the following: (i) hardship in areas that is created by lack of drinking water; (ii) improvement options that are likely to be available; (iii) WUCs that have been formed and indicated willingness to be registered with the District Water Resources Committee; (iv) WUCs that have expressed a written willingness to participate in the design and construction and full maintenance of completed facilities; and (v) subprojects that are ranked highest in the priority list for the district.	Schedule 5, para. 8	Complied with. The selection criteria, comprising the weighted scoring system agreed with ADB, were generally applied for subproject selection.
8.	DWSOs shall include proposed subprojects for final selection in accordance with criteria acceptable to ADB.	Schedule 5, para. 9	Complied with.

Continued on next page

	Covenant	Reference in Loan Agreement	Status of Compliance
	Selection Criteria for Sanitation Subprojects		
9.	DWSOs shall find proposed sanitation subprojects suitable for final consideration in accordance with criteria acceptable to ADB, which shall include the following: (i) beneficiaries have expressed an interest in improved hygiene, a need for improved sanitation, and a willingness to provide the raw materials and labor necessary for the construction of latrines; (ii) environmental impacts have been identified, mitigative measures have been proposed, and necessary approvals have been obtained; (iii) beneficiaries have completed their training and have agreed to maintain latrines; (iv) contracts between DWSS, WUCs, and owners of latrines related to the implementation and maintenance of these latrines have been executed; and (v) subprojects have been rated highest on district priority lists.		Complied with. Community education programs were launched, and about 1,277 institutional latrines (out of the 900 targeted) were completed following the selection criteria. Additionally, more than 33,000 private latrines were constructed.
	Other Implementation Arrangements		
	Midterm Review		
10.	Within 2 years of the effective date, a midterm review (MTR) will be carried out to assess the overall progress made in project implementation and make appropriate adjustments in project design or implementation arrangements, as necessary.	Schedule 5, para. 12	Complied with. The MTR was jointly undertaken by the Government and ADB from 22 December 1998 to 12 January 1999.
	Reports and Accounts		
11.	DWSS shall: (i) maintain proper accounts and records, to facilitate the identification of sources of funds and expenditures incurred for the Project and generation of reports; (ii) follow the procedures prescribed for all ADB-assisted projects in the manual on a simplified and integrated project accounting procedure prepared under ADB TA 2091-NEP [16]; and (iii) submit to ADB an annual performance report describing project progress; benefit monitoring and evaluation (BME) results; changes in DWSS during the period; and progress made in resolving sector issues, if any.	Schedule 5, para. 13	Complied with, based on sample observation of the MTR, regular review missions, and PCR missions. Complied with. Compiled with. Annual performance reports were generally provided in a timely manner.
12.	Every fourth month, each RPMO shall submit a progress report to CPMO, and CPMO will consolidate the reports and provide a single report to ADB. CPMO's report shall be in the format agreed between the Government and ADB for the Third Project.	Schedule 5, para 14.	Complied with. The four-month progress reports were generally provided in a timely manner.
13.	CPMO shall prepare a subproject completion report covering all completed subprojects during the fiscal year and shall submit this report to ADB within 6 months of the completion of the fiscal year. The report shall include information on and analysis of the execution and initial operation of the subproject, including WUC performance and community views.	Schedule 5, para. 15	Complied with. Subproject completion reports were provided for 300 subprojects. The Government's PCR, covering all subprojects, was provided in December 2002.

[16] ADB. *Training in Accounting and Disbursements of Accounting Staff of Selected Executing Agencies and Government Departments.* Manila

Continued on next page

	Covenant	Reference in Loan Agreement	Status of Compliance
14.	DWSS will forward to ADB, in English, within 12 months after the end of each related fiscal year, copies of audited accounts and financial statements.		Compiled with. Latest accounts for FY2001/02 were submitted on 24 March 2003.
	Operation and Maintenance		
15.	DWSS shall ensure that O&M systems and procedures shall be based on the directives and those adopted under the Third Project. DWSS shall also ensure that all O&M activities are governed by DWSS's O&M Manual for Community-based Gravity Flow Rural Water Supply Schemes, Volume III: Policy and Procedures (1993), and any amendments thereto.	Schedule 5, para. 16	Complied with.
16.	Review DWSS O&M policies to provide for appropriate guidance and monitoring scales in respect of village maintenance workers and WUCs. Develop a revised O&M program to enable greater technical support to WUCs and village maintenance workers through increased frequency of visits (by March 1997)		Complied with. A revised O&M Policy was approved in October 1999.
17.	DWSS shall ensure that each WUC establishes and maintains a bank account. The chairperson and treasurer of each WUC shall be responsible for the operation of such a bank account. DWSS shall also ensure that each WUC establishes and operates a maintenance fund to cover O&M costs and determines and collects a water tariff to meet O&M costs. The initially collected water tariff shall be retained in a time deposit, and each WUC shall only have access to interest earned on the capital sum.	Schedule 5, para. 19	Complied with. The PCR Mission observed that mobilized and trained WUCs in the subprojects visited are engaged in this process.
18.	DWSS shall ensure that each WUC appoints village maintenance workers during the implementation of the Project's Part A, so that they can be trained by DWSO staff members during the implementation of the Project's Part B. DWSS shall also ensure that each WUC organizes semiannual community meetings to report to the community on the O&M status of the water supply system, each WUC's financial status, the O&M cost details, the O&M needs and plans for future periods, and the need to adjust the water tariff. DWSS shall further ensure that each WUC maintains proper records of such meetings and keeps VDCs and DWSOs informed of changes in O&M arrangements and plans.	Schedule 5, para. 20	Complied with.
19.	DWSS shall continue to inculcate O&M responsibilities in user communities and provide technical support until such time as the communities are able to manage water supply systems independently.	Schedule 5, para. 22	Complied with. DWSS provided support to the subprojects.
20.	Develop and introduce a program of (i) making water quality surveillance an integral function of DWSOs; (ii) preparing a water quality surveillance manual indicating objectives procedures and reporting requirements; (iii) training key DWSO staff members in appropriate surveillance methodologies and procedures; and (iv) identifying and delineating the complementary role to be played by WUCs in preparing annual surveillance programs at the district level and monitoring their effectiveness at the regional and central levels (by		Partly complied with. Only a pilot water quality monitoring program was implemented with necessary training and field activities, involving WUCs. Despite encouraging results, the program was not internalized within DWSS.

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	Covenant	Reference in Loan Agreement	Status of Compliance
	March 1997).		
	Land and Water Rights		
21.	The Borrower shall ensure that the communities participating in the Project assume the responsibility for acquiring rights-of-way for transmission pipes and any other land use for the subprojects to be implemented under the Project's Part B. In the event that a water source is located in a restricted conservation area, the Borrower shall cause DWSS to seek to locate alternative sources and clearance from appropriate authorities for the use of such water sources, as necessary. The Borrower shall make available the estimated $0.07 million that shall be required to meet the cost of land for the construction of district water supply offices. The Borrower shall acquire the necessary land in a timely manner and make adequate budgetary allocations to cover acquisition costs. The Borrower shall impose a moratorium on the use of land for other purposes once the sites for the district water supply offices are determined during detailed surveys.	Schedule 5, para. 23–para. 26	Complied with. Participating communities provided necessary land for their respective subprojects without any major issues. Land for all 22 DWSO buildings was acquired.
	Benefit Monitoring and Evaluation		
22.	DWSS will undertake BME for the Project on lines similar to the existing BME arrangements for the Third Project. DWSS shall use information collected during subproject implementation and subsequent monitoring, supplemented with additional benefit surveys. CPMO shall submit a detailed implementation plan for monitoring benefits and for preparing benchmark information for the ADB's review and concurrence within six months of the effective date. Annual BME reports will be furnished to ADB by CPMO throughout project implementation.	Schedule 5, para. 27 and para. 28	Partly complied with. The BME report on the first 17 completed subprojects was submitted on 31 October 2000. The second BME report, for 23 subprojects, was submitted in September 2001. Additional BMEs have also been conducted by RPMOs. However, the BMEs' quality was not satisfactory, due to lack of baseline data.
	Legislative Changes		
23.	Unless otherwise agreed between the Borrower and ADB by 31 December 1996, the Borrower shall have approved the National Water Supply Sector Policy, and, by 31 March 1997, the Borrower shall have widely publicized this policy through publication in local newspapers and other forms of mass communication;	Schedule 5, para. 29	Complied with. The policy was approved in April 1998.
24.	By 1 February 1997, the Borrower of DWSS shall have prepared and submitted to ADB a review; a draft of the proposed drinking water supply regulations that shall include provisions on WUC functions, duties, and powers; and a list of dispute resolution procedures and processes.	Schedule 5, para. 30	Complied with. A draft regulation was submitted to ADB in May 1998.
25.	By 1 May 1997, the Borrower shall have notified the Drinking Water Supply Regulations.	Schedule 5, para. 31	Compiled with. The regulation was notified on 24 September 1998.
26.	DWSS shall ensure that each WUC participating in the Project is formed pursuant to the Water Resources Act, 2049 (1992) and are registered with the District Water Resources Committee, under the Water Resources Regulation, 2050 (1993). DWSS shall also ensure that the contracts between the Government and WUCs set forth that WUCs have been so formed and registered.	Schedule 5, para. 32	Partly complied with. While DWSOs and WUCs have entered into agreements, some 20% of WUCs were not registered.

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	Covenant	Reference in Loan Agreement	Status of Compliance
	After the notification of the drinking water supply regulations, the contracts shall also make reference to such regulations.		
27.	By March 1997, establish a rural water supply and sanitation group that will meet quarterly.		Partly complied with. The group was established on 9 January 1998. However, its meetings were not regular and effective. The group met only three times during the project period.
	Women-in-Development		
28.	By 31 December 1998, the Borrower shall implement a program to increase the number of women workers in DWSOs. DWSS shall recruit, as necessary, women workers to ensure that (i) in DWSOs with one engineer, there shall be at least two women workers, and (ii) in DWSOs with three or more engineers, there shall be at least four women workers. DWSS shall develop a program to train women workers commensurate with their recruitment. DWSS shall ensure that of the pool of 40 technicians to be maintained at the regional level, effective October 1996, at least 25% shall be women.	Schedule 5, para. 33 and para. 34	Partly complied with. The women worker ratio was met in only 24 of 40 districts. The 25% ratio in the pool of 40 technicians could not be maintained, due to the difficulty in engaging women staff members.
	Nongovernment Organizations		
29.	Implement the program up to 50 NGOs in tube well-based rural water supply projects in 1996/97 and, based on an evaluation of the program, extend it in 1997/98 to small-scale, gravity-fed piped schemes.		Complied with. However, in FY1999/00, 46 NGOs were mobilized to undertake community training and small construction works. A similar program was implemented in FY2000/01, engaging 31 additional NGOs.

UTILIZATION OF CONSULTING SERVICES

	Consultants	Person-Months Appraisal	Person-Months Actual	Utilization (%)
1.	Project Management (CPMO and RPMOs)	240	175	73
2.	Social Facilitation (CPMO and RPMOs)	192	174	91
3.	Subproject Enginneering Design (RPMOs)	324	319	98
	Total	**756**	**668**	**88**
4.	District Water Supply Profiles	–	109	–

– = not available; CPMO = Central Project Management Office; RPMOs = Regional Project Management Office.

Sources: Department of Water Supply and Sewerage, and Asian Development Bank

EQUIPMENT, MATERIALS, AND VEHICLES PROCURED

Name of Contractor	Item	Mode of Procurement	Contract Date	Country of Origin of the Contractor	Original Contract Amount in NRs	Contract Amount in $ equivalent	Final Payment $ equivalent
Civil Works							
M/S Bajra Guru - Langhali JV	Construction of training building complex	IS	12 May 1998	Nepal	16,183,566	209,260	102,834
Various small contractors	Construction of 22 District Water Supply Office	LCB	Various	Nepal	48,376,960	480,611	480,611
Various small contractors	Overhead tank construction and deep tubewell boring	LCB	Various	Nepal	25,352,284	251,868	251,868
Various User's Group	Construction of 313 water supply subproject	FA	Various	Nepal	656,014,000	9,310,446	8,202,907
Equipment, Vehicles and Materials							
ORI-PLAST Ltd. India	Supply and delivery of HDPE pipes	ICB	3 Apr 1997	India	32,920,181	573,922	573,922
BB Trade Links/SELEX SINGAPORE	Photocopy and accessories	IS	23 Jul 1997	Nepal	926,280	14,640	14,640
Muktinath Trade Concern	Computer and accessories	IS	6 Aug 1997	Nepal	1,815,952	31,692	31,692
Sigma Resources	UPS	IS	13 Jul 1997	Nepal	85,500	4,293	4,293
Bagmati Engg. Works	20 units of motorcycles	IS	1 Sep 1997	Nepal	905,430	15,800	15,800
Dugar Brothers	4 whill pick-ups vehicles	IS	29 Sep 1997	Nepal	5,968,200	93,109	93,109
Unitesd Traders Syndicate	4 whill pick-ups vehicles	IS	14 Sep 1997	Nepal	1,022,880	15,724	15,724
ORI-PLAST Ltd. India	Supply and delivery of HDPE pipes	IS	25 Nov 1997	India	7,028,159	573,922	573,922
Tandan Plastics	Supply and delivery of HDPE pipes	ICB	24 Feb 1998	Nepal	21,658,280	340,539	340,539
Nepal Plastics	Supply and delivery of HDPE pipes	ICB	15 Feb 1998	Nepal	20,014,619	314,596	361,898
Laxmi Plastics	Supply and delivery of HDPE pipes	ICB	15 Feb 1998	Nepal	12,097,292	190,209	218,624
BB Trade Links/SELEX SINGAPORE	Photocopy and accessories	IS	10 Mar 1998	Nepal	791,101	9,303	9,303
Bhagawati Steel Industries	Supply and delivery of GMS pipes	IS	5 Mar 1998	Nepal	3,393,922	54,216	54,216

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EQUIPMENT, MATERIALS, AND VEHICLES PROCURED

Name of Contractor	Item	Mode of Procurement	Contract Date	Country of Origin of the Contractor	Original Contract Amount in NRs	Contract Amount in $ equivalent	Final Payment $ equivalent
ORI-PLAST Ltd. India	Supply and delivery of HDPE pipes	IS	11 Feb 1998	India	9,687,498	163,848	163,848
Hulas Steel Industries	Supply and delivery of GMS pipes	IS	4 Mar 1998	Nepal	5,798,388	92,626	92,626
ORI-PLAST Ltd. India	Supply and delivery of HDPE pipes	IS	17 Mar 1998	India	4,834,919	81,060	79,059
GRS International	Computer and accessories	IS	12 Mar 1998	Nepal	1,775,894	22,932	22,932
Pacific Int'l Trading	Abney level, measuring tapes & altimeters	IS	2 Apr 1998	Nepal	724,853	10,344	10,344
Hulas Steel Industries	Supply and delivery of GMS pipes	ICB	10 Jun 1998	Nepal	11,008,188	172,813	172,813
Bhagawati Steel Industries	Supply and delivery of GMS pipes	ICB	10 Jun 1998	Nepal	6,397,392	100,430	100,430
Morang Auto Works	23 units of motorcycle	Others	5 Jul 1998	Nepal	1,718,330	24,840	24,840
Apex International	Theodolite and aliminum staff	IS	27 Jul 1998	Nepal	905,243	13,666	13,666
Muktinath Trade Concern	Computer and accessories	IS	17 Jul 1998	Nepal	934,523	14,106	14,106
ORI-PLAST Ltd. India	Supply and delivery of HDPE pipes	ICB	20 Jan 1999	India	91,605,195	1,330,010	1,217,139
Unitesd Traders Syndicate	4 Wheel double-cab pick-ups	DP	31 Jan 1999	Nepal	5,258,523	76,954	76,954
Good Luck Steel Tubes, India	Supply and delivery of GMS pipes	IS	17 Feb 1999	India	3,785,423	55,454	55,464
Hulas Steel Industries	Supply and delivery of GMS pipes	IS	17 Feb 1999	Nepal	9,131,890	133,800	132,200
International Sales Corporation	Supply and delivery of ASTM pipes	IS	26 Apr 1999	India	3,627,800	53,350	61,110
Sing & San Construction	Supply and delivery of ductile iron pipes	IS	27 Jul 1999	Singapore	29,561,617	428,119	427,826
Sunderland Technologies	Audio equipment and programmable calculators	DP	8 Jul 1999	Singapore	1,508,000	21,716	21,716

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EQUIPMENT, MATERIALS, AND VEHICLES PROCURED

Name of Contractor	Item	Mode of Procurement	Contract Date	Country of Origin of the Contractor	Original Contract Amount in NRs	Contract Amount in $ equivalent	Final Payment $ equivalent
International Sales Corporation	Submersible water pumps	IS	12 Jul 2000	India	1,911,887	27,590	26,240
Inter-continental Business Network	TV, VCR, projectors, and airconditioners	IS	15 Jul 1998	Nepal	1,071,649	21,599	21,599
Various ten contractors	Supply and delivery of HDPE pipes	LCB	Various	Nepal	45,719,346	680,640	638,724
Various	Pipe fittings, tools and other materials	DP		Nepal	85,647,626	1,215,550	1,215,550
	Total				**431,241,980**	**6,973,411**	**6,896,868**

DP = direct purchase, FA = force account; IS = international shopping, ICB = international competitive bidding, LCB = local competitive bidding, NRs = Nepalese rupee.

Source(s): Department of Water Supply and Sewerage, and Asian Development Bank

ECONOMIC AND FINANCIAL ANALYSIS

A. Economic Internal Rate of Return

1. The PCR mission used the same methodology used at appraisal for economic analysis of the Project (Appendix 10). The economic internal rate of return (EIRR) has been computed for a sample group of 30 representative subprojects, selected through stratified random sampling. The Project included 322 subprojects implemented in 40 districts.

2. The PCR survey of the sample subprojects showed a wide range of social and economic benefits as a result of the Project such as savings in time and energy, reduction in outlays on medical expenditure as a result of lower morbidity, increased opportunities for female children to attend school, and increased household incomes through kitchen gardening and better maintenance of livestock. Despite an attempt by the PCR Mission, it was not possible to properly measure these benefits due to several limitations: (i) some of the benefits are not immediately evident as these are long-term in nature; (ii) these benefits varied significantly across subprojects and households within a given community; and (iii) proper baseline data were not available. Therefore, time taken by households for collecting water was considered as the only project benefit that can be measured reliably.

3. Reduction in time taken to fetch water, including waiting time at source, also entails a number of direct and indirect benefits such as increased consumption of water leading to improved hygiene and sanitation conditions, improved quality of life of women household members, and utilization of the time saved for social and economic activities. For comparability, the PCR economic analysis followed the methodology and assumptions used at appraisal, i.e., valuation of time saved in terms of daily wage rates.

4. EIRR for the individual sample subprojects ranged from 3% to 47% (Table A10.1). The EIRR for the 22 sample subprojects was above 10%, and for four subprojects below 10% (two gravity-fed and two pumping schemes were not fully operational). The composite EIRR for the 22 gravity-fed schemes is 27.8% (Table A10.2). EIRR for the four pumping schemes is 14.8%.

5. **Assumptions.** The economic analysis was based on the following assumptions followed at appraisal:

(i) The year in which a scheme is completed is taken as its base year.
(ii) Each scheme is assumed to have an economic life of 15 years, based on its design, with no residual value in year 15.
(iii) Investment costs have been converted to economic costs using a standard conversion factor of 0.9.
(iv) Operation and maintenance costs at 3% of the capital costs are included in the investment costs.
(v) Only 30% of time saved is used for economically productive purposes, and has been valued at the economic wage rate prevailing at the various subproject areas. Time saved is estimated at 1.5–3 hours per household per day for different subprojects, based on the PCR survey, lower than the appraisal estimate of 4 hours per household per day.

B. Financial Analysis

6. The financial rate of return (FIRR) could not be computed due to low water charges. These are not adequate to recover the capital costs. The Project was designed to recover essentially the O&M costs at the community level, and FIRR was not computed at appraisal. Even then, some of the communities were not able to generate adequate revenues to finance the O&M costs, primarily due to low water charges and only partial operation of the water supply systems. In particular, the pumping schemes were operating significantly below their design capacities due to water quality and distribution problems.

TABLE A10.1: SUMMARY RESULTS OF ECONOMIC ANALYSIS

Projects	District	Average Time Saved per Household (Hours/day)	Local Daily Wage Rate (NRs)	Adjusted Capital Investment Cost (NRs) [a]	EIRR (%)
Gravity-fed Schemes					
1. Pashuptinagar	Ilam	2.50	80	12,866,941	11.7
2. Shantinagar	Jhapa	2.50	75	13,971,679	47.1
3. Chilimgadhi	Jhapa	2.50	70	2,970,978	28.4
4. Beltar	Jhapa	4.00	70	15,105,835	44.3
5. Barachhetra	Sunsari	2.00	80	11,274,494	22.6
6. Hile Bazar	Dhankuta	2.00	80	4,237,992	46.5
7. Takiyapur	Dang	1.50	60	2,318,187	15.6
8. Baddnda	Pyuthan	3.00	50	1,210,136	28.2
9. Khaira	Pyuthan	3.00	50	2,919,271	Not yet operational
10. Khokari	Banke	2.00	70	1,346,439	11.4
11. Babiyachaur	Surkhet	2.50	70	4,895,712	44.8
12. Chhinchu-I	Surkhet	2.50	70	6,894,248	19.8
13. Gumi-II	Surkhet	2.00	70	3,032,320	31.6
14. Jarbuta-II	Surkhet	3.00	60	2,956,672	13.0
15. Khalanga	Jumla	2.00	80	16,014,498	29.1
16. Baskota	Kailali	1.50	80	2,783,174	17.7
17. Malakheti-II	Kailali	1.50	80	2,537,348	3.3
18. Jahalari/Fuleli	Kanchanpur	1.50	80	6,656,547	Not yet operational
19. Shantipur	Kanchanpur	1.50	80	6,207,742	11.6
20. Jogbudhura II	Dadheldhura	2.00	60	5,231,027	18.8
21. Koteli	Dadheldhura	3.00	70	2,761,316	29.5
22. Pokhara	Dadheldhura	3.00	70	4,553,172	40.7
23. Gurukhola	Batadi	2.00	60	2,415,808	7.1
24. Bhaluwang	Dang	1.50	70	9,267,778	9.9
Pumping Schemes					
1. Urlabari	Morang	1.50	80	21,265,858	12.8
2. Salakpur	Morang	1.50	80	11,795,720	17.2
3. Haraicha	Morang	2.00	70	8,823,803	18.8
4. Jhumka	Sunsari	1.50	70	14,325,837	13.0
5. Mirchaiya	Siraha	1.50	80	19,426,772	Not yet operational
6. Gol Bazar	Siraha	1.50	80	15,864,030	Partly operational

EIRR = economic internal rate of return; NRs = Nepalese rupees.

[a] Adjusted with 0.9 conversion factor, and including O & M cost estimated at 3% of the capital cost.

Source(s): Asian Development Bank

TABLE A10.2: COMPOSITE ECONOMIC INTERNAL RATE OF RETURN FOR SCHEMES VISITED BY THE PCR MISSION

Year	Capital and O&M Cost (NRs)	Benefits (NRs)	Net Economic Benefits (NRs)	EIRR (%)
22 Gravity-fed Schemes				
2001	134,834,542	26,404,326	(108,430,216)	27.8
2002	–	26,979,531	26,979,531	–
2003	–	40,337,383	40,337,383	–
2004	–	28,101,491	28,101,491	–
2005	–	28,720,675	28,720,675	–
2006	–	29,355,877	29,355,877	–
2007	–	30,007,584	30,007,584	–
2008	–	30,676,301	30,676,301	–
2009	–	31,362,549	31,362,549	–
2010	–	32,066,869	32,066,869	–
2011	–	32,789,821	32,789,821	–
2012	–	33,531,985	33,531,985	–
2013	–	34,293,963	34,293,963	–
2014	–	35,076,376	35,076,376	–
2015	–	35,879,870	35,879,870	–
4 Pumping Schemes				
2001	55,795,000	6,947,303	48,847,697	14.8
2002	–	7,189,738	7,189,738	–
2003	–	7,440,879	7,440,879	–
2004	–	7,701,047	7,701,047	–
2005	–	7,970,576	7,970,576	–
2006	–	8,249,809	8,249,809	–
2007	–	8,539,105	8,539,105	–
2008	–	8,838,835	8,838,835	–
2009	–	9,149,386	9,149,386	–
2010	–	9,471,156	9,471,156	–
2011	–	9,804,561	9,804,561	–
2012	–	10,150,031	10,150,031	–
2013	–	10,508,014	10,508,014	–
2014	–	10,878,974	10,878,974	–
2015	–	11,263,391	11,263,391	–

– = not calculated; EIRR = economic internal rate of return; NRs = Nepalese rupees.
Source(s): Asian Development Bank